CITY OF GRAND ISLAND

Working Together for a Better Tomorrow. Today.

BID SPECIFICATION PACKAGE

for

BOILER INSPECTION AND REPAIR SPRING 2022 OUTAGE

C131306

Bid Opening Date/Time

Tuesday, March 22, 2022 at 2:15 p.m. (local time)
City of Grand Island, City Hall
100 East 1st Street, P.O. Box 1968
Grand Island, NE 68802-1968

Contact Information

Tylor Robinson
City of Grand Island – Utilities Department
Platte Generating Station
308/385-5496

Date issued: March 1, 2022

ADVERTISEMENT TO BIDDERS
FOR
BOILER INSPECTION AND REPAIR - SPRING 2022 OUTAGE
FOR
CITY OF GRAND ISLAND, NEBRASKA

Sealed bids for Boiler Inspection and Repair -Spring 2022 Outage will be received at the office of the City Clerk, 100 E. First Street, P.O. Box 1968, Grand Island, Nebraska 68802, until **Tuesday, March 22, 2022 at 2:15 p.m. local time,** FOB the City of Grand Island, freight prepaid. Bids will be publicly opened at this time in the Grand Island City Hall City Clerk's Office located on 1st floor of City Hall. **Submit an original and three copies if submitting by mail.** Bid package and any Addendas are also available on-line at www.grand-island.com under Business-Bids and Request for Proposals-Bid Calendar under the bid opening date. Bidding documents, plans and specifications for use in preparing bids may be downloaded from the QuestCDN website www.QuestCDN.com for a small fee. Submitting through QuestCDN requires one original document of the bid to be uploaded. **Bids received after the specified time will not be considered**.

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S.73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. Successful bidder shall maintain a drug free workplace policy. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

Each bidder shall submit with the bid a certified check, a cashiers check, or bid bond payable to the City of Grand Island in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the bidder and the entering into a contract within fifteen (15) days at the bid price if accepted by the City. **Your certified check, cashiers check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information and correct number of copies in clearly marked and separate envelopes will result in your bid not being opened or considered.** Only surety companies authorized to do business in the State of Nebraska may issue bid bonds.

Bids will be evaluated by the Purchaser based on price, schedule, quality, adherence to schedule, plan and specifications, economy and efficiency of operation, experience and reputation of the bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The Purchaser reserves the right to reject any or all bids, to waive irregularities therein, and to accept whichever bid that may be in the best interest of the City, at its sole discretion.

No bidder may withdraw his/her bid for a period of thirty (30) days after date of bid opening.

RaNae Edwards, City Clerk

Advertised

(All bids must be submitted on this form)

BOILER INSPECTION AND REPAIR - SPRING 2022 OUTAGE
BID DATA FORM

CITY OF GRAND ISLAND
GRAND ISLAND, NE

The undersigned Bidder, having examined all specifications and other bidding documents, and all addenda thereto, and being acquainted with and fully understanding all conditions relative to the specified materials and equipment, hereby proposes to provide labor, equipment, materials and supervision on a time and material basis to support the inspection and repair of generator components and auxiliary equipment as needed during the Spring Outage 2022 at Platte Generating Station FOB the City of Grand Island, freight prepaid, at the following price:

ITEM DESCRIPTION	EXTENDED COST
Base Bid:	
Mobilization/Demobilization	$ _____
Labor (T&M)	$ _____
Applicable Sales tax*	$ _____
Total Base Bid	**$ _____**

_____
Bidder Company Name Date

_____
Company Address City State Zip

_____
Print Name of Person Completing Bid Signature

Email:_____ Telephone No._____

*** If bidder fails to include sales tax in their bid price or takes exception to including sales tax in their bid price, the City will add a 7.5% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due. The State of Nebraska Department of Revenue has determined that building cleaning and maintenance services are taxable on both materials and labor.**

☐ **Exceptions Noted -** Bidder acknowledges there are *Exceptions* and/or *Clarifications* noted to the above bid, and those exceptions are fully explained on a separate sheet, clearly marked, and included with the Bid.

According to Nebraska Sales and Use Tax Requirements, Section 1-017, Contractors, check which option you have selected to file with the Nebraska Department of Revenue:

Nebraska law provides a sales and use tax exemption on contractor labor charges for the construction, repair, or annexation of any structure used for the generation, transmission, or distribution of electricity. Separately stated contractor labor would be exempt, all materials are taxable according to the contractor's option.

Option 1 (Section 1-017.05)_____ Option 2 (Section 1-017.06)_____ Option 3 (Section 1-017.07)_____

If the Nebraska sales and use tax election is not filed or noted above, the contractor will be treated as a retailer under Option 1 for sales and use tax purposes.

☐ By checking this box, Bidder acknowledges the specified completion date of the project is **May 7, 2022.**

☐ By checking this box, Bidder acknowledges that Addenda Number(s) _____ were received and considered in Bid preparation.

Note: If Bidder supplies individual unit pricing information as supplemental pricing to the base material and labor cost above, said individual pricing is proprietary information and should not be released under a public records request. The total base bid is not considered proprietary information and will be released pursuant to City Procurement Code.

Any exceptions the bidder wishes to take regarding the Owners specifications and/or contract documents must be submitted with the bid, and noted above under “Exceptions Noted”. Time is of the essence in the evaluation of proposals, the execution of contract documents for the execution of the work. Submittal of proposals that include terms and conditions unacceptable to the Owner, or that lack the information and clarity required by these specifications may be subject to rejection at the sole discretion of the Owner.

CHECKLIST FOR BID SUBMISSION

FOR

BOILER INSPECTION AND REPAIR - SPRING 2022 OUTAGE

Bids must be received by the City Clerk before *2:15 p.m. on Tuesday, March 22, 2022.*

The following items must be completed for your bid to be considered.

- ❑ Submittal of bid documents:
  - ❑ **Option 1 – Mailing**: A signed original and three (3) copies of the bidding documents. Failure to submit the correct number of copies may result in your bid not being considered.
    - ❑ Note: Your certified check, cashiers check or bid bond should be clearly marked in a separate envelope attached to the signed original bid.

  - ❑ **Option 2 – QuestCDN (online)**: Purchase the bid specification through QuestCDN. Upload the signed original of the Bid Data Form, along with any supporting material required to meet the bid specification through QuestCDN. Upload your bid bond online through QuestCDN. *Bidders using Certified check or Cashiers' Check must mail said check to the office of the City Clerk no later than the scheduled bid opening date and time and clearly marked with the project name.*

- ❑ Bidders must complete and sign the Bid Data Form provided in these Documents. All blank spaces must be filled in. Bidders shall acknowledge receipt of any Addenda information on the Bid Data Form.
- ❑ A certified check, cashiers' check or bid bond in a separate envelope attached to the **outside of the envelope containing the original bid**. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information in clearly marked and separate envelopes will result in your bid not being opened.
- ❑ Selection of Nebraska Sales Tax Option. If the Nebraska sales and use tax election is not filed or noted above, the Contractor will be treated as a retailed under Option 1 for sales and use tax purposes.
- ❑ A reference list of at least three (3) projects of similar scope and complexity including a description, name and phone contact.
- ❑ A summary of the experience of the Superintendent proposed for this project.
- ❑ A List of subcontractor's names and references.
- ❑ Copy of Contractor's ASME "R" Stamp.
- ❑ Firm lump sum pricing; firm unit pricing in case adjustments are necessary, and breakout of sales tax pricing.
- ❑ A proposed schedule and sample timesheet.
- ❑ A description of the standard terms and conditions which will be in effect during the project.
- ❑ Exceptions to the specification or Owner's Contract Document must be submitted with the bid and noted on the Bid Data Form as time is of the essence.
- ❑ Acknowledgment of Addenda Number(s) _____.

Please check off each item as completed to ensure compliance. If you have any questions, please feel free to contact our office prior to the bid opening date/time.

INSTRUCTIONS TO BIDDERS

1. GENERAL INFORMATION.

   The following instructions outline the procedure for preparing and submitting Bids. Bidders must fulfill all requirements as specified in these Documents.

2. TYPE OF BID.

   Bidders shall be required to submit prices for all items listed in the Bid Data Form.

3. PREPARATION OF BIDS.

   Bidders shall use only the Bid Data Form provided in these Documents. All blank spaces in the Bid Data Form must be filled in, preferably in BLACK ink, in both words and figures where required. No changes to the wording or content of the forms is permitted. Written amounts shall govern in case of discrepancy between the amounts stated in writing and the amounts stated in figures.

   Prices stated shall be f.o.b. with freight and full insurance paid by Bidder, to the job site located in Grand Island, Nebraska.

   The Bidder shall acknowledge receipt of all Addenda in the Bid Data Form. Bids received without acknowledgement or without the Addendum enclosed will be considered informal.

   Individual unit pricing as listed on the Bid Data Form or supplied as supplemental information may be deemed proprietary information and not be released under a public records request. The total amount of the bid is not considered proprietary information and will be released pursuant to City Procurement Code.

4. SUBMISSION OF BIDS.

   All Bids must be submitted intact with the correct number of copies no later than the time prescribed, at the place, and in the manner set forth in the ADVERTISEMENT FOR BIDS. Bids must be made on the Bid Data Form provided herein. Each Bid mailed must be submitted intact in a sealed envelope, so marked as to indicate its contents without being opened, and delivered in person or addressed and mailed in conformance with the instructions in the ADVERTISEMENT FOR BIDS.

5. BID SECURITY.

   Bids must be accompanied by cash, a certified check, or cashier's check drawn on a bank which is insured by the Federal Deposit Insurance Corporation, or a bid bond issued by a Surety authorized to issue such bonds in the state where the Work is located, in the amount of 5 percent of the bid amount payable to OWNER. This bid security shall be given as a guarantee that the Bidder will not withdraw their Bid for a period of thirty (30) days after bid opening, and that if awarded the Contract, the successful Bidder will execute the attached Contract and furnish a properly executed Performance Bond and Payment Bond, each in the full amount of the Contract price, within the time specified.

   The Attorney-in-Fact that executes this bond on behalf of the Surety must attach a notarized copy of his/her power of attorney as evidence of his/her authority to bind the Surety on the date of execution of the bond. Where State Statue requires, certification by a resident agent shall also be provided.

6. RETURN OF BID SECURITY.

   Within fifteen (15) days after the award of the Contract, the OWNER will return the bid securities to all Bidders whose Bids are not to be further considered in awarding the Contract. All other retained bid securities will be held until the Contract has been finally executed, after which all bid securities, other than Bidders' bonds and guarantees which have been fortified, will be returned to the respective Bidders whose Bids they accompanied.

7. BASIS OF AWARD.

The award will be made by the OWNER on the basis of the Bid from the lowest responsive, responsible Bidder which, in the OWNER's sole and absolute judgment will best serve the interest of the OWNER. All Bids will be considered on the following basis:

- Delivery time
- Bid price
- Cost of installation
- Suitability to project requirements
- Conformance with the terms of the Bid Documents
- Responsibility and qualification of Bidder

The OWNER reserves the right to reject all Bids, or any Bid not in conformance with the intent of the Bid Documents, and to waive any informalities and irregularities in said Bids.

8. EXECUTION OF CONTRACT.

The successful Bidder shall, within fifteen (15) days after receiving notice of award, sign and deliver to the OWNER the Contract hereto attached together with the acceptable bonds as required in these Bid Documents. Within fifteen (15) days after receiving the signed Contract with acceptable bond(s) from the successful Bidder, the OWNER's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract.

9. PERFORMANCE AND PAYMENT BONDS.

The successful Bidder shall file with the OWNER Performance and Payment Bonds in the full amount (100 percent) of the Contract price, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the Work under this Contract, and to cover all guarantees against defective workmanship or materials, or both, for a period of one (1) year after the date of final acceptance of the Work by the OWNER. The Surety furnishing these bonds shall have a record of service satisfactory to the OWNER, be authorized to do business in the State where the OWNER's project is located and shall be named on the current list of approved Surety Companies, acceptable on Federal bonds as published by the Audit Staff, Bureau of Accounts, U.S. Treasury Department.

The Attorney-in-Fact (Resident Agent) who executes these bonds on behalf of the Surety must attach a notarized copy of his/her power-of-attorney as evidence of his/her authority to bind the Surety on the date of execution of the bond.

10. TIME OF COMPLETION.

The time of completion of the Work to be performed under this Contract is the essence of the Contract. The time allowed for the completion of the Work is stated in the Bid Data Form.

11. GRATUITIES AND KICKBACKS.

City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefor. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

12. FISCAL YEAR.

The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

Contract #
Issued:

CONTRACT AGREEMENT

THIS AGREEMENT made and entered into by and between **[SUCCESSFUL BIDDER]**, hereinafter called the Contractor, and the **CITY OF GRAND ISLAND, NEBRASKA**, hereinafter called the City.

WITNESSETH:

THAT, WHEREAS, in accordance with law, the City has caused contract documents to be prepared and an advertisement calling for bids to be published for BOILER INSPECTION AND REPAIR - SPING 2022 OUTAGE*;* and

WHEREAS, the City, in the manner prescribed by law, has publicly opened, examined, and canvassed the bids submitted, and has determined the aforesaid Contractor to be the lowest responsive and responsible bidder, and has duly awarded to said Contractor a contract therefore, for the sum or sums named in the Contractor's bid, a copy thereof being attached to and made a part of this Contract;

NOW, THEREFORE, in consideration of the compensation to be paid to the Contractor and of the mutual agreements herein contained, the parties have agreed and hereby agree, the City for itself and its successors, and the Contractor for itself, himself/herself, or themselves, and its, his/her, or their successors, as follows:

ARTICLE I. That the following documents shall comprise the Contract, and shall together be referred to as the "Agreement" or the "Contract Documents";

1. This Contract Agreement.
2. City of Grand Island's Specification for this project.
3. [NAME OF SUCCESSFUL BIDDER] bid signed and dated [DATE OF BID].

In the event of any conflict between the terms of the Contract Documents, the provisions of the document first listed shall prevail.

ARTICLE II. That the Contractor shall (a) furnish all tools, equipment, superintendence, transportation, and other construction materials, services and facilities; (b) furnish, as agent for the City, all materials, supplies and equipment specified and required to be incorporated in and form a permanent part of the completed work; (c) provide and perform all necessary labor; and (d) in a good substantial and workmanlike manner and in accordance with the requirements, stipulations, provisions, and conditions of the Contract documents as listed in the attached General Specifications, said documents forming the Contract and being as fully a part thereof as if repeated verbatim herein, perform, execute, construct and complete all work included in and covered by the City's official award of this Contract to the said Contractor, such award being based on the acceptance by the City of the Contractor's bid;

ARTICLE III. That the City shall pay to the Contractor for the performance of the work embraced in this Contract and the Contractor will accept as full compensation therefore the sum (subject to adjustment as provided by the Contract) of **[DOLLAR AMOUNT] ($00.00)** for all services, materials, and work covered by and included in the Contract award and designated in the foregoing Article II; payments thereof to be made in cash or its equivalent in the manner provided in the General Specifications.

Contract #
Issued:

The total cost of the Contract includes:

Base Bid:

Mobilization/Demobilization	$	_____
Labor (T&M)	$	_____
Applicable Sales tax*	$	_____
Total Base Bid	$	_____

Contractor Option ____

The City of Grand Island, Nebraska operates on a fiscal year beginning October 1st and ending on the following September 30th. It is understood and agreed that any portion of this agreement which will be performed in a future fiscal year is contingent upon the City Council adopting budget statements and appropriations sufficient to fund such performance.

ARTICLE IV. The Contractor hereby agrees to act as agent for the City in purchasing materials and supplies for the City for this project. The City shall be obligated to the vendor of the materials and supplies for the purchase price, but the Contractor shall handle all payments hereunder on behalf of the City. The vendor shall make demand or claim for payment of the purchase price from the City by submitting an invoice to the Contractor. Title to all materials and supplies purchased hereunder shall vest in the City directly from the vendor. Regardless of the method of payment, title shall vest immediately in the City. The Contractor shall not acquire title to any materials and supplies incorporated into the project. All invoices shall bear the Contractor's name as agent for the City. This paragraph will apply only to these materials and supplies actually incorporated into and becoming a part of the finished product of the BOILER INSPECTION AND REPAIR-SPING 2022 OUTAGE.

ARTICLE V. That the Contractor shall start work as soon as possible after the Contract is signed and the required bonds and insurance are approved, and that the Contractor shall deliver the equipment, tools, supplies, and materials F.O.B. Platte Generating Station, and complete the work on or before ***May 7, 2022.***

ARTICLE VI. The Contractor agrees to comply with all applicable State fair labor standards in the execution of this Contract as required by Section 73-102, R.R.S. 1943. The Contractor further agrees to comply with the provisions of Section 48-657, R.R.S. 1943, pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. During the performance of this Contract, the Contractor and all subcontractors agree not to discriminate in hiring or any other employment practice on the basis, of race, color, religion, sex, national origin, age or disability. The Contractor agrees to comply with all applicable Local, State and Federal rules and regulations. The Contractor agrees to maintain a drug-free workplace policy and will provide a copy of the policy to the City upon request. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

ARTICLE VII. Gratuities and kickbacks: City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City

employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefor. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

[SUCCESSFUL BIDDER]

By_____ Date _____

Title_____

CITY OF GRAND ISLAND, NEBRASKA

By_____ Date _____
Mayor

Attest:_____
City Clerk

The Contract is in due form according to law and hereby approved.

_____ Date _____
Attorney for the City

CITY OF GRAND ISLAND

Working Together for a Better Tomorrow, Today.

REQUEST FOR BIDS - GENERAL SPECIFICATIONS

The Bid shall be in accordance with the following and with all attached BID DATA and DETAILED SPECIFICATIONS.

All prices are to be furnished and installed FOB, Grand Island, Nebraska. **All prices shall be firm, and shall include all sales and use taxes as lawfully assessed under laws and regulations of the State of Nebraska.** * If bidder fails to include sales tax in their bid price or takes exception to including sales tax in their bid price, the City will add a 7.5% figure to the bid price for evaluation purposes; however, the City will only pay actual sales tax due.

Mailed bids shall include the following on the **outside** of the mailing envelope: **"Boiler Inspection and Repair-Spring 2022 Outage".** All bids submitted by mail must include **an original and three copies** of the bid. The bid specification and on-line bidding forms are also available at http://www.grand-island.com/business/bids-and-request-for-proposals/bid-calendar under the bid opening date and "Click here for bid document link" through QuestCDN for a fee. If submitting through QuestCDN, **one** original document of the bid is required to be uploaded. No verbal bids will be considered. All sealed bids are due no later than Tuesday, **March 22, 2022 at 2:15 p.m. local time**. to:

Mailing Address: City Clerk
City Hall
P. O. Box 1968
Grand Island, NE 68802-1968

Street Address: City Clerk
City Hall
100 E. First Street
Grand Island, NE 68801

Bids will be opened at this time in the City Hall City Clerk's Office located on 1st floor of City Hall. Any bid received after the specified date will not be considered.

Bids will be evaluated by the Purchaser based on price, schedule, quality, adherence to schedule, plan and specifications, economy and efficiency of operation, experience and reputation of the bidder, ability, capacity, and skill of the bidder to perform contract required and adaptability of the particular items to the specific use intended.

The successful bidder will be required to comply with fair labor standards as required by Nebraska R.R.S.73-102 and comply with Nebraska R.R.S. 48-657 pertaining to contributions to the Unemployment Compensation Fund of the State of Nebraska. Contractor shall maintain a drug free workplace policy. Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

The equipment and materials must be new, the latest make or model, unless otherwise specified. Prior to approving the invoice for payment, the City reserves the right to thoroughly inspect and test the equipment to confirm compliance with specifications. Any equipment or material which does not meet the City's requirements will be returned at vendor's expense for correction. The invoice will be paid after approval at the next regularly scheduled City Council meeting and occurring after departmental approval of invoice; the City Council typically meets the second and fourth Tuesday of each month. Invoices must be received well in advance of Council date to allow evaluation and processing time.

Each bidder shall submit with the bid a certified check, a cashier's check, or bid bond payable to the City of Grand Island in an amount no less than five percent (5%) of the bid price which shall guarantee good faith on the part of the Bidder and the entering into a contract within fifteen (15) days at the bid price if accepted by the City. **Your certified check, cashier's check or bid bond must be submitted in a separate envelope attached to the outside of the envelope containing the bid. Each envelope must be clearly marked indicating its contents. Failure to submit the necessary qualifying information and correct number of copies in clearly marked and separate envelopes will result in your bid not being opened or considered.** Only surety companies authorized to do business in the State of Nebraska may issue bid bonds.

Successful bidder shall comply with the City's insurance requirements; performance and payment bonds are required for this project as outlined in the Detailed Specifications and Instructions to Bidders. All bids shall be valid for at least thirty (30) working days after the bid deadline for evaluation purposes.

All bids must be on the bid form and must be signed and dated to be accepted. If exceptions and/or clarifications are noted to the bid, those exceptions must be fully explained on a separate sheet, clearly marked, and included with the Bid. Any changes that are found made to the original bid specification, other than Owner generated Addendums, would result in your bid not being considered. Please contact Tylor Robinson at 308-385-5495, for questions concerning this specification.

BOILER INSPECTION AND REPAIR

Spring 2022 Outage
Grand Island Utilities Department - Detailed Specification

Contents

BOILER INSPECTION AND REPAIR

Spring 2022 Outage
Grand Island Utilities Department - Detailed Specification

1.0 PROJECT DECRIPTION

1.1 Background

The Unit 1 steam generator at Platte Generating Station is a tangential fired, natural circulation, superheat/reheat, pulverized coal-fired boiler manufactured by ABB-CE (CE Contract No. 13477). The steam generator produces 765,000 lb/hr (MCR) of steam at 1000 F and 1800 psi which is delivered to a 100,000 kW steam turbine. The unit uses Powder River Basin Coal from various mines in the basin.

Steam generator auxiliary equipment includes a vertical rotor, Ljungstrom regenerative air heater (type 27-VI-90), a United Conveyor water impounded "W" type bottom ash storage hopper, and four CE-Raymond pulverizers (type 683 RS).

1.2 LOCATION

The Platte Generating Station is located at 1035 W. Wildwood Drive, two (2) miles south of Grand Island, Nebraska. The plant entrance is located two (2) miles south of U.S. Highway 34 and 1 ½ miles east of U.S. Highway 281.

1.3 CONTACT

Question regarding this specification may be directed to:

Tylor Robinson
Platte Generating Station
1035 W. Wildwood Dr.
Grand Island, NE 68801
Ph. (308) 385-5495
trobinson@giud.com

2.0 SCOPE

2.1 GENERAL

This work will generally consist of providing labor, equipment, materials and supervision on a time and material basis to support the inspection and repair of steam generator components and auxiliary's equipment as needed during the Platte Generating Station Spring 2022 Outage, currently scheduled for April 22, 2022 through May 7, 2022.

Such work may consist of:

- Hydro testing of the boiler with inspection for tube leaks
- Boiler tube repairs
- Boiler tube surface preparation for UT inspection
- Installation of tube shields
- Repair of boiler tube alignment attachments

- Weld repair of cracks in boiler plate steel
- Weld repair of cracks in flue gas ductwork
- Repair of Boiler Refractory
- Expansion Joint Replacement

The Contractor shall cooperate with the Owner's representatives and other contractors on site in maintaining individual work areas, laydown and staging areas, break areas and parking areas as to minimize interference with one another's work efforts. The Contractor shall attend periodic joint scheduling meetings to enhance communications and coordination amongst the various Contractors on site.

The Owner anticipates locating tooling and equipment for boiler work under this specification on the ground level below the boiler inside the plant and throughout all levels of the main boiler and adjacent platforms. A staging and laydown area will be provided at the ground level immediately outside the southeast corner of the unit. A break area will be provided.

The City shall provide the materials mentioned, including all tubing, tube shields and clips, electrical power and electrical connections, and a drinking water source. The Owner shall provide temporary, portable restroom facilities.

The Contractor shall provide required hand tools, hoists, chain falls, cutting torches and gases, welding machines, welding leads and consumables, and all other equipment and materials necessary to completely perform the work.

2.2 BOILER INSPECTION

Routine inspections of furnace wall tubes, drum, and headers should be made during semi-annual outages.

During the inspection drums should be opened and hand hole plates removed from headers. The condition of the drum internals should be checked, and internal surfaces inspected for deposits. Tubes should be spot checked, and the tube ends inspected internally for deposits. Where required deposits should be removed, and headers, drums and tubes flushed out with clean water.

Furnace tubes should be examined externally for blistering, burning, corrosion, erosion and cracking. Pay close attention to areas surrounding soot blowers as they are susceptible to erosion.

All Inspections shall be thorough and comprehensive. They shall be made by competent personnel, familiar with boiler operation and maintenance. A record of the inspection shall be kept in a uniform manner so that the results of any change can be compared with former conditions.

Inspections of tubes, as a result of tube failures or conditions expected to lead to failures, should be even more thorough.

2.2.1 Pressure Components

The Contractor shall perform inspections on the steam generators pressure components as soon as possible so that any problem areas discovered can be evaluated and repaired as required. Inspection process shall consist of but not be limited to:

- Apply a Hydrostatic test in accordance with plant procedures and Boiler Code requirements.

- A visual inspection of boiler tubing. Specifically identify soot blower and ash erosion damage in the 1st, 2nd, 3rd, and 4th tubes in from each soot blower to such extent as feasible.
- Conduct tube thickness testing on the tubes around each soot blower wall opening (four tests, one at each point of the compass) and on every unshielded tube along soot blower paths (one test, in the middle of the path unless a more polished area is observed), including the economizer but not including the horizontal superheater. Review the results with the City to identify any repairs needed immediately and document the results for the City in a report.
- Check elements for alignment and evidence of warping or bulging of unit tubing.

2.2.2 Non-Pressure Components

The Contractor shall complete inspections of the steam generators non-pressure components essential to performance and reliability. These duties shall include, but not be limited to:

- Check supports, spacers, alignment bars, and seal plates for proper location and condition.
- Inspect the refractory in all the nose arch, soot blower openings, observation doors, and man way doors.
- Inspect tube shield conditions and document tube shields that need replaced.
- Inspect the refractory and screens in the bottom ash hopper.
- Inspect the Penthouse and all dead air spaces for casing cracks.

2.2.3 Boiler Steam Drum

The contractor shall perform a thorough inspection of the boiler steam drum. The drum inspection shall consist of a visual inspection, checking the drum for corrosion, pitting, or solids carryover. The Contractor shall verify the condition and arrangement of the drum internals.

2.2.4 Soot Blower Inspection

The Contractor shall check for misalignment of the soot blowers, check the depth and travel of all wall blowers and adjust any soot blowers that are out of specification.

2.2.5 Deaerator

The Contractor shall perform routine visual and NDE inspections on the deaerator working components and vessels. Ensure that trays are securely held down and that spray nozzles have adequate tension and are not plugged. Verify that steam box doors swing freely and look for cracks in the steam box.

2.2.6 Steam Air Heater

The Contractor shall pressure test and visually inspect the steam coil air heater for the existence of leaks in the tubes, headers, and connections, and for the accumulation of foreign matter on the finned surfaces.

2.3 BOILER REPAIRS

All repairs shall be done by competent and qualified personnel and all welding shall be in accordance with applicable codes and standards relating to repairing power boilers and pressure vessels.

The Contractor will receive approval from the City's representative for these repairs prior to starting, shall track all repairs and hours, and report status and hours to the City representative daily. Fully document before and after repairs.

2.3.1 Pressure Components

Contractor shall review all recommendations for pressure part repairs with the Owner's Representative. Those repairs authorized by the Owner will be performed by the Contractor and are expected to generally consist of pad welding and partial tube replacements. Those repairs authorized by the Owner will be performed by the Contractor who shall track all repairs and hours, and report status and hours to the City representative daily, fully document before and after repairs.

2.3.2 Non-Pressure Components

Review all repair recommendations with the Owner's representative to determine scopes of repair based on inspection results. Contractor shall perform all repairs authorized by the Owner, including but not limited to:

1. Replace tube shields that are missing. Tube shields will be furnished by the City.
2. Repair damaged alignment bars.
3. Repair dislodged spacer bars.
4. Repair casing cracks in the penthouse and dead air spaces.
5. All other non-pressure component repairs identified and authorized by the Owner.

2.3.3 Boiler Refractory

The contractor shall repair boiler refractory in sootblower openings, observation doors, and man way doors. The Contractor shall repair the refractory dam at the upper end of the nose arch, and in the bottom ash hoppers. Refractory shall be furnished by the contractor.

2.3.4 Steam Air Heater

The Contractor shall isolate and remove faulty sections of the steam coil air heater and transport faulty sections to the onsite warehouse for shipment to a repair facility.

2.4 DUCTWORK REPAIRS

The Contractor shall be responsible for making weld repairs to the ductwork as required to prevent air in leakage. Ductwork repairs may include welding, patching, and replacing gaskets. The plant has seen an increase in the air in leakage at the precipitator.

The Contractor will be responsible for removing and reinstalling a known broken expansion joint below the air heater inlet.

2.4.1 AIR HEATER EXPANSION JOINT

The Contractor shall remove the existing expansion joint ash shown in drawing 13477-4E-2507-04. The Contractor shall install a replacement expansion joint provided by the Purchaser. The Contractor will be responsible for cutting and fitting the expansion joint in the field.

2.5 REPORT

The Contractor shall produce a report that in detail describes findings during the inspection of the steam generator. No later than 30 days after project completion, the Contractor shall submit two (2) hard copies and (1) one .pdf file of the report. The Contractor shall document in the report repairs that were completed during the Spring 2022. The report shall document the current condition of the

boiler during the outage and describe in detail recommended future repairs. The report shall contain subsections of the inspection consisting of, but not limited to:

- Introduction
- Summary and Conclusions
- Recommendations
- Water and Saturated Steam Circuits
    - Economizer
    - Steam Drum
    - Water Wall Tubes
- Superheat and Reheat Circuits
    - Backpass Walls
    - Horizontal Superheat
    - Superheat Pendant Platens
    - Finishing Superheat
    - Reheat Assemblies
- Enclosures
    - Penthouse
    - Nose Arch Dead Air Space
    - Lower Dead Air Spaces
    - Bottom Ash Hopper
- Ductwork
    - Secondary Air Ducts
    - Mill Hot Air Ducts
    - Windbox Ducts
    - Air Preheater
- Pulverizers
    - Pulverizer A
    - Pulverizer B
    - Pulverizer C
    - Pulverizer D
- Precipitator

3.0 BIDDING

The Contractor shall include in his bid a lump sum not-to-exceed estimate of all costs associated with the scope of work herein. This includes, but is not limited to all expenses, equipment, labor, mobilization and demobilization, and subcontractors. Please ensure that all bids contain the following as a minimum:

Bids will be evaluated by the Owner based on price, schedule, quality, economy of operation, experience of contractor, and adherence to specification. The primary evaluation factor will be the lump sum price. The owner reserves the right to reject any or all bids or waive informalities and to accept whichever bid that may be in the best interest of owner, at its sole discretion. Bids must be received by 2:15 P.M. Tuesday, March 22nd, 2022.

Bidder is solely responsible for obtaining any clarifications to this specification as may be required for the Bidder to submit an accurate and complete bid proposal.

3.1 MOBILIZATION

The bid shall include a firm price for all Mobilization, Demobilization, Tools, Equipment, Supplies, PPE, Expendables, Supervision, and Project Management, Overhead, Fixed Costs, and Expenses.

3.2 SUPERINTENDENT

The bid shall include a lump sum T&M cost of labor for a Site Superintendent to be available on site 6-days/week, 10 hours per day from April 22nd – May 7th, 2022. The Superintendent shall be responsible for compiling a report of boiler conditions as described in the scope of work. Actual dates may vary based on outage start date.

3.3 INSPECTION AND REPAIR

The bid shall include a lump sum T&M cost of labor for an inspection and repair crew consisting of 1 BM General Foreman and 3 BM Journeymen to be available on site 6-days/week, 10 hours per day from April 22nd - May 7th, 2022.

3.4 RATES

The Bid shall include, as a separate T&M rate attachment, firm unit pricing for all labor, equipment, sundries **and expenses reflecting the charges to be used in billing the T&M portions of the work as well as for making any** adjustments that may be required for new work scope additions, additional services other than what is required in this specification or reductions in the same. All travel time and per diems shall be included in the hourly labor rates. The City of Grand Island will not be responsible for travel expenses to and from plant site. The City of Grand Island will not be responsible for any associated overnight expenses.

3.6.1 Terms and Conditions

Provide all other proposed terms and conditions which will be in effect during the performance of the work as a separate attachment **with the bid**. Any exceptions the bidder wishes to take regarding the Owners specifications and contract documents must be submitted **with the bid**.

Time is of the essence in the evaluation of proposals, the execution of contract documents and/or issuance of a Purchase Order for the execution of the work. Submittal of bids that include terms and conditions unacceptable to the Owner, or that lack the information and clarity required by these specifications may be subject to rejection at the sole discretion of the Owner.

A single contract will be awarded for all work included in this specification.

3.6.2 Time and Material Accounting

Contractor shall be required to maintain accurate job logs describing work performed by each crew throughout each day and daily time sheets detailing all work performed and expenses incurred **in the same format as the bid detail submittal**. Daily time sheets shall identify all individuals by name, craft and all hours worked on each portion of the work. Such job logs and time sheets shall accurately account for all man-hours with clear separation and identification of time, equipment and material as required accounting for the actual service hours and expenses. A sample timesheet shall be included in the bid to be approved by the owner's designated representative.

The timesheets/logs shall clearly detail the specific work that was accomplished during the shift. These sheets shall be presented to the Owner's representative on a daily basis for

review with the Contractor's superintendent. Any presentation of timesheets/logs deferred more than 48 hrs. before being presented to the Owner's representative shall be null and void. The Owners representative will sign and date these documents as a record of receipt and review. Any corrections that need to be made to such signed documents shall be implemented upon the discovery of the error and both parties shall initial the change made on the form. These records will then serve as record of the work performed and a basis for determining the final billing.

3.5 SUBMITTALS

Contractor shall submit the following documentation for review with the bid:

- References for at least three (3) projects of a similar scope and for a similar size unit, including a description, name, and phone contact.
- Subcontractor's names and reference lists.
- Copy of Contractor's R stamp.
- Superintendent's experience summary.
- Pricing
- Daily T&M Accounting Sheets
- Safety Documentation

2.6 CHANGE ORDERS

If any extra and/or additional work is to be done or any change in the plans and specifications is deemed necessary, the Purchaser may issue the Contractor a written change order directing that such extra work be done or that such change be made, and the Contract shall be modified accordingly. No claim for extra costs shall be allowed in the absence of a written change order. The Contractor shall give prompt written notice of any matter which they believe to involve extra cost. In the absence of such notice by the Contractor on account thereof his right to such claim shall be deemed to have been waived. Compensation to the Contractor will be calculated as an addition to or deduction from the Contract Price, based upon such written terms as may be established between the parties, either (a) by an acceptable lump sum proposal of the Contractor, or (b) on a cost-plus limited basis not to exceed a specified limit, or (c) on a basis of the unit prices as stated in these specifications where such unit prices apply. In the event that none of the foregoing methods are agreed upon with the Contractor, the Purchaser may perform the work. The Purchaser shall be the sole judge of such action and procedure. Determination of cost-plus work shall be based upon actual cost of labor and material plus a maximum of 20% of actual Contractor cost for overhead, profit,

The Contractor shall submit a formal process for addressing work that may arise but is not described herein. All change orders shall be addressed with a detailed scope of work and approved before proceeding with scope of extra work.

Contractor shall be required to maintain accurate job logs describing work performed by each crew throughout each day and daily time sheets detailing all work performed and expenses incurred **in the same format as the bid detail submittal**. Daily time sheets shall identify all individuals by name, craft and all hours worked on each portion of the work. Such job logs and time sheets shall accurately account for all man-hours with clear separation and identification of Time, equipment and Material as required accounting for the actual service hours and expenses. A sample timesheet shall be included in the bid to be approved by the owner's designated representative.

2.7 EXCEPTIONS

The purpose of this specification is to give detail on conditions under which the new equipment will operate, scope of Contract, quality of equipment required, standards used in determining its acceptability and similar data. Each bidder shall carefully read all requirements herein set forth and shall offer equipment and services which fully comply with these requirements or shall plainly set forth all points, features, conditions, specifications, etc., wherein the equipment offered does not meet these specifications. Such exceptions as are made shall be listed by section and subsection number and shall be marked in ink in the sections of these specifications. Exceptions shall be explained in detail in a letter accompanying the bid. References shall not be made to the bidder's Proposal foe exceptions and supplementary terms. Failure to outline such exceptions will require the successful bidder to comply with these specifications.

The Platte Generating Station is NOT tax exempt and is subject to 7.5% sales tax. See the Nebraska Department of Revenue web site at www.revenue.state.ne.us for contractor's tax information.

4.0 QUALIFICATIONS

The Contractor shall be a firm specializing in the installation, overhaul, repair, and maintenance of steam generating equipment used in the power generation industry. The Contractor shall be capable of fully performing the work without the assistance of City personnel, except as required for the City to identify specific repair locations. A reference list of projects of similar scope and complexity shall be provided with the bid. The Contractor shall possess a valid ASME "R" stamp and valid welding procedures as typical for utility boilers and as specifically required for welds required in these specifications. All welders shall be certified as required for the work performed and the certification documents shall be available to review at the job site. Prior to award, the Contractor shall submit procedures for all welding required in this specification to the City for review.

4.1 SUPERINTENDENT

The Contractor shall provide well qualified Job Superintendent who will fully direct all field operations for the duration of the project, serve as liaison to the Owner's designated representatives, be fully authorized to make any and all decisions affecting the work in the field and coordinate activities between the Contractor and its subcontractors, if any. The Superintendent shall be thoroughly familiar with Combustion Engineering tangential boilers and auxiliary equipment and have had previous experience with projects of similar scope. A summary of the experience of the Superintendent proposed for this project shall be **provided with the bid**.

5.0 SAFETY

The Contractor shall be responsible for compliance with all safety practices as required by the regulatory agencies governing the Contractor's operations as well as any safety requirements of the Contractor's organization and shall submit historical evidence of such compliance. All personnel working on site will be required to participate in the plant's safety orientation prior to performing any work on site at PGS.

The plant has an equipment lockout/tag out procedure to prevent the unauthorized starting of motors and the unauthorized movement of valves and dampers. The Contractor is required to use the procedure and add its own locks/tags on top of the plant lock/tags if required. *Removal of plant locks/tags is not allowed and is cause for removal from the plant site.*

6.0 INSURANCE

The contractor shall comply with the attached City's insurance requirements

7.0 PERFORMANCE AND PAYMENT BOND

The successful Bidder shall file with the OWNER Performance and Payment Bonds in the full amount (100 percent) of the Contract price, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the Work under this Contract, and to cover all guarantees against defective workmanship or materials, or both, for a period of 1 year after the date of final acceptance of the Work by the OWNER. The Surety furnishing these bonds shall have a record of service satisfactory to the OWNER, be authorized to do business in the State where the OWNER's project is located and shall be named on the current list of approved Surety Companies, acceptable on Federal bonds as published by the Audit Staff, Bureau of Accounts, U.S. Treasury Department.

The Attorney-in-Fact (Resident Agent) who executes these bonds on behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond.

8.0 DRAWINGS AND SITE INFORMATION

A selection of drawings has been provided with the bid package for reference only. Additional drawings are available for review at Platte Generating Station office. The Contractor is responsible for making such pre-bid site visits as required to obtain additional details for bidding and execution of the work and for clarification of any questions or concerns the bidder may have related to the work scope and site conditions.

ATTACHMENTS:

D-183702	Boiler Right Side Elevation
13477-4C-1292	Boiler Tube Material Diagram
13477-4C-1291	Boiler Tube Material Diagram
13477-4C-1290	Boiler Tube Material Diagram
13477-4E-2507	Air Duct to Air Heater Sh. 1 of 2
13477-4D-2509	Air Duct to Air Heater Sh. 2 of 2
E-991-264	Round Corner Expansion Joint Detail

Previous Outage Inspection Report - 2015

MINIMUM INSURANCE REQUIREMENTS
CITY OF GRAND ISLAND, NEBRASKA

The successful bidder shall obtain insurance from companies authorized to do business in Nebraska of such types and in such amounts as may be necessary to protect the Bidder and the interests of the City against hazards or risks of loss as hereinafter specified. This insurance shall cover all aspects of the Bidder's operations and completed operations. Failure to maintain adequate coverage shall not relieve Bidder of any contractual responsibility or obligation. Minimum insurance coverage shall be the amounts stated herein or the amounts required by applicable law, whichever are greater.

1. WORKERS COMPENSATION AND EMPLOYER'S LIABILITY

This insurance shall protect the Bidder against all claims under applicable State workers compensation laws. This insurance shall provide coverage in every state in which work for this project might be conducted. The liability limits shall not be less than the following:

Workers Compensation	Statutory Limits
Employers Liability	$100,000 each accident
	$100,000 each employee
	$500,000 policy limit

2. BUSINESS AUTOMOBILE LIABILITY

This insurance shall be written in comprehensive form and shall protect the Bidder, Bidder's employees, or subcontractors from claims due to the ownership, maintenance, or use of a motor vehicle. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	$ 500,000 Combined Single Limit

3. COMPREHENSIVE GENERAL LIABILITY

The comprehensive general liability coverage shall contain no exclusion relative to explosion, collapse, or underground property. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	$ 500,000 each occurrence
	$1,000,000 aggregate

4. UMBRELLA LIABILITY INSURANCE

This insurance shall protect the Bidder against claims in excess of the limits provided under employer's liability, comprehensive automobile liability, and commercial general liability policies. The umbrella policy shall follow the form of the primary insurance, including the application of the primary limits. The liability limits shall not be less than the following:

Bodily Injury & Property Damage	$1,000,000 each occurrence
	$1,000,000 general aggregate

5. ADDITIONAL REQUIREMENTS

The City may require insurance covering a Bidder or subcontractor more or less than the standard requirements set forth herein depending upon the character and extent of the work to be performed by such Bidder or subcontractor.

Insurance as herein required shall be maintained in force until the City releases the Bidder of all obligations under the Contract.

The Bidder shall provide and carry any additional insurance as may be required by special provisions of these specifications.

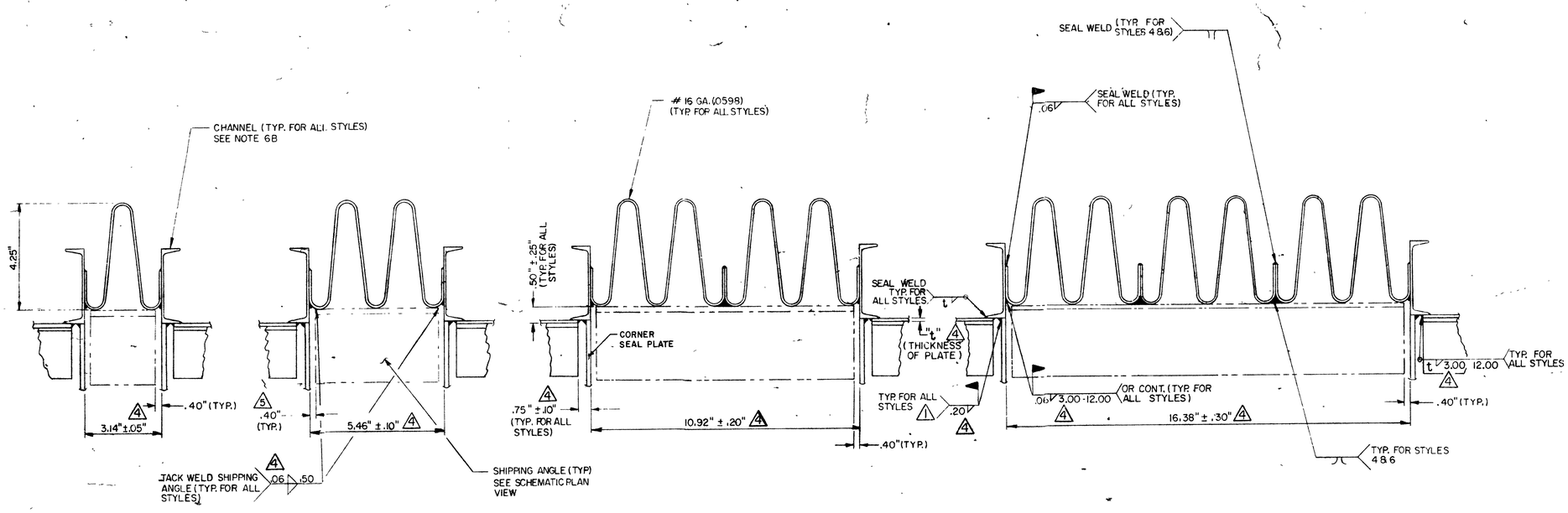
6. CERTIFICATE OF INSURANCE

Satisfactory certificates of insurance shall be filed with the City prior to starting any work on this Contract**. The certificates shall show the City as an additional insured on all coverage except Workers Compensation. The certificate shall state that thirty (30) days written notice shall be given to the City before any policy is cancelled (strike the "endeavor to" wording often shown on certificate forms). If the Bidder cannot have the "endeavor to" language stricken, the Bidder may elect to provide a new certificate of insurance every thirty (30) days during the contract. Bidder shall immediately notify the City if there is any reduction of coverage because of revised limits or claims paid which affect the aggregate of any policy.**

E-991-264

Revisions

1. DELETED NOTE 2D ON WELD SYMBOL. ADDED CORNER SEAL #2 TO BE FURNISHED WITH EXPANSION JOINT & ENLARGED VIEW B-B. 9-2-70 MF.
2 CONT. DELETED ENLARGED VIEW B-B & ADDED ENLARGED DET "C" EG 2-7-77 AP
7. DELETED NOTES 6D & 4E. REVISED NOTES 1C, 1D, 3E & CORNER SEAL PLATE. REVISED REF DWG. NO. 4 & 8, ADDED REF. DWG. NO 12. ADL 1-10-78 AP
2. ADDED S.B. TO TABLE NO. 4 (LOC. 65), ADDED NOTE TO CIR. EXP. JT. VIEW (LOC. B-3), ADDED NOTE PER TABLE NO. 3. MK'D. N-(LOC. C-2) 2-10-71 RAB
6. REMOVED CORNER 2 IN VIEW (4 PLACES) & REF. NO. 5 (4-28-71 RAB) REVISED NOTE 3B & REMOVED 2C NOTE. ADDED MAYARI'O TABLE NO. 4
3. REMOVED NOTE 7B, REVISED NOTE (ENLARGED VIEW B-B) REVID. TITLES IN REF. DWG. NO. 1, 2 AND 8, REVISED CORNER SEAL PLATE NOTE ZONE (F-3) 4-12-72 RW
4. REVISED TOLERANCES & WELD SIZES ON STYLES 1, 2, 4 & 6 ADDED "t" FOR PLATE THICKNESS. PDL 2-9-73
5. ON REF. NO. 1 & 2 ADDED DWG. NO. ADDED .40" TYP. TO ALL 8 STYLES. WAS .25" TYP. 3-4-75 RAB
8. ADDED REF. DWG. NO. 11, DELETED REF. DWG. NO. 3 & 5 (TABLE NO. 4). REV. NOTE 1C. UPDATED DWG. 5-19-77 AP



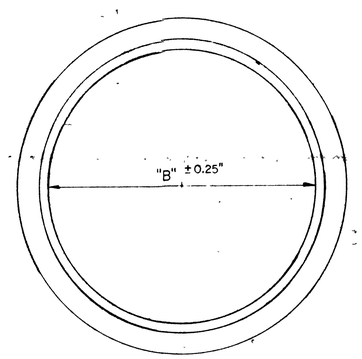
STYLE NO. 1
SCALE: HALF
2.50 LBS/FT.

STYLE NO. 2
SCALE: HALF
4.50 LBS/FT.

STYLE NO. 4
SCALE: HALF
9.0 LBS/FT.

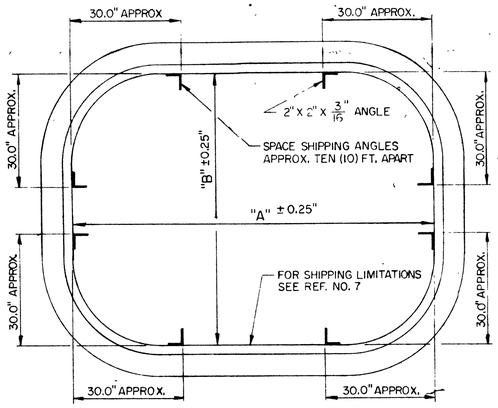
STYLE NO. 6
SCALE: HALF
13.50 LBS/FT.

TYPICAL SECTIONS "A-A"

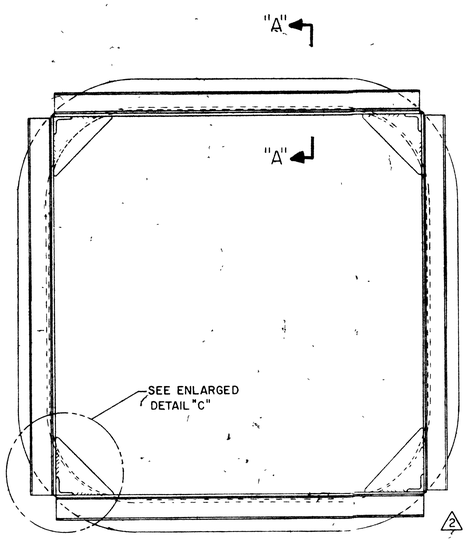


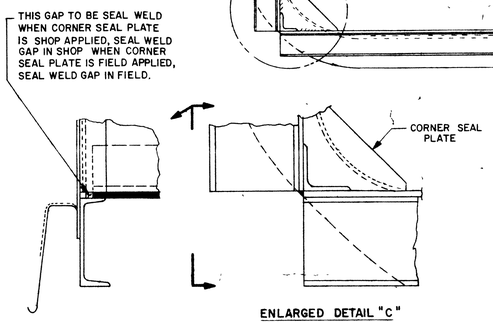
* CIRCULAR EXPANSION JOINT
SCHEMATIC PLAN VIEW
(SEE TABLE NO. 3)
SCALE: 3/4"=1'-0"

2 * TO BE USED LATER WHEN THIS TYPE OF JOINT IS MANUFACTURED

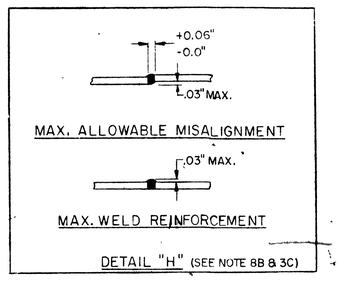


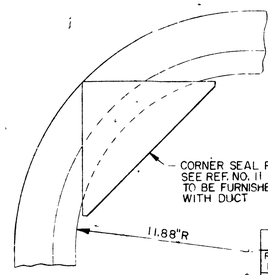
HALF SIZE EXPANSION JOINT
SCHEMATIC PLAN VIEW
(SEE TABLE NO. 2)
SCALE: 3/4"=1'-0"





ENLARGED DETAIL "C"





TYPICAL DETAIL OF CORNER SEAL PLATE

REFERENCE DRAWING LIST

REF NO.	DESCRIPTION	DRAWING NUMBER	INDEX NUMBER
1	CASE CONFIGURATIONS FOR HALF SIZE ROUND CORNER EXP JOINTS DOUBLE	E-991-288	2.3.4
2	CASE CONFIGURATIONS FOR HALF SIZE ROUND CORNER EXP. JTS SINGLE	E-991-287	2.3.4
3	STIFFENER ORIENTATION ON FLAT DUCT PLATES	C-991-188	2.3
4	CORNER CONSTRUCTION FOR ALL FIELD ASSEMBLED DUCTS EXCEPT CERTAIN FAN DUCTS	D-991-626	2.3
5			
6	DUCT STD - TYP. WELDING AND CONSTRUCTION DETAIL	D-991-094	2.3
7	SHIPPING LIMITATIONS FOR EXP. JTS.	A-991-415	2.3.4
8	STD PART NUMBERS FOR HALF SIZE EXPANSION JOINT	B-981-0307	2.3.4
9	HALF SIZE BELLOWS CONFIGURATION	C-991-199	2.3.4
10			
11	CORNER SEAL PLATE FOR FULL & HALF SIZE EXP JOINT	D-981-0102	2.3.4
12	FIELD WELD FILLER METALS FOR DUCTS	A-981-0403	2.3

TABLE NO. 1 (SEE NOTE 6E)

MAX. ALLOWABLE EXP. PLUS OR MINUS	NUMBER OF BELLOWS OR STYLE NO. FOR ROUND CORNER EXP. JOINT USED FOR THIS DWG.
0.5"	1
1.0"	2
2.0"	4
3.0"	6

TABLE NO. 2 - FOR HALF-SIZE EXP. JT.
FOR COMPLETE IDENTIFICATION OF AN EXPANSION JOINT IT IS AGREED TO USE THE FOLLOWING SYSTEM OF NOMENCLATURE

DB-XX	X	HS-JT	S	6-X	160.25	98.25	61	B-000-000
PREFIX PER STD. NO. -7-66/2.3	ASSEMBLY NUMBER AS PER DUCT ARRANGEMENT DWG	TOTAL NUMBER OF ASSY'S REQUIRED	HALF-SIZE EXPANSION JOINT	"S" SIGNIFIES "STANDARD" (NO HOLES IN FLANGE) "N" SIGNIFIES "NON-STANDARD" (DRILLING PLAN IN FLG. SHALL BE FURNISHED ON A CONT BASIS)	THIS IS THE STYLE OR TOTAL NO. OF BELLOWS IN A JOINT	NO. STRUTS PER CONTRACT REQUIREMENT	DIMENSION "A" IN INCHES, THIS IS ALWAYS THE LARGEST OF THE TWO DIMENSIONS (A&B) SEE PLAN VIEW	DIMENSION "B" IN INCHES, SEE PLAN VIEW	THIS NUMBER DENOTES THE BELLOW MATERIAL AS IDENTIFIED PER STD NO-17-64, INDEX 14.2	THIS IS THE CONTRACT DETAIL DRAWING NUMBER

TABLE NO. 3 * - FOR HALF-SIZE CIRCULAR EXP. JT.
FOR COMPLETE IDENTIFICATION OF AN EXPANSION JOINT IT IS AGREED TO USE THE FOLLOWING SYSTEM OF NOMENCLATURE

DB-XX	X	CI-JT	S	6-	98.25	61	B-000-000
PREFIX PER STD NO -7-66/2.3	ASSEMBLY NUMBER AS PER DUCT ARRANGEMENT DWG.	TOTAL NUMBER OF ASSY'S REQUIRED	CIRCULAR EXPANSION JOINT	"S" SIGNIFIES "STANDARD" (NO HOLES IN FLANGE) "N" SIGNIFIES "NON-STANDARD" (DRILLING PLAN IN FLG. SHALL BE FURNISHED ON A CONT. BASIS)	THIS IS THE STYLE OR TOTAL NO. OF BELLOWS IN A JOINT	DIMENSION "B" IN INCHES, SEE PLAN VIEW	THIS NUMBER DENOTES THE BELLOW MATERIAL AS IDENTIFIED PER STD NO. -17-64, INDEX 14.2	THIS IS THE CONTRACT DETAIL DRAWING NUMBER

2 * TABLE NO. 3 TO BE USED WHEN THE HALF-SIZE CIRCULAR EXPANSION JOINT IS POSSIBLE TO BE MANUFACTURED.

SHIPPING & ERECTION NOTES:

1A. LIFTING OF STRAIGHT SECTIONS OF EXPANSION JOINT MUST BE DONE BY PICKING UP THE SECTION AT QUARTER POINTS.

2A. IF EXPANSION JOINTS ARE SHIPPED IN UPRIGHT POSITION (ONE SIDE SITTING ON GROOVES) THEY MUST BE SECURED AGAINST SIDE SWAY TO PREVENT CORNERS FROM GETTING OUT OF SQUARE.

3A. IF EXPANSION JOINTS ARE STACKED ON THEIR FLANGES, WOODEN SPACERS MUST BE USED. SPACERS MUST BE PLACED BETWEEN FLANGES IN THE AREA OF THE SHIPPING ANGLES.

4A. EXPANSION JOINT FLANGE MUST BE PROPERLY AND ADEQUATELY PROTECTED AGAINST DAMAGE, DURING HANDLING AND SHIPPING.

GENERAL NOTES:

1B. FOR HEAT TREATMENT SEE STD NO.-25-69

2B. FOR SHIPPING LIMITATIONS SEE REF. NO. 7.

2 3B. ALL CARBON. ST., MAYARI(R) & CORTEN EXP. JOINTS SHALL BE PAINTED IN ACCORDANCE WITH STANDARD NUMBER -24-61, INDEX NO. 11 5.1 (ITEMS 5 O ON DRAWINGS C-997-685 AND C-997-687). STAINLESS STEEL AISI TYPE 405 EXPANSION JOINTS SHALL NOT BE PAINTED.

4B. FOR MATERIAL AND QUANTITIES SEE CONTRACT BM's.

5B. ARRANGEMENT DRAWING TO SHOW DIRECTION OF GAS OR AIR FLOW.

6B. CHANNEL STIFFENER SIZE TO BE 3" CHANNEL 4.1# MIN. NO BARS TO BE USED AT DUCT PLATE.

3 7B.

8B. THESE TOLERANCES MUST BE MAINTAINED IN THE VICINITY OF ANY BUTT WELD, THAT IS WITHIN APPROX. 3.00" EITHER SIDE OF A WELD JOINT.

9B. LOCATE BUTT WELDS AS PER CONTRACT BM's.

WELDING NOTES:

6 2 1C. SHOP WELDING SHALL BE PER C.E. M&P-SPECS. 5.14.1.1 (LATEST REV.). FIELD WELDING SHALL BE PER REF. NO. 12.

3C. QUALITY OF THESE WELDS MUST BE MAINTAINED. BELLOWS MAY BE BUTT WELDED FROM ONE SIDE ONLY, WITH A MIN. OF ONE INCH OVERLAP, WHEN SWITCHING WELDS FROM ONE SIDE TO THE OTHER. WELDS SHALL BE FULL PENETRATION AS WELL AS POSSIBLE FROM ONE SIDE. MAINTAIN TOLERANCE AS SHOWN IN DETAIL "H", SHOP AND FIELD TO INSPECT WELDS FOR QUALITY.

ERECTORS NOTES:

1D. MOST EXPANSION JOINTS ARE COLD SPRUNG IN SEVERAL DIRECTIONS AS PER STD. NO. 24-77/23.4 THEREFORE FLANGES ARE NOT PARALLEL AND THE DUCT OPENING CANNOT BE MEASURED. COLD SPRINGING IS ACCOMPLISHED BY APPROPRIATE DETAILING OF DUCT. ERECTOR TO FOLLOW INSTRUCTIONS GIVEN ON DUCT ARRANGEMENT DRAWING. (COLD SPRING BY MAINTAINING ELEVATION OF SUPPORTS)

2D ANY PARTS ATTACHED TO THE EXPANSION JOINT FOR SHIPPING PURPOSE MUST BE REMOVED BEFORE INSTALLATION AND COLD SPRINGING.

3D. ALL JOINTS TO BE SEAL WELDED ON THE OUTSIDE.

4D. ALL JOINTS HAVE TO BE SEAL WELDED GAS TIGHT.

5D. EXPANSION JOINTS ARE HIGHLY STRESSED SPRINGS IN DUCT SYSTEM. THEREFORE, NO CUTTING AND REWELDING OF BELLOWS SHOULD BE DONE TO FACILITATE ERECTION. IF IT IS IMPOSSIBLE TO ERECT JOINTS AS SHIPPED WITHOUT CUTTING, THE CUT MUST BE CLEAN AND REWELDED PER DETAIL "H", WITHOUT USING STRAPS. A STRAP WILL REDUCE THE ALLOWABLE EXPANSION BY APPROX. 50%.

ENGINEERING NOTES:

1E. DETERMINE BELLOWS MATERIAL FROM STD NO - 25-69 SELECTION OF BELLOW MATERIAL FOR DUCT EXPANSION JOINT.

2E. WEIGHTS IN LBS/FT. GIVEN FOR EACH STYLE DO NOT INCLUDE CHANNELS. THESE CHANNELS ARE FURNISHED WITH THE DUCT.

3E. THIS EXPANSION JOINT SHALL BE USED FOR ALL DUCTS HAVING AN AREA OF LESS THAN 50 SQ FT

4E

5E. THE USAGE OF ROUND CORNER EXPANSION JOINTS HAVING AN AREA LESS THAN 16 SQ. FT. SHALL BE REVIEWED WITH THE PERFORMANCE GROUP FOR PRESSURE DROP.

6E. VALUES FOR MAXIMUM ALLOWABLE EXPANSION IN THIS TABLE MUST BE USED IN CONJUCTION WITH STD.NO -25-69, "EXPANSION JOINTS; SELECTION OF TYPE, MATERIAL AND ALLOWABLE RATINGS FOR DUCTS AND CASINGS".

51:34

CITY OF GRAND ISLAND
PLATTE GENERATING STATION, UNIT #1
CE CONTRACT 13477
LUTZ, DAILY & BRAIN CONTRACT No. 77-8-8

INDEX NO 2.3.4

ROUND CORNER EXPANSION JOINT
STANDARD
HALF SIZE

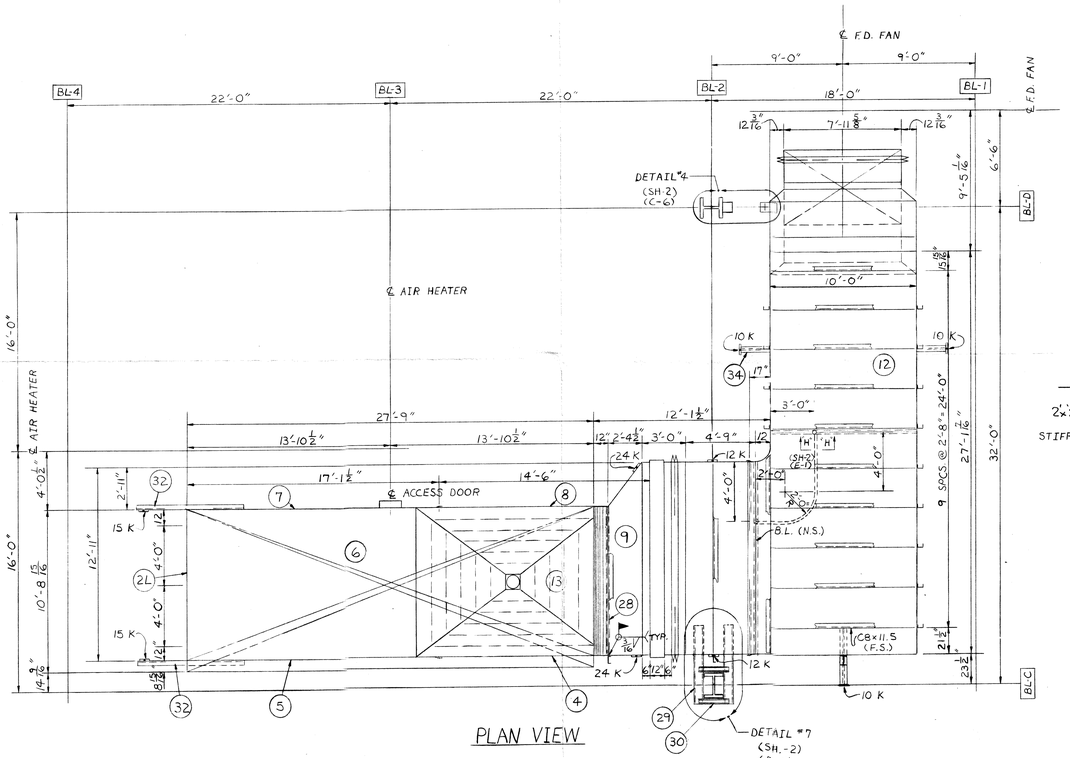
Scale	AS NOTED
Drawn By	REPRO/EG Date 1-17-77
Checked By	A.P. Date 1-20-77
Approved By	Date
Comp. Code	
Drawing No.	E-991-264 Rev. 7

OTTA 7 CHAT 7 ST 7

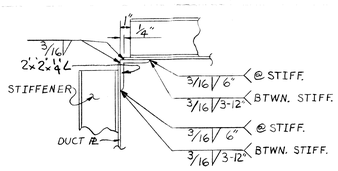
13477-4E-2507	REVISED	1	ADDED Pc Mk 36&37 RF 11-11-78 W.M.	2	ADDED GA. TO TOP FLG. ℄ E-4 R.E. 11-11-78 R.F. ADDED FLANGE DET. 4 (D-1), DOOR HANDRAIL (B-4)(F-3) LADDER RUNGS (B-3) CHGD. DOOR SIZE (B-4)(F-3) 12-5-78 A.M.C. W.M.	3	ADDED DET. DWG INDEX & REVD Pc MK 27 R.F. 1/2/79 W.M.	4	ADDED CORR DIM & ERECT. NOTE #5 3-26-79 C.W.D.

DETAIL DWG. INDEX	
DWG. NO.	PC. MKs
13477-4E-2621	AAH-1, 3, 6, 2, 8, 14, 36
2622	12
2623	5, 7, 9, 21, 22, 23, 26TH&32, 34, 35, 37, 38
2624	11, 13
4B-2626	4
2627	10
2628	24
HANGER RODS	15, 16, 17, 18, 19, 20, 25, 33

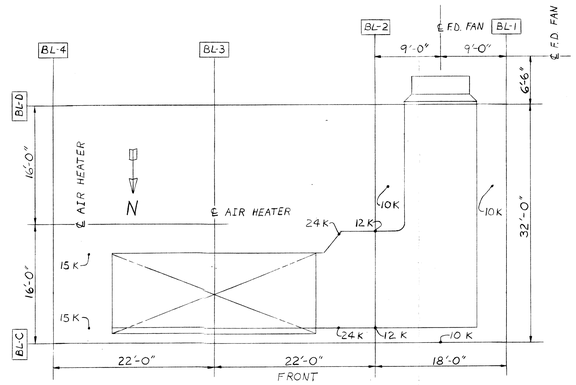
REFERENCE DWG. INDEX		
REF NO	DWG. NO	DESCRIPTION
1	D-991-094	DUCT STD.
2	13477-4E-2515	DAMPER
3	E-981-0021	CLEVIS DWG.
4	E-991-264	EXP JOINT (H.S)
5	D-981-0102	CORNER SEAL ℄
6	13477-4E-2504	ACCESS DOOR
7	C-997-685	PAINT
8	C-997-686	PAINT (HANGER RODS)
9	13477-4E-2007	STEEL ARRG'T
10	13477-4D-2516	HANDRAIL FOR ACCESS DOOR



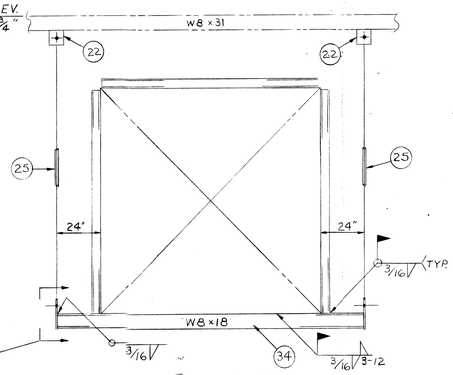
PLAN VIEW



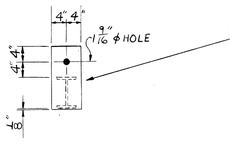
TYPICAL CORNER CONST. FOR PC. MK. 12



KEY PLAN



SECTION "A-A"



ITEM SPECIFICATIONS PER INSTRUCTIONS 17-64

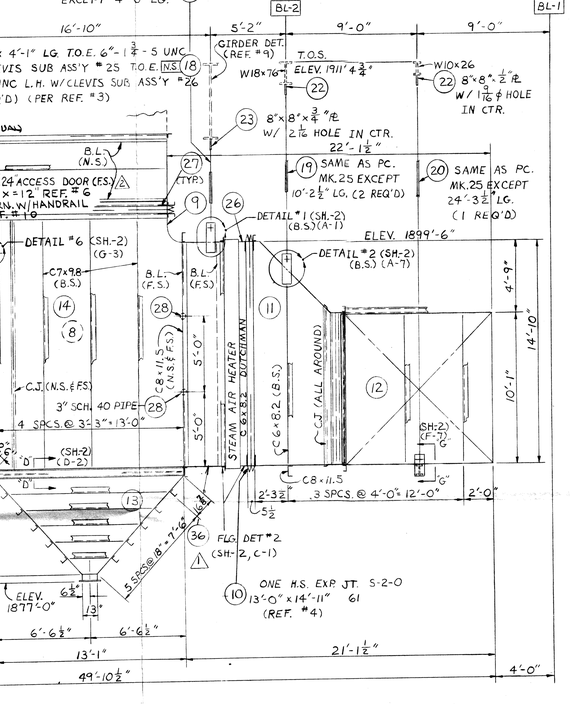
121 ALL ROLLED SHAPES, AND ANGLES 3" OR OVER, TO BE A.S.T.M. SPEC. A-36 PER C.E. PURCHASE INSTRUCTION PIG2.
6 PLATES UTILIZED AS STRUCTURAL MATERIAL TO BE A.S.T.M. SPEC. A-36 PER C.E. PURCHASE INSTRUCTION PIG2.
93 ANGLES WITH LEG LESS THAN 3", AND BARS TO BE A.I.S.I. GRADE M-1015 PER C.E. PURCHASE INSTRUCTION PIG1.
426 SHEETS TO BE A.S.T.M. SPEC. A-370 PER C.E. PURCHASE INSTRUCTION PIG1.
137 STRIPS TO BE A.S.T.M. SPEC. A-425 PER C.E. PURCHASE INSTRUCTION PIG1.
99 DUCT HANGER RODS TO BE A.S.T.M. SPEC. A-306 GR. 70
349 (UNLESS NOTED) PER C.E. PURCHASE INSTRUCTION PIH1.
393 PIPE FOR STRUTS AND TIES TO BE A.S.T.M. SPEC. A-501 (UNLESS NOTED).
393 PIPE FOR TRUSSES TO BE A.S.T.M. SPEC. A-501 (UNLESS NOTED).
393 PIPE FOR DAMPER SHAFTS 4" DIA. AND UNDER TO BE A.S.T.M. SPEC. A-501 SCHEDULE 40.
153 PIPE FOR DAMPER SHAFTS ABOVE 4" DIA. TO BE A.S.T.M. SPEC. A-53 GR. B.
184 HANGER RODS CLEVIS SPEC. A-235 GR. C1.

ERECTOR NOTE

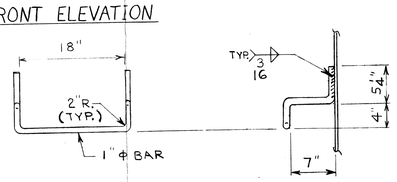
1. THE DUCT SYSTEM IS DESIGNED WITHOUT REGARD TO LOCATION OF BLANKING OFF PLATES WHICH MAY BE REQUIRED FOR TESTING. REACTIONS WHICH MAY BE INTRODUCED BY THESE PLATES MUST BE TAKEN CARE OF BY THE ERECTOR BY PROVIDING ADEQUATE STOPS AND BRACING.
2. SEAL WELD ALL FLANGES WITH HOLE SPACING GREATER THAN 4". WELD TO BE OUTSIDE WHERE POSSIBLE. STRENGTH WELDS TO BE MADE AS SHOWN.
3. SEAL WELD AROUND ALL EXPOSED BOLT HEADS OR NUTS.
4. SINGLE NUTS ON ALL HANGER RODS, INCLUDING CLEVIS, ARE TO BE TACK WELDED AFTER FINAL ADJUSTMENT. THIS DOES NOT INCLUDE ROD CONNECTION AT SPRING HANGER TURNBUCKLES.
5. ALL PIPES, STRUTS & STRUCTURAL SHAPES PAINTED WITH LARGE YELLOW BAND ARE TO BE REMOVED BY ERECTING CONTRACTOR FOLLOWING DUCT ERECTION & PRIOR TO START-UP.

GENERAL NOTES

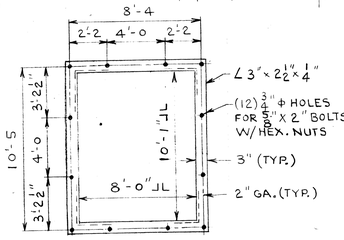
1. ONE DUCT AS SHOWN REQ'D PER BOILER, ONE BOILER ON CONTRACT. (SEE KEY PLAN).
2. ALL DIMENSIONS TO I.S. ℜ UNLESS NOTED.
3. ALL STIFFENERS C5×6.7 UNLESS NOTED.
4. ALL ℜ 7GA. UNLESS NOTED.
5. FOR TYP. WELDING & CONST. SEE REF. #1.
6. PREFIX ALL PC. MKS. W/AAH, THUS AAH-1 THRU AAH-38
7. C.J. DENOTES CRIMP JOINT.
8. B.L. DENOTES BEND LINE.
9. PAINT PER REF. #7 ITEM 5.0 & REF. #8 ITEM 8.0.
10. FIT UP HOLES & BOLTS ARE FURNISHED FOR ALIGNMENT ONLY. THEY HAVE NO STRUCTURAL INTEGRITY. ERECTION CONTRACTOR MUST PROVIDE OTHER MEANS FOR SUPPORT & SQUARING DURING ASSEMBLY.
11. ALL RADII 12" UNLESS NOTED.
12. DUCT FABRICATION TO BE IN ACCORDANCE WITH M&P SPEC 5.14.1.1 (LATEST REVISION).
13. DIM'S SHOWN ACROSS EXP. JT. INDICATE COLD SETTING OF JOINT, INSTALLATION TO BE AS SHOWN.
14. USE ALTERNATE CONSTRUCTION FOR VANES (PER REF. #1).



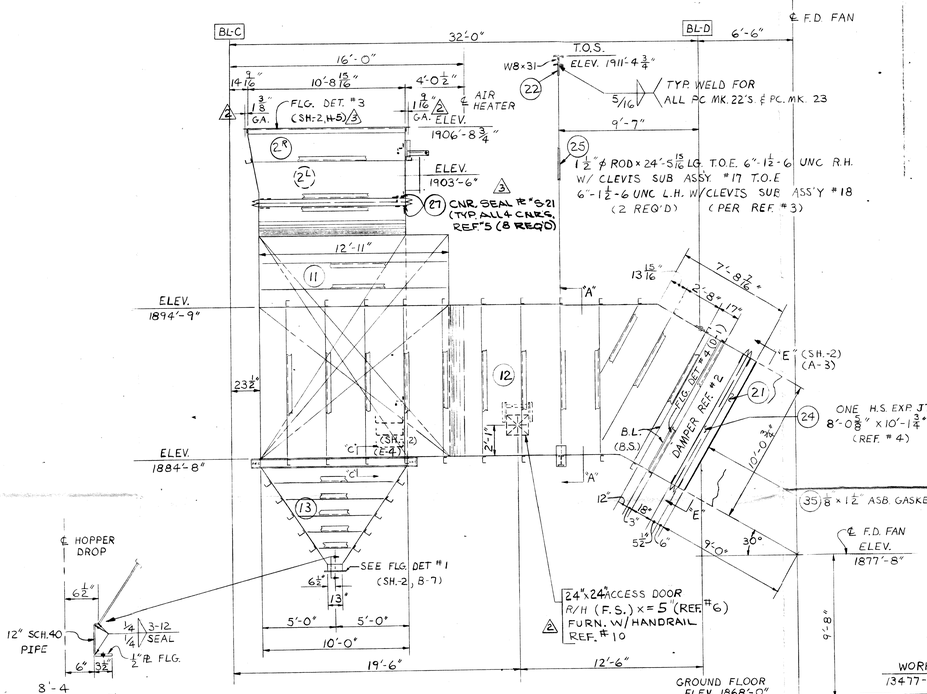
FRONT ELEVATION



△ DETAIL "5" (B-3)



△ FLANGE DETAIL #4 (F-3)



RIGHT SIDE ELEVATION

MARK NO	MATERIAL SPEC. INSTRUCTION N°64	MARKED INDIC.
175	ROLLED SHAPES C38	P.M. 2
93	BAR SIZE M 1015	P.M. 1
81	SHEETS	P.M. 1
6	PLATES A36	P.M. 2
82	BAR SIZE A36	P.M. 2
3	PLATES 20MN. QUAL.	P.M. 1

WORK THIS DWG. WITH 13477-4D-2509 SH. 2

LUTZ, DAILY & BRAIN — CONT. 77-8-2

SH. 1 OF 2

ARRG'T — AIR DUCT TO AIR HEATER

FOR CITY OF GRAND ISLAND

PLATTE GENERATING STATION UNIT #1

GRAND ISLAND, NEBRASKA

SCALE 1/4" = 1'-0" DRAWN BY R.E. EAGLE TRACED BY

DATE 9-11-78 CHECKED BY R FAIRBANKS APPROVED 10/19/78 3/14

COMP. CODE 51-25-0811 51-25-0812

DRAWING NO. 13477-4E-2507-04

JAN 24 1980

FEB 04 1980

GRAND ISLAND 77-8

LUTZ, DAILY & BRAIN Consulting Engineers SHAWNEE MISSION, KANSAS

DATE	BY
1-31-80	RBS

Approved for Construction with Engineers Plans and Specifications. Approval does not relieve any part of contract or guarantee detailed

51-40

13477-4D-2509
REVISED
1 REV'D FLG. DET.#3 PER FF 13477-C-5M2 R.F. 11/1/78 W.M.
2 REV'D; PC. MK. 37 & 21, GA. ON FLG. DET.#2, REM. FIT-UP HOLES SECT. C & D R.F. 11/12/78 W.M.
3 REV'D. HOLE SIZE & NOTED TO STAD. R.F. 1/29/79 W.M.
12-1" ϕ HOLES EQUALLY SPACED TO STRADDLE ℄s, ON 17" ϕ BOLT CIRCLE
1/2" ℞
12 3/8" I.D.
19" O.D.
FLANGE DETAIL #1
(SH.-1, E-2)
1.56 ϕ HOLE
8"x24"x 1/2" ℞
DETAIL #2
(SH.-1, C-3)
W 14 x 426
3" SCH 40 PIPE W/ ℞'s & W/ H.R. ASS'Y SAME AS PC. MK 25 EXCEPT 19 11/16" LG.
1 1/16" ϕ HOLE
8"x 14" x 1/2" ℞
DETAIL # 4
(SH.-1, C-7)
1 9/16" ϕ HOLE
8"x16 3/8"x 1/2" ℞
W8x18
C6x8.2
C8x11.5
SECTION "G-G"
(SH.-1, C-3)
11'-0 1/4"
42-SPCS@3"= 10'-6
10'-9 5/16" ⅃L
28'-0 1/2"
110-SPCS@3"= 27'-6
27'-9 3/8"
3"x2 1/2"x 3/8" L 3" L.O.S. (TYP.)
3/4" ϕ HOLES FOR 5/8" ϕ x 1 1/4" LG. BOLT W/HEX NUT (210 REQ'D) & 5/8" ϕ x 1 3/4" LG. BOLT W/HEX NUT 115 (REQ'D)
FLANGE DETAIL #3
(SH-1, E-4)
C15 x 33.9
DETAIL #5
(SH.-1, A-3)
8'-6 3/8"
37 SPCS. @ 2 1/2" = 7'-8 1/2"
3/4" ϕ HOLES FOR 5/8" BOLTS
BENT ℞ FRAME BTWN. PC. MK. 24 AND F.D. FAN
7'-11 5/8" ⅃L
51 SPCS @ 2 1/2" = 10'-7 1/2"
10'-0 3/4" ⅃L
1/4" BENT ℞ CHANNEL
SECTION "E-E"
(SH.-1, F-2)
C8 x 11.5
W14x455
C4x5.4
4" (TYP.)
1/16 CLEARENCE (TYP.)
DETAIL #7
(SH.-1, C-5)
SEAL
DUCT ℞
SECTION "C-C"
(SH.-1, E-3)
BL-3
DUCT ℞
C8 x 11.5 STIFF.
W8 x 24
W8x 24's W/ 1/2" ℞
1/16 CLEARANCE (TYP.)
W14 x 159
DETAIL #6
(SH.-1, B-3)
51-41 1
GRAND ISLAND 77-8
2 1/16" ϕ HOLE
3/4" ℞
DETAIL #1
(SH.-1, C-3)
3 SPCS @ 4'-0" = 12'-0"
3"x 2 1/2" x 3/8" (TYP.)
3" L.O.S. (TYP.)
12'-11 3/8" ⅃L
14'-10 3/8" ⅃L
9/16" ϕ HOLES (TYP.)
13" 16 GA.
FLANGE DETAIL #2
(SH.-1, C-2)
W8x24
SECTION "D-D"
(SH.-1, B-3)
TIE BAR 1/4" x 2"
STIFF. BAR 1/4" x 2"
1 1/2" SCH. 40 PIPE
TIE BAR & STIFF. BAR ON ℄ OF DUCT
SECTION "H-H"
WORK THIS DWG WITH 13477-4E-2507 SH. 1
FEB 08 1979
LUTZ, DAILY & BRAIN
Consulting Engineers
SHAWNEE MISSION, KANSAS
APPROVED *
APPROVED AS NOTED
RETURNED FOR CORRECTION
DATE 3-15-79
BY RAB
* Approved for Compliance with Engineers Plans and Specifications. Approval does not void any part of contract or guarantee detailed quantities or dimensions.
LUTZ, DAILY & BRAIN — CONT. 77-8-2
SH. 2 OF 2
ARRG'T~AIR DUCT TO AIR HEATER
FOR CITY OF GRAND ISLAND
PLATTE GENERATING STATION UNIT #1
GRAND ISLAND, NEBRASKA
SCALE NONE
DATE 9-21-78
DRAWN BY R.E. EAGLE
CHECKED BY R FAIRBANKS
APPROVED
TRACED BY
THIS DRAWING IS THE PROPERTY OF COMBUSTION ENGINEERING, INC. WINDSOR, CONN. AND IS NOT TO BE REPRODUCED OR USED TO FURNISH ANY INFORMATION FOR MAKING OF DRAWINGS OR APPARATUS EXCEPT WHERE PROVIDED FOR BY AGREEMENT WITH SAID COMPANY
COMP. CODE 51-25-0811 51-25-0812
DRAWING NO. 13477-4D-2509-02
MAR 19 1979

AMERICAN COMBUSTION

Grand Island Utilities Department

Platte Generating Station

OUTAGE INSPECTION REPORT

2015

Table of Contents

INTRODUCTION

Unit #1 at the Platte Generating Station was inspected during the spring outage in 2015. During the outage, the boiler and its auxiliaries were inspected to give a condition assessment of each of the major components, as well as repair recommendations to plan for future maintenance outages.

Platte Generating Station, shown in **Figure #1**, is a 100 MW, natural circulation steam generator with radiant reheat surfaces and tangentially fired furnace. The unit's Maximum Continuous Rating (MCR) is 765,000 pounds of steam per hour with superheat and reheat outlet temperatures maintained at 1005 degrees F. Design pressure for the unit is 2225 psig, with a superheat outlet operating pressure of 1990 psig. The contract data sheet, **Figure #2**, and the predicted performance sheet, **Figure #3**, provide additional design specification data and predicted operating data for the unit.

This report details the findings of the inspection, along with recommendations for future outages. Throughout the report, all tubes, assemblies, and system components are referenced and counted from left (East) to right (West) and from front (North) to rear (South), unless otherwise specified.

Figure #1

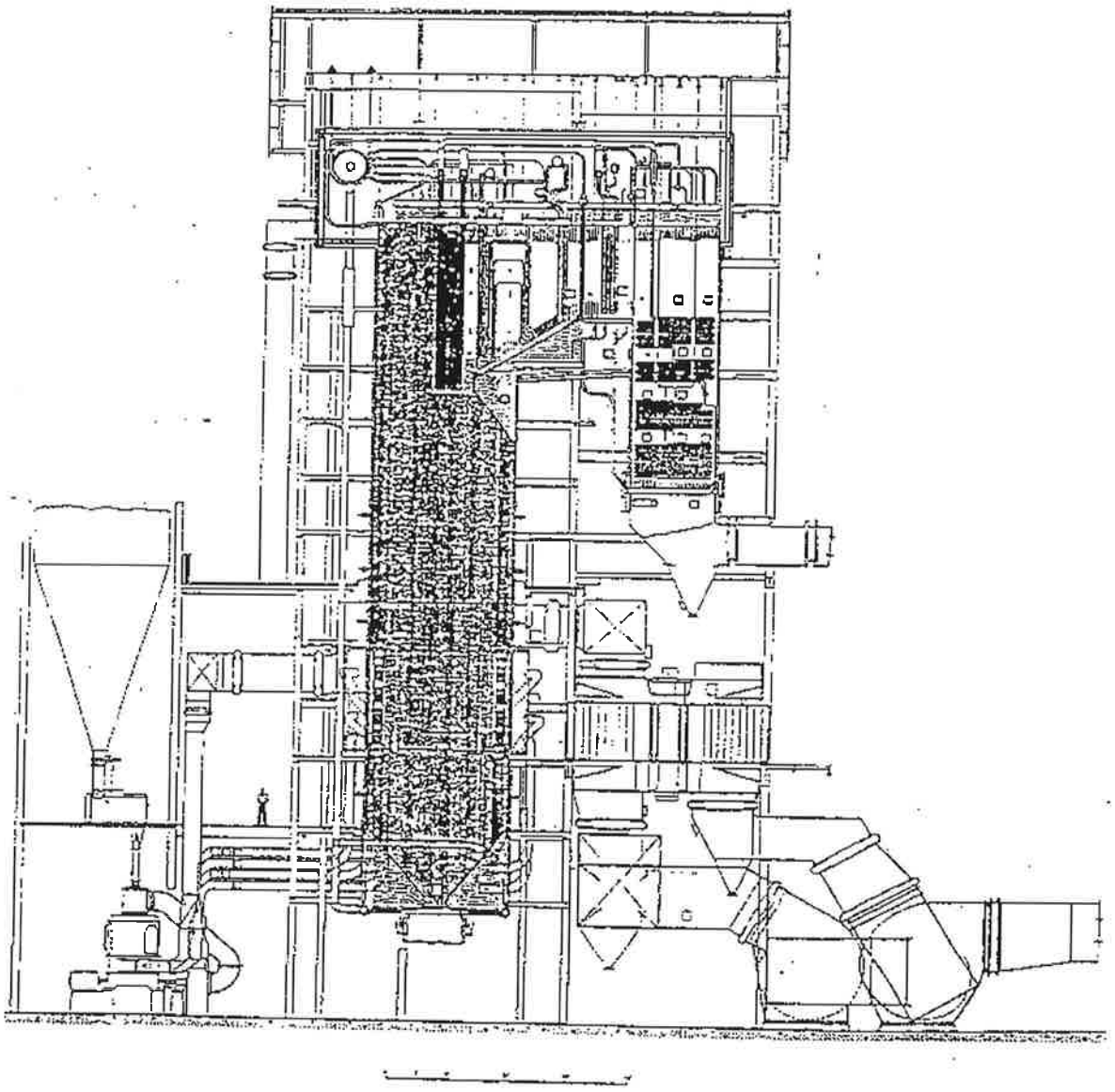


Figure #2

TO

CONTRACT DATA SHEET

12/20/79

File alphabetically. Destroy sheet dated

CONTRACT NO. 13477

DISTRICT OFFICE CREDITED WITH SALE Kansas City

CONTRACT DATE 12/77

TAB 15A

PURCHASER City of Grand Island, Grand Island, Nebraska

USER City of Grand Island, Grand Island, Nebraska

PLANT NAME Grand Island

CONS. ENGR. Lutz, Daily, Brain

INDUSTRY P.U.

BOILER Platte Unit

SQ. FT. H.S. PER UNIT 15735

DESIGNATION 29'-6" / 23'-4 1/16" — 117-2 1/2" / 82-2 1/2" — RR

PRESS DESIGN 2225; OPER. S.C. 1990; TURBINE THROTTLE 1890

FURNACE VOLUME CU. FT. TOTAL 66,909; TYPE OF BOTTOM Hopper; WIDTH 29'-6"; FRONT TO REAR 23'-4 1/16"

SUPERHEATER TYPE Multistage with Platens — **REHEATER** TYPE Multistage

ECONOMIZER NO. 1 TYPE Plain Tube 86W x 32 H

AIR HEATER NO. 1 TYPE 27-VI-90 MAKE Ljungstrom

FUEL BURNING EQUIPMENT 4-683 RS Mills

FUEL	ASH FUSION TEMP. F	GRINDABILITY	BHV
Wyoming Sub-bituminous Coal			
30% Moist | 32.10% VM | 32.10% FC | 5.8% Ash	2120	52	8,125

OPERATING CONDITIONS

* Denotes Guaranteed Item

		CONTROL POINT	MCR			
LB STEAM PER HOUR ACTUAL	PRIMARY	497,200 *	765,000 *			
	REHEAT	428,900 *	659,900 *			
STEAM TEMP. F LEAVING	SUPERHEATER	1005 *	1005 *			
	REHEATER	1005 *	1005 *			
REHEAT DATA	ENTERING TEMP.	630	697			
	ENTERING PRESS.	341	521			
FEEDWATER TEMP. F		430	472			
TEMP. AIR TO AIR HEATER		105	87			
TEMP. GAS FROM AIR HEATER		254	280	(Uncorr)		
OVERALL EFFICIENCY % *Guaranteed		86.45	85.51 *			

SUPPLEMENTARY DATA

GENERATOR KW HER. RATING 100,000

PLANT ELEV. 1,860

Figure #3

CITY OF GRAND ISLAND, NEBRASKA
PLATTE GENERATING STATION

Unit No. 1
C-E Contract 13477 RR

PREDICTED PERFORMANCE			
Load		MCR	C.L.
Fuel		Wyoming Sub-Bit. Coal	Wyoming Sub-Bit. Coal
Evaporation Feedwater Temperature	lb/hr F	765,000 472	497,200 430
Superheater Outlet Temperature Superheater Outlet Pressure Superheater Pressure Drop	F psig psi	1005 1990 130	1005 1851 61
Reheater Flow Reheater Inlet Temperature Reheater Inlet Pressure Reheater Outlet Temperature Reheater Outlet Pressure Reheater Pressure Drop	lb/hr F psig F psig psi	659,900 697 521 1005 504 17	428,900 630 341 1005 330 11
Economizer Pressure Drop	psi	9	3.6
Gas Drop, Furnace to Econ. Outlet Gas Drop, Econ. Outlet to A.H. Outlet	"wg "wg	3.40 9.85	1.70 4.95
Gas Temp. Entering Air Heater Gas Temp. Leaving Air Heater, Uncorr. Gas Temp. Leaving Air Heater, Corr. Air Temp. Entering Air Heater Air Temp. Leaving Air Heater	F F F F F	768 280 268 87 704	689 254 244 105 636
Air Press Entering Air Heater Ambient Air Temperature Excess Air Leaving Economizer	"wg F %	11.05 80 20	7.95 80 23
Fuel Fired	lb/hr	129,000	89,900
Efficiency	%	85.51	86.45

*NOTES: These performance figures are predicted only and are not to be construed as being guaranteed except where the points coincide with the guarantees.

Operation of this unit in excess of the above specified Maximum Continuous Rating (MCR) may result in damage to the equipment and/or increased maintenance.

Superheat steam temperature control range is from 497,200 to 765,000 lb/hr.
Reheat steam temperature control range is from 428,900 to 659,900 lb/hr.

The Fuel specifications on which the guarantees are based are as follows: HHV 8125, Moist 30%, VM=32.10%, FC=32.10%, Ash 5.8%

SUMMARY & CONCLUSIONS

Overall, the boiler and major auxiliary components were found in good condition. During the fall 2012 outage, the burner corners were upgraded with low NOx burners and separated over-fire air nozzles. After two and a half years of service the new air and burner nozzles are still in good condition.

One concern for the boiler in the 2015 inspection was the potential for fouling in the final superheat assemblies. The amount of ash pluggage and build up in the upper portion of these assemblies had been increasing in previous years, and due to this, these assemblies were cleaned using explosive detonation and manual rodding in 2014. There was no significant new build up in these assemblies during the 2015 inspection. There is still some platenizing on the individual assemblies, but the gas path through the final superheat assemblies is clear and should not hinder gas flow through the unit.

During the hydro test there were no leaks or indications found in the horizontal superheat assemblies, a source of concern in past outages. There were no other leaks found in the in the furnace tubes. There have been no reported tube leaks in the boiler up to this point, a stellar record considering that the unit has been in operation for over thirty years.

RECOMMENDATIONS

On the following pages is a list of recommendations for items which are in need of repair. Each item is listed under its general location with a brief description of the work necessary for repair. A more detailed description of these items can be found in the text of the report on the referenced page. Each item is prioritized according to one of the following:

Priority 1: ***Work that should be completed during the next outage.*** These items could cause a forced outage if not addressed during the next scheduled outage, or could lead to a major problem.

Priority 2: ***Work that could be completed during the next outage, or postponed to the next major scheduled outage.*** If the problem is not addressed during the next major outage a problem could result.

Priority 3: ***Work item that could be attended to at any time.*** Not addressing the time would probably not cause a forced outage.

Recommendation	Priority	Page #
BACKPASS WALLS		
▪ Check the backpass walls at soot blower locations: IK-8, IK-11, IK-12 and IK-13.	2	24
HORIZONTAL SUPERHEATER		
▪ Monitor the horizontal superheat assemblies along the soot blowers.	2	25
FINISHING SUPERHEATER		
▪ Continue to monitor the finishing super heat assemblies for ash build up.	3	28
▪ The alignment bands may need to be replaced in a future outage.	3	29
REHEATER		
▪ Repair damaged tube shields in the reheater assemblies as access permits.	3	31
PENTHOUSE		
▪ Repair the casing cracks in the penthouse.	3	33
PULVERIZERS		
▪ Reduce the air gap on the vane wheel in pulverizer - D.	3	67

WATER & SATURATED STEAM CIRCUITS

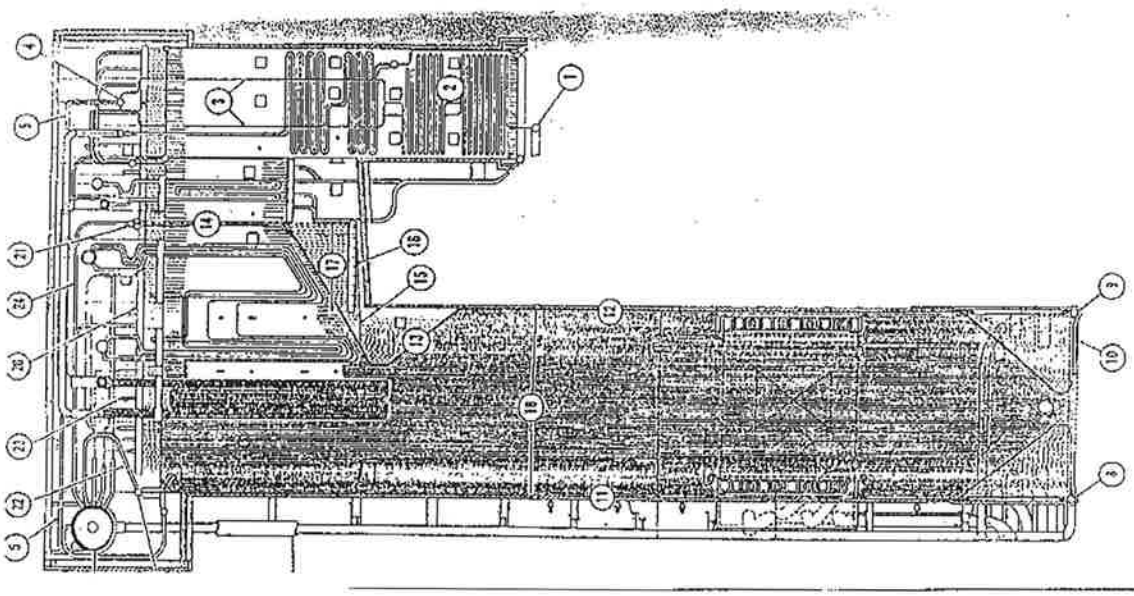
All of the pressure parts were visually inspected during the outage in 2015. Most of the inspections were performed in the convection pass area. Unless otherwise noted, all assemblies and tubes are numbered and referenced from left (East) to right (West) and front (North) to back (South). **Figure #4** (following page) shows the water and saturated steam circuits.

Figure #4

WATER CIRCUITS

MK NO.	QUANT.	SIZE	DESCRIPTION
1	1	12-3/4" O.D.	Economizer Inlet Header
2	86	2" O.D.	Bare Tube Economizer Elements (Upper and Lower Banks) on 4" Ctrs.
3	86	2" O.D.	Economizer Terminal Tubes on 8" Ctrs.
4	1	10-3/4" O.D.	Economizer Outlet Header
5	2	8-5/8" O.D.	Economizer Outlet Links
6	1	60" I.D.	Steam Drum
7	4	14" O.D.	Furnace Downcomers
8	1	14" O.D.	Furnace Lower Front Header
9	1	14" O.D.	Furnace Lower Rear Header
10	2	14" O.D.	Furnace Lower Side Headers, One Per Side
11	117	2-1/2" O.D.	Furnace Front Wall Tubes, Fusion Welded on 3" Ctrs.
12	117	2-1/2" O.D.	Furnace Rear Wall Tubes, Fusion Welded on 3" Ctrs.
13	117	2-1/2" O.D.	Furnace Rear Arch Tubes on 3" Ctrs, Fin Welded at Each Side in Vicinity of Extended Side Supply Tubes, Remainder Fusion Welded.
14	99	2-1/2" O.D.	Furnace Rear Screen Tubes on 9" Ctrs.
15	18	2-1/2" O.D.	Furnace Extended Side Supply Tubes, 9 Per Side
16	2	8-5/8" O.D.	Furnace Extended Side Wall Inlet Headers, 1 Per Side
17	56	2-1/2" O.D.	Furnace Extended Side Wall Tubes, 28 Per Side Fin Welded on 5" Ctrs.
18	164	2-1/2" O.D.	Furnace Side Wall Tubes, 82 Per Side Fusion Welded on 3" Ctrs.
19	1	10-3/4" O.D.	Furnace Upper Front Header
20	2	10-3/4" O.D.	Furnace Upper Side Headers, 1 Per Side
21	1	10-3/4" O.D.	Furnace Upper Rear Outlet Header
22	14	6" O.D.	Furnace Upper Front Header Riser Tubes
23	16	6" O.D.	Furnace Upper Side Header Riser Tubes, 8 Per Side
24	10	6" O.D.	Furnace Upper Rear Outlet Header Riser Tubes

Figure #4



SCHEMATIC ARRANGEMENT
WATER & SATURATED STEAM CIRCUITS
1347

ECONOMIZER

There are five sets of retractable soot blowers for the economizer, IK 9, 10, 11, 13, and 14; each blower having a left and right lance. Each of these soot blowers has caused some tube erosion and there are numerous shields along these soot blower paths.

During the 2015 outage, there were damaged tube shields found along the IK-10 soot blower path. On assembly #24 at IK-10R the tube shield had been worn through, PHOTO #1. This shield was replaced during the outage by plant personnel.

PHOTO #1
Damaged tube shield in the economizer.

At IK-10L there was soot blower erosion on the second tube in the bottom assembly. This tube had not originally been shielded, but due to the polishing effect of the soot blower, a new tube shield was installed on this tube, PHOTO #2.

PHOTO #2
Tube needing additional shield in the economizer.

Also during the 2015 outage, the tube shields were inspected on the bottom section of the economizer, at IK-13 and IK-14. There were a few damaged tube shields that were replaced in this area during the last outage in 2014. No further tube shield damage was found during this outage. PHOTO #3 shows the tube shields on the bottom of the economizer.

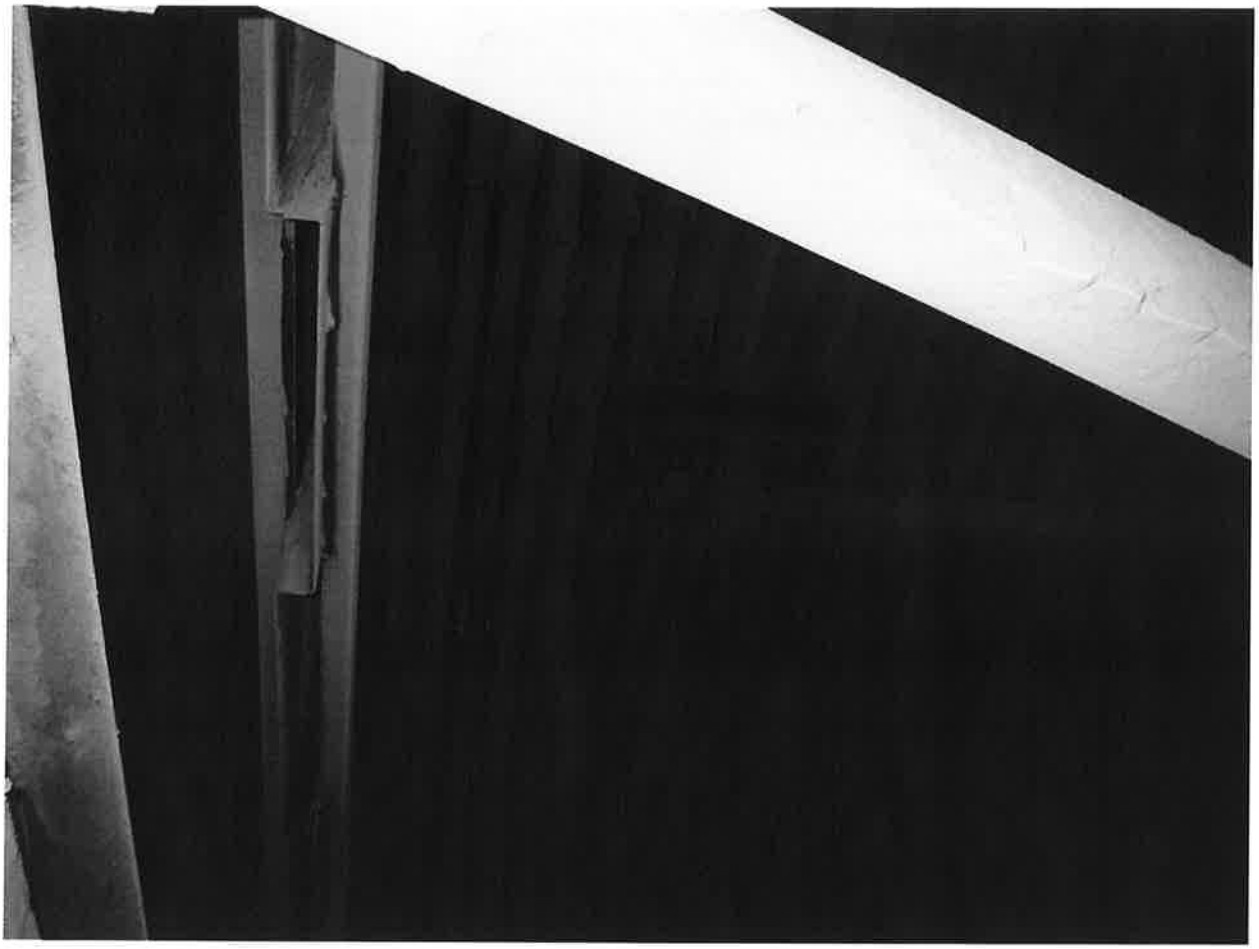


PHOTO #3

Under side of economizer assembly.

These soot blowers are designed such that they do not fully retract from the backpass, and therefore susceptible to ash pluggage. The orifices on these eight soot blower lances (right and left side IK-10, 11, 13, 14) were cleaned out with a drill bit, as the pluggage in these orifices is very hard. The poppet valves in the supply line to these blowers should be checked to make sure they are operating properly, as condensate in the steam could be adding to this problem.

There was a small amount of ash in the economizer banks. Most of this was accumulation in the top bank, near the front and rear walls, between the assemblies. The lower bank of economizer tubes did have ash platenized between the tubes; this was not blocking the gas flow between the assemblies but is packed in between the tubes of each assembly. In addition to this, there were lots of hardened ash pieces dislodged from the finishing superheater that had worked their way down into the economizer. Most of these pieces of debris will most likely work themselves free and go into the economizer hopper.

Recommendations:

- Check the tube shields on all economizer tube surfaces in the soot blower lanes.
- Keep the openings in the sootblower lances of IK-10, 11, 13, 14 clear of pluggage, and check the poppet valves.
- Monitor the amount of ash pluggage in the economizer assemblies.

STEAM DRUM

The steam drum was opened in the spring 2015 outage. Special attention was given to the welds at each of the drum penetrations. Heavy walled pressure vessels are susceptible to cracks at penetrations from thermal cycling. Welded penetrations are also susceptible to weld under cutting due to chemical attack or corrosion. No signs of crack indications, or weld under cutting were found. PHOTO #4 shows the left side downcomer penetration and vortex inhibitor, a common place for weld undercutting.

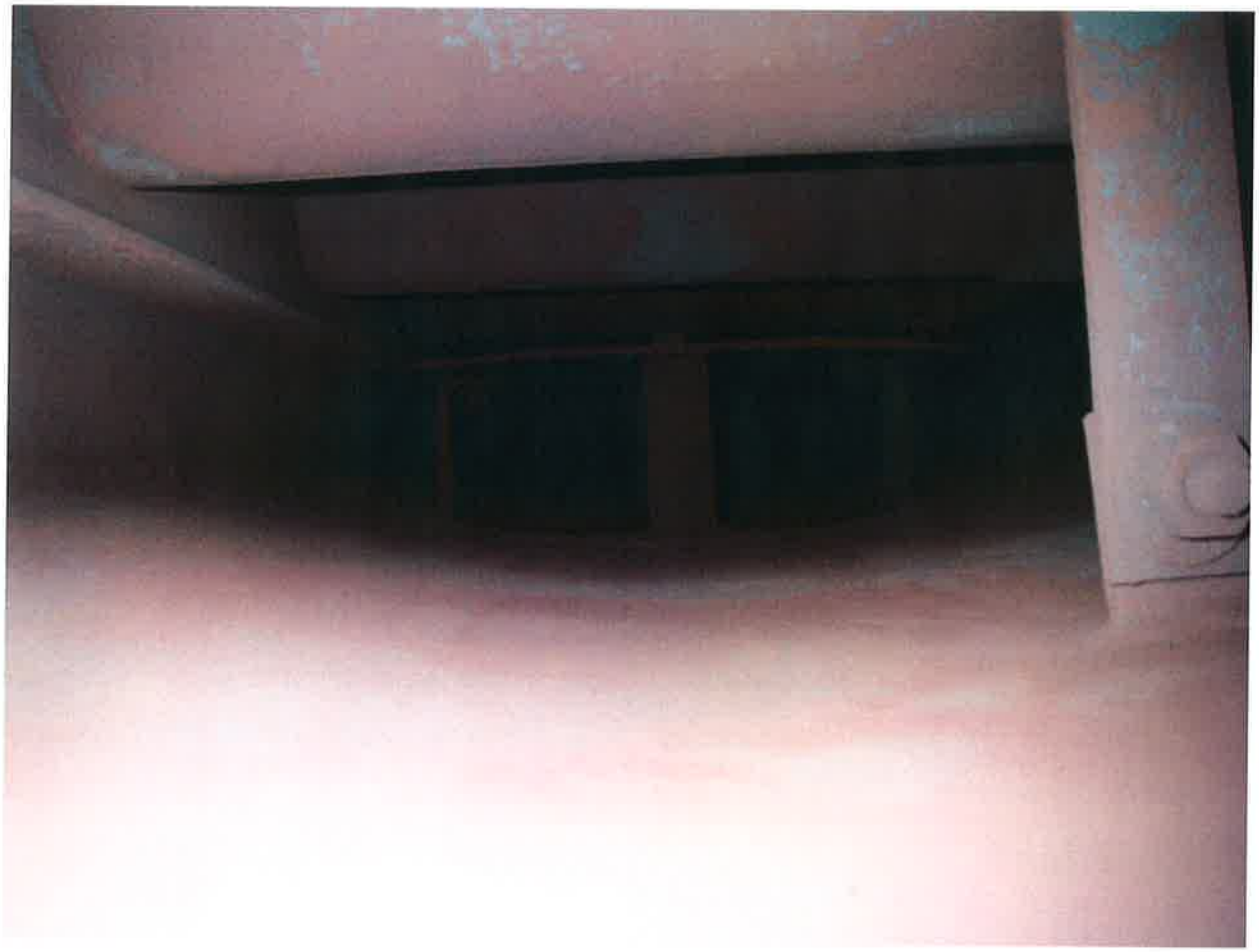
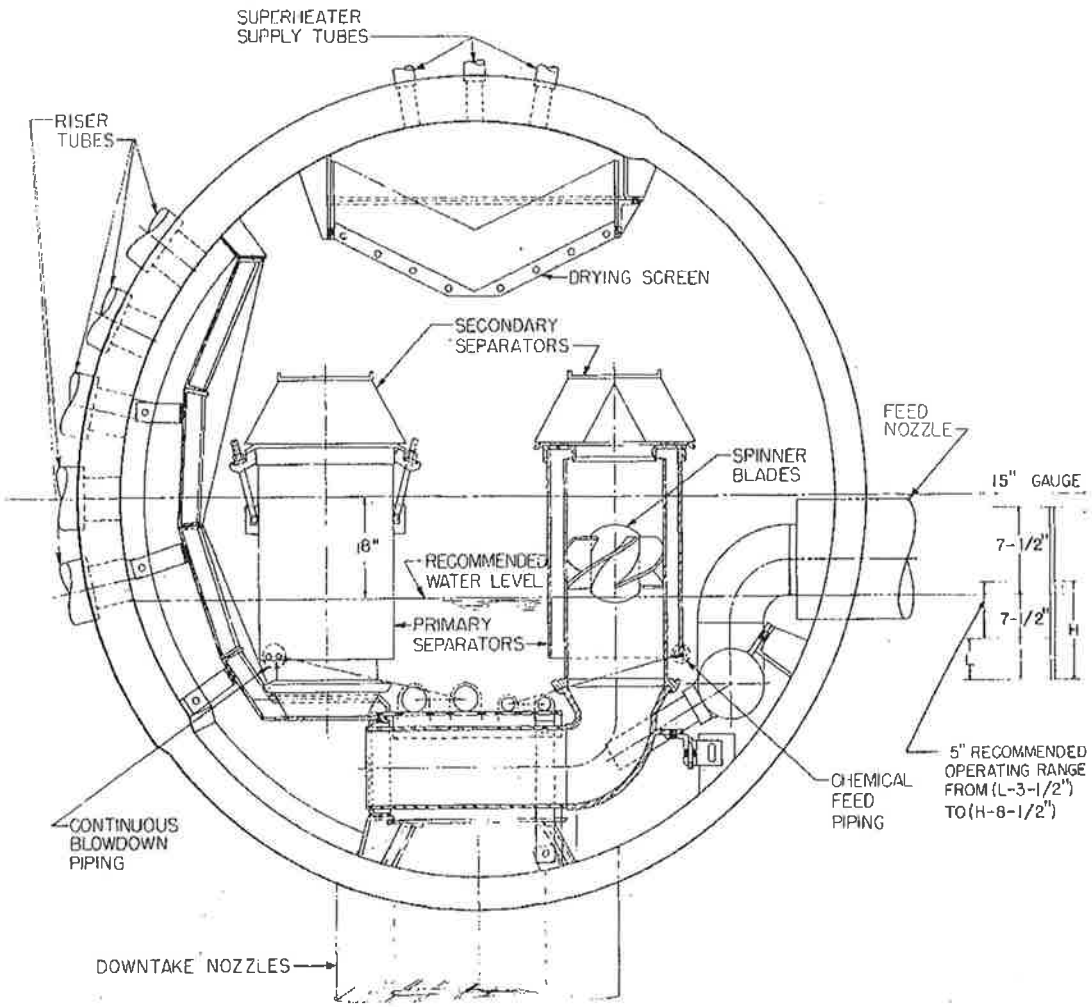


PHOTO #4
Steam drum down comer penetration.

The internal hardware in the drum was found in good condition, PHOTO #5 below. The drum internals were checked for loose nuts on the hold down bolts on the separator cans. No maintenance or repairs were needed during the outage.

PHOTO #5
Steam drum internal hardware.

Figure #5 below shows a cut away section of the steam drum for this unit.



STEAM DRUM INTERNALS
TYPICAL ARRANGEMENT

Recommendations:

- Perform periodic inspections in the steam drum of the penetration welds for signs of stress corrosion and crack indications.

WATER WALL TUBES

The water wall tubes have been in good condition during the life of this unit with no recorded tube leaks in the furnace. During the fall 2014 outage, a low tube reading was noted on tube #15 of the rear wall. This tube was checked for thickness, and measured 0.050", and was replaced. No low tube readings or wall blower erosion were found during the 2015 outage.

The water wall tubes of the front and rear coutant slopes were also inspected during the outage. The coutant slopes were checked for gouges and dents. If a tube does not have a sharp gouge, or is not dented past half its inner diameter, it does not need to be sectioned out. There were several dents in the coutant slope tubes, but no repairs were needed. PHOTO #6 shows a typical dent found on the slope tubes.

PHOTO #6
Dent in coutant slope tube.

The refractory dam at the top of the water wall section, the water wall screen tubes, was replaced during a previous outage. This refractory dam is still in good condition. The front side of this refractory is in good condition, but there are areas on the rear side that have portions where the refractory has broken away. This is found on both the right and left ends of the refractory. PHOTO #7 shows one of these areas where the refractory has broken off and the water wall screen tubes are visible.

PHOTO #7
Upper refractory dam, rear side.

Recommendations:

- Monitor the condition of the rear side of the refractory dam.
- Check the furnace tubes for wall thickness on any areas showing signs of sootblower erosion.

SUPERHEAT & REHEAT CIRCUITS

The superheat and reheat circuits were inspected during this outage. The superheat and reheat section of the report is broken down according to the steam flow path through these circuits. A schematic arrangement diagram of the superheat and reheat circuits is shown in **Figure #6** (following page). The components of these circuits are listed in order according to the steam flow path.

Figure #6

SUPERHEATER (SH)

MK. NO.	QUANT.	SIZE	DESCRIPTION
1	12	6" O.D.	SH Connecting Tubes
2	1	10-3/4" O.D.	SH Backpass At Roof Inlet Header
3	78	2" O.D.	SH Backpass at Front Roof Tubes. Peg Pinned on 4-1/2" Ctrs.
4	1	10-3/4" O.D.	SH Backpass Roof Outlet Header
5	12	6" O.D.	SH Backpass Side Inlet Connecting Tubes; 6 Tubes to Each Side
6	4	10-3/4" O.D.	SH Backpass Side Inlet Headers, 2 Each Side
7	86	1-3/4" O.D.	SH Backpass Side Tubes, 43 Tubes Each Side Fin Welded on 4" Ctrs
8	2	10-3/4" O.D.	SH Backpass Side Outlet Headers, 1 Each Side
9	1	10-3/4" O.D.	SH Backpass Front Inlet Header
10	4	6" O.D.	SH Backpass Extended Side Supply Tubes
11	1	10-3/4" O.D.	SH Backpass Extended Rear Inlet Header
12	48	1-3/4" O.D.	SH Backpass Extended Side Tubes, 24 Tubes Each Side Fin Welded on 4" Ctrs
13	2	10-3/4" O.D.	SH Backpass Extended Side Outlet Headers, 1 Each Side
14	4	6" O.D.	SH Backpass Extended Side Outlet Connecting Tubes.
15	98	1-3/4" O.D.	SH Backpass Front Tubes on 4" Ctrs. Bifurcated to 2" O.D. at "A"
16	44	2" O.D.	SH Backpass Front Tubes on 8" Ctrs. Bifurcated from 1-3/4" O.D. at "A"
17	1	10-3/4" O.D.	SH Backpass Front Junction Header
18	89	1-3/4" O.D.	SH Backpass Rear Roof Tubes, Peg Pinned on 4" Ctrs.
19	88	1-3/4" O.D.	SH Backpass Rear Wall Tubes, Fin Welded on 4" Ctrs.
20	1	10-3/4" O.D.	SH Backpass Rear Outlet Header
21	85	2-1/2" O.D.	SH Rear Horizontal Inlet Terminal Tubes
22	1	10-3/4" O.D.	SH Low Temperature Horizontal Inlet Header
23	86	1-3/4" O.D.	SH Low Temperature Horizontal Assemblies (Upper and Lower) on 4" Ctrs.
24	86	1-3/4" O.D.	SH Rear Horizontal Outlet Terminal Tubes on 4" Ctrs.
25	1	12-3/4" O.D.	SH Low Temperature Outlet Header
26	1	14" O.D.	SH Link to Desuperheater
27	1	14" O.D.	SH Desuperheater
28	1	14" O.D.	SH Link From Desuperheater
29	1	12-3/4" O.D.	SH Pendant Platen Inlet Header
30	15	2" O.D.	SH Pendant Platen Assemblies on 22-1/2" Ctrs; Each Assembly consists of Two Loops of 10-2" O.D. Tubes and 2-1/8" O.D. Wrapper Tubes on 2-3/8" Ctrs.
31	1	12-3/4" O.D.	SH Pendant Platen Outlet Header
32	1	16" O.D.	SH Finishing Section Inlet Link
33	1	12-3/4" O.D.	SH Finishing Section Inlet Header
34	80	1-3/4" O.D.	SH Finishing Section Assemblies on 4-1/2" Ctrs; Each Assembly consists of Two Loops of 41-1/4" O.D. Tubes on 4-1/2" Ctrs.
35	1	18" O.D.	SH Finishing Section Outlet Header
36	2	2" O.D.	Steam Cooled Spacer Supply Tubes
37	3	2" O.D.	Steam Cooled Spacer Tubes
38	2	2" O.D.	Steam Cooled Spacer Relief Tubes

REHEATER (RH)

39	1	18" O.D. RH Inlet Header
40	38	2" O.D. RH Front Assemblies on 8" Ctrs.
41	38	2" O.D. RH Finishing Section Assemblies on 8" Ctrs.
42	1	24" O.D. RH Finishing Outlet Header

SCHEMATIC FLOW DIAGRAM SUPERHEATER AND REHEATER 1349

BACKPASS WALLS

There were a few sections of the backpass walls that were repaired during the fall 2014 maintenance outage. These repairs were needed on the front and rear walls. No issues were found on the side walls.

On the front wall, at the lower ring header there are offset tubes covered with expanded metal and refractory to protect the tubes. This refractory was worn away, and these tubes were padwelded during the 2014 outage. Poundable refractory was also put in place over these offset tubes. Access to these areas was not available in the 2015 outage, but there should be no reason for additional repairs for several years.

Along the rear backpass wall, there were tubes that required additional padwelding in 2014. The backpass wall tubes were replaced with overlaid tubes at the IK-12 sootblower, in a previous outage. The tubes below the replacement section were thin and were padwelded during the previous major maintenance outage.

Recommendations:

- Check the backpass walls at sootblower locations: IK-8, IK-11, IK-12 and IK-13.

HORIZONTAL SUPERHEAT

The horizontal superheat tubes were inspected for erosion damage and any tube bowing that could affect gas flow through the backpass. The main problem in the horizontal superheat assemblies has been the erosion damage that has been caused by the retractable soot blowers at IK-8 and IK-12. PHOTO #8 shows the sootblower lane at IK-8. There were no tube shield issues and no new signs of erosion.

PHOTO #8
Horizontal Superheat tubes
between the two banks of tubes.

On the top bank of the horizontal superheat assemblies, there were areas of ash pluggage, as shown in PHOTO #9. This ash is a combination of ash build up from the flow through the backpass and the debris that has been removed from the finishing superheat assemblies. The alignment bars were also replaced with new stainless bars during the 2014 outage.

PHOTO #9

Ash build up and overheated spacer bars on the top of the horizontal superheater.

Recommendations:

- Continue to monitor the horizontal superheat assemblies around the IK-7, IK-8 and IK-12 sootblowers.

SUPERHEAT PENDANT PLATENS

The superheat pendant platen assemblies were not accessible during the 2015 outage. PHOTO #10 shows the superheat pendant platens, as viewed from the sky climber. The pendant platens are normally inspected during major outages, when access is available. There have been no reported issues or repairs with these tube assemblies.

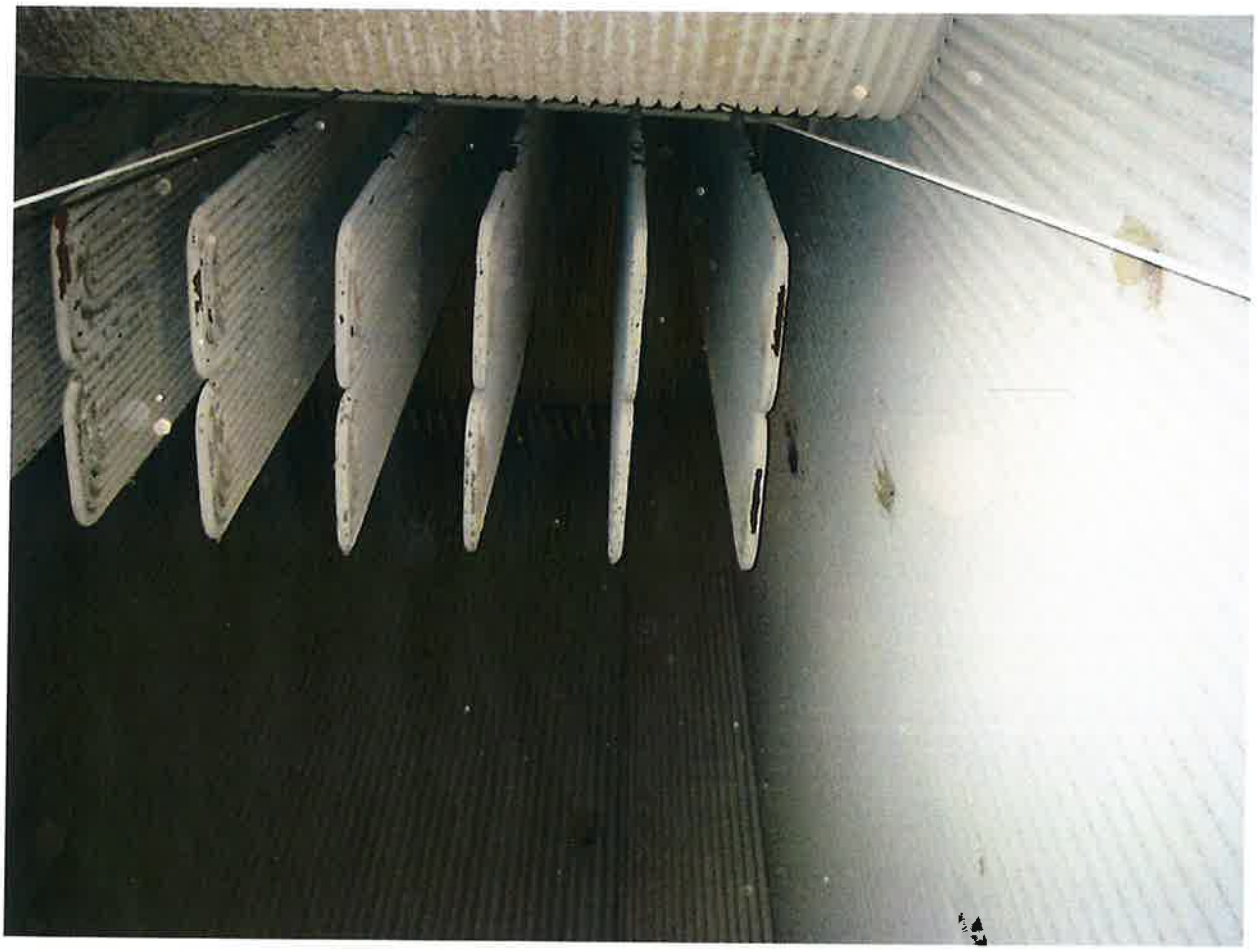


PHOTO #10

Superheater pendant assemblies on the east side of the furnace.

FINISHING SUPERHEAT

The finishing superheat assemblies were inspected during this outage for tube misalignment, ash fouling, and soot blower erosion. The main problem in these tube assemblies in the past was the amount of ash pluggage. These assemblies typically have pluggage in the upper section of the tubes, but this was cleared in the major outage last year. PHOTO #11 shows the current ash build up on these tube assemblies, which is a normal amount of build up for this boiler.

PHOTO #11

Ash build up on the front of the finishing superheater pendant assemblies.

The other problem noted on the finishing superheater assemblies is the alignment bands. Several of these bands have broken due to overheating, PHOTO #12. These bands keep the individual tubes of the assembly in alignment. This is not a serious issue, but these bands may need to be addressed in a future outage. There are various types of alignment components that are commercially available as replacements or upgrades.

PHOTO #12

Finishing superheater with broken alignment bands.

Recommendations:

- Continue to monitor the finishing superheat assemblies for ash build up.
- Check the alignment bands in the finishing superheat assemblies, as they may need to be replaced in a future outage.

REHEAT ASSEMBLIES

The reheat assemblies were inspected from scaffolding between the front and rear assemblies. Close access in normally made available during routine outages. There were no repair issues seen during this outage. PHOTO #13 shows this tube. It was to be repaired during the outage.

PHOTO #13

Reheat assemblies.

ENCLOSURES

During the outage the enclosures were inspected. The areas that were inspected included the penthouse, the nose arch dead air space, the lower dead air spaces, and the bottom ash hopper.

PENTHOUSE

The penthouse enclosure was found to be in good condition. The penthouse enclosure has remained consistently clean over the past few years. PHOTO #14 shows the flooring of the penthouse.

PHOTO #14

Penthouse floor casing.

The main issues were the number of casing leaks and cracks that are allowing flyash into the penthouse. These leaks are small and are not allowing enough flyash into the penthouse to be considered a serious problem. PHOTO #15 shows one of the many casing cracks found in the penthouse.

PHOTO #15

Typical penthouse casing crack.

Recommendations:

- Repair the casing cracks in the penthouse.

NOSE ARCH DEAD AIR SPACE

The nose arch dead air space was inspected during the outage for casing leaks, ash accumulations, and any other repair items. During the outage no fly ash accumulations were found. PHOTO #16 shows the current condition of the upper nose arch area.

PHOTO #16

Nose arch dead air space.

LOWER DEAD AIR SPACES

The lower dead air spaces were inspected and found in good overall condition, with no casing leaks, no ash accumulations, and no insulation damage. There were some small casing leaks found in the lower dead air spaces. These casing leaks were not serious and since they seal against the lower furnace area there is very little chance of ash ingress. The front dead air space is shown in PHOTO #17.

PHOTO #17

Lower dead air space.

BOTTOM ASH HOPPER

The bottom ash hopper was found to be in fair condition, with the refractory lining on the ash hopper walls having a few areas of spalling. The drip screens on each end of the hopper also showed signs of damage.

The refractory on the inside lining of the bottom ash hoppers is in fair condition, with signs of damaged refractory. The penetrations into the hopper are in fair condition. PHOTO #18 shows one of the vacuum breaker chutes in the bottom ash hopper along with damaged refractory.

PHOTO #18
Damaged refractory around vacuum breaker.

The drip screens were replaced back in 1999 with flexible screens instead of the original rigid screens. There were a few sections of screens that had holes in them and have been replaced since then. PHOTO #19 shows the current condition of the screens in the right front corner.

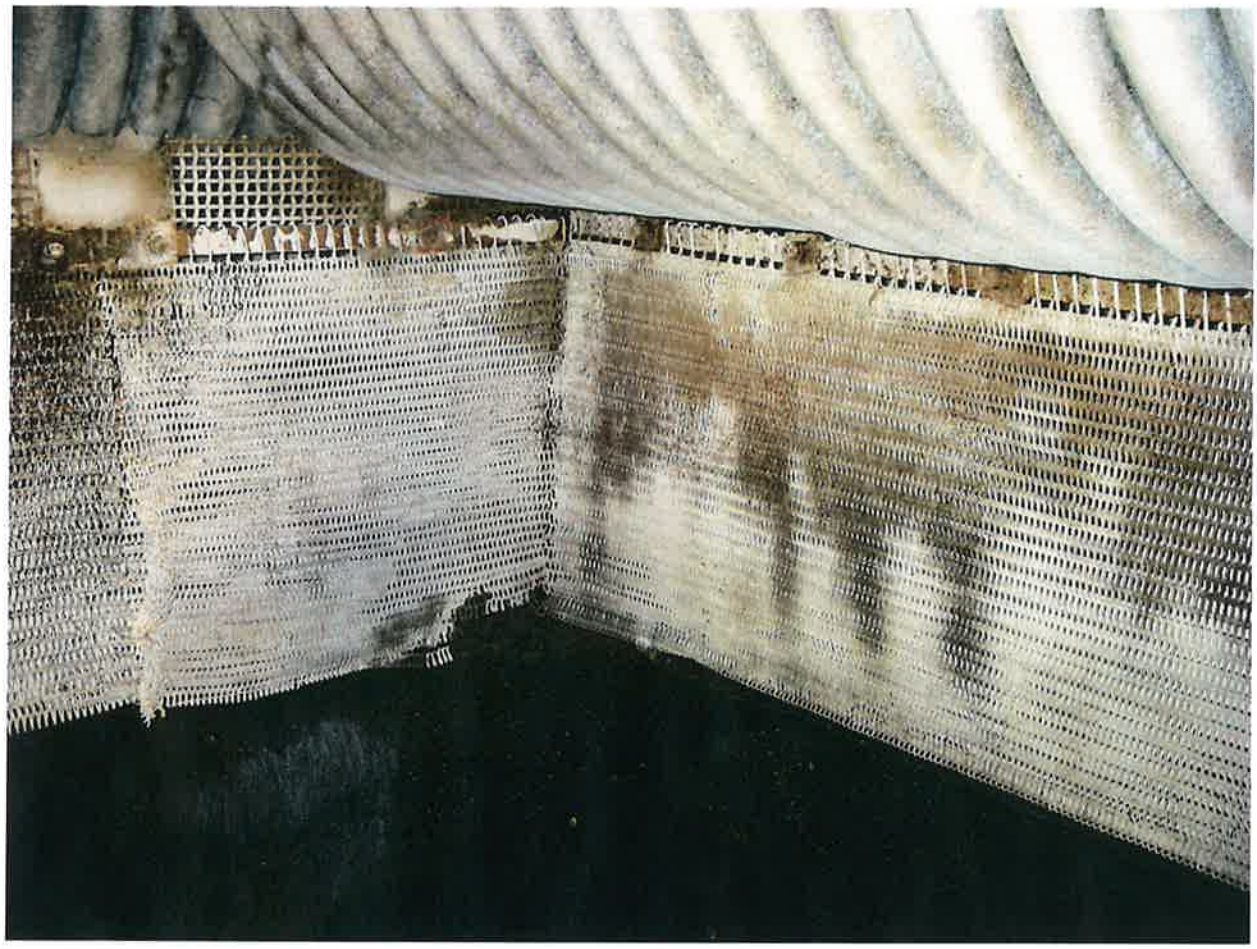


PHOTO #19

Bottom ash drip screens.

DUCTWORK

The areas that were inspected included the secondary air ducts, the mill hot air ducts, windbox ducts, and the air preheater.

SECONDARY AIR DUCTS

The secondary air ducts were inspected for ash accumulation, casing leaks, and other items that might require repair. These ducts were found to be in good condition. There was some ash build up found in these ducts, see PHOTO #20, but it is not as severe as many other such ducts in coal fired units. The secondary air ducts connect the air preheater to the windboxes. No repair items were found during these inspections.

PHOTO #20
Secondary air ductwork, between the air preheater and the left side windbox.

MILL HOT AIR DUCTS

The mill hot air ducts were inspected during this outage for ash accumulation in the expansion joints, casing leaks, and other items that could require repair. These ducts were found to be in good condition, PHOTO #21. There was some ash build up in the expansion joints in these ducts. The mill hot air ducts supply hot air from the windboxes to each of the coal mills.

PHOTO #21
Mill hot air duct, with outlets to each coal mill.

WINDBOX DUCTS

The windbox ducts were inspected during the outage for ash accumulations, casing leaks, and any signs of structural damage. The windbox ducts were found in good condition. Windbox box dampers were stroked and all dampers worked properly. PHOTO #22 shows one of the damper assemblies.

PHOTO #22

Windbox dampers.

AIR PREHEATER

The air preheater was found in good condition. The radial and circumferential seals were all in place with no damage to the seals. There was a coating of ash on the top side of the air preheater. PHOTO #23 shows this view on the hot side of the air preheater.

PHOTO #23
Slightly hardened ash build up on the top side of the air preheater.

The cold end baskets were also checked during the outage. The cold end baskets were found in fairly good condition. There is some cold end corrosion damage on the outer most baskets, PHOTO #24. This damage is typical and is not considered severe.

PHOTO #24
Cold end basket elements in the air preheater.

BURNER TILTS

All four corners were inspected and stroked during the 2015 outage. The burner corners were overhauled with new coal and air nozzle tips that were installed during the fall 2012 outage. These new tips are for low NOx control, and also included the installation of separated over-fire air nozzles. On the external portion of the burner tilt drives all of the connecting rods and lever arms were found in good condition. Each of the burner corners stroked proper from full extension to full retraction (approximately +25 degrees to -25 degrees stroke).

Elev	BURNER CORNER #1
SOFA	Both of the separated over fire air nozzles were in good condition, with only minor cracking on the lower air nozzle. PHOTO #25.
OFA	The over fire air tip was found in good condition, with a bit of cracking, warping and some ash build-up. PHOTO #26
A-A	This auxiliary air tip was in good condition, with some warping and ash build up.
A	The coal nozzle tip was in fair condition, and was warped, which is common on the upper coal nozzles in each corner, as these nozzles are not normally in service, PHOTO #27.
A-B	This air nozzle was in good condition, but did have some ash build up in the compartment.
B	This coal nozzle and cast nozzle were both found to be in good condition.
B-C	This air nozzle tip was in good condition, with some ash build-up.
C	This coal nozzle tip was in good condition with some erosion wear. The cast nozzle was in good condition.
C-D	Oil gun nozzle and diffuser tip were in good condition, with some slag build up and some warping.
D	This coal nozzle was in good condition, but did have some ash build up in the tip. The cast nozzle was also in good condition.
UFA	The under fire air nozzle was found in good condition, with some slag build up underneath the tip. The connecting rod was slightly bent at the all thread.

PHOTO #25

Corner 1, separated over fire air nozzles.

PHOTO #26

Corner 1, over fire air nozzles.

PHOTO #27

Warped splitter plate in coal nozzle A, corner 1.

Elev	BURNER CORNER #2
SOFA	Both of the separated over fire air nozzles were in good condition. The lower air nozzle did have some cracking, PHOTO #28.
OFA	The over fire air tip was found in good condition, with very little warping and some ash build-up.
A-A	This auxiliary air tip was in good condition, but with some ash build up and a cracked weld.
A	The coal nozzle tip was in good condition, with some cracking and warping, PHOTO #29. This is a common problem with the upper coal nozzle, as it is the least used of the four coal elevations.
A-B	This air nozzle was in good condition with no significant damage.
B	This coal nozzle and the cast nozzle were both found in fair condition, but with some warping, PHOTO #30.
B-C	This air nozzle tip was in good condition, with some ash build-up.
C	This coal nozzle tip and the cast nozzle were both found in good condition.
C-D	Oil gun nozzle and diffuser tip were in good condition, but the flame scanner tube had a broken weld.
D	This coal nozzle and the cast nozzle were both found in good condition.
UFA	The under fire air nozzle was found in good condition, with some slag build up underneath the tip.

PHOTO #28

Corner 2, separated over fire air nozzles.

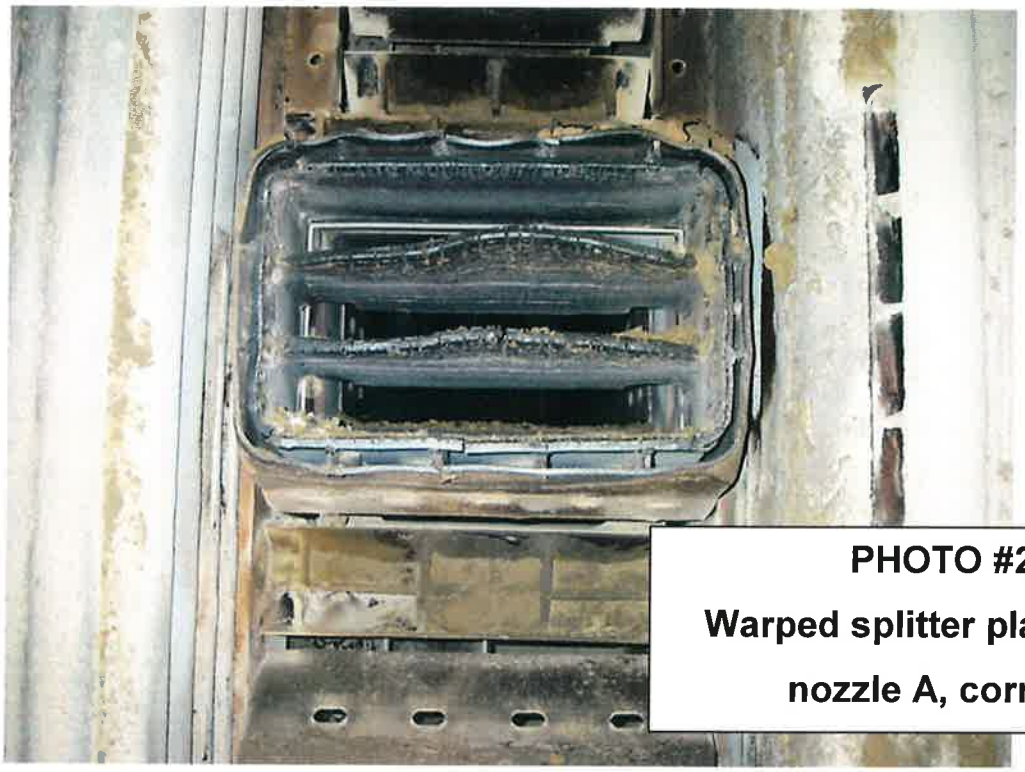


PHOTO #29
Warped splitter plate in coal nozzle A, corner 2.

PHOTO #30 warped coal tip nozzle B, corner 2.

Elev	BURNER CORNER #3
SOFA	Both of the separated over fire air nozzles were in good condition, PHOTO #31.
OFA	The over fire air tip was found in good condition, with some warping and ash build-up, PHOTO #32
A-A	This auxiliary air tip was in good condition, but with some ash build up.
A	The coal nozzle tip was in good condition, with some cracking and warping, PHOTO #33.
A-B	This air nozzle was in good condition, with some ash build up.
B	This coal nozzle and the cast nozzle were both found in good condition.
B-C	This air nozzle tip was in good condition, with some ash build-up.
C	This coal nozzle tip and the cast nozzle were both found in good condition.
C-D	Oil gun nozzle and diffuser tip were in good condition, with some slag build up.
D	This coal nozzle and the cast nozzle were both in good condition.
UFA	The under fire air nozzle was found in good condition, with some slag build up underneath the tip.

PHOTO #31
Corner 3, separated over fire air nozzles.

PHOTO #32
Corner 3, over fire air nozzles.

PHOTO #33

Warped and cracked splitter plate in coal nozzle A, corner 3.

Elev	BURNER CORNER #4
SOFA	Both of the separated over fire air nozzles were in good condition. The lower air nozzle had cracks in the lower right corner, PHOTO #34.
OFA	The over fire air tip was found in good condition, with some warping and ash build-up. PHOTO #35.
A-A	This auxiliary air tip was in good condition, with only a bit of warping, but with some ash build up.
A	The coal nozzle tip was in good condition, with some warping and cracking, PHOTO #36.
A-B	This air nozzle was in good condition, but did have some ash build up.
B	This coal nozzle and the cast nozzle were both found in good condition.
B-C	This air nozzle tip was in good condition, with some ash build-up.
C	This coal nozzle tip was in good condition with some erosion wear. The cast nozzle was in good condition.
C-D	Oil gun nozzle and diffuser tip were in good condition, but the flame scanner was back too far.
D	This coal nozzle was in good condition, with some warping of the splitter plate. The cast nozzle was also in good condition.
UFA	The under fire air nozzle was found in good condition, with some slag build up underneath the tip.

PHOTO #34
Corner 4, separated over fire air nozzles.

PHOTO #35
Slag build up on over fire air nozzle, corner 3.

PHOTO #36
Warped and cracked splitter plate in coal nozzle A, corner 4.

PULVERIZERS

The pulverizer internals were inspected during this outage. They were checked for internal wear and any signs of mechanical distress. Overall, the pulverizers and the exhauster were found in good condition. Each of the pulverizer inspections is detailed on the following pages.

Vane wheel repairs to the air gap should improve the operation of pulverizer D, while exhauster fan required minor repairs in pulverizer C. The pulverizers with new style mill tops (B, C, D) have erosion wear behind the stationary vanes on the classifier cones. Padwelding in these areas will be necessary to protect the mill side walls.

PULVERIZER - A

Pulverizer A normally has the least amount of running time of the four pulverizers on this unit and was found in fair condition with minimal wear. The overlaid rolls were found in good condition, PHOTO #37. Standard bull ring segments are in good condition and could be overlaid at the next grinding roll replacement.

PHOTO #37
Pulverizer - A grinding roll and bull ring segments.

The classifier cone and classifier blades were all intact, but the classifier cone is showing signs of erosion wear. PHOTO #38 shows the erosion on the nuts at the top edge of the classifier cone and on the mill top. These nuts and their stud bolts should be covered with a pipe cap welded into place to protect these items that hold the cone in place. The erosion on the original pulverizer top can also been seen in this photograph.

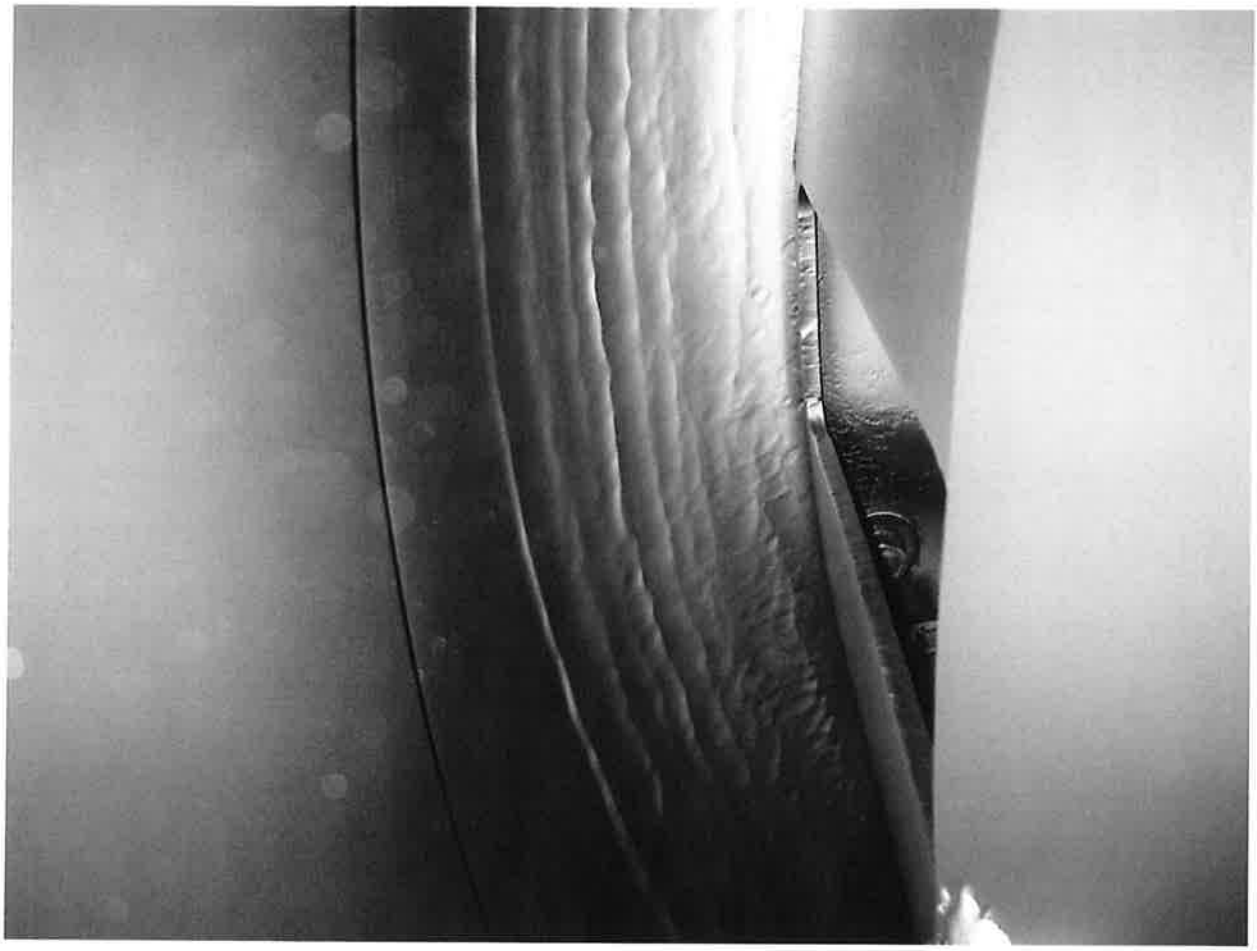


PHOTO #38
Erosion wear on the classifier cone retaining hardware and mill top.

The vane wheel gap on mill A was found to be a bit too wide. PHOTO #39 shows the vane wheel and the air gap between the vane wheel and the stationary liner. When the air gap is too large (greater than ½") this can allow air to bypass the vane wheel and disrupt the air flow around the edge of the grinding bowl. This can allow coal to spill into the under bowl section, which then will come out of the pyrite chute.

PHOTO #39

Pulverizer - A, vane wheel air gap.

PULVERIZER - B

Pulverizer B was found in good condition. This pulverizer has a new style top and classifier assembly. This new style top and classifier have a new internal classifier cone with turning vanes. This cone is hung from large tabs mounted to the pulverizer side wall. The overlaid grinding rolls and bull ring segments were found in good condition, PHOTO #40.

PHOTO #40
Pulverizer - B, overlaid grinding roll and bull ring segments.

The stationary vanes on the classifier cone are showing signs of erosion wear and the pulverizer side wall behind these vanes has been worn down and filled in with weld media, PHOTO #41. These areas will need to be monitored and additional padwelding will most likely be required in future outages. The adjustable classifier vanes were found in good condition with little wear.

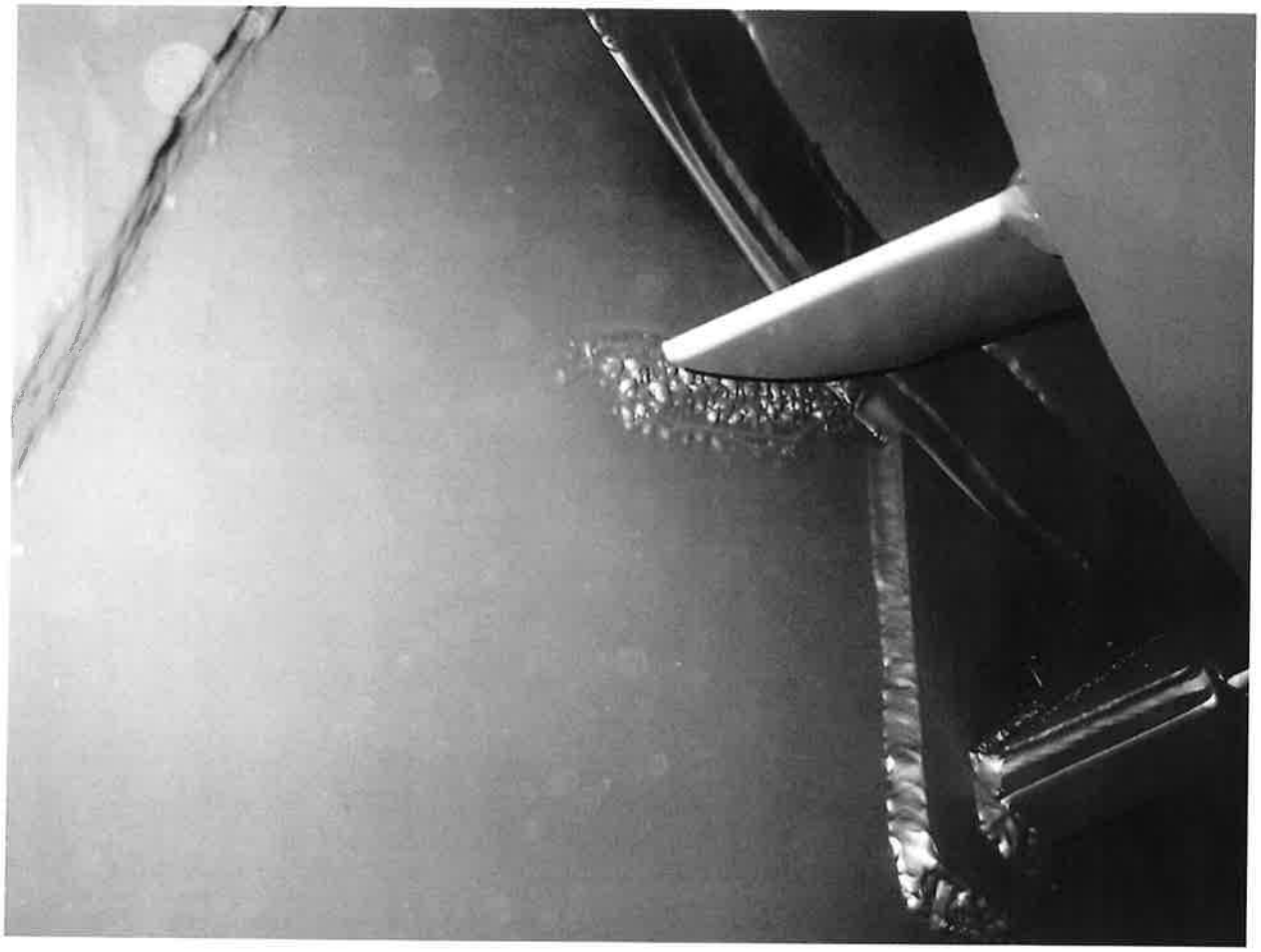


PHOTO #41
Pulverizer - B, stationary vanes and erosion wear on pulverizer side wall.

PULVERIZER - C

Pulverizer C was found in good condition. This pulverizer was the first pulverizer at this site to be retrofitted with the new style top and classifier assembly. The overlaid grinding rolls and bull ring segments were found in good condition, with minor amounts of erosion wear, PHOTO #42.

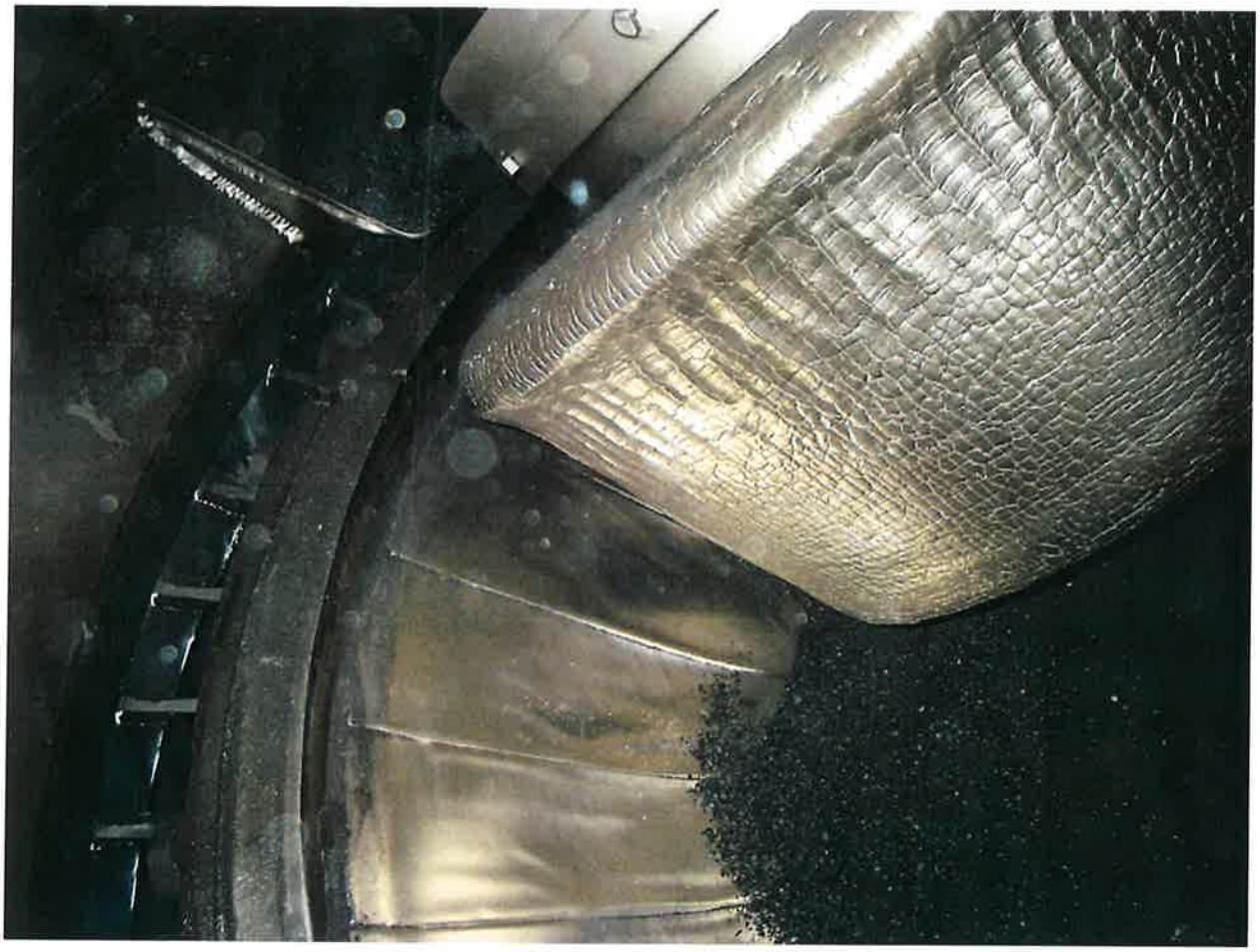


PHOTO #42
Pulverizer - C, overlaid grinding roll with moderate wear on grinding segments.

The stationary vanes on the classifier cone have heavy erosion wear and the pulverizer side wall behind these vanes has been worn down and filled in, PHOTO #43. This wear is the most severe in Pulverizer - C. These areas will need to be monitored and additional padwelding will most likely be required in future outages. The adjustable classifier vanes were found in good condition with little wear.

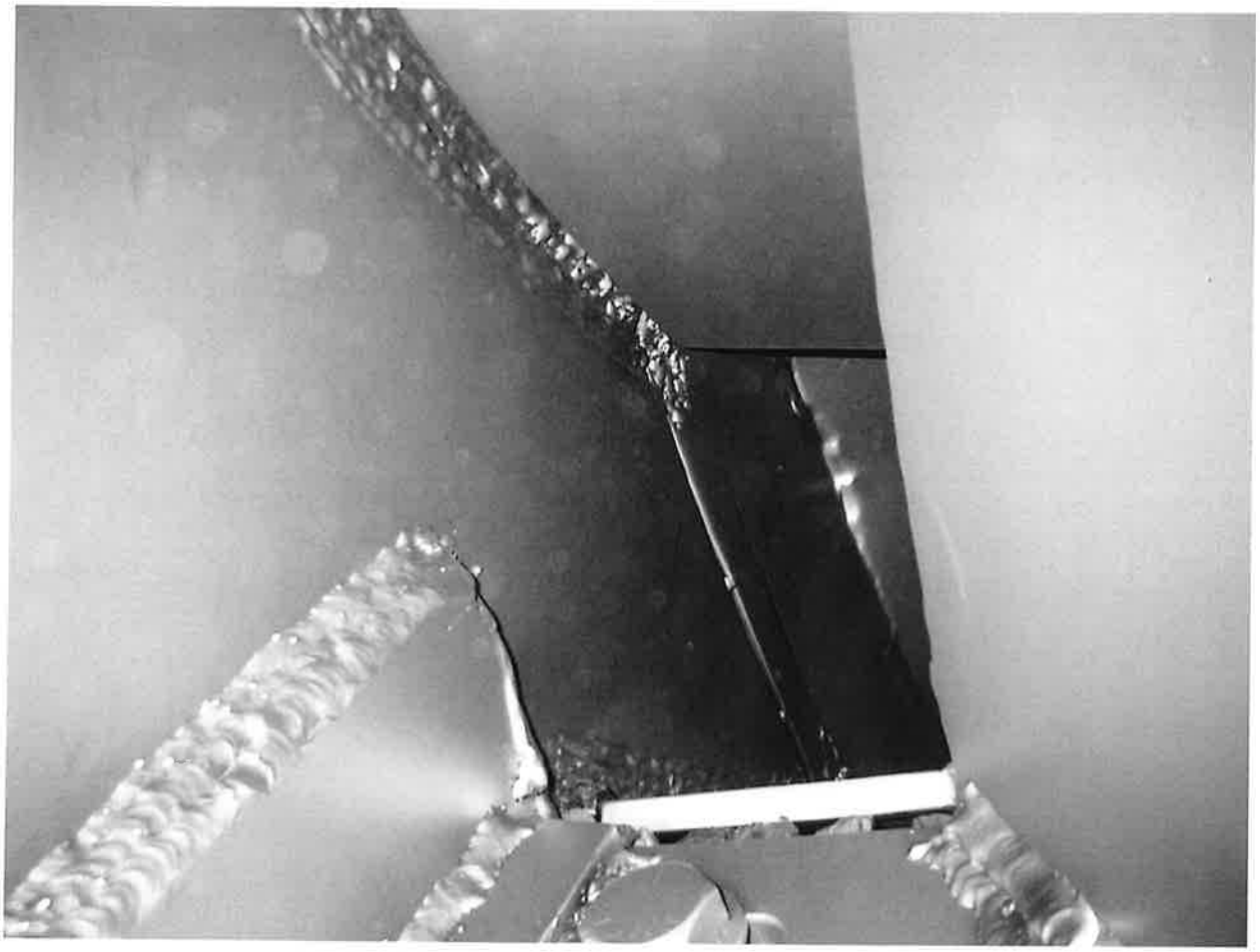


PHOTO #43
Pulverizer - C, stationary vanes and erosion wear on pulverizer side wall.

PULVERIZER - D

Pulverizer D has the most recent top and classifier assembly change out. This new style top and classifier have a new internal classifier cone with turning vanes. The grinding rolls and bull ring segments were found in good condition, PHOTO #44.

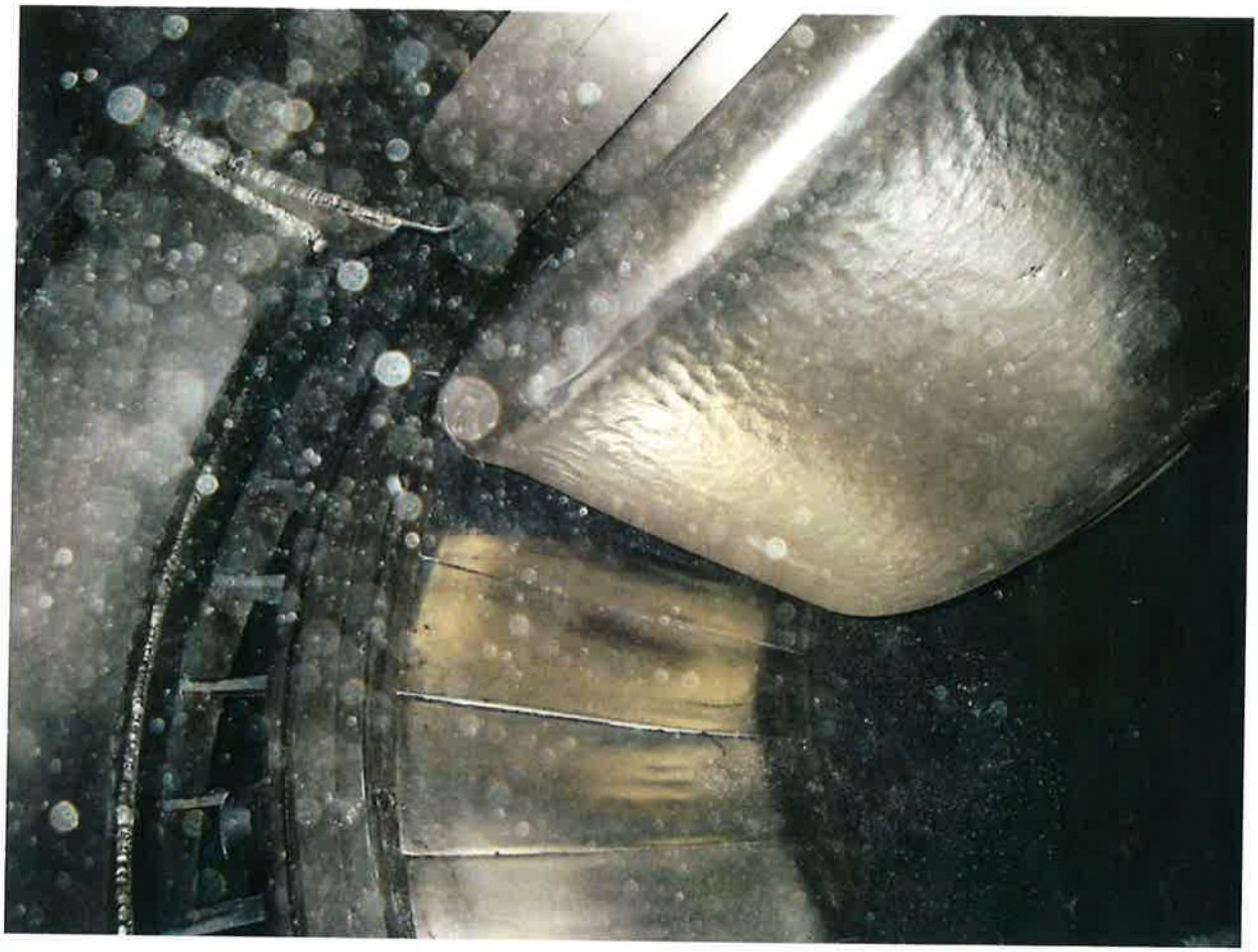


PHOTO #44
Pulverizer - D, moderate wear on the grinding roll with minimal wear on the grinding segments.

The vane wheel air gap (distance between the vertical edge of the skirt and the outer edge of the vane wheel) is too large in this pulverizer. An additional vertical strip was added in the past to the body liner skirt to close this gap, PHOTO #45. This additional piece is not working properly and since it does not extend under the kicker plate (ramp plate under the grinding roll) the amount of air bypassing the vane wheel is most likely quite high and this may be affecting how smoothly the pulverizer is grinding the coal. It is recommended that the body liner skirt or the entire vane wheel kit be replaced in this pulverizer, as it will most likely improve the rough grinding condition that has been occurring in this pulverizer.

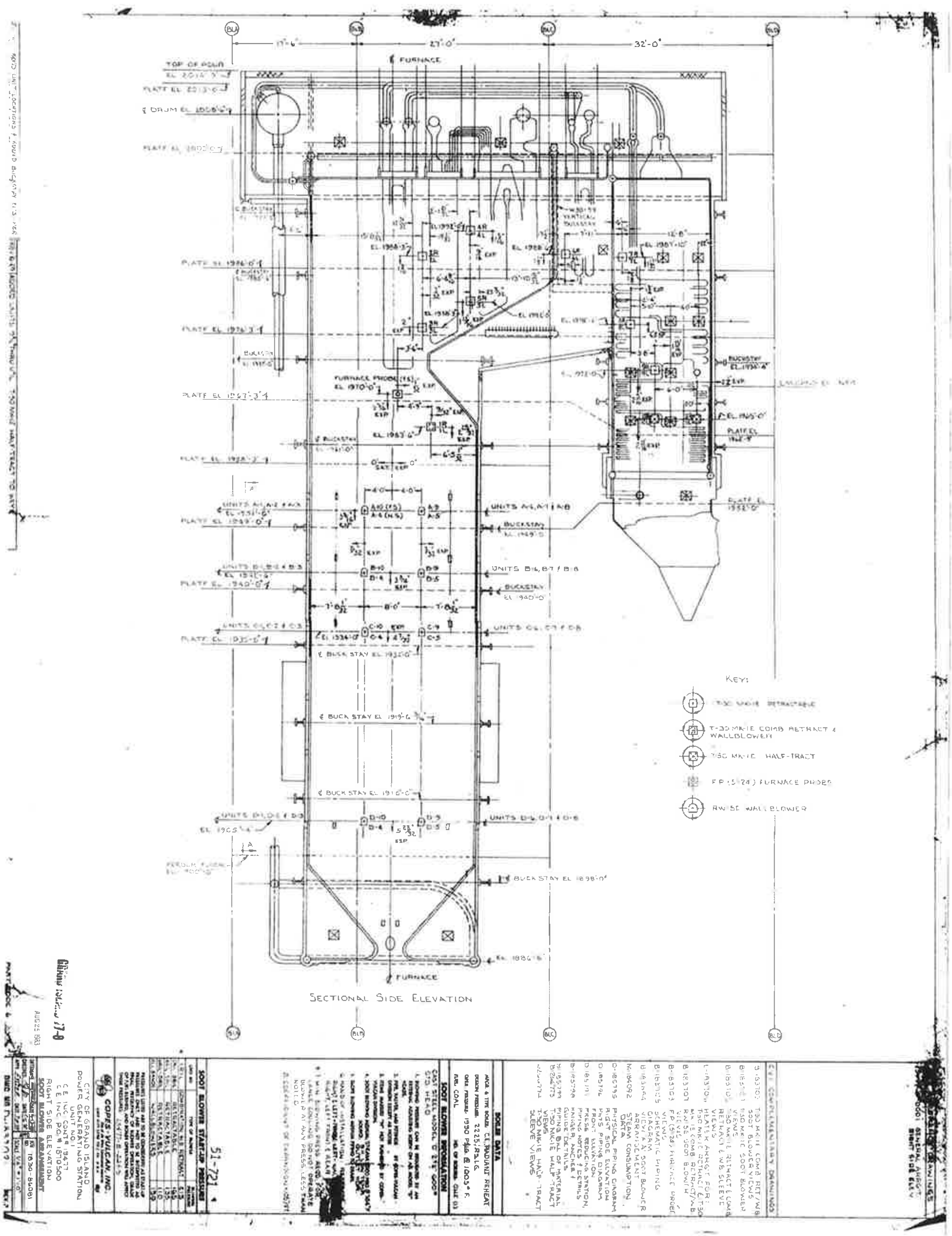
PHOTO #45

Pulverizer - D, vane wheel air gap.

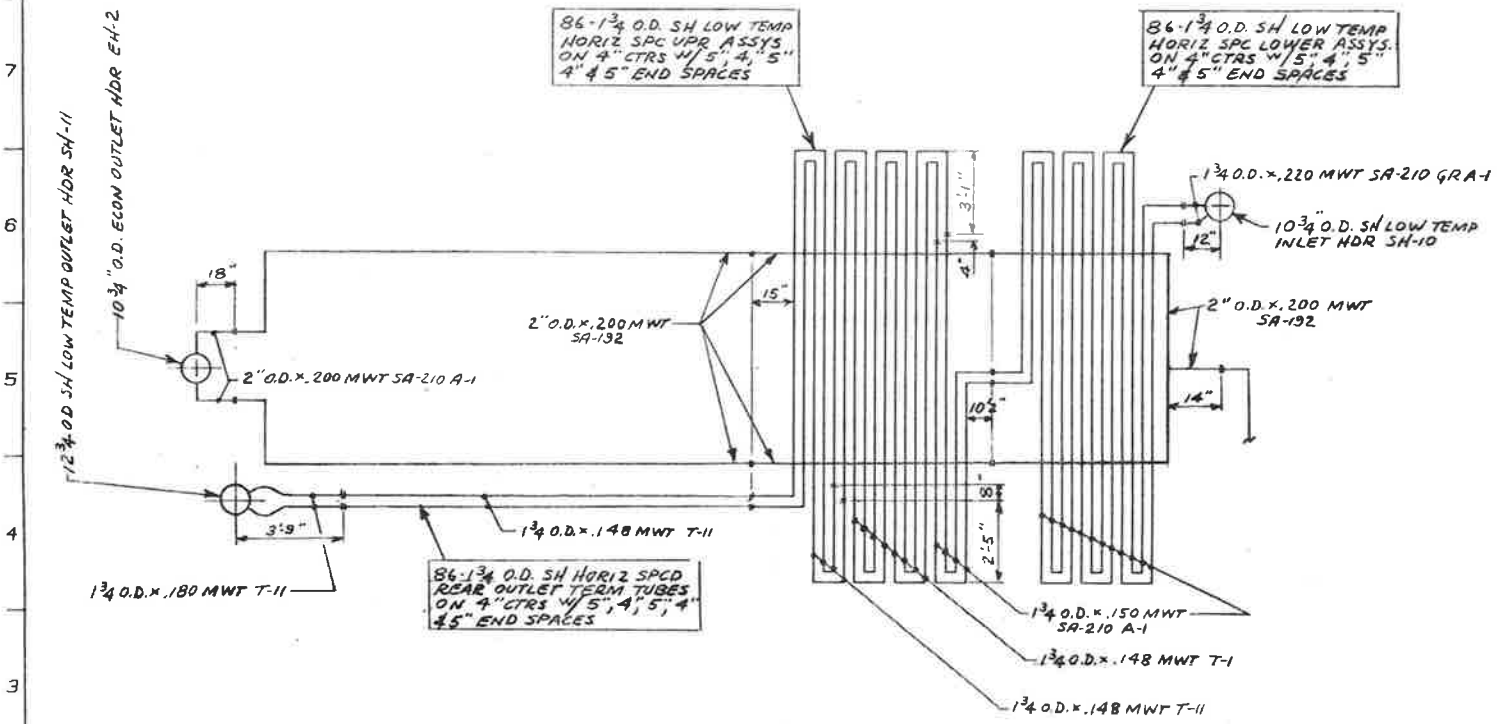
PRECIPITATOR

The precipitator internals were inspected during this outage. They were checked after the sandblasting for internal wear and any signs of mechanical distress. Overall, the precipitator cleaning appeared to be thorough with all wires and weights in place, and all plates in fairly good condition. No repairs were required inside the precipitator box. PHOTO #46 below, shows a typical section of the precipitator after being cleaned.

PHOTO #46
Sandblasted plates and wires inside one of the precipitator cells.


SECTIONAL SIDE ELEVATION
TOP OF ROLR
PLATF EL 1998'-0"
PLATF EL 1976'-3"
PLATF EL 1967'-3"
PLATF EL 1958'-3"
PLATF EL 1949'-0"
PLATF EL 1940'-0"
PLATF EL 1935'-0"
FURNACE PROBE (FS)
EL 1970'-0"
UNITS A-4, A-5 & A-8
UNITS B-4, B-7 & B-8
UNITS C-6, C-7 & C-8
UNITS D-6, D-7 & D-8
BUCK STAY EL 1932'-0"
BUCK STAY EL 1919'-6"
BUCK STAY EL 1910'-0"
BUCK STAY EL 1898'-0"
EL 1886'-6"
EL 1905'-4"
FURNACE
17'-6"
27'-0"
32'-0"
KEY:
T-30 MK-IE RETRACTABLE
T-30 MK-IE COMB RETRACT & WALLBLOWER
T-30 MK-IE HALF-TRACT
F.P. (S-24) FURNACE PROBE
RW-SE WALLBLOWER
BOILER DATA
MFGR & TYPE BOILER C.E. RADIANT REHEAT
DESIGN PRESSURE 2225 P.S.I.G.
OPER. PRESSURE 1930 PSIG @ 1005° F.
FUEL COAL
SOOT BLOWER INFORMATION
CAST STEEL MODEL D 2½" 600#
STD HEAD
SOOT BLOWER START-UP PRESSURE
51-721
COPES-VULCAN, INC.
CITY OF GRAND ISLAND
POWER GENERATING STATION
UNIT NO. 1
C.E. INC. CONT# 19477
C.E. INC. P.O.# 870500
RIGHT SIDE ELEVATION
SOOT BLOWER ARRANGEMENT
1830-86081
SLEEVE VIEWS
AUG 25 1983

13477-4C-1292 REVISIONS



MATERIAL SPECIFICATIONS PER SI-17-64 INDEX SI-14.2:
SA-192 = CARBON STEEL SPEC. SA-192.
SA-210 = CARBON STEEL SPEC. SA-210.
T-1 = CARBON MOLY SPEC. SA-209 GR. T-1.
T-11 = 1.25% Cr. - .5% Mo. SPEC. SA-213 GR. T-11.
~~T-22 = 2.25% Cr. - 1.0% Mo. SPEC. SA-213 GR. T-22.~~
~~T-9 = 9.0% Cr. - 1.0% Mo. SPEC. SA-213 GR. T-9.~~
~~304H = 18.0% Cr. - 8.0% Ni. SPEC. SA-213 GR. TP-304H.~~
~~347H = 18.0% Cr. - 8.0% Ni. - Cb SPEC. SA-213 GR. TP-347H.~~

MATL IT # 245
247
255
257

MATL TO BE WELDED	CE WELD PROCEDURE
SA-192 TO SA-192	SMA 1.1V-300
SA-192 TO SA-210 A-1	SMA 1.1V-300
SA-210 A-1 TO SA-210 A-1	SMA 1.1V-300
SA-210 A-1 TO T-1	SMA 1.3V-300
T-1 TO T-1	SMA 3.3 V-300
T-1 TO T-11	SMA 3.4V-300
T-11 TO T-11	SMA 4.4V-300

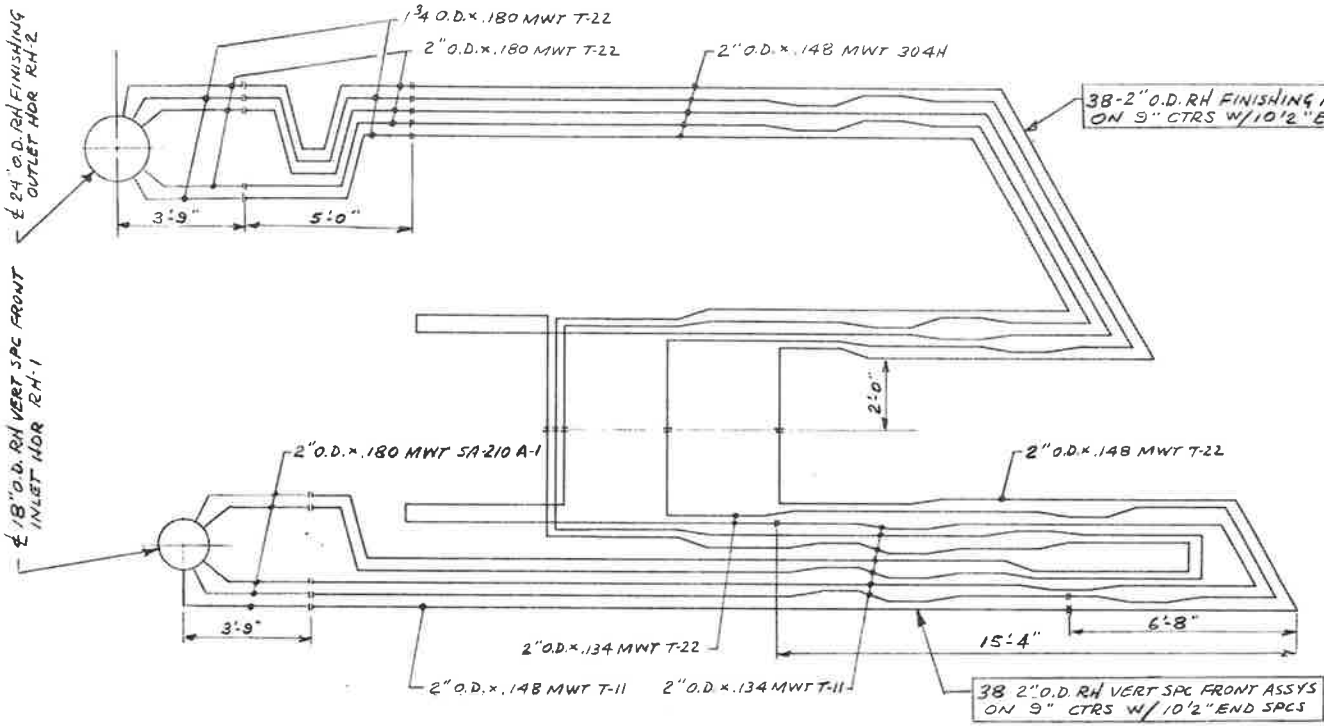
-+- CHANGE POINT OF O.D., MAT'L., THICKNESS OR FIELD WELD. ALL DIMENSIONS LOCATING THESE POINTS ARE APPROXIMATE. WITH (SMA) OR (GTA-SMA) PROCEDURES, HALF THE ELECTRODE REQUIREMENTS SHOULD BE FURNISHED IN 3/32" DIA., THE REST IN 1/8" DIA. SPECIFY THE AWS-ASME CLASS WITH SUFFIX DENOTING CHEMICAL ANALYSIS AND CARBON LIMITATIONS.

UNIT MATERIAL DIAGRAM
CITY OF GRAND ISLAND
PLATTE GENERATING STATION - UNIT #1
GRAND ISLAND, NEBRASKA

POWER SYSTEMS
COMBUSTION ENGINEERING, INC.

SCALE .
DRWN BY . R B EAGLE DATE . 6-18-79
CHECKED BY . R L W DATE . 6-18-79
APPROVED BY . DATE .
CONT. CODE .
DRAWING NO. 13477-4C-1292 REV. 0

13477-4C-1291 REVISION



MAT'L TO BE WELDED			CE WELD PROCEDURE
SA-210	TO	SA-210	SMA 1.1V -300
SA-210	TO	T-11	SMA 1.4V - 300
T-11	TO	T-11	SMA 4.4V -300
T-11	TO	T-22	SMA 4.5V- 300
T-22	TO	T-22	SMA 5.5V- 300
T-11	TO	304H	SMA 4.8V - 300
T-22	TO	304H	SMA 5.8V - 300
304H	TO	304H	SMA 8.8V - 300

MATERIAL SPECIFICATIONS PER SI-17-64 INDEX SI-14.2:
~~SA-192 = CARBON STEEL SPEC. SA-192.~~
SA-210 = CARBON STEEL SPEC. SA-210. MAT'L IT #247
~~T-1 = CARBON MOLY SPEC. SA-209 GR T-1.~~
T-11 = 1.25% Cr. - .5% Mo. SPEC. SA-213 GR. T-11. #257
T-22 = 2.25% Cr. - 1% Mo. SPEC. SA-213 GR. T-22. #258
~~T-9 = 9% Cr - 1% Mo. SPEC. SA-213 GR. T-9.~~
304H = 18% Cr - 8% Ni. SPEC. SA-213 GR. TP-304H. #266
~~347H = 18% Cr - 8% Ni - Cb SPEC. SA-213 GR. TP-347H.~~

-⊕- CHANGE POINT OF O.D., MAT'L., THICKNESS OR FIELD WELD. ALL DIMENSIONS LOCATING THESE POINTS ARE APPROXIMATE. WITH (SMA) OR (CDA-SMA) PROCEDURES, HALF THE ELECTRODE REQUIREMENTS SHOULD BE FURNISHED IN 3/32" DIA., THE REST IN 1/8" DIA. SPECIFY THE AWS-ASME CLASS WITH SUFFIX DENOTING CHEMICAL ANALYSIS AND CARBON LIMITATIONS.

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PLATTE GENERATING STATION- UNIT #1
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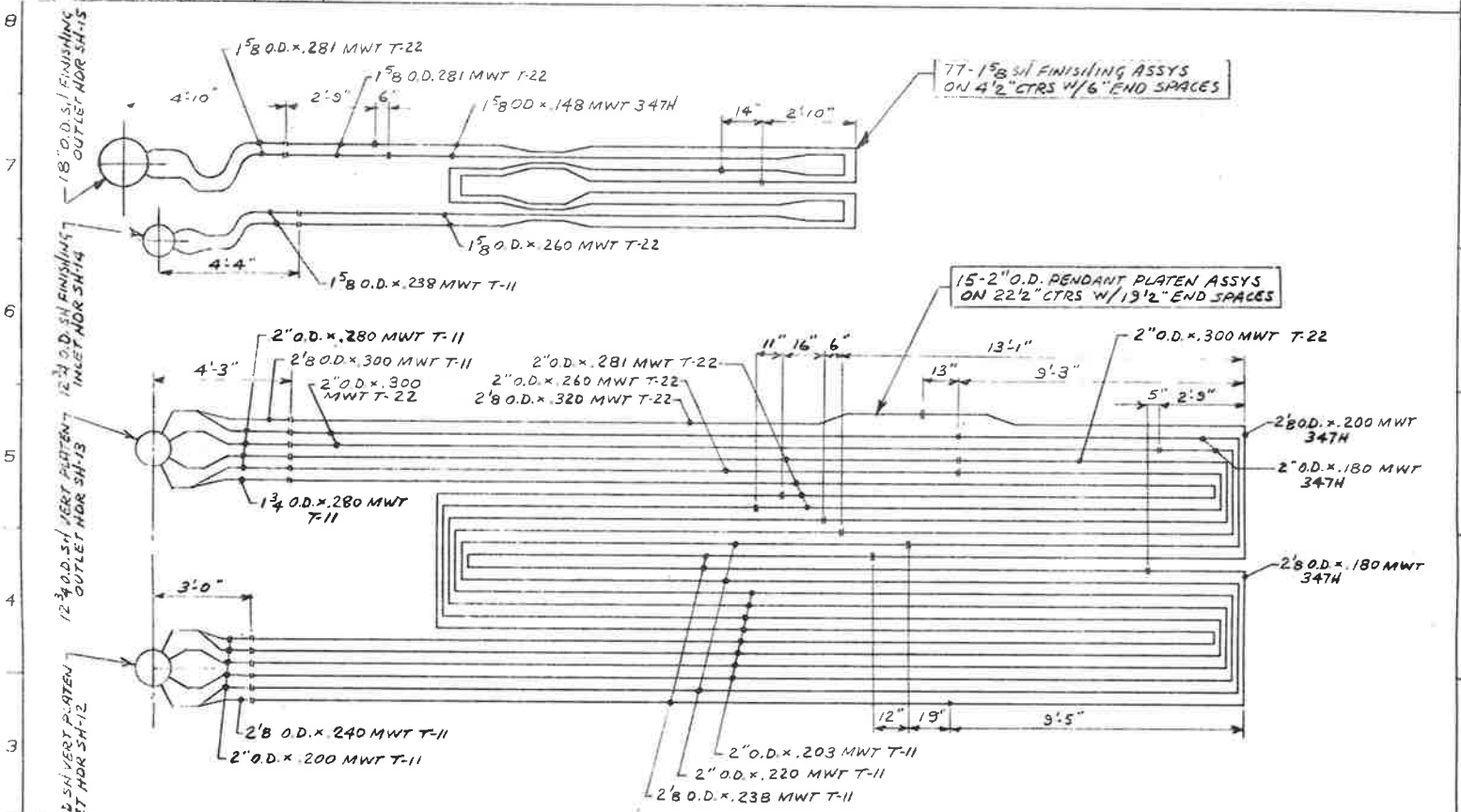
POWER SYSTEMS
COMBUSTION ENGINEERING, INC.

SCALE:
DRAWN BY: R B EAGLE DATED: 6-18-79
CHECKED BY: RLW DATED: 6-19-79
APPROVED DATED
COMPONENT CODE:
DRAWING NO. 13477-4C-1291 REV. 00

13477-4C-1290 REVISIONS



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~~SA-210 = CARBON STEEL SPEC. SA-210.~~
~~T-1 = CARBON-MOLY SPEC. SA-209 GR. T-1.~~
T-11 = 1.25 % Cr. - .5 % Mo. SPEC. SA-213 GR. T-11. MATL IT # 257 # 258
T-22 = 2.25 % Cr. - 1. % Mo. SPEC. SA-213 GR. T-22.
~~T-9 = 9. % Cr. - 1. % Mo. SPEC. SA-213 GR. T-9.~~
~~304H = 18. % Cr. - 8. % Ni. SPEC. SA-213 GR. TP-304H.~~
347H = 18. % Cr. - 8. % Ni. - Cb SPEC. SA-213 GR. TP-347H. # 268

MATL. TO BE WELDED			C.E. WELD PROCEDURE
T-11	TO	T-11	SMA 4.4V-300
T-11	TO	T-22	SMA 4.5V-300
T-22	TO	T-22	SMA 5.5V-300
T-11	TO	347H	SMA 4.8V-300
T-22	TO	347H	SMA 5.8V-300
347H	TO	347H	SMA 8.8V-301

+ CHANGE POINT OF O.D., MAT'L., THICKNESS OR FIELD WELD. ALL DIMENSIONS LOCATING THESE POINTS ARE APPROXIMATE. WITH (SMA) OR (GTA-SMA) PROCEDURES, HALF THE ELECTRODE REQUIREMENTS SHOULD BE FURNISHED IN 3/32" DIA., THE REST IN 1/8" DIA. SPECIFY THE AWS-ASME CLASS WITH SUFFIX DENOTING CHEMICAL ANALYSIS AND CARBON LIMITATIONS.

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CITY OF GRAND ISLAND
PLATTE GENERATING STATION - UNIT # 1
GRAND ISLAND, NEBRASKA

POWER SYSTEMS
COMBUSTION ENGINEERING, INC.

SCALE .
DRAWN BY R.B. EAGLE DATE 6-18-79
CHECKED BY R.L.W DATE 6-19-79
APPROVED BY DATE
CONTR. CODE
DRAWING NO. 13477-4C-1290 REV. 0.#