



VIA OVERNIGHT MAIL

Ogden Energy Group, Inc.
40 Lane Road
Fairfield, NJ 07007-2615 U.S.A.
973 882 9000

December 9, 1999

Ms. Jan Rae Clark
Solid Waste Division
Florida Department of environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

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DEC 15 1999
Department of Environmental Protection
BY SOUTHWEST DISTRICT

Reference: Pasco County Waste to Energy Facility
CAA Air Pollution Control System Retrofit Project
Spring Hill, Florida

Subject: Application for Preliminary Examination

Dear Ms. Clark:

Please find attached four (4) signed originals of the Application for Preliminary Examination of Resource Recovery and Recycling Equipment for the above stated project. We would appreciate your promptly processing this application.

Should the Department have any questions, comments or a need for additional information to complete your examination, please let us know.

Very truly yours,

L. Peter Young, P.E.
Vice President - Project management

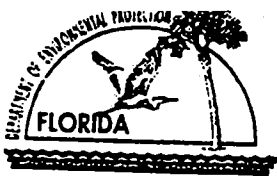
cc: S. Priest - Pasco Facility
pf 1.4 DEP

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DEC 13 1999

Solid Waste Section





Department of Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DEP Form #	62-701.900(6)
Ap. for Prelim. Exam. & Final Exam	
Form Title of Resource Recovery Equipment	
Effective Date	12/23/98
DEP Application No.	
(Filled in By DEP)	

Application for ☐ Preliminary Examination ☐ Final Examination and Certification of Resource Recovery Equipment

An application for preliminary examination of proposed Resource Recovery equipment is required for issuance of a preliminary examination report, pursuant to Rule 62-704.400, Florida Administrative Code (F.A.C.). An application for final examination and certification is required for final examination and certification of Resource Recovery equipment, pursuant to Rule 62-704.410, F.A.C. An applicant may not apply for final examination and certification of Resource Recovery equipment before that equipment is installed.

1. Identity of Applicant

Applicant's Name: Ogden Martin Systems of Pasco, Inc.

Mailing Address: 40 Lane Road, P.O. Box 2615, Fairfield NJ 07007-2615. Attn: Peter Young

Phone Number: (973) 882-7246

2. a. Name of facility or project: Pasco County Resource Recovery Facility
- b. Construction permit number for the facility: PSD-FL -127 Facility ID No. 1010056
- c. Street address of the facility(main entrance): 14230 Hays Road, Spring Hill, FL 34610
- d. Estimate date when facility will be ready for operation: March 2000

3. Name of the unit of local government that will eventually own or benefit from the resource recovery equipment: Pasco County, FL

Attach proof of contractual agreement between the purchaser of the equipment and the unit of local government which is to benefit from or own the resource recovery equipment.

(Refer to Attachment A, Section 1.0)

4. Describe the resource recovery process (include technology used and materials or energy recovered). Attach descriptions (including blueprints, drawings, engineering plans, etc.) that will indicate where and how the equipment is integrated into the resource recovery process. Attach additional sheets, if necessary.

Refer to Attachment A "SNCR and CEM Retrofit Project Background and Technical Descriptions" including enclosed drawings referenced in

Section 5.0

5. Attach a numbered listing of equipment which the applicant declares is qualified resource recovery equipment subject to the exemption provisions of Rules 62-704.400, 62-704.410, 62-704.420, and Rule 12A-1.001(27), F.A.C., using the format on page 3.
- a. Use the "Item No." column to sequentially number equipment on the list.
- b. Use the "Item Description" column to provide the name and a brief description of the equipment.
- c. Use the "Number of Pieces" column to indicate how many of this particular piece of equipment are being certified.
- d. Use the "Process Description" column to indicated the page number of the process description text where the equipment and its function is described.
- If drawings are submitted as supporting documentation:
- e. Use the "Drawing Number" column to indicate the drawing number on which the equipment is shown.
- f. Use the "Drawing Item No." column to indicate what number on the drawing represents this piece of equipment.
- g. Use the "Equipment Cost" column to indicate the cost of the equipment.

6. Certification A shall be completed if the applicant wishes to certify only equipment appearing on the list in Rule 62-704.600, F.A.C.

Certification B shall be completed if the applicant wishes to certify equipment not appearing on the list in Rule 62-704.600, F.A.C., or equipment appearing on the list in Rule 62-704.600, F.A.C. together with auxiliary equipment.

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Certification A

I hereby certify that the equipment contained herein is Resource Recovery Equipment as defined in Rule 62-701.200(97), F.A.C. I further certify that all of the equipment meets the criteria set forth in Rule 62-704.420, F.A.C., and all of the equipment appears on the list in Rule 62-704.600, F.A.C.

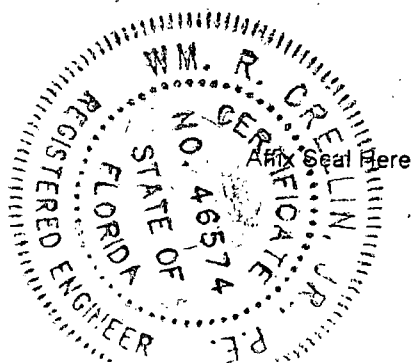
Signature of Purchaser

Name and Title

Date _____

Certification B

I hereby certify that the equipment contained herein is Resource Recovery Equipment as defined in Rule 62-701.200(97), F.A.C. I further certify that the equipment, including all auxiliary equipment associated with that equipment, meets the criteria set forth in Rule 62-704.420, F.A.C.



Signature of Professional Engineer

Wm. R. Crellin, Jr. - Regional Mgr.

Name and Title

Florida Registration No. 46574

Date 12/10/99

7. The undersigned is aware that statements made in this form and attached exhibits constitute an application for certification of Resource Recovery equipment from the Florida Department of Environmental Protection. The applicant certifies that the information in this application is true, correct, and complete to the best of his knowledge and belief.

Signature of Applicant

L. Peter Young, Vice President - Project

Name and Title

Date 12/9/99

Management

The applicant shall submit four (4) copies of the application to:

Environmental Administrator
Solid Waste Section
Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road, MS 4565
Tallahassee, Florida 32399-2400
(904) 488-0300

DEP Form #	62-201.900(6)
Ap. for Pre-Int. Exam. & Final Status	
Form Title of Resource Recovery Equipment	
Effective Date	12/29/98
DEP Application No.	(Filled in By DEP)

Listing of Major Equipment for Pasco County Resource Recovery Facility SNCR and
(Facility Name)
CEM Retrofit Project

Item No.	Item Description	Number of Pieces	Process Description Page Reference	Drawing No.	Drawing Item No.	Equipment Cost
	<p>A listing of the major equipment is provided in Attachment A, Section 6.0 of this Application for Preliminary Examination.</p> <p>The estimated cost for this equipment is included in Attachment A, Section 7.0.</p>					

ATTACHMENT A

Pasco County Resource Recovery Facility

Application for Preliminary Examination for Sales Tax Exemption

SNCR and CEM Retrofit Project

Background and Technical Descriptions

SECTION 1.0	Introduction
SECTION 2.0	Regulatory Review
SECTION 3.0	Technical Description of Proposed Nitrogen Oxide Emmissions Control System
SECTION 4.0	Technical Description of Proposed CEM System Modifications
SECTION 5.0	Drawings
SECTION 6.0	List of Equipment
SECTION 7.0	Estimated Cost of Equipment

Ogden Martin Systems of Pasco, Inc.
December 7, 1999

SECTION 1.0

INTRODUCTION

The Pasco County Resource Recovery Facility ("the Facility") is a waste-to-energy facility with a nominal solid waste processing capacity of 1050 tons per day (TPD) at an HHV of 4800 Btu/lb. It consists of three 350 TPD combustion units which utilize the proprietary Martin GmbH reverse reciprocating grate and automatic combustion control technology. The Facility, owned by Pasco County, Florida, was constructed and is operated by Ogden Martin Systems of Pasco, Inc. (OMS Pasco), a wholly owned subsidiary of Ogden Energy Group, Inc., hereinafter referred to collectively as Ogden. The Facility's combustion units are currently equipped with dry scrubbers for the control of acid gases, fabric filter baghouses for the control of particulate emissions and carbon injection for the control of mercury emissions. With Ogden as the operator, the Facility provides long-term solid waste management and disposal services for Pasco County, Florida, via a long-term Service Agreement with Pasco County ("the County").

The County, aware of the need to retrofit the Facility to enable it to comply with the Federal Municipal Waste Combustor (MWC) Subpart Cb Emission Guidelines, executed an agreement with Ogden to address the new requirements (Attachment A-1). Ogden is currently proceeding with the project as described herein in order to comply with required regulatory dates. The project's resource recovery equipment being retrofitted into the Facility will allow the Facility to continue its beneficial services to Pasco County.

SECTION 2.0

REGULATORY REVIEW

This Section summarizes the current status and implementation requirements of Federal MWC Subpart Cb Emission Guidelines and applicable State of Florida regulations.

2.1 Regulatory Background

On December 20, 1989, the EPA proposed emission guidelines for MWC's in Subpart Ca of 40 CFR 60. The guidelines were subsequently promulgated on February 11, 1991 and were developed under the authority of paragraph (b) of Section 111 of the Clean Air Act of 1977. The 1990 Clean Air Act Amendments (CAAA) required the EPA to review these emission guidelines and determine if they were fully consistent with the requirements of Section 129 of the Clean Air Act.

On December 19, 1995, USEPA issued its Final Emissions Guidelines for MWC's built prior to September 20, 1994. Implementation of these Guidelines by each state is dictated by requirements set forth in what is referred to as a Clean Air Act Amendment (CAAA) 111(d) State plan. Florida submitted its 111(d) plan to the USEPA in December 1996. The EPA approved Florida's 111(d) plan on November 13, 1997.

On August 25, 1997, the EPA issued a direct final rule to reflect slight modification of the December 19, 1995 emissions limits for four of the Maximum Achievable Control Technology (or MACT) criteria (NO_x, lead, HCl, and SO₂).

In the Federal Register of June 20, 1996, the EPA promulgated the Accidental Release Prevention Requirements for Risk Management Programs. These regulations were required to be promulgated pursuant to 112(r) of the Clean Air Act Amendments to prevent accidental releases of regulated substances and reduce the severity of those releases which might occur.

It is anticipated that the current list of regulated substances will be revised for consistency purposes with the list of hazardous substances regulated under OSHA's Process Safety Management Standard, which in large part parallels the new 112(r) Risk Management Program. This program, whenever applicable, will also be implemented through the federal Title V air operating permit process, as administered by the State of Florida.

The only regulated substance under the current 112(r) program which could be relevant to the Pasco County Facility retrofit is aqueous ammonia, but only if the Facility stores ammonia with a concentration of 20% (or greater) by weight. Ogden is proposing a NO_x control system which will utilize aqueous ammonia with a concentration of less than 20%. That fact notwithstanding, facility capital improvements discussed herein reflect good engineering practices relative to ammonia storage and handling facilities and include provisions for operator training to reduce the potential for accidental release and for reduction of the adverse impact of accidental ammonia releases at the Facility.

2.2 Emission Criteria

The following classes of constituents are included within the Subpart Cb emission guidelines as set forth in Federal regulations at 40 CFR 60:

- §60.33 b (a): emission limits for MWC metals, i.e., particulate matter, opacity, cadmium, lead, and mercury;
- §60.33 b (b): emission limits for MWC acid gases, expressed as sulfur dioxide and hydrogen chloride;
- §60.33 b (c): emission limits for MWC organics, expressed as total mass dioxins/furans;
- §60.33 b (d): emission limits for nitrogen oxides;
- §60.34 b (a): emission limits for carbon monoxide as an emission guideline for MWC operating practices;
- §60.36 b: emission guidelines for MWC fugitive ash emissions.

The units at the Pasco Facility are classified under Federal Emissions Guidelines as "large" units since their processing capacity exceeds 250 tons/day. The specific December 19, 1995 guidelines and modifications per the August 25, 1997 Final Rule are summarized in Table 1, which also identifies stack testing and CEM monitoring requirements. The emission factors will change slightly when Final Rule Standards take effect in 2002. This proposal anticipates meeting the year 2002 Final MACT Standards. Because the differences between the original and final rules are small, it is anticipated that the facility's Title V Permit will be issued based on the more stringent guideline for each constituent.

The technical bases established by the EPA for the Guidelines, also referred to as Maximum Achievable Control Technology (MACT), are:

- for dioxin/furan limits: Good Combustion Practices (GCP) and Spray Dryer/Electrostatic Precipitator (SD/ESP) or GCP and Spray Dryer/Fabric Filter (SD/FF);
- for Particulate Matter, opacity, cadmium, lead, and mercury limits: GCP and SD/ESP/Carbon Injection or GCP and SD/FF/Carbon Injection;
- for nitrogen oxides limits: Selective Non-Catalytic Reduction (SNCR);
- for fugitive ash emissions limit: wet ash handling or enclosed ash handling.

- for SO_x and HCl limits: Spray Dryer/Electrostatic Precipitator (SD/ESP) or Spray Dryer/Fabric Filter (SD/FF);

Capital improvements required for the Facility to meet the Federal Guidelines, as adopted by the State of Florida, include SNCR for nitrogen oxide emissions control. As detailed in Section 4.0, a complete CEMS upgrade and change out is warranted to ensure adequate data capture and reporting capabilities sufficient to meet the more stringent CAAA requirements. The new CEMS data acquisition system is also needed to allow plant personnel to operate the Facility in accordance with the final MACT requirements.

2.3 Operational Requirements of the CB Guidelines

Operational requirements other than the standards addressed above include the following:

Stack Compliance/Performance Testing

Compliance testing for selected stack emissions will continue to be required on an annual basis. Constituents requiring stack testing under existing air permits and related permit criteria are identified in Table 1. This Table also provides a roster of constituents monitored by CEM alongside final Emissions Guidelines standards for which the retrofit units will be designed. Please note that Table 1 values do not represent OMS of Pasco air emissions guarantees.

Fugitive Ash Compliance/Testing

The Facility shall not cause visible emissions of combustion ash from the conveying system enclosures or buildings in excess of 5 percent of the observation period (i.e., 9 minutes per 3 hour period) as determined by an annual test per EPA Method 22.

Waste Combustor Operation Certification

Facility operators are required to have Qualified Resource Recovery Facility Operator certification within 1 year after the State 111(d) plan approval by the EPA. Current facility operators have already received full certification in accordance with current state and federal rules.

Reporting and Recordkeeping Guidelines

Reporting requirements for Subpart Cb as embodied in Florida's 111(d) plan are described in 40 CFR 60.39b.

FIGURE 2-1

EXCERPTS - FLORIDA 111(D) PLAN FOR

PASCO COUNTY RESOURCE RECOVERY FACILITY ¹

Pasco County Solid Waste

The municipal waste combustion facility in Pasco County consists of three mass burn units. Each unit can burn approximately 350 tons per day of waste and uses a spray dryer, carbon injection and fabric filter to control gaseous emissions. The facility is large and will require more than one year after EPA approval of this plan to comply with all of the standards and conditions of Rules 62-210.300(8)(b) and 62-296.416, F.A.C. Each unit will be retrofitted concurrently. Therefore, all three units will meet the following compliance schedule.

Increment 1 (Submittal of a final control plan):

3 months after EPA approval of this plan.

Increment 2 (Awarding of contracts for control systems or process modifications or orders for purchase of components):

December 31, 1998.

Increment 3 (Initiating on-site construction or installation of the air pollution control device(s) or process changes):

November 15, 1999.

Increment 4 (Completing on-site construction or installation of control equipment or process changes):

March 30, 2000.

Increment 5 (Final compliance):

36 months after EPA approval of this plan or April 19, 2000, whichever is earlier. ²

¹ From the Florida 111(d) plan.

² Increments 1 and 5 notes - EPA approved FDEP's 111(d) plan on November 13, 1997, therefore Increment 1 due date was February 13, 1998 and Increment 5 due date is April 19, 2000 since 36 months after November 13, 1997 is November 13, 2000, therefore the April 19, 2000 default date takes precedence.

SECTION 3.0

TECHNICAL DESCRIPTION OF PROPOSED NITROGEN OXIDE EMISSIONS CONTROL SYSTEM

Ogden recommends an aqueous ammonia injection system, as described below, to achieve the required reduction in NO_x emissions. For reasons described in Section 2.1 of this proposal, aqueous ammonia with an ammonia concentration of less than 20 percent by weight will be purchased, stored and utilized. Refer to the system schematic diagram in Figure 3-1.

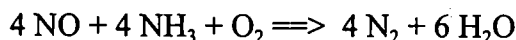
The aqueous ammonia system has been optimized based on experience gained with a similar system in operation for more than three years at the Bristol, Connecticut facility and is similar to systems installed at the Lancaster County, Pennsylvania and Marion County facilities.

3.1 Process Flow Description

The nitrogen oxide emissions control system for the Facility will utilize a Selective Non-Catalytic Reduction (SNCR) system that will inject aqueous ammonia directly into the combustion units. The system will be designed and installed as an independent system, complete with instrumentation, wiring, piping, and accessories.

Aqueous ammonia along with additional carrier water will be injected into each furnace above the combustion grate through multiple nozzles. Nozzles will be positioned on each side of the furnace. Additional wall boxes will also be provided for each combustion unit. The additional wall boxes will permit relocation of the injection nozzles to optimize performance, if required.

The main chemical reaction forming the basis of the SNCR process is:



The principal components of the system include: an aqueous ammonia storage tank, ammonia feed pumps, a carrier water supply from the existing demineralized water system and injection nozzles. Safety shower / eyewash stations and ammonia gas detection will also be provided. The system will use NO_x CEM signals for control and compliance monitoring.

3.2 Equipment Description

Aqueous Ammonia Storage Tank: Aqueous ammonia, with an ammonia concentration of less than 20% by weight, will be delivered to the Facility in tank trucks. Each truck delivery will be approximately 6,000 gallons. Trucks will be unloaded using truck mounted transfer pumps, and vapor displaced from the receiving tank will be vented back to the truck to prevent the release of ammonia vapor during the unloading process. A 10,000-gallon aqueous

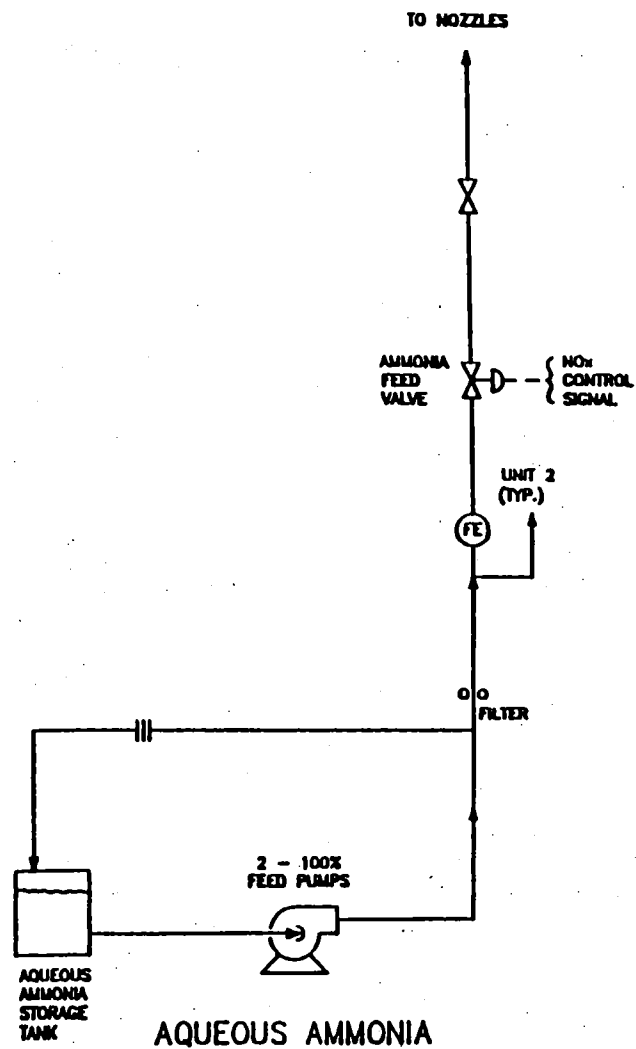
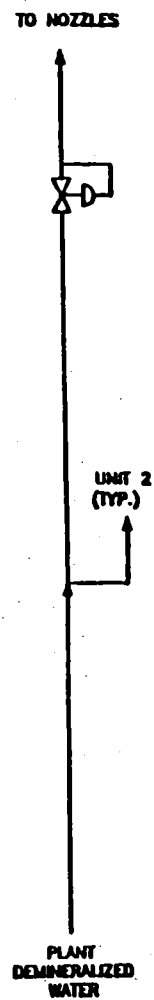


Figure 3-1

ammonia storage tank will be provided. The tank will be provided with a relief valve and vacuum breaker.

The aqueous ammonia storage tank will be located on the east side of the inclined conveyor, between the grizzly enclosure and the residue building. This location provides easy access for reagent deliveries and minimizes worker exposure in the event of a spill. The storage tank will provide a minimum of a seven-day supply at the maximum expected consumption rate for all combustion units.

The aqueous ammonia storage tank will be located within an aboveground dike sized for the contents of the tank. The tank foundation, dike walls and slab will be constructed of reinforced concrete. The diked area will be sloped to a sump. A portable pump will be used to remove any accumulation of rain water on an as needed basis.

Ammonia Pump: One aqueous ammonia pump system with two 100% ammonia feed pumps will be provided. The feed pumps will supply ammonia to the injection nozzles. The feed pump system will be located within the diked aqueous ammonia storage tank area, on elevated steelwork (with grating) above the dike design fill level.

Carrier Water Supply: The water required by the injection nozzles to ensure an adequate spray pattern will be supplied from the existing demineralized water transfer pumps.

Injection Nozzles: Two nozzles will be provided for each combustion unit, each supplied with flexible hose assemblies and isolation valves. Total aqueous ammonia flow to each combustion unit will be metered. Supply lines to each nozzle will be provided with rotameters for confirmation of adequate flow to each nozzle.

Controls: The process control system will maintain the NO_x level at the stack by adjusting the aqueous ammonia feed rate to the combustion unit. The control system will use the NO_x signal measured at the stack, via the facility CEM system. Modifications will be made to the CEM system as described in section 4.0 of this proposal. The new process controls will be installed in the existing facility DCS system. Ammonia gas detectors with multiple sensors will be provided to monitor potential aqueous ammonia leaks at the tank and injection nozzles.

Eyewash/Shower Stations: A combination shower/eyewash station will be located convenient to the aqueous ammonia storage tank area. Eyewash stations will also be installed in close proximity to the injection nozzles.

Lighting and Power: Outdoor lighting will be provided at the diked aqueous ammonia storage tank area. All electrical equipment necessary to supply the system will be provided.

SECTION 4.0

TECHNICAL DESCRIPTION OF CEM SYSTEM MODIFICATIONS

4.1 Background

The CEMS provides two major functions for the facility. The first is the control of the pollutant reduction process which in most cases is achieved by the addition of a reagent. The system determines the level of the pollutant at the end of the control process, i.e., at the outlet of the fabric filter. The analyzer information is sent to the data acquisition system where it is electronically translated into a control signal which is sent to the reagent addition system. This type of control system has a lag time because it is responding to a change in feed concentration which has already occurred. Lower pollutant emission limits require a reduction in this lag time to provide more efficient and more responsive control of reagent addition and to ensure compliance with these lowered limits.

The second major function of the CEM system is emissions data calculation, reporting, and recording. The raw data from the analyzers is transmitted to the Data Acquisition System (DAS) where it is converted into digital input data, averaged and stored in specific reporting formats in accordance with applicable regulations. The DAS computer network allows real time reporting to the facility control room, while the data are being archived to storage media for record purposes.

4.2 MACT Standards

In general, the MACT standards impact both the existing CEM hardware and software. The hardware impact includes the addition of analyzers to provide control and reporting functions for additional types of emissions. In addition, the MACT standards will require new computer hardware to provide the capability of handling large quantities of new data and calculation functions in short time periods.

4.3 CEM Requirements at the Pasco Facility

The existing CEMS at the Pasco County Resource Recovery Facility requires enhancement to comply with the Subpart Cb standards. The work includes the addition of flue gas sampling with SO₂ and O₂ analyzers on the APC inlet streams, and installation of NO_x analyzers on the existing APC outlet stream monitoring systems.

The extensive revisions to the report formats for the CEMS will require a new DAS to collect data from the monitoring instruments and provide appropriate compliance reporting functions. The new DAS will also improve emission data processing to allow plant personnel to operate plant equipment in accordance with the MACT requirements.

4.4 Monitoring System Description

The concentrations of gas constituents are determined by specific, dedicated analyzers. A differential absorption analyzer is used for sulfur dioxide analysis. Carbon monoxide is measured by a gas filter correlation spectrometer. The oxygen content is measured by a paramagnetic analyzer. Nitrogen oxides are determined by a chemiluminescent instrument. Effluent opacity is measured by a transmissometer mounted on the stack flue.

A programmed logic controller operates the system calibration and probe purging sequences for the sampling system. The sample probe at the economizer outlet is purged once each hour, and the stack probe is purged every three hours to prevent problems.

The calibration sequence is activated every 24 hours. Calibration begins with the probe purge sequence, after which the instruments are zeroed with nitrogen, flowing through the sample probe and sample conditioning system to the analyzers. The zero sequence typically takes about five minutes.

The instruments are then spanned using span gas mixtures. Actual calibration values are recorded without correction. This dynamic calibration procedure has provided excellent calibration stability, eliminating the need for drift correction. The entire calibration sequence lasts approximately twenty minutes.

4.5 System Configuration

The modified CEM system will consist of three dedicated systems each having a stack and economizer monitoring unit. A dedicated Data Storage Module (DSM) will continuously collect analog data from system analyzers. The analog data is converted to digital signals and sent to a work station computer connected to a Local Area Network (LAN) system. Two additional work stations will be connected to the LAN. One work station will be dedicated for telemetry interface and the other will be for plant usage.

The Data Acquisition System (DAS) will continuously evaluate the pollutants and parameters monitored and demonstrate the compliance status. The data on the pollutants and parameters will be acquired in accordance with the averaging period and reporting period specified in the permit reporting matrix.

The DAS will include the following items:

1. A sufficient number of analog and digital input/output ports to accommodate the required monitoring parameters and control operations,
2. The ability to output all data synchronously in ASCII character code format,
3. A serial communication port attached to the modem,

4. Software capable of initiating a communication link and answering an incoming call, and
5. The capability of being remotely interrogated via a telecommunication link.

The DAS will use magnetic media for long term data storage. The DAS will be able to make data transfers in required report formats.

The modified CEM system will include the following measurement parameters:

1. CEM Inlet Data from Spray Dryer Inlet (new)
 - a. Sulfur Dioxide (SO_2)
The SO_2 inlet measurement is required for the system to calculate the percentage reduction as indicated in the chart in Section 2.0. Percentage reduction (75%) is one of the performance criteria specified in the Emission Guidelines.
 - b. Oxygen (O_2)
It is necessary to measure the O_2 level where the SO_2 measurement is taken to allow the system to correct the data to a common base of 7% O_2 .
2. CEM Outlet Data from the Fabric Filter Outlet

Each equipment train will have the following parameters measured in order to determine compliance with stack emissions limitations as indicated in the chart in Section 2.0:

- a. Sulfur Dioxide (SO_2) (existing)
- b. Nitrogen Oxides (NO_x) (new)
- c. Carbon Monoxide (CO) (existing)
- d. Opacity (existing)
- e. Oxygen (O_2) (for data correction) (existing)

SECTION 5.0

DRAWINGS

The following drawings, representing the Resource Recovery Project, are enclosed:

<u>Dwg. No.</u>	<u>Rev</u>	<u>Rev. Date</u>	<u>Drawing Title</u>
99-7 C001	1	10/05/99	SITE PLAN
99-7 C002	1	10/05/99	ENLARGED SITE PLAN
99-7 C003	1	10/05/99	GRADING AND PAVING PLAN
99-7 E 501	A		ONE LINE DIAGRAMS APC MCC 1, 2, AND 3
18750-W-3B-8	---		480 ONE LINE DIAGRAM NJS - MCCBC
18750-W-4-8	---		DC & UPS ONE LINE
18750-J-1-3	1		P&I DIAGRAM INDEX AND NOMENCLATURE SHT.-1
99-7 P003	1	10/25/99	SAFETY SHOWER/POTABLE WATER SYSTEM P&ID
99-7 P001	1	10/25/99	AQUEOUS AMMONIA SNCR SYSTEM P&ID (3 SHTS)
99-7 P002	2	10/25/99	SNCR PURGE AIR SYSTEM P&ID
99-7 S001	1	10/12/99	STRUCTURAL DESIGN NOTES
99-7 S002	1	10/12/99	BOILER BLDG FRAMING PLATFORM ADDITIONS
99-7 S003	1	10/12/99	BOILER BLDG FRAMING PLATFORM ADDITIONS
99-7 S004		10/12/99	BOILER BLDG FRAMING PLATFORM ADDITIONS
PAS-1028-00, SH 1	11	12/03/99	CEM FUNCTION BLOCK DIAGRAM

SECTION 6.0

December 7, 1999

LIST OF EQUIPMENT

Application for Preliminary Examination for Sales Tax Exemption
for the Pasco County Resource Recovery Facility SNCR and CEM Retrofit Project

Item No.	ITEM DESCRIPTION	No. of Pieces	Process Description, Page Ref.	Drawing No.	Drawing Item No.
1	injection nozzles	6	Att. A, Section 3.2	99-7 P001,sh1-3	SNCR-LNC-1A,1B,2A,2B,3A,3B
2	wall boxes for injection nozzles	12	[support structure for injection nozzles]		
3	ammonia pumps	2	Att. A, Section 3.2	99-7 P001, SH 1	013D001 & 2
4	ammonia filter	2	[SNCR system]	99-7 P001,SH 1	SNCR-AQ-F1 & F2
6	vacuum breaker valve	1	[SNCR system]	99-7 P001,SH 1	SNCR-VBRKR-1
7	wye strainer	2	[SNCR system]	99-7 P001,SH 1	SNCR-AQ-ST 1 & 2
8	ammonia truck filling panel	1	[SNCR system]	99-7 P001,SH 1	013L004
9	sump pump	1	Att. A, Section 3.2	99-7 P001,SH 1	Dwg Note 11
10	purge air blowers	2	Att. A, Section 3.1	99-7 P002	013D013 & 014
11	relief valve	1	[SNCR system]	99-7 P001,SH 1	SNCR-PSV1 & 2
12	ammonia storage tank	1	Att. A, Section 3.2	99-7 P001,SH 1	AQ-TK-001
13	electrical devices for SNCR & CEMS	1 Lot	Att. A, Sec.3.2&4	99-7 E601	[refer to dwg. for item nos.]
14	light fixtures at ammonia equipment	1 Lot	[SNCR system]		
15	sample line	1200 ft	Att. A, Sect. 4.5	PAS102800,sh1	
16	CEM DAS polling enclosure	1	Att. A, Sect. 4.5	PAS102800,sh1	
17	CEM fileserv enclosure	1	Att. A, Sect. 4.5	PAS102800,sh1	
18	Facility ethernet hub	1	Att. A, Sect. 4.5	PAS102800,sh1	
19	CEM-DAS alarm workstation	1	Att. A, Sect. 4.5	PAS102800,sh1	
20	system report printer	1	Att. A, Sect. 4.5	PAS102800,sh1	
21	economizer sample probes	3	Att. A, Sect. 4.5	PAS102800,sh1	
22	CEM equipment enclosure	1	Att. A, Sect. 4.5	PAS102800,sh1	
23	control valves for SNCR system:		[SNCR system]		
24	Ammonia Flow Control	3	[SNCR system]	99-7 P001,sh2&3	1,2&3NX-FCV-103
25	Blower Pressure Control	1	[SNCR system]	99-7 P002	NX-PRV-146
26	Carrier Water Press. Regul.	3	[SNCR system]	99-7 P001,SH 2	1,2&3NX-PRV-108
27	manual valves	1 Lot	[SNCR system]	99-7 P001,2,3	[as shown on PID]
28	dike & boiler NH3 leak detectors	3	Att. A, Section 3.1	99-7 P001,sh 1&3	NX-AIT-100,101,110
29	emergency stop stations	7	[SNCR system]	99-7 P001,sh1,2	NX-HS-119;1,2,3NX-HS-102A/B
30	auxiliary relay panel	1	[SNCR system]	99-7 E601	013L101
31	CEM operator console	1	[CEM system]	99-7 E601	013L012
32	SNCR tank area distribution panel	1	[CEM system]	99-7 E601	016E901
33	CEMS 3 phase transformers	3	[CEM system]	PAS102800,sh1	016E951,2,3
34	shower/eye wash (NH3 tank area)	2	Att. A, Section 3.2	99-7 P003	SNCR-SHWR-OA & OB
35	shower/eye wash (injection area)	4	[SNCR system]	99-7 P003	SNCR-SHWR-1A,2A,3A,3B
36	concrete/rebar for NH3 tank fndtn.	59 CY	[SNCR system]	99-7 C001	
37	concrete/rebar for new CEMS fndtn.	12 CY	[CEM system]	99-7 C001	
38	bollards	6	[SNCR&CEM sys.]	99-7 C002	
39	concrete/rebar for new road paving	64 CY	[SNCR system]	99-7 C003	
40	imported/structural fill; sand & stone	93 CY	[SNCR&CEM sys.]	99-7 S001	refer to "Foundation Excavation"
41	structural supports for NH3 equipme	4.1tons	[SNCR system]		
42	platforms for ammonia equip. access	[incl. above]		99-7 S002,3 & 4	
43	cable & conduit for NH3 equip.	1 Lot	[SNCR system]		
44	piping for ammonia equipment	2215 L	[SNCR system]	99-7 P001,2 & 3	[as shown on PID]
45	lance flex hoses	18	[SNCR system]	99-7 P001,SH 2&3	SNCR-FLX-1/2/301,02&03A/B
46	pipe insulation	225 LF	[SNCR system]		
47	paint for steel & piping	1 Lot	[SNCR system]		
48	instruments for SNCR system:	72	[refer to 99-7 I324]	Instr. Calibration List, for quantities, dwg & tag Nos.]	
a	pressure gauges		[SNCR system]		
b	pressure switches		[SNCR system]		
c	level gauge		[SNCR system]		
d	level switches		[SNCR system]		
e	flow transmitters		[SNCR system]		
f	rotameters		[SNCR system]		
g	flow switches		[SNCR system]		
h	temperature indicator & well		[SNCR system]		
i	orifice plates		[SNCR system]		

Refer to drawings listed in Section 5 and the following enclosed documents for further details:

Equipment List, SM 147-A1, Release 0, dated 8/23/99

Electrical Equipment List, Drawing No. 99-7 E601, Rev. 0, dated 11/04/99

Instrumentation Calibration Tag List, Drawing No. 99-7 I324-CAL, Rev. 0, dated 10/25/99

SECTION 7.0

ESTIMATED COST OF EQUIPMENT

The estimated cost for equipment, including construction materials, listed in Section 6.0 is \$1,219,000.

ATTACHMENT A-1

Amendment No. 4

to the Amended and restated Service Agreement

between

Ogden Martin Systems of Pasco, Inc.

and

Pasco County

**AMENDMENT NO. 4
TO THE AMENDED AND RESTATED SERVICE AGREEMENT
BETWEEN OGDEN MARTIN SYSTEMS OF PASCO, INC. AND PASCO COUNTY**

This Amendment No. 4 is entered into this 25th day of May, 1999 between Pasco County, Florida (the "County") and Ogden Martin Systems of Pasco, Inc., a Florida corporation (the "Contractor"), and amends the Amended and Restated Service Agreement between the County and the Contractor dated March 28, 1989, as amended by Amendment No. 1, dated December 15, 1992, Amendment No. 2, dated June 6, 1995, and Amendment No. 3, dated July 9, 1996 (as so amended, the "Service Agreement").

BACKGROUND

A. Pursuant to Section 129 of the Clean Air Act Amendment of 1990 (the "Amendment") the United States Environmental Protection Agency ("EPA") has caused to be published in the Federal Register on December 19, 1995 final air emission guidance regulations (the "Regulations") which are applicable to the Pasco County Solid Waste Energy Recovery Facility (the "Facility") and which require that the Facility be modified to incorporate (i) a Nitrogen Oxide Emissions Control ("SNCR") System, and (ii) a modified Continuous Emissions Monitoring ("CEM") System, and to meet certain other emissions limitations which EPA has determined constitute Maximum Available Control Technology ("MACT") for existing municipal waste combustors (as published in the Federal Register on December 19, 1995).

B. The State of Florida's EPA-approved state implementation plan (the "Plan") pursuant to the Amendment and the Regulations requires final compliance no later than April 19, 2000, and establishes increments of progress for facilities which will require more than one year to comply with all of the standards in the Regulations.

C. The Service Agreement provides that (i) the Contractor is responsible for the design, construction, and, if applicable, Acceptance Testing of any Capital Project or Work Change which is required by or results from a Change in Law, and (ii) the County will pay the Contractor costs of any Capital Project resulting from a Change in Law.

D. The County and the Contractor agree that the Amendment and the Regulations constitute a Change in Law, and that the CAA Modifications constitute a Capital Project necessary to respond to such Change in Law. The Contractor will be paid a fixed fee for the capital cost of the CAA Modifications as provided in this Amendment No. 4. Actions other than installation of the CAA Modifications in accordance with this Amendment No. 4 which may be, or may become, necessary to address the Amendment, the Regulations, or any other, further, or additional Change in Law, are not addressed in this Amendment No. 4 and must be addressed as a further Change in Law under the Service Agreement or as otherwise provided in this Amendment No. 4.

E. The County and the Contractor agree that the issues associated with operating and maintaining the CAA Modifications shall be addressed in a further amendment to the Service

Agreement, and are executing a Memorandum of Understanding with respect to the principles expected to be incorporated into such further amendment contemporaneously herewith.

In consideration of the foregoing and intending to be legally bound hereby, the County and the Contractor hereby agree as follows:

AGREEMENT

1. **Definitions.** Defined terms used herein and not defined shall have the meanings given such terms in the Service Agreement. The following defined terms shall have the meanings indicated below, and Section 2.01 of the Service Agreement is hereby amended by the addition of the following terms in the appropriate alphabetical order:

"CAA Modifications" shall mean the Capital Projects described in Schedule 1 to this Amendment No. 4, and other operational changes related to such Systems as are necessary to achieve the CAA Modification Acceptance Criteria.

"CAA Modification Price" shall mean the fixed price of two million, three hundred thousand dollars (\$2,300,000.00) for the CAA Modifications.

"CAA Modification Acceptance Criteria" shall mean the criteria set forth in Schedule 2 to this Amendment No. 4.

"CAA Modification Acceptance Date" shall mean the date on which both the CAA Modifications and the Facility meet the CAA Modification Acceptance Criteria, as demonstrated by a CAA Modification Acceptance Test.

"CAA Modification Acceptance Test" shall mean a test or tests performed by the Contractor in accordance with Schedule 2 and this Agreement to demonstrate compliance with the CAA Modification Acceptance Criteria.

"CAA Modification Completion Date" shall mean the date, on or after the CAA Modification Acceptance Date, on which the County both (a) accepts the Contractor's demonstration that all Punch List Items referred to in Section 4 (f) have been completed and (b) approves payment of the CAA Modification Completion Retainer.

"CAA Modification Completion Retainer" shall mean the portion of the CAA Modification Price equal to twice the dollar value of the Punch List Items referred to in Section 4 (f), as reasonably estimated by the Consulting Engineer and retained by the County as security for completion of such Punch List Items.

"CAA Modification Scheduled Acceptance Date" shall mean April 19, 2000, provided that the CAA Modification Notice to Proceed Date occurs on or before May 31, 1999; and provided further that such date(s) shall be extended for a period of time equal to any delay caused by Uncontrollable Circumstances or County Fault.

"CAA Modification Notice to Proceed Date" shall mean the date on which the Contractor and the County have satisfied the following conditions:

- (i) all environmental permits or environmental permit modifications or amendments, including, but not limited to the Power Plant Site Certification, necessary for construction of the applicable CAA Modifications have been issued;
- (ii) the County has committed the necessary funds or completed the closing of the necessary financing to the satisfaction of the Trustee and in compliance with any County financial requirements for the CAA Modification Price as defined in this Amendment No. 4;
- (iii) execution by both parties of this Amendment No. 4 amending the Service Agreement; and
- (iv) the County has provided the Contractor with a notice to proceed stating that the above-listed conditions have been satisfied or mutually waived.

"Extension Period" shall mean a seven month period beginning on the day after the CAA Modification Scheduled Acceptance Date.

"Final Cure Period" shall mean the ninety day period after the date of the County's notice to the Contractor pursuant to paragraph 3(f) herein.

"Replacement Construction Contractor Performance Test" shall mean a test or tests performed by a replacement construction contractor to demonstrate compliance with performance criteria established by the County to satisfy the requirements of the Amendment and the Regulations.

"Replacement Construction Contractor Acceptance Date" shall mean the date on which the work done by a replacement construction contractor satisfies the requirements of the Amendment and the Regulations, as demonstrated by a Replacement Construction Contractor Performance Test.

2. Design, Construction and Testing of CAA Modifications.

(a) The Contractor shall design, construct and test the CAA Modifications in accordance with good engineering practice and the specifications set forth in Schedule 1 to this Amendment No. 4 so that the Facility will achieve the applicable CAA Modification Acceptance Criteria on or before the applicable CAA Modification Scheduled Acceptance Date. The Contractor will provide, at its sole cost and expense, all labor, materials, machinery and equipment necessary to install, start up, test, operate, and maintain the CAA Modifications.

(b) The Contractor shall promptly provide to the County for review and comment copies of such technical specifications, data sheets and design drawings and documents, available to the Contractor, as may be reasonably requested by the County during the procurement, design and construction phase of the CAA Modifications under this Amendment No. 4. With respect to any one or more of the foregoing documents, the County shall provide to the Contractor any and all comments relating to the consistency of such documents with Schedule 1 within 14 Business Days of its receipt of such documents, and the Contractor shall address and /or reply to any and

all such comments within 14 Business Days of its receipt of such comments. No later than ninety (90) Days from the date on which the CAA Modifications are completed, the Contractor shall provide to the County one (1) Mylar sepia and three (3) copies of all record drawings relating to the CAA Modifications and a copy of all new and updated Operation and Maintenance Manuals. Additionally, if the County engages a replacement construction contractor pursuant to Section 3 below, the Contractor shall revise the Operation and Maintenance Manuals to incorporate the equipment installed by the replacement construction contractor, and the Contractor shall provide the County with one copy of such revised Operation and Maintenance Manuals.

(c) The CAA Modification Price is based on the CAA Modifications, CAA Modification Acceptance Criteria, Performance Guarantees and Construction Schedule set forth in this Amendment No. 4 to the Service Agreement, and upon issuance of the CAA Modification Notice to Proceed on or before May 31, 1999. If (i) the CAA Modification Notice to Proceed is issued after the last day of May 1999, or (ii) any Capital Projects or operational changes other than the CAA Modifications are required, such occurrences will be treated as a further Change in Law under the Service Agreement.

(d) The Contractor will submit to the County for the County's review and approval a CAA Modification Acceptance Test Protocol (the "Protocol") within 120 Days of execution of this Amendment No. 4 which shall set forth a protocol for performing the CAA Modification Acceptance Tests. Such Protocol shall provide for demonstrating that the Facility can operate at the Daily Capacity Guarantee (as demonstrated by a minimum steam flow of 90,386 pounds/hour for each combustion unit) while meeting the CAA Modification Acceptance Criteria. If the County and the Contractor are unable to agree upon the Protocol within Sixty Days after such submission, such inability to agree shall be a dispute subject to dispute resolution as provided in Article IX of the Service Agreement. The Contractor will give the County 14 Days' notice of the date on which it will commence any CAA Modification Acceptance Test, and the County will have the right to witness all such tests. The Contractor shall perform each CAA Modification Acceptance Test strictly in accordance with the Protocol. The Contractor shall, within 45 Days after completion of any CAA Modification Acceptance Test, furnish the County with a written report describing the test conducted and the results of the test. The County may dispute the results of the Test in writing, setting forth the specific reasons for the dispute, within the period ending 30 Days after submission of the report. If the Contractor does not concur in the County's judgment, the matter shall be resolved in accordance with Article IX of the Service Agreement. If the County accepts or does not dispute the results of the Test within the 30 day period after submission of the report or if there is a dispute which is resolved in favor of the Contractor, the Test shall be deemed to have been passed and the applicable CAA Modification Acceptance Criteria met on the date on which the Test was conducted.

(e) Upon the occurrence of either (i) the CAA Modification Acceptance Date, or (ii) the Replacement Construction Contractor Acceptance Date, the CAA Modifications shall be deemed to be incorporated into the Facility.

3. Guaranteed Schedule/Extension Period/Extension Period Damages Limitation.

(a) The Contractor guarantees to complete the CAA Modifications and achieve the CAA Modification Acceptance Criteria on or prior to the applicable CAA Modification Scheduled Acceptance Date, except to the extent excused by Uncontrollable Circumstances.

(b) If the Contractor fails to meet the foregoing guarantee in paragraph 3 (a) by the CAA Modification Scheduled Acceptance Date, the Contractor may, by written notice to the County, avail itself of the Extension Period. If the Contractor elects to utilize the Extension Period, the Contractor shall continue to endeavor to achieve the CAA Modification Acceptance Date at the earliest possible time. During the Extension Period, the Contractor shall be responsible for payment of any and all fines and penalties imposed by regulatory agencies as a direct result of the failure to achieve the CAA Modification Acceptance Date. The Contractor shall have the sole option whether to elect to utilize the Extension Period. Further, if Contractor elects to utilize the Extension Period, Contractor shall have the sole option, at any time thereafter, to terminate such Extension Period.

(c) If the Contractor elects not to utilize the Extension Period, or to terminate such Extension Period after electing to commence it, the Contractor shall provide ten days prior written notice of such election to the County. Upon such election or termination by the Contractor, (i) Contractor shall be obligated to reimburse the County for any amounts previously paid by the County with respect to the CAA Modifications that failed to meet the CAA Modification Acceptance Criteria, and (ii) the parties shall proceed to address the impacts of the Amendment and the Regulations as a Change in Law under the Service Agreement and, (iii) the County may, at its option, and pursuant to Subsection (e) herein, select and retain a replacement construction contractor to complete the CAA Modifications or may give the Contractor notice of the Final Cure Period pursuant to Section 3(f).

(d) If the Contractor has not terminated its performance obligations pursuant to subsection 3 (c), and fails to achieve the CAA Modification Acceptance Date by the end of the Extension Period, (i) the Contractor shall be obligated to reimburse the County for any amounts previously paid with respect to the CAA Modifications that failed to meet the CAA Modification Acceptance criteria, (ii) the parties shall proceed to address the impacts of the Amendments and the Regulation as a Change in Law under the Service Agreement, and (iii) the County may, pursuant to Subsection (e) herein, select and retain a replacement construction contractor to complete the CAA Modifications or may give the Contractor notice of the Final Cure Period pursuant to Section 3(f).

(e) If the County chooses to select a replacement construction contractor pursuant to subsections (c) or (d) above, the following conditions shall apply:

- (i) the County shall have the sole responsibility for all of the costs of retaining and utilizing such replacement construction contractor, and for all adverse impacts on the operation or performance of the Facility arising in any way from the work done by the replacement construction contractor;

- (ii) the Contractor and the replacement construction contractor shall cooperate with each other and the County so as to minimize the disruption to normal Facility operations;
- (iii) the Contractor shall have the right to observe and inspect the work of the replacement construction contractor;
- (iv) the Contractor shall have no responsibility for any work done by the replacement construction contractor;
- (v) the Contractor shall not conduct an acceptance test with respect to any work done by the replacement construction contractor, and, consequently, the CAA Modification Acceptance Date shall not occur under this Agreement; provided, however, that, the Contractor shall operate the facility in a manner that cooperates with any Replacement Construction Contractor Performance Test conducted by the County and/or the replacement construction contractor;
- (vi) as between the County and the Contractor, any action or inaction of the replacement construction contractor, or any consequence of the work done by the replacement construction contractor, which (a) prevents the Facility from processing any portion of the Guaranteed tonnage, or (b) prevents the Facility from meeting any of the Performance guarantees specified in the Service Agreement shall constitute County Fault under the Service Agreement; and
- (vii) the Contractor shall have no obligation to warrant or guarantee the operation of any equipment installed, or work done, by the replacement construction contractor. If the County or the replacement construction contractor obtains any warranties for any equipment installed by the replacement construction contractor, the Contractor shall agree to the assignment of those warranties to the Contractor and the Contractor shall be responsible for obtaining any services required pursuant to any such assigned warranties.

(f) If the County engages a replacement construction contractor pursuant to paragraph 3(e) above, the County shall require that such replacement construction contractor conduct a Replacement Construction Contractor Performance Test. If the Replacement Construction Contractor Acceptance Date does not occur, the County shall provide written notice of such failure of occurrence to the Contractor. Within 30 days of receipt of such notice, the Contractor shall provide the County with written notice of whether the Contractor desires to avail itself of the Final Cure Period.

- (i) If the Contractor elects to utilize the Final Cure Period, the Contractor shall endeavor to achieve the CAA Modification Acceptance Date at the earliest possible time within the Final Cure Period. All work done by the

Contractor during the Final Cure Period shall be at the Contractor's sole cost and expense.

- (ii) If the Contractor elects not to utilize the Final Cure Period, or if the Contractor elects to utilize the Final Cure Period but does not achieve the CAA Modification Acceptance Date during the Final Cure Period, the Contractor shall be deemed to have provided the County with notice pursuant to Section 7.02(c) of the Service Agreement effective, as applicable, on the date of the election not to utilize the Final Cure Period or on the last day of such Final Cure Period.

(g) If any CAA Modification Acceptance Test demonstrates that any of the CAA Modification Acceptance Criteria are not met, then from the date of such CAA Modification Acceptance Test until the earlier of either (i) the CAA Modification Acceptance Date, (ii) the Replacement Construction Contractor Acceptance Date, or (iii) the last day of the Final Cure Period, the Contractor shall cooperate with the County with regard to any and all regulatory agency involvements concerning the Amendment and the Regulations.

(h) If the CAA Modification Acceptance Date has not occurred on or before the CAA Modification Scheduled Acceptance Date, then any curtailment in processing or shutdown of the Facility ordered by any regulatory agency shall be an Uncontrollable Circumstance and the Contractor shall act in accordance with Section 6.09(c) of the Service Agreement from the CAA Modification Scheduled Acceptance Date to the earlier of either (i) the CAA Modification Acceptance Date, (ii) the Replacement Construction Contractor Acceptance Date, or (iii) the last day of the Final Cure Period.

(i) The remedies and damages provided in this section in the event of a termination of the Contractor's performance obligations pursuant to this Section 3, or with respect to employment of a replacement construction contractor are exclusive. Notwithstanding any provision herein which may be construed to the contrary, (i) neither party shall be liable to the other for any consequential, indirect, incidental or punitive damages in connection with the performance of this Amendment No. 4, (ii) the Contractor's failure to achieve the CAA Modification Acceptance Date shall not constitute an Event of Default, or Contractor Fault under the Service Agreement, and (iii) any disputes which arise under this Amendment No. 4 shall be subject to dispute resolution as provided in the dispute resolution provisions of the Service Agreement.

4. Payment Procedures.

(a) The County will pay the Contractor the CAA Modification Price in accordance with Schedule 3 to this Amendment No. 4.

(b) The Contractor shall submit applications for payment ("Applications for Payment") to the County with respect to the CAA Modifications performed and shall be paid by the County for such in accordance with this Section 4. Applications for Payment shall be submitted by the Contractor by the tenth (10th) day following the first (1st) Day of each calendar

month following the date of this Amendment No. 4, and the County shall make progress payments to the Contractor based upon such Applications for Payment pursuant to Schedule 3.

(c) The Milestone Payment Schedule set forth in Schedule 3 shall be used as a basis for the Contractor's Applications for Payment and the County's review thereof. The completion of the CAA Modifications, and/or the occurrences or other events described in Schedule 3 as the milestone events, shall entitle the Contractor to progress payments in the aggregate amount due for each completed milestone event.

(d) Within ten (10) Business Days after receipt of the Contractor's Application for Payment, the County shall either approve such Application for Payment in the amount requested in the Application for Payment, or disapprove, to the extent provided below, all or a portion of the amount requested and notify the Contractor in writing of its reasons for withholding its approval of all or any portion of such Application. In the latter case, the Contractor shall make the necessary corrections and resubmit its Application for Payment subject to the same procedures applicable to its original Application for Payment. If the County does not respond in writing with an approval or disapproval of any Application for Payment within such ten (10) Business Day period, such Application for Payment shall be deemed approved and shall be paid by the County.

The County may decline to approve the Contractor's Application for Payment and shall withhold its approval in whole or in part, to the extent reasonably necessary to protect the County, based on a written opinion of the Consulting Engineer in the exercise of its reasonable engineering judgment (which opinion the County shall deliver to the Contractor when payment is disapproved), where (a) the CAA Modifications have not progressed to the point claimed in the Application for Payment, (b) the quality of the CAA Modifications is not in accordance with the requirements set forth in Schedule 1, (c) the Application for Payment exceeds the payment limitation in the Drawdown Schedule in Schedule 3, or (d) an Event of Default has occurred under Section 6 (a) of this Amendment.

When the grounds for withholding approval for payment are removed, the amounts withheld shall be paid promptly by the County based upon the Contractor's original Application for Payment.

(e) Within fifteen (15) Business Days of receipt of Notice from the Contractor that the CAA Modifications have been completed, the CAA Modifications have been installed and constructed in accordance with Schedule 1, and the CAA Modification Acceptance Criteria have been met, the County, accompanied by representatives of the Contractor, shall complete a final inspection of the construction of the CAA Modifications and determine whether the CAA Modification Acceptance Date has occurred. The County shall notify the Contractor in writing within ten (10) Business Days thereafter whether the CAA Modification Acceptance Date has occurred. Should the County determine that the CAA Modification Acceptance Criteria have not been met, the Contractor shall promptly take such action as may be necessary to remedy such failure. After the Contractor has completed any such corrections or after the lapse of the ten (10) Business Day period described above, and the Contractor has delivered all maintenance and operating instructions, schedules, guarantees, certificates, as-built drawings, and other documents and material as required by this Amendment No. 4, the CAA Modification Acceptance Date shall

occur, and the Contractor may submit an Application for Payment for such milestone following the procedure for progress payments set forth in this Section 4.

(f) The CAA Modification Acceptance Date may occur even though there are minor tasks to be completed or minor omissions or defects in the construction of the CAA Modifications which do not adversely affect the structural integrity, capability or performance of the CAA Modifications ("Punch List Items"). The Contractor and the County shall agree on a schedule of Punch List Items. The CAA Modification Completion Retainer, shall be retained by the County until the CAA Modification Completion Date. The Contractor shall promptly take such actions as may be necessary to complete the Punch List Items, and shall make its final Application for Payment with respect to the CAA Modification Completion Retainer promptly upon completing such actions. Such Final Application for Payment shall be processed in accordance with Section 4 (d) above.

5. Amendments to Service Agreement.

(a) Schedule 9 to the Service Agreement (Pass Through Costs) is amended to add the following at the end of such Schedule, and to provide that capitalized terms used below but not defined in the Service Agreement have the meanings assigned to them in this Amendment No. 4:

18. The cost of aqueous ammonia and other reagents used in the operation of the Nitrogen Oxide Emissions Control System not in excess of the costs associated with a consumption of 2.5 pounds of ammonia per Ton of Reference Waste processed.

19. Any permitting costs incurred by the Contractor at the written request of the County to comply with the requirements of CAA Title V.

20. Any costs incurred by the Contractor in testing any equipment installed or work done by a replacement construction contractor (selected by the County) on the Nitrogen Oxide Emission Control System and/or the CEM system, or in revising the Operation and Maintenance Manuals for the Facility to incorporate the equipment installed by such replacement construction contractor.

(b) Upon the start-up of the Nitrogen Oxide Emissions Control System:

(i) Section 6 of Schedule 2, Performance Guarantees, shall be amended to replace the term "101 kwh" with the term "103 kwh"; and

(ii) Section 9 of Schedule 2, Performance Guarantees, shall be amended to replace the term "572 kwh" with "570 kwh."

(c) The following new paragraph is added to Article V of the Service Agreement:

5.10 Equipment Installed By the County. To the extent that any equipment is installed in the Facility by a replacement construction contractor selected by the County pursuant to Amendment No. 4 to this Service Agreement, all Company Guarantees of Facility performance under this Agreement shall be mitigated or reduced to the extent necessary and appropriate to account for the effects of such equipment upon the operation of the Facility. Prior to any such changes to the Performance Guarantees, the Contractor shall demonstrate to the reasonable satisfaction of the County that such changes are necessary and appropriate. Any failure to agree as to whether such changes are necessary and appropriate shall be subject to dispute resolution as provided in Article IX of this Agreement

6. Default Remedies.

(a) The following shall constitute an Event of Default under this Amendment No. 4 by the Contractor:

The persistent or repeated failure to proceed diligently with the CAA Modifications in accordance with this Amendment No. 4, except to the extent excused by virtue of the occurrence of Uncontrollable Circumstances or County Fault; provided that no such circumstance shall constitute an Event of Default by the Contractor unless and until (i) the County has given written notice to the Contractor specifying that a particular default exists which will, unless corrected, constitute a material breach of this Amendment No. 4 by the Contractor, and (ii) the Contractor has not either corrected such default or initiated reasonable action to correct such default within thirty (30) days from the date of such notice and thereafter does not continue to pursue such action.

(b) The failure of the County to pay the Contractor amounts due under this Amendment No. 4 shall be an Event of Default by the County; provided that no such failure shall constitute an Event of Default by the County unless and until (i) the Contractor has given written notice of such default to the County, and (ii) the County has not paid the amount due within thirty (30) days after such notice.

(c) Upon the occurrence of an Event of Default by a party hereto, the other party shall be entitled to the remedies described below. Neither party shall be entitled to terminate this Amendment No. 4 or the Service Agreement solely as a result of an Event of Default hereunder.

- (i) Upon the occurrence of an Event of Default under paragraph 6(a) above,
 - (a) the Contractor shall be obligated to reimburse the County for any amounts previously paid with respect to the CAA Modifications that failed to meet the CAA Modification Acceptance Criteria, and thereafter, any failure to meet such CAA Modification Acceptance Criteria shall not be Contractor Fault under the Service Agreement and the Contractor shall not be liable to the County under the Service Agreement for any such failure, and
 - (b) the County may select a replacement construction contractor pursuant to paragraph 3(e) above.

- (ii) Upon the occurrence of an Event of Default under paragraph 6(b) above, the County shall be obligated to pay the Contractor for all amounts previously earned with respect to the CAA Modifications, as well as all other amounts owed to contractors and subcontractors performing work in connection with the CAA Modifications. The County agrees that the Contractor may obtain specific performance of the County's obligations in this regard.

(d) The remedies and damages provided for herein in the event of occurrence of an Event of Default under of this Amendment No. 4 are exclusive. Notwithstanding any provision herein which may be construed to the contrary, (i) neither party shall be liable to the other for any consequential, indirect, incidental or punitive damages in connection with the performance of this Amendment No. 4, the Event of Default, remedies, and damages provided for in this Section apply solely with respect to this Amendment No. 4 and do not constitute Events of Default, remedies or damages under the Service Agreement, and (iii) any disputes which arise under this Amendment No. 4 shall be subject to dispute resolution as provided in the dispute resolution provisions of the Service Agreement.

7. This Amendment No. 4 takes effect as an amendment and supplement to the Service Agreement and all provisions of the Service Agreement which are not in conflict with this Amendment No. 4 apply to this Amendment No. 4.

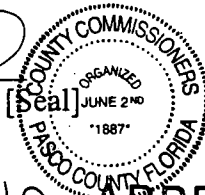
8. Except as specifically amended and supplemented hereby, the Service Agreement remains in full force and effect. All references in the Service Agreement to "this Agreement" and "this Service Agreement" and "this Full Service Agreement" shall be deemed to refer to the Service Agreement as amended hereby. The parties hereto hereby confirm the Service Agreement, as amended hereby, in all respects.

IN WITNESS WHEREOF, the parties hereto have caused this Amendment No. 4 to be executed by their duly authorized representative on the 25th day of May, 1999.

BOARD OF COMMISSIONERS
OF PASCO COUNTY

OGDEN MARTIN SYSTEMS OF
PASCO, INC.

By: [Signature]
Its Chairman



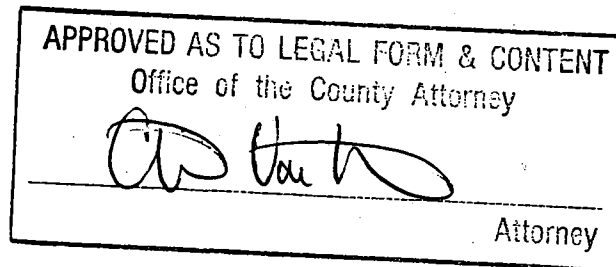
By: [Signature]
Its Executive Vice President

Attest: [Signature]
Its Secretary

APPROVED

MAY 25 1999

Attest: [Signature]
Its Assistant Secretary



SCHEDULE 1

TECHNICAL DESCRIPTION OF THE CAA MODIFICATIONS

1. GENERAL

The CAA Modifications consist of a new Selective Non-Catalytic Reduction (SNCR) system and an upgraded Continuous Emission Monitoring System (CEMS). This Schedule 1 sets forth a technical description of the CAA Modifications.

The Contractor's scope of work is to perform the design, construction, start-up, staff training and testing of the CAA Modifications and shall include, but is not limited to, all engineering design; new equipment specifications and procurement; site work; foundations; construction; equipment erection and installation; electrical, plumbing, instrumentation and controls; tie-ins to existing systems/equipment; relocation of existing equipment if necessary; construction of new structures and repair or replacement of any items modified, damaged or destroyed during construction; the training of existing operating staff in the operation and maintenance of the CAA Modifications equipment and systems; and the testing of the CAA Modifications.

2. CODES AND STANDARDS

The design, demolition, construction, reconstruction, restoration and testing of the CAA Modifications shall be in accordance with all applicable U.S. codes, standards, rules and regulations pertaining to design, demolition, construction, installation, reconstruction, restoration and testing of manufactured equipment and materials. If any equipment is manufactured outside of the U.S., the applicable foreign standards shall either meet or exceed the comparable U.S. standard, or if not, the U.S. standard shall apply. For the design, demolition, construction, installation, reconstruction, restoration and testing of the CAA Modifications, the latest edition of the standards and codes listed in Table 1-1, and the most current edition of any other applicable standards, codes, rules or regulations shall be followed where required. If there is a conflict, the more stringent standard, code, rule or regulation or part thereof shall apply.

3. SELECTIVE NON-CATALYTIC REDUCTION SYSTEM (SNCR)

3.1 General

An SNCR system shall be provided for the reduction of nitrogen oxides such that the Facility at least meets the applicable CAA Modification Acceptance Criteria. The SNCR system shall be based on the injection of aqueous ammonia into the furnace. The SNCR system shall be designed to provide a sufficient rate of aqueous ammonia injection to all three boilers while each boiler is operating at approximately 110 percent of the Maximum Continuous Rating (MCR) of 90,368 pounds per hour of steam for each boiler.

TABLE 1-1
DESIGN STANDARDS AND CODES

<u>Design Standard</u>	<u>Code</u>
1. Air Conditioning and Refrigeration Institute	(ARI)
2. Air Moving and Conditioning Association	(AMCA)
3. American Association of State Highway and Transportation Officials	(ASSHTO)
4. American Concrete Institute	(ACI)
5. American Gas Association	(AGA)
6. American Gear Manufacturers Association	(AGMA)
7. American Institute of Architects	(AIA)
8. American Institute of Steel Construction	(AISC)
9. American Iron and Steel Institute	(AISI)
10. American National Standard	(ANS)
11. American National Standards Institute	(ANSI)
12. American Petroleum Institute	(API)
13. American Public Health Association	(APHA)
14. American Public Works Association	(APWA)
15. American Society of Civil Engineers	(ASCE)
16. American Society of Heating, Refrigeration, and Air Conditioning Engineers	(ASHRAE)
17. American Society of Landscape Architects	(ASLA)
18. American Society of Mechanical Engineers	(ASME)
19. American Society of Non-Destructive Test Engineers	(ASNDTE)
20. American Society of Testing and Materials	(ASTM)
21. American Water Works Association	(AWWA)
22. American Welding Society	(AWS)
23. American Wood Preservers Association	(AWPA)
24. Anti-Friction Bearing Manufacturers Association	(AFBMA)

TABLE 1-1 (Continued)

DESIGN STANDARDS AND CODES

25. Code of Federal Regulations of the Environmental Protection Agency	(EPA)
26. Commercial Standards	(CS)
27. Cooling Tower Institute	(CTI)
28. DEP Design Standards, rules, regulations and published policies as applicable	(DER)
29. Ductile Iron Pipe Research Association	(DIPRA)
30. Factory Mutual	(FM)
31. Federal Aviation Administration	(FAA)
32. Florida Department of Transportation Standards	(FDOT)
33. Heat Exchange Institute	(HEI)
34. Institute of Boiler & Radiator Manufacturers	(IBRM)
35. Institute of Electric and Electronic Engineers	(IEEE)
36. Insulated Power Cable Engineer Association	(IPCEA)
37. Instrument Society of American	(ISA)
38. National Bureau of Standards	(NBS)
39. National Clay and Pipe Institute	(NCPI)
40. National Electric Manufacturers Association	(NEMA)
41. National Electrical Code	(NEC)
42. National Electrical Safety Code	(NESC)
43. National Fire Protection Association	(NFPA)
44. Occupational Safety and Health Administration	(OSHA)
45. Sheet Metal Air Conditioning Contractors National Association	(SMACCNA)
46. Steel Structure Painting Council	(SSPC)
47. Tile Council of America	(TCA)
48. Underwriters Laboratory, Inc.	(UL)
49. All other applicable codes and regulations	

The SNCR system shall comply with all federal, state and local codes, standards, laws, rules, regulations and requirements relative to aqueous ammonia receiving, storage and handling. The SNCR system shall consist of an aqueous ammonia storage tank, aqueous ammonia feed pumps, carrier water system, a purge air system and injection nozzles. The feed system design shall be based on delivering approximately 110 percent of the design MCR consumption rate simultaneously to all three boilers.

3.2 Storage And Loading

A 10,000 gallon aqueous ammonia storage tank with level gage, level switches, high level alarm and pressure gauge shall be provided. The aqueous ammonia storage tank shall be constructed of SA 36 plate steel for the sides, with the top and bottom components comprised of SA 515 Grade 70 steel. It shall be designed and located in accordance with applicable codes and standards and Factory Mutual recommendations, if applicable. The aqueous ammonia storage tank shall be located within a diked containment area with a containment capacity at least equal to the maximum volume of the tank plus freeboard. The diked containment area shall be constructed of reinforced concrete and shall be sloped to a sump. A pump shall be provided to remove any accumulated rain water on an as needed basis.

Aqueous ammonia shall be delivered to the Facility in tanks trucks. The tank trucks shall be unloaded such that vapor displaced from the aqueous ammonia storage tank, as the tank is being filled, shall be circulated back to the tank truck and not released to the atmosphere.

3.3 Aqueous Ammonia Feed Pumps

Two one hundred percent capacity aqueous ammonia feed pumps (seal-less "canned" type) shall be provided. Each pump shall be sized to transfer at least the maximum design consumption rate simultaneously to all three boilers. One pump shall therefore serve as a spare. The aqueous ammonia supply and recirculation lines shall be provided with isolations valves.

3.4 Injection Nozzles

The aqueous ammonia solution shall be injected into the boiler via injection nozzles that penetrate the boiler walls. A minimum of two (2) nozzles per boiler shall be provided. A flow meter shall be provided for each nozzle at the boiler. Spare penetrations at alternate locations on the boiler walls shall also be provided. Access platforms, ladders and stairs shall be provided at each location as necessary.

3.5 Purge Air System

A nozzle purge air system shall be provided to minimize slagging of the nozzles. Two one hundred percent capacity low pressure rotary blowers shall be provided. One blower shall serve as a spare.

3.6 *Carrier Water System*

Demineralized water will be used for carrier water. Carrier water will be supplied to the SNCR nozzles via a supply line taken from the discharge of the existing make-up water transfer pumps.

3.7 *Eyewash/shower Stations*

Eyewash and shower stations shall be provided in accordance with good engineering practice and applicable codes. A minimum of one hard piped eyewash/shower station shall be provided in the aqueous ammonia storage area. Multiple hard piped eyewash stations shall be provided to service the injection nozzle areas.

3.8 *Piping*

Only carbon steel and stainless steel shall be used for piping, valves, fittings and gages which come into contact with the aqueous ammonia solution. Brass, bronze or copper bearing materials shall not be used since ammonia is corrosive to those materials. The piping and fittings used for the purge air system shall be made of carbon steel. The piping and fittings used for the carrier water system shall be made of stainless steel.

3.9 *Electrical Systems*

All electrical equipment necessary to supply the SNCR system shall be provided. NEMA 4 or 4X, as required, shall be used for all cabinets and devices. All electrical wiring shall be run in RGS conduit outdoors / IMC conduit indoors and existing aluminum cable trays.

Outdoor lighting for the aqueous ammonia storage area and power for the two aqueous ammonia feed pumps and the sump pump shall be provided.

All conduit and cables shall be located outside of the corrosive area if possible. Power for the two purge air blowers shall also be provided.

3.10 *Instrumentation and Controls*

The existing Bailey DCS shall be used to monitor and control the new SNCR system. The existing DCS shall be augmented as required with hardware and software, to accept the new monitoring and control functions without any functional degradation.

New CRT graphic display screens shall be configured based upon the P&ID's for the new SNCR system. The screens shall include, at a minimum, process graphics, face plates and trend displays.

Under normal operating conditions, aqueous ammonia shall be injected into the boilers to control the NO_x level at the stack to a set point of approximately 180 ppm_{dv} corrected to 7 percent O₂ in order to assure compliance with the CAA Modification Acceptance Criteria for NO_x.

The control system shall maintain the NOx concentration at the stack by adjusting the aqueous ammonia feed rate to each boiler. The aqueous ammonia injection control loop shall be a cascade arrangement, with the inner loop controlling the aqueous ammonia flow to the flow set point, based on aqueous ammonia flow measurement, and the outer loop controlling the aqueous ammonia flow set point based on the NOx concentration at the stack. The stack NOx concentration signal shall be generated by the CEMS.

The aqueous ammonia feed pumps recirculation flow shall be controlled by the restriction orifice.

A rotameter with a high turn down needle valve shall be installed in the aqueous ammonia line to each injection nozzle. The rotameters shall be designed to provide the means for equally distributing the aqueous ammonia flow among the nozzles.

At least two emergency stop button switches shall be installed for each boiler, one at each nozzle elevation area, and each of them shall trip the aqueous ammonia injection control valve closed. The aqueous ammonia injection control valve shall also trip closed when the boiler forced draft fan trips or is stopped.

The carrier water pressure at the nozzles shall be maintained constant. A self-contained pressure control valve shall be installed for each distribution header. A rotameter shall be installed in the carrier water line to each injection nozzle. The rotameters shall provide visual indication of carrier water flow to the nozzles and help detect nozzle pluggages.

A aqueous ammonia truck filling panel shall be provided for filling the aqueous ammonia storage tank, and shall have a "high level" and "low level" indicating lights, one for each, and a lights test push-button.

All of the eyewash and shower stations shall have a flow switch in the water supply line. The switch shall be sized to actuate at the smaller flow of the eyewash fountain.

The SNCR system shall be monitored and controlled remotely from the control room through the existing Bailey DCS. All control actions, including start/stop equipment, open/close valves, manual/auto and set point shall be from the operator interface station in the control room.

4. CONTINUOUS EMISSION MONITORING SYSTEM (CEMS)

4.1 *General*

The existing CEMS shall be upgraded with new equipment (with some of the existing equipment being reused) such that the CEMS shall comply with all the applicable provisions of the CAA Modification Acceptance Criteria.

4.2 *New Enclosure*

A new environmentally controlled, weather tight enclosure shall be provided. The enclosure shall house the new inlet and outlet monitoring components, the existing outlet monitoring components (including the existing SO₂, O₂, CO and opacity controller instruments), the existing auxiliary control racks, and new sample line heating controls. New chilled condensers that are less prone to plugging by ammonia salts and new power distribution panels shall also be supplied. The new enclosure shall include a new air conditioning system and a new backup air conditioning system, both sized to ensure the appropriate temperature environment for the instrumentation. The new shelter shall be sized to provide adequate space to meet all NEMA code requirements.

4.3 *Equipment in Existing Enclosure to Be Relocated to New Enclosure*

The maximum amount of equipment in the existing enclosure shall be relocated to the new enclosure for use as part of the CAA Modifications. This equipment shall include, but is not limited to, the following:

- a) Three (3) Outlet CO₂ Analyzers
- b) Three (3) Outlet SO₂ Analyzers
- c) Three (3) CO Analyzers
- d) Three (3) CO₂ Analyzers
- e) Three (3) Auxiliary controls for the computer network

4.4 *Sample Lines and Probes*

The existing sample probes at the stack shall be incorporated into the new CEMS. The spray dryer absorber inlet locations shall be supplied with new probes. The probes shall be thermostatically controlled. All sample lines shall be of the hybrid heated hose type which is temperature controlled by a microprocessor based regulator module and an RTD temperature sensor. A power/temperature control panel for each segment of the installed hose (150 ft. maximum length each segment) shall be built into the new enclosure. These controls shall provide power through relays controlled by the microprocessor operated temperature regulator to assure that the sample line heaters cannot fail in the on position.

Power for probe operation shall be delivered from power distribution panels (PDPs). The PDPs shall also supply power for the sample lines. There shall be one dedicated PDP for each boiler. The PDPs shall be located within the new enclosure. At a minimum, each PDP shall meet NEMA code requirements for conductor density within the shelter raceways.

4.5 Piping

Instrument air will be piped to the new CEM enclosure. Sample condensate shall be piped to the existing drainage system adjacent to the existing CEM enclosure.

4.6 Electrical System

Three separate 480-volt electrical supplies shall be provided for the CEM system analyzers and sampling systems. The 480v supplies shall feed three train-dedicated, dry-type, step-down transformers to supply 120/208 volts to the three power distribution panels (PDP's) inside the shelter. The PDP's shall distribute 120/208v to the shelter analyzers and sampling systems. The existing outlet monitoring components which are to be reused shall be repowered from the new shelter's PDP's. Power for the CEM shelter's HVAC systems shall be provided by 480v supplies separate from the analyzer sampling supplies. 120v power for the CEM Data Acquisition System computers in the Facility's control room shall be supplied from the Facility's UPS system.

4.7 Instrumentation and Controls

The CEM System shall utilize a DSM 3260 data logger / programmable controller to convert analogue instrument output to digital data for transmission to the data acquisition systems (DAS). The DSM 3260 shall also control operating functions of the CEM System. The system calibrations, probe purges and protection programs shall be processed by the DSM 3260. This controller shall also provide validated analogue outputs to other control systems within the facility (spray dryer controller, distributed plant control etc.) The DAS shall store DSM 3260 outputs in a database on the CEM network server for retrieval and reporting functions. The DAS shall also provide the plant operator with tabular information on emissions parameters and trending of any parameters monitored by the DSM.

4.8 Modifications to the CEMS Control Room Components

New enclosures for the DAS computer and CEMS network file servers shall be supplied which shall be designed to protect the components from potential RF interference. New UPS power supplies shall also be supplied for the DAS computer and the CEMS network file servers.

5. ENGINEERING

The engineering scope includes the complete detailed design and local (Pasco County) permitting of the SNCR system and CEMS, including, but not limited to, the following:

- Review of local, state and federal codes, permit conditions, and standards for applicability to the CAA Modifications;

- Preparation of all County required permit applications and obtaining all County required permits;
- Development of complete plans, drawings, and any other required documents showing all necessary details associated with the CAA Modifications;
- Preparation of engineering calculations as necessary to size the new equipment, pipes, cables, foundations, structural supports and the like, and/or to verify the adequacy of the existing pipes, cables, foundations, structural supports and the like.
- Development of data sheets and Facility-specific modifications to the Contractor's standard specifications for all equipment and construction associated with the CAA Modifications;
- Development of complete specifications for all equipment and construction for which the Contractor does not have standard specifications;
- Make revisions to the existing drawings to show: (I) the interfaces to the existing equipment and facilities; (ii) the revisions to the existing equipment; and (iii) the new equipment installed as part of the CAA Modifications;
- Procurement of equipment and review of vendor's equipment drawings to ensure compliance with the drawings, specifications and standards;
- Support construction, start-up and staff training activities;
- Produce As-Built/Record Drawings;
- Revise the Operation and Maintenance Manuals to provide for the operation and maintenance procedures for the CAA Modifications.

The complete scope of work involves the detailed engineering in the following disciplines:

Mechanical

Piping and Instrumentation Diagrams
 Equipment Arrangement drawings
 Piping Drawings

Civil/Structural

Plot Plan
 Foundation drawings
 Boiler area platform modifications
 Soils assessment

Electrical

- One-line diagrams
- Electrical wiring diagrams
- Cable tray/Conduit layouts
- Power panel schedule
- Lighting plan
- Cable schedule
- Conduit Schedule
- Grounding plan

Instrumentation and Controls

- Control Logic Diagrams
- Control Loop Diagrams
- Functional Logic Diagrams
- Control System Diagrams
- Instrumentation Installation Details

6. RESTORATION OF EQUIPMENT

All equipment and areas that were relocated, modified, disturbed, damaged or destroyed during construction shall be repaired, restored or replaced to at least their condition prior to construction.

7. SITE WORK

The construction of the CAA Modifications shall include, but shall not be limited to, all site work necessary to construct and install the CAA Modifications, including but not limited to, utility and underground piping relocation, all landscaping, access roads, gravel areas, outside building lighting, drainage swales, and utility connections. The design and construction of the CAA Modifications shall comply with all governmental requirements.

8. LANDSCAPING, ROADS, AND SIGNS

All landscaping disturbed during construction shall be replaced with plant material identical to that plant material disturbed or destroyed (replacement plants, except trees, shall be a minimum 3 gallon size, trees shall be equal to the size destroyed, if possible). All roads, curbs and gravel areas disturbed or damaged during construction shall be repaired. All signs that were disturbed or damaged during construction shall be repaired or replaced.

9. ARCHITECTURAL TREATMENT

The architectural treatments and colors of the CAA Modifications shall match or coordinate with the existing building architecture so as to minimize the visual appearance that the Facility has been modified from the original construction. Architectural finishes shall be approved by the County

10. CONSTRAINTS DURING CONSTRUCTION

10.1 Construction Access Roads, Project Site Roads and Construction Vehicle Access

All construction access shall be on the existing roads on the Site. When it is necessary to have large and/or slow moving vehicles use the roads on the Site, the Contractor shall coordinate with the Plant Manager and the County prior to such use, and the Contractor shall use best efforts to use these roads at times when refuse vehicles are not (i.e.; other than the hours when the Facility receives refuse) or such other times as approved by the County.

10.2 Construction Laydown, Staging, Construction Employee Parking and Construction Trailer Area

Land for construction laydown, construction employee parking and construction trailers is being made available to the Contractor on the site of the Facility and the landfill, as directed by the County and the Facility Manager. Access to the laydown, staging, construction employee parking and construction trailer area shall be from the Site. The Contractor shall be responsible for following all applicable rules and regulations, including, but not limited to, those for drainage. Use of this area by the Contractor shall be coordinated with the County. At the end of construction, the laydown, staging, construction employee parking and construction trailer area shall be restored by the Contractor to the condition that existed prior to the commencement of construction.

The Contractor may be allowed to use the existing parking lots on the Site for construction employee parking. The number of spaces and time for construction employee parking shall be as approved by the Plant Manager and the County.

10.3 Construction Personnel

Since the Facility will be operating during construction, limitations shall be placed by the Contractor on construction personnel to minimize interference with the operating staff. No construction personnel shall be allowed in the administration areas, tipping building or scale house. Construction personnel shall not use the restrooms or break/lunch rooms in the Facility, and separate facilities for these purposes for use by construction personnel shall be provided on-site by the Contractor. Access of construction personnel to areas of the Facility other than the Boiler and APC Building shall be limited by the Contractor to an as-required basis. Construction personnel shall obey the safety and other rules of the Facility.

10.4 Construction Utilities

The Contractor may use sources of potable water and electricity in the APC building for construction water and power. Liquid waste allowed to go into the sewage system may be disposed of in that manner through the on-site sewerage system. No liquids containing ash and no hazardous or flammable liquids shall be disposed of in the sewage system by the Contractor.

10.5 Location of Cranes

All cranes required for the Work shall be located so as to minimize interferences with the operation of the Facility and damage to the Facility and the Site. The placement of cranes and the duration of their placement, and all relocation of cranes shall be coordinated with the Plant Manager and the County prior to the crane(s) coming on-site.

10.6 Furnace Outages

Outages shall be coordinated with the Plant Manager and the County at least thirty days prior to their scheduled occurrence. No special outage for connection of the new CEM and SNCR equipment shall be scheduled for a furnace if another furnace is scheduled to be out of service during the connection time period.

11. SPARE PARTS

The Contractor shall supply a complement of spare parts which, in his reasonable judgement will allow the Facility to meet all of the Performance Guarantees.

12. RECORD DRAWINGS

The Contractor shall supply the County with Record Drawings of the CAA Modifications showing all changes to the Facility as a result of the work performed under this Amendment 4. The new Record Drawings generated by the Design Engineer shall be delivered to the County as both (a) electronic CADD files compatible with AutoCAD Release 13 and (b) two sets of paper drawings on stick files. The Record Drawings that are modifications of the original Record Drawings shall be delivered to the County as: (a) reproducible mylar sheets; (b) microfiche cards; and (c) two sets of paper drawings on stick files. The As-Built drawings may be stamped "Record Drawings" however they shall show the CAA Modifications after completion of the Retrofit.

13. TRAINING AND OPERATIONS AND MAINTENANCE MANUALS

The Contractor shall provide for having the existing operations personnel adequately trained on the proper operation and maintenance of the CAA Modifications in a timely manner. This training may include, but is not limited to, on-site training by manufacturers representatives, training at facilities which has equipment similar to the CAA Modifications that are operated by Affiliates of the Contractor and training at facilities of the equipment manufacturers.

The Contractor shall update the Operations and Maintenance manuals for the Facility to provide for the proper operation and maintenance of the CAA Modifications.

The Contractor shall provide one set of the updated Operations and Maintenance manuals to the County together with one set of vendor information and manuals for all new equipment and systems.

SCHEDULE 2

CAA MODIFICATION ACCEPTANCE CRITERIA

AND

CAA MODIFICATION ACCEPTANCE TESTS

The following criteria shall be the CAA Modification Acceptance Criteria which the Contractor shall demonstrate pursuant to the CAA Modification Acceptance Tests and the Protocol developed in accordance with Section 2.d of Amendment No. 4.

PART A - CAA MODIFICATION ACCEPTANCE CRITERIA

The following criteria shall be the CAA Modification Acceptance Criteria:

1. Oxides of Nitrogen Acceptance Criteria

Each furnace/boiler shall emit oxides of nitrogen (NO_x) at a concentration of not greater than 205 ppm_{dv} (corrected to 7% O₂) over a 24-hour block average basis while such furnace/boiler is generating at least 90,368 lbs/hr of steam ("Oxides of Nitrogen Acceptance Criteria").

2. Continuous Emission Monitoring System (CEMS) Acceptance Criteria

- 2.1 Each of the individual continuous emission monitor analyzers shall be certified in accordance with applicable laws, rules, and regulations.
- 2.2 The CEMS shall properly calculate and generate the reports for the stack emission parameters required to be calculated and reported by the CEMS in accordance with the requirements of 40 CFR 60 Subpart Cb and F.A.C. 62-204.800 (8)(b).

PART B - CAA MODIFICATION ACCEPTANCE TESTS

The following CAA Modification Acceptance Tests shall be used by the Contractor to determine the extent to which the CAA Modifications satisfies the CAA Modification Acceptance Criteria. The Contractor shall develop the Protocol for performing these CAA Modification Acceptance Tests:

1. Oxides of Nitrogen Acceptance Test

The certified CEMS equipment shall be used to demonstrate compliance with the Oxides of Nitrogen Acceptance Criteria.

2. Continuous Emission Monitoring System (CEMS) Acceptance Tests

- 2.1 The procedures set forth in 40 CFR 60.13 and 40 CFR 60, Appendix B, Performance Specifications shall be used to certify the CEMS analyzers.
- 2.2 The Contractor shall have an independent firm experienced in such matters and acceptable to the County certify that the CEMS properly calculate and generate the reports for the stack emission parameters required to be calculated and reported by the CEMS in accordance with the requirements of 40 CFR 60 Subpart Cb and F.A.C. 62-204.800 (8)(b).

SCHEDULE 3

MILESTONES PAYMENT SCHEDULE

<u>Milestones</u>	<u>Percentage of Price</u>
Notice to Proceed (NTP)	5%
Project Management, Project Services, Engineering & Design, Travel and Non Payroll	30% (After NTP, 4% per month from month 1 through 5, of 2% per month from month 6 through 10.)
SNCR System	
Ammonia Tank P.O.*	10%
Ammonia Tank delivery**	5%
Continuous Emissions Monitoring System	
CEMS Hardware P.O.* (Including CEM enclosure, SO2, O2, NOx analyzers, and sampling system.)	10%
CEMS Hardware delivery to Facility Site**	5%
Construction Mobilization on Site	5%
Construction Progress	
- Ammonia Containment Complete**	3%
- Ammonia Tank Erected **	3%
- Ammonia Piping from Ammonia Containment to Boiler Area Complete**	3%
- CEM OIS Connected to CEM Enclosure**	3%
- All equipment from old CEM enclosure installed and operating with new enclosure**	5%
- Electrical Service to Ammonia Containment Area Complete**	3%
Acceptance	10%

NOTE: Withheld from final payment will be two times the Estimated value of the punch list in accordance with Section 4(e) and (f).

*--Milestone verified by signed unpriced purchase order.

**--Milestone verified by visual inspection.

ORIGINAL



Job Name: Pasco County SNCR Retrofit
Job No.: 120099-7
By: kmb
Checked By:
Subject: EQUIPMENT LIST SM-147 -A1

Revision: Release 0
Date: 08/23/1999
Sheet: 1 of 3

TAG NO.	DESCRIPTION	SPECIFICATION	PROVIDED BY		VENDOR
			OMS	CONT.	
AQ-TK-001	AQUEOUS AMMONIA STORAGE TANK	SNCR - SM - 5	X		WILTSIE
013D002	AMMONIA PUMP NO. 1	SNCR - SM - 7	X		SLOAN & BISCHOFF, INC.
013D003	AMMONIA PUMP NO. 2	SNCR - SM - 7	X		SLOAN & BISCHOFF, INC.
013L004	LOCAL AQUEOUS AMMONIA TRUCK FILLING PANEL		X		
013L005	CONTAINMENT DIKE LEAK DETECTOR		X		VANGUARD CONTROLS
SNCR-AQ-F1	AQUEOUS AMMONIA FILTER	SNCR - SM - 2		X	
SNCR-AQ-F2	AQUEOUS AMMONIA FILTER	SNCR - SM - 2		X	
SNCR- PSV1	PRESSURE SAFETY VALVE No. 1, AQ AMM TK	SNCR - SM - 11		X	Anderson /Greenwood-Crosby
SNCR- PSV2	PRESSURE SAFETY VALVE No. 2, AQ AMM TK	SNCR - SM - 11		X	Anderson /Greenwood-Crosby
SNCR-VBRKR-1	VACUUM BREAKER VALVE, AQ AMM TK	SNCR - SM - 12		X	Durabla
SNCR-AQ-ST1	WYE STRAINER NO. 1	SNCR - SM - 2		X	
SNCR-AQ-ST2	WYE STRAINER NO. 2	SNCR - SM - 2		X	
SNCR-SHWR-0A	SHOWER/EYE WASH NO. 0A			X	
SNCR-SHWR-0B	SHOWER/EYE WASH NO. 0B			X	
013L010	BOILER 1 & 2 AREA NH3 LEAK DETECTOR PANEL		X		VANGUARD CONTROLS
013L011	BOILER 3 AREA NH3 LEAK DETECTOR PANEL		X		VANGUARD CONTROLS
013D013	PURGE AIR BLOWER NO 1	SNCR - SM - 1	X		R&M Associates
013D014	PURGE AIR BLOWER NO 2	SNCR - SM - 1	X		R&M Associates

ORIGINAL



Job Name: Pasco County SNCR Retrofit
Job No.: 120099-7
By: kmb
Checked By:
Subject: EQUIPMENT LIST SM-147 -A1

Revision: Release 0
Date: 08/23/1999
Sheet: 2 of 3

TAG NO.	DESCRIPTION	SPECIFICATION	PROVIDED BY		VENDOR
			OMS	CONT.	
SNCR-LNC-1A	INJECTION LANCE NO 1A	SNCR - SM - 10	X		LECHLER
SNCR-LNC-1B	INJECTION LANCE NO 1B	SNCR - SM - 10	X		LECHLER
SNCR-SHWR-1A	SHOWER/EYE WASH NO. 1A			X	
SNCR-SHWR-1B	SHOWER/EYE WASH NO. 1B			X	
SNCR-SHWR-1C	SHOWER/EYE WASH NO. 1C			X	
SNCR-SHWR-1D	SHOWER/EYE WASH NO. 1D			X	
SNCR-FLX-101A	LANCE 1A FLEX HOSE - PA			X	
SNCR-FLX-102A	LANCE 1A FLEX HOSE - AQ			X	
SNCR-FLX-103A	LANCE 1A FLEX HOSE - WDD			X	
SNCR-FLX-101B	LANCE 1B FLEX HOSE - PA			X	
SNCR-FLX-102B	LANCE 1B FLEX HOSE - AQ			X	
SNCR-FLX-103B	LANCE 1B FLEX HOSE - WDD			X	
SNCR-LNC-2A	INJECTION LANCE NO 2A	SNCR - SM - 10	X		LECHLER
SNCR-LNC-2B	INJECTION LANCE NO 2B	SNCR - SM - 10	X		LECHLER
SNCR-SHWR-2A	SHOWER/EYE WASH NO. 2A			X	
SNCR-SHWR-2B	SHOWER/EYE WASH NO. 2B			X	
SNCR-SHWR-2C	SHOWER/EYE WASH NO. 2C			X	
SNCR-SHWR-2D	SHOWER/EYE WASH NO. 2D			X	
SNCR-FLX-201A	LANCE 2A FLEX HOSE - PA	SNCR - SM - 6		X	
SNCR-FLX-202A	LANCE 2A FLEX HOSE - AQ	SNCR - SM - 6		X	
SNCR-FLX-203A	LANCE 2A FLEX HOSE - WDD	SNCR - SM - 6		X	
SNCR-FLX-201B	LANCE 2B FLEX HOSE - PA	SNCR - SM - 6		X	
SNCR-FLX-202B	LANCE 2B FLEX HOSE - AQ	SNCR - SM - 6		X	
SNCR-FLX-203B	LANCE 2B FLEX HOSE - WDD	SNCR - SM - 6		X	



Job Name: Pasco County SNCR Retrofit
Job No.: 120099-7
By: kmb
Checked By:
Subject: EQUIPMENT LIST SM-147 -A1

Revision: Release 0
Date: 08/23/1999
Sheet: 3 of 3

TAG NO.	DESCRIPTION	SPECIFICAITON	PROVIDED BY		VENDOR
			OMS	CONT.	
SNCR-LNC-3A	INJECTION LANCE NO 3A	SNCR - SM - 10	X		LECHLER
SNCR-LNC-3B	INJECTION LANCE NO 3B	SNCR - SM - 10	X		LECHLER
SNCR-SHWR-3A	SHOWER/EYE WASH NO. 3A			X	
SNCR-SHWR-3B	SHOWER/EYE WASH NO. 3B			X	
SNCR-SHWR-3C	SHOWER/EYE WASH NO. 3C			X	
SNCR-SHWR-3D	SHOWER/EYE WASH NO. 3D			X	
SNCR-FLX-301A	LANCE 3A FLEX HOSE - PA	SNCR - SM - 6		X	
SNCR-FLX-302A	LANCE 3A FLEX HOSE - AQ	SNCR - SM - 6		X	
SNCR-FLX-303A	LANCE 3A FLEX HOSE - WDD	SNCR - SM - 6		X	
SNCR-FLX-301B	LANCE 3B FLEX HOSE - PA	SNCR - SM - 6		X	
SNCR-FLX-302B	LANCE 3B FLEX HOSE - AQ	SNCR - SM - 6		X	
SNCR-FLX-303B	LANCE 3B FLEX HOSE - WDD	SNCR - SM - 6		X	

* Denotes an addition.


** Denotes a revision.

*** Denotes a deletion.

***INSTRUMENT
CALIBRATION
TAG LIST***

NOTES:

0	10/25/99	ISSUED FOR CONSTRUCTION	HT	TK	KB	TK	CM
A	8/27/99	ISSUED FOR REVIEW / BID	HT		KB		
REV.	DATE	DESCRIPTION	BY	CHK.	PROJ. ENG.	APPRO.	PROJ. MGR.

DRAWN BY: HT	 NEPCO	NATIONAL ENERGY PRODUCTION CORPORATION
ENGINEERED BY: HT		THIS DRAWING IS THE PROPERTY OF NEPCO AND IS NOT TO BE USED IN ANY WAY INJURIOUS TO THEIR INTERESTS AND IS TO BE RETURNED UPON REQUEST
FILE NAME: 120099-007 I324 (CALIBRATION TAG LIST)		
DATE STARTED: 28 JUNE 1999		
OGDEN MARTIN SYSTEMS OF PASCO, INC.		
PASCO COUNTY SNCR RETROFIT PASCO COUNTY, FLORIDA		
DWG. No.: 99-7 I324 CALIBRATION		Revision: 0

(INSTRUMENT CALIBRATION TAG LIST)															99-7 I324 CALIBRATION Rev: 0	
REV.	MODIFY	LOOP	TAG	DESCRIPTION	TYPE IO	PID	SPEC SHT	CAL LO	CAL HI	CUNITS	ENG LO	ENG HI	EUNITS	FUNC	DISPLAY	REMARKS
0		100	1NX-AX-100A	NH3 LEAK D. SAMPLE POINT LFT BLR #1	EXM	P01	SC352	---	---	---	---	---	---	---	---	---
0		100	1NX-AX-100B	NH3 LEAK D. SAMPLE POINT RGT BLR #1	EXM	P01	SC352	---	---	---	---	---	---	---	---	---
0		100	1NX-USH-100	NH3 LEAK DETECTOR HI ALARM BLR #1	DI	P01	SC352	---	---	---	---	---	---	---	---	---
0		100	2NX-AX-100A	NH3 LEAK D. SAMPLE POINT LFT BLR #1	EXM	P01	SC352	---	---	---	---	---	---	---	---	---
0		100	2NX-AX-100B	NH3 LEAK D. SAMPLE POINT RGT BLR #2	EXM	P01	SC352	---	---	---	---	---	---	---	---	---
0		100	2NX-USH-100	NH3 LEAK DETECTOR HI ALARM BLR #2	DI	P01	SC352	---	---	---	---	---	---	---	---	---
0		100	NX-AIT-100	NH3 LEAK DETECTOR BLR #1, #2	EXE	P01	SC352	---	---	---	---	---	---	---	---	---
0		100	NX-UA-100	NH3 DETECTOR LOCAL HORN	EXE	P01	SC352	---	---	---	---	---	---	---	---	---
0		100	NX-XS-100	NH3 LEAK DETECTOR FAILED BLR #1, #2	DI	P01	SC352	---	---	---	---	---	---	---	---	---
0		101	3NX-AX-101A	NH3 LEAK D. SAMPLE POINT LFT BLR #3	EXM	P01	SC352	---	---	---	---	---	---	---	---	---
0		101	3NX-AX-101B	NH3 LEAK D. SAMPLE POINT RGT BLR #3	EXM	P01	SC352	---	---	---	---	---	---	---	---	---
0		101	3NX-USH-101	NH3 LEAK DETECTOR HI ALARM BLR #3	DI	P01	SC352	---	---	---	---	---	---	---	---	---
0		101	NX-AIT-101	NH3 LEAK DETECTOR BLR #3	EXE	P01	SC352	---	---	---	---	---	---	---	---	---
0		101	NX-UA-101	NH3 DETECTOR LOCAL HORN	EXE	P01	SC352	---	---	---	---	---	---	---	---	---
0		101	NX-XS-101	NH3 LEAK DETECTOR FAILED BLR #3	DI	P01	SC352	---	---	---	---	---	---	---	---	---
0		102	1NX-HS-102A	HAND SW BLR #1 EMERG STOP LEFT	DI	P01	---	---	---	---	---	---	---	---	---	DECKS 1, 2 OF SW ELECT, D. 3 I & C
0		102	1NX-HS-102B	HAND SW BLR #1 EMERG STOP RIGHT	EXE	P01	---	---	---	---	---	---	---	---	---	DECKS 1, 2 OF SW ELECT, D. 3 I & C
0		102	2NX-HS-102A	HAND SW BLR #2 EMERG STOP LEFT	DI	P01	---	---	---	---	---	---	---	---	---	DECKS 1, 2 OF SW ELECT, D. 3 I & C
0		102	2NX-HS-102B	HAND SW BLR #2 EMERG STOP RIGHT	EXE	P01	---	---	---	---	---	---	---	---	---	DECKS 1, 2 OF SW ELECT, D. 3 I & C
0		102	3NX-HS-102A	HAND SW BLR #3 EMERG STOP LEFT	DI	P01	---	---	---	---	---	---	---	---	---	DECKS 1, 2 OF SW ELECT, D. 3 I & C
0		102	3NX-HS-102B	HAND SW BLR #3 EMERG STOP RIGHT	EXE	P01	---	---	---	---	---	---	---	---	---	DECKS 1, 2 OF SW ELECT, D. 3 I & C
0		103	1NX-FCV-103	AMMONIA FLOW CONTROL VALVE 1	EXM	P01	SC316	---	---	---	---	---	---	---	---	---
0		103	1NX-FE-103	AMMONIA FLOW ELEMENT BLR #1	EXM	P01	SC310B	---	---	---	---	---	---	---	---	PART OF 1NX-FIT-103
0		103	1NX-FIT-103	FLOW XMTR 1, AMMONIA	AI	P01	SC310B	0	40	GPH	0	40	GPH	---	---	XMTR PWR 120VAC
0		103	1NX-FY-103	1NX-FCV-103 I/P	AO	P01	SC316	---	---	---	---	---	---	---	---	---
0		103	1NX-NV-103	1NX-FCV-103 CONTROL SOLENOID	DO	P01	SC316	---	---	---	---	---	---	---	---	---
0		103	1NX-ZSC-103	1NX-FCV-103 LIMIT SWITCH	DI	P01	SC316	---	---	---	---	---	---	---	---	---
0		103	2NX-FCV-103	AMMONIA FLOW CONTROL VALVE 2	EXM	P01	SC316	---	---	---	---	---	---	---	---	---
0		103	2NX-FE-103	AMMONIA FLOW ELEMENT BLR #2	EXM	P01	SC310B	---	---	---	---	---	---	---	---	PART OF 1NX-FIT-103
0		103	2NX-FIT-103	FLOW XMTR 2, AMMONIA	AI	P01	SC310B	0	40	GPH	0	40	GPH	---	---	XMTR PWR 120VAC
0		103	2NX-FY-103	2NX-FCV-103 I/P	AO	P01	SC316	---	---	---	---	---	---	---	---	---
0		103	2NX-NV-103	2NX-FCV-103 CONTROL SOLENOID	DO	P01	SC316	---	---	---	---	---	---	---	---	---
0		103	2NX-ZSC-103	2NX-FCV-103 LIMIT SWITCH	DI	P01	SC316	---	---	---	---	---	---	---	---	---
0		103	3NX-FCV-103	AMMONIA FLOW CONTROL VALVE 3	EXM	P01	SC316	---	---	---	---	---	---	---	---	---
0		103	3NX-FE-103	AMMONIA FLOW ELEMENT BLR #3	EXM	P01	SC310B	---	---	---	---	---	---	---	---	PART OF 1NX-FIT-103
0		103	3NX-FIT-103	FLOW XMTR 3, AMMONIA	AI	P01	SC310B	0	40	GPH	0	40	GPH	---	---	XMTR PWR 120VAC
0		103	3NX-FY-103	3NX-FCV-103 I/P	AO	P01	SC316	---	---	---	---	---	---	---	---	---
0		103	3NX-NV-103	3NX-FCV-103 CONTROL SOLENOID	DO	P01	SC316	---	---	---	---	---	---	---	---	---
0		103	3NX-ZSC-103	3NX-FCV-103 LIMIT SWITCH	DI	P01	SC316	---	---	---	---	---	---	---	---	---
0		105	1NX-PI-105	1NX-FCV-103 INLET PRESS	EXM	P01	SC323	0	60	PSIG	---	---	---	---	---	---
0		105	2NX-PI-105	2NX-FCV-103 INLET PRESS	EXM	P01	SC323	0	60	PSIG	---	---	---	---	---	---
0		105	3NX-PI-105	3NX-FCV-103 INLET PRESS	EXM	P01	SC323	0	60	PSIG	---	---	---	---	---	---
0		106	1NX-PI-106	1NX-FCV-103 OUTLET PRESS	EXM	P01	SC323	0	30	PSIG	---	---	---	---	---	---
0		106	2NX-PI-106	2NX-FCV-103 OUTLET PRESS	EXM	P01	SC323	0	30	PSIG	---	---	---	---	---	---
0		106	3NX-PI-106	3NX-FCV-103 OUTLET PRESS	EXM	P01	SC323	0	30	PSIG	---	---	---	---	---	---
0		107	1NX-FI-107A	AMMONIA FLOW GAGE FCV100 LEFT	EXM	P01	SC310C	2.2	22	GPH	---	---	---	---	---	---
0		107	1NX-FI-107B	AMMONIA FLOW GAGE FCV100 RIGHT	EXM	P01	SC310C	2.2	22	GPH	---	---	---	---	---	---

(INSTRUMENT CALIBRATION TAG LIST)																99-7 I324 CALIBRATION Rev. 0
REV.	MODIFY	LOOP	TAG	DESCRIPTION	TYPE IO	PID	SPEC SHT	CAL LO	CAL HI	CUNITS	ENG LO	ENG HI	EUNITS	FUNC	DISPLAY	REMARKS
0		107	2NX-FI-107A	AMMONIA FLOW GAGE 2NX-FCV-100 LEFT	EXM	P01	SC310C	2.2	22	GPH	---	---	---	---	---	---
0		107	2NX-FI-107B	AMMONIA FLOW GAGE 2NX-FCV-100 RIGHT	EXM	P01	SC310C	2.2	22	GPH	---	---	---	---	---	---
0		107	3NX-FI-107A	AMMONIA FLOW GAGE 3NX-FCV-100 LEFT	EXM	P01	SC310C	2.2	22	GPH	---	---	---	---	---	---
0		107	3NX-FI-107B	AMMONIA FLOW GAGE 3NX-FCV-100 RIGHT	EXM	P01	SC310C	2.2	22	GPH	---	---	---	---	---	---
0		108	1NX-NV-108	1NX-PRV-108 CONTROL SOLENOID	DO	P01	SC316	--	---	---	---	---	---	---	---	---
0		108	1NX-PIC-108	PNEUMATIC CONTROLLER 1NX-PRV-120	EXM	P01	SC316	---	---	---	---	---	---	---	---	---
0		108	1NX-PRV-108	CARRIER WATER PRESS REG VALVE 1	EXM	P01	SC316	---	---	---	---	---	---	---	---	---
0		108	1NX-ZSC-108	1NX-PRV-108 LIMIT SWITCH	DI	P01	SC316	---	---	---	---	---	---	---	---	---
0		108	2NX-NV-108	2NX-PRV-108 CONTROL SOLENOID	DO	P01	SC316	--	---	---	---	---	---	---	---	---
0		108	2NX-PIC-108	PNEUMATIC CONTROLLER 2NX-PRV-120	EXM	P01	SC316	---	---	---	---	---	---	---	---	---
0		108	2NX-PRV-108	CARRIER WATER PRESS REG VALVE 2	EXM	P01	SC316	---	---	---	---	---	---	---	---	---
0		108	2NX-ZSC-108	2NX-PRV-108 LIMIT SWITCH	DI	P01	SC316	--	---	---	---	---	---	---	---	---
0		108	3NX-NV-108	3NX-PRV-108 CONTROL SOLENOID	DO	P01	SC316	---	---	---	---	---	---	---	---	---
0		108	3NX-PIC-108	PNEUMATIC CONTROLLER 3NX-PRV-120	EXM	P01	SC316	---	---	---	---	---	---	---	---	---
0		108	3NX-PRV-108	CARRIER WATER PRESS REG VALVE 3	EXM	P01	SC316	---	---	---	---	---	---	---	---	---
0		108	3NX-ZSC-108	3NX-PRV-108 LIMIT SWITCH	DI	P01	SC316	---	---	---	---	---	---	---	---	---
0		109	1NX-PI-109	1NX-PRV-108 INLET PRESS	EXM	P01	SC323	0	160	PSIG	---	---	---	---	---	---
0		109	2NX-PI-109	2NX-PRV-108 INLET PRESS	EXM	P01	SC323	0	160	PSIG	---	---	---	---	---	---
0		109	3NX-PI-109	3NX-PRV-108 INLET PRESS	EXM	P01	SC323	0	160	PSIG	---	---	---	---	---	---
0		110	NX-AIT-110	NH3 LEAK DETECTOR STG TANK	EXE	P01	SC352	---	---	---	---	---	---	---	---	---
0		110	NX-LG-110	AMMONIA TANK LEVEL GAUGE	EXM	P01	SC312	---	---	---	---	---	---	---	---	---
0		111	NX-LSH-111	AMMONIA TANK LEVEL SW HI	DI	P01	SC312B	---	---	---	---	---	---	---	---	---
0		112	NX-LSL-112	AMMONIA TANK LEVEL SW LO	DI	P01	SC312B	---	---	---	---	---	---	---	---	---
0		113	NX-LSLL-113	AMMONIA TANK LEVEL SW LO LO	DI	P01	SC312B	---	---	---	---	---	---	---	---	---
0		114	NX-PI-114	AMMONIA TANK PRESS GAUGE	EXM	P01	SC323	0	30	PSIG	---	---	---	---	---	---
0		115	NX-TI-115	AMMONIA TANK TEMP GAUGE	EXM	P01	SC311A	20	150	DEG F	---	---	---	---	---	---
0		116	NX-PI-116A	AMMONIA PUMP #1 DISH PRESS GAUGE	EXM	P01	SC323	0	100	PSIG	---	---	---	---	---	---
0		116	NX-PI-116B	AMMONIA PUMP #2 DISH PRESS GAUGE	EXM	P01	SC323	0	100	PSIG	---	---	---	---	---	---
0		117	NX-PI-117A	AMMONIA PUMP #1 SUC PRESS GAUGE	EXM	P01	SC323	0	60	PSIG	---	---	---	---	---	---
0		117	NX-PI-117B	AMMONIA PUMP #2 SUC PRESS GAUGE	EXM	P01	SC323	0	60	PSIG	---	---	---	---	---	---
0		119	NX-HS-119	HAND SW EMERG STOP CONTAINMNT AREA	DI	P02	---	---	---	---	---	---	---	---	---	DECKS 1, 2 OF SW ELECT, D. 3 I & C
0		121	NX-PI-121	AMMONIA PUMP DISCH HDR PRESS IND	EXM	P01	SC323	0	100	PSIG	---	---	---	---	---	---
0		121	NX-PSL-121	AMMONIA PUMPS DISCH PRESS SW	DI	P01	SC314A	---	---	---	---	---	---	---	---	---
0		122	NX-PDI-122	AMMONIA FILTER DIFF PRESS GAUGE	EXM	P01	SC323A	0	10	PSI	---	---	---	---	---	---
0		123	NX-AX-123A	NH3 LEAK D. SAMPLE POINT TANK NW	EXM	P01	SC352	---	---	---	---	---	---	---	---	---
0		123	NX-AX-123B	NH3 LEAK D. SAMPLE POINT TANK NE	EXM	P01	SC352	--	---	---	---	---	---	---	---	---
0		123	NX-AX-123C	NH3 LEAK D. SAMPLE POINT TANK SW	EXM	P01	SC352	---	---	---	---	---	---	---	---	---
0		123	NX-AX-123D	NH3 LEAK D. SAMPLE POINT TANK SE	EXM	P01	SC352	---	---	---	---	---	---	---	---	---
0		123	NX-USH-123	NH3 LEAK DETECTOR HI ALARM TANK	DI	P01	SC352	---	---	---	---	---	---	---	---	---
0		123	NX-XS-123	NH3 LEAK DETECTOR FAILED TANK	DI	P01	SC352	--	---	---	---	---	---	---	---	---
0		124	NX-LSH-124	AMMONIA TANK SUMP LEVEL HI	DI	P01	SC312B	---	---	---	---	---	---	---	---	---
0		125	NX-UA-125	NH3 DETECTOR LOCAL HORN	EXE	P01	SC352	---	---	---	---	---	---	---	---	---
0		126	NX-RO-126	AMMONIA PUMPS RECIRC ORIFICE A	EXM	P01	SC322	---	---	---	---	---	---	---	---	---
0		127	NX-RO-127	AMMONIA PUMPS RECIRC ORIFICE B	EXM	P01	SC322	---	---	---	---	---	---	---	---	---
0		130	NX-PSL-130	DEMIN WATER PRESSURE LO	DI	P03	SC314A	---	---	---	---	---	---	---	---	---
0		140	1NX-PI-140A	BLR #1 LEFT NOZZLE AIR PRESS	EXM	P02	SC323	0	5	PSIG	---	---	---	---	---	---
0		140	1NX-PI-140B	BLR #1 RIGHT NOZZLE AIR PRESS	EXM	P02	SC323	0	5	PSIG	---	---	---	---	---	---

REV.	MODIFY	LOOP	TAG	DESCRIPTION	TYPE IO	PID	SPEC SHT	CAL LO	CAL HI	CUNITS	ENG LO	ENG HI	EUNITS	FUNC	DISPLAY	REMARKS
0		140	2NX-PI-140A	BLR #2 LEFT NOZZLE AIR PRESS	EXM	P02	SC323	0	5	PSIG	---	---	---	---	---	---
0		140	2NX-PI-140B	BLR #2 RIGHT NOZZLE AIR PRESS	EXM	P02	SC323	0	5	PSIG	---	---	---	---	---	---
0		140	3NX-PI-140A	BLR #3 LEFT NOZZLE AIR PRESS	EXM	P02	SC323	0	5	PSIG	---	---	---	---	---	---
0		140	3NX-PI-140B	BLR #3 RIGHT NOZZLE AIR PRESS	EXM	P02	SC323	0	5	PSIG	---	---	---	---	---	---
0		141	1NX-PI-141A	DEMIN WTR BLR #1 LANCE A PRESS IND	EXM	P01	SC323	0	30	PSIG	---	---	---	---	---	---
0		141	1NX-PI-141B	DEMIN WTR BLR #1 LANCE A PRESS IND	EXM	P01	SC323	0	30	PSIG	---	---	---	---	---	---
0		141	2NX-PI-141A	DEMIN WTR BLR #1 LANCE A PRESS IND	EXM	P01	SC323	0	30	PSIG	---	---	---	---	---	---
0		141	2NX-PI-141B	DEMIN WTR BLR #1 LANCE A PRESS IND	EXM	P01	SC323	0	30	PSIG	---	---	---	---	---	---
0		141	3NX-PI-141A	DEMIN WTR BLR #1 LANCE A PRESS IND	EXM	P01	SC323	0	30	PSIG	---	---	---	---	---	---
0		141	3NX-PI-141B	DEMIN WTR BLR #1 LANCE A PRESS IND	EXM	P01	SC323	0	30	PSIG	---	---	---	---	---	---
0		142	NX-PI-142	DEMIN WATER SUPPLY PRESS	EXM	P01	SC323	0	160	PSIG	---	---	---	---	---	---
0		143	1NX-PI-143	1NX-PRV-108 OUTLET PRESS	EXM	P01	SC323	0	30	PSIG	---	---	---	---	---	---
0		143	1NX-PSL-143	DEMIN WATER PRESSURE LO BLR #1	DI	P01	SC314A	---	---	---	---	---	---	---	---	---
0		143	2NX-PI-143	2NX-PRV-108 OUTLET PRESS	EXM	P01	SC323	0	30	PSIG	---	---	---	---	---	---
0		143	2NX-PSL-143	DEMIN WATER PRESSURE LO BLR #2	DI	P01	SC314A	---	---	---	---	---	---	---	---	---
0		143	3NX-PI-143	3NX-PRV-108 OUTLET PRESS	EXM	P01	SC323	0	30	PSIG	---	---	---	---	---	---
0		143	3NX-PSL-143	DEMIN WATER PRESSURE LO BLR #3	DI	P01	SC314A	---	---	---	---	---	---	---	---	---
0		144	1NX-FI-144A	DEMINWATER FLOW PRV120NX LEFT	EXM	P01	SC310C	0	18	GPH	---	---	---	---	---	---
0		144	1NX-FI-144B	DEMINWATER FLOW PRV120NX RIGHT	EXM	P01	SC310C	0	18	GPH	---	---	---	---	---	---
0		144	2NX-FI-144A	DEMINWATER FLOW PRV120 LEFT	EXM	P01	SC310C	0	18	GPH	---	---	---	---	---	---
0		144	2NX-FI-144B	DEMINWATER FLOW PRV220 RIGHT	EXM	P01	SC310C	0	18	GPH	---	---	---	---	---	---
0		144	3NX-FI-144A	DEMINWATER FLOW 3NX-PRV120 LEFT	EXM	P01	SC310C	0	18	GPH	---	---	---	---	---	---
0		144	3NX-FI-144B	DEMINWATER FLOW 3NX-PRV120 RIGHT	EXM	P01	SC310C	0	18	GPH	---	---	---	---	---	---
0		146	NX-PIC-146	BLOWERS DISCH PRESS CONTROLLER	EXM	P02	SC316	---	---	---	---	---	---	---	---	---
0		146	NX-PRV-146	BLOWER PRESS CNTRL VALVE	EXM	P02	SC316	---	---	---	---	---	---	---	---	---
0		147	NX-PI-147	BLOWERS OUTLET AIR PRESS	EXM	P02	SC323	0	10	PSIG	---	---	---	---	---	---
0		147	NX-PSL-147	BLOWERS DISCHARGE AIR PRESS	DI	P02	SC314A	---	---	---	---	---	---	---	---	---
0		148	NX-FSH-148A	EYE-WASH TANK AREA #1 ALARM	DI	P03	SC310A	---	---	---	---	---	---	---	---	---
0		148	NX-FSH-148B	EYE-WASH TANK AREA #2 ALARM	DI	P03	SC310A	---	---	---	---	---	---	---	---	---
0		149	1NX-FSH-149	EYE-WASH BLR #1 LEFT ALARM	DI	P03	SC310A	---	---	---	---	---	---	---	---	---
0		149	2NX-FSH-149	EYE-WASH BLR #2 LEFT ALARM	DI	P03	SC310A	---	---	---	---	---	---	---	---	---
0		149	3NX-FSH-149A	EYE-WASH BLR #3 LEFT ALARM	DI	P03	SC310A	---	---	---	---	---	---	---	---	---
0		149	3NX-FSH-149B	EYE-WASH BLR #3 RIGHT ALARM	DI	P03	SC310A	---	---	---	---	---	---	---	---	---
0		1001	1NX-AY-1001	CEMS 1 CO SIGNAL STACK	AI	OM	---	4	20	mA	0	1000	ppm	---	---	---
0		1001	2NX-AY-1001	CEMS 2 CO SIGNAL STACK	AI	OM	---	4	20	mA	0	1000	ppm	---	---	---
0		1001	3NX-AY-1001	CEMS 3 CO SIGNAL STACK	AI	OM	---	4	20	mA	0	1000	ppm	---	---	---
0		1002	1NX-AY-1002	CEMS 1 CO2 SIGNAL STACK	AI	OM	---	4	20	mA	0	20	%	---	---	---
0		1002	2NX-AY-1002	CEMS 2 CO2 SIGNAL STACK	AI	OM	---	4	20	mA	0	20	%	---	---	---
0		1002	3NX-AY-1002	CEMS 3 CO2 SIGNAL STACK	AI	OM	---	4	20	mA	0	20	%	---	---	---
0		1003	1NX-AY-1003	CEMS 1 NOx SIGNAL STACK	AI	OM	---	4	20	mA	0	1000	ppm	---	---	---
0		1003	2NX-AY-1003	CEMS 2 NOx SIGNAL STACK	AI	OM	---	4	20	mA	0	1000	ppm	---	---	---
0		1003	3NX-AY-1003	CEMS 3 NOx SIGNAL STACK	AI	OM	---	4	20	mA	0	1000	ppm	---	---	---
0		1004	1NX-AY-1004	CEMS 1 O2 SIGNAL STACK	AI	OM	---	4	20	mA	0	25	%	---	---	---
0		1004	2NX-AY-1004	CEMS 2 O2 SIGNAL STACK	AI	OM	---	4	20	mA	0	25	%	---	---	---
0		1004	3NX-AY-1004	CEMS 3 O2 SIGNAL STACK	AI	OM	---	4	20	mA	0	25	%	---	---	---
0		1005	1NX-FI-1005	CEMS 1 FROM BOILER #1 MAIN STEAM FLOW	AO	OM	---	4	20	mA	0	---	LB/HR	---	---	TO CONFIRM RANGE
0		1005	2NX-FI-1005	CEMS 2 FROM BOILER #2 MAIN STEAM FLOW	AO	OM	---	4	20	mA	---	---	LB/HR	---	---	TO CONFIRM RANGE


REV.	MODIFY	LOOP	TAG	DESCRIPTION	TYPE IO	PID	SPEC SHT	CAL LO	CAL HI	CUNITS	ENG LO	ENG HI	EUNITS	FUNC	DISPLAY	REMARKS
0		1005	3NX-FI-1005	CEMS 3 FROM BOILER #3 MAIN STEAM FLOW	AO	OM	---	4	20	mA	---	---	LB/HR	---	---	TOCONFIRM RANGE
0		1006	1NX-TI-1006	CEMS 1 FROM BOILER #1 FURNACE TEMP	AO	OM	---	4	20	mA	---	---	DEG F	---	---	TO CONFIRM RANGE
0		1006	2NX-TI-1006	CEMS 2 FROM BOILER #2 FURNACE TEMP	AO	OM	---	4	20	mA	---	---	DEG F	---	---	TO CONFIRM RANGE
0		1006	3NX-TI-1006	CEMS 3 FROM BOILER #3 FURNACE TEMP	AO	OM	---	4	20	mA	---	---	DEG F	---	---	TO CONFIRM RANGE
0		1007	1NX-AY-1007	CEMS 1 O2 SIGNAL ECONOMIZER	AI	OM	---	4	20	mA	0	25	%	---	---	---
0		1007	2NX-AY-1007	CEMS 2 O2 SIGNAL ECONOMIZER	AI	OM	---	4	20	mA	0	25	%	---	---	---
0		1007	3NX-AY-1007	CEMS 3 O2 SIGNAL ECONOMIZER	AI	OM	---	4	20	mA	0	25	%	---	---	---
0		1008	1NX-AY-1008	CEMS 1 SO2 SIGNAL STACK	AI	OM	---	4	20	mA	0	1000	ppm	---	---	---
0		1008	2NX-AY-1008	CEMS 2 SO2 SIGNAL STACK	AI	OM	---	4	20	mA	0	1000	ppm	---	---	---
0		1008	3NX-AY-1008	CEMS 3 SO2 SIGNAL STACK	AI	OM	---	4	20	mA	0	1000	ppm	---	---	---
0		1009	1NX-AY-1009	CEMS 1 SO2 SIGNAL ECONOMIZER	AI	OM	---	4	20	mA	0	1000	ppm	---	---	---
0		1009	2NX-AY-1009	CEMS 2 SO2 SIGNAL ECONOMIZER	AI	OM	---	4	20	mA	0	1000	ppm	---	---	---
0		1009	3NX-AY-1009	CEMS 3 SO2 SIGNAL ECONOMIZER	AI	OM	---	4	20	mA	0	1000	ppm	---	---	---
0		13002	NX-013A002	AMMONIA PUMP #1 START	DO	---	---	---	---	---	---	---	---	---	---	---
0		13002	NX-013X002A	AMMONIA PUMP #1 RUNNING MCC 42a	DI	---	---	---	---	---	---	---	---	---	---	CONTACTS FROM MCC
0		13002	NX-013X002B	AMMONIA PUMP #1 STOP MCC 42b	DI	---	---	---	---	---	---	---	---	---	---	CONTACTS FROM MCC
0		13003	NX-013A003	AMMONIA PUMP #2 START	DO	---	---	---	---	---	---	---	---	---	---	---
0		13003	NX-013X003A	AMMONIA PUMP #2 RUNNING MCC 42a	DI	---	---	---	---	---	---	---	---	---	---	CONTACTS FROM MCC
0		13003	NX-013X003B	AMMONIA PUMP #2 STOP MCC 42b	DI	---	---	---	---	---	---	---	---	---	---	CONTACTS FROM MCC
0		13013	NX-013A013	BLOWER #1 START	DO	---	---	---	---	---	---	---	---	---	---	---
0		13013	NX-013X013A	BLOWER #1 RUNNING 42a CONTACT MCC	DI	---	---	---	---	---	---	---	---	---	---	CONTACTS FROM MCC
0		13013	NX-013X013B	BLOWER #1 STOP 42b CONTACT MCC	DI	---	---	---	---	---	---	---	---	---	---	CONTACTS FROM MCC
0		13014	NX-013A014	BLOWER #2 START	DO	---	---	---	---	---	---	---	---	---	---	---
0		13014	NX-013X014A	BLOWER #2 RUNNING 42a CONTACT MCC	DI	---	---	---	---	---	---	---	---	---	---	CONTACTS FROM MCC
0		13014	NX-013X014B	BLOWER #2 STOP 42b CONTACT MCC	DI	---	---	---	---	---	---	---	---	---	---	CONTACTS FROM MCC

ORIGINAL


NOTES:

REFERENCE SPECS:

REFERENCE DWGS:


11-8-99
Robert C Wilson
Florida PE 41533

0	11/4/99	ISSUED FOR CONSTRUCTION	EH	RAW	KD	TEH	ac
A		ISSUED FOR REVIEW & BID 1999 SNCR ADDITION	LG	PMD		TH	
REV.	DATE	DESCRIPTION	BY	CHK.	PROJ. ENG.	APPRO.	MGR. ENG.

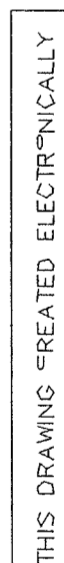
DRAWN BY: L GILL	 NATIONAL ENERGY PRODUCTION CORPORATION NEPCO <small>THIS DRAWING IS THE PROPERTY OF ZURN/NEPCO AND IS NOT TO BE USED IN ANY WAY INJUROUS TO THEIR INTERESTS AND IS TO BE RETURNED UPON REQUEST</small>
ENGINEERED BY: P DOW	
FILE NAME: 99-007E (LOAD LIST)	
DATE STARTED: 6/23/99	
PASCO COUNTY 1999 SNCR ADDITION	
OGDEN MARTIN SYSTEMS OF PASCO, INC. PASCO COUNTY FLORIDA	
ELECTRICAL EQUIPMENT LIST	
DWG. No.: 99-7 E601	
Revision: 0	


Rev	ID # Equipment	Description	Voltage	Ø	Service Load Enter Only One Value			FLA	Diversity Factor	Feeder (Source)	Starter/ Breaker	Remarks
					HP	KW	KVA					
A	013D002	SNCR AMMONIA PUMP NO.1										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	013D003	SNCR AMMONIA PUMP NO.2										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	013D013	SNCR PURGE AIR BLOWER NO.1										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	013D014	SNCR PURGE AIR BLOWER NO.2										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	013E002	SNCR BOILER NO.1 NH3 PUMPS EMER STOP STATION JB										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	013E002A	SNCR BOILER NO.1 NH3 PUMPS EMER STOP STATION (LEFT)										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	013E002B	SNCR BOILER NO.1 NH3 PUMPS EMER STOP STATION (RIGHT)										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	013E003	SNCR BOILER NO.2 NH3 PUMPS EMER STOP STATION JB										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	013E003A	SNCR BOILER NO.2 NH3 PUMPS EMER STOP STATION (LEFT)										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	013E003B	SNCR BOILER NO.2 NH3 PUMPS EMER STOP STATION (RIGHT)										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	013E004	SNCR BOILER NO.3 NH3 PUMPS EMER STOP STATION JB										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	013E004A	SNCR BOILER NO.3 NH3 PUMPS EMER STOP STATION (LEFT)										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	013E004B	SNCR BOILER NO.3 NH3 PUMPS EMER STOP STATION (RIGHT)										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	013L004	SNCR NH3 TANK LOCAL TRUCK FILL PANEL										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	013L005	SNCR NH3 TANK CONTAINMENT LEAK DET PANEL										SUPPLIED BY OMS, INSTALLED BY ELEC/INST CONTRACTOR
A	013L010	SNCR BOILER 1 & 2 AREA NH3 LEAK DET PANEL										SUPPLIED BY OMS, INSTALLED BY ELEC/INST CONTRACTOR
A	013L011	SNCR BOILER 3 AREA NH3 LEAK DET PANEL										SUPPLIED BY OMS, INSTALLED BY ELEC/INST CONTRACTOR
A	013L012	CEMS OPERATOR CONSOLE (NEW)										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	013L100	DCS TERMINATION CABINET - BOP										EXISTING
A	013L100A	DCS TERMINATION CABINET - BOILER NO.1										EXISTING
A	013L100B	DCS TERMINATION CABINET - BOILER NO.2										EXISTING
A	013L100C	DCS TERMINATION CABINET - BOILER NO.3										EXISTING
B	013L101	AUXILIARY RELAY PANEL										SUPPLIED AND INSTALLED BY MECH CONTRACTOR
A	016E125	EXISTING 480V MCC NJS-MCCBA - STACK 8										EXISTING
A	016E130	EXISTING 480V MCC NJS-MCCBB - STACK 5										EXISTING
A	016E176A	EXISTING 120V DIST PANEL										EXISTING
A	016E258	EXISTING UPS 120V DIST PANEL										EXISTING
A	016E801	EXISTING 120V DIST PANEL NJS-XBP1										EXISTING
A	016E802	EXISTING 120V INST DIST PANEL NJS-XBPI2										EXISTING
A	016E803	EXISTING UPS 120V DIST PNL VBB-UPNL1										EXISTING
A	016E851	EXISTING APC 480V MCC MBC-MCC1										EXISTING
A	016E852	EXISTING APC 480V MCC MBC-MCC2										EXISTING
A	016E853	EXISTING APC 480V MCC MBC-MCC3										EXISTING
A	016E854	CEMS SYSTEM JUNCTION BOX JB-1										EXISTING
A	016E855	EXISTING CEMS SYSTEM PWR DIST PNL CP-2										EXISTING
A	016E856	EXISTING CEMS SYSTEM PWR DIST PNL CP-3										EXISTING

Rev	ID # Equipment	Description	Voltage	Ø	Service Load Enter Only One Value			FLA	Diversity Factor	Feeder (Source)	Starter/ Breaker	Remarks
					HP	KW	KVA					
A	016E861	EXISTING CEMS SIGNAL INTERFACE J.B. NO.1										EXISTING
A	016E862	EXISTING CEMS SIGNAL INTERFACE J.B. NO.2										EXISTING
A	016E900	SNCR NH3 TANK DIKE SUMP PUMP 120VAC RECEPT										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	016E901	SNCR TANK AREA 120V DIST PANEL NJS-DP1A										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
B	016E951	CEMS 30KVA TRANSFORMER NO.1										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
B	016E952	CEMS 30KVA TRANSFORMER NO.2										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
B	016E953	CEMS 30KVA TRANSFORMER NO.3										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
B	016E954	CEMS AIR COND NO.1 BREAKER CABINET										SUPPLIED BY OEG, INSTALLED BY CONTRACTOR
B	016E954A	CEMS A.C. UNIT NO.1										SUPPLIED AND INSTALLED BY OEG
A	016E955	CEMS AIR COND NO.2 BREAKER CABINET										MOUNTED ON CEMS ENCLOSURE
B	016E955A	CEMS A.C. UNIT NO.2										SUPPLIED AND INSTALLED BY OEG
B	016E961	CEMS 120/208V DIST. PANEL 1 (CP-CEM-1)										SUPPLIED AND INSTALLED BY OEG
B	016E962	CEMS 120/208V DIST. PANEL 2 (CP-CEM-2)										SUPPLIED AND INSTALLED BY OEG
B	016E963	CEMS 120/208V DIST. PANEL 3 (CP-CEM-3)										SUPPLIED AND INSTALLED BY OEG
B-	016E972	DELETED										
B-	016E973	DELETED										
A	016E974	CEMS SIGNAL & COMM INTERFACE JUNCTION BOX										MOUNTED ON CEMS ENCLOSURE
A	016E975	TELEPHONE INTERFACE CABINET										EXISTING
A	016E981	CEMS RACK NO.1										MOUNTED IN CEMS ENCLOSURE BY OMS
A	016E982	CEMS RACK NO.2										MOUNTED IN CEMS ENCLOSURE BY OMS
A	016E983	CEMS RACK NO.3										MOUNTED IN CEMS ENCLOSURE BY OMS
A	016E990	CNTL PULL BOX - BOILER NO.3										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	016E991	POWER PULL BOX - BOILER NO.1										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	016E992	CNTL PULL BOX - BOILER NO.1										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	016E993	INST PULL BOX - BOILER NO.1										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	016E994	CNTL PULL BOX - BOILER NO.2										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	016E995	INST PULL BOX - BOILER NO.2										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	016E996	CNTL PULL BOX - NH3 TANK AREA										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	016E997	POWER PULL BOX - SNCR NH3 TANK AREA										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	016E998	INST PULL BOX - SNCR NH3 TANK AREA										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	016E999	INST PULL BOX - BOILER NO.3										SUPPLIED AND INSTALLED BY ELEC/INST CONTRACTOR
A	1NXFIT103	SNCR BOILER NO.1 NH3 INJ FLOW XMTR										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	1NXFSH100B	DELETED										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	1NXFSH100C	DELETED										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	1NXFSH100D	DELETED										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	1NXFSH149	SNCR BOILER NO.1 SAFETY SHWR (LT) FLOW SW (HI)										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR

Rev	ID # Equipment	Description	Voltage	Ø	Service Load Enter Only One Value			FLA	Diversity Factor	Feeder (Source)	Starter/ Breaker	Remarks
					HP	KW	KVA					
A	1NXFY103	SNCR BOILER NO.1 NH3 INJ CNTL VLV I/P										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	1NXNV103	SNCR BOILER NO.1 NH3 INJ CNTL SOV										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	1NXNV108	SNCR BOILER NO.1 CARRIER WTR CNTL SOV										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	1NXPSL143	UNIT NO.1 CARRIER WATER PRESSURE LOW										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	1NXXA180	DELETED										INTERCONNECT PLANT DCS TO ANNUNCIATOR PANEL, BY E/I CONTRACTOR
A	1NXZSC103	SNCR BOILER NO.1 NH3 INJ CNTL VLV LIMIT SW										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	1NXZSC108	SNCR BOILER NO.1 CARRIER WTR CNTL VLV LIMIT SW										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	1TY554A	BOILER NO.1 TEMP I/I CONVERTER - MAIN BLR CNTL PNL @ CNTL ROOM										SUPPLIED BY OMS, INSTALLED BY ELEC/INST CONTRACTOR
A	2NXFIT103	SNCR BOILER NO.2 NH3 INJ FLOW XMTR										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	2NXFSH100B	DELETED										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	2NXFSH100C	DELETED										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	2NXFSH100D	DELETED										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	2NXFSH149	SNCR BOILER NO.2 SAFETY SHWR (LT) FLOW SW (HI)										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	2NXFY103	SNCR BOILER NO.2 NH3 INJ CNTL VLV I/P										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	2NXNV103	SNCR BOILER NO.2 NH3 INJ CNTL SOV										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	2NXNV108	SNCR BOILER NO.2 CARRIER WTR CNTL SOV										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	2NXPSL143	UNIT NO.2 CARRIER WATER PRESSURE LOW										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	2NXXA180	DELETED										INTERCONNECT PLANT DCS TO ANNUNCIATOR PANEL, BY E/I CONTRACTOR
A	2NXZSC103	SNCR BOILER NO.2 NH3 CNTL VLV LIMIT SW										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	2NXZSC108	SNCR BOILER NO.2 CARRIER WTR CNTL VLV LIMIT SW										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	2TY554A	BOILER NO.2 TEMP I/I CONVERTER - MAIN BLR CNTL PNL @ CNTL ROOM										SUPPLIED BY OMS, INSTALLED BY ELEC/INST CONTRACTOR
A	3NXFIT103	SNCR BOILER NO.3 NH3 INJ FLOW XMTR										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	3NXFSH100C	DELETED										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	3NXFSH100D	DELETED										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	3NXFSH149A	SNCR BOILER NO.3 SAFETY SHWR (LT) FLOW SW (HI)										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	3NXFSH149B	SNCR BOILER NO.3 SAFETY SHWR (RT) FLOW SW (HI)										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	3NXFY103	SNCR BOILER NO.3 NH3 INJ CNTL VLV I/P										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	3NXNV103	SNCR BOILER NO.3 NH3 INJ CNTL SOV										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	3NXNV108	SNCR BOILER NO.3CARRIER WATER INJ CNTL SOV										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	3NXPSL143	UNIT NO.3 CARRIER WATER PRESSURE LOW										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	3NXXA180	DELETED										INTERCONNECT PLANT DCS TO ANNUNCIATOR PANEL, BY E/I CONTRACTOR
A	3NXZSC103	SNCR BOILER NO.3 NH3 CNTL VLV LIMIT SW										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	3NXZSC108	SNCR BOILER NO.3 CARRIER WTR CNTL VLV LIMIT SW										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
B	CEMS JB-1	CEMS POWER JUNCTION BOX JB-1										MOUNTED ON CEMS ENCLOSURE, SUPPLIED BY OEG, RE-INSTALLED BY CONTRACTOR
A	NXFSH148A	SNCR NH3 TANK SAFETY SHWR 0A FLOW SW (HI)										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	NXFSH148B	SNCR NH3 TANK SAFETY SHWR 0B FLOW SW (HI)										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR

Rev	ID # Equipment	Description	Voltage	Ø	Service Load Enter Only One Value			FLA	Diversity Factor	Feeder (Source)	Starter/ Breaker	Remarks
					HP	KW	KVA					
A	NXLSH111	SNCR NH3 TANK LVL SWITCH (HI)										SUPPLIED BY OMS, INSTALLED BY E/I CONTRACTOR
A	NXLSH124	SNCR NH3 TANK CONT DIKE SUMP LVL SW (HI)										SUPPLIED BY OMS, INSTALLED BY E/I CONTRACTOR
A	NXLSL112	SNCR NH3 TANK LVL SWITCH (LO)										SUPPLIED BY OMS, INSTALLED BY E/I CONTRACTOR
A	NXLSLL113	SNCR NH3 TANK LVL SWITCH (LO-LO)										SUPPLIED BY OMS, INSTALLED BY E/I CONTRACTOR
A	NXPSL121	SNCR NH3 PUMP DISCH PRESS SW (LO)										SUPPLIED BY OMS, INSTALLED BY E/I CONTRACTOR
A	NXPSL130	EYEWASH WATER PRESSURE LOW										SUPPLIED BY OMS, INSTALLED BY E/I CONTRACTOR
A	NXPSL147	SNCR PURGE AIR BLOWER DISCH PRESS SW (LO)										SUPPLIED BY OMS, INSTALLED BY E/I CONTRACTOR
B	NXTSH118A	SNCR NH3 PUMP NO.1 TEMP SW										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
B	NXTSH118B	SNCR NH3 PUMP NO.2 TEMP SW										SUPPLIED BY OMS, INSTALLED BY MECH CONTRACTOR
A	NXXA180	DELETED										INTERCONNECT PLANT DCS TO ANNUNCIATOR PANEL, BY E/I CONTRACTOR



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	1999 SNCR ADDITION										<input type="checkbox"/>	<input type="checkbox"/>																											
	NO CHANGE TO DRAWING										<input type="checkbox"/>	<input type="checkbox"/>																											
<table style="width:100%; border-collapse: collapse;"><tr><td style="width:10%;">APR</td><td style="width:10%;">DATE</td></tr><tr><td>1998</td><td>4/14</td></tr></table>												APR	DATE	1998	4/14																								
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1998	4/14																																						
<table style="width:100%; border-collapse: collapse;"><tr><td style="width:10%;">MODEL</td><td style="width:10%;">ARCH</td><td style="width:10%;">CNR</td><td style="width:10%;">COND</td><td style="width:10%;">SIL</td><td style="width:10%;">E</td><td style="width:10%;">INST</td><td style="width:10%;">M.D.</td><td style="width:10%;">P.S.</td><td style="width:10%;">S.A.</td><td style="width:10%;">FAC.</td><td style="width:10%;">ELEC</td><td style="width:10%;">LYT</td><td style="width:10%;">MAT</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>TEH</td><td></td><td></td></tr></table>												MODEL	ARCH	CNR	COND	SIL	E	INST	M.D.	P.S.	S.A.	FAC.	ELEC	LYT	MAT												TEH		
MODEL	ARCH	CNR	COND	SIL	E	INST	M.D.	P.S.	S.A.	FAC.	ELEC	LYT	MAT																										
											TEH																												

125V DC ONE LINE DIAGRAM


PASCO COUNTY SOLID WASTE RESOURCE RECOVERY FACILITY

PASCO COUNTY, FL.

OGDEN MARTIN SYSTEMS OF PASCO, INC.

STONE & WEBSTER ENGINEERING CORPORATION

NEW YORK, NEW YORK



DRAWING NUMBER

18750-W-4-8

DESIGNED BY: T. BIGGINS

CHECKED BY:

DRAWN BY: WHITPARRYTT


AREAS

LEVELS

WORK PAGES

125V DC ONE LINE DIAGRAM

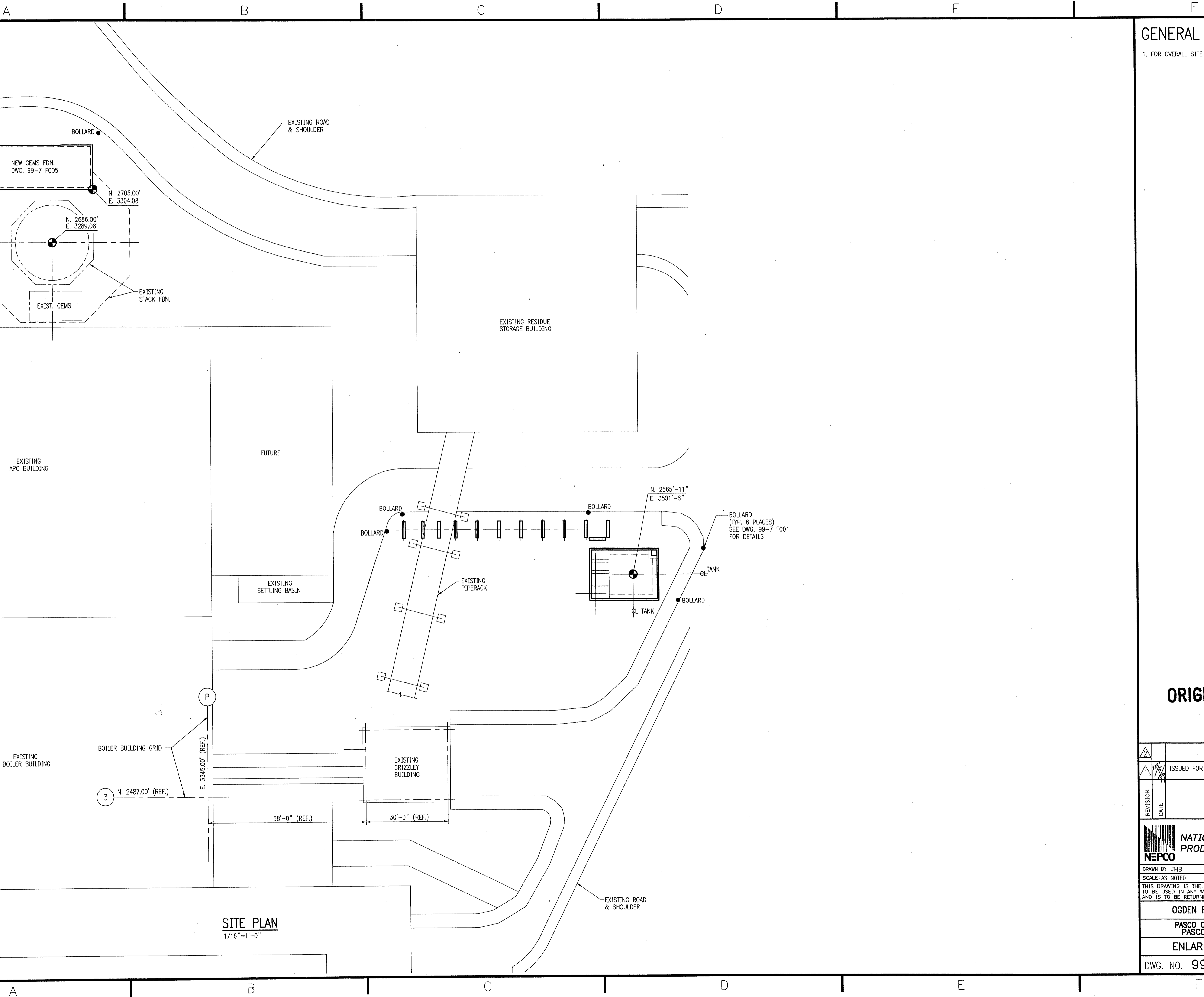
PASCO COUNTY SOLID WASTE RESOURCE RECOVERY FACILITY
PASCO COUNTY, FL
OGDEN MARTIN SYSTEMS OF PASCO, INC.
STONE & WEBSTER ENGINEERING CORPORATION
NEW YORK, NEW YORK

 DRAWING NUMBER 18750-W-4-8

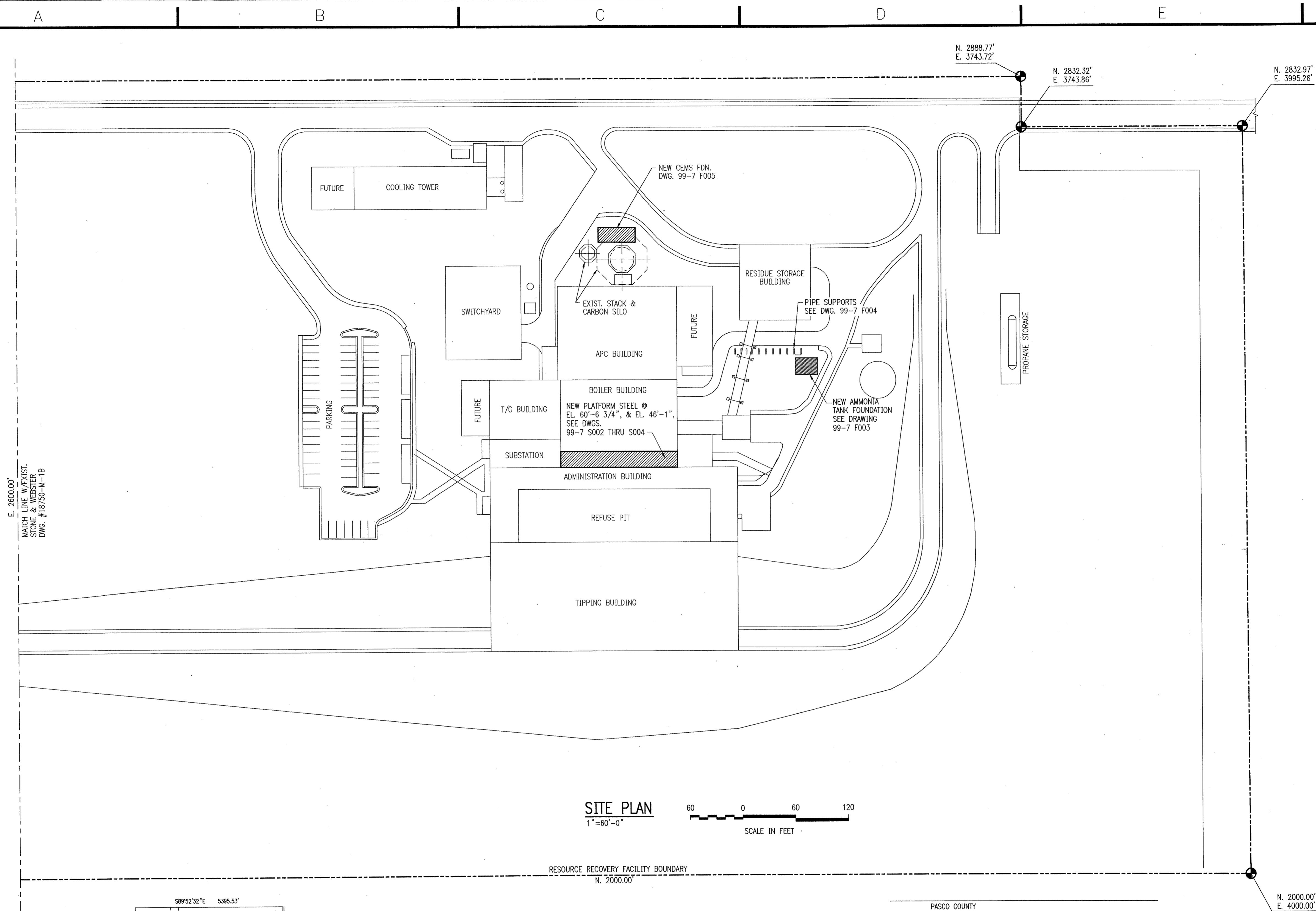
GENERAL NOTES: ⑤
1. FOR OVERALL SITE PLAN SEE DRAWING 99-7 C001.

ORIGINAL

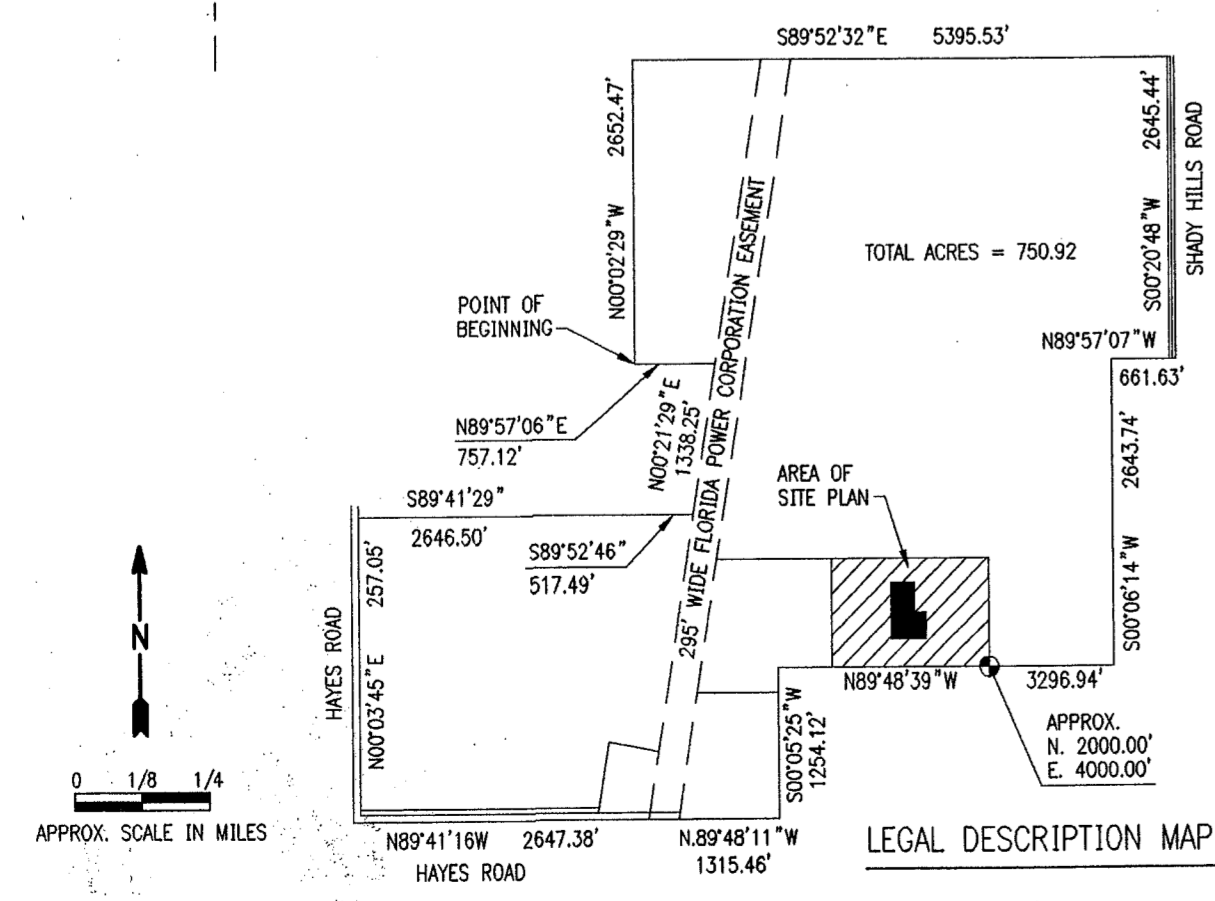
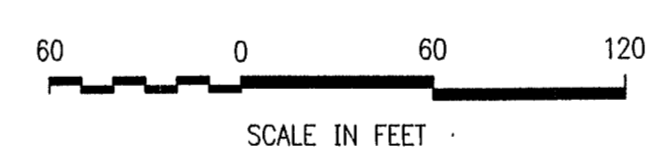
REVISION	DATE	BY	CHECKED	PROJ. ENG.	APPROVED	VP. PROJ. MGR.
1	08/19/99	JHB	FLP	FLP	FLP	FLP
ISSUED FOR CONSTRUCTION						
DRAWN BY: JHB						
ENGINEERED BY: FLP						
SCALE: AS NOTED						
DATE: 08/19/99						
THIS DRAWING IS THE PROPERTY OF NEPCO AND IS NOT TO BE USED IN ANY WAY INJURIOUS TO THEIR INTERESTS AND IS TO BE RETURNED UPON REQUEST.						
OGDEN ENERGY GROUP, INC.						
PASCO COUNTY SNCR RETROFIT PASCO COUNTY, FLORIDA						
ENLARGED SITE PLAN						
DWG. NO. 99-7 C002						



SITE PLAN
1/16"=1'-0"

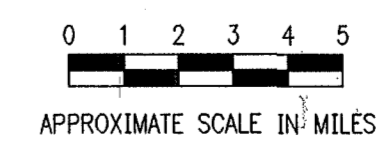
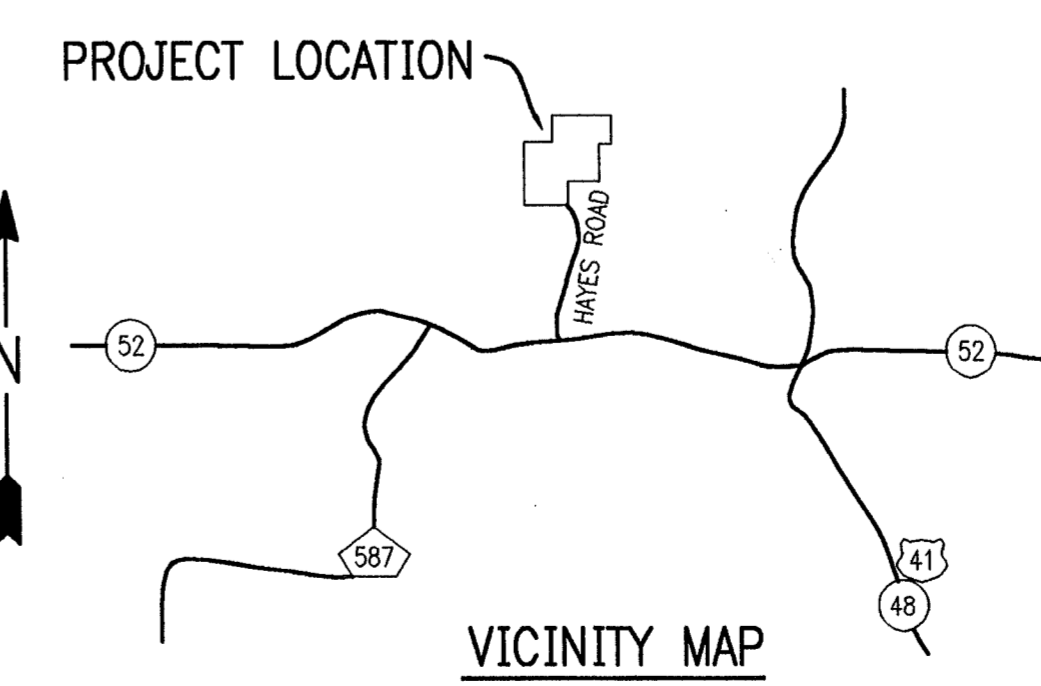


SITE PLAN
1"=60'-0"



LEGAL DESCRIPTION:

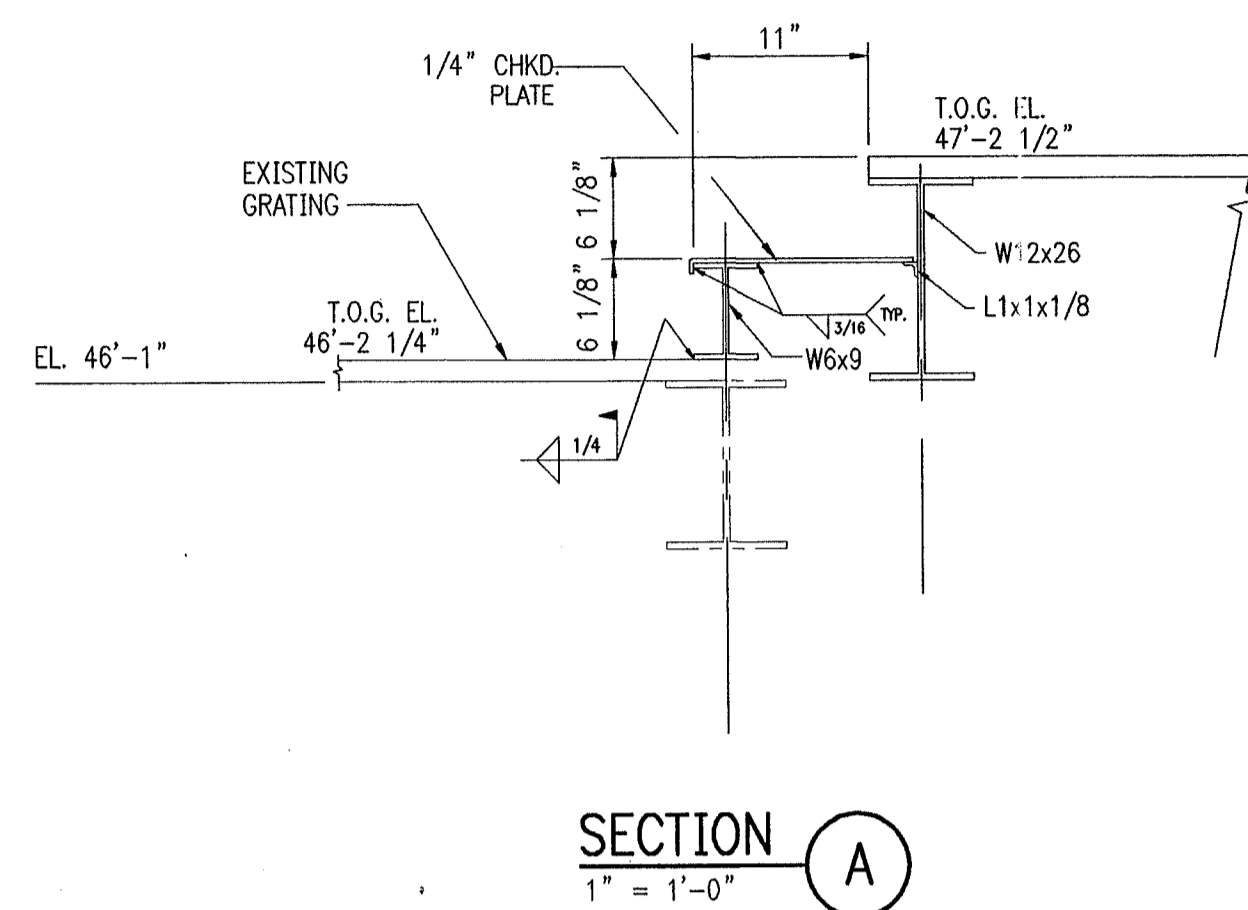
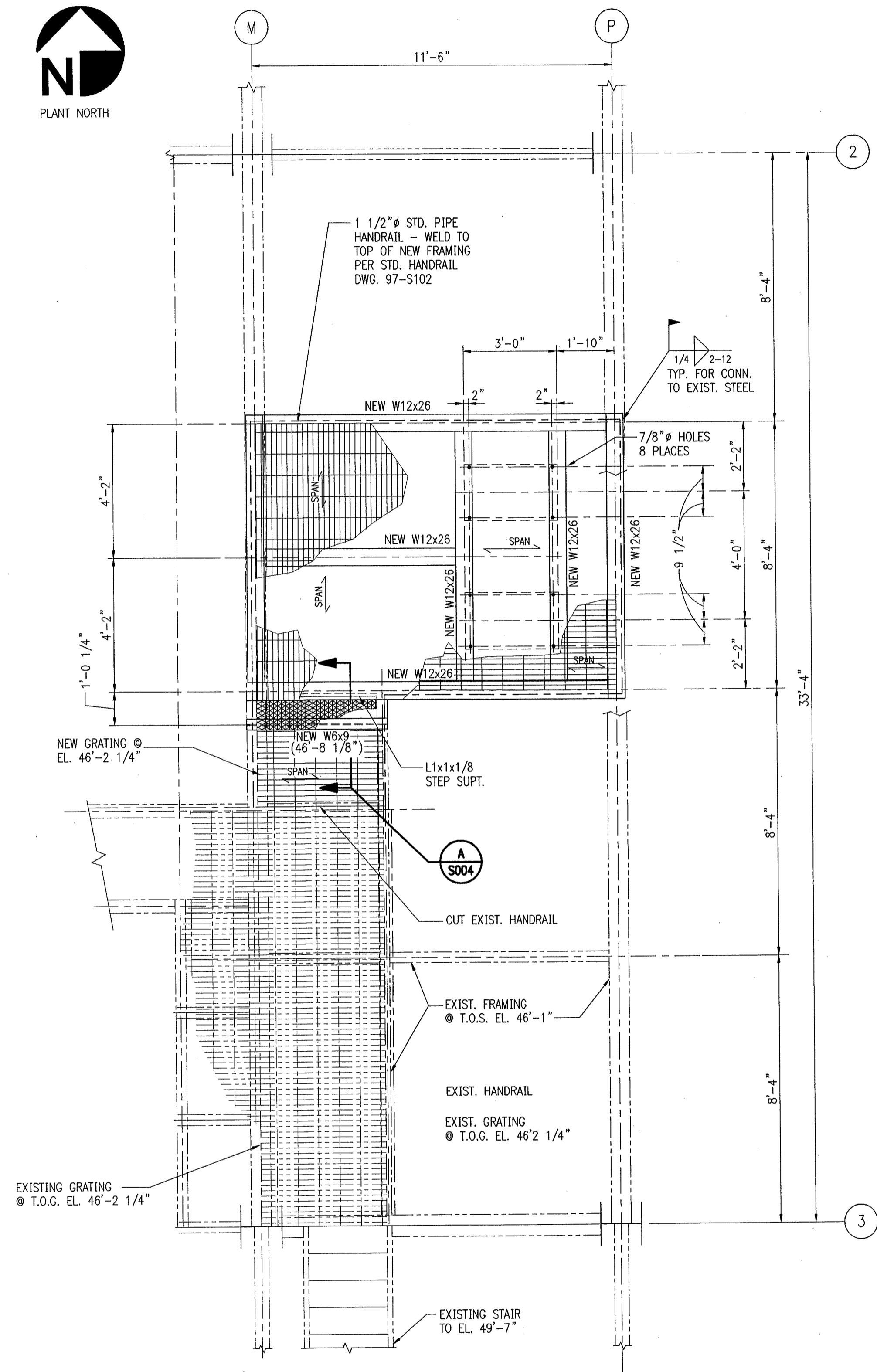
BEGINNING AT THE SOUTHWEST CORNER OF SECTION 24, TOWNSHIP 24 SOUTH, RANGE 17 EAST, PASCO COUNTY, FLORIDA, RUN N 00°02'29" W ALONG THE WEST BOUNDARY OF SAID SECTION 24 FOR 2652.47 FEET TO THE WEST QUARTER CORNER SAID SECTION; THENCE S 89°52'32" E ALONG THE EAST-WEST CENTER LINE OF SAID SECTION 24 FOR 5,295.53 FEET TO THE EAST QUARTER CORNER OF SAID SECTION; THENCE S 00°20'48" W ALONG THE EAST BOUNDARY OF SAID SECTION 24 FOR 2,645.44 FEET TO THE SOUTHEAST CORNER OF SAID SECTION 24; THENCE N 89°57'07" W ALONG THE SOUTH BOUNDARY OF SAID SECTION 24 FOR 661.62 FEET; THENCE S 00°06'14" W FOR 2,643.74; THENCE N 89°48'39" W ALONG THE EAST-WEST CENTER LINE OF SECTION 25 FOR 3,296.94 FEET; THENCE S 00°05'25" W FOR 1,254.12 FEET TO THE NORTH RIGHT-OF-WAY OF HAYES ROAD; THENCE N 89°48'11" W FOR 1,315.46' ALONG SAID NORTH RIGHT-OF-WAY TO THE INTERSECTION WITH THE WEST BOUNDARY OF SECTION 25; CONTINUE THENCE ALONG SAID NORTH RIGHT-OF-WAY OF HAYES ROAD N 89°41'16" W FOR 2,647.38 FEET TO THE POINT OF INTERSECTION WITH THE EASTERLY RIGHT-OF-WAY OF SAID HAYES ROAD AT ROAD TURN TO THE NORTH, BOTH RIGHTS-OF-WAY BEING 66 FEET WIDE, RUN THENCE N 00°03'45" E ALONG AFORESAID EASTERLY RIGHT-OF-WAY FOR 2,570.05 FEET TO THE INTERSECTION, MORE OR LESS, WITH THE SOUTH BOUNDARY OF THE NORTHWEST ONE-QUARTER OF THE NORTHEAST ONE-QUARTER OF SAID SECTION 25; THENCE S 89°41'29" E FOR 1,323.59 FEET; THENCE N 00°01'28" E FOR 1,315.54' TO THE NORTH BOUNDARY OF SAID SECTION 25; THENCE N 89°42'39" E FOR 1,323.33 FEET TO THE POINT OF BEGINNING.



GENERAL NOTES: (b)
1. THIS DRAWING HAS BEEN DEVELOPED FROM A DIGITIZED SCAN OF A HAND-CRAFTED DRAWING & SHOULD NOT BE SCALED.

ORIGINAL

REVISION	DATE	BY	CHECKED	PROJ. ENG.	APPROVED	VP. ENGR.	VP. PROJ. MGR.
1	08/31/99	JHB	FLP	FLP	FLP	FLP	FLP
2	09/01/99	JHB	FLP	FLP	FLP	FLP	FLP
3	09/01/99	JHB	FLP	FLP	FLP	FLP	FLP
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100	09/01/99	JHB	FLP	FLP	FLP	FLP	FLP



FRAMING PLAN @ T.O.S. EL. 46'-1" (U.N.O.)
3/8" = 1'-0" (NEW FRAMING @ T.O.S. EL. 47'-1 1/4")

- GENERAL NOTES: 7
1. FOR STRUCTURAL NOTES, SEE DWG. 99-7-S001.
 2. FOR REFERENCE, SEE DISTAL D.S. DWG. No. 6244-03-31-3200.
 3. FOR STANDARD DETAILS, SEE DWG. 99-7-S100.

REVISION	DATE	ISSUED FOR CONSTRUCTION	BY	CHECKED	PROJ. ENG.	APPROVED	TYP. ENG.	PROJ. MGR.
		ORIGINAL						

NATIONAL ENERGY PRODUCTION CORPORATION
NEPCO

DRAWN BY: JHB ENGINEERED BY: FPL
SCALE: AS NOTED DATE: 10:40, 13 OCT 99

THIS DRAWING IS THE PROPERTY OF NEPCO AND IS NOT TO BE USED IN ANY WAY INJURIOUS TO THEIR INTERESTS AND IS TO BE RETURNED UPON REQUEST.

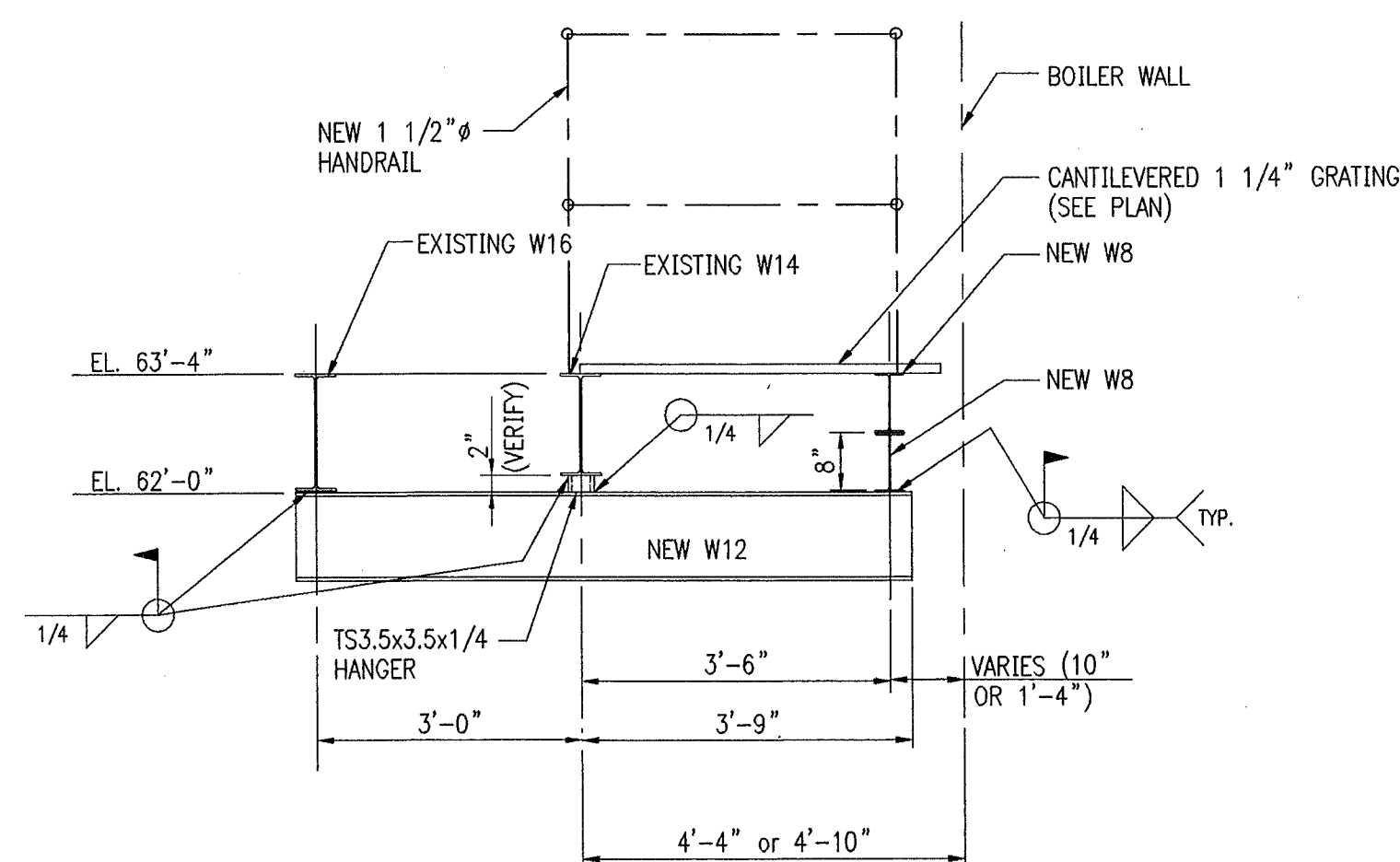
OGDEN ENERGY GROUP, INC.
PASCO COUNTY SNCR RETROFIT
PASCO COUNTY, FLORIDA
BOILER BUILDING FRAMING
PLATFORM ADDITIONS

DWG. NO. 99-7 S004

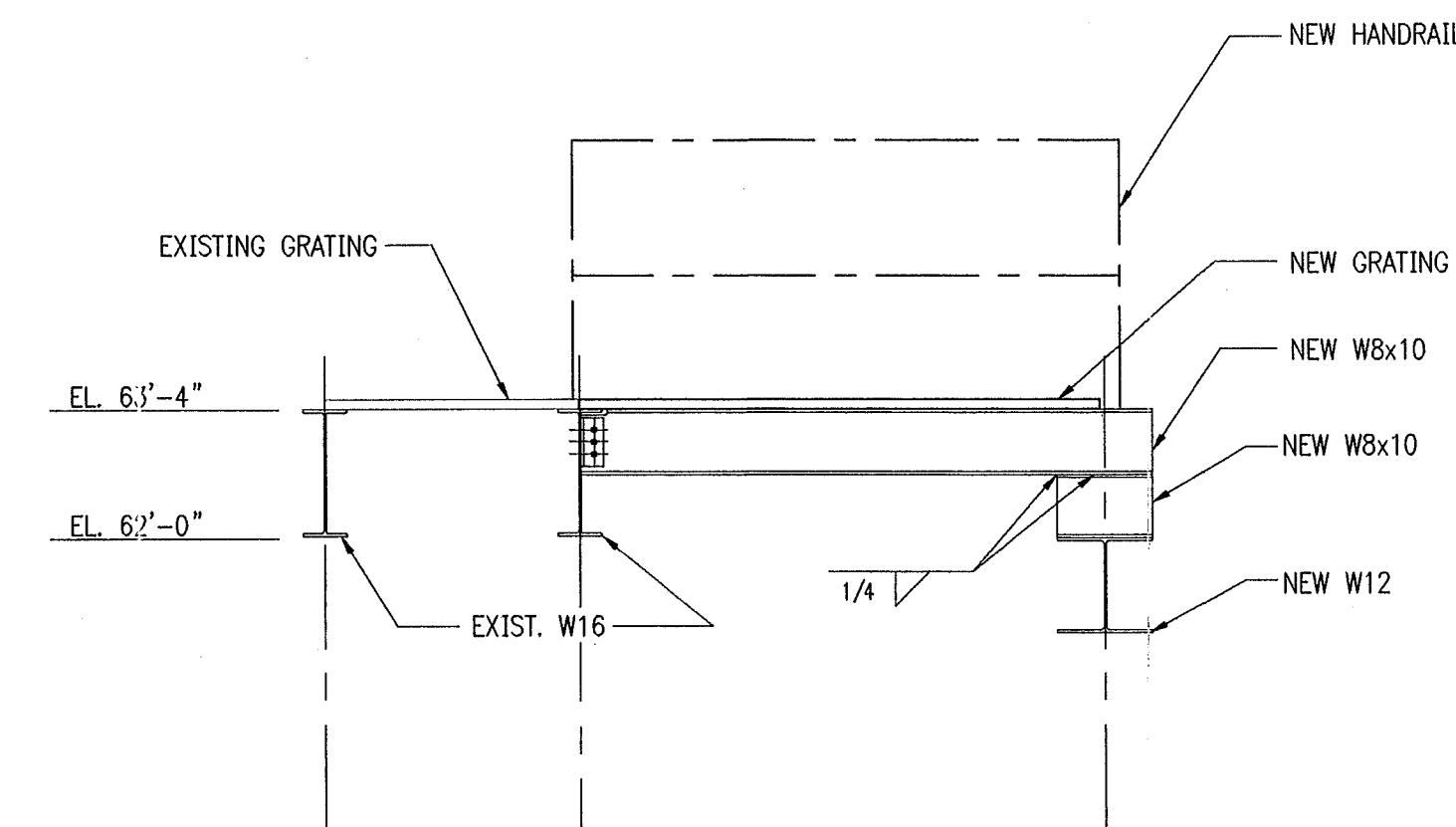


GENERAL NOTES:

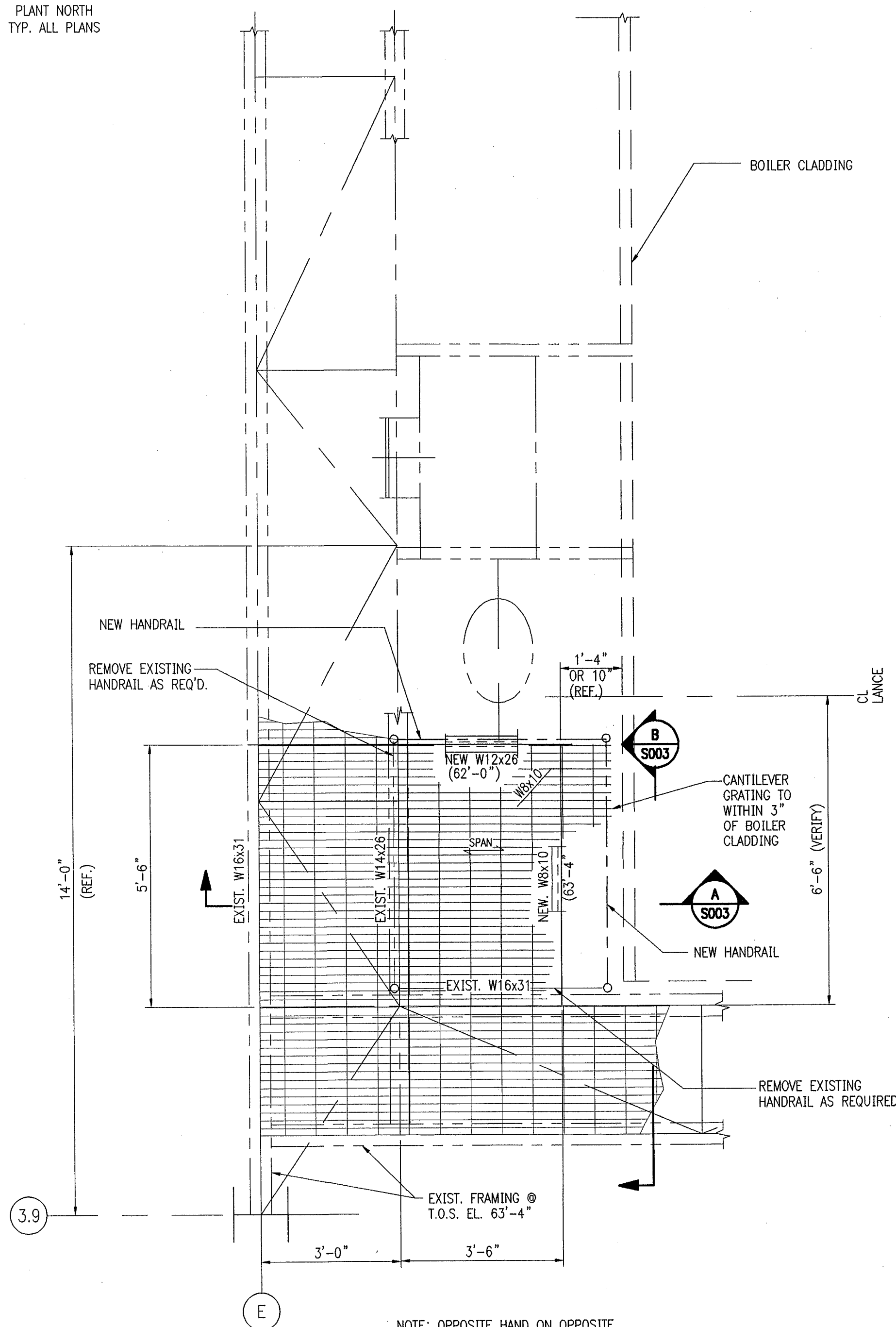
1. FOR STRUCTURAL DESIGN NOTES SEE DRAWING 99-7 S001.
2. FOR PLATFORM LOCATION SEE DRAWING 99-7 S002.
3. FOR REFERENCE SEE DISTAL DWG. No. 6244-03-33-3200.



SECTION A
1/2"=1'-0"



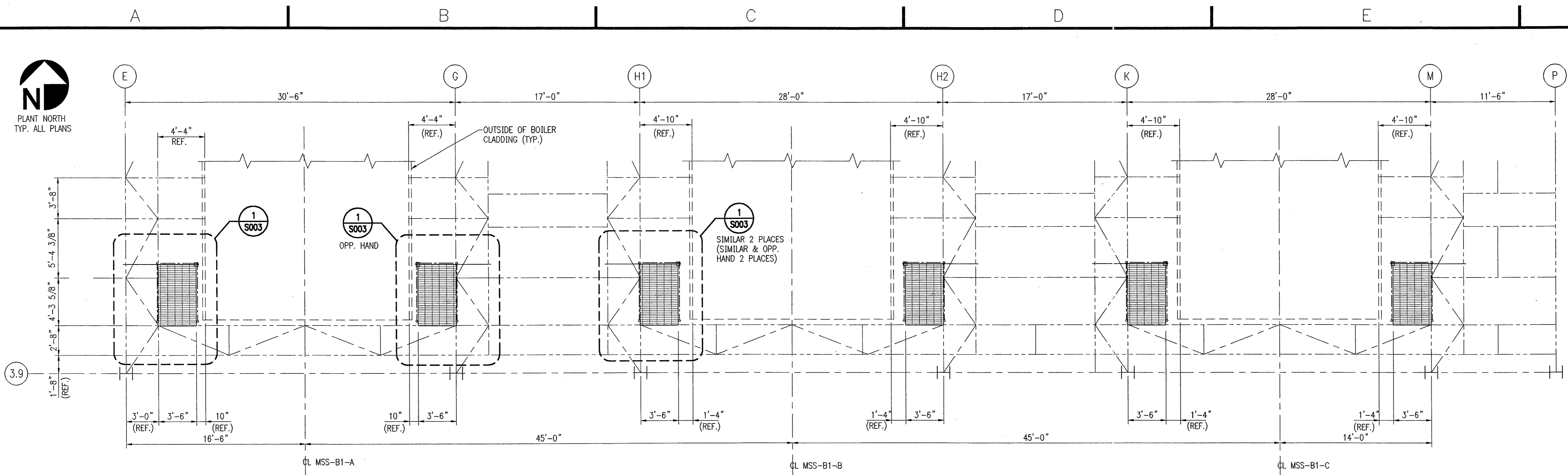
SECTION B
1/2"=1'-0"



DETAIL 1
1/2"=1'-0"

ORIGINAL

REVISION	DATE	ISSUED FOR CONSTRUCTION	BY	CHECKED	PROJ. ENG.	APPROVED	INSR
		ORIGINAL					
NATIONAL ENERGY PRODUCTION CORPORATION NEPCO							
DRAWN BY: JHB				ENGINEERED BY: FPL			
SCALE: AS NOTED				DATE: 09/02, 12 OCT 99			
THIS DRAWING IS THE PROPERTY OF NEPCO AND IS NOT TO BE USED IN ANY WAY INJURIOUS TO THEIR INTERESTS AND IS TO BE RETURNED UPON REQUEST.							
OGDEN ENERGY GROUP, INC.							
PASCO COUNTY SNCR RETROFIT PASCO COUNTY, FLORIDA							
BOILER BUILDING FRAMING PLATFORM ADDITIONS							
DWG. NO. 99-7 S003							



FRAMING PLAN - TOP OF EXISTING STEEL EL. 63'-4" (U.N.O.)
3/16" = 1'-0"
(TOP OF NEW STEEL EL. 62'-0" FOR W12
63'=4" FOR W8)

- GENERAL NOTES: (9)
1. FOR STRUCTURAL NOTES SEE DWG. 99-7-S001.
 2. WORK THIS DWG. WITH DWG. 99-7-S003.
 3. FOR REFERENCE SEE DISTAL S.A. DWG. No. 6244-03-33-3200.

ORIGINAL

REVISION	DATE	ISSUED FOR CONSTRUCTION	BY	CHECKED	PROJ. ENG.	APPROVED	VP. ENG.	PROJ. MGR.	INSTR.
		ORIGINAL							
NATIONAL ENERGY PRODUCTION CORPORATION									
DRAWN BY: JHB ENGINEERED BY: FPL									
SCALE: AS NOTED DATE: 09-04, 12 OCT 99									
THIS DRAWING IS THE PROPERTY OF NEPCO AND IS NOT TO BE USED IN ANY WAY INJURIOUS TO THEIR INTERESTS AND IS TO BE RETURNED UPON REQUEST.									
OGDEN ENERGY GROUP, INC.									
PASCO COUNTY SNCR RETROFIT PASCO COUNTY, FLORIDA									
BOILER BUILDING FRAMING PLATFORM ADDITIONS									
DWG. NO. 99-7 S002									

STRUCTURAL DESIGN NOTES:

DESIGN CRITERIA

CODE

ALL DESIGN AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD BUILDING CODE, LATEST EDITION AND AMENDMENTS AS ADOPTED BY PASCO COUNTY, FLORIDA.

DESIGN LOADS

IN ADDITION TO THE DEAD LOADS, THE FOLLOWING WERE USED IN DESIGN:

WIND: 130 MPH
SEISMIC: $A_s < 0.05$, $A_0 < 0.05$ SEISMIC HAZARD EXPOSURE GROUP II, CATEGORY A
STAIR: 100 PSF
ACCESS PLATFORM: 50 PSF

WIND LOADS

WIND DESIGN IS BASED ON THE FOLLOWING:

1997 SBCCI WIND VELOCITY OF 130 MPH, DESIGN PRESSURE AS SET ON TABLE 1606.2A MULTIPLIED BY THE APPROPRIATE SHAPE FACTOR IN TABLES AS REQUIRED.

SUBMITTALS

SHOP DRAWINGS SHALL BE SUBMITTED TO NEPCO PRIOR TO ANY FABRICATION OR CONSTRUCTION FOR ALL STRUCTURAL ITEMS INCLUDING THE FOLLOWING:
EMBEDDED STEEL ITEMS, STRUCTURAL STEEL, SHEAR STUD LAYOUT, CLADDING PANELS, AND STAIRS.
DESIGN DRAWINGS AND CALCULATIONS OR SHOP DRAWINGS, FOR THE DESIGN AND FABRICATION OF ITEMS THAT ARE DESIGNED BY OTHERS, SUCH AS: EQUIPMENT BRACINGS, PLATFORMS, PRE-ENGINEERED METAL BUILDINGS, ETC., SHALL BEAR THE SEAL AND SIGNATURE OF THE ENGINEER LICENSED IN THE STATE OF FLORIDA. CALCULATION FOR THE DESIGN AND SHALL BE SUBMITTED TO NEPCO FOR REVIEW PRIOR TO FABRICATION.

SPECIAL INSPECTION & TESTS

AN ENGINEER-APPROVED SPECIAL INSPECTION SHALL PROVIDE INSPECTION FOR THE FOLLOWING:

CONCRETE: ALL CONCRETE SHALL BE TESTED EXCEPT FOR CONCRETE WITH A DESIGN STRENGTH OF 2500 PSI OR LESS, NON-STRUCTURAL SLABS ON GRADE, AND WHERE NOTED ON PLANS.

THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND APPROVAL BY OMS PRIOR TO START OF CONCRETE PLACEMENT. A MINIMUM OF 2 DAYS NOTICE IS REQUIRED.

CONCRETE COMPRESSIVE STRENGTH TESTS SHALL BE CONDUCTED BY CONTRACTOR AS FOLLOWS:
TWO AT 7 DAYS, TWO AT 28 DAYS, TWO IN RESERVE FOR EACH PLACEMENT.
NOTE: RECORD OF ANY CHANGES TO THE STRENGTH TEST.

WELDING: INSPECTION IS REQUIRED FOR THE FOLLOWING FIELD WELDS:

- ALL COMPLETE PENETRATION WELDS
- WELD OF REINFORCEMENT
- MULTI-PASS FIELD WELDS
- WHERE REQUIRED BY LOCAL BUILDING OFFICIAL

SOILS: INSPECTION OF SOIL BEARING SURFACES & COMPACTION IS REQUIRED UNLESS NOTED ON PLANS.

SPECIAL CONDITIONS

CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD AND SHALL PROVIDE ADEQUATE SHORING AND BRACING OF ALL STRUCTURAL MEMBERS DURING CONSTRUCTION. CONTRACTOR SHALL NOTIFY NEPCO OF ALL FIELD CHANGES PRIOR TO INSTALLATION OR FABRICATION.

SOILS

FOR SOIL CONDITIONS SEE REPORT BY ARDAMAN & ASSOCIATES, INC. DECEMBER 4, 1989, FILE NO. 88-9622B

FOUNDATION EXCAVATION

EXCAVATE DOWN TO 18" (TYPICALLY) BELOW FOOTINGS & FOUNDATIONS, AND BACKFILL WITH SELECT STRUCTURAL FILL PER GEOTECHNICAL REPORT. ALL STRUCTURAL FILL SHOULD BE PLACED IN LIFTS NOT TO EXCEED 12" & COMPACTED TO 95% OF THE MODIFIED PROCTOR PER ASTM D-1557. AT CEMS BUILDING FOUNDATION, CAREFULLY EXCAVATE DOWN TO EXISTING PILE CAP. PROVIDE BACKFILL AS REQUIRED TO FINISH CONCRETE SLAB.

CONCRETE

CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 318-95 CODE. CONCRETE STRENGTHS SHALL BE VERIFIED BY STANDARD 28-DAY CYLINDER TESTS.

CONCRETE MIXES SHALL BE AS FOLLOWS:

ASTM C33 DESIGN CLASS	CONCRETE STRENGTH (PSI)	AGGREGATE SIZE (INCHES)	SLUMP MINIMUM (INCHES)	SLUMP MAXIMUM (INCHES)	USE
II	4,000	1"	2	4	TYP. ALL CONC. (U.N.O.)

CEMENT SHALL CONFORM TO ASTM C150, TYPE II

AS AN ALTERNATIVE TO THE ABOVE, THE CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS TO NEPCO FOR APPROVAL TWO WEEKS PRIOR TO PLACING ANY CONCRETE.

AD MIXTURES INCORPORATED IN CONCRETE DESIGN MIXES SHALL CONFORM TO ACI 318-99 SECTION 3.6, AND SHALL BE USED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. AN AIR ENTRAINING AGENT, CONFORMING TO ACI 318-99 SECTION 3.6 SHALL BE USED IN ALL CONCRETE EXPOSED TO WEATHER.

THE AMOUNT OF ENTRAINING AIR SHALL BE 5% PLUS/MINUS 1% BY VOLUME. CaCl OR OTHER WATER-SOLUBLE CHLORIDE ION AD MIXTURES SHALL NOT BE USED UNLESS APPROVED BY NEPCO.

REINFORCING STEEL

REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A-615, GRADE 60 BILLET STEEL FOR DEFORMED BARS AND ASTM A-185, (fy=65,000 PSI) FOR SMOOTH WELDED WIRE FABRIC (WWF), UNLESS OTHERWISE NOTED.

BARS IN BEAMS AND SLABS SHALL BE SUPPORTED AS SPECIFIED BY THE CRSI MANUAL OF STANDARD PRACTICE, WSP-1-80. REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH "THE MANUAL OF STANDARD PRACTICE OF DETAILING REINFORCED CONCRETE STRUCTURES."

LAP ALL REINFORCING BARS WITH A CLASS b OR bL SPLICE AS SPECIFIED IN ACI 318-95 UNLESS OTHERWISE NOTED ON THE PLANS. MECHANICAL OR WELDED BUTT SPLICES SHALL BE USED SUBJECT TO NEPCO APPROVAL.

REINFORCING STEEL SHALL HAVE PROTECTION AS FOLLOWS:

- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: COVER 3"
- CONCRETE EXPOSED TO EARTH OR WEATHER:
 - #5 BAR, W31 OR D31 WIRE OR SMALLER 1 1/2"
 - #6 THROUGH #18 BARS: 2"
- CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
 - SLABS, WALLS & JOISTS: #11 BAR AND SMALLER: 3/4"
 - #14 AND #18 BARS: 1 1/2"
 - BEAMS, COLUMNS: PRIMARY REINFORCING, TIES, STIRRUPS, SPIRALS: 1 1/2"

ALL DOWELS, ANCHOR BOLTS, EMBEDDED STEEL, ELECTRICAL CONDUITS, PIPE SLEEVES, WATER STOPS, INSERTS, AND ALL OTHER EMBEDDED ITEMS AND FORMED DETAILS SHALL BE IN PLACE BEFORE START OF CONCRETE PLACEMENT.

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185, "WELDED WIRE FABRIC FOR CONCRETE REINFORCEMENT", LATEST EDITION.

ALL EXPOSED CONCRETE EDGES SHALL HAVE A 3/4" CHAMFER, UNLESS OTHERWISE NOTED OR SHOWN.

BASE PLATE GROUT

BASE PLATE GROUT SHALL BE NON-SHRINK GROUT UNLESS OTHERWISE NOTED.

NON-SHRINK GROUT SHALL BE A COMMERCIAL PREMIX PRODUCT AS APPROVED BY OWNER AND SHALL HAVE AN ULTIMATE COMPRESSIVE STRENGTH OF NOT LESS THAN 7000 PSI AT 28 DAYS.

STEEL SPECIFICATION

DESIGN, FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:

STRUCTURAL STEEL	AISC-SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS - 9TH EDITION
HIGH STRENGTH BOLTS	SPECIFICATION FOR JOINTS USING ASTM A-325 OR A-490 BOLTS, 1985 EDITION
WELDING	AWS D1.1 - 92

STEEL MATERIALS (UNLESS NOTED OTHERWISE ON DRAWINGS)

STRUCTURAL STEEL	ASTM A-36
CONNECTION MATERIAL, EMBEDDED ITEMS, CHANNELS, ANGLES, BASE PLATES, AND MISC. STEEL	ASTM A-36
STRUCTURAL TUBES	ASTM A-500, GRADE B
STEEL PIPE	ASTM A-53, GRADE B
STRUCTURAL BOLTS	ASTM A-325 FOR 3/4" OR LARGER ASTM A-307 FOR 5/8" OR SMALLER
ANCHOR BOLTS	ASTM A-307
THREADED RODS	ASTM A-36
WELDING ELECTRODES	E70XX
HEADED SHEAR STUDS	ASTM A-108

STRUCTURAL STEEL

STRUCTURAL STEEL DESIGN, FABRICATION AND ERECTION SHALL CONFORM TO THE REQUIREMENTS OF AISC MANUAL OF STEEL CONSTRUCTION - 9TH EDITION.

ALL MEMBERS ARE TO BE ERECTED WITH NATURAL MILL CAMBER UP, UNLESS OTHERWISE NOTED ON THE PLANS. SUBSTITUTION OF MEMBER SIZES OR STEEL GRADE WILL NOT BE ALLOWED WITHOUT PRIOR APPROVAL OF NEPCO.

BOLTED CONNECTIONS ARE TO BE OF HIGH STRENGTH ASTM A-325 TYPICALLY UNLESS NOTED OTHERWISE ON THE DRAWINGS. A MINIMUM OF TWO BOLTS IS REQUIRED FOR ALL BEAM CONNECTIONS. THE MINIMUM WELD SIZE SHALL BE 3/16 INCH, UNLESS NOTED OTHERWISE. CONNECTIONS ARE TO BE AS SHOWN ON THESE DRAWINGS. ALTERNATE CONNECTIONS WILL REQUIRE PRIOR APPROVAL OF NEPCO.

WILL TEST REPORT SHALL BE REQUIRED CERTIFYING THAT ALL MATERIAL IS IN CONFORMANCE WITH THE APPLICABLE ASTM SPECIFICATIONS

SHOP CONNECTIONS SHALL BE WELDED OR BOLTED. FIELD CONNECTIONS SHALL BE BOLTED UNLESS OTHERWISE INDICATED. UNFINISHED BOLTS, WITH LOCK WASHERS, MAY BE USED FOR STAIRS AND LADDERS. ALL OTHER BOLTED CONNECTIONS SHALL BE MADE WITH HIGH STRENGTH BOLTS.

UNFINISHED BOLTS SHALL BE 3/4 INCH DIAMETER IN 13/16 INCH DIAMETER HOLES, AND SHALL CONFORM TO ASTM A307, LATEST EDITION, UNLESS OTHERWISE NOTED.

INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE OWNER APPROVAL.

GALVANIZING:

WALKWAYS, PLATFORMS, GRATING, LADDERS, STAIRWAYS, STAIRTREADS, HANDRAILS & ANCHOR BOLTS SHALL BE HOT DIP GALVANIZED (TWO OUNCES) AFTER FABRICATION PER ASTM A123, ASTM A153 & ASTM A385. FIELD TOUCHUP WILL BE DONE USING AN ORGANIC ZINC-RICH COLD GALVANIZING COMPOUND.

NOTE: NO GALVANIZED COATING AT AMMONIA CONTAINMENT PLATFORM STEEL. THIS AREA WILL BE COATED IN ACCORDANCE WITH THE PAINTING SECTION IN THESE STRUCTURAL DESIGN NOTES.

HEADED SHEAR STUDS

ALL SHEAR STUD DIAMETERS AND LENGTHS AFTER WELD SHALL BE AS SHOWN ON THE DRAWINGS. ALL STUDS SHALL BE AUTOMATICALLY END WELDED IN SHOP OR FIELD WITH EQUIPMENT RECOMMENDED BY MANUFACTURER OF STUDS.

EXPANSION BOLTS

EXPANSION BOLTS SHALL BE HILTI KWIKBOLT, PARABOLT CONCRETE ANCHORS, RAMSET TRIBOLT, OR AN APPROVED EQUAL, INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. BOLT LENGTHS AND EMBEDMENTS SHALL BE AS DESIGNED ON THE DRAWINGS. WHERE THE REQUIRED EMBEDMENT IS OMITTED THE BOLT SHALL HAVE SUFFICIENT LENGTH TO PROVIDE AT LEAST THE EMBEDMENT AND CAPACITIES SHOWN ON THE FOLLOWING SCHEDULE.

BOLT SIZE	MIN. EMBED.	ALLOW. TENSION (fc=3,000 PSI)	ALLOW. SHEAR (fc=3,000 PSI)
1/2"	2-1/4"	945 LB.	1,840 LB.
5/8"	2-3/4"	1,445 LB.	2,730 LB.
3/4"	3-1/4"	2,200 LB.	3,660 LB.
1"	4-1/2"	3,610 LB.	6,500 LB.

EPOXY ANCHORS

EPOXY ANCHORS SHALL BE PARABOND CAPSULE ANCHORS BY MOLLY FASTENING SYSTEMS GROUP, OR AN APPROVED EQUAL, INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. WHERE REQUIRED EMBEDMENT IS OMITTED THE BOLT SHALL HAVE SUFFICIENT LENGTH TO PROVIDE AT LEAST THE EMBEDMENT AND CAPACITIES SHOWN ON THE FOLLOWING SCHEDULE.

BOLT SIZE	MIN. EMBED.	ALLOW. TENSION (fc=3,000 PSI)	ALLOW. SHEAR (fc=3,000 PSI)
1/2"	4-1/4"	2,600 LB.	1,475 LB.
5/8"	5"	3,920 LB.	2,595 LB.
3/4"	6-5/8"	5,720 LB.	3,680 LB.
1"	8-1/4"	8,700 LB.	6,470 LB.

GRATING

FOR THE 69' PLATFORM:

GRATING SHALL BE RY-WELD GALVANIZED STEEL GRATING, TYPE 19-W-4, WITH 1 1/4"x3/16" BEARING BARS AND 1/4" CROSS BARS, UNLESS NOTED OTHERWISE ON PLANS.

FOR THE PLATFORM AT AMMONIA CONTAINMENT:

GRATING SHALL BE STEEL GRATING, WITH 1 1/4"x3/16" BEARING BARS & 1/4" CROSS BARS PAINTED PER THE PAINTING SECTION WITHIN THESE STRUCTURAL DESIGN NOTES.

CONSTRUCTION NOTES:

ALL CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE SBCCI (STANDARD BUILDING CODE), STATE AND LOCAL LAWS AND THEIR SUPPLEMENTS.

1. CONTRACTOR SHALL PROVIDE ALL PROTECTION REQUIRED SO AS TO SAFEGUARD EXISTING UTILITIES IN THE IMMEDIATE VICINITY OF CONSTRUCTION (AS SHOWN ON THE CONTRACT DRAWINGS). SHOULD ANY DAMAGE TO SUCH UTILITIES OCCUR, THE CONTRACTOR SHALL REPAIR THE DAMAGE, AT HIS OWN EXPENSE, TO THE SATISFACTION OF THE OWNER.

2. THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION SCHEDULE AND PLAN OF OPERATION WITH THE PLANT MANAGER. BARRICADES FOR CONSTRUCTION AREAS MUST BE PREAPPROVED BY THE PLANT MANAGER.

3. THE CONTRACTOR SHALL FIELD CHECK AND VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING WORK PRIOR TO FABRICATION OF ANY NEW MATERIALS.

4. CONTRACTOR'S WORK SHALL NOT INTERFERE WITH WITH PLANT ACTIVITIES IN THE IMMEDIATE AREA.

5. EROSION AND SEDIMENTATION CONTROL SHALL COMPLY WITH STATE AND LOCAL SEDIMENTATION CONTROL LAW, CURRENT PRACTICES AND APPLICABLE PERMIT REQUIREMENTS.

6. CONTRACTOR IS RESPONSIBLE FOR SANITARY FACILITIES.

7. SITE WORK HOURS SHALL BE AGREED UPON IN CONSULTATION WITH THE PLANT MANAGER PRIOR TO START OF WORK.

8. THE CONTRACTOR SHALL SUPPLY ALL NECESSARY TOOLS, CONSUMABLES, AND LABOR TO CONDUCT WORK AS DESCRIBED IN THE WORK SCOPE AND SCHEDULE.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING ALL LIGHTS, SCAFFOLDING, AND WELDING EQUIPMENT (GAS POWERED MACHINES ONLY), IN ORDER TO CONDUCT WORK. HOOK-UP FOR COMPRESSED AIR FOR HAND TOOLS SHALL BE AVAILABLE AT THE SITE WITH HOSES BEING THE CONTRACTOR'S RESPONSIBILITY.

10. A WASH SINK, TOILETS, TELEPHONES, LUNCHROOM, ETC. SHALL BE PROVIDED BY CONTRACTOR.

11. THE CONTRACTOR SHALL STAFF THE JOB WITH A FIELD SUPERINTENDENT. THIS INDIVIDUAL SHALL BE RESPONSIBLE FOR MANAGING THE FIELD WORK FOR QUALITY ASSURANCE AND TO INTERFAZE WITH OMS OF LAKE.

12. THE CONTRACTOR AND HIS EMPLOYEES SHALL AT ALL TIMES, WHILE WITHIN THE FACILITY BOUNDARIES, OBEY SAFETY REGULATIONS AND PROCEDURES. FAILURE TO DO SO SHALL RESULT IN OMS OF PASCO EJECTING ANY AND ALL INDIVIDUALS FROM THE SITE AT ITS DISCRETION.

13. ALL EXISTING PAVING, ROADS, TRENCHES, CRUSHED STONE SURFACES, SODDING ETC. DISTURBED/DAMAGED/REMOVED SHALL BE RESTORED TO THE ORIGINAL CONDITION AFTER THE INSTALLATION OF FOUNDATIONS, UNDERGROUND PIPES, UNDERGROUND DUCT BANKS, ETC.

PAINTING:

STRUCTURAL STEEL, NOT EMBEDDED IN CONCRETE, AS A MINIMUM WILL BE PAINTED IN ACCORDANCE WITH THE FOLLOWING:

EXTERIOR AND INTERIOR STRUCTURAL STEEL NOT EMBEDDED IN CONCRETE SHALL BE SURFACE PREPARED IN ACCORDANCE WITH SSPC-SP6. WHERE APPLICABLE, DIRT, DUST, OIL, GREASE AND SIMILAR CONTAMINANTS SHALL BE REMOVED FIRST PER SSPC-SP1. THE STEEL SHALL, AS A MINIMUM, BE PAINTED (PRIMED AND FINISHED) IN ACCORDANCE WITH THE FOLLOWING ACCEPTABLE MANUFACTURERS:

MANUFACTURER	PRIME	FINISH
SHERWIN WILLIAMS	B67-H5/H5	B65W300
CONLUX	EPOLON 20	ACROLON II 2000
TNEMEC	27	73
CARBOLINE	KOPOAT	134HS

THE COATING PROCESS SHALL FOLLOW THE RECOMMENDATIONS OF THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), CODE OF FEDERAL REGULATIONS (CFR) AND THE STEEL STRUCTURES PAINTING COUNCIL (SSPC), AND SHALL FOLLOW THE RECOMMENDATIONS OF THE COATING MANUFACTURERS. VOLATILE ORGANIC COMPOUND (VOC) REGULATIONS SHALL BE MET WHERE APPLICABLE.

MATERIALS SHALL BE BY ONE MANUFACTURER. APPLICATION THICKNESS, ATMOSPHERIC CONDITIONS AND MIXING AND THINNING OPERATIONS SHALL BE AS RECOMMENDED BY THE MANUFACTURER.

ALL PAINT SYSTEMS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

TOUCH UP ALL AREAS OF PAINT DAMAGED DURING TRANSPORTATION OR ERECTION.

COLORS:

ALL INTERIOR AND EXTERIOR STEEL: TEA TAN BY SHERWIN WILLIAMS.
NOTIFY NEPCO OF ANY CHANGES TO THE COLOR.

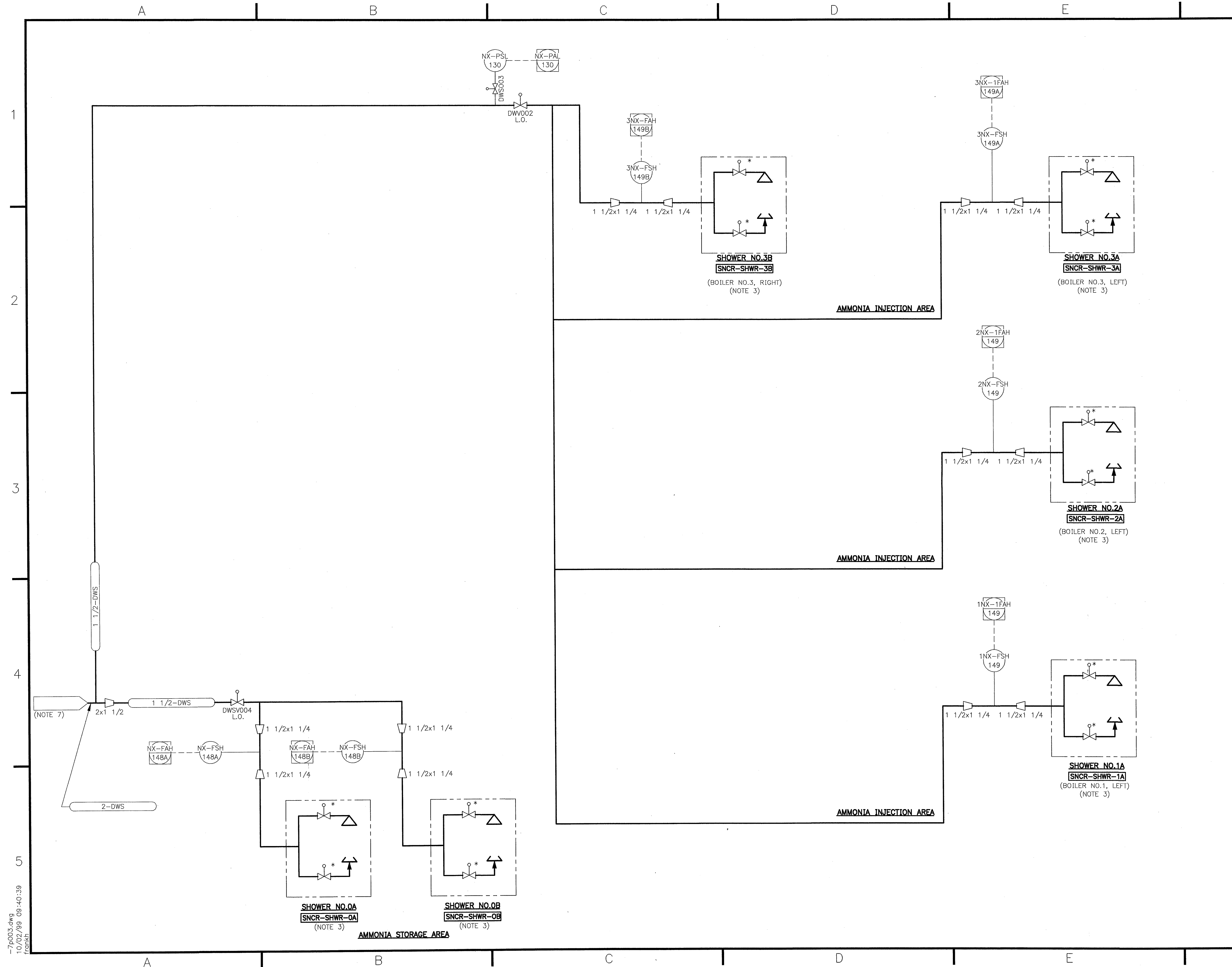
ABBREVIATIONS

AB=ANCHOR BOLT
BM=BEAM
BOT.=BOTTOM
C.C.=CENTER TO CENTER
CL=CENTERLINE
CLR=CLEAR
C.M.U.=CONCRETE MASONRY UNIT
COL.=COLUMN
CONC.=CONCRETE
CONT.=CONTINUOUS
CRC=CHEMICAL RESISTANT COATING
DET.=DETAIL
DIA.=DIAMETER
DIAG.=DIAGONAL
EA=EACH
E.E.=EACH END
E.F.=EACH FACE
EL.=ELEVATION
E.W.=EACH WAY
ELEC.=ELECTRICAL
FON.=FOUNDATION
FLR.=FLOOR
FTG.=FOOTING
GA.=GAUGE
GALV.=GALVANIZED
HORIZ.=HORIZONTAL
L.L.V.=LONG LEG VERTICAL
L.L.H.=LONG LEG HORIZONTAL
MAX.=MAXIMUM
MECH.=MECHANICAL
MIN.=MINIMUM
MISC.=MISCELLANEOUS
N.I.R.=NO INSPECTION REQUIRED
NOM.=NOMINAL
N.T.S.=NOT TO SCALE
O.C.=ON CENTER
OPP.=OPPOSITE
PL=PLATE
REF.=REFERENCE
REINF.=REINFORCEMENT
REQ'D.=REQUIRED
SECT.=SECTION
S.J.=SAWCUT JOINT
SIM.=SIMILAR
S.S.=STAINLESS STEEL
STD.=STANDARD
STL.=STEEL
STRUCT.=STRUCTURAL
SYM.=SYMMETRICAL
SUPT.=SUPPORT
T.&B.=TOP AND BOTTOM
T.O.C.=TOP OF CONCRETE
T.O.G.=TOP OF GRATING
T.O.S.=TOP OF STEEL
TYP.=TYPICAL
U.N.O.=UNLESS NOTED OTHERWISE
VERT.=VERTICAL

ORIGINAL

REVISION	DATE	BY	CHECKED	PROJ. ENG.	APPROVED	VP. ENG.	PROJ. MGR.
1	10/27/98	AMS	FPL	KB	OWG	TH	OWG
ORIGINAL							
NATIONAL ENERGY PRODUCTION CORPORATION NEPCO							
DRAWN BY: JHB				ENGINEERED BY: FLP			
SCALE: AS NOTED				DATE: 14:12, 13 OCT 99			
THIS DRAWING IS THE PROPERTY OF NEPCO AND IS NOT TO BE USED IN ANY WAY INJURIOUS TO THEIR INTERESTS AND IS TO BE RETURNED UPON REQUEST.							
ODGEN ENERGY GROUP, INC.							
PASCO COUNTY SNCR RETROFIT PASCO COUNTY, FLORIDA							
STRUCTURAL DESIGN NOTES							
DWG. NO. 99-7 S001							

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GENERAL NOTES:

1. REFER TO STONE & WEBSTER DRAWING NO. 187590-J-1-3 FOR P&ID SYMBOLS.
2. AN ASTERISK (*) INDICATES ITEM SUPPLIED BY VENDOR.
3. ALL ITEMS WITHIN DASHED LINES ARE BY SHOWER VENDOR.
4. DRAINS ARE NOT COLLECTED.
5. INSULATE ALL PW PIPING WHERE EXPOSED TO SOURCES OF HEAT, INCLUDING OTHER PIPING, THE BOILER OR THE SUN. 1" MINERAL WOOL WITH .016" ALUMINUM JACKETING.
6. ALL EYEWASH AND SHOWER PIPING AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH ANSI Z358.1.
7. POTABLE WATER SUPPLY IS FROM EXISTING PLANT SYSTEM. SEE STONE & WEBSTER DRAWING NO. 18750-J-20, ZONE H3.
8. ALL PW PIPING SHALL BE GALVANIZED CARBON STEEL, A106 OR A53, GRB, ERW, SCH 80, THREADED, WITH CL 125# GALVANIZED CI MALLEABLE IRON FITTINGS (NOTE 3).

ORIGINAL

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NATIONAL ENERGY PRODUCTION CORPORATION
NEPCO
DRAWN BY: SF
ENGINEERED BY: KMB
SCALE: N/A
DATE: 09/40, 02 OCT 99
THIS DRAWING IS THE PROPERTY OF NEPCO AND IS NOT TO BE USED IN ANY WAY INJURIOUS TO THEIR INTERESTS AND IS TO BE RETURNED UPON REQUEST.
OGDEN ENERGY GROUP, INC.
PASCO COUNTY SNCR RETROFIT
PASCO COUNTY, FLORIDA
SAFETY SHOWER/POTABLE WATER SUPPLY SYSTEM P&ID
DWG. NO. 99-7 P003

GENERAL NOTES:

1. REFER TO STONE & WEBSTER DRAWING NO. 18750-J-1-3 FOR P&ID SYMBOLS.
2. AN ASTERISK (*) INDICATES ITEM SUPPLIED BY VENDOR.
3. TWO (2) EYEWASH AND SHOWER STATION REQUIRED ON EACH SIDE OF EACH BOILER. SEE DRAWING P003.
4. TWO (2) HARD WIRED E-STOPS REQUIRED PER BOILER. BOTH AT NOZZLE LEVEL, LEFT AND RIGHT SIDE OF BOILER. ANY E-STOP TRIPS BOTH AMMONIA PUMPS AND CLOSES AMMONIA VALVES AND CARRIER WATER VALVES.
5. AMMONIA AND CARRIER WATER VALVES INTERLOCKED TO CLOSE ON BOILER (FD FAN) TRIP HI-HI AMMONIA FLOW OR ACTUATION OF AMMONIA INJECTION E-STOPS.
6. NEEDLE VALVE INTEGRAL TO AMMONIA ROTAMETER.
7. TWO (2) AMMONIA SAMPLING PORTS PER BOILER, LOCATED AT LEFT & RIGHT SIDE OF EACH BOILER. HIGH AMMONIA LEVEL TRIPS BOTH AMMONIA PUMPS AND CLOSES AMMONIA VALVES AND CARRIER WATER VALVES. LOCATE PORT ABOVE NOZZLE.
8. BOILER NO.1 INSTRUMENTATION IS PREFIXED WITH "1NX". BOILER NO.2 INSTRUMENTATION IS PREFIXED WITH "2NX". BOILER NO.3 INSTRUMENTATION IS PREFIXED WITH "3NX". COMMON AREA INSTRUMENTATION IS PREFIXED WITH "NX".
9. PROVIDE CHICAGO TYPE FITTINGS FOR ALL VENT, FLUSH AND DRAIN CONNECTIONS FOR AQUEOUS AMMONIA SYSTEM.
10. TWO (2) OPERATING NOZZLES PER BOILER PLUS TWO (2) SPARE WALL BOXES PER BOILER @ ALTERNATE ELEVATION.
11. PROVIDE HIGH POINT VENTS.
12. INSTALL WDD P1'S 114A&114B AT THE SAME ELEVATION AS P1-143 SO FLUID HEAD DOES NOT AFFECT RELATIVE READINGS.

RECEIVED
DEC 15 1999
Department of Environmental Protection
BY SOUTHWEST DISTRICT

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REVISION	DATE	BY	CHECKED	PROJ. ENG.	APPROVED	VP. ENG.	INSTR.	MECH.	STRUCT.	PIPING	PROCESS	SEEN BY
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ISSUED FOR CONSTRUCTION	99-7 P001 SHT 2 F5
ISSUED FOR REVIEW AND BID	BLR NO.3 NH3 FLOW 3NX-FQ1-103

99-7 P001 SHT 2	DEMIN WATER SUPPLY
99-7 P001 SHT 2	AQUEOUS AMMONIA SUPPLY

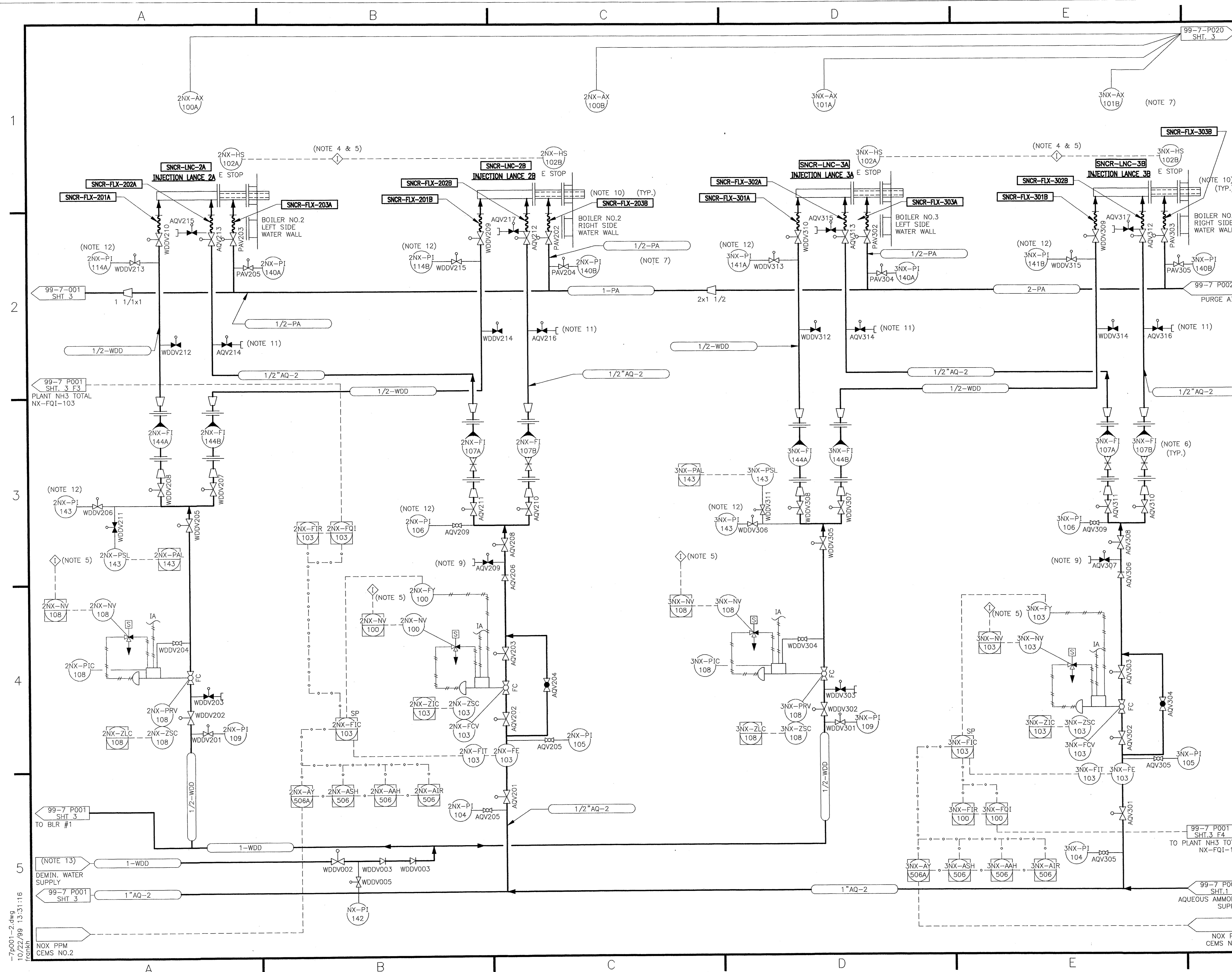
DRAWN BY: SF	ENGINEERED BY: KMB
SCALE: N/A	DATE: 10/22/99

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OGDEN ENERGY GROUP, INC.	PASCO COUNTY SNCR RETROFIT PASCO COUNTY, FLORIDA
AQUEOUS AMMONIA SNCR SYSTEM P&ID	

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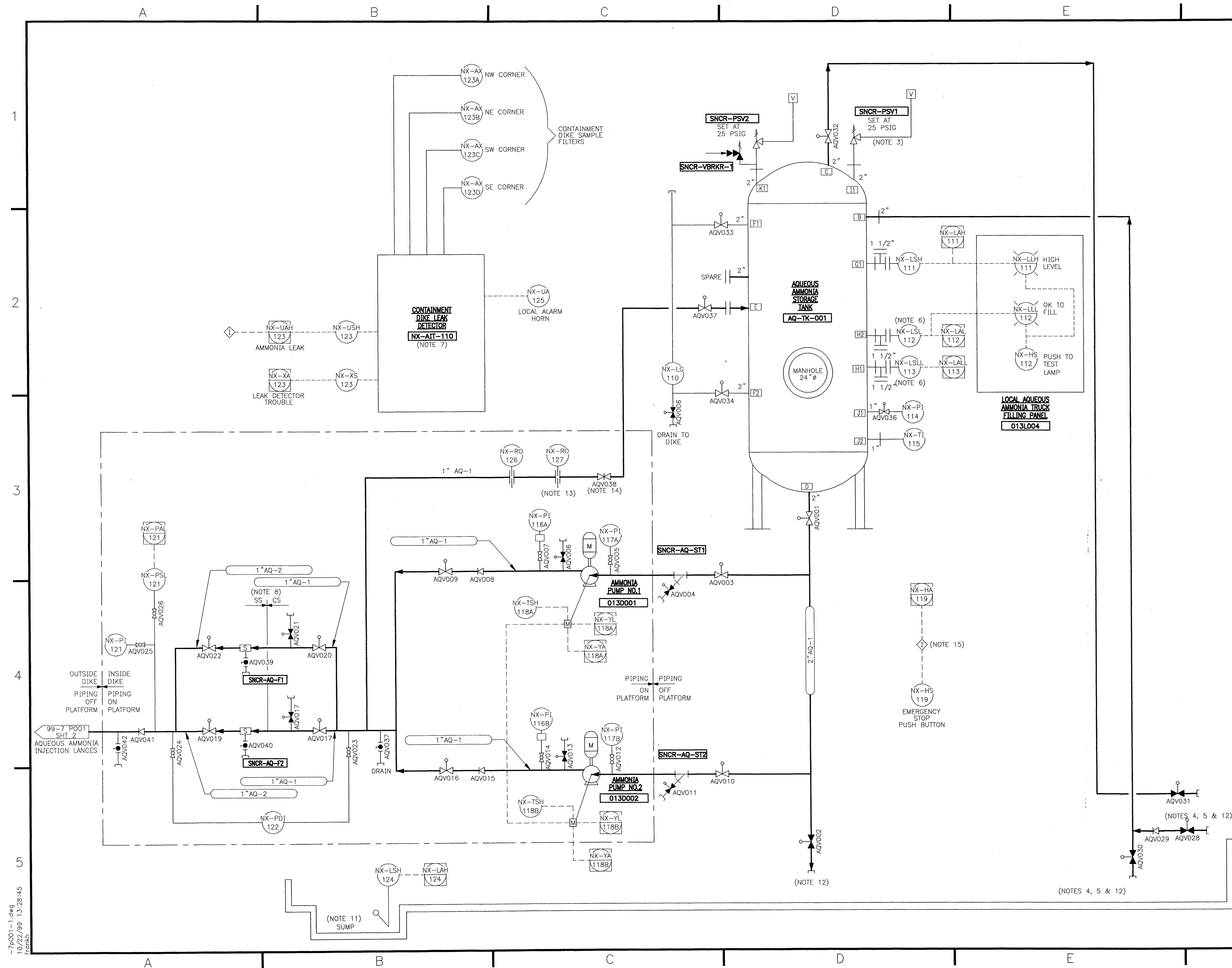
GENERAL NOTES:

1. REFER TO STONE & WEBSTER DRAWING NO. 18750-J-1-3 FOR P&ID SYMBOLS.
2. AN ASTERISK (*) INDICATES ITEM SUPPLIED BY VENDOR.
3. TWO (2) EYEWASH AND SHOWER STATIONS REQUIRED ON EACH SIDE OF EACH BOILER. SEE DRAWING P003.
4. TWO (2) HARD WIRED E-STOPS REQUIRED PER BOILER. BOTH AT NOZZLE LEVEL, LEFT AND RIGHT SIDE OF BOILER. ANY E-STOP TRIPS BOTH AMMONIA PUMPS AND CLOSURES AMMONIA VALVES AND CARRIER WATER VALVES.
5. AMMONIA AND CARRIER WATER VALVES INTERLOCKED TO CLOSE ON BOILER (FD FAN) TRIP HI-HI AMMONIA FLOW OR ACTUATION OF AMMONIA E-STOPS.
6. NEEDLE VALVE INTEGRAL TO AMMONIA ROTAMETER.
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9. PROVIDE CHICAGO TYPE FITTINGS FOR ALL VENT, FLUSH AND DRAIN CONNECTIONS FOR AQUEOUS AMMONIA SYSTEM.
10. TWO (2) OPERATING NOZZLES PER BOILER PLUS TWO (2) SPARE WALL BOXES PER BOILER @ ALTERNATE ELEVATION.
11. PROVIDE HIGH POINT VENT.
12. INSTALL WDD PI'S 114A&B AT THE SAME ELEVATION AS PI 143 SO FLUID HEAD DOES NOT AFFECT RELATIVE READINGS.
13. DEMINERALIZED WATER IS SUPPLIED BY EXISTING PLANT DEMIN. WATER SYSTEM. SEE STONE & WEBSTER DRAWING NO. 18750-J-5.

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ISSUED FOR CONSTRUCTION		DATE		BY	CHECKED	PROJ. ENG.	APPROVED	INSTR.
FOR REVIEW AND BID								
NATIONAL ENERGY PRODUCTION CORPORATION NEPCO								
DRAWN BY: SF		ENGINEERED BY: KMB						
SCALE: N/A		DATE: 11-31-99						
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ODGEN ENERGY GROUP, INC.								
PASCO COUNTY SNCR RETROFIT								
PASCO COUNTY, FLORIDA								
AQUEOUS AMMONIA SNCR SYSTEM P&ID								
DWG. NO. 99-7 P001		SHT. 2 OF 3						




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GENERAL NOTES:

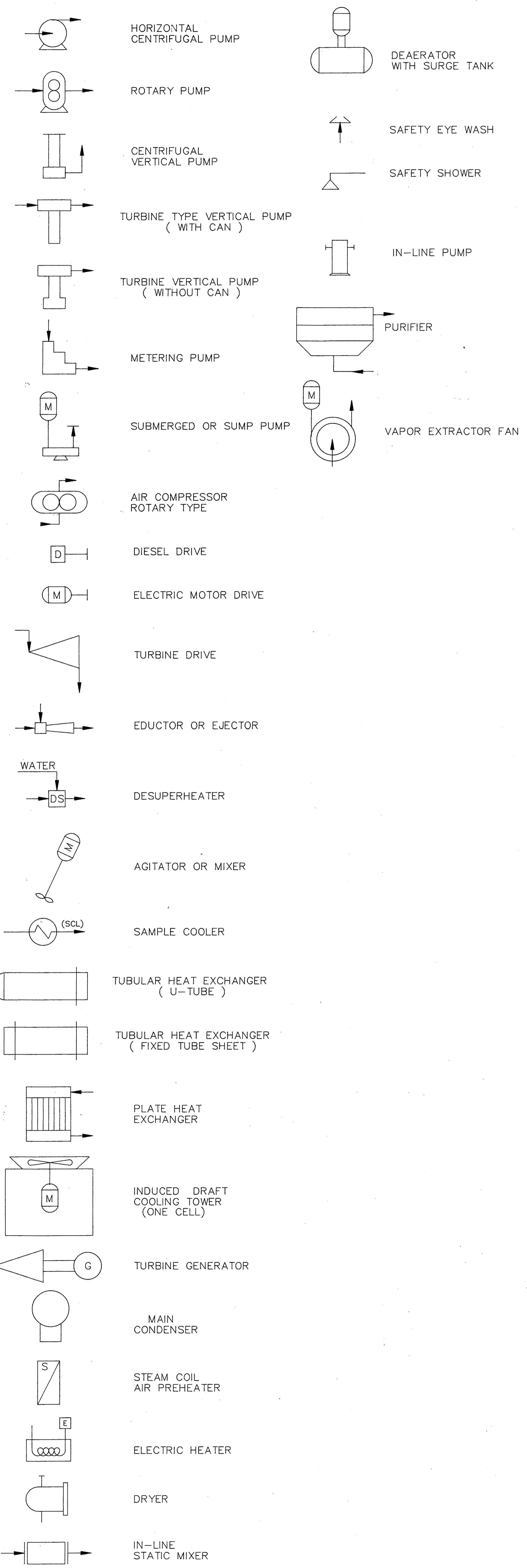
1. REFER TO STONE & WEBSTER DRAWING NO. 18750-J-1-3 FOR P&ID SYMBOLS.
2. AN ASTERISK (*) INDICATES ITEM SUPPLIED BY VENDOR.
3. VENT TO A SAFE LOCATION, 25 FEET AWAY FROM NEAREST ROOF OR WORKING PLATFORM.
4. THESE VALVES AND COMPONENTS TO BE LOCATED JUST INSIDE THE EDGE OF DIKE IN ORDER TO BE EASILY ACCESSIBLE BY AMMONIA HYDROXIDE DELIVERY TRUCK DRIVER.
5. THESE CONNECTIONS TO BE PROVIDED BY THE AMMONIA HYDROXIDE SUPPLIER JUST PRIOR TO FIRST FILL.
6. LOW LEVEL IS PERMISSIVE TO FILL. LOW-LOW LEVEL WILL TRIP AMMONIA PUMPS.
7. AN AMMONIA LEAK WILL TRIP BOTH PUMPS.
8. PIPING BEYOND THIS POINT IS STAINLESS STEEL.
9. STANDBY AMMONIA PUMP STARTS ON PRIMARY PUMP TRIP.
10. TEMPERATURE SWITCH IN AMMONIA PUMP MOTOR CASING TRIPS PUMP ON HIGH WINDING TEMPERATURE.
11. THE CONTAINMENT DIKE IS DEWATERED USING A PORTABLE SUMP PUMP (BY OTHERS).
12. PROVIDE CHICAGO TYPE FITTINGS FOR ALL VENT, FLUSH AND DRAIN CONNECTIONS FOR AQUEOUS AMMONIA SYSTEMS.
13. INSTALL RO's 1'-0" ON CENTER.
14. VOGT SERIES 22461.
15. ONE HARDWIRED E-STOP REQUIRED, LOCATED OUTSIDE DIKE AT ACCESS LADDER. E-STOP TRIPS BOTH AMMONIA PUMPS AND CLOSES CARRIER WATER VALVES.

ORIGINAL

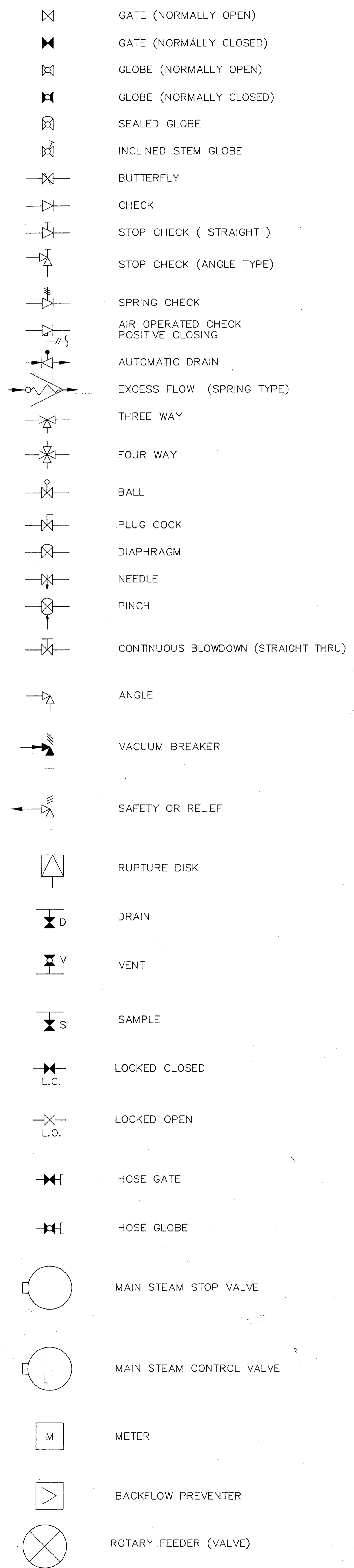
		ISSUED FOR CONSTRUCTION		11/28/99		12/13/99		12/13/99	
		ISSUED FOR REVIEW AND BID							
REVISION	DATE	BY	CHECKED	PROJ. ENG.	APPROVED				
		NATIONAL ENERGY PRODUCTION CORPORATION							
DRAWN BY: SF				ENGINEERED BY: KMB					
SCALE: N/A				DATE: 13/28, 22 OCT 99					
THIS DRAWING IS THE PROPERTY OF NEPCO AND IS NOT TO BE USED IN ANY WAY INJURIOUS TO THEIR INTERESTS AND IS TO BE RETURNED UPON REQUEST.									
OGDEN ENERGY GROUP, INC.									
PASCO COUNTY SNCR RETROFIT PASCO COUNTY, FLORIDA									
AQUEOUS AMMONIA SNCR SYSTEM P&ID									
DWG. NO. 99-7 P001				SHEET 1 OF 3					

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10/22/99 13:28:45
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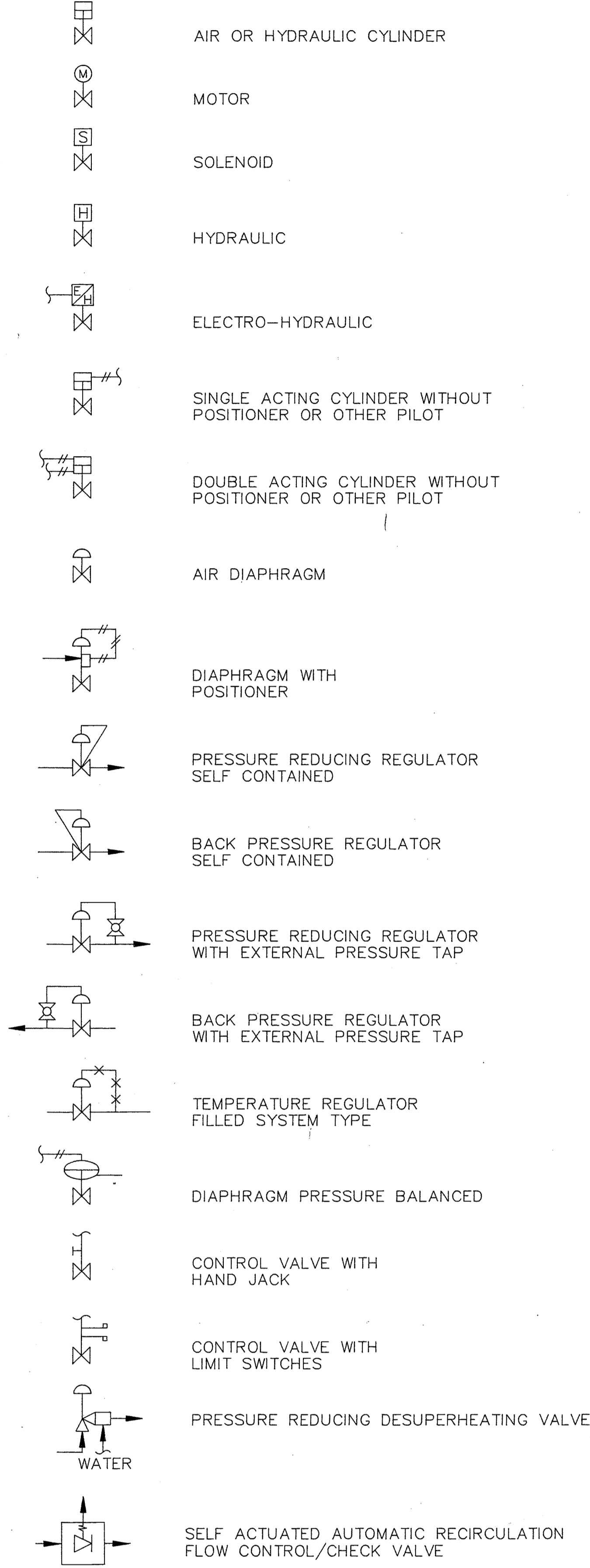
EQUIPMENT SYMBOLS



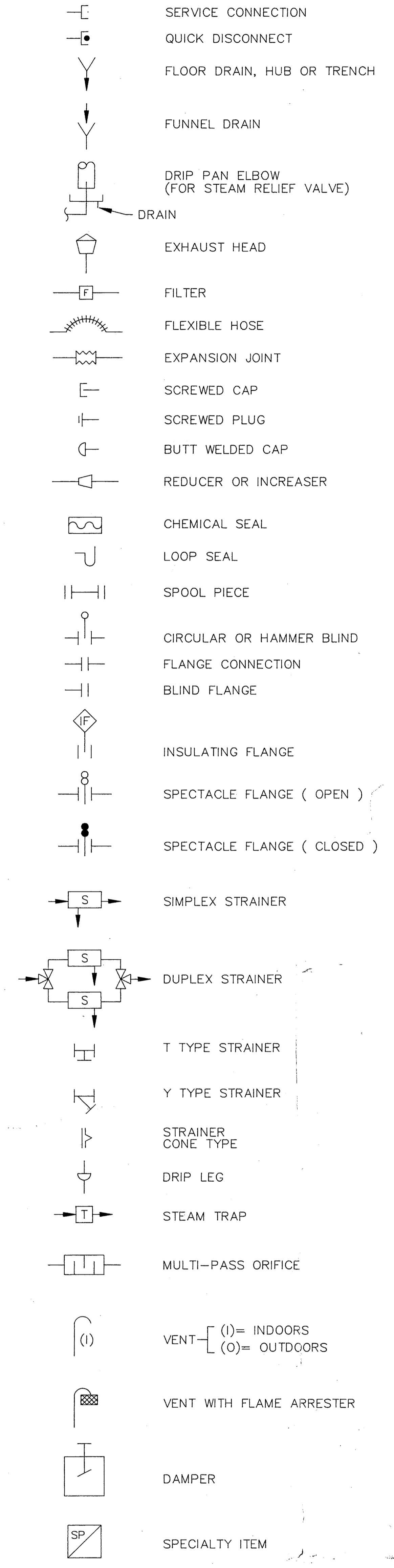
VALVES SYMBOLS



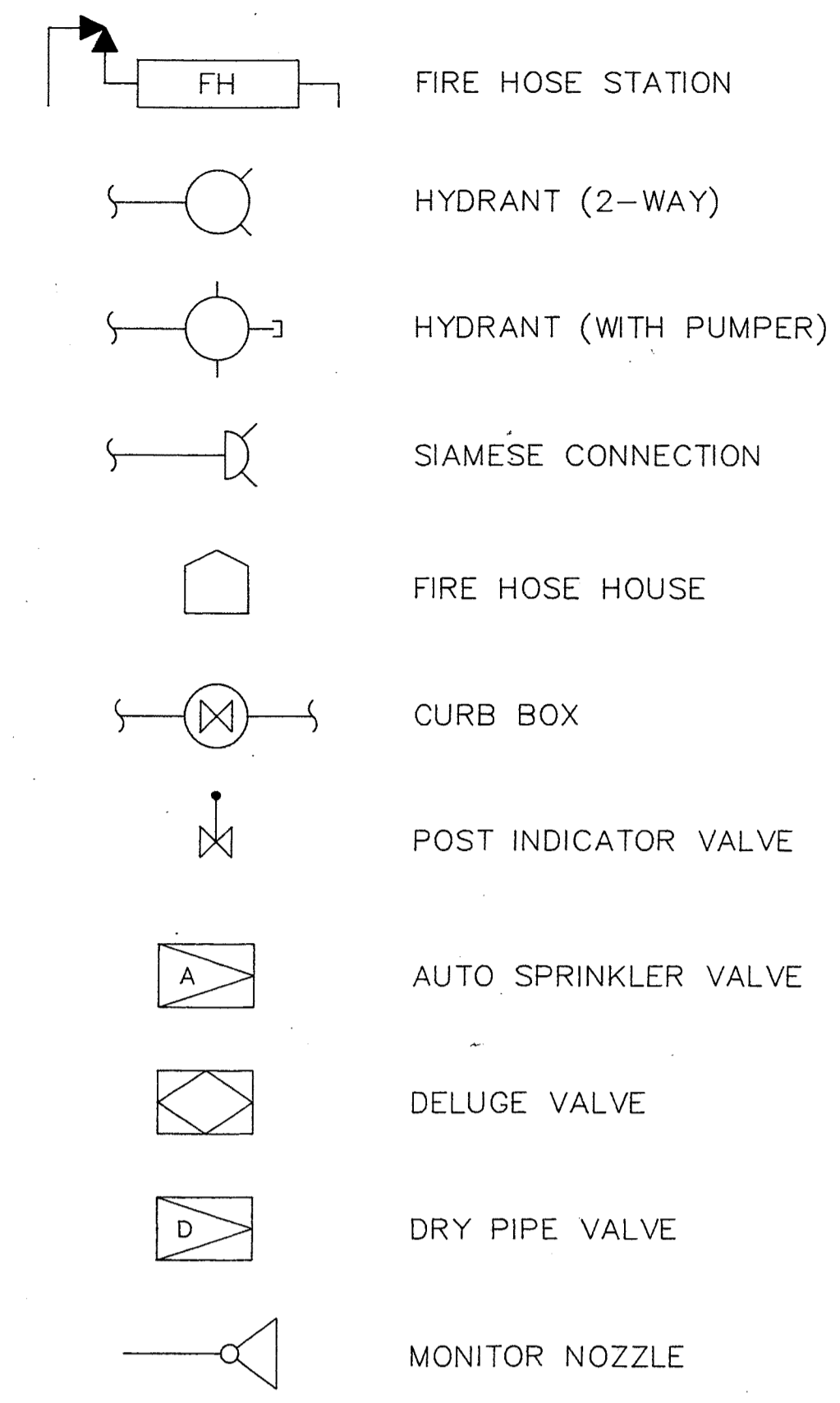
VALVE ACTUATOR SYMBOLS



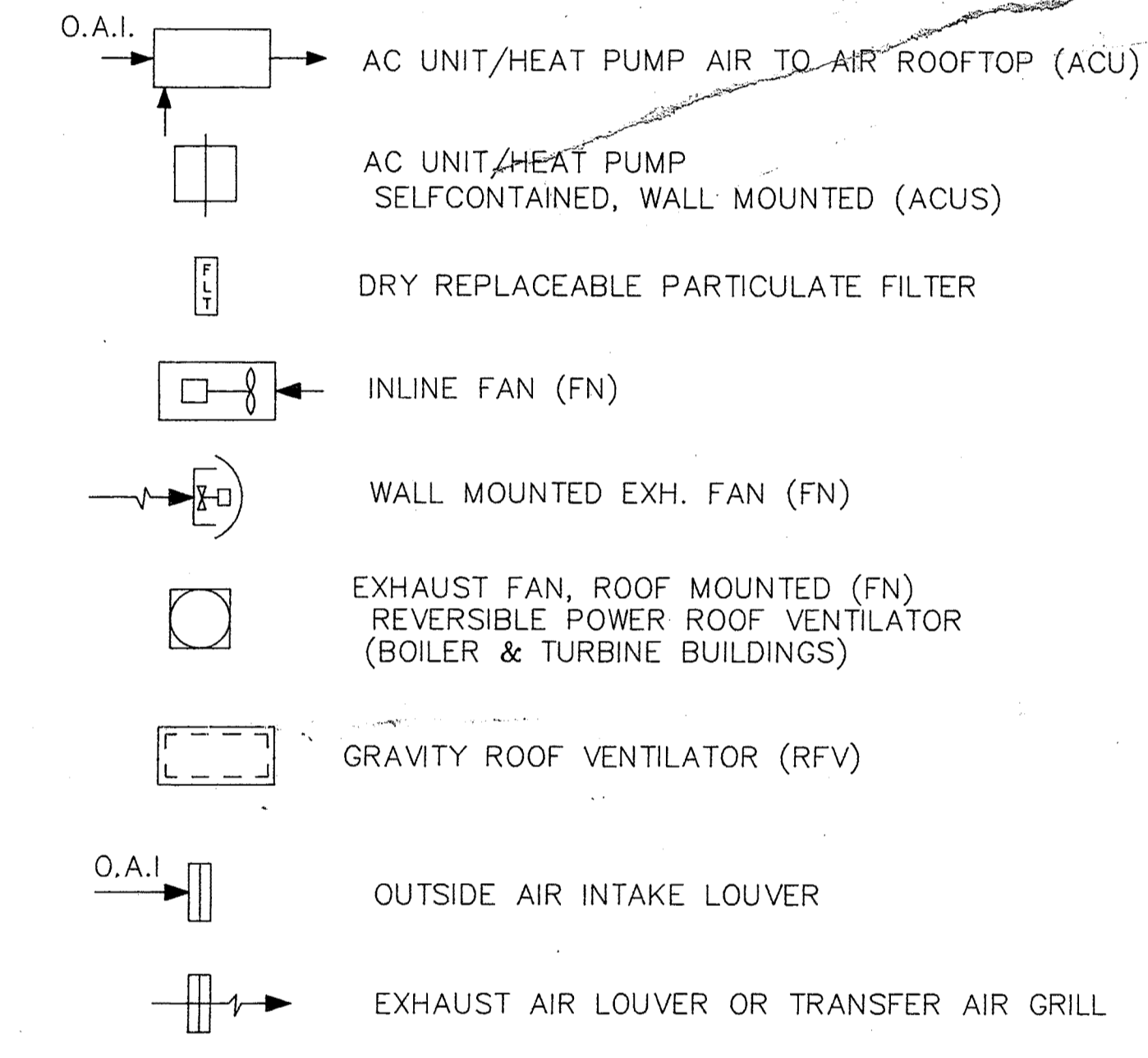
PIPING SYMBOLS



FIRE PROTECTION SYMBOLS



HVAC SYMBOLS

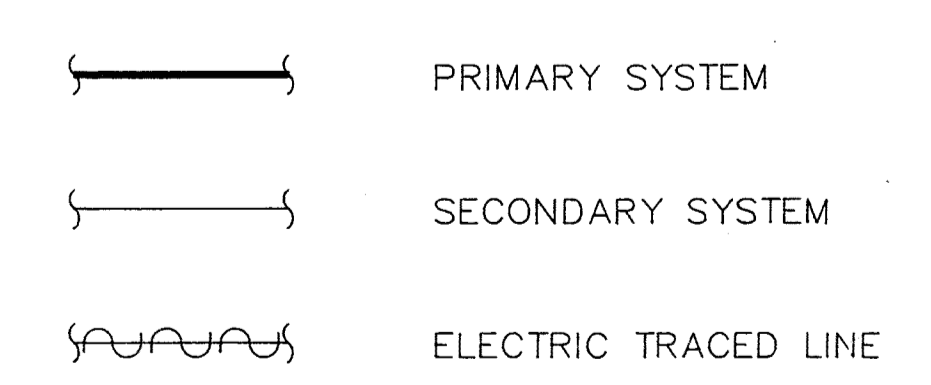


- HVB - BOILER BUILDING
- HVT - TURBINE BUILDING
- HVC - CONTROL ROOM
- HVO - ADMINISTRATION BUILDING
- HVY - YARD AREA AND OTHER STRUCTURES
- LVR - STATIONARY LOUVER WITH BACKDRAFT DAMPER

GENERAL NOTES:

- UNLESS OTHERWISE NOTED, ALL PIPING SHOWN ON P&ID DIAGRAMS ARE FURNISHED AND INSTALLED BY GENERAL CONTRACTOR.
- UNLESS OTHERWISE SPECIFIED, ALL PRESSURE AND FLOW INSTRUMENTATION ROOT VALVES SHALL BE 3/4".
- ALL INSTRUMENT AND CONTROL SYMBOLOGY IN GENERAL CONFORMS TO ISA STANDARD 55.1. REFER TO THAT STANDARD FOR INSTRUMENTATION AND CONTROL SYMBOLS OR LETTERS USED AND NOT SHOWN.
- VALVES SHOWN SHADED INDICATE THAT THEY ARE NORMALLY CLOSED; ALL OTHER VALVES ARE SHOWN NORMALLY OPEN.
- ALL PIPING HIGH POINTS & LOW POINTS SHALL HAVE 3/4" VALVES PER PIPE SPEC.

LINE SYMBOLS



ISSUE 5	DESCRIPTION										CHECKED	ISSUE 4	DESCRIPTION										CHECKED	ISSUE 3	DESCRIPTION										CHECKED	ISSUE 2	DESCRIPTION										CHECKED	ISSUE 1	DESCRIPTION										CHECKED																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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COMPANY CONFIDENTIAL

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STATE OF FLORIDA
PROFESSIONAL ENGINEER NO.

DESIGNED BY
CHECKED BY

DRAWN BY
DATE

P & I DIAGRAM
INDEX & NOMENCLATURE SHT.-1

PASCO COUNTY SOLID WASTE RESOURCE RECOVERY FACILITY
PASCO COUNTY, FL
OGDEN MARTIN SYSTEMS OF PASCO, INC.
STONE & WEBSTER ENGINEERING CORPORATION
NEW YORK, NEW YORK
DRAWING
NUMBER 18750-J-1-2