June 2, 2025

CONTRACT NO. 1823

REPAIRS TO NO. 1 ECONOMIZER AND EVAPORATOR

ADDENDUM NO. 1

All bidders bidding **Contract No. 1823** shall read and take note of this **Addendum No. 1.** The Contract Documents for **Contract No. 1823 Repairs to No. 1 Economizer and Evaporator** are hereby revised and/or clarified as stated below.

Acknowledgement of Contract No. 1823 Addendum No. 1
The Acknowledgement attached to **Addendum No. 1** is to be signed and returned immediately via **email** to **Colin Keller** at Contract.clerks@alcosan.org **and** acknowledged with Bidder's Proposal.

Kimberly Kennedy

Kimberly Kennedy, P.E.
Director – Engineering and Construction

ACKNOWLEDGEMENT OF

CONTRACT NO. 1823

REPAIRS TO NO. 1 ECONOMIZER AND EVAPORATOR

ADDENDUM NUMBER 1

FIRM NAME: _____

SIGNATURE: _____

TITLE: _____

DATE: _____

JUNE 2, 2025

CONTRACT NO. 1823

REPAIRS TO NO. 1 ECONOMIZER AND EVAPORATOR

ADDENDUM NO. 1

6-2-25

JUNE 2, 2025

CONTRACT NO. 1823
REPAIRS TO NO. 1 ECONOMIZER AND EVAPORATOR

ADDENDUM NO. 1

A. Contract Documents

1. Table of Contents:
   a) Near the top of the first page of the table of contents, remove the words "VOLUME 1."
   b) On the second page of the table of content, change the name of section 15510 from "Economizer Tube Bundles" to "Evaporator and Economizer Tube Bundles."

2. Article 1:
   a) On page 1-3, item D: Replace the existing description with the following: "Provide the field services of a qualified NDT company's technician to perform ultrasonic thickness readings for one (1) eight-hour day on site, as described in the contract documents."
3. Article 4:
   a) On page 4-2, item D: Replace the existing description with the following: "Provide the field services of a qualified NDT company's technician to perform ultrasonic thickness readings for one (1) eight-hour day on site, as described in the contract documents."

4. Article 6:
   a) Table of Contents: Change the name of section 15510 from "Economizer Tube Bundles" to "Evaporator and Economizer Tube Bundles."

   b) Summary of Work (Section 01010): Replace the existing Section 01010 with the attached version.

   c) Construction Sequencing (Section 01050). Page 01050-6, paragraph 3.3.A.1: At the end of this paragraph, add the following:
   "The contractor shall focus on repairing train No. 2 first (since train No.1 is expected to be in operation). Once Train No. 2 is complete & ready for operation, the contractor may commence work on train No. 1."

d) Construction Sequencing (Section 01050). Page 01050-7, paragraph 3.3.B.2: Replace this sentence with the following:

> Except as noted elsewhere in the contract documents, the exact construction sequence shall be determined by the contractor, as part of their means & methods.

e) Painting (Section 09900). Page 09900-16, paragraph 3.9.A: Prior to the sentence that begins "Coat the other surface of the new overlay plate…" add the following sentence: "[Also, ensure that the paint on the existing steel casing is ground away from location of the welds that will affix the new overlay to it.]"

f) Evaporator and Economizer Tube Bundles (Section 15510): Replace the existing section with the attached version.

g) Appendix: Add the attached evaporator Form U-1, as reference infirmation.

B. Contract and Reference Drawings

1. Add the following attached reference drawings:

SHEET NUMBER	REFERENCE DRAWINGS	DRAWING NO.
11	2nd EVAPORATOR UNIT # 1 ARRANGEMENT DRAWING	103-916 E-3
12	2nd EVAPORATOR FRONT & REAR PANEL DETAILS	125-916 E-2
13	2nd EVAPORATOR REMOVEABLE END DOOR DETAILS FOR UNITS 1 & 2	126-916 E-2
14	SECOND EVAPORATOR UNIT #1 BUNDLE DETAIL DRAWING	105-916 E-4

C. Questions

1. Can the ash that is cleaned from the evaporator/economizer surfaces be disposed of on site, or does it need to be hauled off site?

   Response: ALCOSAN will allow the ash to be deposited in its ash pits (on site).

2. Are all existing (ALCOSAN - installed) overlays to be removed?

   Response: Yes, all ALCOSAN - installed overlays shall be removed by the contractor. These overlays will not be re-used. The Owner wishes to retain them for future use. The contractor shall furnish and install new overlays over any defects that were previously covered by the owner-installed overlays. See contract documents for more details.

Attachments:

- Pre-bid meeting minutes
- Sign-in sheets
- Summary of Work, Section 01010
- Evaporator and Economizer Tube Bundles, Section 15510
- Evaporator Form U-1
- Reference drawings: Sheets 11, 12, 13 and 14 of 14

*** * * * END OF ADDENDUM NO. 1* * * ***

CONTRACT 1823
Repairs to No. #1 Economizer and Evaporator
PRE-BID MEETING MINUTES

Thursday, May 29, 2025 @ 10:00 AM

ALCOSAN Conference Room 106

Jeffrey Mazza – ALCOSAN Project Engineer

*** The pre-bid meeting was essentially a recitation of the pre-bid meeting agenda. Therefore, any questions raised, or issues stressed during the meeting will simply be noted below, in red font.**

1. Introduction
   a. All attendees shall sign the pre-bid meeting attendance roster.
   b. Opening comments from ALCOSAN Project Manager.
   c. Encourage a target goal of WBE/MBE participation. (10% to 25% of contract value).

   Ray Stasny was introduced as ALCOSAN's Construction Manager (CM) for this contract.

2. Legal Notice
   a. All bids to be submitted to Alcosan Engineering Department clerks on or before bid opening date and time. If the bid package is sent to ALCOSAN by land courier (UPS, FedEx, etc.), allow sufficient time for delivery to the clerks. ***Envelope must be plainly marked "Sealed bid enclosed for Contract 1823."***
   b. Bid opening on **Friday, June 13, 2025** at **11:00 A.M** .
   c. Anticipation of award at the June 26 ALCOSAN Board meeting. Notice to proceed expected in early July 2025.
   d. All questions about contract documents shall be submitted **in writing** to Jeffrey Mazza via email at **jeffrey.mazza@alcosan.org**. Any questions by phone are considered informal and without legal or binding effect on the contract or to the Owner. Last day for questions is **Friday, June 6, 2025** by **5:00 p.m.** local (Pittsburgh) time.
   e. Pre-bid meeting is not mandatory for bidders.

   Regarding item 2.a, the Engineering Department clerks are located on the second floor of the O&M building (the same building in which this pre-bid meeting was held).

3. Bidding Documents [Article One]
   a. Bid Form: Complete as required. Specifically, on pages 1-2, 1-3 and 1-4, fill in the lump sum price, the unit price work and the total base bid. All bids submitted with all bid forms complete

and signed by authorized representative of the Company. Bid Security - Certified check or Bid Bond in the amount of ten percent (10%) of bid price shall accompany the bid.

b. Certificate of MBE/WBE Participation, plus statements. (page 1-15)
c. Non-collusion Affidavit (page 1-16)
d. Certificate of Compliance with the Pennsylvania Steel Products Procurement Act (page 1-18)
e. Contractor's Qualification Statements (page 1-20)
f. Certificate of Safety Procedures Compliance (page 1-22)

Although not asked during this meeting, this question was commonly in recent years: "Does the entire contract document need to be returned as part of the bid?" The response is "While that used to be the norm, all that is necessary is to return Article 1 in its entirety, completely filled out. Include any bid security, power of attorney sheets, qualifications, statements, MBE/WBE participation paperwork, and any other information/documents requested in the bid documents."

4. Information for Bidders [Article 2]

a. Submission and Opening of Bids (page 2-2)
b. Questions regarding contract documents (page 2-9) [Deadline for questions as listed above.]
c. Acknowledgement of Addenda (page 2-12)
d. Pennsylvania State Sales Tax Exemption (page 2-12)
e. Bid Security (page 2-13)
f. Qualifications and Experience of Bidders (page 2-15)
g. MBE & WBE Participation (page 2-16)
h. Project Labor Agreement, Letter of Assent (page 2-20)

NOTE: Signed letter of assent shall be furnished WITH the bid !

5. General Contract Conditions [Article Three]

a. These are the details/particulars of the contract.

6. Contract Agreement [Article Four]

a. Construction Milestones:

Construction Milestone	Contract Time (Calendar Days)
Substantial Completion	**185**
Final Completion	**202**

b. Liquidated Damages:

Construction Milestone	Liquidated Damages
Substantial Completion	**$1,000/Calendar day**
Final Completion	**$100.00/Calendar day**

7. Bonds, Certificates and Statements [Article Five]
   a. Performance Bond (100% of the total contract value)
   b. Labor and Material Payment Bond (100% of total contract value)
   c. Maintenance Bond (100% of total contract value)

8. Brief summary of work [more detail in Article 6] (In no particular order)

   a. Perform a complete re-tube of the train # 1 economizer.

   b. Remove & replace refractory-lined flue gas duct & expansion joint (between the train # 2 afterburner and the evaporator).

   c. Remove & replace the cladding/insulation on the outlet transition of each economizer.

   d. Remove all Owner-installed steel plate overlays. (Set them aside for Owner's future use).

   e. Provide ultrasonic thickness measurements to existing casing steel plate.

   f. Inspect the interior of the ductwork between the afterburners and the evaporators.

   g. Apply new steel overlays and coating systems.

   h. Vacuum & clean ash/dirt from surfaces.

   i. Provide for the inspection, testing & certification of the work.

   j. Any/all other tasks stated in the contract documents or required for a complete & operational system.

   k. Re-tube of the second evaporator, train No. 1. *(To be added by Addendum)*

9. Open Discussion, site visit, and wrap-up of Pre-bid Meeting

Question: "Can the ash that is cleaned from the evaporator/economizer surfaces be disposed of on site, or does it need to be hauled off site?"

Answer: ALCOSAN will allow the ash to be deposited in its ash pits (on site).

Question: "Are all existing (ALCOSAN - installed) overlays to be removed?"

Answer: Yes, all ALCOSAN - installed overlays shall be removed by the contractor. These overlays will not be re-used. The Owner wishes to retain them for future use. The contractor shall furnish and install new overlays over any defects that were previously covered by the owner-installed overlays. See contract documents for more details.

Attachments:

- Attendance sheet from the pre-bid meeting.

♦ ♦ ♦ ♦ ♦ END OF MINUTES ♦ ♦ ♦ ♦ ♦

ALLEGHENY COUNTY SANITARY AUTHORITY

PRE-BID MEETING ATTENDANCE

PROJECT: REPAIRS TO NO. 1 ECONOMIZER AND EVAPORATOR	CONTRACT NO. 1823
DATE: Thursday, May 29, 2025	TIME: 10:00 A. M.

ATTENDEES — **PLEASE PRINT CLEARLY**

	NAME	AFFILIATION	PHONE	E-MAIL
1	Jeff Mazza	ALCOSAN	( )	jeffrey.mazza@alcosan.org
2	COLLIN KELLER	ALCOSAN	( )	COLLIN.KELLER@ALCOSAN.ORG
3	MAC McAleavey	SSM Ind	(412)777-5100	estimating@ssmi.biz
4	Chuck Strum	Enerfab	(330)518-4169	chuck.strum@enerfab.com
5	Dom Manfredo	Enerfab	(412)401-9033	dom.manfredo@enerfab.com
6	RON MAIORINO	ENERFAB	(412)901-5808	RON.MAIORINO@ENERFAB.COM
7	GREG GREINER	SIMAKAS	(724)816-7044	GREG.GREINER@SIMAKAS.COM
8	Patrick O'Keefe	Simakas	(412) 716-1173	pat.okeefe@simakas.com
9	Matthew Schmitt	Simakas	(724) 625-3900	Matthew.Schmitt@simakas.com
10	Ryan Beatty	Frank Lilland Son	(724) 681-5542	RBeatty@FrankLillandSon.com
11	Robert Lindh	SSM Ind	(412) 354 0026	blindh@ssmi.biz
12	Jeff Argyros	ALCOSAN	( )	jeff.argyros@alcosan.org
13	RAY COSGREY	ALCOSAN	( )	RAYMOND.STEELY@ALCOSAN.ORG

ALLEGHENY COUNTY SANITARY AUTHORITY

14			( )	

ATTENDEES

	NAME	AFFILIATION	PHONE	EMAIL
15	Joe Rodichok	Munroe Inc.	(724) 600 [illegible]	rodichok@munroeinc.com
16	[illegible] Schiavi	Munroe Inc.	(412) 351-[illegible]89	schiavi@munroeinc.com
17	Matt Kelly	R&B Mechanical	(412) 445-3199	MKelly@randbmechanical.com
18			( )	
19			( )	
20			( )	
21			( )	
22			( )	
23			( )	
24			( )	
25			( )	
26			( )	
27			( )	
28			( )	
29			( )	

PART 1 GENERAL

1.1 GENERAL

A. The work included in this Contract No. 1823 is to provide the Allegheny County Sanitary Authority (ALCOSAN) with repairs to its No. 1 economizer and evaporator. Additionally, some repairs to the No. 2 economizer and evaporator will also be required, as described in the contract documents. In addition to this individual Contract, there will be construction activities for other Contracts included in the overall program underway at the plant site during part or all of the construction period for this Contract.

B. This Contract 1823 will be constructed by one (1) Prime Contractor to meet the requirements of the Contract Documents. The following organizations may be present at the Job Site and have responsibilities described generally in Article 3, General Contract Conditions:

1. Construction Manager (CM)
2. Engineer
3. Prime Contractor(s)
4. Owner (ALCOSAN)

C. The Owner is identified as the responsible entity for certain actions in the sections of Divisions 1 through 15. The Owner may elect to delegate certain of these respective duties and responsibilities to the aforementioned organizations.

D. All contact between the Contractor and remaining aforementioned parties shall be through the Construction Manager

E. The owner has two (2) incinerator trains (No. 1 and No. 2), each with its own evaporator, economizer and other related equipment. Throughout the duration of the contract, one incineration train must be in operation at all times. For myriad reasons, it is not always quick or feasible to switch from one train to another. The contractor is expected to plan the work around the Owner's operating schedule. The contractor shall focus on repairing train No. 2 first (since train No.1 is expected to be in operation). Thus, the first task shall be the internal inspection of train No. 2 flue gas duct, measurements of same, and the submission of shop drawings. This duct section that needs to be replaced is the longest lead item for train No. 2 repairs, so it needs to get started as soon as possible. However, the tubes needed for train No. 1 evaporator and economizer have long lead times too, so shop drawings should also be prepared as soon as possible.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. Work Included in Contract

1. The following are general descriptions of the work to be done under the Contract unless noted otherwise and are in no way meant to limit or restrict the Work that is required. Refer to the Drawings and the remainder of the Specifications for additional detail on the scope of the Work. The completed work will provide the Owner with repaired & completely functional economizers and evaporators, etc.
2. The broad/general intent of this contract is to:
   - Replace the tube elements in the No.1 economizer and the No. 1 second evaporator.
   - Provide NDT thickness measurement to the evaporator inlet ductwork (from each afterburner), inlet transitions to evaporators, outlet transitions of the economizers, and other surfaces. **(Item D)**
   - Remove & replace insulation/cladding and visually inspect the steel shell on the outlet (tapered transition) of each economizer.
   - Remove existing owner-installed overlays. (Contractor to ascertain quantity prior to bid.)
   - Reinforce compromised portions of the economizers and evaporators (and their transitions) with an overlay of welded steel plate. **(Assume 500 square feet.)**
   - Replace a section of the ductwork (shell, insulation/refractory, expansion joint, etc.) that conveys hot flue gas from the afterburner into the No. 2 evaporator.

3. The following general scope of work, specification sections, and contract drawings apply to Contract 1823.

   a. General Scope of Work: {Note that these scope items may not be listed in a logical construction sequence.}
      1) Prepare and maintain Contractor's staging areas.
      2) Pre-Construction inspection of the work area (internal and external to economizers and evaporators) for access points, rigging concerns, any possible loose refractory, etc. Bring any pertinent observations/comments to the attention of the owner.
      3) Remove (and later reinstall) any and all flanges, piping, hatches, connections, supports, fixtures, structural steel, conduits, wiring, instrumentation, stairs, grating, railing, expansion joints, jacketing, cladding, insulation, equipment, tanks, appurtenances, curbs, toe-rails, etc.as required to effectively view, inspect, access and complete any/all aspects of the work. Reinstall these items at the end of the job, with proper new fasteners, hardware, connectors, gaskets, etc. (identical to the originals). (This also includes any and all gasketed connections, hatches, panels opened by the owner in preparation for this work.) Touch up any existing coatings on these various items/locations, etc. that were damaged during the execution of this work. Note that the

existing insulation & cladding/jacketing materials covering the outlet transitions of each economizer are to be replaced with new products.

4) Provide/install temporary replacements of any such items (such as handrails, grating, etc.) required for the safety of the contractor or the owner's personnel. Owner & inspector access to the work area/s shall be provided and maintained by the contractor for the duration of the contract.
5) Remove and replace (with new) the insulation, jacketing/cladding (and any ancillary systems/supports/fasteners, etc.) on the tapered transition on top of the No. 1 and No. 2 economizers.
6) Provide for any/all inspections, testing, certifications, etc. required by code or called out in the contract documents. Transmit all reports/findings to the owner within one week of the testing/inspection.
7) Provide the services of a qualified testing company to perform NDT (ultrasonic) thickness measurement to **all** surfaces/areas mentioned in the contract documents as needing/potentially needing repairs (see reference drawing sheet 2). Test locations shall, at a minimum, be located on staggered 12" centers. Submit a written record of the thickness readings, and a dimensioned/scale sketch accurately showing the test locations. **(Item D)**
8) Inspect the interior of the duct that connects the afterburners with their respective evaporators. Check refractory and any exposed surfaces for excessive cracking, missing sections, exposed anchors, holes, wear, or any other signs of defects. Provide a written summary of the findings to the owner.
9) Except as noted/stipulated elsewhere in the contract documents, the contractor may commence the overlay scope of work (for the train that is offline at that time) as soon as practical, once the NDT for that portion has been complete & evaluated. No internal work (tube demo/replacement or duct replacement) shall start until tubes are fabricated (or the new duct is fabricated). [This is to allow the owner to resume the use of the said incinerator train if the other operating train was to suddenly be rendered inoperable.] Once the tube elements have been fabricated, the contractor shall open the No. 1 economizer & second evaporator and perform the work.
10) Demo & remove the existing No. 1 economizer tube elements. Except as noted, all replaced items shall be fabricated in full accordance with the specifications and the reference drawings. Note: Tube supports shall be "handcuff" style flatbar, as shown on the reference drawings. Completed tube elements/header assemblies shall be hydrotested to NO LESS than 450 psig.
11) Demo & remove the existing No. 1 second evaporator tube elements. Except as noted, all replaced items shall be fabricated in full accordance with the specifications and the reference drawings. Note: Tube supports shall be as shown on the reference drawings. Completed tube

elements/header assemblies shall be hydrotested to NO LESS than 450 psig.

12) Remove and replace in kind (including refractory, insulating blocks, anchors, and coatings) the horizontal duct (min. length 2' – 6", including the flanged inlet to which one end of the expansion joint is affixed) and expansion joint that connects the No. 2 afterburner with the No. 2 evaporator (see limits generally delineated in the drawings). Provide the services of a qualified refractory dry-out contractor to properly cure/dry the new refractory.

13) Remove all existing overlays. [The owner wishes to retain the existing overlays. Contractor shall arrange a storage location within the building (with the owner), and contractor shall place them at that location.] If an existing overlay is adjacent to and welded to a reinforcing angle, ensure that the existing weld bead joining the two is completely removed. New overlays are to be installed over defective/compromised areas of the existing steel casing/shell that were previously covered by existing overlays. Additionally, all other areas of the existing steel casing/shell within the delineated work area that are found to be defective/compromised shall be covered by new steel overlays, as described herein. All new steel overlays shall have properly beveled edges and shall be fully coated as described elsewhere in these documents. ***(See painting spec for more details)*** The overlays shall be welded all around their perimeter with full penetration seal welds that securely affix the overlay to the existing steel surface. Grind off any existing paint/ loose scale, weld bead/spatter, dirt, ash, etc. prior to welding. Wire brush all new weld bead. Touch up all exterior coatings damaged by the welding/grinding procedures.

14) All new overlay plates shall be at least 12" square (unless the specific geometry of a given location prevents this goal). Lesser plates may be installed with Owner approval. **For base bid purposes, assume 500 square feet of overlay plate.**

15) Overlay plates shall have tie-back holes drilled into them on 18" centers (minimum). Overlay plates less than/equal to 18" by 18" shall have at least one tie-back hole. (Larger plates shall have more than one hole.) Once installed, tie-back holes are to be plug-welded flush with the surface of the new overlay plate (to better secure the overlay to the existing plate).

16) Fully accommodate any existing instrumentation/probes and penetrations by cutting clearance holes in the new overlay. Seal-weld all around the cut area, as described elsewhere.

17) Reception, unloading, storage, and transportation to the project site of any equipment or items under this Contract.

18) Installation of all lighting, ventilation, air quality monitors, and any/all aspects of PPE, means of access, equipment/materials required for confined space work, etc.

19) Supply, install, and remove all necessary scaffolding, flooring, rigging, shoring, jacks, bracing, tie-offs, supports, etc.
20) It is noted that the owner has an annual boiler outage [to occur tentatively in August, 2025, with a maximum duration of six (6) calendar days]. During this period, both incineration trains will be out of service. This would be an opportunity for the contractor to internally inspect the ductwork and any other area readily accessible internal areas of the train that was previously in service.
21 Prior to the bid, the bidder/contractor shall visit the site and familiarize themselves completely with the dimensions, access, height, route, access limitations, existing overlays, instrumentation penetrations, and any/all potential hinderances to the work.
22) Repair or replace any existing refractory showing signs of damage or excessive cracking, (as directed by the engineer). **(Item B)**
23) Repair or replace any refractory or refracting component damaged or otherwise affected by this work (as directed by the engineer).
24) Patch, prep, prime, paint, coat, repair any existing structures, equipment, surfaces, or site conditions damaged or otherwise affected by this work, as required by the owner, following the demolition or installation under this contract.
25) Prep, prime and paint/coat **all** surfaces of all new carbon steel components installed during this job. It is noted that aluminum jacketing does not require painting.
26 If required by the Owner, prep, prime and topcoat all remaining existing steel surfaces within the areas designated for inspection/work in the reference drawings (up to the quantity/area listed in the unit price work chart). **(Item E)**
27) If required by the Owner, completely vacuum, rinse & clean any/all remaining areas/surfaces not already cleaned due to performance of work under this contract. This would include all surfaces within the areas designated for inspection/work in the reference drawings – such as any and all surfaces of train No. 1 and No. 2 duct (from afterburners), evaporators, economizers, transitions, etc. Loose ash shall be vacuumed and surfaces thoroughly washed. Regardless of when this cleaning is performed, the areas shall be clean as of the date of substantial completion. **(Item G)**
28) All field painting and identifying device work as required by the Contract Documents.
29) All shop prime coats and factory finishes compatible with Section 09900. All manufacturer's written procedures for surface preparation and coating system application shall be explicitly followed.
30) All welding shall conform to the notes, symbols, and recommendations of the respective manufacturers {Outotec (USA) Inc, formerly known as Energy Products of Idaho, Cannon Boiler, et al}and the Owner. (Refer to the documents for more information.)

31) All materials, installation, alignments, tolerances, welding, etc. shall conform to the notes, symbols, and recommendations of the manufacturer {Outotec (USA) Inc., formerly known as Energy Products of Idaho, Cannon Boiler, et al} and the Owner. (Refer to the contract documents/drawings for more information.)
32) Apply specified anti-seize product to all bolts and tighten with the proper torque value. Note that required bolt torques are lessened when the bolt threads are thusly lubricated.
33) Clean-up & proper disposal of any/all construction/demolition debris, materials, extra materials, etc.
34) Remove any temporary work/structures/supports, scaffolds, falsework, etc.
35) Submission of all close-out documents, including detailed as-builts.
36) Other work as described in more detail later in this section or elsewhere in the contract documents.
37 The contractor shall be solely responsible for providing any necessary engineering that may be required (in any way) to perform/execute the scope of work under this contract.
38) With the exception of limitations caused by the owner's schedule and/or use of a particular incineration train, and the Owner's need to constantly operate an incineration/waste heat boiler system, the order of these and any other work tasks shall be up to the contractor. The current intent is to get train No. 2 work completed as soon as possible and then proceed to work on train No. 1. Once Train No. 2 is complete & ready for operation, the contractor may commence work on train No. 1

b. Specification Sections as follows are included in this Contract:
   1) Contract 1823, Contract Documents
      (a) Article 1 – Bidding Documents
      (b) Article 2 – Information for Bidders
      (c) Article 3 – General Contract Conditions
      (d) Article 4 – Contract Agreement
      (e) Article 5 – Bonds, Certificates and Statements
      (f) Article 6 - Technical Specifications
         - Division 1 – General Requirements
         - Division 2 – Site Work
         - Division 3 - Concrete
         - Division 5 – Metals
         - Division 9 – Finishes
         - Division 15 – Mechanical

c. The following Contract Drawings depict the majority of the work to be performed by this Contract 1823.

CONTRACT 1823		
SHEET NUMBER	**DRAWING TITLE**	**DRAWINGS NO.**
01	SITE UTILIZATION PLAN	1823-SU-01

SHEET NUMBER	REFERENCE DRAWINGS	DRAWING NO.
2	INCINERATOR BUILDING – WASTE HEAT RECOVERY SYSTEM SECTIONS	916 P, sheet 22
3	ENLARGED PARTIAL SECTION AND SECTIONS	916 E, sheet 11
4	GENERAL ARRANGEMENT DRAWING OF WASTE HEAT BOILER HEAT EXCHANGERS	101-916 E
5	OFF GAS DUCTING AFTERBURNER TO EVAPORATOR	198-916
6	OFF GAS DUCTING AFTERBURNER TO EVAPORATOR - DETAILS	199-916
7	ECONOMIZER FRONT & REAR PANEL DETAILS FOR UNITS 1 & 2	138-916 E
8	ECONOMIZER UNIT # 1 ARRANGEMENT DWG.	119-916 E-3
9	ECONOMIZER UNIT # 1 BUNDLE DETAIL DWG.	120-916 E-5
10	ECONOMIZER TUBE SUPPORT DETAIL	179-916 E
11	2nd EVAPORATOR UNIT # 1 ARRANGEMENT DRAWING	103-916 E-3
12	2nd EVAPORATOR FRONT & REAR PANEL DETAILS	125-916 E-2
13	2nd EVAPORATOR REMOVEABLE END DOOR DETAILS FOR UNITS 1 & 2	126-916 E-2
14	SECOND EVAPORATOR UNIT #1 BUNDLE DETAIL DRAWING	105-916 E-4

d. The Contractor is responsible for coordinating his work with the work of all other Contractors/Entities and the Owner.

4. Terminology clarification:
   If there is any uncertainty about the terminology used in the contract documents or reference materials, the contractor shall seek clarification during the bidding process.

5. Scope of work clarification:
   If there is any uncertainty about the scope of work, base bid, unit prices, etc., presented in the contract documents or reference materials, the contractor shall seek clarification during the bidding process.

1.3 ALTERNATIVES

A. Alternates, if specified, can be found listed on the Bid Forms for each Prime Contractor

1.4 REPORTS AND STUDIES

A. In preparation of the Contract Documents, Engineering has utilized the following, which are available for review:

1. Reference documents such as the following can be reviewed at the ALCOSAN Engineering Building during regular business hours. Contact Mr. James Morvay in advance if these drawings need to be referenced.
   a. Construction Drawings, Contracts 34, 35, 36, 40, 41, Allegheny County Sanitary Authority, Pittsburgh, Pennsylvania, Pittsburgh Sewage Treatment Plant, Metcalf & Eddy, Inc., Engineers, 1955.
   b. Construction Drawings, Contracts 301, 302, 303, 305, 306 through 310, Allegheny County Sanitary Authority, Pittsburgh, Pennsylvania, Waster-Water Treatment Plant, Metcalf & Eddy, Inc., Engineers, 1969.
   c. Construction Drawings, Contract 916 – Construction of Fluidized Bed Incinerator – Energy Products of Idaho (EPI)
   d. Contract 916 series – S.E. Technologies.
   e. Contracts 916E – Cannon Boiler
   e. Contracts 1381, 1420, 1664, 1669, 1697, 1720, and 1752.

1.5 CONFINED SPACES

A. All work involving confined space entry will be in accordance with 29 CFR 1910.146. The Owner has adopted a Permit Required Confined Space Entry Program for its employees in accordance with OSHA requirements found at 29 CFR 1910.146. This permit Required Confined Space Entry Program must be adopted by the Contractor if its employees will be working in confined spaces. No Contractor employee shall be permitted to enter a "Permit Required Confined Space" as defined in 29 CFR 1910.146 without having complied with all of the requirements of said regulations, including the sign off on the "ALCOSAN On-Site Confined Space Entry Permit" adopted by the Contractor. The Contractor shall have gas detection equipment which is capable of detecting combustibles, oxygen, hydrogen sulfide, and carbon monoxide.

B. The following EXISTING On-Site spaces have been identified as being a permit required confined spaces. Contractor is cautioned that there may be other work areas encountered and not listed herein that may be considered as a permit required confined spaces:

1. Multiple Hearth Incinerator.
2. 2- Fluidized Bed Incinerators.
3. 3- Lime Silos.
4. 1- New Lime Silo (Bldg. #404)
5. 3- Lime Day Bins (Bldg. #404)
6. 6- Sludge Product Storage Bins (Bldg. #404)
7. 3- Sludge Surge Bins (Bldg. #404)
8. 2- Potassium Permanganate Silos
9. 4- Polymer Tanks
10. 1- Defoamer Tank
11. 2- Firetube Boilers
12. 3- Caustic Scrubbers (includes all foul air ductwork).
13. 3- Venturi Incinerator Scrubbers.
14. 2- Impingement Incinerator Scrubbers.
15. 2- Sludge Blending Tanks (Old Lightning Mixing Tanks)
16. 2- Dewatering Feed Tanks (before cleaning)
17. 4-Grit Collecting Tanks (before cleaning)
18. All Manholes and Access Shafts.
19. 2- Ash Silos
20. 2- KMNO4 Transfer Tanks
21. 2- KMNO4 Feed Tanks
22. 4- Scum Concentrators (3rd floor, ERF)
23. 1- Scum Storage Tank (1st floor, ERF)
24. 2- Scum Collection Tanks (N-S walkway between sedimentation tanks)
25. Odor Control Facilities (402, 420, 720 & All Foul Air Handling Ductwork)
26. Lab Building Utility Tunnel
27. Maintenance Coffer Dam

28. 2 – Evaporators
29. 1- Diesel Fuel Tank (12,000 Gallons)
30. 1- Sand Silo
31. 8- Ash Hoppers
32. 2- Tray Towers (5 entries on each)
33. 7- Sludge Bins (To be eliminated)
34. 2- Economizers
35. 3- After Burners
36. 3- Steam Drums
37. 4- Rack Channels
38. 4- Return Sludge Wet Wells
39. 4- Return Sludge Sump Pits
40. 4- Secondary Air Intake Pipe to Compressors
41. 1- Entrance to Wet Well
42. 5- Sodium Hypochlorite Tanks (Temp.)
43. All Underground Steam and Electrical Pits/Vaults
44. 3- Main Pump Station Sump Pits (1- Sump Pit, 2- Drainage Pits)
45. 1- Deaerator
46. 1- Access to Grit Channels
47. 1- Neutralization Tank
48. 1- Sulfuric Acid Tank (Power Gen Bldg)
49. 1- Caustic Soda Tank (power Gen Bldg)
50. 3- Demineralization Tanks
51. 2- Bucket Elevators
52. All Covered Sedimentation Tanks before cleaning
53. Covered Aeration Tanks before cleaning
54. 1- Sump Pit, 402 Solids Handling Odor Control System
55. 1- Sump Pit, 420 Headworks Odor Control System
56. 3- Sludge Cake Storage Bins, Bldg. 405
57. Any/all metallic or FRP ductwork

C. No Contractor personnel shall enter any of these or any other areas indentified by ALCOSAN as a permit required confined spaces without first receiving written approval from the Owner.

D. The Contractor shall identify to the Construction Manager any new confined or enclosed space that is created as a result of the performance of the Contract Work. The Contractor shall comply with the requirements of the applicable permit-required confined space entry program whenever the potential exists that work in such spaces could be hazardous.

1.6 DESCRIPTION OF RESPONSIBILITIES

A. CONTRACTOR: As described in these Contract Documents and as follows:

1. Project Manager/Site Superintendent: On site at all times when Work in individual Contract is proceeding. The Owner reserves the right to approve the Contractors proposed Project Manager and Site Superintendent. If at any time during the execution of the Contract the Owner determines that the Contractors Project Manager and/or Site Superintendent are not executing the Work in conformance with the Contract Documents, the Owner may request in writing that they be replaced. Contractor Project Manager/Site Superintendent shall not be replaced by the Contractor without written notice to Construction Manager except under extraordinary circumstances. The Superintendent will be Contractor's representative at the site and shall have authority to act on behalf of Contractor. All communications to the Superintendent shall be binding upon the Contractor. If at any time during the Project the Superintendent leaves the Project site while Work is in progress, Construction Manager shall be notified and provided with the name of the Contractor's representative having responsible charge.
2. Quality Control Representative: Responsible for Contractor's quality control program while Work is in progress. Notify Construction Manager of any change in quality control assignment.
3. Safety and Protection:
   a. Initiate, maintain, and supervise all safety precautions and programs in connection with the Work. Take all necessary precautions for the safety of, and provide the necessary protection to prevent damage, injury, or loss to:
      1) All persons on the work site or who may be affected by the Work;
      2) All the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and
      3) Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and underground facilities not designated for removal, relocation, or replacement in the course of construction.
   b. Comply with all applicable Laws and Regulations of any public body having jurisdiction for safety of persons or property or to protect them from damage, injury, or loss.
   c. Before any work at the site is started, General Contractor shall submit a written Safety Plan for Project-specific safety precautions and programs and submit to the Construction Manager for record.
   d. Each Contractor shall revise Contractor's Safety Plan for safety precautions and programs at appropriate times to reflect changes in construction conditions, the Work, Contractor's means, methods, techniques, and sequences and procedures of construction. All revised Safety Plans will be submitted to the Construction Manager for record.
   e. Safety Representative: Each Contractor shall designate a qualified and experienced safety representative at the site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs. The Safety representative shall be trained in First Aid and CPR. These qualifications shall be submitted to the Construction Manager prior to beginning work on site.

f. Emergencies: In emergencies affecting the safety or protection of persons or the work or property at the site or adjacent thereto, each Contractor, without special instruction or authorization from Owner or Construction Manager, is obligated to act to prevent threatened damage, injury or loss. Each Contractor shall give Construction Manager prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If Construction Manager determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, Construction Manager will proceed in accordance with Article 3, General Contract Conditions.

B. Owner (ALCOSAN):

1. Enter into legal contract with each Contractor for completion of the Work.
2. Approve contract amendments, progress payments, and make final acceptance of the Work.
3. Participate in coordination of site construction activity.
4. Participate in training, testing and startup activity.

C. Construction Manager (CM):

1. Coordinate on-site construction activity.
2. Pre-purchase and Construction Contract Administration.
3. Fabrication and construction inspection services.
4. Coordinate training, testing and startup activity.

D. Engineer:

1. Provide engineering support services.
2. Performs weekly site inspections.
3. Technical and shop drawing reviews.
4. Prepare drawing revisions and cost estimates.
5. Assist in training, testing and startup activities.

E. Supplier (Owner-Furnished Material & Equipment)

1. Provide manufacturer services in installation, training, testing, start-up and close-out
2. Coordinate support of each Contractor through the Construction Manager.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

{See attached: Appendix A - Site Specific Safety Plan Template}

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. All work necessary to fabricate and install, complete, evaporator and economizer tube bundles & appurtenances.

B. All work shall be completed as required by applicable codes, good practice, the contract documents, and in full accordance with the recommendations & design of Cannon Boiler.

C. See section 01010 (as well as the drawings & all other sections/portions of the contract documents) for additional information/details regarding the work.

1.2 REFERENCES

A. American Society of Mechanical Engineers (ASME):

1. Boiler and Pressure Vessel Code, Section VIII, Division 1, Pressure Vessels.
2. Boiler and Pressure Vessel Code, Section IX, Welding and Brazing Qualifications.
3. B31.1, Power Piping.
4. B31.3, Chemical Plant and Petroleum Refinery Piping.
5. B31.9, Building Services Piping.
6. B36.10M, Welded and Seamless Wrought Steel Pipe.

B. American Society for Nondestructive Testing (ASNT): SNT-TC-1A, Recommended Practice for Nondestructive Testing Personnel Qualifications.

C. American Society for Testing and Materials (ASTM):

1. A47, Standard Specification for Ferritic Malleable Iron Castings.
2. A53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
3. A105/A105M, Standard Specification for Forgings, Carbon Steel, for Piping Components.
4. A106, Standard Specification for Seamless Carbon Steel Pipe for High Temperature Service.
5. A126, Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
6. A135, Standard Specification for Electric-Resistance-Welded Steel Pipe.

7. A139, Standard Specification for Electric-Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over).
8. A153, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
9. A181/181M, Standard Specification for Forgings, Carbon Steel, for General-Purpose Piping.
10. A182/182M, Standard Specification for Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service.
11. A183, Standard Specification for Carbon Steel Track Bolts and Nuts.
12. A193/A193M, Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service.
13. A194/A194M, Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service.
14. A197, Standard Specification for Cupola Malleable Iron.
15. A216/A216M, Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High Temperature Service.
16. A234/A234M, Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures.
17. A240, Standard Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels.
18. A276, Standard Specification for Stainless and Heat-Resisting Steel Bars and Shapes.
19. A283/A283M, Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates.
20. A285/A285M, Standard Specification for Pressure Vessel Plates, Carbon Steel, Low and Intermediate Tensile Strength.
21. A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.

D. American Welding Society (AWS):

1. A5.8, Specification for Filler Metals for Brazing and Braze Welding.
2. Q1, Standard for AWS Certification of Welding Inspectors.

1.3 SUBMITTALS

A. Quality Control Submittals: Furnish the following:

1. Welders and Welding:
   a. Inspection and Testing Laboratory Qualifications: Submit background information including experience, years in business, and five references for proposed independent testing laboratory.
   b. Performance Qualifications: Prior to start of work, submit list of welders and welding operators, and types of welding for which each has been

qualified, for both shop and field welding. Welder qualifications shall be reviewed and approved by the Engineer prior to any shop or field welding being performed.

B. Submit form P-3 for the evaporator and economizer.

1.4 QUALITY ASSURANCE

A. Weld Inspection and Testing Laboratory Qualifications:

1. Contractor shall be responsible for inspection on all welding.
2. Retain approved independent testing laboratory that will provide the services of an AWS certified welding inspector qualified in accordance with AWS QC1 with prior inspection experience of welds specified herein.
3. Perform weld examinations with qualified testing personnel who will carry out radiography, ultrasonic, magnetic particle, and other nondestructive testing methods as specified herein.
4. Welding Inspector:
   a. Be present when shop or field welding is performed to certify that welding is in accordance with specified standards and requirements.
   b. Duties include, but are not limited to, the following:
      (1) Job material verification and storage.
      (2) Qualification of welders.
      (3) Certify conformance with approved welding procedure specifications.
      (4) Maintain records and prepare reports in a timely manner.
      (5) Notify OWNER within 1 hour of discovery of unsatisfactory weld performance and within 24 hours of weld test failure.
      (6) Supervision of testing personnel.

B. Welder and Welding Operator Performance:

1. Qualify welders and welding operators by approved testing laboratory before performing any welding under this section.
2. Perform welder qualification tests in accordance with Section IX, Article III of the ASME Boiler and Pressure Vessel Code.
3. Qualification tests may be waived if evidence of prior qualification is deemed suitable by the OWNER.
4. Qualify welders and operators in the performance of making groove welds in each different pipe material, including carbon steel pipe, in Positions 2G and 5G for each welding process to be used.
5. Qualify welders and welding operators for stainless steel as stated herein on the type of stainless steel being welded with the welding process used.
6. Retest any welders at any time OWNER considers the quality of the welder's work substandard.

a. When the OWNER requests a retest of a previously qualified welder, the labor costs for the retest will be at OWNER's expense if the welder successfully passes the test.
b. If the welder fails the retest, all costs shall be at the CONTRACTOR's expense.

C. Certifications:

1. Weld Testing Agency: Certified in accordance with current American Society for Nondestructive Testing (4153 Arlingate Plaza, Columbus, OH 43228) recommended practice SNT-TC-1A, NDT Level II.

1.5 DELIVERY, STORAGE AND HANDLING

A. General:

Items delivered and placed in storage shall be stored with protection from the weather, humidity and temperature variations, dirt and dust, or other contaminants. Any/all materials, products, fabrications, equipment, etc. for this entire contract shall be delivered F.O.B. the jobsite in Pittsburgh, PA. Such delivery/shipping costs shall be included in the bid price.

PART 2 PRODUCTS

2.1 GENERAL

A. Tube Materials:

1. Tube materials shall be SA-178A steel fabricated to the diameter and thicknesses shown on the reference drawings.

B. Components: Furnish new products of equal material and rating as connecting pipe.

C. Tube support saddles and rods shall be type 304 stainless steel.

D. Insulation: re-use existing insulation and panels. If damaged or unusable replace in kind.

E. Refractory or insulating materials removed shall be replaced with suitable products, as indicated in the contract documents.

PART 3 EXECUTION

3.1 DEMOLITION

A. Disconnect/demo and remove unit 1 second evaporator and the unit 1 economizer tube bundles/elements and appurtenances, as required to perform the work.

3.2 INSTALLATION REQUIREMENTS.

A. General:

1. Perform in accordance with latest editions of Section IX, ASME Boiler and Pressure Vessel Code and ANSI Code for Pressure Piping, as follows:
   a. All Piping: ASME Section IX.
   b. Support Steel welding in accordance with AWS and reference drawing details.

B. Reference Drawings indicate general location and existing conditions. Contractor to field verify any and all dimensions before fabrication.

C. Contractor to remove existing tube bundles to header. Grind smooth and connect in accordance with ASME code and the reference drawings.

D. Hydrostatic test to be performed on each installed tube section. Test pressure to be no less than 450 psig.

3.3 Warranty

A. The successful bidder/supplier shall warrant the work for a period of two (2) years from the date of installation (not to exceed 6 months from the date of delivery). This warranty shall cover all material, labor, freight, and incidental costs needed to repair/replace the defective component. The warranty shall be for manufacturing/fabricating/workmanship defects, errors of omission and commission, and inherent material defects. A notarized, written warranty statement stating same shall be furnished to ALCOSAN prior to final payment.

END OF SECTION

FORM P-3 MANUFACTURER'S DATA REPORT FOR WATERTUBE BOILERS, SUPERHEATERS, WATERWALLS, AND ECONOMIZERS

As Required by the Provisions of the ASME Code Rules

1. Manufactured by CANNON BOILER WORKS,INC., SCHREIBER INDUSTRIAL PARK, 12TH ST., BLDG 9B NEW KENSINGTON, PA. 15068
(Name and address of manufacturer)

2. Manufactured for ALLEGHENY COUNTY SANITARY AUTHORITY,3300 PREBLE AVE., PITTSBURGH, PA 15233-1092
(Name and address of purchaser)

3. Location of installation SAME AS ABOVE
(Name and address)

4. Unit Identification EVAPORATOR ID Nos, 7026-1-1V --- D-7026-5REV.4 12266 1992
(Complete boiler, superheater, waterwall, economizer, etc.) (Mfg'r's serial No.) (CRN) (Drawing) (Nat'l. Bd. N) (Year Built)

5. The chemical and physical properties of all parts meet the requirements of material specifications of the ASME Boiler and Pressure Vessel Code The design, construction and workmanship conform to ASME Rules, Section I, 1989 (Year) and Addenda to 12-31-90 (Date)

Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors are attached for the following items of this report NO PARTIAL DATA REPORTS.
(Name of part, item number, mfg'r's name, and identifying stamp)

6. (a) Dru N/A

No.	Inside Diameter, In.	Inside Length Ft.	Inside Length In.	Shell Plates Mat'l. Spec., Grade	Shell Plates Thickness In.	Shell Plates Inside Rad. In.	Tube Sheets Thickness In.	Tube Sheets Inside Rad. In.	Tube Hole Ligament Efficiency Longitudinal	Tube Hole Ligament Efficiency circumferential
1	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---

No.	Longitudinal Joints No. & Type*	Longitudinal Joints Efficiency	Circum. Joints No. & Type	Circum. Joints Efficiency	Heads Mat'l. Spec., Grade	Heads Thickness, In.		Heads Type**	Heads Radius of Dish	Heads Manhole No. Size	Hydro-static test, psi
1	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---

*Indicate if (1) seamless (2) fusion welded

**Indicate if (1) flat; (2) dished; (3) ellipsoidal; (4) hemispherical

6. (b) Boiler tubes: N/A

Diameter	Thickness	Mat'l. Spec. No., Grade	No.	How Attached
---	---	---	---	---
---	---	---	---	---
---	---	---	---	---
---	---	---	---	---
---	---	---	---	---

6. (c) Headers no: N/A ---
(box or sinuous or round; mat'l. spec. no.; thickness)

Heads or ends --- Hydro. test, psi ---
(shape; mat'l spec.no.;thickness)

6. (d) Staybolts: --- --- ---
(mat'l. spec. no; diameter; size tell-tale; net area)

Pitch --- in. Net area --- sq. in. Design pressure --- psi
(Supported by one bolt)

6. (e) Mud drum: --- Dr ---
(For sect. header boilers state size; shape; mat'l spec. no.; thickness)

Heads or ends ----- Hydro test, psi -----
(shape;mat'l spec.no; thickness)

7. Waterwall Head N/A

No.	Size and Shape	Material* Spec. No., Gr.	Thickness In.	7 (a) Heads or Ends Shape	Thickness In.	Mat'l. spec. No., Gr.	7(b) Waterwall Tubes Hydro Test, psi	Diameter In.	Thickness In.	Material Spec. no.
---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---

8(a) Economizer Headers 8(b) Economizer Tubes N/A

1	5.761"I.D.	SA-106B	.432"	2:1	.432"	SA-234	750	1.25	.120MW	SA178A
2	7.625"I.D.	SA-106B	.500"	2:1	.500"	SA-234	750	1.25	.120MW	SA178A

Form P-3 (Back)

9 (a) Superheater Headers N/A

No.	Size and Shape	Material spec. no.	Thickness in.	Heads or Ends: Shape	Heads or Ends: Thickness in.	Heads or Ends: Material spec. no.	Hydro Test, psi	9 (b) Superheater N/A: Diameter in.	Thickness in.	Material spec. no.

10(a) Other Part 1 N/A 2 — 3 — 10(b) Tubes for Other Parts

1										
2										
3										

11 Openings (1) Steam N/A (No., size, and type of nozzles or outlets)

(2) Safety Valve ONE OUTLET LOCATED ON PIPING (No., size, and type of nozzles or outlets)

(3) Blowoff N/A (No., size, and type of nozzles or outlets)

(4) Feed ONE 8"NPS 300# RF WN FLG (No., size, type, and location of connection) LOCATED AT END OF OF 8" HDR.

12	Maximum Allowable Working Pressure	Code Par. and/or Formula on Which MAWP is Based	Shop hydro. test psi	Heating Surface sq. ft.	11. Field hydro. test psi
a Boiler					
b Waterwall					
c Economizer	500 PSI	PG-27.2.2	750PSI	1716	N/A
d Superheater					
e Other parts					

Heating surface to be stamped on drum heads. This heating surface not to be used for determining minimum safety valve capacity.

CERTIFICATE OF COMPLIANCE

We certify the statements in this Data Report to be correct.

Date 5-4-92 Signed Cannon Boiler Works, Inc. (Manufacturer) by (Authorized Representative)

Our Certificate of Authorization No. 14694 to use the (A) or (S) S Symbol expires JULY 11, 1993.

CERTIFICATE OF SHOP INSPECTION

BOILER MADE BY CANNON BOILER WORKS, INC. at SCHREIBER INDUSTRIAL PARK, 12TH STREET, BLDG. 9-B, NEW KENSINGTON, PA 15068

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the state or province of Pennsylvania and employed by Kemper National Insurance Companies of Long Grove, IL. have inspected parts of this boiler referred to as data items 4, 5, 8a, 8b, 11, 12c, and have examined Manufacturers' Partial Data Reports for items

and state that, to the best of my knowledge and belief, the manufacturer has constructed this boiler in accordance with the applicable sections of the ASME BOILER AND PRESSURE VESSEL CODE.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the boiler described in this Manufacturer's Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or loss of any kind arising from or connected with this inspection.

Date 5-4-92

Inspector Commissions NB8153 PA2227 (Nat'l Bd. (incl. endorsements) state, prov. and no.)

CERTIFICATE OF COMPLIANCE

We certify that the field assembly of all parts of this boiler conforms with the requirements of SECTION I of the ASME BOILER AND PRESSURE VESSEL CODE.

Date Signed (Assembler) By (Authorized Representative)

Our Certificate of Authorization No. to use the (A) or (S) Symbol expires , 19

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the state or province of and employed by of have compared the statements in this Manufacturer's Data Report with the described boiler and state that the parts referred to as data items , not included in the Certificate of Shop Inspection, have been inspected by me and that to the best of my knowledge and belief the Manufacturer and/or the assembler has constructed and assembled this boiler in accordance with the applicable sections of the ASME BOILER AND PRESSURE VESSEL CODE. The described boiler was inspected and subjected to a hydrostatic test of psi.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the boiler described in this Manufacturers' Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date

Inspector Commissions (Nat'l Board, State, Province and No.)

PLAN VIEW

ELEVATION VIEW

END VIEW

DETAIL "B"
(SCALE: 3/8" = 1")

DETAIL "D"
(SCALE: 3/8" = 1")

SECTION A-A
(SCALE - 3/8 = 1")

SECTION "C-C"

1ST EVAP & S.H. SECTION.

SHOP NOTE:
SIDE PLATE & INSULATION TO BE LEFT OUT OF THIS AREA FOR BUNDLE INSERTION.

REMOVABLE ACCESS PANELS (TYP. BOTH SIDES) 4 DOORS TOTAL.

REFERENCE DWG.S
D-7026-1A – GEN. ARRGT OF W.H.B. HTX-CHAMBERS.
D-7026-1B – PLAN VIEW OF WHB HTX-CHAMBERS.
D-7026-6A – 2ND EVAP TUBE BUNDLE DTL.
D-7028-1 – EVAP. HOPPER DETAIL.
D-7026-3A – 2 ND EVAP FRONT & REAR PANEL DETAIL
D-7026-3B – 2ND EVAP REMOVABLE END DOOR DETAIL.

SHEET 11 OF 14 - REFERENCE DRAWING

CANNON TECHNOLOGY, INC.
NEW KENSINGTON, PA. 15068

No.	REVISION	DATE
2	INDICATED ARRGT. (SHOWN) FOR UNIT # 1 CHGD NOZ PASS	12/28/91
1	CHGD PER CUST. COMMENTS. CHGD. OUTLET NOR. TO 8"	12/4/91

ALCOSAN
2 ND EVAPORATOR (UNIT #1)
ARRANGEMENT DWG.

DRAWN BY	DATE	CHK.	DATE	SCALE	JOB No.	DWG No.	REV No.
G.W.H	10/23/91	PEC II	12/31/91	N.T.S.	7026	D-7026-3	2

RELEASED FOR CONSTRUCTION
DATE JAN. 3 1992
BY PHILLIP E. CUSTER II

103-916E-3

BRUNING 48827 FORM # 5864

ASSEMBLED VIEW

DETAIL "J"

PLAN VIEW

SECTION "C"-"C"

SECTION "D"-"D"

SECTION "A"-"A"

SECTION "B"-"B"

SECTION "E"-"E"

PIN DETAIL FOR ACCESS DOOR. MK. (52L)

ACCESS DOOR HINGE PL DETAIL MK. (52M)

MOUNT PL. DETAIL FOR ACCESS DOOR. MK. (52G)

DOOR INSULATION SHEET DETAIL MK. (52B)

SECTION "H"-"H"

PLAN VIEW.

27" DOOR PLATE.

ACCESS DOOR DETAIL.

FRONT PANEL.
ELEVATION VIEW.

END VIEW.

SECTION "F"-"F"

SECTION "G"-"G"

NOTE !!!
REAR PANEL TO BE BUILT IDENTICAL TO FRONT WITH THE FOLLOWING EXCEPTIONS.
1) NO DOORS REQ'D
2) NO INSTRUMENTATION CONNECTIONS.
3) DISTAL BEARINGS REQ'D IN LIEU OF S.B. PIPE SLEEVES. LOCATED 5/16" HIGHER.
4) SEE DETAIL "J" FOR DISTAL BEARING DETAIL.

REFERENCE DWG. LIST.

D-7026-GA&GB-2ND EVAP TUBE BNDL. DTL. UNITS 1&2.
D-7028-1-EVAP. HOPPER DETAIL. UNITS 1&2
D-7026-3&3C-2 ND EVAP. ARRGT. DWG UNITS 1&2.
D-7026-3B-2ND EVAP REMOVABLE END DOOR DETAIL. UNITS 1&2

SHEET 12 OF 14 - REFERENCE DRAWING

RELEASED FOR CONSTRUCTION
DATE JAN. 8 1992 BY PHILLIP E. CUSTER II

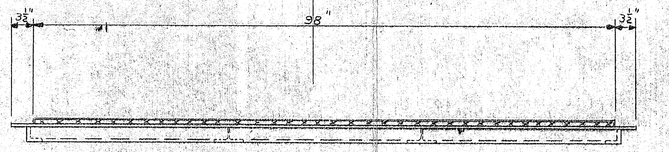
CANNON TECHNOLOGY, INC.
NEW KENSINGTON, PA. 15068

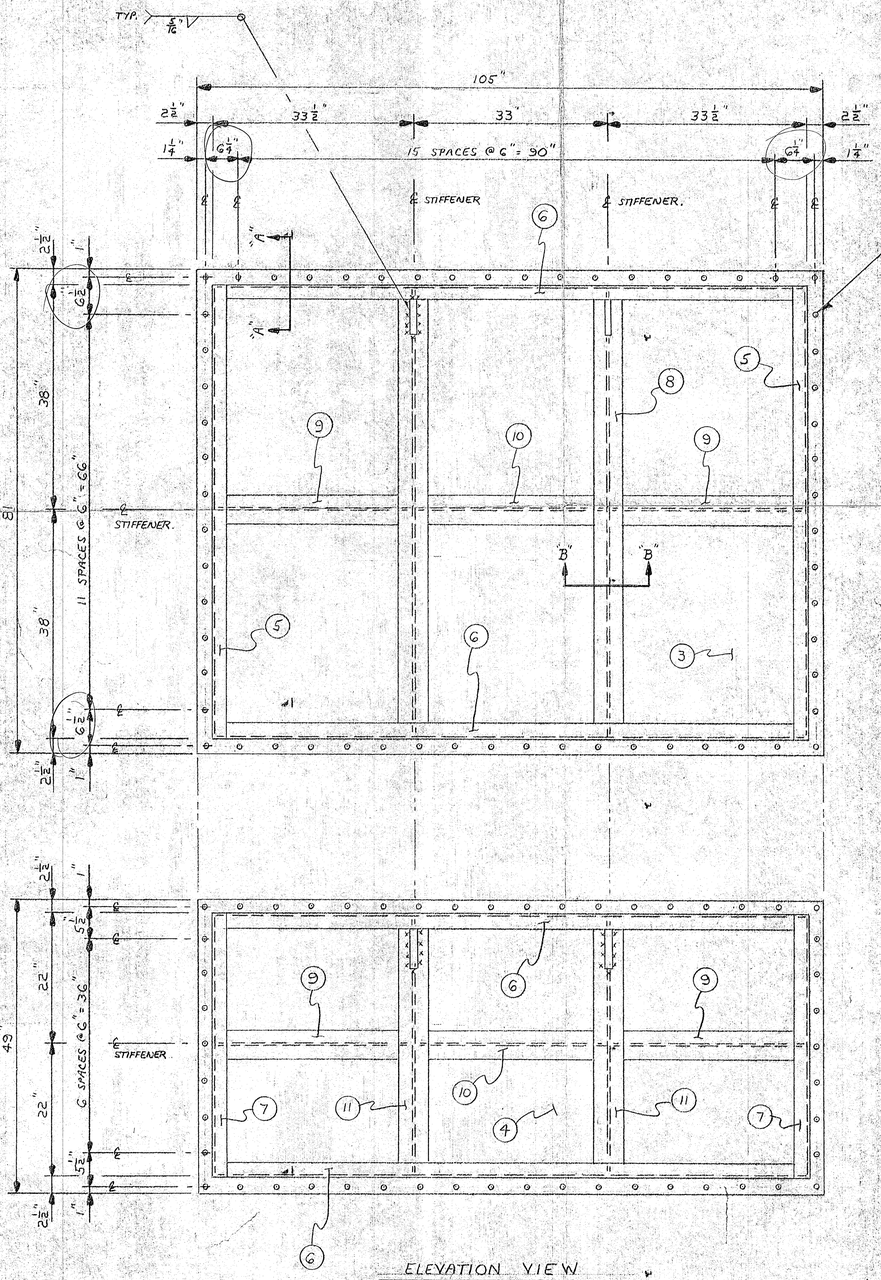
ALCOSAN
2 ND EVAPORATOR
FRONT & REAR PANEL DETAILS
FOR UNITS 1 & 2

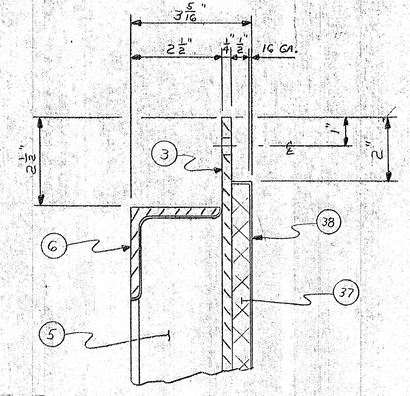
No.	REVISION	DATE
△	INDICATED DWG IS FOR UNITS 1 & 2	12/21/91

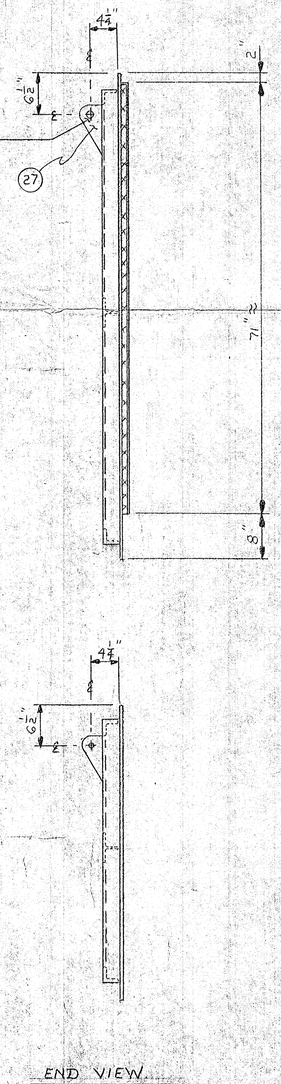
DRAWN BY	DATE	CHK.	DATE	SCALE	JOB No.	DWG No.	REV No.
GWH	11/19/91	WJS	12/21/91	N.T.S.	7026	D-7026-3A.	△

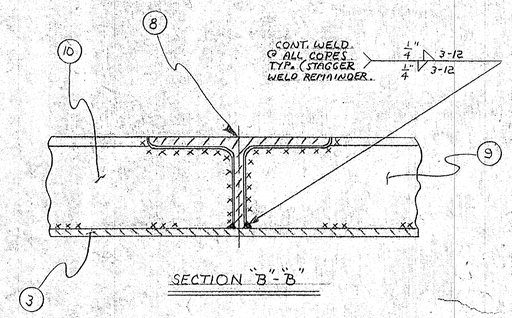
125-91-E-12

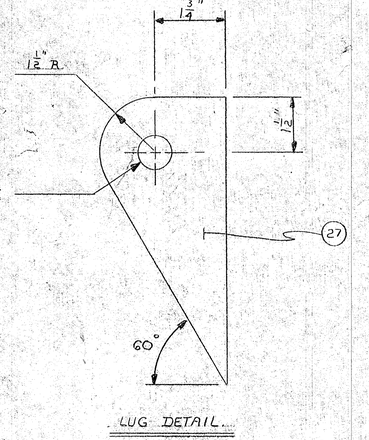












RELEASED FOR CONSTRUCTION

DATE JAN. 3 1992 BY PHILLIP E. CUSTER II

NOTE: !!
FOUR DOOR ASSEMBLIES REQ'D AS SHOWN / JOB.

REFERENCE DWG.'S

D-7026-3 & 3C - 2ND EVAPORATOR ARRANGEMENT DWG. UNITS #1 & 2
D-7026-3A - 2ND EVAP. FRONT & REAR PANEL DETAIL DWG UNITS #1 & 2.

No.	REVISION	DATE
1	INDICATED DWG IS FOR UNITS 1 & 2	12/23/91

CANNON TECHNOLOGY, INC.
NEW KENSINGTON, PA. 15068

ALCOSAN
2 ND EVAPORATOR
REMOVABLE END DOOR DETAILS.
FOR {UNITS 1 & 2} 1

DRAWN BY	DATE	CHK.	DATE	SCALE	JOB No.	DWG No.	REV No.
GWH	11/23/91	W.S.	12/31/91	1"=1'-0"	7026	D-7026-3B	1

1226-916E-2

END PL. DIM. TABLE	"D"	"E"
6" NOM.	5 9/16"	2 25/32"
8" NOM	7 7/16"	3 23/32"

NOTE: MAT'L SHOWN FOR ONE UNIT, ONE UNIT REQ'D AS SHOWN	BILL OF MATERIALS	

MK.	QTY.	MAT'L.	DESCRIPTION
1	ONE	SA-106-B	PIPE - 6" NOM. SCH 80 (.432") X 112" LG. (B.O.E.)
2	ONE	SA-105	WELD NECK FLGS - 6" NOM. - 300# R.F. SCH 80 BORE.
4	8	SA-106 B	PIPE - 3/4" NOM. SCH 80 X 3 3/4" LG. (T.O.E.)
5	2	SA-285-C	PLATE - 1" THK. X "D" DIA. (SEE DETAIL "A")
6	ONE LOT	SA-178-"A"	TUBES - 1 1/4" DIA. X 0.120" MIN. WALL.
7	AS REQ'D	SA-36	FLATBAR - 1/2" THK X 2" X 1 3/4" LG.
8	2	SA 106 B	4" SCH 160 PIPE - 98" LONG
9	2	SA 106 "B"	3" SCH 160 PIPE 98" LONG
10			DELETED
11			DELETED
12			DELETED
13			DELETED
14			DELETED
15			DELETED
16			DELETED
17			DELETED
18	AS REQ'D	SA-29	BACKING RINGS - 1/8" SPLIT TYPE CCC FOR 1 1/4" O.D. X 0.120 M.W. TUBES
19	ONE	SA-106 Gr B	PIPE - 8" NOM SCH 80 (.500") X 111 1/2" LG. (B.O.E.)
20	ONE	SA-106 Gr B	WELD NECK FLG - 8" NOM 300# R.F. SCH 80 BORE.
21	ONE	A-36	1/4" X 27 1/4" X 2" ROLLED TO 8 3/4" I.D.
22	AS REQ'D	A-36	FLATBAR - 7/8" X 2" X 2" LG.
23	6	A-178 A	TUBES - 1 1/4" O.D X 0.120" MW

NOZZLE DIMENSION TABLE.

	"A"	"B"	"C"
1 1/4" O.D. TUBE.	1"	1 5/16"	1 13/16"
3/4" NOM. PIPE	3/4"	1 1/16"	1 5/8"

SEE DETAIL A
MK 21 TO EXTEND 1/4" FROM SIDE PLATE

PLAN VIEW

NOTE: THESE DIMENSIONS ARE TYPICAL FOR BOTH HEADERS (SEE ELEVATION VIEW FOR TUBE HOLE/NOZZLE ORIENTATION

DETAIL "A" (N.T.S.)

SECTION C-C

Y-ANCHORS 1 3/4" LG. 9" C-CENTER TOP HEADER ONLY

TUBE TO TUBE DTL.

Y ANCHORS 1 3/4" LONG TOP HEADER ONLY

HEADER TO TUBE WELD DETAIL

10 GAUGE PLATE TO BE WELDED TO END OF MK 21
MK 21 TO BE SEAL WELDED BOTH SIDES.

SEE DETAIL D

SECTION B-B (SHOWN FOR 6" NOM HDR'S)

1/4" PLATE ROLLED TO 8 3/4" I.D. 2" x 27 1/4" x 1/4"

150 - O.A. BEND TO BEND.

NOTE: TUBE TO TUBE WELDS TO BE LOCATED AS REQ'D. SEE TUBE TO TUBE DETL

7 SUPPORT.

SOOT BLOWER (TYP. 4 PLCS.)

FLG. HOLES TO STRADDLE (MAIN) ℄ (TYP.)

TYP 4 PLCS.

ELEVATION VIEW

WEIGHT
DRY - 16,000 #
WET - 19,500 #

1/4" THK. x 1" x 1"

3/8" x 2" x 2" F.B. LOCATE TO SUIT 1" FROM END DOORS & @ 1/4"/WIDTH @ 2 PLCS.

1/4" THK SIDE CASING.

SPACER BAR ASSEMBLY. TYP. 6 PLCS.

WEIGHT DRY - 9000 #
WET - 11,000 #

1/2" PLATE 5" x 5" 16a REQ'D

GUSSETS 1/2" PLATE CUT TO SUIT 16a REQ'D B FOR 3" PIPE 8 FOR 4" PIPE

SEE DETAIL SHT 7026-L6B

NOT RECEIVED

4" SCH 160 - 98" LG.

BUNDLE SUPPORT PAD (TYP 4 PLCS/TIER)

TYPICAL FOR ALL SUPPORTS

END VIEW.

APPROVED
APPROVED AS NOTED
REVISE AND RESUBMIT
NOT APPROVED

This submittal has been checked for conformance with design concept only. The Contractor is responsible for all shop details, quantities, and dimensions. Approval does not relieve the Contractor of responsibility for full compliance with all provisions of the contract documents.

ALLEGHENY COUNTY SANITARY AUTHORITY
By _____ Date MAY 21 1992
Checked By _____ Date 5/8/92
ACSA _____ Date _____
S.E. _____ Date _____

RELEASED FOR CONSTRUCTION
DATE 4-30-1992 BY PHILLIP E. CUSTER II

NOTES:
① REV. #3 NOT Received !
② How are revisions differentiated from old info ?

DESIGN DATA.

MODEL NO. : EVX-1185-O-41-32-12.42	
DESIGN PRESSURE : 500 PSI	
TEST PRESSURE : 750 PSI	
DESIGN TEMPERATURE : TUBES - 700°F | HEADER - 470°F	
WELD PREHEAT : 200°F MIN. EXCEPT AS NOTED.	
CORROSION ALLOWANCE : NONE	REFERENCE DWG. LIST.
RADIOGRAPH : NONE	
STRESS RELIEVE : NONE	
SURFACE AREA : 5,152 SQ. FT.	D-7026-L6B BUNDLE SUPPORT
BTU RECOVERY : 7,275,240 BTU/HR.	D-7028-1 EVAP HOPPER DETAIL
A.S.M.E. CODE SECTION I; "S" STAMP	D-7026-3 2ND EVAP MARGT. DWG.
1989 CODE ; 12-31-90 ADDENDA.	D-7026-3A-FRONT & REAR PANEL DETAIL
OPERATING PRESSURE : 450 PSI	D-7026-3B-2ND EVAP END DOOR DETAIL
OPERATING TEMP : 460°F	

SHEET 14 OF 14 - REFERENCE DRAWING

No.	REVISION	DATE
4	CHGD BUNDLE SUPPORTS ADDED STIFFENERS TO BUNDLE	3/9/93
3	ADDED TUBE TO TUBE WLD & PREHEAT	2/19/92
2	INDICATED DETAIL SHOWN FOR UNIT #1 ONLY.	12/23/91
1	CHGD OUTLET HDR. TO 8 NOM. & CTR. TO CTR HOR. DIM. & REMOVED S.V.V. CONN	11/27/91

CANNON TECHNOLOGY, INC.
NEW KENSINGTON, PA. 15068

ALCOSAN
2ND EVAPORATOR UNIT #1
BUNDLE DETAIL DWG.

DRAWN BY	DATE	CHK.	DATE	SCALE	JOB No.	DWG No.	REV No.
G.W.H.	10/15/91	PEC II	12/19/91	1"=1'-0	7026	D-7026-6	4

105-9166-4