

West Valley Demonstration Project

Doc. Number WVNS-SD-63SC

Revision Number 0

Revision Date 04/22/94
Engineering Release #2913

SYSTEM DESCRIPTION

VF STEAM AND CONDENSATE
SYSTEM 63SC

PREPARED BY *K. E. Bauermeister* K. E. Bauermeister
Cognizant Engineer

APPROVED BY *D. J. Rickettson* D. J. Rickettson
Cognizant System Engineer

APPROVED BY *T. E. Cottrell* T. E. Cottrell
Cognizant System Design Manager

APPROVED BY *D. L. Dempster* D. L. Dempster
Quality Assurance Representative



West Valley Nuclear Services Co., Inc.

P.O. Box 191

West Valley, NY 14171-0191

SD:0002960.01

WV-1816, Rev. 1

9405260270 940506
PDR PROJ
M-32 PDR

WVNS RECORD OF REVISION

DOCUMENT

If there are changes to the controlled document, the revision number increases by one. Indicate changes by one of the following:

- Placing an arrow at the beginning of the sentence or paragraph that was revised
- Placing a vertical black line in the margin adjacent to sentence or paragraph that was revised
- Placing the words GENERAL REVISION at the beginning of the text
- Placing either FC#> or PC#> at the beginning of a field/page change

Example:

The arrow in the margin indicates a change. >
The vertical line in the margin indicates a change. |

<u>Rev. No.</u>	<u>Description of Changes</u>	<u>Revision On Page(s)</u>	<u>Dated</u>
0	Original Issue	All	04/22/94

WVNS RECORD OF REVISION CONTINUATION FORM

<u>Rev. No.</u>	<u>Description of Changes</u>	<u>Revision On Page(s)</u>	<u>Dated</u>
-----------------	-------------------------------	--------------------------------	--------------

TABLE OF CONTENTS

<u>STEP</u> <u>NO.</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
Summary		v
1.0	SYSTEM FUNCTIONS & DESIGN CRITERIA	1
1.1	Functions	1
1.2	Design Criteria	1
	1.2.1 Process Requirements	1
	1.2.2 Structural Requirement	1
	1.2.3 Essential Features	1
	1.2.4 Maintenance and Inspection	2
	1.2.5 Instrumentation and Control	2
	1.2.6 Interfacing Systems	2
	1.2.7 Quality Assurance	3
	1.2.8 Reliability Assurance	3
	1.2.9 Safety Classes and Quality Levels	3
	1.2.10 Codes and Standards	3
2.0	DESIGN DESCRIPTION	3
2.1	Functional Description	4
	2.1.1 Distribution	4
	2.1.2 Steam Usage	4
	2.1.3 Other	5
2.2	Physical Description	5
	2.2.1 Drop #(undefined)	6
	2.2.2 Drop #(undefined)	7
	2.2.3 Drop #(undefined)	8
	2.2.4 Drop #(undefined)	8
	2.2.5 Drop #(undefined)	9
	2.2.6 Drop #1	9
	2.2.7 Drop #3	10
	2.2.8 Drop #4	10
	2.2.9 Drop #5	11
	2.2.10 Drop #6	12
	2.2.11 Drop #(undefined)	12
	2.2.12 Drop #7	14
	2.2.13 Utility Stations	15
	2.2.14 Protection Traps	16
2.3	Component Descriptions	19
2.4	Interface Descriptions	20
	2.4.1 System 8 (Waste Tank Farm)	20
	2.4.2 System 31 (Plant Steam)	20
	2.4.3 System 63G (Waste Header)	20
	2.4.4 System 63H (Off-Gas & Vessel Vent)	21
	2.4.5 System 63I (Main Process)	21

<u>STEP NO.</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
2.4.6	System 63J (Canister Decontamination)	22
2.4.7	System 65 (VF Cold Chemical)	22
2.4.8	System 67 (VF HVAC)	23
2.4.9	Utility Stations	23
2.4.10	Condensate Return	24
2.5	Periodic Test Requirements	24
2.6	Safety Classes and Quality Levels	24
3.0	OPERATIONAL REQUIREMENTS	24
3.1	Power Outage	25
4.0	LIMITATIONS, PRECAUTIONS, RANGES/SETPOINTS	25
4.1	Limitations	25
4.2	Precautions	25
4.3	Ranges/Setpoints	25
5.0	CASUALTY EVENTS AND RECOVERY PROCEDURES	26
6.0	MAINTENANCE	26
7.0	REFERENCE DOCUMENTS	26
Appendix A	. . . . .	AP-A-1
Appendix B	. . . . .	AP-E-1

Summary

The Vitrification Facility Steam/Condensate System (63SC) receives steam from the Main Plant Utility Room and distributes it to various components, instrument racks, and systems within the Vitrification Facility and Cold Chemical Building for heating, educting, and purging. Steam is also directed to the Waste Tank Farm Equipment Shelter. Condensate collected in the piping system is returned to the Utility Room boilers for steam generation.

The system begins where the Main Plant steam header meets the Vitrification Facility main steam line at the 113 ft. elevation of the Vitrification Facility. The Utility Room steam supply delivered to the Vitrification Facility is 150 psig under nominal conditions. With the exception of the steam line to the Vitrification Cell tank bubblers and the Waste Tank Farm Equipment Shelter, steam pressure is reduced to 100 psig for distribution throughout the facility.

Main Plant Operations is responsible for operation and maintenance of the Main Plant Steam/Condensate System.

1.0 SYSTEM FUNCTIONS & DESIGN CRITERIA

1.1 Functions

The functions of the Vitrification Facility Steam/Condensate System are to receive steam from the Main Plant Utility Room and to distribute it within the Vitrification Facility and Cold Chemical Building for steam heating, steam educting, and steam purging. Steam is also diverted to the Waste Tank Farm Equipment Shelter. Condensation formed in the steam piping system is collected with steam traps and returned to the Main Plant boilers for steam generation. Regulating steam to individual components or systems is controlled by the component or system being supplied.

1.2 Design Criteria

The Vitrification Facility Steam/Condensate System shall be designed to the requirements stated in DC-022 and the "Operational Safety Design Criteria Manual", ID-12044.

The design life of the Steam/Condensate System shall be seven years.

1.2.1 Process Requirements

Steam shall be supplied from the Plant Utility Room Boilers to the Vitrification Facility at nominal pressure of 150 psig. The steam shall be distributed to the Vit Facility User via a system of welded carbon or stainless steel pipes. Protection traps (drip traps) shall be provided throughout the steam supply system to remove steam condensate and air. The condensate shall be collected and returned to steam generating plant for reprocessing. The steam user shall provide process traps or other means to accommodate the process condensate and/or steam. Condensate collected at process traps shall also be returned to the plant.

1.2.2 Structural Requirement

The Vitrification Steam/Condensate System shall be constructed of welded carbon steel or stainless steel pipes. Construction of piping shall comply with ASME B31.3 and with the Uniform Building Code.

1.2.3 Essential Features

The condensate shall be gravity fed to a Condensate Collection Sump and pumped to a Condensate Return Header that takes it back to the steam generating plant.

Condensate shall be monitored for radioactive contamination prior to return to the Main Plant Utility Room.

Pressure Reduction Stations shall be designed into the steam distribution system, when they are appropriate for general usage.

1.2.4 Maintenance and Inspection

Provisions shall be made for the yearly calibration of pressure gauges.

Provisions shall be made for monthly inspections of the protection steam traps (Drip Traps) and replacement if they have failed.

Provisions shall be made for the quarterly greasing of condensate pumps.

Provision shall be made for bi-yearly inspection and maintenance of all steam traps.

1.2.5 Instrumentation and Control

Adequate instrumentation and control shall be provided to verify, set, and maintain necessary steam pressure to Vitrification Facility, Cold Chemical Building systems and components, and the WTF Equipment Shelter.

1.2.6 Interfacing Systems

The VF Steam/Condensate System has direct interfaces to the following systems:

System 8 (Waste Tank Farm)

System 31 (Plant Steam)

System 63G (Waste Header)

System 63H (Off-Gas & Vessel Vent)

System 63I (Main Process)

System 63J (Canister Decontamination)

System 65 (VF Cold Chemical)

System 67 (VF HVAC)

System 69B (VF Sample Transfer)

1.2.7 Quality Assurance

The Quality Assurance requirements for this system shall be in accordance with NQA-1 and the West Valley Nuclear Services Quality Assurance Program Plan.

1.2.8 Reliability Assurance

Operational reliability shall be achieved by adherence to WVNS Standard Operating Procedures and Periodic Maintenance Procedures. Special attention shall be given to the installation and maintenance of the protection traps, so that the user receives steam devoid of excessive condensate.

1.2.9 Safety Classes and Quality Levels

Safety Classes and Quality Levels are in accordance with Quality Management Manuals WVDP 002, Section 2, "Organization" and Section 3, "Quality Assurance Program." (see paragraph 2.6 for component levels)

1.2.10 Codes and Standards

ANSI/ASME B31.3 - Chemical Plant and Petroleum Refinery Piping

ANSI/ASME NQA-1 - Quality Assurance Program Requirements

MIL-STD-45662A - Calibration, System Requirements

2.0 DESIGN DESCRIPTION

(Background)

Steam is produced in the Main Plant Utility Room by one or both of the gas-fired boilers, 31F-1 and 31F-1A. Boilers are nominally rated at 40,000 lbs. per hour of steam at 150 psig. Boilers are "A" type with one steam drum on top and two water drums below and have a rapid response time to sudden changes in steam loads. Boiler feed is made from softened and chemically-treated utility water. Steam is delivered from the Main Plant to the Vitrification Facility in a six-inch header at 150 psig.

Vitrification and Cold Chemical condensate return to the Main Plant Utility Room via the Vitrification Facility Condensate Collection Sump for use as boiler feed. The condensate is monitored for radioactive contamination prior to collection in the Vitrification Facility Condensate Collection Sump and once again in the Main Plant Utility Room prior to use as boiler feed.

2.1 Functional Description

The Vitrification Steam and Condensate System (63SC) receives steam from the Main Plant Utility Room and distributes it to the steam user components within the Vitrification Building and the Cold Chemical Building. Pressure Reduction Stations are deployed where lower pressure steam is required for a block of users. The system further traps the steam condensate and returns it to the main plant.

2.1.1 Distribution

Steam is channeled to the user with an array of pipes and tubing, while the flow is controlled with a diversity of valves that either direct the flow, reduce the pressure, isolate components or modulate the flow for the user. Section 2.2 addresses the physical path to each steam user. Steam is also provided to Utility Stations, located throughout the two buildings, for general purpose usage (see paragraph 2.2.13 for further information on utility stations). As steam is distributed to the user it expends some of its energy and forms condensate in the distribution pipes. This condensate is removed with Drip Traps. When the user transfers steam energy to the process (i.e. warms the air through a heat exchanger) the steam turns to condensate which is removed with a Process Trap. Protection or drip traps are employed upstream of the user components and process traps downstream of the user. The condensate from the traps is channeled to the Condensate Collection Sump, pumped to the condensate header and returned to the main plant for reprocessing. A radiation monitor samples the condensate before it enters the sump. If the radiation level exceeds the threshold, the monitor sets an alarm in the Vit Control Room, and further action will be initiated by the operator. Not all user processes, such as the steam jets, can collect the condensate with process traps. These users must be able to absorb the condensate within the process and accommodate any remaining steam with the ventilation system. In either case, the user is responsible for the operation and performance of any equipment inside the user interface. Section 2.2 identifies the interfaces with the user.

2.1.2 Steam Usage

During vitrification steam is used for the following processes:

- A. to purge bubbler tubes in the CFMT and MFHT
- B. to heat slurries in the CFMT,
- C. to heat decon fluids in the Canister Decon Tank and Decon Preparation Tanks,

- D. to heat the Vit Building air with heater units 67-V001,
- E. to heat the Cold Chem Building with Area Heaters,
- F. to heat demineralized water with heater unit DW-E-040, and
- G. to transfer fluids and slurries, between in-cell tanks and headers, via steam jet eductors.

2.1.3 Other

Steam is also provided to the Waste Tank Farm via a header that interfaces with the main steam line in the Vitrification Building, upstream of the 63SC system interface valve. Although this user is not part of the vitrification systems, a description of the user components and interfaces located in the Vit Building are included in this document. The steam is used for area heaters in the Waste Tank Farm Equipment Shelter.

2.2 Physical Description

The Vitrification Facility Steam and Condensate System (63SC) is a steam distribution and condensate collection system comprised mainly of piping, valves, steam traps and pressure instruments.

Steam is delivered from the Main Plant Utility Room by a six-inch header, 15-SH-181-6, that enters the facility in the south end of the Middle East Operating Aisle (MEOA) at the 113.7 ft. elevation. Once inside the Vitrification Facility, but prior to the VF steam system interface valve, 6-SH-H-140, a two inch line branches off to the Waste Tank Farm Equipment Shelter. Downstream of the Vit System interface valve, a second 150 psig steam drop is deployed before a pressure reduction station reduces the header pressure to 100 psig. From this point the main steam header, 6-SH-6-005A, is directed to the utility pipe rack in the Upper East Operating Aisle (UEOA). The rack and the steam header then traverses the east, north and west upper operating aisles (UEOA, UNOA, and UWOA respectively) supplying steam to the remaining users in the Vitrification Building and the Cold Chemical Building through nine additional drops from the steam header.

Condensate collected at various traps located in the VF and Cold Chemical Building gravity drains to the Condensate Collection Sump, located at the 100 ft. elevation, in the Southwest corner of the Vitrification Facility. The top of the sump is at floor elevation 100 ft. Sump dimensions are approximately 5 ft. in diameter and 8 ft. deep. The sump has a stainless steel liner and a capacity of 1,165 gallons.

Back-flow prevention across the zone 1 boundaries, from contaminated areas (in-cell) to clean areas (ex-cell), has been incorporated in the design through the use of check valves, isolation valves, and a positive pressure differential that maintains an ex-cell to in-cell flow pattern (see P&ID's for piping details). Further, any steam use by in-cell components is automatically followed with a utility air purge. This process prevents the formation of negative pressure in the user steam pipes that could be produced by a rapid drop in steam temperature below 100°C.

A Radiation Monitor, located West of the sump, and comprised of a gamma scintillation detector, heat exchanger and pump, is used to monitor the condensate for radioactive contamination before it is collected in the sump. Condensate is pumped from the sump, with pumps SC-G-10 and/or SC-G-11, to the three-inch condensate header (6-SC-3-001), and then dispatched to the Main Plant Utility Room via line 15-SCL-276-3.

The following paragraphs describe the drops from the steam header, and the services provided through these drops. The tables identify the user, the interface points, the process traps and other pertinent steam usage data. User interface points are upstream of the steam input interface valves and downstream of the process condensate valves. Flow rates and usage data are engineering estimates used to determine the steam interface requirements presented in section 2.4. Refer to the user system description for details on the user steam applications. Paragraph 2.2.13 summarizes information on the Utility Stations and paragraph 2.2.14 identifies the protection traps and their location in the system.

NOTE: The instrument racks in the vitrification building are tagged with alphanumeric identifiers (i.e. 2E9), consisting of the floor level (1, 2 or 3), the floor location (E, N or W) and the rack sequence number (1 through 10). Dash numbers (-7A) provide a reference to old rack designator and are not part of the tag number. Tag and dash numbers (2E9-7A) are used in this document for consistency with the designations used in the P&IDs.

2.2.1 Drop #(undefined)

The first drop is initiated with line 6-SH-2-102 and activated with valve 6-SH-H-179, located in the MEOA. After passing a steam main drip trap the line exits the Vit Building and goes to the Waste Tank Farm.

Non-Rack - MEOA - P&ID 905-D-047 S01+S03

Interface Pt Steam/Condst	User System Proc. Trap	User Application	Stm Press Flow Rate	Operations per Period
6-SH-GL-103 TBD	System 8 TBD	Heaters, Waste Tank Farm Shelter	150 psig TBD	Six Months per Year

2.2.2 Drop #(undefined)

The second 150 psig drop is initiated through line 6-SH-2-004 and activated with valve 6-SH-H-007, located in the MEOA. The drop provides steam to Instrument Rack 3W8 to purge the tubes of the CFMT and MFHT bubbler systems. The following table summarize the pertinent system/interface data for each user on this drop.

Instrument Rack - 3W8 - P&ID 905-D-045 S21

Interface Pt Steam/Condst	User System Cell-Pen	User Application	Stm Press Flow Rate	Operations per Period
6-SH-H-154 n/a	System 63I Pen 4233B	MFHT Bubbler Probe	150 psig 1000 lbs/hr	5 min per month
6-SH-H-155 n/a	System 63I Pen 4233A	MFHT Bubbler Probe	150 psig 1000 lbs/hr	5 min per month
6-SH-H-156 n/a	System 63I Pen 4233C	MFHT Bubbler Probe	150 psig 1000 lbs/hr	5 min per month
6-SH-H-171 n/a	System 63I Pen 4134B	MFHT Bubbler Probe	150 psig 1000 lbs/hr	5 min per month
6-SH-H-172 n/a	System 63I Pen 4134C	MFHT Bubbler Probe	150 psig 1000 lbs/hr	5 min per month
6-SH-H-173 n/a	System 63I Pen 4134C	MFHT Bubbler Probe	150 psig 1000 lbs/hr	5 min per month
6-SH-H-161 n/a	System 63I Pen 1221B	MFHT Bubbler Probe	150 psig 1000 lbs/hr	5 min per month
6-SH-H-162 n/a	System 63I Pen 1221A	MFHT Bubbler Probe	150 psig 1000 lbs/hr	5 min per month
6-SH-H-163 n/a	System 63I Pen 1221C	MFHT Bubbler Probe	150 psig 1000 lbs/hr	5 min per month

Interface Pt Steam/Condst	User System Cell-Pen	User Application	Stm Press Flow Rate	Operations per Period
6-SH-H-166 n/a	System 63I Pen 4130B	CFMT Bubblers Probe	150 psig 1000 lbs/hr	5 min per month
6-SH-H-167 n/a	System 63I Pen 4130A	CFMT Bubblers Probe	150 psig 1000 lbs/hr	5 min per month
6-SH-H-168 n/a	System 63I Pen 4130C	CFMT Bubblers Probe	150 psig 1000 lbs/hr	5 min per month
6-SH-H-144 n/a	System 63I Pen 4215B	CFMT Bubblers Probe	150 psig 1000 lbs/hr	5 min per month
6-SH-H-145 n/a	System 63I Pen 4215A	CFMT Bubblers Probe	150 psig 1000 lbs/hr	5 min per month
6-SH-H-146 n/a	System 63I Pen 4215C	CFMT Bubblers Probe	150 psig 1000 lbs/hr	5 min per month
6-SH-H-149 n/a	System 63I Pen 2821B	CFMT Bubblers Probe	150 psig 1000 lbs/hr	5 min per month
6-SH-H-150 n/a	System 63I Pen 2821A	CFMT Bubblers Probe	150 psig 1000 lbs/hr	5 min per month
6-SH-H-151 n/a	System 63I Pen 2821C	CFMT Bubblers Probe	150 psig 1000 lbs/hr	5 min per month

2.2.3 Drop #(undefined)

The third drop is initiated from the 100 psig header with line 6-SH-2-501 and activated with valve 6-SH-H-501. This drop provides steam to three utility outlets, which are located in the Crane Maintenance Room (CMR), the Transfer Tunnel and the Crane Maintenance Operating Aisle (CMOA). Manual controls for each outlet are located in the CMOA. Pertinent data for these stations are provided in section 2.2.13 and P&ID 905-D-028.

2.2.4 Drop #(undefined)

The fourth drop is initiated with line 6-SH-1-015, located in the MEOA, and activated with valve 6-SH-GT-91. From here the steam pressure and flow rate is adjusted to provide the proper number of calories to heat exchanger 6-DW-E-040, to heat Demineralized Water to 180° F.

Non-Rack - MEOA - P&ID 905-D-047 S01

Interface Pt Steam/Condst	User System Proc. Trap	User Application	Stm Press Flow Rate	Operations per Period
6-SH-GT-91 6-SH-GT-93	System TBD 6-SH-T-018	Heat Demineralized Water for In-Cell Work Station	100 psig TBD	Unplanned use only

2.2.5 Drop #(undefined)

The fifth drop is initiated with line 6-SH-1 1/2-020 and activate with valve 6-SH-GL-023, Which is located in the UEOA. The drop provides steam to Instrument Rack 3E10 for user applications listed in the following table.

Instrument Rack - 3E10 - P&ID 905-D-045 S18

Interface Pt Steam/Condst	User System Cell-Pen Proc. Trap	User Application	Stm Press Flow Rate	Operations per Period
6-SH-HV-4413D n/a	System 63J Pen 9649	Steam Eductor 4413, Pump Canister Decon Tank fluids to Neutralizer Tank	100 psig 600 lbs/hr	30 min per Canister
6-SH-HV-4413D n/a	System 63J Pen 9643	Steam Eductor 4621, Pump Neutralizer Tank fluids to SBS or Waste Header	100 psig 600 lbs/hr	30 min per Canister
6-SH-TV-4402 6-SC-GT-684	System 63J Pen 9473A/B 6-SC-T-685	Canister Decon Tank Heating/Cooling Coils	25 psig 70 lbs/hr	6 Hrs per Canister

2.2.6 Drop #1

The sixth drop, identified as drop #1 on the P&ID, is initiated with line 6-SH-3-093 and activated with valve 6-SH-GL-009, which is located in the UEOA. This drop provides steam to three Utility Stations, Instrument Rack 2E9-8, and the Vitification Building Ventilation Supply Air Handling Unit (AH-67-V001) which is located in the UNOA. Utility Stations are summarized in section 2.2.13, steam provided to the Instrument Rack 2E9-8 (P&ID 905-D-045 S06) is not used, and the steam to the HVAC Unit is PLC controlled to heat the

air in the building. The following table summarizes the HVAC data.

Non-Rack - MEOA - P&ID 905-D-047 S03

Interface Pt Steam/Condst	User System Proc. Trap	User Application	Stm Press Flow Rate	Operations per Period
6-SH-GT-028 6-SH-GT-049	System 67 6-SH-T-015	HA-Unit-V001, Steam Coil "A", North	100 psig 1000 lbs/hr	Continuous for 6 Mths
6-SH-GT-028 6-SH-GT-051	System 67 6-SH-T-017	HA-Unit-V001, Steam Coil "B", South	100 psig 1000 lbs/hr	Continuous for 6 Mths

2.2.7 Drop #3

The seventh drop is initiated with line 6-SH-3-008 and capped in the UNOA.

2.2.8 Drop #4

The eighth drop is initiated with line 6-SH-3-089 and activated with valve 6-SH-GL-016, which is located in the UNOA. It supplies steam to Instrument Rack 2N6-5 and, through a non-rack station in the UNOA, to the Melter. Instrument Rack provides steam to an inductor for the North Sump, while the non-rack supplies steam to clean the melter viewing port. The following tables provide pertinent interface data with the user.

Instrument Rack - 2N6-5 - P&ID 905-D-045 S04

Interface Pt Steam/Condst	User System Cell-Pen	User Application	Stm Press Flow Rate	Operations per Period
6-SH-HV-1113D n/a	System 63G Pen 1227	Steam Eductor 1113, pump North Sump content to WH V-045	100 psig 1000 lbs/hr	Unplanned use only

Non-Rack - UNOA - P&ID 905-D-047 S01

Interface Pt Steam/Condst	User System Cell-Pen	User Application	Stm Press Flow Rate	Operations per Period
6-SH-HV-2006 n/a	System 63I Pen 1447B	Steam clean the Melter Viewing Port	100 psig 50 lbs/hr	1 min per hour

2.2.9 Drop #5

The ninth drop is initiated with line 6-SH-3-011 and activated with valve 6-SH-GL-013, which is located in the UWOA. The drop provides steam to two Utility Stations and three Instrument Racks. Data on Utility Stations is summarized in section 2.2.13, while the pertinent interface data for the Instrument Racks is summarized in the following tables. The table for Instrument Rack 3W7 and 2W5 were combined since the steam input to the CFMT side heating/cooling coils comes through rack 2W5 and exits to the condensate sump through rack 3W7 (This is the only steam input to rack 2W5).

Instrument Rack - 3W7/2W5 - P&ID 905-D-045 S09/S17

Interface Pt Steam/Condst	User Cell-Pen	User Application	Stm Press Flow Rate	Operations per Period
6-SH-FV-0101A 6-SC-GT-071	System 63I Pen 4209/4310	Steam heat CFMT, side heating/cooling coil	100 psig 1000 lbs/hr	72 hrs per Vit Proc. Feed Cycle
6-SH-H-640 n/a	System 63I Pen 1429	Steam Eductor 1117, pump MFHT content to Waste Header (V-045)	100 psig 1000 lbs/hr	End of Vit Proc. only 3.5 hrs
6-SH-H-640 n/a	System 63I to Sys 63H Pen 1330	Steam Eductor 3124, pump SBS content to Waste Header (V-045)	100 psig 1000 lbs/hr	1 hr per Vit Proc. Feed Cycle
6-SH-H-640 n/a	System 63I Pen 1108B	Steam Eductor 1305, pump Seal Pot (V-013) content to Waste Header (V-045)	100 psig 1000 lbs/hr	End of Vit Proc. only 4 min per operation

Instrument Rack - 3W6 - P&ID 905-D-045 S13

Interface Pt Steam/Condst	User System Cell-Pen	User Application	Stm Press Flow Rate	Operations per Period
6-SH-HV-3105D n/a	System 63H Pen 2713	Steam Eductor 3105, circulate SBS fluid from receiver to scrubber	100 psig 1000 lbs/hr	1 hr per Vit Proc. Feed Cycle
6-SH-HV-0110D n/a	System 63I Pen 4211	Steam Eductor 0110, pump from CFMT Heel Rem Assy (V-004) to MFHT	100 psig 1000 lbs/hr	End of Vit Proc. only 3.5 hr per operation
6-SH-HV-0110D n/a	System 63I Pen 4221	Steam Eductor 0117, pump CFMT content to Waste Tank Farm	100 psig 1000 lbs/hr	End of Vit Proc. only 3.5 hr per operation
6-SH-HV-0110D n/a	System 63I Pen 2417B	Steam Eductor 0305, pump Seal Pot (V-003) content to Waste Header (V-045)	100 psig 600 lbs/hr	End of Vit Proc. only 4 min per operation
6-SH-HV-0110D n/a	System 63I Pen 4326	Steam Eductor 1105, pump MFHT content to CFMT	100 psig 1000 lbs/hr	End of Vit Proc. only 1 hr per operation

2.2.10 Drop #6

The tenth drop is initiated with line 6-SH-3-012 and capped in the UWOA.

2.2.11 Drop #(undefined)

The eleventh drop is initiated with line 6-SH-3-401 and activated with valve 6-SH-GL-401, which is located in the UWOA, and supplies steam to the Cold Chemical Building. Once in the Cold Chemical Building line 6-SH-1 1/2-402 branches off to the Steam Eductors, and line 6-SH-3-405 proceeds to a steam pressure reducing valve, where the pressure is dropped to 25 psig. The 25 psig steam is distributed to two Utility Stations, two Decon Tanks, three heater coils to heat make-up air, and five Area Heaters. The Steam Eductors operate suction Wands that are used to add liquid chemicals to the

Decon Tanks and Slurry Tanks respectively, the Utility Stations supply steam for general purpose use as required by the user, the Decon Tanks use steam jackets to heat the chemicals in the tanks, and the space/make-up heaters use steam to heat the building. Pertinent interface data for the Utility Stations is summarized in section 2.2.13, while the interfaces and uses for the other steam users are summarized in the tables below.

Cold Chemical Building - P&ID 905-D-018

Interface Pt Steam/Condst	User System Proc. Trap	User Application	Stm Press Flow Rate	Operations per Period
6-SH-GT-759 n/a	System 65 n/a	Steam Eductor ED-07, Liquid Transfer Wand for Decon Tanks	100 psig 750 lbs/hr	5 min for every 3 month
6-SH-GT-759 n/a	System 65 n/a	Steam Eductor ED-06, Liquid Transfer Wand for Slurry Tanks	100 psig 750 lbs/hr	24 min per Vit Proc. Feed Cycle

Cold Chemical Building - P&ID 905-D-019 S01-S03

Interface Pt Steam/Condst	User Proc. Trap	User Application	Stm Press Flow Rate	Operations per Period
6-SL-GT-410 6-SC-GT-402	System 65 6-SC-T-427	Heating Jacket for Decon Tank 65-D-07	25 psig 200 lbs/hr	6 hrs per 6 months period
Deleted 6-SC-GT-403	System 65 6-SC-T-421	Heating Jacket for Decon Tank 65-D-08	25 psig 200 lbs/hr	not used
6-SL-GT-412 6-SC-GT-404	System 65 6-SC-T-421	Heating Jacket for Decon Tank 56-D-09	25 psig 200 lbs/hr	1.5 hrs per 3 mths period
6-SL-GT-425 6-SC-GT-417	System 67 6-SC-T-454	Area Heater V-014	25 psig 30 lbs/hr	6 months per year
6-SL-GT-413 6-SC-GT-405	System 67 6-SC-T-472	Area Heater V-015	25 psig 30 lbs/hr	6 months per year
6-SL-GT-418 6-SC-GT-412	System 67 6-SC-T-478	Area Heater V-016	25 psig 30 lbs/hr	6 months per year

Interface Pt Steam/Condst	User Proc. Trap	User Application	Stm Press Flow Rate	Operations per Period
6-SL-GT-417 6-SC-GT-411	System 67 6-SC-T-460	Area Heater V-017	25 psig 30 lbs/hr	6 month per year
6-SL-GT-424 6-SC-GT-418	System 67 6-SC-T-464	Area Heater V-018	25 psig 30 lbs/hr	6 month per year
6-SL-GT-419 6-SC-GT-413	System 67 6-SC-T-443	Outside Make-up Air Heater V-011	25 psig 350 lbs/hr	6 month per year
6-SL-GT-426 6-SC-GT-416	System 67 6-SC-T-483	Outside Make-up Air Heater V-012	25 psig 650 lbs/hr	6 month per year
6-SL-GT-416 6-SC-GT-410	System 67 6-SC-T-470	Outside Make-up Air Heater V-013	25 psig 350 lbs/hr	6 month per year

2.2.12 Drop #7

The twelfth drop is initiated with line 6-SH-3-013 and activated with valve 6-SH-GL-015, which is located in the UWOA. This drop provides steam to three Utility Stations and four Instrument Racks. Pertinent information on the Utility Stations is provided in section 2.2.13, while the tables below summarize interface and other data for the instrument Racks. Input and output for the CFMT bottom heating/cooling coils are divided between Rack 3W2-1A and 3W1, and the data has been combined into one table.

Instrument Rack - 2W2-1B - P&ID 905-D-045 S05

Interface Pt Steam/Condst	User System Cell-Pen	User Application	Stm Press Flow Rate	Operations per Period
6-SH-HV-3114D n/a	System 63I Pen 2618	Steam Eductor 3114, pump SBS content to CFMT	100 psig 1000 lbs/hr	2 hrs per Wit Proc. Feed Cycle

Instrument Rack - 3W1/3W2-1A - P&ID 905-D-045 S15/S01

Interface Pt Steam/Condst	User System Cell-Pen Proc. Trap	User Application	Stm Press Flow Rate	Operations per Period
6-SH-FV-0103A 6-SC-GT-068	System 63I Pen 2A28/2A23 6-SC-T-609	Steam heat CFMT via bottom Heating/cooling coil	100 psig 400 lbs/hr	72 hrs per Vit Proc. Feed Cycle
6-SH-HV-0115D n/a	System 63I Pen 4423 n/a	Steam Eductor 0115, pump CFMT content to MFHT	100 psig 1000 lbs/hr	1 hr per Vit Proc. Feed Cycle
6-SH-HV-0115D n/a	System 63I Pen 4423 n/a	Steam Eductor 1108, pump from MFHT Heel Rem Assy (V-014) to WH (V-045)	100 psig 1000 lbs/hr	End of Vit Proc. only 3.5 hr per operation

Instrument Rack - 3W3 - P&ID 905-D-045 S14

Interface Pt Steam/Condst	User System Cell-Pen	User Application	Stm Press Flow Rate	Operations per Period
6-SH-HV-4506D n/a	System 63G Pen 5105	Steam Eductor 4506, pump South Sump content to WH (V-045)	100 psig 1000 lbs/hr	25 min per Week
6-SH-HV-4506D n/a	System 63G Pen 5107	Steam Eductor 4511, pump South Sump content to WH (V-045)	100 psig 1000 lbs/hr	Unplanned use only

2.2.13 Utility Stations

Utility Stations provide steam throughout the vitrification facility for general purpose and intermittent usage. Their usage is out of the ordinary and often unpredictable. Utility Stations located in the Vitrification Building are provided with steam at 100 psig, while the Stations in the Cold Chemical Building are provided with 25 psig steam. The following table summarizes the location, line and valve number for the Utility Stations connected to the Vitrification Facility Steam System.

Utility Stations

Location	Line Number	Valve Number
Vit Bldg, Drop-U, CMR	6-SH-1-505	6-SH-GL-508
Vit Bldg, Drop-U, Transfer Tunnel	6-SH-1-507	6-SH-GL-507
Vit Bldg, Drop-U, CMOA	6-SH-1-506	6-SH-GL-509
Vit Bldg, Drop-1, UEOA	6-SH-1-062	6-SH-GL-074
Vit Bldg, Drop-1, MEOA	6-SH-1-063	6-SH-GL-075
Vit Bldg, Drop-1, LEOA	6-SH-1-064	6-SH-GL-076
Vit Bldg, Drop-5, UNOA	6-SH-1-027	6-SH-GL-035
Vit Bldg, Drop-5, LNOA	6-SH-1-059	6-SH-GL-068
Vit Bldg, Drop-5, (63L) Sample Transfer Station	6-SH-1/2-053	6-SH-H-036
Vit Bldg, Drop-7, UWOA	6-SH-1-069	6-SH-GL-047
Vit Bldg, Drop-7, MWOA	6-SH-1-067	6-SH-GL-078
Vit Bldg, Drop-7, LWOA	6-SH-1-068	6-SH-GL-079
CC Bldg, Drop-U, CCPR	6-SL-1-421	6-SL-GL-427
CC Bldg, Drop-U, CCER	6-SL-1-422	6-SL-GL-428

2.2.14 Protection Traps

The following table identifies the safety traps in the steam distribution system. These drip traps are used to remove condensate from the distribution pipes before the steam is deployed by the user process. Condensate line numbers followed by a "CH" drain directly to the condensate return header, line numbers followed by a "DR" release the condensate to the facility drain system, all other condensate lines drain to the Condensate Collection Sump (SC-D-001) located in the LWOA.

Steam System Protection Traps

Location	User Component(s)	Trap Number	Condensate Line
1st Drop, MEOA	Waste Tank Farm	6-SH-T-181	6-SC-1/2-113 CH
2nd Drop, UWOA	MFHT & CFMT Bubblers	6-SH-T-177 6-SH-T-183	6-SC-1/2-072 6-SC-1/2-183
2nd Drop, 3W8	MFHT Bubbler Probes	6-SH-T-157	6-SC-1/2-109 DR
2nd Drop, 3W8	MFHT Bubbler Probes	6-SH-T-174	6-SC-1/2-112 DR
2nd Drop, 3W8	MFHT Bubbler Probes	6-SH-T-164	6-SC-1/2-110 DR
2nd Drop, 3W8	CFMT Bubbler Probes	6-SH-T-169	6-SC-1/2-111 DR
2nd Drop, 3W8	CFMT Bubbler Probes	6-SH-T-147	6-SC-1/2-107 DR
2nd Drop, 3W8	CFMT Bubbler Probes	6-SH-T-152	6-SC-1/2-108 DR
In Line, MEOA	Pressure Reducing Station, upstream	6-SH-T-009	6-SC-1/2-051
In Line, MEOA	Pressure Reducing Station, downstream	6-SH-T-010	6-SC-1/2-052
3rd Drop, MEOA	Utility Outlets in CMR, CMOA and Transfer Tunnel	6-SH-T-505	6-SC-1/2-504 DR
5th Drop, 3E10	Canister Decon Tank & Neutralizer Tank Steam Eductors	6-SH-T-705	6-SC-1/2-068
5th Drop, 3E10	Canister Decon Tank Heating/Cooling Jacket	6-SH-T-696	6-SC-1/2-068
6th Drop, 2E9-8	Not Used	6-SH-T-616	6-SC-1/2-077
6th Drop, UNOA	Pressure Reducing Station to AH-67- V001, upstream	6-SH-T-011	6-SC-1/2-043
6th Drop, UNOA	Pressure Reducing Station to AH-67- V001, downstream	6-SH-T-012	6-SC-1/2-042
6th Drop, UNOA	Input to AH-67-V001 Vit Building Heater	6-SH-T-013	6-SC-1/2-045

8th Drop, UNOA	Melter Viewing Port	6-SH-T-006	6-SC-1/2-056
8th Drop, 2N6-5	North Sump Eductor	6-SH-T-607	6-SC-1 1/2-057
9th Drop, 3W7	Seal Pot Assy V-013 Steam Eductor	6-SH-T-635	6-SC-1 1/2-060
9th Drop, 3W6	SBS Steam Eductor	6-SH-T-661	6-SC-1/2-061
9TH Drop, 3W6	Steam Eductors for CFMT, MFHT, CFMT Heel Rem Assy, and Seal Pot Assy V-003	6-SH-T-663	6-SC-1/2-061
9th Drop, 2W5	CFMT Side Jacket, Heating/Cooling	6-SH-T-684	6-SC-1/2-059
11th Drop, Cold Chem Bldg	Steam Eductors, Liquid Wands	6-SC-T-425	6-SC-2-407
11th Drop, Cold Chem Bldg	Pressure Reducing Station, upstream	6-SC-T-423	6-SC-2-407
11th Drop, Cold Chem Bldg	Pressure Reducing Station, downstream	6-SC-T-424	6-SC-2-407
11th Drop, Cold Chem Bldg	Header to Utility Stations, Decon Tank Jackets and Area Heating Units	6-SC-T-432 6-SC-T-433	6-SC-2-407 6-SC-2-407
12th Drop, 3W1	CFMT Bottom Jacket, Heating/Cooling	6-SH-T-680	6-SC-1/2-058
12th Drop, 3W2- 1A	CFMT Steam Eductor or MFHT Heel Rem Steam Eductor	6-SH-T-625	6-SC-1/2-064
12th Drop, 3W3	Two South Sump Steam Eductors	6-SH-T-666	6-SC-1/2-063
12th Drop, 2W2- 1B	SBS Steam Eductor	6-SH-T-631	6-SC-1/2-062 CH
In Line, UWOA	Main Steam Header	6-SH-T-008	6-SC-1/2-028

2.3 Component Descriptions

Radiation Monitor Skid:

6-SC-E-001 (Heat Exch.) - Young Radiator Co. baffled heat exchanger. Procured as part of the Off-Line Radiation Monitor Skid package.

RE-0102 (Rad. Monitor) - Victoreen, model 943-36 or equivalent, gamma scintillation detector including NaI scintillation crystal, photomultiplier tube, preamplifier assembly, cabling, and power supply. The detector housing is carbon-steel. Operating temperature is 32-122°F. Power is +1400 VDC max. at 500 microamps.

SC-G-12 (Pump) - Price Pump Co. stainless-steel, centrifugal motor pump. Procured as part of the Off-Line Radiation Monitor Skid package.

Condensate Sump Pumps:

SC-G-10. SC-G-11 - Aurora pump, model 532 or equivalent, 7 1/2 hp, 3 phase, semi-open propeller, iron construction, 60 gpm, 125' head, 1,750 rpm.

Protection Traps:

SH-T-607, SH-T-616,
SH-T-625, SH-T-631,
SH-T-635, SH-T-661,
SH-T-663, SH-T-666,
SH-T-680, SH-T-684,
SH-T-696, SH-T-705. Spirax Sarco, Inc. Thermodynamic Steam Trap, model TD-S-52 with socket weld ends, blow down valve and integral strainer. Maximum operating pressure - 600 psi
Maximum operating temperature - 800°F

SH-T-423, SH-T-424,
SH-T-425, SH-T-432,
SH-T-433. Armstrong Cast Iron Bucket Trap, model 880 with integral strainer. Maximum operating pressure - 150 psi

SH-T-008, SH-T-147,
SH-T-152, SH-T-157,
SH-T-164, SH-T-164,
SH-T-169, SH-T-174. Spirax Sarco, Inc. Thermodynamic Steam Trap, model TD-S-52 NPT with blow down valve and integral strainer. Maximum operating pressure - 600 psi
Maximum operating temperature - 800°F

SH-T-006, SH-T-009,
SH-T-010, SH-T-011,
SH-T-012, SH-T-013,
SH-T-177, SH-T-181,
SH-T-183, SH-T-505. Spirax Sarco, Inc. Thermodynamic Steam Trap, model UTD 30L with socket weld ends, blow down valve and swivel connector. Maximum operating pressure - 450 psi
Maximum allowable temperature - 725°F

2.4 Interface Descriptions

This section summarizes the interface parameters between the VF Steam/Condensate System, it's input source and it's user requirements. The interface points with the source and users, and the components requirements, have been identified in section 2.2, Physical Description. This section only consolidates the user system demands on the VF steam system and the demand of the system on the source during normal Vit Operation.

2.4.1 System 8 (Waste Tank Farm)

TBD

2.4.2 System 31 (Plant Steam)

During Vit Operation steam is supplied by the Main Plant Utility System to satisfy the requirements of the VF Steam/Condensate System. System input requirements are:

Average usage rate with heaters - 2843 lbs/hr

Average usage rate without heaters - 543 lbs/hr

Intermittent demand rate - 0 to 9250 lbs/hr

Supply pressure - 150 psig

Condensate return rate - TBD

The maximum intermittent demand is based on the premiss that each user system is operating independently and possibly at the same time. With coordination the maximum demand can be reduced to 6500 lbs/hr.

2.4.3 System 63G (Waste Header)

Uses steam eductor to reduce fluid level in the South Sumps.

Average usage rate - 2.5 lbs/hr

Maximum flow rate - 1000 lbs/hr

Supply pressure - 100 psig

2.4.4 System 63H (Off-Gas & Vessel Vent)

Uses steam eductors to recirculate the SBS, and move fluid to the Waste Header.

Average usage rate - 5 lbs/hr

Maximum flow rate - 1000 lbs/hr

Supply pressure - 100 psig

2.4.5 System 63I (Main Process)

Uses steam to clear Bubbler Probes, clean Melter Viewing Port, heat CFMT and move Slurry from CFMT to MFHT and SBS to CFMT.

Clear Bubblers in CFMT and MFHT:

Average usage rate - 2.2 lbs/hr

Maximum flow rate - 1000 lbs/hr

Supply pressure - 150 psig

Heat CFMT via side and bottom coils:

Average usage rate - 494 lbs/hr

Maximum flow rate - 2000 lbs/hr

Supply pressure - 100 psig

Clean Melter Viewer:

Average usage rate - 1 lbs/hr

Maximum flow rate - 1000 lbs/hr

Supply pressure - 100 psig

Move Slurry from CFMT to MFHT:

Average usage rate - 5 lbs/hr

Maximum flow rate - 1000 lbs/hr

Move Fluids from SBS to CFMT:

Average usage rate - 9.8 lbs/hr

Maximum flow rate - 1000 lbs/hr

Only the Viewer will be operated simultaneous with the Heater creating requirements of:

Average usage rate - 512 lbs/hr

Maximum flow rate - 3000 lbs/hr

2.4.6 System 63J (Canister Decontamination)

Uses steam to move decon fluids from Canister Decon Tank to Neutralizer Tank to SBS in turn, heat Decon fluid in Canister Decon Tank. These operations are not done simultaneously.

Average usage rate - 16 lbs/hr

Maximum flow rate - 600 lbs/hr

Supply pressure - 100 psig

2.4.7 System 65 (VF Cold Chemical)

Uses steam for Fluid Transfer Wands and Tank Heaters. The usage is independent and separate from each other.

Wand Eductors:

Average usage rate - 0.1 lbs/hr

Maximum flow rate - 750 lbs/hr

Supply pressure - 100 psig

Tank Heaters:

Average usage rate - 0.4 lbs/hr

Maximum flow rate - 200 lbs/hr

Supply pressure - 25 psig

Maximum User Requirements:

Average usage rate - 0.5 lbs/hr

Maximum flow rate - 950 lbs/hr

2.4.8 System 67 (VF HVAC)

Uses steam to heat the Vitrification Building and the Cold Chemical Building during cold weather.

Vit Building:

Average usage rate - 1300 lbs/hr

Maximum flow rate - 2000 lbs/hr

Supply pressure - 100 psig

Cold Chem Building:

Average usage rate - 1000 lbs/hr

Maximum flow rate - 1500 lbs/hr

Supply pressure - 25 psig

Maximum User Requirements:

Average usage rate - 2300 lbs/hr

Maximum flow rate - 3500 lbs/hr

2.4.9 Utility Stations

Steam is available to all stations identified in paragraph 2.2.13. These stations are designed for general purpose usage which is difficult to quantify. A best estimate of their usage is provided below.

Maximum flow rate - 800 lbs/hr

Nominal flow rate - 400 lbs/hr

Estimated usage - 3 hrs/week

Average usage rate - 7.1 lbs/hr

2.4.10 Condensate Return

Condensate, collected by process traps and drip traps in the Condensate Collection System, is returned to the Plant Utility Room. The condensate collection rates are as follows.

Average process trap collection rate - 1.0 gpm

Average protection trap collection rate - TBD

Average heater trap collection rate - 4.6 gpm

2.5 Periodic Test Requirements

Check the protection traps (drip traps) on a monthly schedule to assure that they are not plugged and hot steam is available to the process systems.

2.6 Safety Classes and Quality Levels

Component	Location	Safety Class	Quality Level
Piping	VF, Cold Chemical	N	C
Valves	VF	N	C
Instrumentation	VF, Cold Chemical	N	C
Pumps	VF	N	C

3.0 OPERATIONAL REQUIREMENTS

The Vitrification Facility Steam/Condensate System is a passive distribution and collection system. The system should perform all its required functions without operator intervention. Regulating steam pressure and flow to individual components is controlled by the component or system being supplied.

For information purposes, operation of the Main Plant Steam System is described in SOP-31-2, "Steam Generation."

3.1 Power Outage

During an electrical power outage the Vitrification Facility steam loads are reduced to standby operations. Continuous steam pressure is required to maintain safe fluid levels and temperatures in the process system. Power operated controls are backed by emergency power systems.

Boilers in the Main Plant Utility Room will remain operational during power outages. Refer to SOP 31-2, "Steam Generation."

4.0 LIMITATIONS, PRECAUTIONS, RANGES/SETPOINTS

4.1 Limitations

Relief valve, 6-SH-RV-006, on the Vitrification Facility main steam header will vent to the atmosphere if pressure in the system reaches 180 psig or higher.

4.2 Precautions

After isolating instrument racks to perform maintenance on steam/condensate equipment, block valves must be opened slowly to gradually warm the system.

4.3 Ranges/Setpoints

LSHL-001, LSH-002 (pump controls) -

Pumps SC-G-10 and SC-G-11 run alternately or together to maintain sump levels. The primary pump starts when the level in the sump reaches elevation 96.83 ft. The alternate pump starts when the sump level reaches elevation 97.33 ft. Both pumps shut-off when the sump level drops below elevation 93.83 ft. A high-level alarm, LAH-002, will sound in a local panel if the sump level reaches elevation 98 ft. It is estimated that the pumps will run every half hour during Vitrification Operations.

6-SH-GL-020 (PRV) -

This valve located on the main steam header into the Vitrification Facility is set at 100 psig.

6-SH-RV-006 -

This relief valve located on the main steam header into the Vitrification Facility is set to vent at 180 psig

5.0 CASUALTY EVENTS AND RECOVERY PROCEDURES

TBD

6.0 MAINTENANCE

TBD

7.0 REFERENCE DOCUMENTS

WVNS-DC-022 - Design Criteria Vitrification of High-Level Wastes

CS-134 - Vitrification Facility Civil/Structural Installation

CS-139 - Vitrification Mechanical, I&C, and Electrical Installation

SOP-31-2 - Steam Generation

Appendix A
Reference Drawings

- 905-D-019 - shts. 1 - 3 - P&ID Cold Chemical Steam & Condensate System
- 905-D-028 - P&ID Vitrification Facility Steam System
- 905-D-045 - shts. 1 - 21 - P&ID Vitrification Facility Instrument Racks
- 905-D-047 - shts. 1 - 3 - P&ID Vitrification Facility Steam/Condensate System

Appendix B
Steam Isolation Network Overview

```

:-----CANISTER DECON TANK JET (J4413) (TO NEUTRALIZER TANK)
:
:-----NEUTRALIZER TANK JET (J4621) (TO W. HEADER)
:
:-----CANISTER DECON TANK JACKET (V044)
:
:
:-----STEAM COIL A
:-----STEAM COIL B
:
:-----MELTER PERISCOPE
:
:-----NORTH SUMP JET (J1113) (TO W. HEADER)
:
:-----CFMT SIDE JACKET
:
:-----SEAL POT JET (J1305) (TO W. HEADER)
:-----MFHT JET (J1117) (TO W. HEADER)
:-----PRIMARY SCRUBBER JET (J3124) (TO W. HEADER)
:-----PRIMARY SCRUBBER JET (J3105) (TO W. HEADER)
:-----HEEL REM ASSEMBLY JET (J0110) (TO W. HEADER)
:-----CFMT JET (J0117) (TO W. HEADER)
:-----SEAL POT ASSEMBLY JET (J0305) (TO W. HEADER)
:-----MFHT JET (J1105) (TO CFMT)
:-----PRIMARY SCRUBBER JET (J3108) (TO MFHT)
:-----COLD CHEM BUILDING
:-----SOUTH SUMP JET (J4506) (TO W. HEADER)
:-----SOUTH SUMP JET (J4511) (TO W. HEADER)
:-----HEEL REM ASSEMBLY JET SPARE (J1108) (TO W. HEADER)
:-----CFMT JET (J0115) (TO MFHT)
:-----CFMT COOLING JACKET (BOTTOM)
:-----PRIMARY SCRUBBER JET (J3114) (TO CFMT)

```

BOILERS -----

EXISTING TAKE OFFS
(PROCESS BUILDING)

West Valley Demonstration Project

Doc. Number WVNS-SD-69B

Revision Number 0

Revision Date 04/05/94

Engineering Release #2895

SYSTEM DESCRIPTION

VITRIFICATION FACILITY SAMPLE TRANSFER SYSTEM

PREPARED BY L. E. Donovan L. E. Donovan
Cognizant Engineer

APPROVED BY L. E. Donovan L. E. Donovan
Cognizant System Engineer

APPROVED BY T. E. Cottrell 3/2/94 T. E. Cottrell
Cognizant System Design Manager

APPROVED BY D. L. Dempster D. L. Dempster
Quality Assurance Representative



West Valley Nuclear Services Co., Inc.

P.O. Box 191

West Valley, NY 14171-0191

SD:0002964.01

WVNS RECORD OF REVISION

DOCUMENT

If there are changes to the controlled document, the revision number increases by one. Indicate changes by one of the following:

- Placing an arrow at the beginning of the sentence or paragraph that was revised
- Placing a vertical black line in the margin adjacent to sentence or paragraph that was revised
- Placing the words GENERAL REVISION at the beginning of the text
- Placing either FC#> or PC#> at the beginning of a field/page change

Example:

The arrow in the margin indicates a change.

The vertical line in the margin indicates a change.

>
|

<u>Rev. No.</u>	<u>Description of Changes</u>	<u>Revision On Page(s)</u>	<u>Dated</u>
0	Original Issue	All	04/05/94

WVNS RECORD OF REVISION CONTINUATION FORM

<u>Rev. No.</u>	<u>Description of Changes</u>	<u>Revision On Page(s)</u>	<u>Dated</u>
-----------------	-------------------------------	--------------------------------	--------------

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
Summary	iv
1.0 SYSTEM FUNCTIONS AND DESIGN CRITERIA	1
1.1 Functions	1
1.2 Design Criteria	2
1.2.1 Operational Requirements	2
1.2.2 Structural Requirements	3
1.2.3 System Configuration and Essential Features	4
1.2.4 Maintenance Requirements	5
1.2.5 Instrumentation and Control Requirements	5
1.2.6 Interface Requirements	6
1.2.7 Quality Assurance Requirements	7
1.2.8 Codes and Standards	7
1.2.9 Reliability Assurance	9
2.0 DESIGN DESCRIPTION	10
2.1 Background	10
2.2 Detailed System Description	10
3.0 OPERATIONAL REQUIREMENTS	11
3.1 Sample Transfer	11
4.0 CONTROLS	11
5.0 REFERENCE DOCUMENTS	12

Summary

The Vitrification Sample Transfer System is a branch line addition and modification to the existing Societe Generale pour les Techni ques Nouvelles (SGN) Pneumatic Sample Transfer System. This branch connection modification consists of the following: a Sample Transfer Cell (STC) installed on the cold face of the Vitrification Cell (for sample preparation before transfer); an SGN slide ring sending unit atop the STC; new transfer tubing from the sending unit to the junction with the existing Supernatant Treatment System (STS) to Process Building pneumatic transfer line; a diverter valve at the junction (to select transfer paths); SGN equipment installed in the Vitrification Facility (VF) to provide for a reverse transfer; and associated control devices with applicable instrumentation, identical to existing, to monitor and control system operation.

Sample transfers from STS will functionally remain the same after the modifications, with the exception that the STS path, one of two transfer path selections, must be made and verified at the start of the transfer sequence.

1.0 SYSTEM FUNCTIONS AND DESIGN CRITERIA

The systems' function is to transfer 10 ml radioactive waste, mixture, and product samples from the vitrification hot cell to the analytical laboratory in the Process Building for analysis. Sample access to the laboratory is to be via the existing SGN pneumatic transfer system installed for STS. The modified system must be capable of transporting a sample from either the STS or VF. In case of a system malfunction, the design must allow for returning a sample to the facility from which it originated. The STS system has this capability now and any modification must include the same return sample capability for the VF. Transfer tubing, couplings, pneumatic equipment, control devices, and monitoring instrumentation must be identical to those items installed for the existing system.

1.1 Functions

- 1.1.1 Within the STC, accept from the VF hot cell, 10 ml samples each contained within a rounded, glass sample bottle, one inch square by 2 1/4 inches tall, including a cap. As the sample is received, it is dropped into a "rabbit" that is placed in receiving position with a slave manipulator. With the use of the manipulators, the "rabbit" containing the sample is capped and then placed in the storage rack for later transfer, or placed directly into the sending unit for transfer to the analytical laboratory. If any additional decontamination of the sample is required for whatever reason, a demineralized water rinse can be accomplished within the cell.
- 1.1.2 From the Process Building, select the Vitrification transfer path by positioning a switch on control panel CB-10 which sets the diverter valve to the desired transfer path, (STS or VF).
- 1.1.3 Verify on the Process Building control panel CB-10 that the diverter valve is in the proper position. (Selected path indicator light will be illuminated.)
- 1.1.4 Using one of the slave manipulators, place a capped "rabbit" containing a sample in the sending unit chamber.
- 1.1.5 With the foot switch, activate the sending unit to seal the chamber and draw the "rabbit" up into the transfer tube.
- 1.1.6 From the Process Building, activate transfer.
- 1.1.7 After initiating transfer, the "rabbit" is received in the Process Building analytical laboratory hot cell within approximately one minute.
- 1.1.8 "Rabbit" is tracked during transfer with installed passage detectors that energize panel mounted signal lights as the "rabbit" passes each detector.

- 1.1.9 If the "rabbit" is not received, panel mounted lights are to indicate the relative position of the "rabbit" in the transfer line. The first light not lit in the sequence indicates relative position and an audible alarm in the vicinity of the "rabbit" is to sound. (Alarm is tripped by the first passage detector that does not detect the "rabbit".)
- 1.1.10 Once it is determined a "rabbit" has become stuck in the transfer line, the activation of a reverse transfer function must be available from the Process Building. After the "rabbit" is reversed back to the STC in the VF, the system can be returned to the normal mode of operation.

1.2 Design Criteria

1.2.1 Operational Requirements

- A. The STC, the reverse transfer equipment, the slide ring sending unit, and a portion of the transfer tubing is to operate under indoor temperature conditions. The diverter valve and transfer tubing installed on the roof of the VF are to operate under outdoor ambient temperature conditions at WVDP.
- B. Sample transfers are to be accomplished under negative pressure or vacuum conditions.
- C. Transfer line tubing and the diverter valve installed outside must be maintained at a temperature above the ambient dew point temperature to prevent condensate formation on the inside of tube and valve surfaces. This is to be accomplished by expanding the heat trace system and installing insulation on the new outside tubing and diverter valve, the same as for the existing STS transfer line.
- D. Inlet and discharge air for the transfer line must pass through HEPA filtration to control air flow direction and prevent contamination to or from the transfer line.
- E. Radiation shielding is required around the STC to keep exposure level rates less than 2.5/t mrem/hr.
- F. The system must be capable of maintaining a vacuum in the transfer line from the Process Building for normal sample transfers, and from the VF for reverse transfers.

- G. Materials for the inside surface of the STC and the transfer tubing and fittings must be stainless steel. Radiation shielding material surrounding the STC is to be carbon steel. Sample bottles will be glass and the "rabbit" is polyethylene plastic.
- H. The STC must be able to receive up to ten sample bottles and send those samples in the transfer system within a 15 minute time span. After the samples are sent, the STC must then be ready to receive additional samples.
- I. A means to introduce supplies into the STC must be provided. These supplies will consist of:
 - 1) materials for the decontamination of sample bottle exterior surfaces, "rabbits", and the STC interior;
 - 2) items used to transfer samples out of the STC, such as "rabbits" and caps;
 - 3) maintenance items such as small tools, HEPA filters, equipment used inside the STC, and minor repair equipment.
- J. A means to send waste materials out of the STC must be provided. This waste consists of:
 - 1) materials used in the decontamination of sample bottle exterior surfaces, "rabbits", and equipment;
 - 2) spilled sample and broken sample bottle;
 - 3) no longer usable supplies;
 - 4) small tools and items of equipment used for maintenance purposes;
 - 5) used HEPA filters (8" diameter filter for STC ventilation air intake)

1.2.2 Structural Requirements

- A. The containment boundary afforded by the STC shall be sufficiently intact after a seismic event to maintain air flow ventilation into the VF hot cell.

- B. The STC and shielding must be prevented from making an independent response to the VF hot cell walls during a seismic event, i.e., the STC or its shielding shall not impact or pound the VF hot cell wall during a seismic event.
- C. Support for the STC and shielding shall be designed in accordance with the seismic criteria contained in the Uniform Building Code (UBC) 1988 edition using the site developed .1g ground acceleration factor and broadened response spectra.

1.2.3 System Configuration and Essential Features

- A. The installed location for the STC is on the cold face of the north wall of the VF hot cell near the west corner so as to be operable from the 100 ft. elevation.
- B. Transfer equipment and components will be located directly across the aisle to the north of the STC in the VF.
- C. The STC will have provisions to utilize two Model "G-HD" Manipulators by Sargent Industries to facilitate any decontamination of the outside sample bottle surface, and in general, to process the sample bottles for transfer.
- D. The sending unit will be a Model SGN slide ring assembly.
- E. The STC will be shielded with carbon steel plate and have a dry lead glass shielding window for operator viewing.
- F. Provisions for glove-port access to the STC shall be included. Glove-port access will be on a maintenance need basis and will require the removal of specially designed shielding panels.
- G. Internal lighting of the STC shall be provided in sufficient intensity to perform sample preparation and maintenance activity as viewed through the shielding window.
- H. Tie-in to the existing SGN pneumatic transfer line from STS shall be made outside on the east side of the roof over the VF at the 140 ft elevation.

- I. Electrical power and control wiring shall interface with existing panels in the Process Building with the exception of heat trace circuits which will interface with an existing electrical heat trace panel in the STS facility.

1.2.4 Maintenance Requirements

- A. Maintenance of the STC shall be by:
 - 1) remote removal and replacement of components; or by
 - 2) contact adjustment, repair, removal or replacement using glove-ports with source samples removed and STC shielding sections removed as required.
- B. Manipulators will be available to perform in-cell maintenance, handling, and adjustments on components.
- C. Lighting and manipulators shall be removable without the requirement for disassembly of the STC shielding.
- D. STC shielding shall be constructed in segments for ease of assembly and so segments can be removed without opening the STC.
- E. Maintenance of the reverse transfer equipment can be performed at the 100 ft elevation at the northwest corner of the VF.
- F. The diverter valve can be accessed for maintenance by using the maintenance access walkway and platform on the east roof section of the VF at the 140 foot elevation.

1.2.5 Instrumentation and Control Requirements

- A. Instrumentation shall be the same as the existing components used in the STS transfer system and shall provide for the necessary signals to monitor transfer functions utilizing panel mounted lights in the Process Building.
- B. Control circuitry shall provide for the operation of the new reverse transfer equipment to be installed in the VF, the slide ring sender, and the diverter valve. Control devices shall be identical to the existing control equipment.

- C. New instrumentation and controls must be integrated into the existing instrumentation and control design. This requires that the existing programmable controller in the PLC panel of the Process Building be modified to accommodate the additional functions.

1.2.6 Interface Requirements

- A. The STC will interface with the VF hot cell on the cold side of the north wall, near VF column location D-2.
- B. The STC will utilize the following utilities:
 - 1) Electrical Power--120 volt; single phase; 60 Hertz for lighting, manipulators, and small equipment as required.
 - 2) Water--Demineralized water for decontamination as required.
 - 3) Gases--Compressed instrument air inside the STC to operate tools and equipment as required. Ambient air from the gallery around the STC is drawn in through a HEPA filter for ventilation. Air then exits into the VF hot cell.
 - 4) Drain--A gravity drain line will be provided from the STC to the VF hot cell pit. This drain line is shielded to accommodate the flushing of a spilled sample.
- C. The transfer and reverse transfer equipment installed near the STC will require the following:
 - 1) Electrical Power--480 volt; three phase; 60 Hertz for the exhauster. 120 volt; single phase; 60 Hertz control and power from the PLC and CB 10 electrical panels in the Process Building to the exhauster, flow control valve, the SGN slide ring, the diverter valve, and two new passage detectors in the transfer line.
 - 2) Air--Instrument air at 80 psig will be required for the flow control valve, the SGN slide ring, and the diverter valve.

- D. Operationally the STC interfaces with the Vitrification Sampling System - No. 69A. The sampling system includes the equipment and methods to take and bottle the samples before depositing them in the drop tube that terminates within the STC. Functionally the STC interfaces with the cold face of the Vit Cell and the drop tube.

The sample "rabbits", caps, and liners interface with the STC through a drop tube on the west side of the STC. The receiving system for "rabbits" and samples is System 90 - Analytical Laboratory.

1.2.7 Quality Assurance Requirements

- A. The STC containments, including structure, shielding features, and shielding portions of the sample sender, are considered to be Safety Level "B" and Quality Level "B".
- B. The sample transfer system is considered to be Safety Level "C" and Quality Level "B".
- C. The miscellaneous equipment items inside the STC are considered to be Safety Level "N" and Quality Level "N".

1.2.8 Codes and Standards

- A. WVDP design criteria for Vitrification of High Level Waste-WVNS-DC-022, Section 13.0, contains a list of codes and standards, which are applicable to the VC. For the STC and Transfer System, the list includes:

ANSI-NQA-1	Quality Assurance Program
ANSI/ASME	Boiler & Pressure Vessel Code, Sections- II, V, VIII Division I, & IX
ANSI B1.20.1	Pipe Threads, General Purpose
ANSI B16.5	Flanges for Pipe and Fittings
ANSI B31.3	Chemical Plant and Petroleum Refinery Piping
ANSI B46.1	Surface Texture
ANSI Y14.5M	Dimensioning and Tolerancing
ASNT SNT-TC-1A	Recommended Practice for Nondestructive Testing

ASTM A6	General Requirements for Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use
ASTM A36	Structural Steel
ASTM A108	Specification for Steel Bars, Carbon, Cold Finished, Standard Quality
ASTM A177	Specification for High-Strength Stainless and Heat Resisting Chromium-Nickel Steel Sheet and Strip
ASTM A182	Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves & Parts for High Temperature Service
ASTM A240	Heat Resisting Chromium & Chromium Nickel Stainless Steel Plate, Sheet & Strip for Pressure Vessels
ASTM A269	Seamless and Welded Austenitic Stainless Steel Tubing for General Service
ASTM A276	Stainless and Heat Resisting Steel Bars and Shapes
ASTM A283	Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars
ASTM A285	Pressure Vessel Plates, Carbon Steel, Low and Intermediate Tensile Strength
ASTM A312	Seamless and Welded Austenitic Stainless Steel Pipe
ASTM A325	Specification for High-Strength Bolts for Structural Steel Joints
ASTM A351	Specifications for Steel Castings, Austenitic, for High-Temperature Service
ASTM A370	Methods and Definitions for Mechanical Testing of Steel Products
ASTM A380	Cleaning and Descaling Stainless Steel Parts, Equipment and Systems
ASTM A480	General Requirements for Flat Rolled Stainless and Heat-Resisting Steel Plate, Sheet and Strip

ASTM A484	General Requirements for Stainless and Heat-Resisting Bars, Billets and Forgings
ASTM A519	Seamless Carbon and Alloy Steel Mechanical Tubing
ASTM A582	Standard Specification for Free Machining Stainless and Heat Resisting Steel Bars, Hot Rolled, and Cold Finished
ASTM C852-81	Design Criteria for Plutonium Gloveboxes
ASTM E165	Methods for Liquid Penetrant Inspection
AWS A2.4	Symbols for Welding and Nondestructive Testing Including Brazing
AWS D1.1	Structural Welding - Steel
AWS D1.3	Structural Welding - Sheet Metal
AWS QC1	Standard for Qualification and Certification of Welding Inspectors
DOE 5480.1	DOE Safety and Health Program
MIL-F-51079C	HEPA Filters
NBS H-28	Screw-Thread Standard for Federal Standards
SP7	Dry Abrasive Blasting
SSPC	Steel Structures Painting Council

1.2.9 Reliability Assurance

- A. A system reliability requirement includes a tracking capability for the "rabbit" as it traverses the tubing path. If any single passage detector does not indicate a passage, then an alarm is sounded and the "rabbit" location is known to be between the first detector that did not light the panel light and the last detector that did.

- B. An important reliability feature is the reversing capability for the "rabbit" transfer. This requires redundant air filters, an exhauster, automatic control valves and control circuitry to be installed at the sample origin. In the event a "rabbit" does not make it to the analytical laboratory receiving hot cell, the reverse transfer can be activated to return the sample to its point of origin.
- C. Both the tracking and the reverse transfer functions are existing system capabilities that are duplicated with the addition of vitrification to the system. Hardware required to accomplish these functions is identical to that already installed.

2.0 DESIGN DESCRIPTION

2.1 Background

2.1.1 This modification to the existing SGN Pneumatic Sample Transfer System is a duplication of the presently installed capability for STS. The modification necessary for the VF allows for the processing and sending of samples from the vitrification process, the same as for STS. The unique part of the modification provides for a common destination for all samples regardless of origin and a common use of the last approximate 300 feet of transfer tubing prior to sample entry into the analytical laboratory.

2.2 Detailed System Description

2.2.1 Using remote handling techniques and the components that comprise the Vitrification Sample System - System No. 69A, a 10 ml liquid sample of process fluids is taken in the VF hot cell. This sample is contained within a square glass bottle with a screw top lid. Next the sample bottle is released to the gravity drop tube which deposits the bottle in a plastic container ("rabbit") in a holding fixture inside the STC. Using slave manipulators, the sample bottle can be capped and transferred to the laboratory or cleansed of surface contamination if required, dried, and then placed inside another "rabbit" for transport.

Within the STC, a shielding storage block is provided for storage of ten samples contained in transfer "rabbits". This block provides an additional three inches of steel shielding around the samples and forces the operator to store samples in the middle of the STC, up against the VF hot cell shielding wall to keep radiation exposure ALARA.

3.0 OPERATIONAL REQUIREMENTS

3.1 Sample Transfer

- 3.1.1 To initiate a sample transfer, the "rabbit" containing a sample is placed in the SGN sending unit by an operator using the STC slave manipulators. With a foot switch the operator activates the slide ring by causing the "rabbit" to be loaded into the suction portion of the sending unit. The operator by operating a switch requests a sample transfer of the analytical laboratory. After acknowledgement the analytical laboratory operator activates the transfer from the Process Building control panel.
- 3.1.2 First, the analytical lab operator places the selector switch in the VF position. After confirmation of position (panel light for VF lights), the transfer switch is activated by the operator. Panel is then observed for indicator lights to light as the "rabbit" passes the in-line passage detectors. In approximately one minute after the transfer switch is activated, the "rabbit" should appear in the SGN receiver inside the laboratory hot cell.
- 3.1.3 As the "rabbit" is received in the laboratory hot cell, detectors in the transfer line will have been tripped to allow the PLC to automatically shut the suction system down and close off the inlet and outlet suction line valves.
- 3.1.4 If the "rabbit" is not received in the laboratory hot cell, indicator lights on the control panel will reveal the relative position of the rabbit in the transfer system. The reverse transfer switch can be activated to dislodge the "rabbit" and return it to the VF sending unit.

4.0 CONTROLS

- 4.1 All operation of the system is controlled through the PLC located in the operating aisle of the Analytical Laboratory. Trouble shooting, operational verification, and sequencing of functions are established and set or adjusted at this programmable controller.

5.0 REFERENCE DOCUMENTS

- WVNS-DC-022 Design Criteria Vitrification of High-Level Wastes
- WVNS-EQ-296 Equipment Specification-Vitrification Sample Transfer Cell
- WVNS-EQ-310 Equipment Specification-Vitrification Sample Transfer Diverter
Valve
- WVNS-CS-139 Vitrification Mechanical, I&C, and Electrical Installation

Appendix A - Reference Drawings

Vitrification Sample Transfer Cell:

H-3-53805	sh 1-4	Sample Cell Liner Details and Assembly
H-3-53806	sh 1-4	Shielding Assembly and Details
H-3-53807	sh 1-4	Sample Cell Installation

Vitrification Sample Transfer Diverter Valve:

900-D-2830	PSTS Enclosed Diverter Valve Assembly
900-D-2831	PSTS Diverter Valve Assembly
900-D-2832	PSTS Diverter Valve Drum Assembly
900-D-2833	PSTS Diverter Valve Flange Assemblies
900-D-2834	PSTS Diverter Valve Details
900-D-2835	PSTS Diverter Valve Details
900-D-2854	PSTS Diverter Valve Drum Details

Vitrification Sample Transfer System:

905-D-058	sh 1 & 2	P&ID Vitrification Sample Transfer System
-----------	----------	---

Attachment C

4/28/94

Section 1.2: P&IDs

Page 1

900-D-2318	Sht:001	Rev:009	Title: Waste Mobil. Pump P&ID 8D-1-M6
------------	---------	---------	---------------------------------------

900-D-2318	Sht:002	Rev:007	Title: Waste Mobil Pump P&ID 8D-1-M4
------------	---------	---------	--------------------------------------

900-D-2318	Sht:003	Rev:006	Title: Waste Mobil Pump P&ID 8D-1-M3
------------	---------	---------	--------------------------------------

900-D-2318	Sht:004	Rev:006	Title: Waste Mobil Pump P&ID 8D-1-M2
------------	---------	---------	--------------------------------------

900-D-2318	Sht:005	Rev:006	Title: Waste Mobil Pump P&ID 8D-1-M1
------------	---------	---------	--------------------------------------

900-D-2318	Sht:006	Rev:006	Title: Waste Mobil Pump P&ID 8D-2-M6
------------	---------	---------	--------------------------------------

900-D-2318	Sht:007	Rev:006	Title: Waste Mobil Pump P&ID 8D-2-M5
------------	---------	---------	--------------------------------------

900-D-2318	Sht:008	Rev:007	Title: Waste Mobil Pump P&ID 8D-2-M3
------------	---------	---------	--------------------------------------

900-D-2318	Sht:009	Rev:006	Title: Waste Mobil Pump P&ID 8D-2-M2
------------	---------	---------	--------------------------------------

900-D-2318	Sht:010	Rev:008	Title: Waste Mobil Pump P&ID 8D-2-M1
------------	---------	---------	--------------------------------------

900-D-2731	Sht:001	Rev:003	Title: VF STACK SAMPLING SYSTEM P AND ID
------------	---------	---------	--

900-D-2803	Sht:001	Rev:000	Title: Cold Chemical building H&V air flow diagram and P&ID
------------	---------	---------	---

900-D-4072	Sht:001	Rev:000	Title: WTF INTERIM CHEM. & SLUDGE WASH WATER ADD. SYS P&ID
------------	---------	---------	--

900-D-4525	Sht:001	Rev:003	Title: WTF INTERIM CHEM & SLUDGE WASH WATER ADDITION SYS P&ID
------------	---------	---------	---

900-E-705	Sht:01A	Rev:006	Title: CTS ABB & LEGEND PROCESS & INSTRUM DIA
-----------	---------	---------	---

900-E-705	Sht:01B	Rev:000	Title: JET CONTROL
-----------	---------	---------	--------------------

900-E-705	Sht:01C	Rev:000	Title: JET CONTROL
-----------	---------	---------	--------------------

900-E-705	Sht:01D	Rev:000	Title: MFHT BUBBLER CONTROL
-----------	---------	---------	-----------------------------

900-E-705	Sht:01E	Rev:000	Title: CPMT BUBBLER CONTROL
-----------	---------	---------	-----------------------------

900-E-705	Sht:01F	Rev:000	Title: INDEX VIT & 01/14
-----------	---------	---------	--------------------------

900-E-705	Sht:002	Rev:018	Title: CTS concentrator feed makup tk. 63 v001 P&ID
-----------	---------	---------	---

900-E-705	Sht:003	Rev:016	Title: CTS melter feed hold tk 63 v011 P&ID
-----------	---------	---------	---

900-E-705	Sht:004	Rev:014	Title: CTS waste header V-045 vit. cell P&ID
-----------	---------	---------	--

900-E-705	Sht:005	Rev:009	Title: CTS - ADS sample pump & P&ID
-----------	---------	---------	-------------------------------------

900-E-705	Sht:006	Rev:010	Title: CTS fht ads pump 63g011 P&ID
-----------	---------	---------	-------------------------------------

900-E-705	Sht:007	Rev:011	Title: CTS INTERNAL MELTER THERMOCOUPLES
-----------	---------	---------	--

900-E-705	Sht:008	Rev:013	Title: CTS MELTER COOLING SYSTEM
-----------	---------	---------	----------------------------------

900-E-705	Sht:009	Rev:018	Title: CTS MELTER PNEUMATIC INSTRUMENTATION
-----------	---------	---------	---

900-E-705	Sht:010	Rev:013	Title: CTS MELTER AND HEATER POWER SUPPLY AND CONTROLS
-----------	---------	---------	--

900-E-705	Sht:011	Rev:013	Title: SAMPLER FOR V001 & V011 PROCESS & INSTR. DIA.
-----------	---------	---------	--

900-E-705	Sht:012	Rev:014	Title: CTS TURNTABLE
-----------	---------	---------	----------------------

900-E-705	Sht:014	Rev:017	Title: CTS PRIMARY SCRUBBER SCRUB SECTION
-----------	---------	---------	---

900-E-705	Sht:015	Rev:014	Title: CTS PRIMARY SCRUBBER RECEIVER TANK
-----------	---------	---------	---

900-E-705	Sht:016	Rev:005	Title: CTS GLASS LEVEL DETECTOR SYSTEM
-----------	---------	---------	--

900-E-705	Sht:019	Rev:013	Title: CTS VESSEL VENT SYSTEM
-----------	---------	---------	-------------------------------

900-E-705	Sht:021	Rev:012	Title: CTS melt off gas sys preheater & hemes P&ID
-----------	---------	---------	--

900-E-705	Sht:022	Rev:017	Title: CTS vessel off gas filters & heaters P&ID
-----------	---------	---------	--

900-E-705	Sht:023	Rev:011	Title: canister decontamination Tank 63-V-044 P&ID
-----------	---------	---------	--

900-E-705	Sht:024	Rev:007	Title: CTS-MAINTENANCE & CAPPING STATION P&ID
-----------	---------	---------	---

900-E-705	Sht:025	Rev:004	Title: Ex-Cell Vent Header P&ID
-----------	---------	---------	---------------------------------

903-D-013	Sht:001	Rev:007	Title: P&ID STS UTILITY WATER SYSTEM
-----------	---------	---------	--------------------------------------

903-D-014	Sht:001	Rev:016	Title: P&ID STS UTILITY & INSTRUMENT AIR
-----------	---------	---------	--

903-D-014	Sht:002	Rev:011	Title: STS P&ID (V&S Bldg) UTILITY & INST. AIR
-----------	---------	---------	--

903-D-016	Sht:001	Rev:017	Title: STS P&ID FILTRATION & COOLING SECTION
-----------	---------	---------	--

903-D-017	Sht:001	Rev:011	Title: STS P&ID ION EXCHANGE SECTION SHEET 1
-----------	---------	---------	--

903-D-018	Sht:001	Rev:011	Title: STS P&ID ION EXCHANGE SECTION SHEET 2
-----------	---------	---------	--

903-D-019	Sht:001	Rev:013	Title: STS P&ID FINAL FILTRATION & STORAGE
-----------	---------	---------	--

903-D-020	Sht:001	Rev:011	Title: STS P&ID ZEOLITE FILL & SLUICE SECTION
-----------	---------	---------	---

903-D-021	Sht:001	Rev:009	Title: STS P&ID VENTING/CHILLER SECTION
-----------	---------	---------	---

904-D-011	Sht:001	Rev:008	Title: P&ID sludge mobilization sys. 8Q-4Pit
-----------	---------	---------	--

904-D-012	Sht:001	Rev:008	Title: P&ID Sludge mobilization system 8Q-1 pit
-----------	---------	---------	---

904-D-013	Sht:001	Rev:010	Title: P&ID Sludge Mobilization system 8Q-2 pit
-----------	---------	---------	---

904-D-014	Sht:001	Rev:008	Title: P&ID sludge mobilization system 8Q-5 pit
-----------	---------	---------	---

904-D-015	Sht:001	Rev:010	Title: P&ID sludge mobilization sys utility water/chemical system and seal water systems
-----------	---------	---------	--

904-D-016	Sht:001	Rev:004	Title: P&ID sludge mobilization system utility air system
-----------	---------	---------	---

905-D-010	Sht:001	Rev:001	Title: VF SHIELDING GAS & ARGON GAS SYSTEM P&ID
-----------	---------	---------	---

905-D-011	Sht:001	Rev:011	Title: P&ID Vitrification Drainage system high level
-----------	---------	---------	--

905-D-015	Sht:001	Rev:017	Title: P&ID COLD CHEMICAL PREPARATION & FEED SYSTEM
-----------	---------	---------	---

905-D-016	Sht:001	Rev:018	Title: P&ID COLD CHEMICAL PREPARATION & FEED SYSTEM
-----------	---------	---------	---

905-D-017	Sht:001	Rev:017	Title: P&ID COLD CHEMICAL PREPARATION & FEED SYSTEM
-----------	---------	---------	---

905-D-018	Sht:001	Rev:010	Title: P&ID COLD CHEMICAL PREPARATION & FEED SYSTEM
-----------	---------	---------	---

905-D-019	Sht:001	Rev:008	Title: P&ID COLD CHEMICAL STEAM & CONDENSATE SYSTEM
-----------	---------	---------	---

905-D-020	Sht:001	Rev:011	Title: P&ID COLD CHEMICAL UTILITY & INSTRUMENT AIR
-----------	---------	---------	--

905-D-021	Sht:001	Rev:010	Title: P&ID COLD CHEMICAL WATER SYSTEMS
-----------	---------	---------	---

905-D-022	Sht:001	Rev:006	Title: P&ID COLD CHEMICAL ACID & CAUSTIC SYSTEMS
-----------	---------	---------	--

905-D-023	Sht:001	Rev:014	Title: P&ID diesel fuel oil transfer system
-----------	---------	---------	---

905-D-024	Sht:001	Rev:005	Title: P&ID COLD CHEMICAL FIRE PROTECTION
-----------	---------	---------	---

905-D-025	Sht:001	Rev:004	Title: P&ID secondary filter, diesel gen & crane maintenance room
-----------	---------	---------	---

905-D-026	Sht:001	Rev:003	Title: P&ID Vitrification facility utility water system
-----------	---------	---------	---

905-D-027	Sht:001	Rev:004	Title: P&ID vitrification facility non rack cold chemical decon system
-----------	---------	---------	--

905-D-028	Sht:001	Rev:004	Title: P&ID vitrification facility steam system
-----------	---------	---------	---

905-D-029	Sht:001	Rev:013	Title: P&ID vitrification facility instrument & utility air sys
-----------	---------	---------	---

905-D-044	Sht:001	Rev:002	Title: VF SPR & CMR HIGH PRESSURE AIR SYSTEM P&ID
-----------	---------	---------	---

905-D-045	Sht:001	Rev:004	Title: P&ID Vitrification facility instrument rack 3W2-1A
-----------	---------	---------	---

905-D-045	Sht:002	Rev:005	Title: P&ID Vitrification facility instrument rack 3E8-7A
-----------	---------	---------	---

905-D-045	Sht:003	Rev:006	Title: P&ID Vitrification facility instrument rack 2N7-6
-----------	---------	---------	--

905-D-045	Sht:004	Rev:006	Title: P&ID Vitrification facility instrument rack 2N6-5
-----------	---------	---------	--

905-D-045	Sht:005	Rev:005	Title: P&ID Vitrification facility
-----------	---------	---------	------------------------------------

905-D-045	Sht:006	Rev:004	Title: P&ID Vitrification facility instrument rack 2E9-6
-----------	---------	---------	--

905-D-045	Sht:007	Rev:004	Title: P&ID Vitrification Facility instrument rack 2W3-2
-----------	---------	---------	--

905-D-045	Sht:008	Rev:003	Title: P&ID Vitrification facility instrument rack 3E9-7B
-----------	---------	---------	---

905-D-045	Sht:009	Rev:005	Title: P&ID Vitrification facility instrument rack 3W7
-----------	---------	---------	--

905-D-045	Sht:010	Rev:006	Title: P&ID Vitrification facility instrument rack 2N8
-----------	---------	---------	--

905-D-045	Sht:011	Rev:007	Title: P&ID Vitrification facility instrument rack 3W4
-----------	---------	---------	--

905-D-045	Sht:012	Rev:006	Title: P&ID Vitrification facility instrument rack 3W5 sheet 1
-----------	---------	---------	--

905-D-045	Sht:013	Rev:006	Title: P&ID Vitrification facility instrument rack 3W6
-----------	---------	---------	--

905-D-045	Sht:014	Rev:004	Title: P&ID Vitrification facility instrument rack 3W3
-----------	---------	---------	--

905-D-045	Sht:015	Rev:002	Title: P&ID Vitrification facility instrument rack 3W1
-----------	---------	---------	--

905-D-045	Sht:016	Rev:005	Title: P&ID Vitrification facility instrument rack 2W4
-----------	---------	---------	--

905-D-045	Sht:017	Rev:005	Title: P&ID Vitrification facility instrument rack 2W5
-----------	---------	---------	--

905-D-045	Sht:018	Rev:005	Title: P&ID Vitrification facility instrument rack 3E10
-----------	---------	---------	---

905-D-045	Sht:019	Rev:001	Title: P&ID Vitrification facility instrument rack 2E10
-----------	---------	---------	---

905-D-045	Sht:020	Rev:004	Title: P&ID Vitrification facility instrument rack 3W5 Sheet 2
-----------	---------	---------	--

905-D-046	Sht:001	Rev:023	Title: P&ID vitrification facility utility air system
-----------	---------	---------	---

905-D-046	Sht:002	Rev:011	Title: P&ID vitrification facility instrument air system
-----------	---------	---------	--

905-D-046	Sht:003	Rev:013	Title: P&ID vitrification facility instrument air system
-----------	---------	---------	--

905-D-046	Sht:004	Rev:001	Title: VF P&ID UTILITY AIR SYSTEM
-----------	---------	---------	-----------------------------------

905-D-047	Sht:001	Rev:013	Title: P&ID vitrification facility steam system
-----------	---------	---------	---

905-D-047	Sht:002	Rev:015	Title: P&ID vitrification facility condensate system
-----------	---------	---------	--

905-D-047	Sht:003	Rev:013	Title: P&ID vitrification facility steam system
-----------	---------	---------	---

905-D-048	Sht:001	Rev:009	Title: P&ID vitrification facility utility water system
-----------	---------	---------	---

905-D-048	Sht:002	Rev:012	Title: P&ID vitrification facility demineralized water system
-----------	---------	---------	---

905-D-049	Sht:001	Rev:003	Title: P&ID vitrification facility fire protection systems
-----------	---------	---------	--

905-D-050	Sht:001	Rev:007	Title: P&ID vitrification drainage system low level
-----------	---------	---------	---

905-D-051	Sht:001	Rev:009	Title: P&ID vitrification facility potable water system
-----------	---------	---------	---

905-D-052	Sht:001	Rev:010	Title: Vitrification facility closed loop cooling water system P&ID
-----------	---------	---------	---

905-D-052	Sht:002	Rev:015	Title: Vitrification facility closed loop cooling water system P&ID
-----------	---------	---------	---

905-D-053	Sht:001	Rev:005	Title: P&ID vitrification facility non rack cold chem. decon & slurry system
-----------	---------	---------	--

905-D-053	Sht:002	Rev:009	Title: P&ID vitrification facility non rack cold chem decon & slurry system
-----------	---------	---------	---

905-D-054	Sht:001	Rev:012	Title: P&ID vitrification facility cooling tower water system
-----------	---------	---------	---

905-D-055	Sht:001	Rev:001	Title: VOID PER ECN P&ID vitrification facility off gas condensate system
-----------	---------	---------	---

905-D-056	Sht:001	Rev:006	Title: P&ID vitrification facility vent header system
-----------	---------	---------	---

905-D-057	Sht:001	Rev:004	Title: Vitrification Rest Rooms P&ID
-----------	---------	---------	--------------------------------------

905-D-058	Sht:001	Rev:004	Title: PNEUMATIC SAMPLE TRANSFER SYSTEM P&ID
-----------	---------	---------	--

905-D-058	Sht:002	Rev:000	Title: PNEUMATIC SAMPLE TRANSFER SYSTEM P&ID
-----------	---------	---------	--

905-D-450	Sht:001	Rev:006	Title: HVAC air flow diagram vitrification facility
-----------	---------	---------	---

905-D-451	Sht:001	Rev:006	Title: HVAC air flow diagram & P&ID control room
-----------	---------	---------	--

905-D-452	Sht:001	Rev:014	Title: HVAC P&ID vitrification facility
-----------	---------	---------	---

905-D-452	Sht:002	Rev:009	Title: HVAC P&ID vitrification facility
-----------	---------	---------	---

905-D-452	Sht:003	Rev:004	Title: VS HVAC P&ID VITRIFICATION FACILITY
-----------	---------	---------	--

905-D-453	Sht:001	Rev:008	Title: Vitrification facility HVAC chilled water system P&ID sh 1
-----------	---------	---------	---

905-D-453	Sht:002	Rev:001	Title: Vitrification facility HVAC chilled water system P&ID sh 3
-----------	---------	---------	---

905-D-454	Sht:001	Rev:008	Title: Vitrification facility HVAC chilled water P&ID sh 2
-----------	---------	---------	--

905-E-045	Sht:021	Rev:003	Title: P&ID VITRIFICATION FACILITY INSTRUMENT RACK 3W8
-----------	---------	---------	--

906-D-009	Sht:001	Rev:001	Title: VF EX-CELL OFF-GAS MISCELLANEOUS UTILITIES P&ID
-----------	---------	---------	--

906-D-014	Sht:001	Rev:006	Title: VF MELTER OFF-GAS P&ID MELTER EX CELL OFF GAS SYSTEM
-----------	---------	---------	---

906-D-015 Sht:001 Rev:006 Title: VF MELTER OFF-GAS P&ID MELTER EX CELL OFF GAS SYSTEM

906-D-018 Sht:001 Rev:006 Title: VF MELTER OFF-GAS HVAC AIR FLOW DIAGRAM & P&ID

906-D-019 Sht:001 Rev:001 Title: VOID PER BCN VF MELTER OFF-GAS HVAC AIR FLOW DIAGRAM & P&ID

906-D-025 Sht:001 Rev:007 Title: VF MELTER OFF-GAS P&ID INSTRUMENT RACK 01

906-D-026 Sht:001 Rev:006 Title: VF MELTER OFF-GAS P&ID INSTRUMENT RACK 02

906-D-027 Sht:001 Rev:007 Title: VF MELTER OFF-GAS P&ID INSTRUMENT RACK 02

906-D-028 Sht:001 Rev:006 Title: VF MELTER OFF-GAS P&ID INSTRUMENT RACK 02

906-E-011 Sht:001 Rev:008 Title: VF MELTER OFF-GAS P&ID MELTER EX CELL OFF GAS SYSTEM

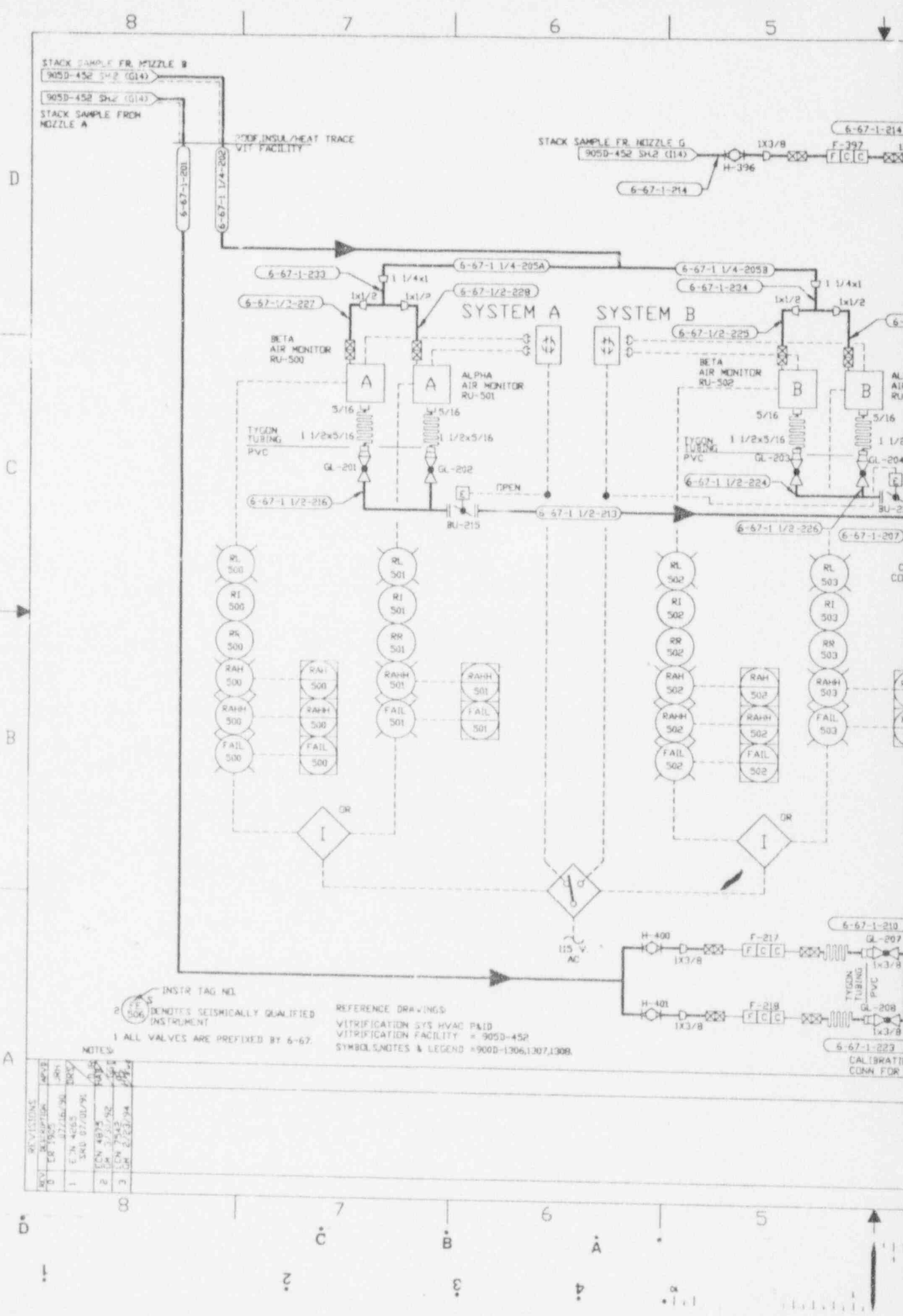
906-E-012 Sht:001 Rev:008 Title: VF MELTER OFF-GAS P&ID MELTER EX CELL OFF GAS SYSTEM

906-E-012 Sht:002 Rev:002 Title: VF P&ID MELTER EX-CELL OFF-GAS SYS

906-E-013 Sht:001 Rev:009 Title: VF MELTER OFF-GAS P&ID MELTER EX CELL OFF GAS SYSTEM

906-E-016 Sht:001 Rev:007 Title: VF MELTER OFF-GAS P&ID INSTRUMENT AIR

906-E-017 Sht:001 Rev:002 Title: VF P&ID OFF-GAS TRENCH



STACK SAMPLE FR. NOZZLE B
905D-452 SHL2 (G14)
STACK SAMPLE FROM NOZZLE A

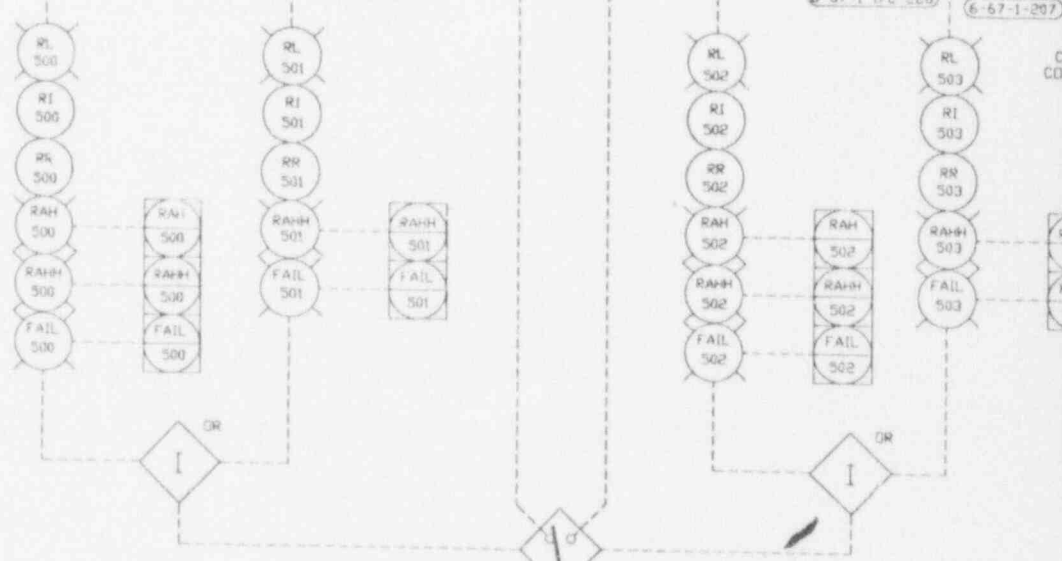
STACK SAMPLE FR. NOZZLE G
905D-452 SHL2 (G14)
H-396
F-297
6-67-1-214

6-67-1-233
6-67-1-227
6-67-1-205A
6-67-1-228
6-67-1-205B
6-67-1-234

SYSTEM A
SYSTEM B
BETA AIR MONITOR RU-500
ALPHA AIR MONITOR RU-501

TYGON TUBING 1 1/2x5/16
PVC
GL-201
GL-202
GL-203
GL-204

6-67-1-1/2-216
6-67-1-1/2-213
6-67-1-1/2-224
6-67-1-1/2-226
6-67-1-207



INSTR TAG NO.
2 11506 DENOTES SEISMICALLY QUALIFIED INSTRUMENT
1 ALL VALVES ARE PREFIXED BY 6-67.

REFERENCE DRAWINGS
VITRIFICATION SYS HVAC PAID
VITRIFICATION FACILITY = 905D-452
SYMBOLS, NOTES & LEGEND #900D-1306, 1307, 1308.

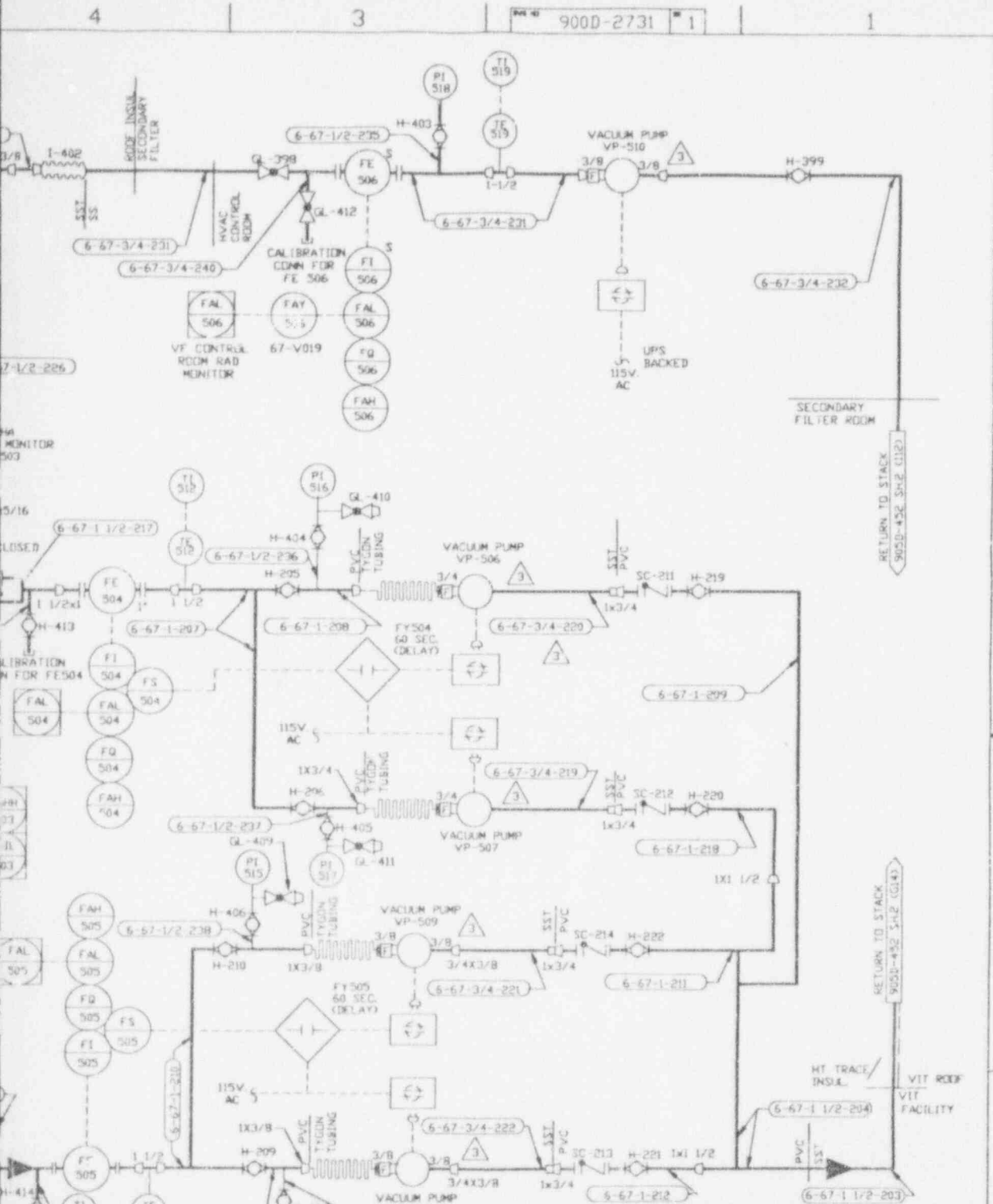
NOTES

NO.	DATE	BY	APP'D	REVISION
1	02/26/90	ER	ER	1
2	07/01/91	ER	ER	2
3	07/01/91	ER	ER	3
4	07/01/91	ER	ER	4
5	07/01/91	ER	ER	5
6	07/01/91	ER	ER	6
7	07/01/91	ER	ER	7
8	07/01/91	ER	ER	8
9	07/01/91	ER	ER	9
10	07/01/91	ER	ER	10

H-400
H-401
F-217
F-218
F-297
GL-207
GL-208
TYGON TUBING 1x3/8
PVC
6-67-1-223
CALIBRATION
CONN FOR

ANSTEC APERTURE CARD

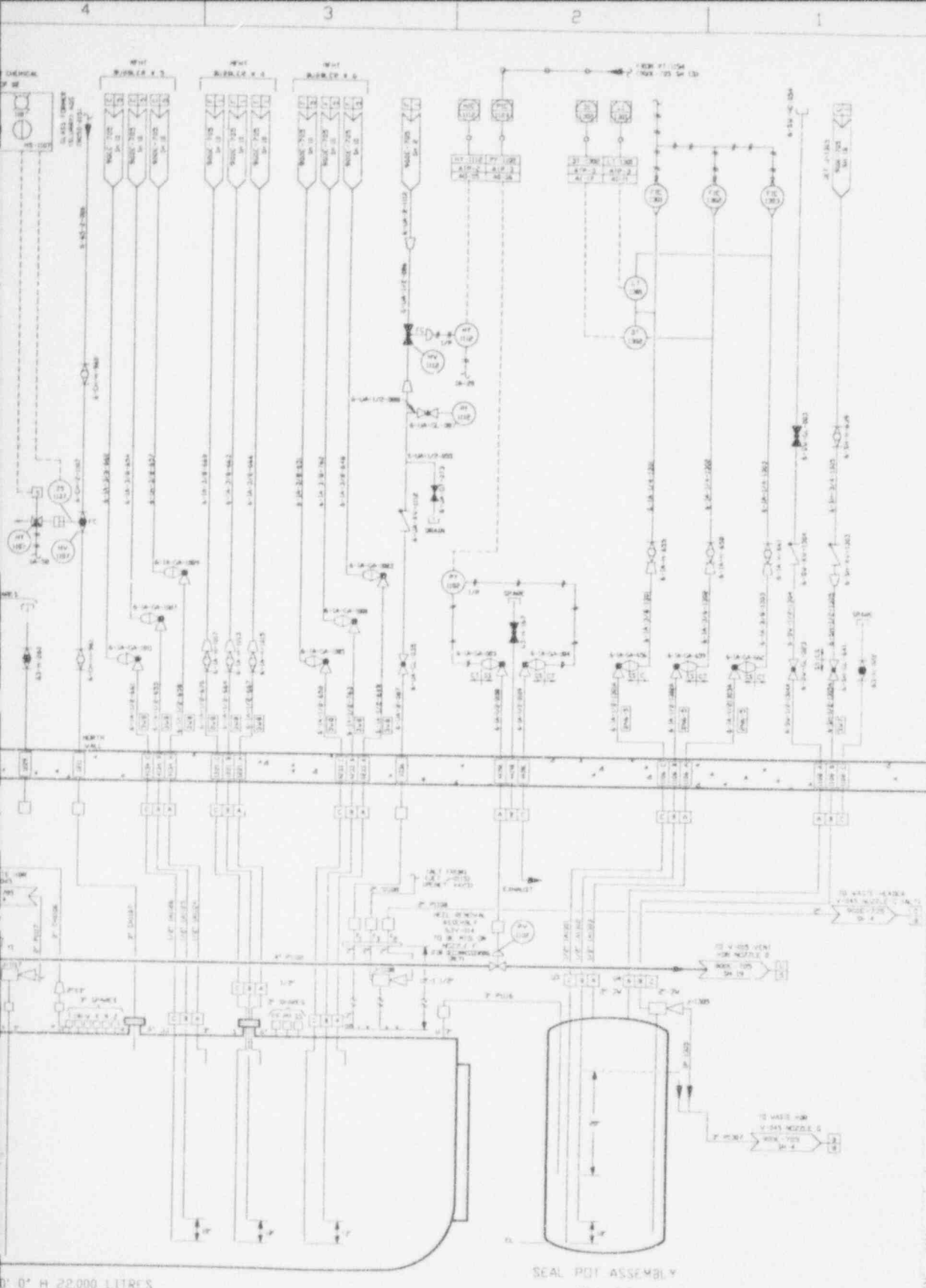
Also Available on Aperture Card



CAD DRAWING-DO NOT REVISE THIS ORIGINAL

QTY	ITEM	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	MATERIAL OR SPEC.
PARTS LIST				
DRAWN BY: C GERWITZ		DATE: 8-1-89	JOB NO. 9000-2731	
CHECKED BY: MARK L. AGNEW		DATE: 6/26/90	FOR: West Valley Nuclear Services Corp., West Valley, New York	
ENGR: MARK L. AGNEW		DATE: 6/26/90	V.F. STACK SAMPLING SYSTEM P&ID	
CORRECTIONS: V.J. SCAMP		DATE: 6/26/90		
EACH APPROVAL: J.P. HUMMEL FOR		DATE: 6/26/90	SCALE: NONE	
EACH APPROVAL: J.P. HUMMEL FOR		DATE: 6/26/90	DWG NO: 9000-2731	
EACH APPROVAL: J.P. HUMMEL FOR		DATE: 6/26/90	REV: 3	
EACH APPROVAL: J.P. HUMMEL FOR		DATE: 6/26/90	SHEET: 1 OF 1	
EACH APPROVAL: J.P. HUMMEL FOR		DATE: 6/26/90	PLT: 1-1	

9405260270-01



**ANSTEC
APERTURE
CARD**

Also Available on
Aperture Card

CAUTION
CONTAINS
RADIOACTIVE MATERIAL

0' 0" H 22,000 LITRES

SEAL POT ASSEMBLY
63-V-013 (FOR STAND BY SERVICE
NOT NORMAL INSTALLATION)

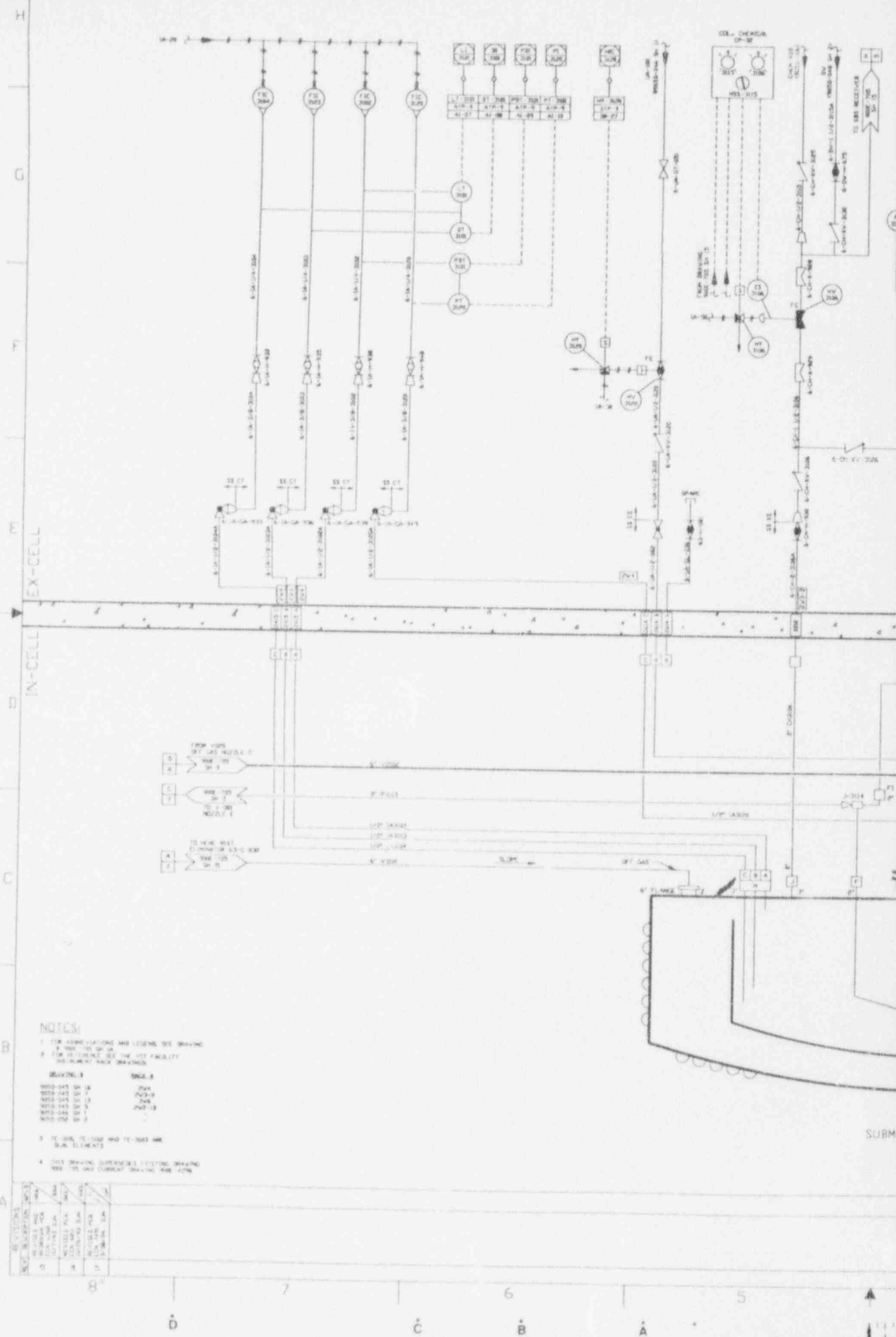
9405260270-02

REV. NO.	DESCRIPTION	DATE	BY	CHKD.
1	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
2	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
3	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
4	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
5	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
6	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
7	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
8	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
9	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
10	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
11	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
12	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
13	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
14	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
15	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
16	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
17	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
18	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
19	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
20	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
21	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
22	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
23	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
24	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
25	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
26	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
27	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
28	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
29	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
30	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
31	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
32	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
33	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
34	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
35	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
36	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
37	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
38	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
39	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
40	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
41	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
42	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
43	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
44	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
45	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
46	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
47	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
48	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
49	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]
50	ISSUED FOR CONSTRUCTION	1963-07-01	J. H. [unclear]	[unclear]

MELTER FEED HOLD TANK
63-V-013

50/3006

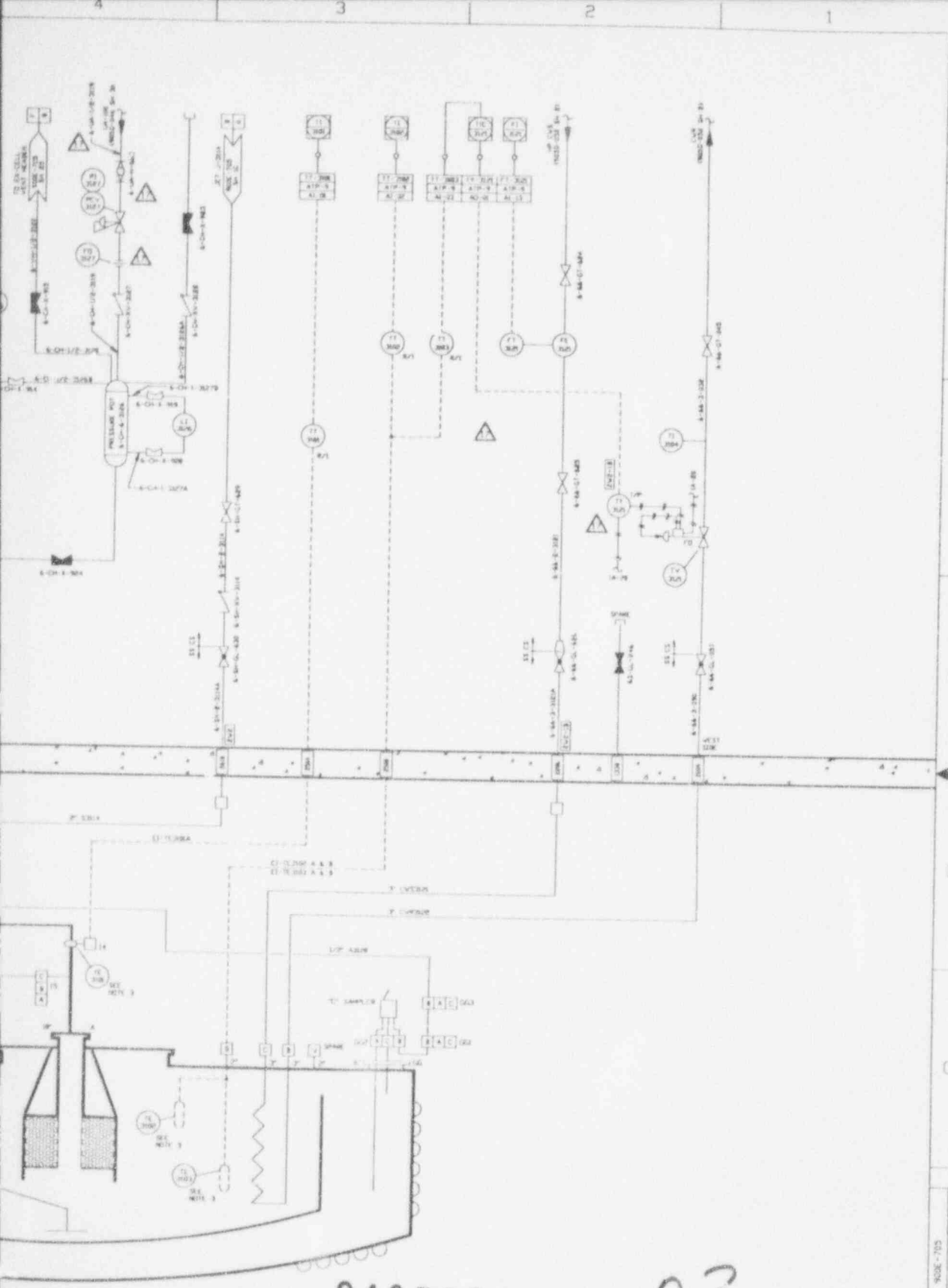
SCALE NONE



- NOTES:**
- FOR DIMENSIONS AND LEGEND SEE DRAWING
 - FOR DIMENSIONS SEE THE UTILITY FACILITY INSTRUMENT TACK DRAWINGS
- | NO. | DESCRIPTION | SIZE |
|-----|---------------------|---------|
| 100 | 1" DIA. 30' H. TANK | 1" DIA. |
| 101 | 1" DIA. 30' H. TANK | 1" DIA. |
| 102 | 1" DIA. 30' H. TANK | 1" DIA. |
| 103 | 1" DIA. 30' H. TANK | 1" DIA. |
| 104 | 1" DIA. 30' H. TANK | 1" DIA. |
- FOR DIMENSIONS AND LEGEND SEE DRAWING
 - FOR DIMENSIONS SEE THE UTILITY FACILITY INSTRUMENT TACK DRAWINGS

NO.	DESCRIPTION	SIZE
100	1" DIA. 30' H. TANK	1" DIA.
101	1" DIA. 30' H. TANK	1" DIA.
102	1" DIA. 30' H. TANK	1" DIA.
103	1" DIA. 30' H. TANK	1" DIA.
104	1" DIA. 30' H. TANK	1" DIA.





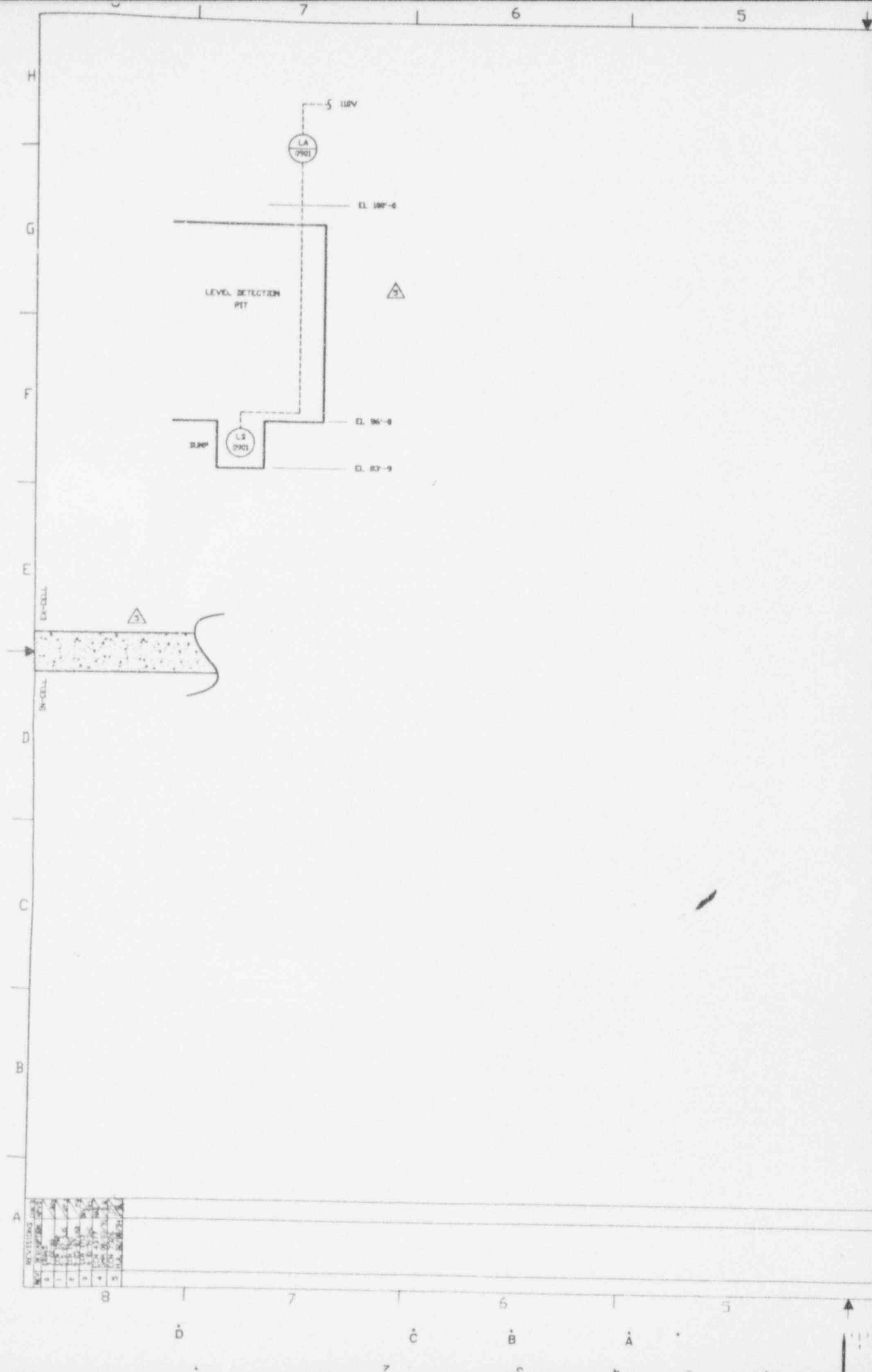
ANSTEC
APERTURE
CARD

Also Available on
Aperture Card

62-V-031
ROGEE BED SCRUBBER (SBS)
PRIMARY SCRUBBER
(SCRUB SECTION)
6'-0" ID X 5'-9"
3507 LITRES

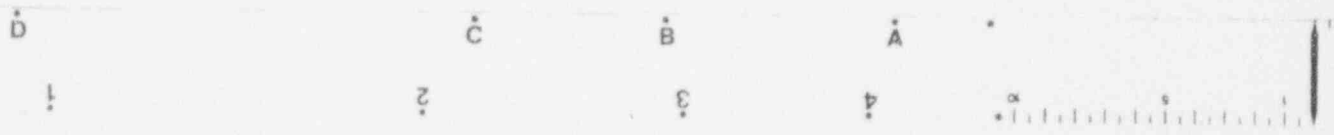
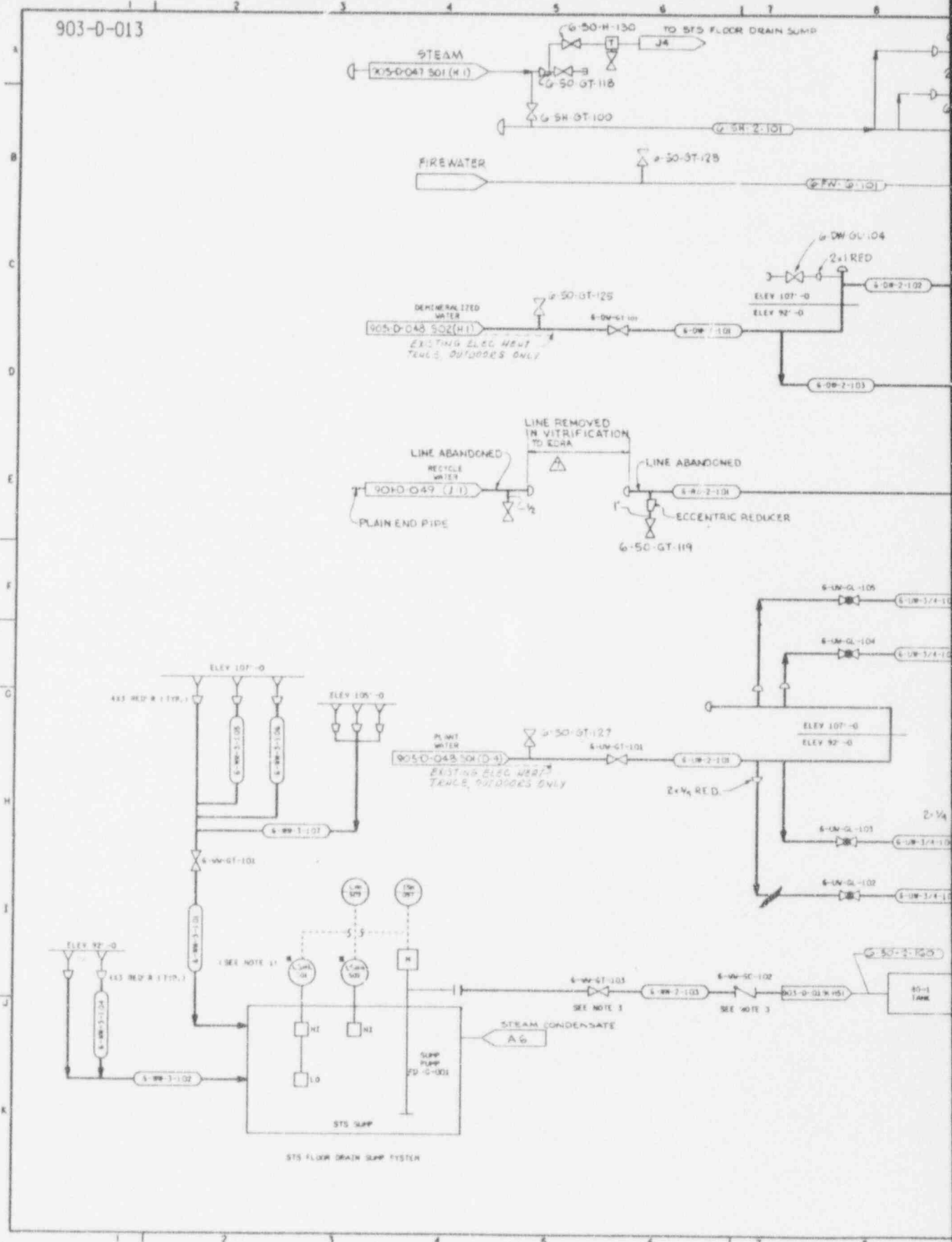
9405260270-03

REV	DESCRIPTION	DATE	BY	CHKD
1	ISSUED FOR CONSTRUCTION	1/15/68	J. CHAPMAN	
2	REVISED TO SHOW	2/1/68	J. CHAPMAN	
3	REVISED TO SHOW	2/1/68	J. CHAPMAN	
4	REVISED TO SHOW	2/1/68	J. CHAPMAN	
5	REVISED TO SHOW	2/1/68	J. CHAPMAN	
6	REVISED TO SHOW	2/1/68	J. CHAPMAN	
7	REVISED TO SHOW	2/1/68	J. CHAPMAN	
8	REVISED TO SHOW	2/1/68	J. CHAPMAN	
9	REVISED TO SHOW	2/1/68	J. CHAPMAN	
10	REVISED TO SHOW	2/1/68	J. CHAPMAN	
11	REVISED TO SHOW	2/1/68	J. CHAPMAN	
12	REVISED TO SHOW	2/1/68	J. CHAPMAN	
13	REVISED TO SHOW	2/1/68	J. CHAPMAN	
14	REVISED TO SHOW	2/1/68	J. CHAPMAN	
15	REVISED TO SHOW	2/1/68	J. CHAPMAN	
16	REVISED TO SHOW	2/1/68	J. CHAPMAN	
17	REVISED TO SHOW	2/1/68	J. CHAPMAN	
18	REVISED TO SHOW	2/1/68	J. CHAPMAN	
19	REVISED TO SHOW	2/1/68	J. CHAPMAN	
20	REVISED TO SHOW	2/1/68	J. CHAPMAN	
21	REVISED TO SHOW	2/1/68	J. CHAPMAN	
22	REVISED TO SHOW	2/1/68	J. CHAPMAN	
23	REVISED TO SHOW	2/1/68	J. CHAPMAN	
24	REVISED TO SHOW	2/1/68	J. CHAPMAN	
25	REVISED TO SHOW	2/1/68	J. CHAPMAN	
26	REVISED TO SHOW	2/1/68	J. CHAPMAN	
27	REVISED TO SHOW	2/1/68	J. CHAPMAN	
28	REVISED TO SHOW	2/1/68	J. CHAPMAN	
29	REVISED TO SHOW	2/1/68	J. CHAPMAN	
30	REVISED TO SHOW	2/1/68	J. CHAPMAN	
31	REVISED TO SHOW	2/1/68	J. CHAPMAN	
32	REVISED TO SHOW	2/1/68	J. CHAPMAN	
33	REVISED TO SHOW	2/1/68	J. CHAPMAN	
34	REVISED TO SHOW	2/1/68	J. CHAPMAN	
35	REVISED TO SHOW	2/1/68	J. CHAPMAN	
36	REVISED TO SHOW	2/1/68	J. CHAPMAN	
37	REVISED TO SHOW	2/1/68	J. CHAPMAN	
38	REVISED TO SHOW	2/1/68	J. CHAPMAN	
39				



903-D-013

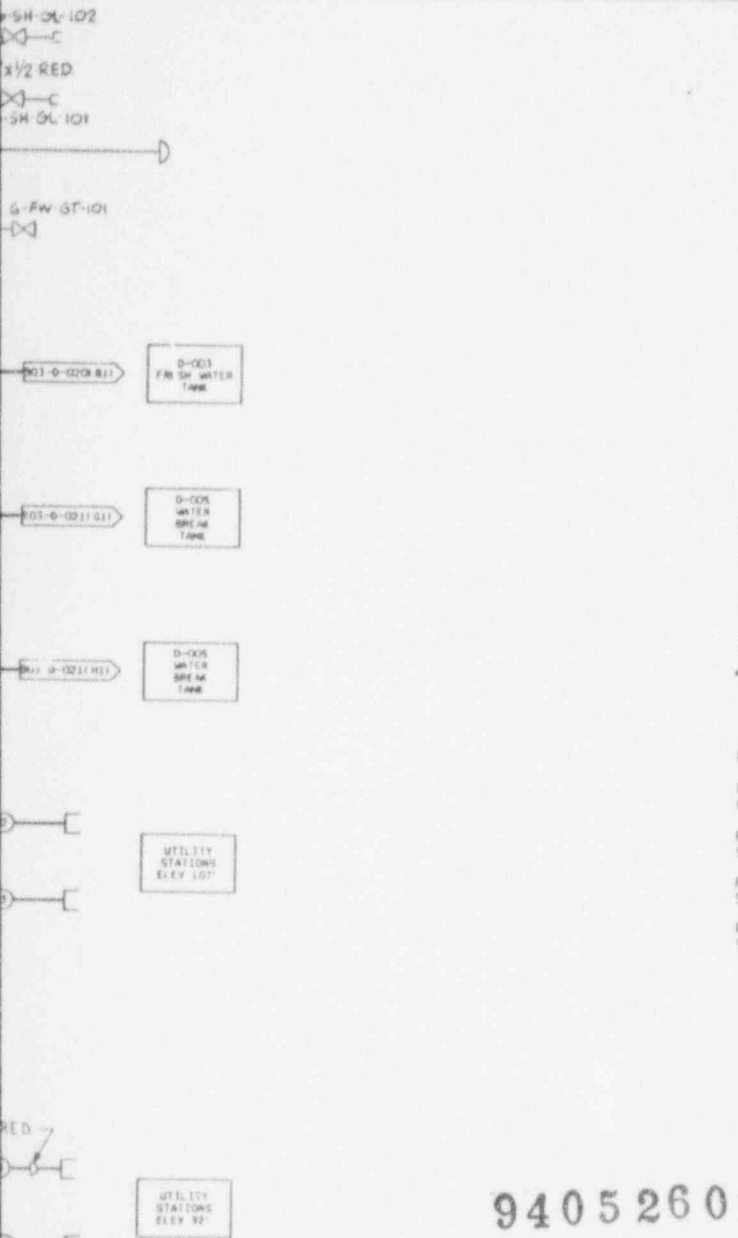
DATE: 08/27/84 BY: J. J. JONES
DRAWN: J. J. JONES
CHECKED: J. J. JONES
APPROVED: J. J. JONES



ANSTEC APERTURE CARD

Also Available on Aperture Card

NO.	DATE	REVISION	DR	CH	APPROVED
8	01-10-86		RJL	DN	
GENERAL REVISION					
0	2/10/86	ERR 640			
1	2/21/87	SR 443	SJS	DAL	PEL
2	12-29-87	REVISED PER ECN 2186	LRA	CM	ALL
3	4-7-89	REVISED PER ECN 2889	WCK	QUR	WR N/201
4	10-8-89	REV PER ECN 3185	POS	AKS	QUR
5	1-28-91	REV PER ECN 4132	CW	JAB	LLL
6	2-22-91	REV/ECN 5257	MS	DES	JLB
7	2-24-94	REV PER ECN 7382	GM	HB	DLG



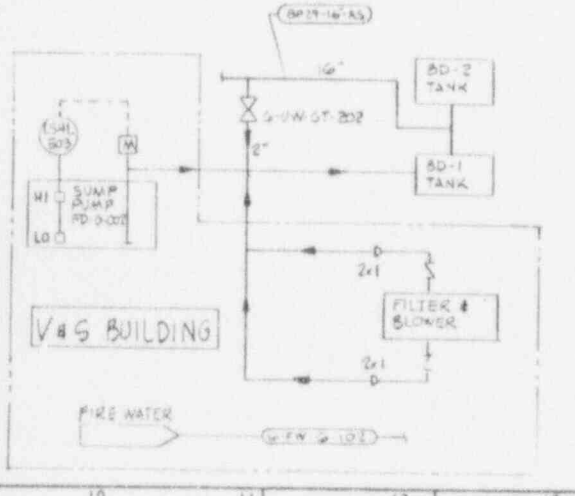
NOTES

1. * INDICATES INSTRUMENTS TO BE SUPPLIED BY SUMP PUMP VENDOR.
2. ALL INSTRUMENT TAG NUMBERS ARE PRECEDED BY SYSTEM DESIGNATOR FD.
3. LOCATE VALVES AS CLOSE AS POSSIBLE TO SHIELD WALL.
4. DRAIN VALVES FOR PIPEWAY VENT AND PVS INLET PLENUM SHOWN ON DWG. 900D-1666.

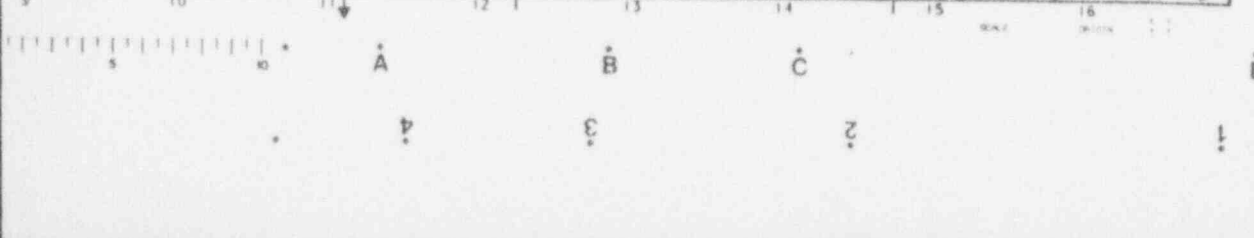
REFERENCE DRAWING

P&ID - SYS FILTRATION AND COOLING SYSTEM	903-0-016
P&ID STS ZEOLITE FILL AND SLUICE SECTION	903-0-020
P&ID - STS VENTING/CHILLER SECTION	903-0-021
P&ID-SYS PERMANENT VENTILATION SYSTEM	900B-1666

9405260270-05



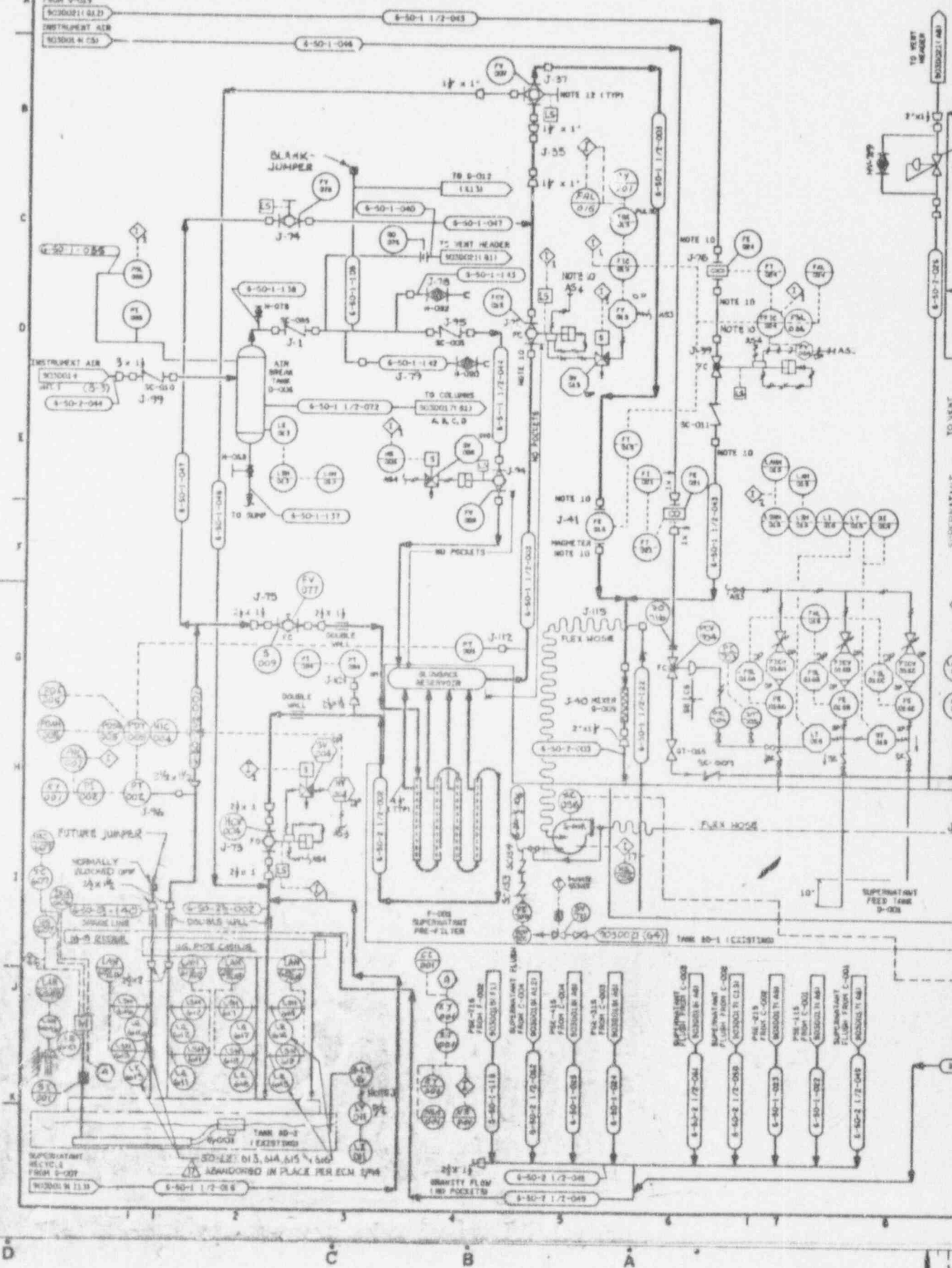
FOR DRAWING INDEX SEE DRAWING NO.		EBCO SERVICES INCORPORATED	
APPEND WMS CO.	PROJECT NO.	AVE D.F.S. NO. 2388	TASK ORDER 011
DESIGNER SUPV	ENGINEER SUPV	WEST VALLEY NUCLEAR SERVICES COMPANY, INC	
P. KRALCZYK	J. H. H.	WEST VALLEY, NEW YORK	
LEAD DISC ENGR	P. KRALCZYK	WEST VALLEY DEMONSTRATION PROJECT	
DESIGNER	J. H. H.	P & ID	
ENGINEER	J. H. H.	SUPERNATANT TREATMENT SYSTEM	
DRIVER	DATE	UTILITY WATER SYSTEMS	
C. HEAT	2-10-85		
DE-AC07-01-44139	SCALE	DRAWING NO.	REV.
PROJECT NO.	SCALE NONE	903D-013	7
19-DW-02775		903-D-013	B
SUBCONTRACT NO.			
ISSUED FOR CONSTRUCTION			



903-0-016

DEION WATER
FROM 9-033
INSTRUMENT AIR
FROM 9-031

1. ALL INSTRUMENT AIR SHALL BE DRY
2. ALL INSTRUMENT AIR SHALL BE
3. ALL INSTRUMENT AIR SHALL BE



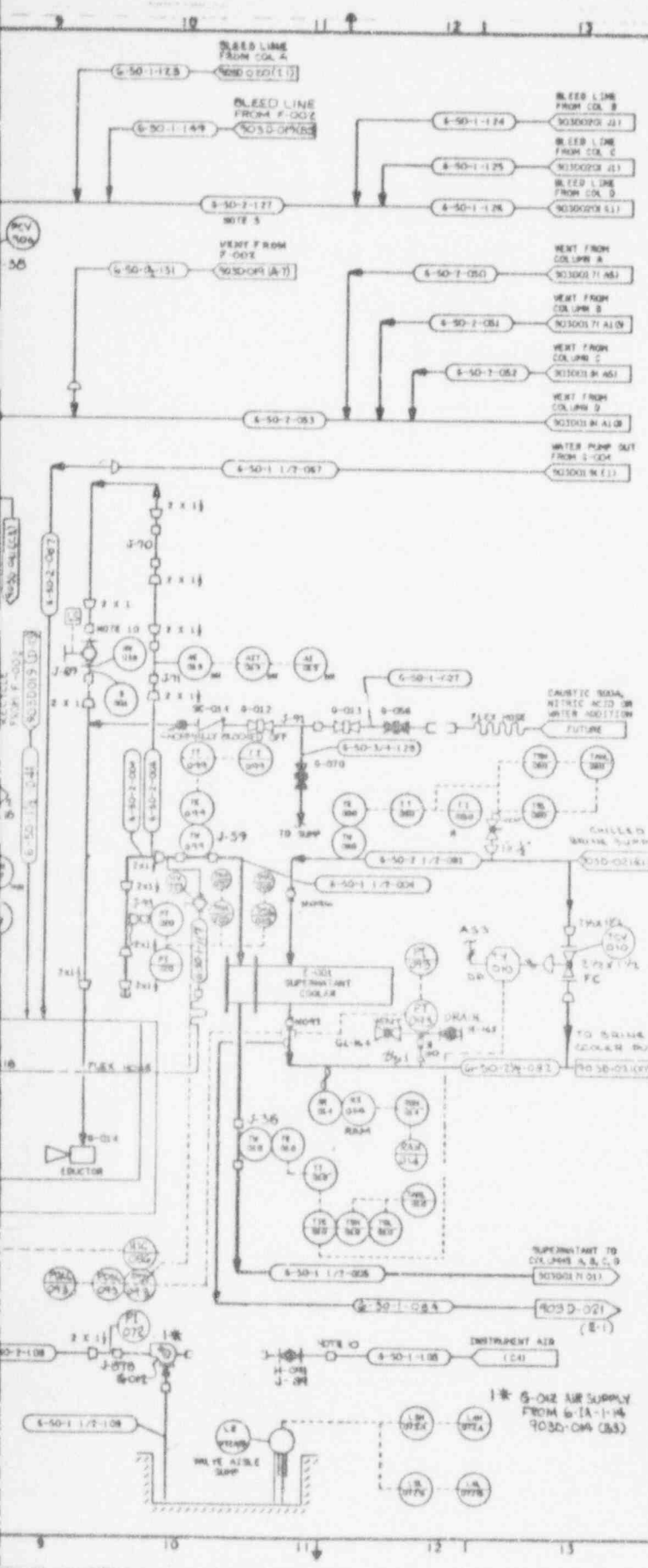
TANK 90-2 (EXST) 900
TANK 90-1 (CCST) 900
SUPERHEATED STEAM FROM 9-007
ADDED IN PLACE PER ECM 3/74

1 2 3 4 5 6

D C B A

ANSTEC APERTURE CARD

Also Available on Aperture Card



NO.	DATE	REVISION	DN	CH	APPROVED
8	5-15-88				
GENERAL REVISION					
10	1/2/89	REV PER EGM 4486			
14	7-6-93	REV PER EGM 4486	AK	AB	LL
15	7-22-93	REV PER EGM 4551	AK	AB	LL
16	2-28-94	REV PER EGM 7553	AK	AB	LL
17	3-14-94	REV PER EGM 7575	AK	AB	LL
18	11-3-87	REV PER EGM 1024	AK	AB	LL
19	12-10-87	REV PER EGM 2087	AK	AB	LL
20	1-25-88	REV PER EGM 2133	AK	AB	LL
21	3-22-88	REV PER EGM 2323	AK	AB	LL
22	6/3/88	REV PER EGM 2458	AK	AB	LL
23	10/26/89	REV PER EGM 3005	AK	AB	LL
24	1-29-91	REV PER EGM 4333	AK	AB	LL
25	11/2/91	REV PER EGM 4210	AK	AB	LL
26	1/4/91	REV PER EGM 4597	AK	AB	LL

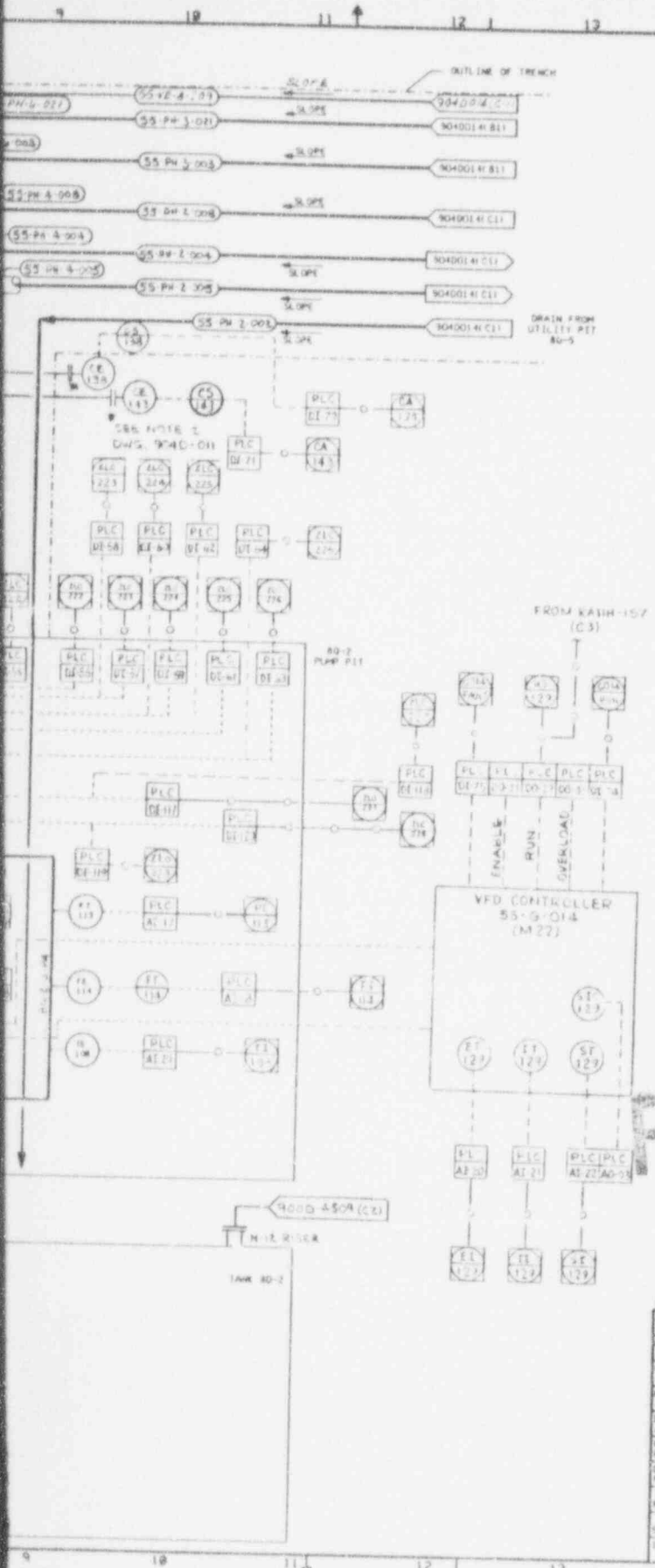
NOTES:

- FOR SYMBOLS, NOTES AND LEGEND SEE DRAWINGS 900D-436 SHEET 1-4
- OPERATING VALVE POSITIONS ARE SHOWN IN THE PROCESS NARRATIVE AND CONTROL CONCEPTS DOCUMENT.
- EXISTING INSTRUMENT.
- DELETED
- SELF-DRAINING PIPE SYSTEM TO TANK D-001.
- DELETED
- AIR LEGEND AS FOLLOWS:
 AS1 = 100 psig - UTILITY AIR
 AS2 = 50 psig - INSTRUMENT AIR
 AS3 = 20 psig - INSTRUMENT AIR
 AS4 = 100 psig - INSTRUMENT AIR
- LINE TO BE SELF-DRAINING. NO POCKETS FROM FCY-015 TO F-001 MIDDLE.
- BLOCK CONNECTOR MUST BE BORED TO 1/2".
- T DENOTES HANDWHEEL FOR MANUAL VALVES THAT ARE OPERATED REMOTELY WITH MANIPULATOR ARMS.
- INSTRUMENT RACK LEGEND:
 SVS - SOLENOID VALVE BOX 50-IR-010
 D = I/P CONVERTER, DP CELLS AND BUBBLER RACK
 50-IR-040, DC-DC JUNCTION BOX 50-IR-030
 WMA - WALL MOUNTED
- THE SYSTEM DESIGNATION FOR STS IS 50. ALL INSTRUMENT LOOP NUMBERS ARE PRECEDED BY A 50-. ALL VALVE TAG NUMBERS ARE PRECEDED BY 6-50.
- LIMIT SWITCH SYMBOLS - (S) SHOWN WITH VALVES ARE ALL INTERLOCKED WITH THE PROGRAMMABLE CONTROLLER PLC 200.
- INTERLOCKS: (I) - THIS SYMBOL INDICATES A PROCESS CONTROL INTERLOCK EXISTS WITH THAT PARTICULAR ELEMENT THRU THE PROGRAMMABLE CONTROLLER PLC 200 FOR INTERLOCK DETAIL DESCRIPTION SEE MMS-64-268 FOR DRAWING INDEX SEE DRAWING NO.

APPROVED	DATE	BY	FOR
DESIGNED	DATE	BY	FOR
CHECKED	DATE	BY	FOR
CONTRACT NO.	DATE	BY	FOR
PROJECT NO.	DATE	BY	FOR
CONTRACT NO.	DATE	BY	FOR
PROJECT NO.	DATE	BY	FOR
CONTRACT NO.	DATE	BY	FOR
PROJECT NO.	DATE	BY	FOR

EBASCO SERVICES INCORPORATED
 415 S.F.S. RD. 2288 TAMM OHIO 43161
WEST VALLEY NUCLEAR SERVICES COMPANY, INC.
 WEST VALLEY, NEW YORK
WEST VALLEY DEMONSTRATION PROJECT
 P & ID
SUPERATANT TREATMENT SYSTEM
FILTRATION AND COOLING SECTION
 DRAWING NO. 903D-016
 SHEET NO. 17

904-D-013



NO.	DATE	REVISION	DR	CH	APPROVED
8	10-10-89				
GENERAL REVISION					
9	2-21-90				
GENERAL REVISION					
10	3/1/90	ER/BOT			
1	4/1/90	GEN REV PER ECN 1570	CSR	DRS	
2	12-9-91	GEN PL. MDR ECN 4639	CW	HAB	
3	7-6-92	KEY PLR ECN 5225	YLN	AB	
4	7-21-92	REV PER ECN 5229	JH	HB	
5	8-20-92	REV/ECN 5234	RIS	DRS	
6	10-21-92	REV PER ECN 5528	CW	HAB	
7	11-11-92	REV PER ECN 5403	CW	HAB	
8	12-15-92	GEN REV/ECN 5692	PD	AB	
9	8-3-93	KEY PER ECN 6605	CW	HAB	
10	2-18-94	REV/ECN 7450	YS	AB	

ANSTEC APERTURE CARD
Also Available on Aperture Card

NOTES:
1. FOR NOTES SEE DWG 9040-011
2. —○—○— SOFTWARE OR DATA LINK

- REF. DWGS:**
- P&ID 545 RD-1 PIT 9040-012
 - P&ID 545 RD-5 PIT 9040-014
 - P&ID 545 CHEM. UTILITY WTR. & SELL. WTR. SYS 9040-015
 - P&ID 545 UTILITY AIR SYSTEM 9040-016
 - FLOW PIPING & INSTRUMENT CONT. WASTE TANK FERM SPENT FUEL REPRIC. PLANT 90-2-1
 - FRIG. & INS. DIA. COND. WASTE 90-2-4
 - WASTE MOB. PUMP PROCESS & INSTR. DIAG. RD-2-MG 9040-238 SA 6
 - WASTE MOB. PUMP PROCESS & INSTR. DIAG. RD-2-M5 9040-238 SA 7
 - WASTE MOB. PUMP PROCESS & INSTR. DIAG. RD-2-M3 9040-238 SA 8
 - WASTE MOB. PUMP PROCESS & INSTR. DIAG. RD-2-M2 9040-238 SA 9
 - WASTE MOB. PUMP PROCESS & INSTR. DIAG. RD-2-M1 9040-238 SA 10

FOR INFORMATION ONLY

WVNS APPROVAL

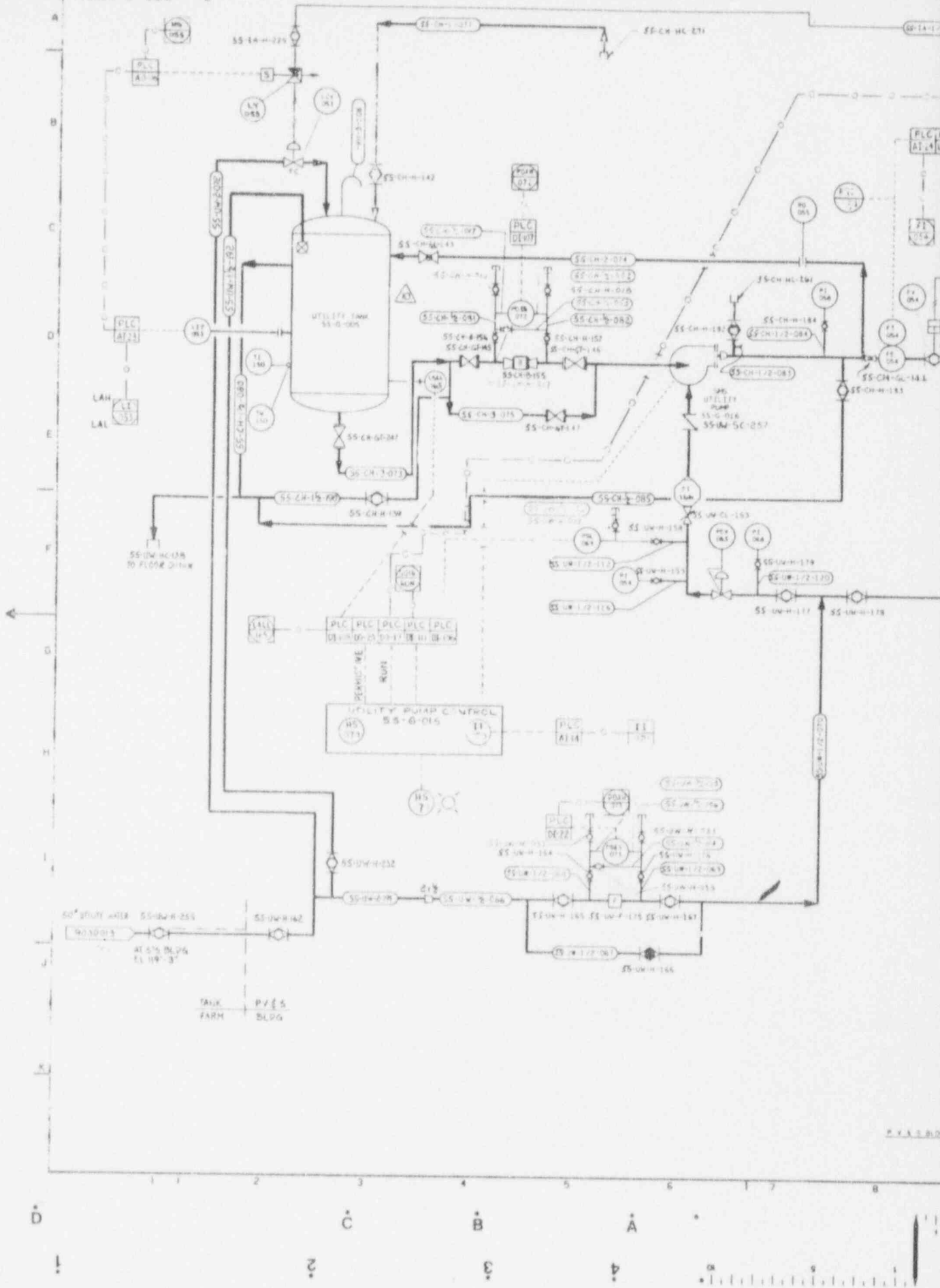
COG MGR _____
 COG ENGR _____
 DRFT SUPL _____
 QA MGR _____
 R & S MGR _____
 PROJ MGR _____

FOR DRAWING INDEX SEE DRAWING NO.

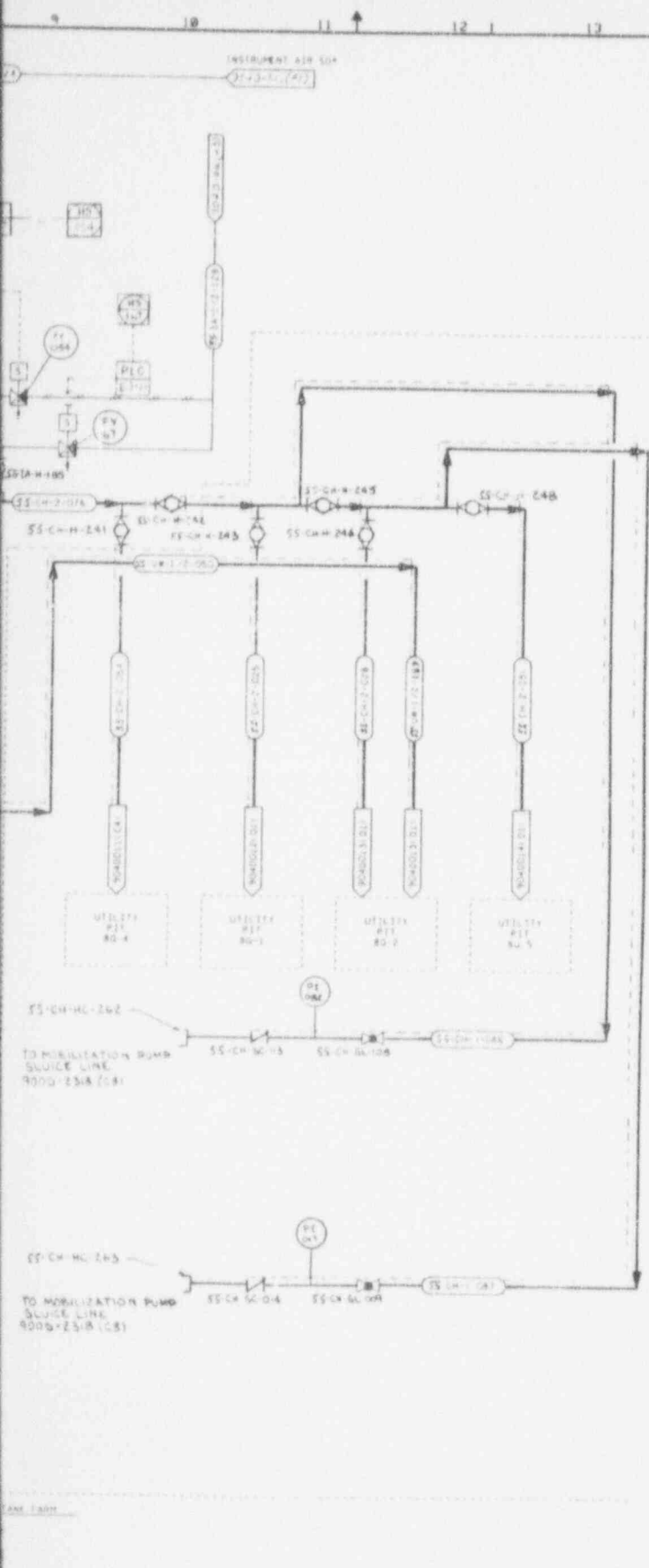
APPROV WVNS CO.	EBASCO SERVICES INCORPORATED
PROJECT MGR P. J. STORRY 01-08-78	A/E O.P.S. NO. 2238 TASK ORDER 013
ENGINEER SUPT E. J. BRADLEY 01-08-78	WEST VALLEY NUCLEAR SERVICES COMPANY INC WEST VALLEY, NEW YORK
LEAD DISE ENGR J. J. FARMER 01-08-78	WEST VALLEY DEMONSTRATION PROJECT
DESIGN P. J. LEBBY 01-08-78	P & ID SLUDGE MOBILIZATION SYSTEM 80-2 PIT
CHECKED P. J. LEBBY 01-08-78	
DRAWN P. J. LEBBY 01-08-78	
DATE 01-08-78	
DR. NO. 0100-1184-1139	SHEET NO. 13
PROJ. NO. 13-001-0275	DRAWING NO. 904D-013
SUBCONTRACT NO.	SCALE
ISSUED FOR CONSTRUCTION	DATE SHEET NO. 904-D-013

9405260270-07

904-0-015 C



P. Y. A. S. B. L. O.



NO.	DATE	REVISION	DR	CH	APPROVED
0	1-1-83		RIL	PL	PL
GENERAL REVISION					
1	2-2-90		PL	AV	PL
GENERAL REVISION					
2	3-11-90	ER 1907			PL
3	2-2-94	REV PER ECN 7430	PL	PL	PL
4	3-4-94	REV PER ECN 7543	PL	PL	PL
5	12-17-91	GEN REV PER ECN 7454	CH	WAS	PL
6	1-2-92	REV PER ECN 7523	PL	PL	PL
7	12-15-91	REV PER ECN 7513	PL	PL	PL
8	12-2-91	REV/ECN 7079	PD	WAS	PL

ANSTEC APERTURE CARD

Also Available on Aperture Card

- REFERENCE DRAWINGS:
- P# ID SMS 80-4 PIT 904D 011
 - P# ID SMS 80-1 PIT 904D 012
 - P# ID SMS 80-2 PIT 904D 013
 - P# ID SMS 80-5 PIT 904D 014
 - P# ID SMS UTILITY AIR SYSTEM 904D 016
 - WASTE MOBILIZATION PUMP PROCESS & INSTRUMENT DIAGRAM 3000-2318

NOTES:

- FOR NOTES SEE DWG 904D-011
- O—O— SOFTWARE OR DATA LINK

FOR INFORMATION ONLY

WVNS APPROVAL

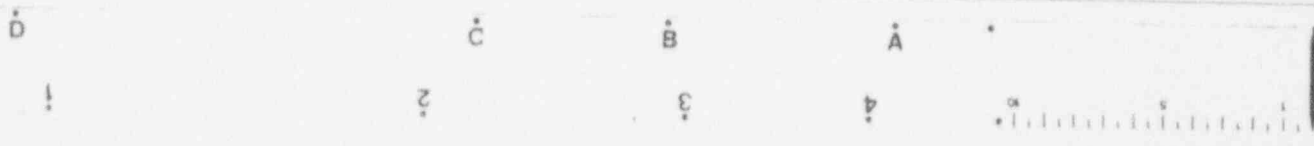
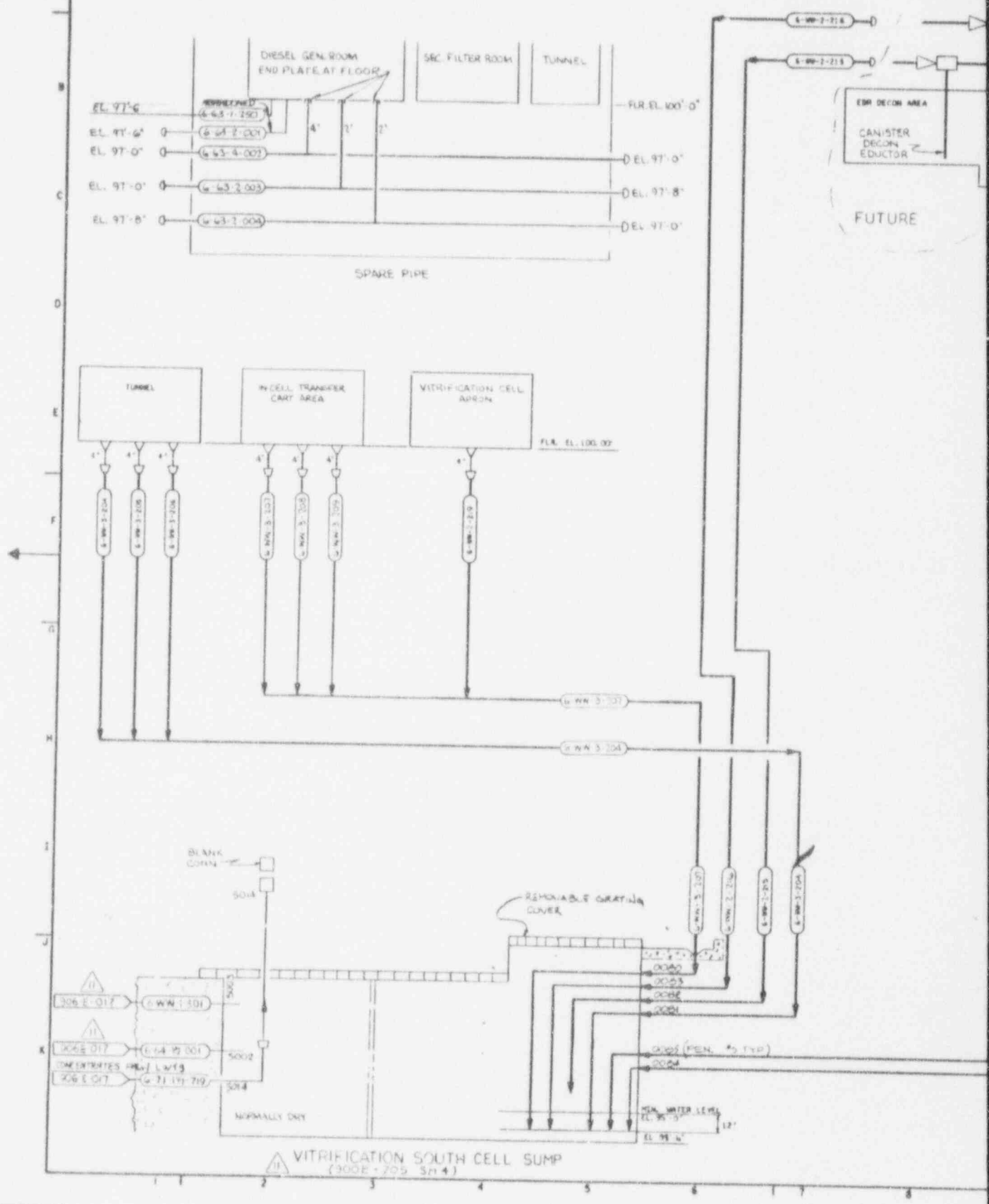
COG MGR	
COG ENGR	
DRT SUPR	
O.A. MGR	
R & S MGR	
PROJ MGR	

FOR DRAWING INDEX SEE DRAWING NO.

APPROVED WVNS CO.	EBASCO SERVICES INCORPORATED
PROJECT NO.	AVE. D.P.S. NO. 2188 FOR TASK ORDER 213
DESIGNER	WEST VALLEY NUCLEAR SERVICES COMPANY, INC.
CHECKED	WEST VALLEY, NEW YORK
DATE	WEST VALLEY DEMONSTRATION PROJECT
SCALE	AS SHOWN
DRAWN	SLUDGE MOBILIZATION SYSTEM
DATE	CHEMICAL, UTILITY WATER & SEAL WATER SYSTEMS
PROJECT NO.	904D-015
SUBCONTRACT NO.	
ISSUED FOR CONSTRUCTION	

9405260270-08

905-D-011 C



ANSTEC APERTURE CARD

Also Available on Aperture Card

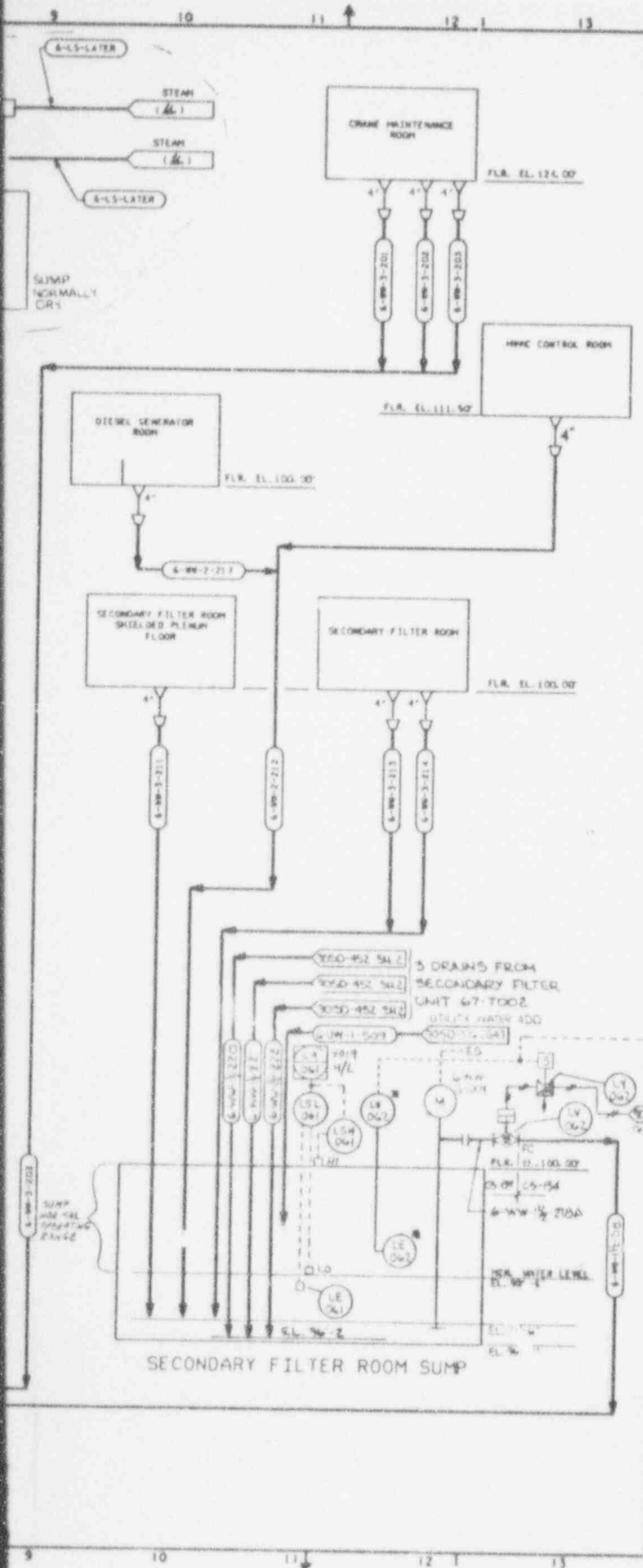
NO.	DATE	REVISION	DR	CH	APPROVED
B	08-12-84		R/L	F/P	R/L F/K M/R
GENERAL REVISION					
C	11-2-86		R/L	F/P	R/L F/K M/R
GENERAL REVISION					
0	3/9/89	REV 1567			
1	3/13/91	REVISED PER EGN 2879	E-B		
2	12/4/99	REV PER EGN 3287	CGR	OKS	F/P
3	5-9-90	REV PER EGN 3631	DM	H/L	OK
4	7-11-90	REV PER EGN 3773	BTR	OKS	J/S
5	11-17-92	REV PER EGN 5484	PD	HB	S/P
6	12-31-92	REV EGN 5738	PD	HB	H/A
7	5-5-93	REV EGN 6301	PD	KMG	OK
8	5-3-93	REV EGN 6305	DM	OKS	
9	8-31-93	REV PER EGN 6636	IV	KMG	
10	12-30-93	REV EGN 7002	F/S	HB	S/P
11	2-3-94	REV EGN 7324	PD	KQ	AW

NOTES

- ★ INDICATES INSTRUMENTS TO BE SUPPLIED BY SUMP PUMP VENDOR.
- ALL INSTRUMENT TAG NUMBERS ARE PRECEDED BY SYSTEM DESIGNATOR 63
- ALL DRAIN LINES TO SLOPE TOWARD SUMP $\frac{1}{8}$ " PER FOOT MINIMUM.
- DRAINAGE PIPING IN SUMP SHALL BE 12 INCHES BELOW MINIMUM WATER LEVEL AT ALL TIMES

REFERENCE DRAWINGS

PAID VITRIFICATION DRAINAGE SYSTEM LOW LEVEL WASTE 905-0-050



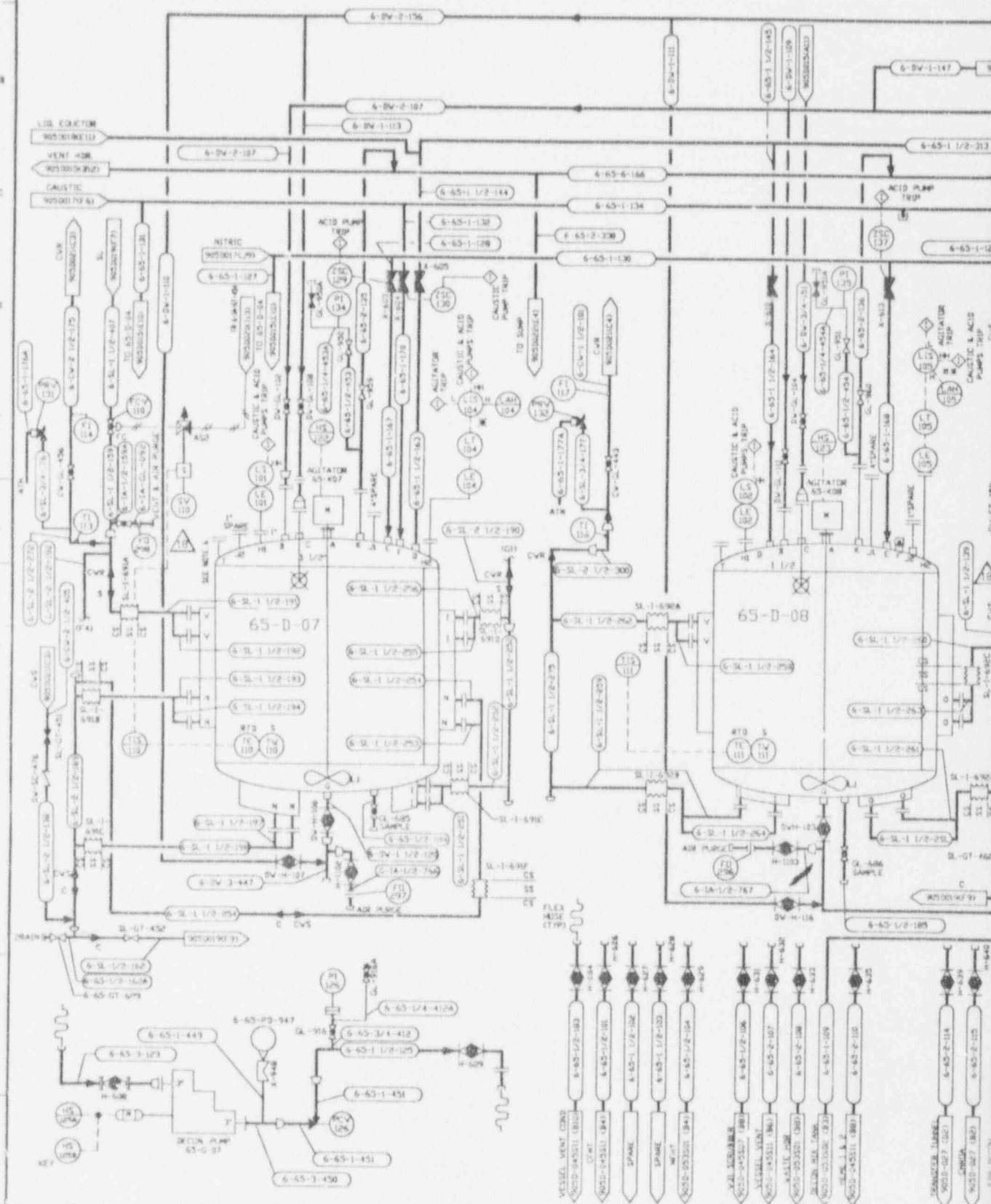
WVNS APPROVAL

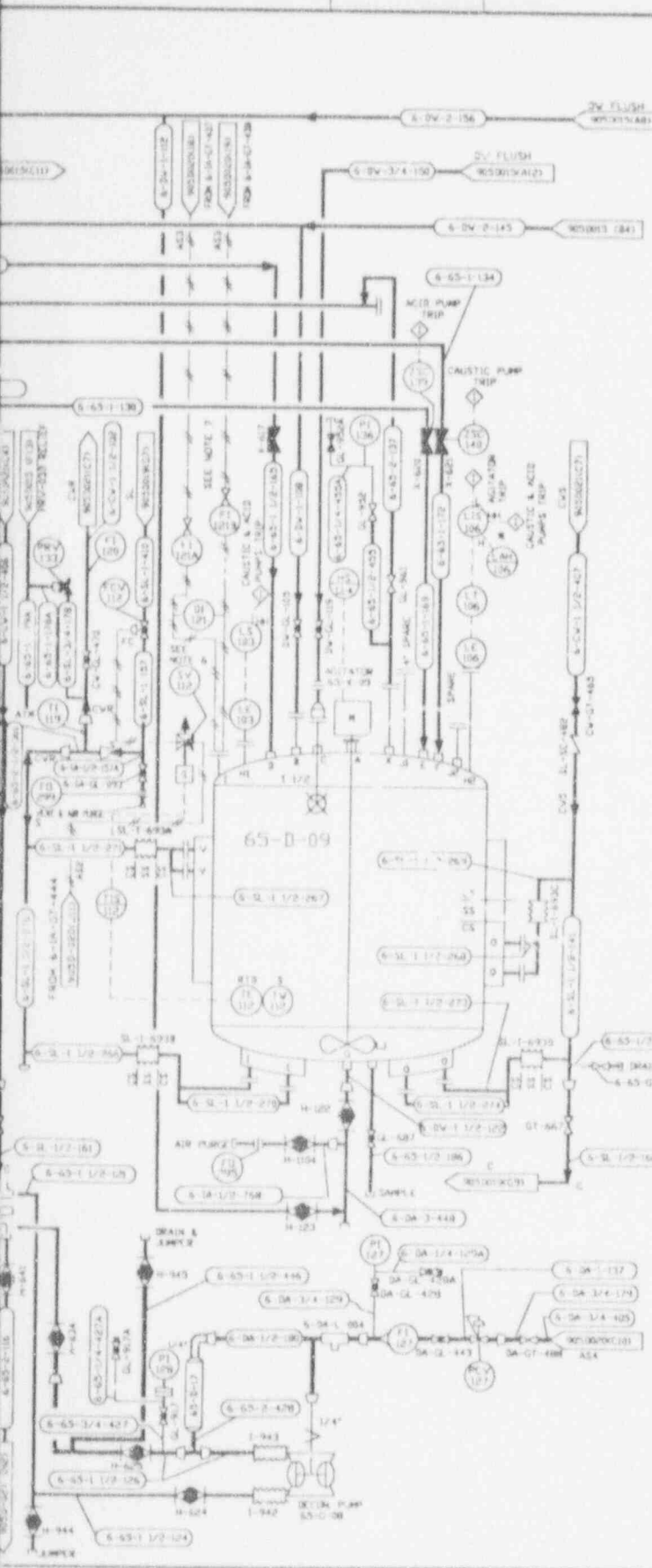
CDE MGR: [Signature]
 CDE ENGR: [Signature]
 INT SUPV: [Signature]
 QA MGR: [Signature]
 R & S MGR: [Signature]
 PROJ MGR: [Signature]

FOR DRAWING INDEX SEE DRAWING NO.

APPROVED (DATE)	2.1.21	EBASCO SERVICES INCORPORATED
PROJECT NO.	905-D-011	AVE. D.P. & NO. 2200, THREE DAMEN BLVD.
DESIGNER	[Signature]	WEST VALLEY NUCLEAR SERVICES COMPANY, INC.
CHECKED	[Signature]	WEST VALLEY, NEW YORK
DATE	02-25-94	WEST VALLEY DEMONSTRATION PROJECT
SCALE	AS SHOWN	P & ID VITRIFICATION DRAINAGE SYSTEM HIGH LEVEL
DRAWING NO.	905-D-011	
DATE	02-25-94	
SCALE	AS SHOWN	

9405260270-09





REV	DATE	REVISION	DN	CH	APPROVED
8	05-14-88		TJK	AJD	R.A. A.J. ZSK MDK
GENERAL REVISION					
C	08-14-87		TJK	AJD	ESS R.A. A.J. ZSK MDK
REVISION PER CSAR 9438					
D	10-23-87		TJK	JV	R.A. A.J. ZSK MDK
REVISION PER CSAR 9524					
E	10-03-88	ER 1468			JMH
F	10/20/93	GENERAL REVISION/EON 5129	H.B.	L.N.	S.M.
G	10/27/93	REV'D PER EON 6993	SRD	DKS	RB
H	11/5/93	REV'D PER EON 6644	SRD	DKS	S.R.
I	1/14/94	REV'D PER EON 7344	H.S.	AND	RVM
J	1/26/94	REV'D PER EON 6403	T.C.	DKS	H.J.
K	3/1/94	REV'D PER EON 7096	SRD	DKS	H.A.J.
L	3/3/94	REV'D PER EON 7304	S.M.	HAB	H.A.J.
M	1/10/94	REV'D PER EON 7514	H.C.	J.	()
N	8/23/93	REV'D PER EON 6435	A.H.	HAB	SGT
O	8/23/93	REV'D PER EON 6636	WCK	HAB	ZDD

**ANSTEC
APERTURE
CARD**

Also Available on
Aperture Card

- NOTES**
- FOR GENERAL NOTES SEE DWG 905-D-015.
 - ACID, CAUSTIC, AND DUCTED LIQUIDS LINES SHALL BE OF ALL WELDED CONSTRUCTION. WHEN THESE TRANSFER LINES ENTER A VESSEL THEY SHALL EXTEND 4" INTO TANK.
 - 65-D-07 TANK MANWAY TO BE UTILIZED AS POWDER INLET IF PNEUMATIC CONVEYING SYSTEM IS ADDED IN FUTURE.
 - ALL VALVE/SPECIALTY ITEM NUMBERS PRECEDED BY 6-65- UNLESS OTHERWISE NOTED.
 - ALL INSTRUMENT ITEM NUMBERS ARE PRECEDED BY 63-.
 - FOR OTHER COMPONENTS ASSOCIATED WITH SOLENOID VALVES SV-110, AND SV-112, REFER TO COLD CHEM SYSTEM INSTR. INSTALL. DETAILS DWG NO 905D-035, SH16
 - FOR OTHER COMPONENTS ASSOCIATED WITH ROTAMETERS FI-121A & B REFER TO COLD CHEMICAL SYSTEM INSTR. INSTALL. DETAILS DWG NO 905-0355 SH 22
- * LEVEL CONTROL STATION #1
** LEVEL CONTROL STATION #2

QUIPT NO.	QUIPT NAME	REF DWG	DESCRIPTION
65-D-07	DECOR TK	905D-1000	1000 GAL. V. VES. 4' 6" DIA. 2'-0" TYP. 304 SS. WITH 304-ON JACKETS
65-D-08	DECOR TK	E-1430	250 GAL. V. VES. 3'-0" DIA. 2'-6" TYP. 304 SS. WITH 304-ON JACKETS
65-D-09	DECOR TK	E-1436	250 GAL. V. VES. 3'-0" DIA. 2'-6" TYP. 304 SS. WITH 304-ON JACKETS
65-D-07	DECOR MELTING PUMP		1500 GPM # 30 PSL VARIABLE DISPLACEMENT PUMP TYPE DA SS & PTFE WETTED PARTS 400000010000 140-9001-C 3-HP
65-D-08	DECOR TRANSFER PUMP		410 HP DOUBLE DIAPHRAGM 4" NIPPLE 37 C 1.04 TYPE 3 1/2" DIA SS & TEFLOX 50 GPM # 60PSI
65-D-17	MELTATION SAMPLE		WARREN PUMP TRANQUILLIZER
65-K-07	AGITATOR		10 HP, 94 RPM, 1-1/2" DIA PROP. 304L SS
65-K-08	AGITATOR		0.5 HP, 430 RPM, 1-1/2" DIA PROP. 304L SS
65-K-09	AGITATOR		0.5 HP, 430 RPM, 1-1/2" DIA PROP. 304L SS

FOR DRAWING INDEX SEE DRAWING NO.

APPROVED BY: [Signature]

PROJECT NO. 93-0001

ENGINEER SUPV. A.J. DIFILIPPO 24-08-87

DESIGNER T.J. LEVY 23-08-87

DRAWN T.J. LEVY 23-08-87

CHECKED T.J. LEVY 23-08-87

DATE 08-23-87

SCALE 1" = 1'-0"

PROJECT NO. 93-0001

ISSUE NO. 001

DWG NO. 905D-016

REV. 1

DATE 08-23-87

BY TJK

FOR CONSTRUCTION

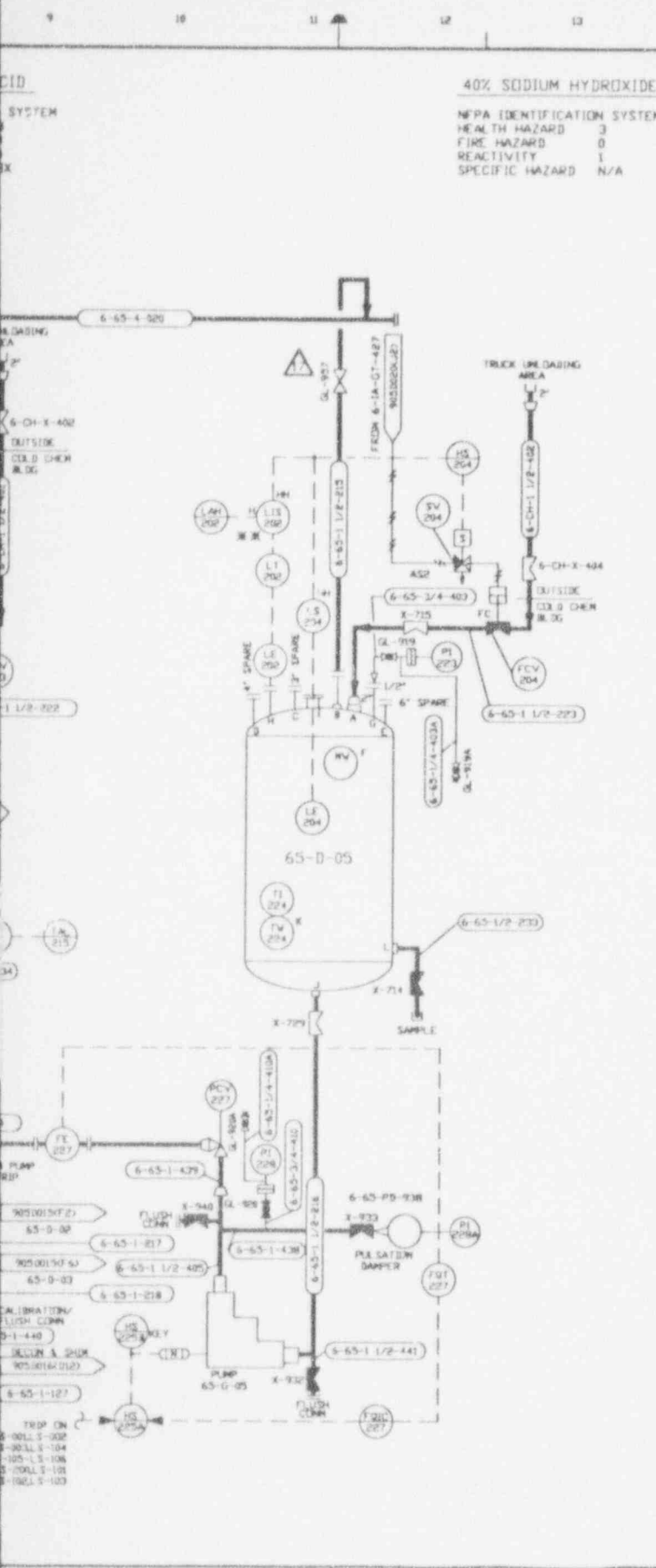
CAD DRAWING - Do not revise this original.

CAUTION
CORROSION CONTROL
FOR LEVEL CONTROL

ECN(S) PENDING

1252

9405260270-11



40% SODIUM HYDROXIDE
 NFPA IDENTIFICATION SYSTEM
 HEALTH HAZARD 3
 FIRE HAZARD 0
 REACTIVITY 1
 SPECIFIC HAZARD N/A

NO.	DATE	REVISION	DR	CH	APPROVED
B	08-14-87		TJK	AJD	R.A. A.J.D. F.S.K.
GENERAL REVISION					
C	08-14-87		TJK	AJD	R.A. A.J.D. F.S.K.
REVISION PER EBAR 9458A					
D	10-23-87		TJK	RJB	R.A. A.J.D. F.S.K.
REVISION PER EBAR 9458B					
E	10/3/88	ER 1468			JR1
F	10/26/93	REV'D PER ECR 6129	H.A.	HAB	D.R.
G	10/27/93	REV'D PER ECR 6993/6995	S.R.D.	K.D.	R.V.R./D.S. 10/27/93
H	11/02/93	REV'D PER ECR 6972	K.G.Z.	K.Q.	R.H.B.
I	11/9/93	REV'D PER ECR 6844	S.R.D.	D.H.S.	D.R.
J	1/14/94	REV'D PER ECR 7343	A.A.J.	H.A.B.	R.V.R.
K	3/3/94	REV'D PER ECR 7304	D.J.N.	H.A.J.	H.A.J.
L	11/94/90	REV'D PER ECR 5623	A.A.J.	D.H.S.	D.R.
M	3/2/93	REV'D PER ECR 5974	S.R.D.	D.H.S.	D.D.D.
N	3/29/93	REV'D PER ECR 6000	S.R.C.	H.A.B.	G.G.T.
O	8/23/93	REV'D PER ECR 6455	J.H.	H.A.B.	G.G.T.
P	9/7/93	REV'D PER ECR 6456	W.C.K.	H.A.B.	D.D.D.

ANSTEC
 APERTURE
 CARD
 Also Available on
 Aperture Card

- NOTES:
- FOR GENERAL NOTES SEE DWG 905-D-015.
 - EXISTING 3" PIPE CONN. NOZZLE "C" (VENT) TO BE MODIFIED FOR ROUTING TO SCRUBBER SYSTEM.
 - ACID & CAUSTIC DISTRIBUTION PIPING IS TO BE OF WELDED CONSTRUCTION TO THE MAXIMUM EXTENT POSSIBLE.
 - ALL VALVE/SPECIALTY ITEM NUMBERS PRECEDED BY 6-65- UNLESS OTHERWISE NOTED.
 - THIS ITEM IS LOCATED IN MCC.
 - EXISTING STEAM & WATER JACKETS TO BE UTILIZED AS IS WITH NEW UTILITY PIPING SYSTEM.
 - ALL INSTRUMENT ITEM NUMBERS ARE PRECEDED BY 65-.
- * LEVEL CONTROL STATION #1
 ** LEVEL CONTROL STATION #2

EQUIP. NO.	NAME	REV'D BY	DESCRIPTION
65-D-01	DRAIN TANK	E-1188	11,000 GAL. CAPACITY, 11'-6" DIA. X 14'-0" S.S., 304 S/S
65-D-06	CAUSTIC DAY TANK	E-1500	500 GAL. WORKING VOL., 4'-0" DIA. X 6'-0" S.S., 304 S/S
65-D-05	NITRIC ACID DAY TANK	E-1491	1500 GAL. WORKING VOL., 6'-0" DIA. X 7'-6" S.S., 304 S/S
65-G-05	NITRIC ACID TRANSFER PUMP	---	RELIEF @ VARIABLE DISPLACEMENT METERS PUMP, 500 GPM MAX @ 100 PSIG, MODEL M9H-120-36-31-E 2.2 HP
65-G-06	CAUSTIC TRANSFER PUMP	---	RELIEF @ VARIABLE DISPLACEMENT METERS PUMP, 330 GPM MAX @ 100 PSIG, MODEL M9H-108-36-31-E 1.5 HP
65-G-08	DRAIN PUMP	900-D-970	AIR-OP. VR. DOUBLE DIAPHRAGM, MODEL SARAD-140 GPM, 2" SIZE
65-K-01	DRAIN TANK AGITATION	900-D-970	7.5 H.P., 1760 RPM, 465/3760 MOTOR, GEARED DOWN TO 36 RPM, 3 BLADE

FOR DRAWING INDEX SEE DRAWING NO.

APPROVED	DATE	BY	FOR TASK ORDER NO.
PROJECT MGR	09-30-97		
ENGINEER SUPERVISOR	09-30-97		
DESIGN	09-30-97		
CHECKER	09-30-97		
DRAWN	09-30-97		
ISSUED FOR CONSTRUCTION			

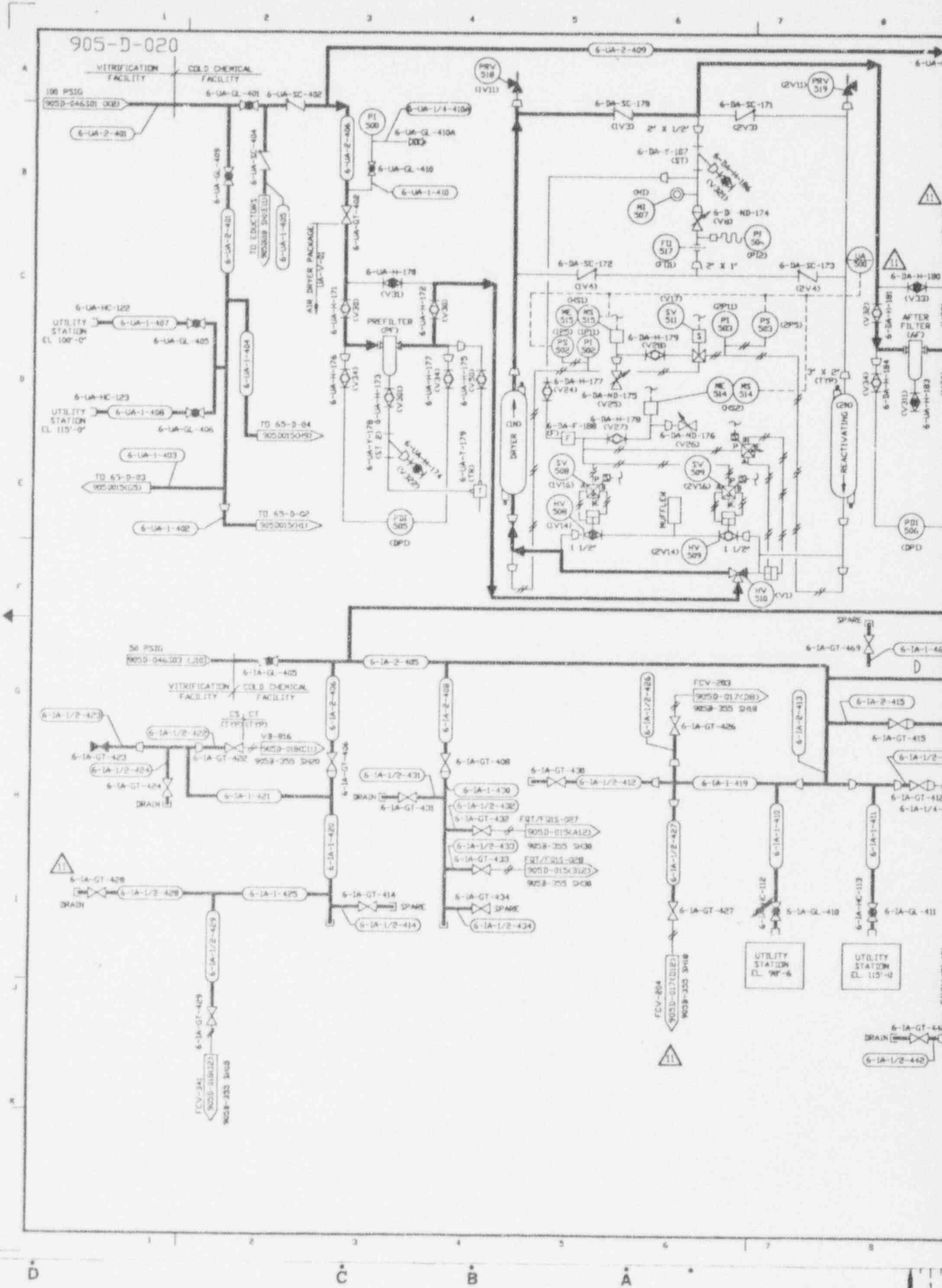
EBASCO SERVICES INCORPORATED
 WEST VALLEY NUCLEAR SERVICES COMPANY, INC.
 WEST VALLEY, NEW YORK

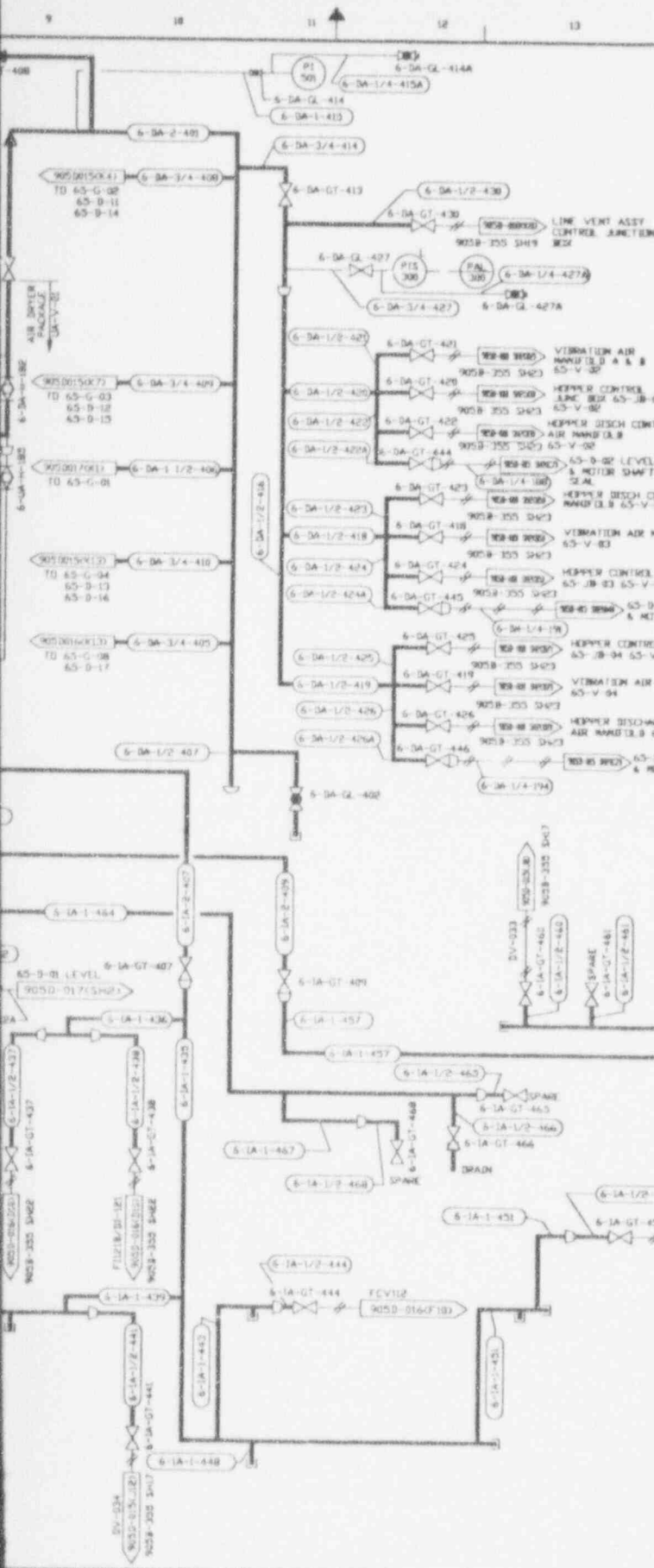
WEST VALLEY DEMONSTRATION PROJECT
 P & ID
 COLD CHEMICAL PREPARATION AND FEED SYSTEM

PROJECT NO.	DRAWING NO.	REV.
19-CVY-02275	905D-017	17

CAD DRAWING - Do not revise this original.
 CONTACT AS-3
 8/27/97

ECN(S) PENDING
 #7752
 9405260270-12





NO	DATE	REVISION	DR	CH	APPROVED
B	06-19-87		F.K.	R.X.	F.S.K. HDV
GENERAL REVISION					
C	08-14-87		F.K.	E.G.S.	R.X. A.L.D. F.S.K. HDV
REVISION PER EBAR 949A					
D	10-29-81		F.K.	J.V.	R.A. F.S.K. HDV
REVISION PER EBAR 992A					
E	10-3-88	ER 1468			204
F	10/27/93	REV'D PER ECR 6193	SRD	KMG	RD 10/27/93
G	11/18/93	REV'D PER ECR 6844	SRD	DRS	DR
H	3/3/94	REV'D PER ECR 7304	DR	J.P.	H.A.J.
I	6/6/91	REV'D PER ECR 4824	SRD	DRS	REC 6/25/91
J	3/3/93	REV'D PER ECR 5974	SRD	DRS	DDO 3/8/93
K	4/13/93	REV'D PER ECR 6163	AAJ	DRS	DR 4/26/93
L	8/23/93	REV'D PER ECR 6455	A.H.	HAB	SGT
M	10/14/93	REV'D PER ECR 6873	L.R.K.	DRS	PAN

ANSTEC APERTURE CARD

Also Available on Aperture Card

- FOR GENERAL NOTES SEE DWG 905 0-05
- AIR SUPPLY LEGEND (WHERE APPLICABLE)
 AS1-100 PSIG UTILITY AIR
 AS2-30 PSIG INSTRUMENT AIR
 AS3-20 PSIG INSTRUMENT AIR
 AS4-100 PSIG DRY UTILITY AIR

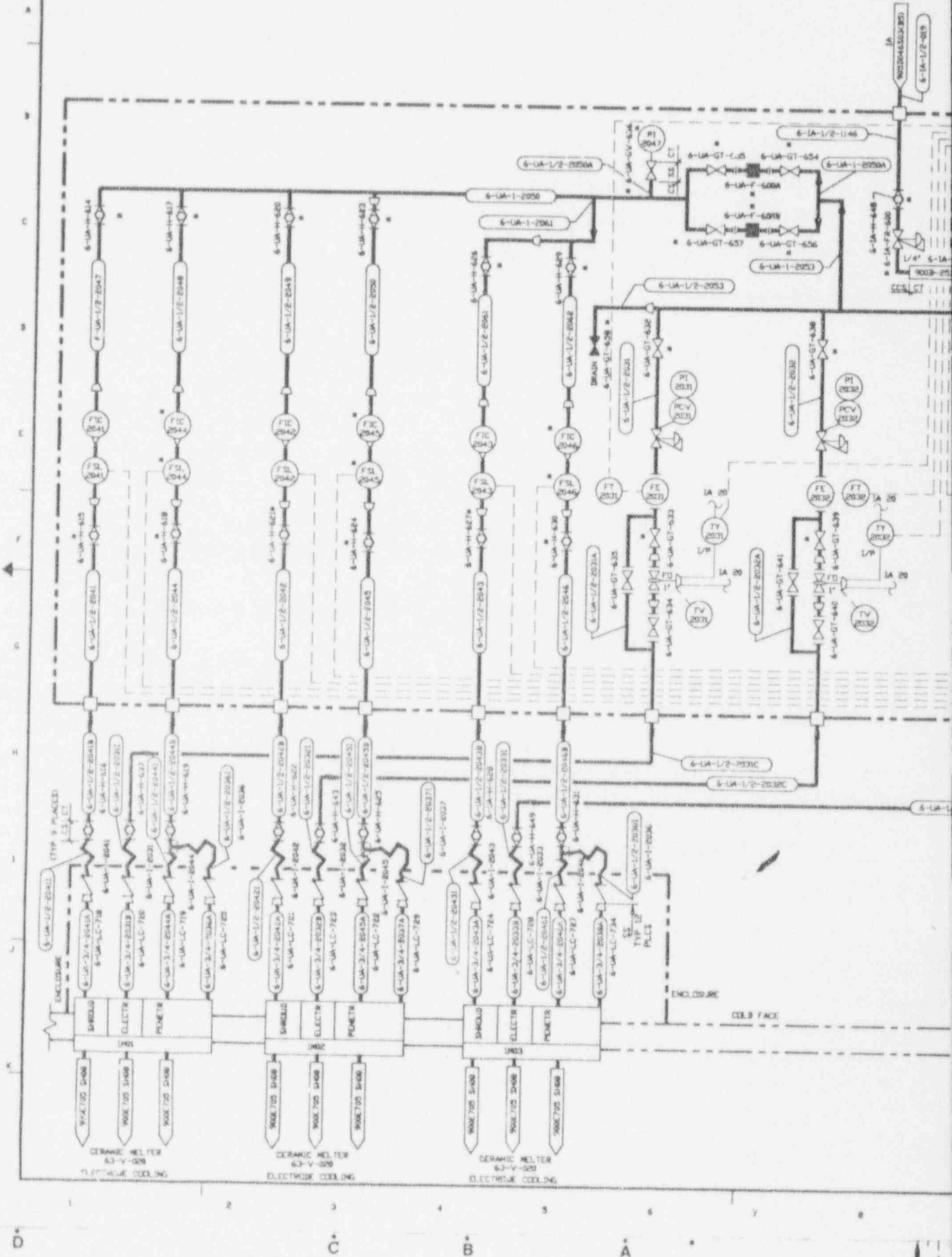
ECN(S) PENDING
#7752

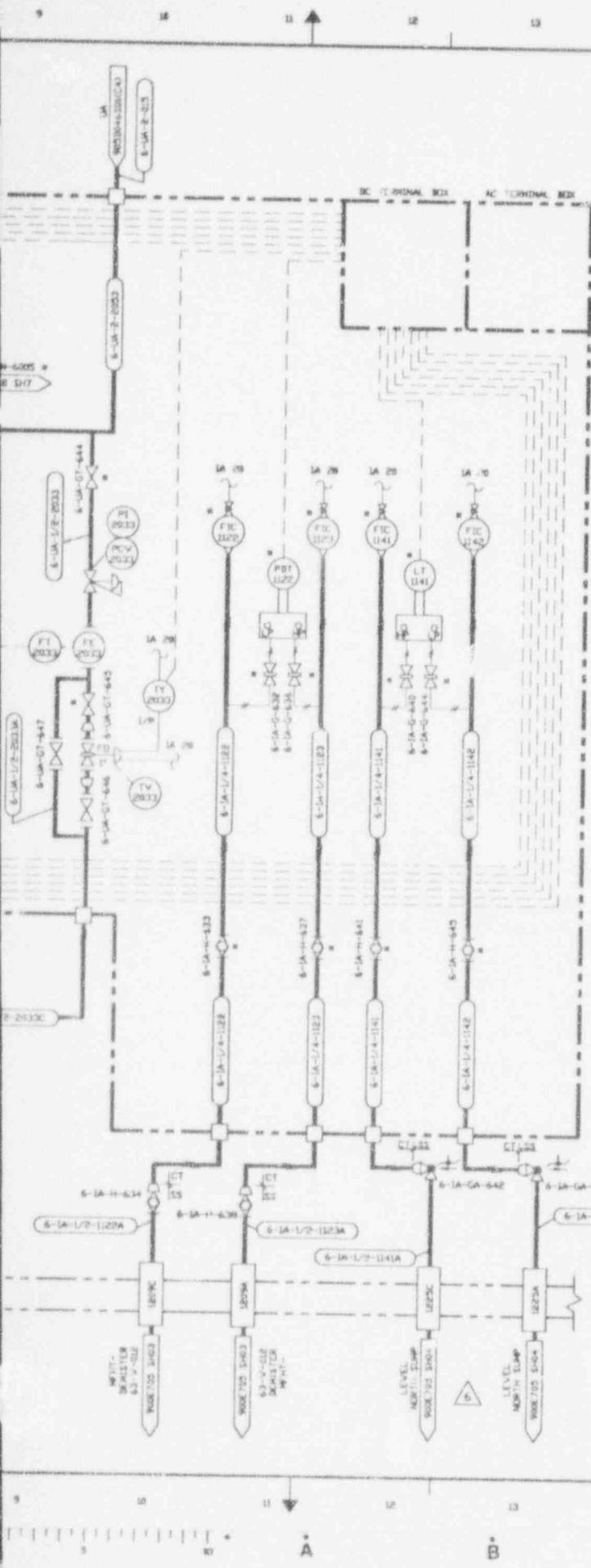
FOR DRAWING INDEX SEE DRAWING NO.		EASCO SERVICES INCORPORATED	
APPROVE VAND ZIL	DATE 04-16-87	APR OF S. NO. 27088	FIG. 1-AN INSTR. 002
PROJECT MGR	R.D. WEINGART	WEST VALLEY NUCLEAR SERVICES COMPANY, INC	
ENGINEER	S.P.V.	WEST VALLEY, NEV. 89006	
P.S. REVIEW	C.P.V.	WEST VALLEY DEMONSTRATION PROJECT	
LEAD MGR	M.R.	P & ID	
P.S. REVIEW	C.P.V.	COLD CHEMICAL	
DESIGN	R.L. LEVRO	UTILITY AND INSTRUMENT AIR	
GRADER	T.J. PIAZZA	SCALE: 1/2" = 1'-0"	
DRAWN	R.L. LEVRO	DATE: 04-16-87	
DR. ACCT. TIME	64.79	SHEET NO. 9050-020 11	
PROJECT NO.	19-CVV-00275	DRAWING NO.	
SUBCONTRACT NO.		REV.	
ISSUE FOR CONSTRUCTION		SCALE: 1/2" = 1'-0"	
		DATE: 04-16-87	

CAD DRAWING - Do not revise original.

9405260270-13

905-D-045 S03 D





REV	DATE	REVISIONS	DR	CHK	APPROVED
B	02-02-88		TJK	RJA	RJK AJD KDV
REVISIONS PER EBAR 1875A					
C	06-15-88		TJK	RJA	RJK AJD KDV
GENERAL REVISIONS INCLUDING TA 767					
B	10-31-88		PJS		
GENERAL REVISIONS INCLUDING TA 803					
D	06-12-89	ER 1631			JRM
1	01-17-90	ECN 3359	DRV	PAH	NEC
2	7/9/91	REV PER ECN 4341	AVM	HAB	DJR
3	12/23/91	REV PER ECN 4674	DAK	HAB	DJR
4	2/28/92	REV PER ECN 4778	AAJ	HAB	DJR
5	9/03/93	REV PER ECN 6685	JLH	HAB	PAH
6	12/30/93	REV PER ECN 7324	SRD	KJ	

- NOTES:
- NEW INSTRUMENTS & VALVES TO BE INSTALLED ON THIS EXISTING RACK ARE MARKED WITH SINGLE ASTERISK (*).
 - 1A 20 AIR SERVICE FROM MANIFOLD 6-1A-M-6005. SEE DRAWING 9003-2518-SH7.

ANSTEC APERTURE CARD

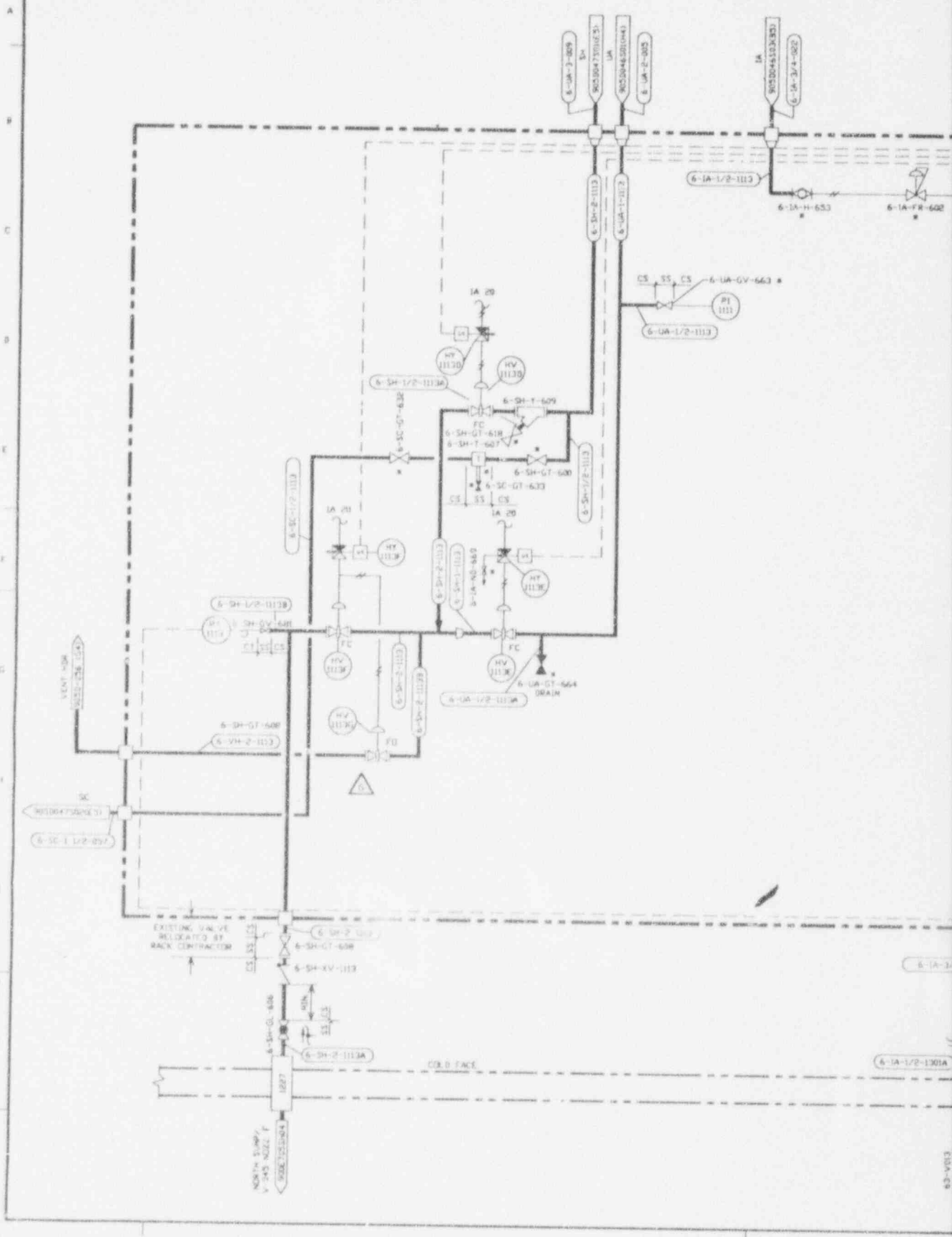
Also Available on Aperture Card

FOR DRAWING INDEX SEE DRAWING NO.		EBCSD SERVICES INCORPORATED	
APPROVE WORK CO.	DATE	REV. NO.	SCALE
PROJECT NO.	11/20/87	9050-045	6
DESIGNED BY	11/20/87	WEST VALLEY NUCLEAR SERVICES COMPANY, INC. WEST VALLEY, NEW YORK	
CHECKED BY	11/20/87	WEST VALLEY DEMONSTRATION PROJECT	
DRAWN BY	11/20/87	P & ID VITRIFICATION FACILITY INSTRUMENT RACK 2N7-6	
DATE	11/20/87	SCALE: NONE	
PROJECT NO.	11/20/87	SHEET NO. 9050-045-003	
CONTRACT NO.	11/20/87	SHEET NO. 9050-045-003	
ISSUED FOR CONSTRUCTION	11/20/87	SHEET NO. 9050-045-003	

CHECK DRAWING FOR ANSTEC FOR LATEST REVISIONS

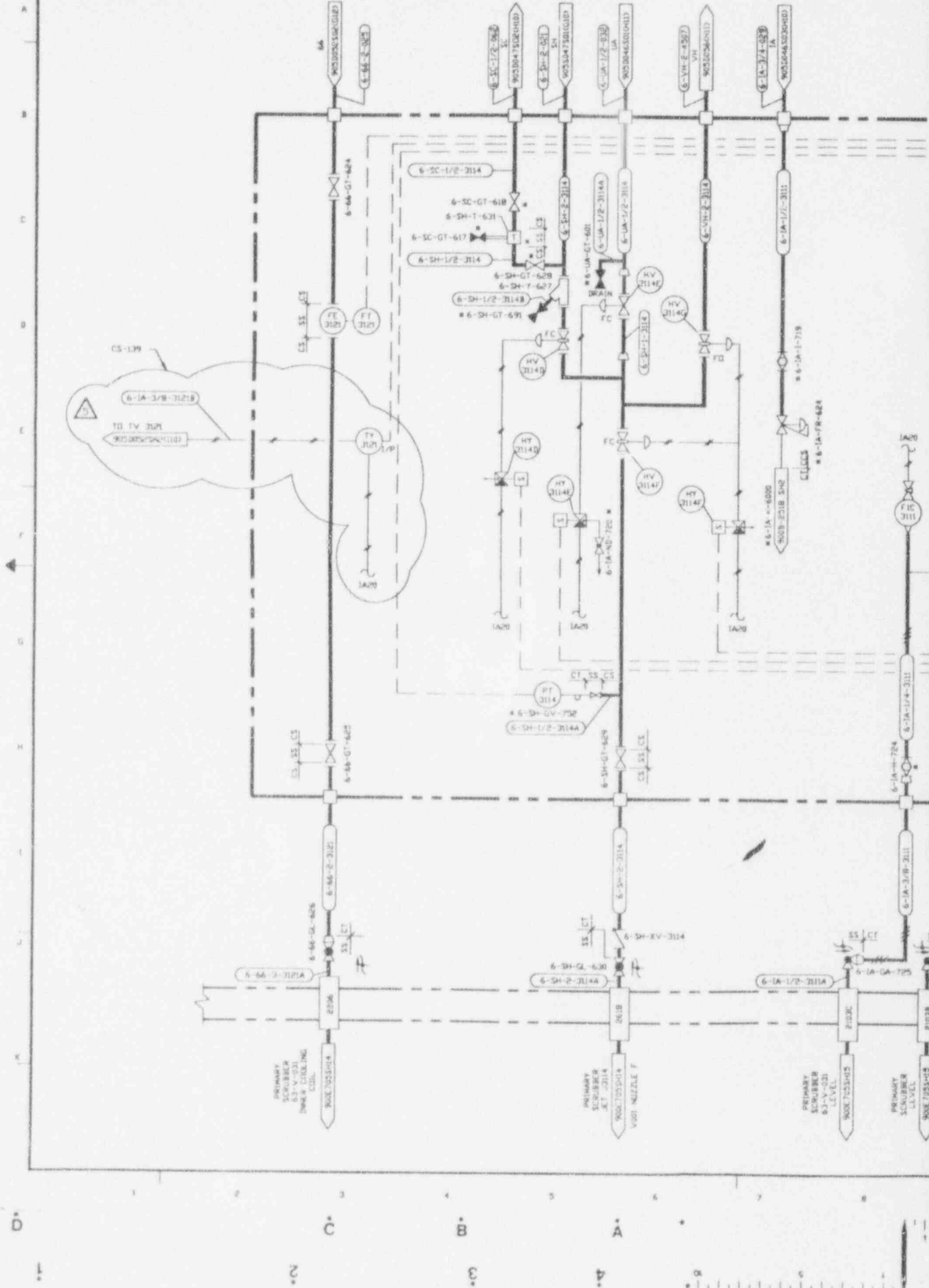
9405260270-15

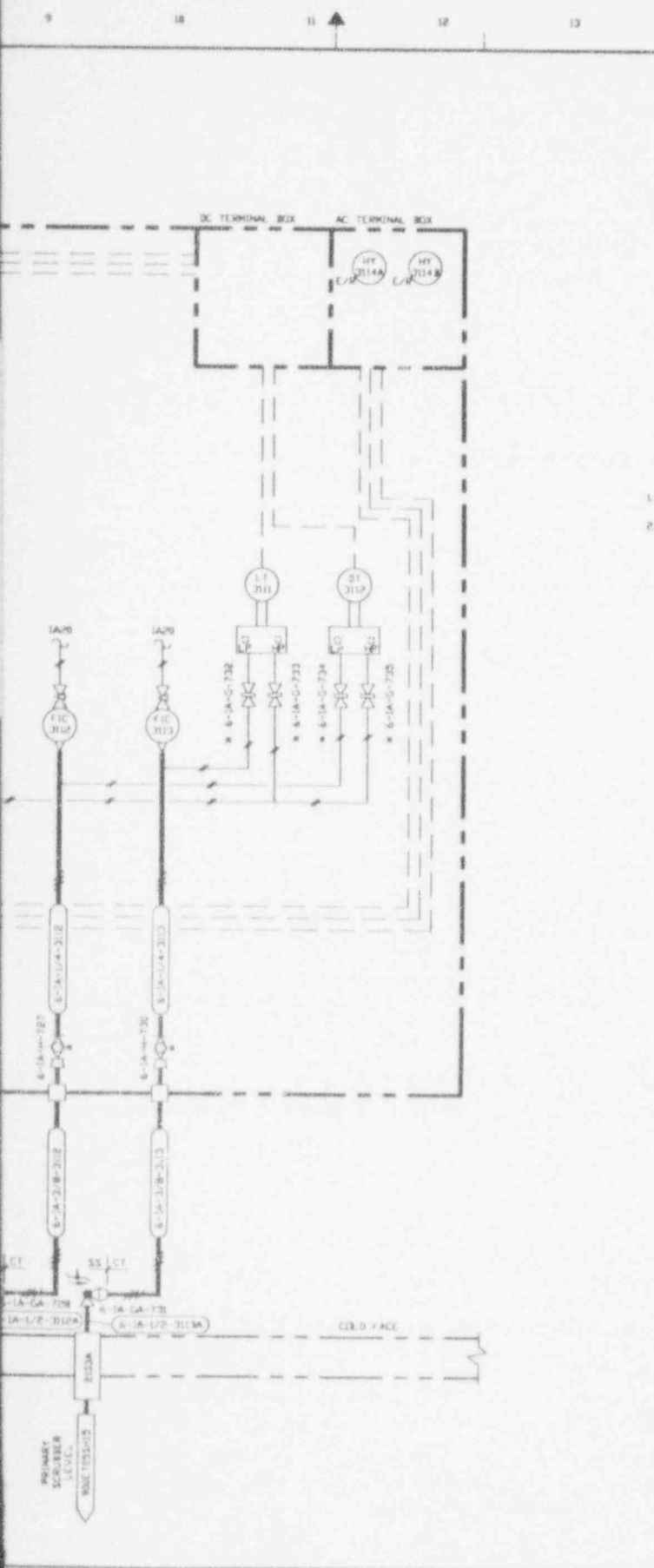
905-D-045 S04



63-V03

905-D-045 S05





NO.	DATE	REVISION	DR	CH	APPROVED
B	06-15-98		TJR	R.A.	R.A. SN AJD PIV
GENERAL REVISION INCLUDING TA 767					
C	10/31/99		PJS	R.A.	R.A. R.A. F.J.S.
GENERAL REVISION					
D	4/13/99		R.A.	JJV	R.A. F.A. F.J.S.
GENERAL REVISION					
E	06/12/89	ER 1631			JRH
F	01/24/90	EON 3359	DRV	PAN	NEC
G	7/9/91	REV PER EON 4341	AWN	HAB	DJR
H	11/13/91	REV PER EON 4660	DAK	HAB	DJR
I	10/26/93	REV PER EON 6811	DUN	DRS	KRS
J	3/08/94	REV PER EON 7491	DUN	JJV	JW

ANSTEC APERTURE CARD
 Also Available on Aperture Card

NOTES:

1. NEW VALVES TO BE INSTALLED ON THIS EXISTING RACK ARE MARKED WITH A SINGLE ASTERISK (*).
2. 1A - 5 AIR SERVICE FROM MANIFOLD 6-1A 20-M-6000. 3" DRAWING 900B-241B SH.

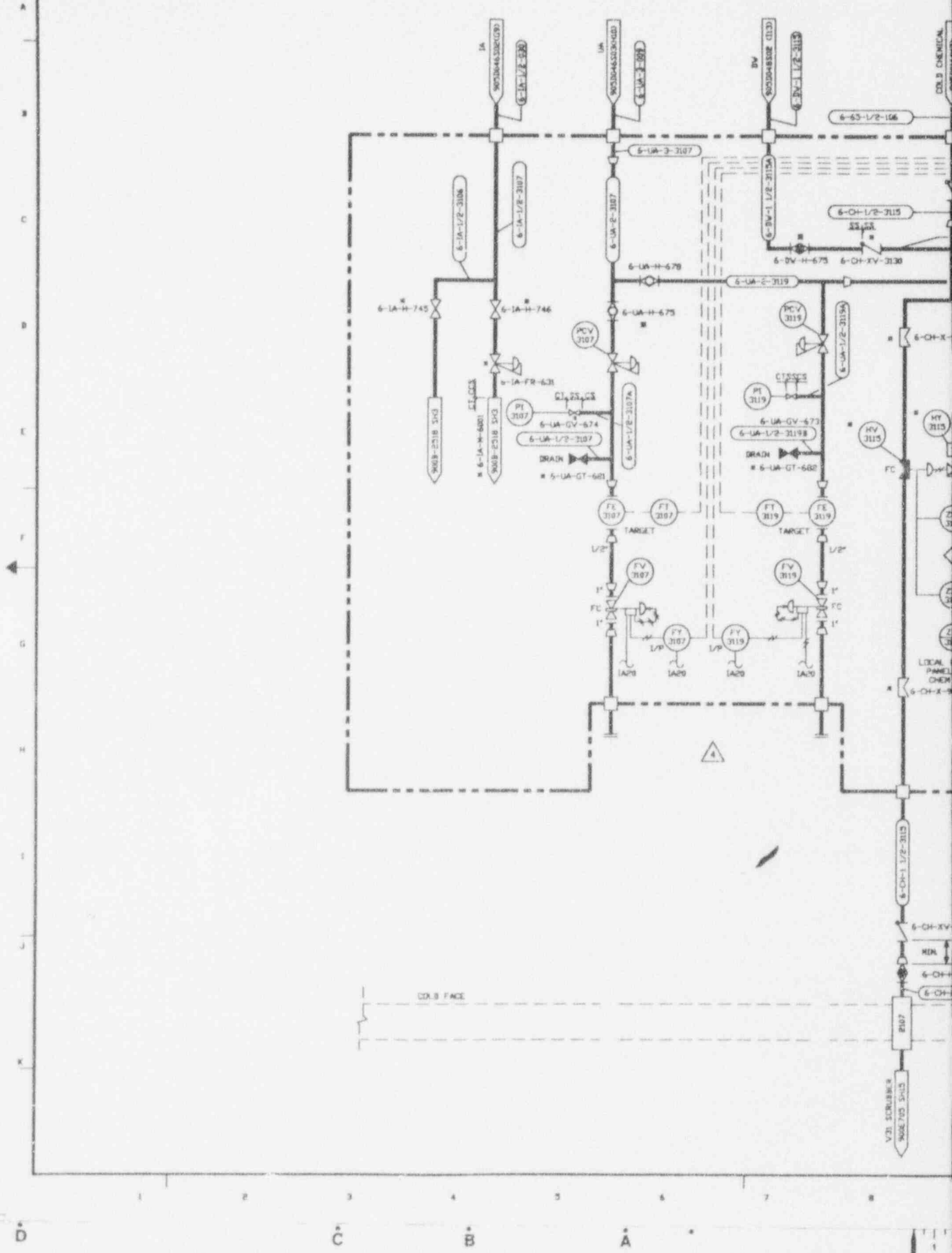
CAD DRAWING - Do not revise this original.

FOR DRAWING INDEX SEE DRAWING NO.

APPROVED BY: [Signature]	EASCO SERVICES INCORPORATED	
PROJECT NO:	AVE OFF. NO. 0208	FOR TASK ORDER 002
ENGINEER: N.D. WEINART 00-07-00	WEST VALLEY NUCLEAR SERVICES COMPANY, INC.	
ENGINEER SUPV: A.J. DIF. (DPP) 00-07-00	WEST VALLEY, NEW YORK	
LEAD 3000 ENGR: [Blank] 00-07-00	WEST VALLEY DEMONSTRATION PROJECT	
PL. MATH: [Blank] 00-07-00	P & ID	
DESIGN: A. ZIG 00-07-00	VITRIFICATION FACILITY	
DRAWN: [Blank] 00-07-00	INSTRUMENT RACK 2W2-1B	
T.J. KITEZ 00-07-00	SIZE:	DRAWN CODE: [Blank]
DATE: 00-07-00	SCALE:	ORIGINATING NO.:
DC: AC07-BENE44129	SCALE: NONE	905D-045 5
PROJECT NO:	SCALE: NONE	AVE SHEET NO.:
19-CMV-00775	SCALE: NONE	905D-045 S05 D
SUBCONTRACT NO.:	SCALE: NONE	
CONTRACT FOR CONSTRUCTION:	SCALE: NONE	

9405260270-17

905-D-045 S07

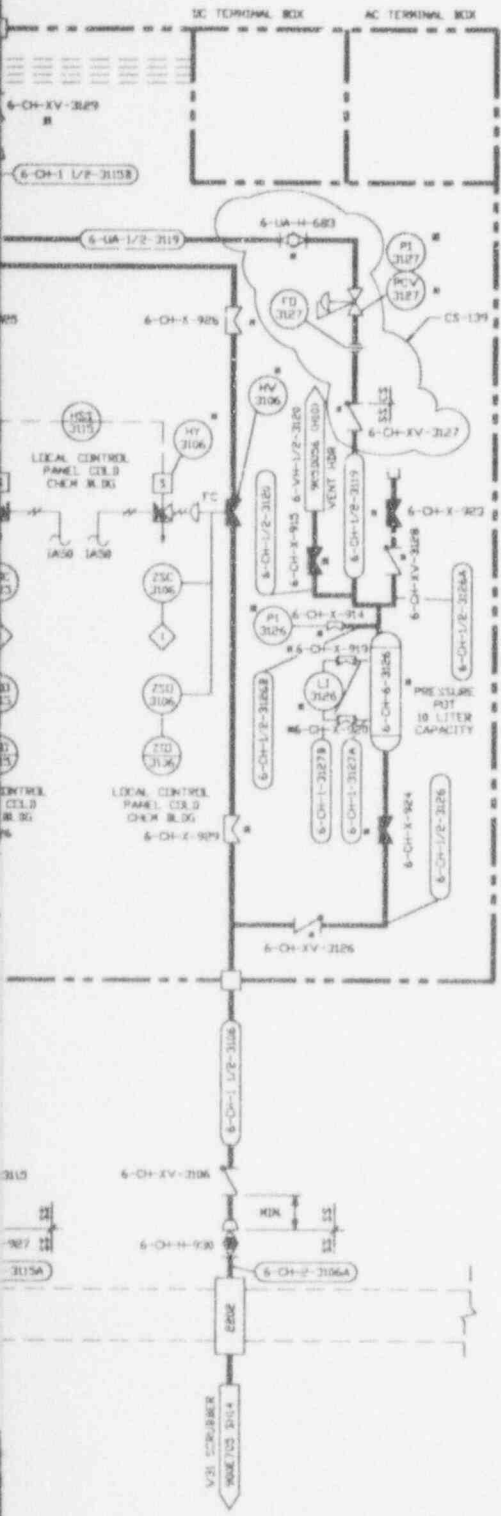


Grid labels: 1, 2, 3, 4, 5, 6, 7, 8 (columns); A, B, C, D, E, F, G, H, I, J, K (rows).
Bottom labels: 1, 2, 3, 4, 5, 6, 7, 8 (columns); D, C, B, A (rows).

NO.	DATE	REVISION	DR	CH	APPROVED
B	06-15-88		T.M.	P.J.	R.L. SN A.J.B. REV
GENERAL REVISION INCLUDING TA 7A7					
C	10-31-88		P.J.S.	R.L.	R.L. A.J.B. P.J.S.
GENERAL REVISION INCLUDING TA 802 & TA 803					
D	04-13-89		R.L.	J.V.	R.L. F.J.T. F.J.S.
GENERAL REVISION					
B	06-10-89	EN 1638			J.H.
1	01-26-90	ECN 3259	DRV	PAN	NEC
2	7/9/91	REV PER ECN 4341	AVN	HAB	D.J.R.
3	3/8/94	REV PER ECN 7491	D.J.R.	HAB	D.J.R.
4	3/17/94	ECN 6667	T.M.	P.S.	P.S.

**ANSTEC
APERTURE
CARD**

Also Available on
Aperture Card



NOTES:

1. NEW INSTRUMENTS & VALVES TO BE INSTALLED ON THIS EXISTING RACK ARE MARKED WITH A SINGLE ASTERISK (*).
2. TA20 AIR SERVICE FROM MANIFOLD 6-1A-M-6001 AND TA50 AIR SERVICE, SEE DRAWING 905D-2518 2/3.

CAD DRAWING - Do not revise this original.

FOR DRAWING INDEX SET DRAWING NO.		EBASCO SERVICES INCORPORATED	
APPROVE: V.V.S. CL	PROJECT NO. M. S. VEINGART 12-13-87	DATE OF A. NO. 2288	FOR TA20 ORDER 905D-
ENGINEER: D.P.V.	A. J. DUFFLOPP 08-11-87	WEST VALLEY NUCLEAR SERVICES COMPANY, INC. WEST VALLEY, NEW YORK	
DESIGNER: S. WATH	12-11-87	WEST VALLEY DEMONSTRATION PROJECT	
CHECKER: M. L. WILSON/AMR	12-11-87	P & ID	
DRAWN: B. J. LEVING	12-11-87	VITRIFICATION FACILITY INSTRUMENT RACK 2W3-2	
DATE: T. J. KITZ	12-11-87	SIZE: D	INDEX CODE NUMBER: 905D-045
DR: AC07-RIN-44139	19-CVV-02075	DRAWING NO.:	REV: 4
PROJECT NO.:	SUBCONTRACT NO.:	AREA: DR. TYP. CL. DRK.	4/8 SHEET NO. 905D-045 3/7
ISSUES FOR CONSTRUCTION:	SCALE: NONE	SPEC. CODES:	

9405260270-18

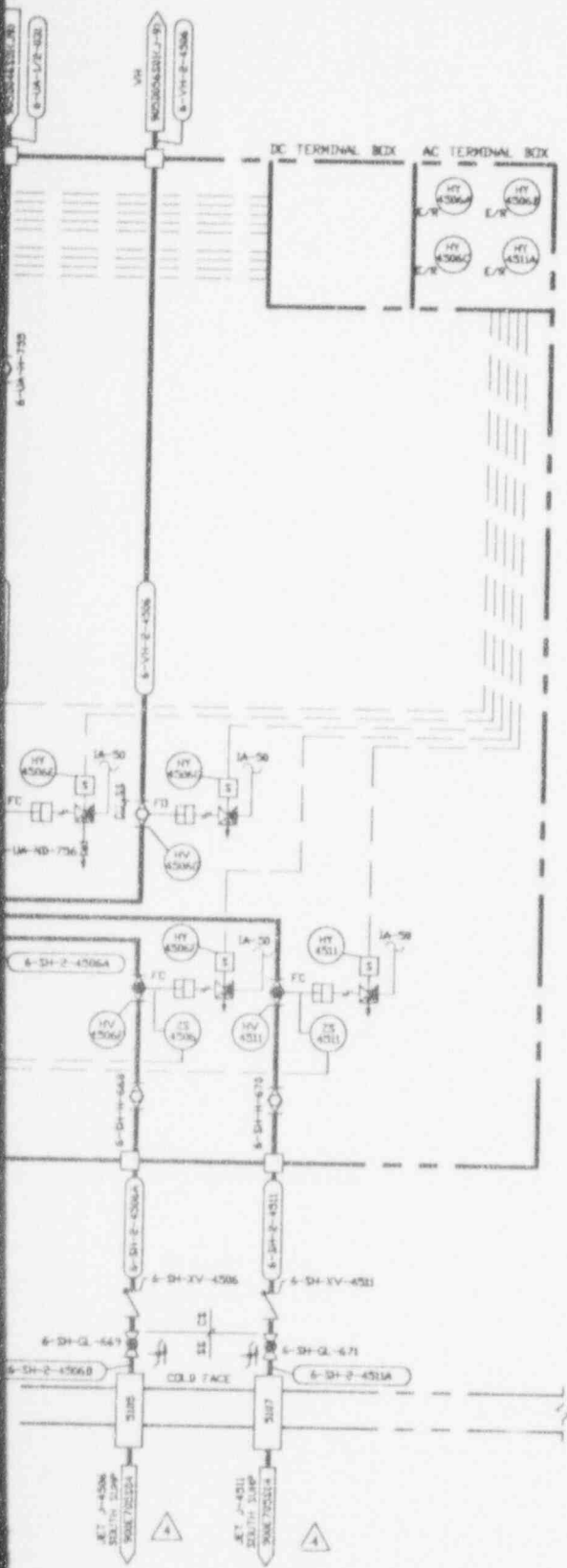
ANSTEC APERTURE CARD

Also Available on Aperture Card

REV	DATE	REVISIONS	DR	CH	APPROVED
B	9-15-89		BFR	R.L.	R.L. A.B. HDV
GENERAL REVISIONS INCLUDING TA 767					
C	2-16-89		A.J.	J.V.	R.L. F.R. F.J.S.
GENERAL REVISIONS					
A	6-12-89	DR 1628			J.H.
1	12-15-89	EON 3293	DRV	PAH	HEC
2	7/9/91	REV PER EON 4341	AVN	HAB	DJR
3	10/28/93	REV PER EON 6891	KJC	HAB	LED
4	12/31/93	REV PER EON 7324	SKB	K.R.	J.H.

NOTES:

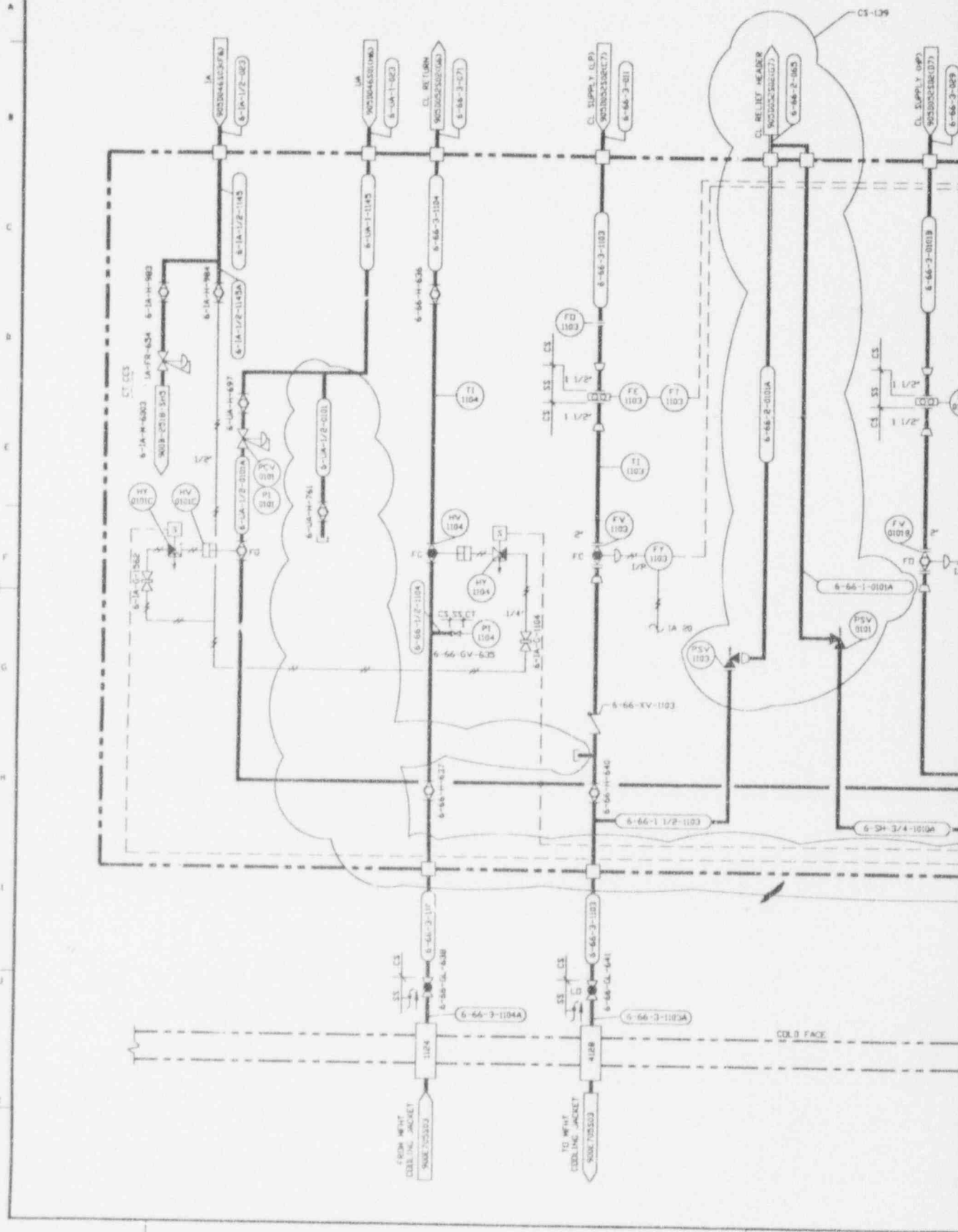
- 1A-20 AND 1A-30 AIR SERVICE FROM MANIFD. DS.
6-1A-M-6010 AND 6-1A-M-6011 SEE DETAIL DN
9008-2518 5403.

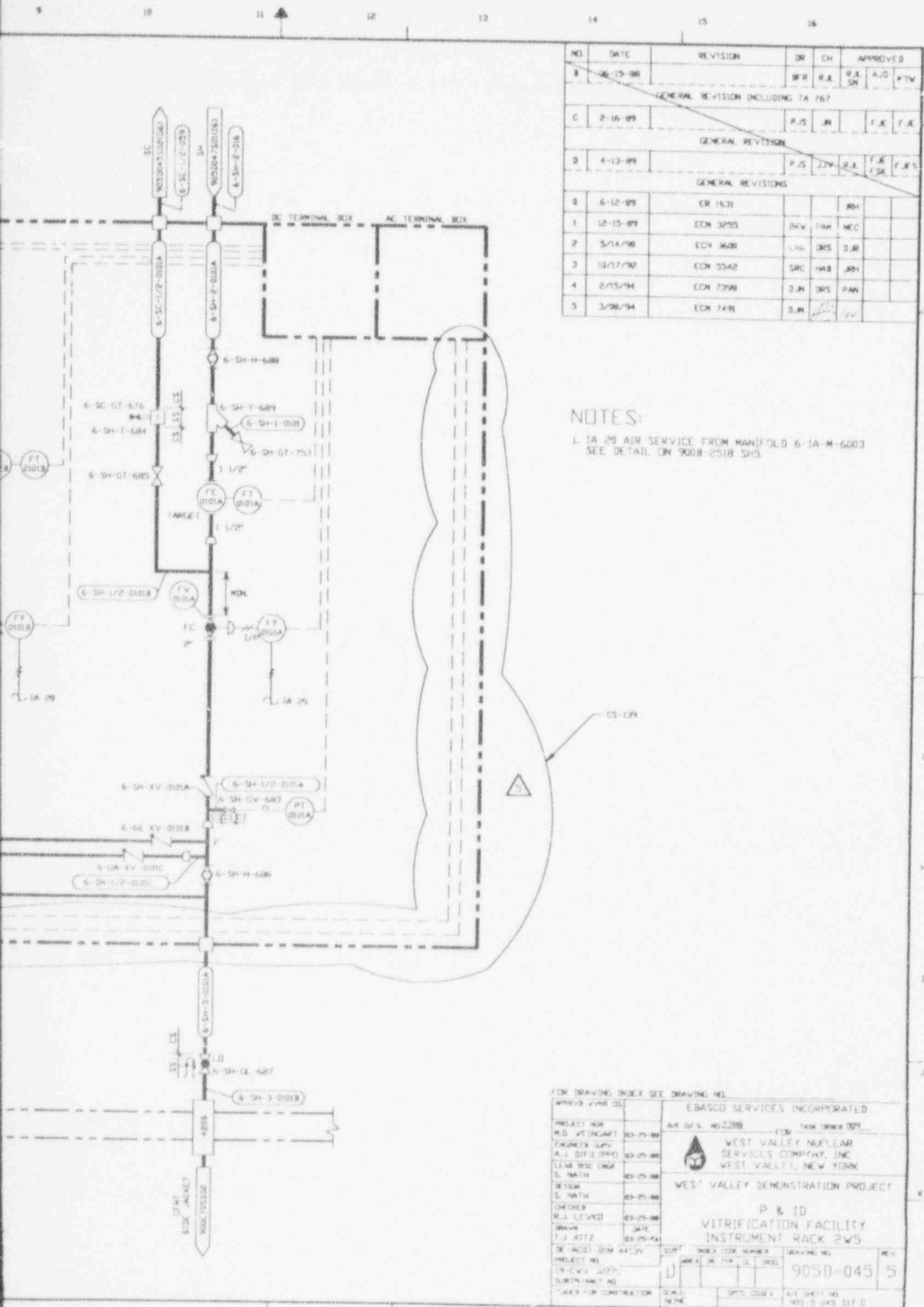


FOR DRAWING INDEX SEE DRAWING NO.		E-BASCO SERVICES INCORPORATED	
APPROVED BY:		PROJECT NO:	AVE OF S. 402000
PROJECT MGR:	02-00-00	FOR:	TAK 0001 003
ENGINEER SUPV:	02-00-00	WEST VALLEY NUCLEAR SERVICES COMPANY, INC.	
ALL DR 01/00:	02-00-00	WEST VALLEY, NEW YORK	
CLEAR DRG. CORR. DATE:	02-00-00	WEST VALLEY DEMONSTRATION PROJECT	
DESIGN:	02-00-00	P & ID	
INSTR. M. (HARDWARE):	02-00-00	VITRIFICATION FACILITY	
CHECKS:	02-00-00	INSTRUMENT RACK 3W3	
REVISIONS:	02-00-00	DATE:	
DRAWN:	02-00-00	SCALE:	
T.J. KITZ:	02-00-00	DRIVING NO.:	905D-045
DE-AC07-0106 44129	02-00-00	REV.:	4
PROJECT NO.:		DRIVING NO.:	
19-CV-00275		DRIVING NO.:	
CONTRACT NO.:		DRIVING NO.:	
ORDER FOR CONSTRUCTION:		DRIVING NO.:	

9405260270-19

905-D-045 S17





REV.	DATE	REVISION	BY	CHK	APPROVED
B	10-15-88		BFR	R.A.	AJD PTV
GENERAL REVISION INCLUDING TA 767					
C	2-16-89		PJS	JM	FJE FJE
GENERAL REVISION					
D	4-13-89		PJS	JM	FJE FJE
GENERAL REVISIONS					
E	6-12-89	ER 1631			JM
F	12-15-89	EDN 3255	DMV	PAR	NEC
G	5/14/90	EDN 3600	LNA	DRS	DAR
H	10/17/92	EDN 5542	SRC	HAB	JRH
I	2/15/94	EDN 7358	DJM	DRS	PAR
J	3/28/94	EDN 7491	DJM		DRS

ANSTEC APERTURE CARD

Also Available on Aperture Card

NOTES:

- 1. TA 29 AIR SERVICE FROM MANIFOLD 6-1A-M-6003 SEE DETAIL ON 900B-2518 SHS.

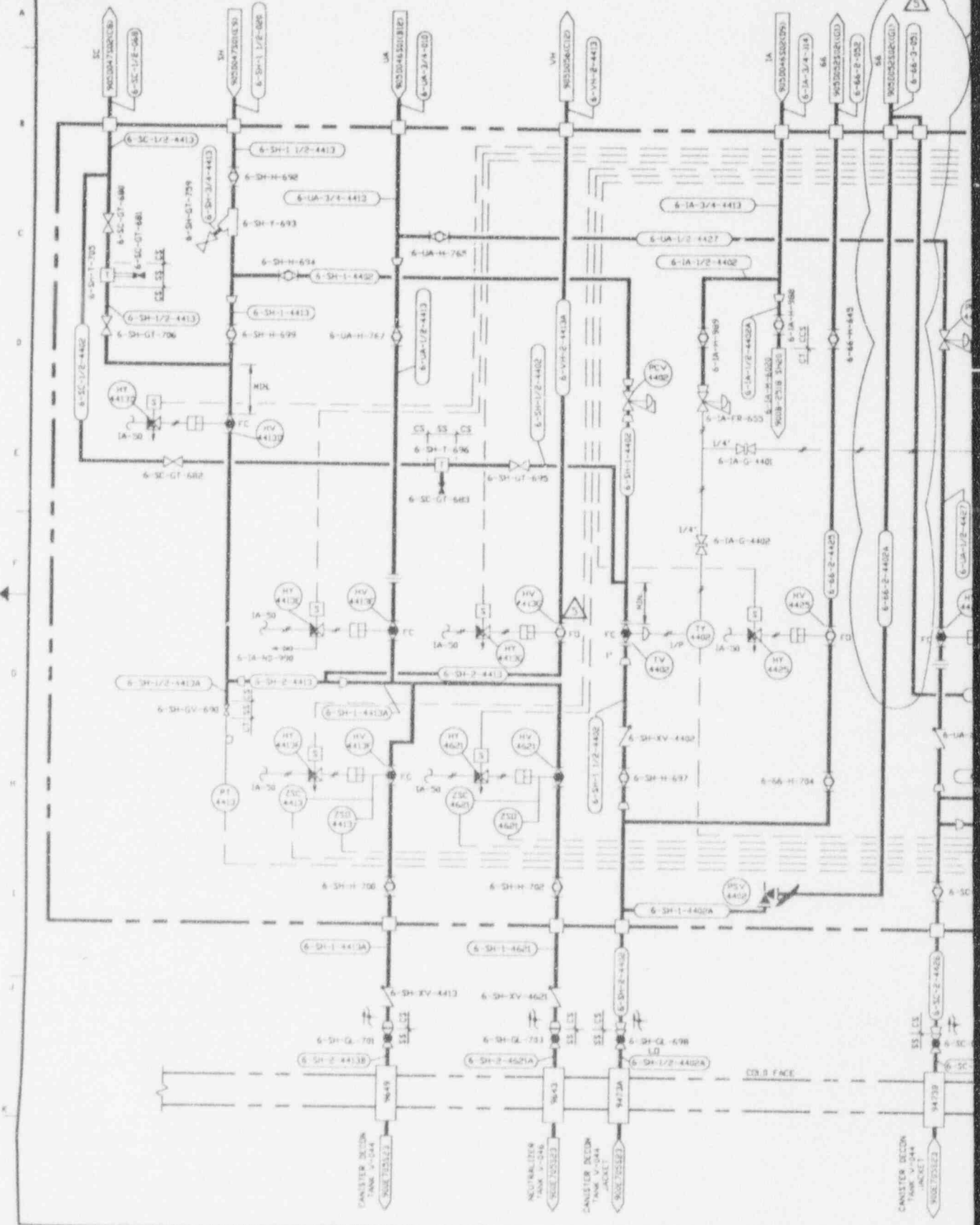
FOR DRAWING INDEX SEE DRAWING NEL

APPROV. V. H. 021	EASCO SERVICES INCORPORATED
PROJECT NO. 93-25-88	AT. D/S. 902288
ENGINEER (SFC) A.L. BIRCHARD 93-25-88	FOR TASK ORDER 909
CLASS. DES. ENGR S. NATH 93-25-88	WEST VALLEY NUCLEAR SERVICES COMPANY, INC. WEST VALLEY, NEW YORK
DESIGN S. NATH 93-25-88	WEST VALLEY DEMONSTRATION PROJECT
CHECKED R.L. LEVICKI 93-25-88	P & ID
DRAWN T. J. KITZ 93-25-88	VITRIFICATION FACILITY
SCALE FOR CONSTRUCTION	INSTRUMENT RACK 2WS
PROJECT NO. 93-25-88	INDEX CODE NUMBER
SUBJECT NO. 9050-045	DRAWING NO. 9050-045 S
SCALE NONE	DATE 905-0-045 517 D

CAB DRAWING - DO NOT REVISE THIS ORIGINAL

9405260270-20!

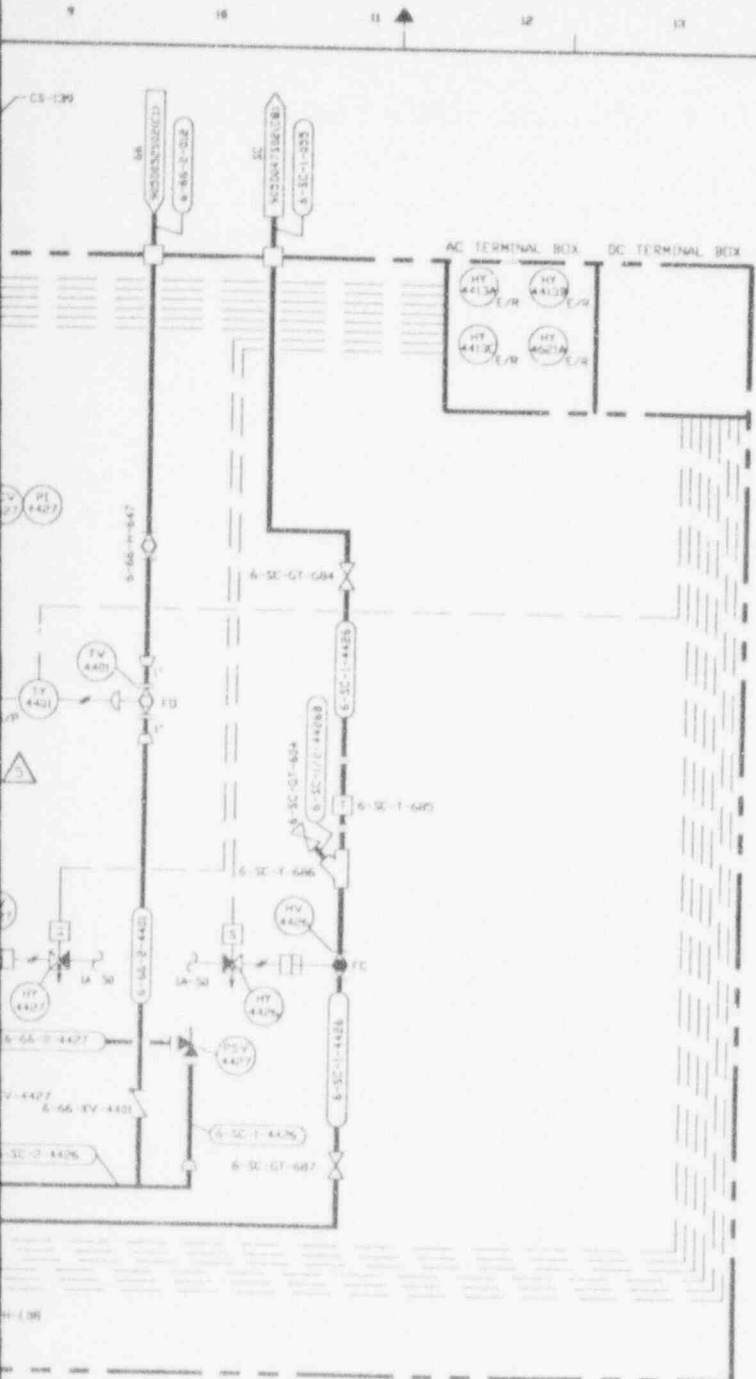
905-D-045 S18



1
2
3
4
5
6
7
8

D
C
B
A

1
2
3
4
5
6
7
8



NO.	DATE	REVISIONS	DR	CH	APPROVED
B	2-20-88		DR	P.J.	R.A. AZ. A.J.D. H.V.V.
GENERAL REVISIONS INCLUDING TA 767					
C	2-16-89		P.J.S.	J.V.V.	R.A. F.K. F.A.S.
GENERAL REVISIONS					
D	4-13-89		P.J.S.	J.V.V.	R.A. F.K. F.A.S.
GENERAL REVISIONS					
E	6-12-89	ER 1631			J.H.
F	12-15-89	ECN 3255	DRV	PAH	NEC
G	3-15-90	ECN 3593	L.R.K.	F.A.K.	D.J.R.
H	7-9-91	REV PER ECN 4341	AVN	HAB	D.J.R.
I	10/28/93	REV PER ECN 6891	M.J.C.	HAB	LED
J	2/15/94	REV PER ECN 7398	D.J.N.	pl.5	pl.4

**ANSTEC
APERTURE
CARD**

Also Available on
Aperture Card

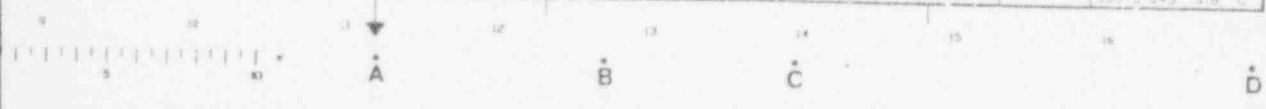
NOTES:

- 1A-50 AIR SERVICE FROM MANIFOLD 6-1A-M-6020. SEE DETAIL ON 900B-251B 3420.

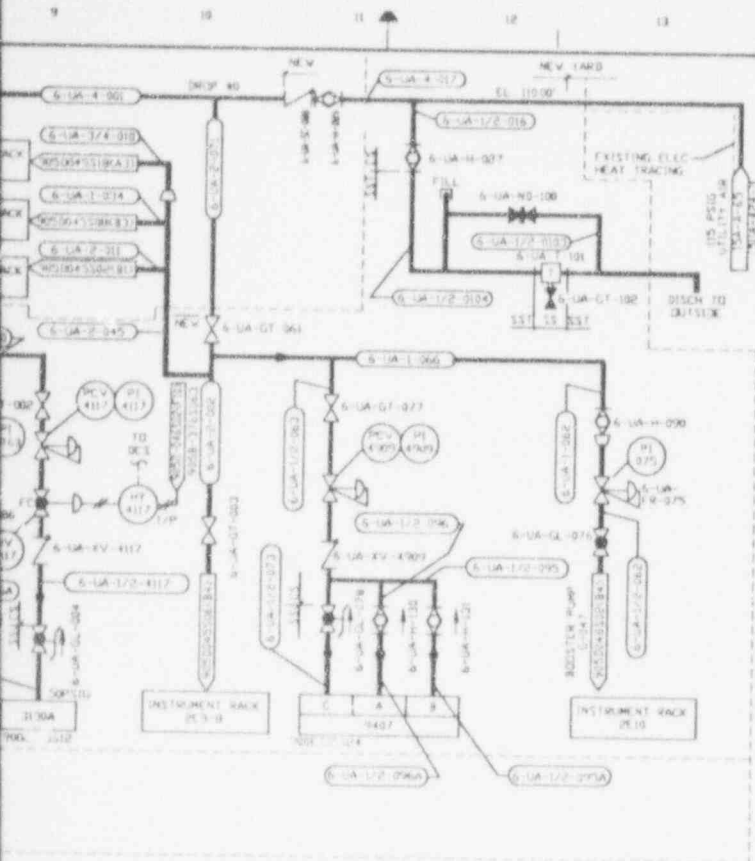
FOR DRAWING INDEX SEE DRAWING NO.

APPROVED	ERASCO SERVICES INCORPORATED
PROJECT NO.	AP. 07-5-80288 FOR TASK ORDER 302
NO. WORKSHEET	WEST VALLEY NUCLEAR SERVICES COMPANY, INC. WEST VALLEY, NEW YORK
ENGINEER	WEST VALLEY DEMONSTRATION PROJECT
DATE	P & ID
SCALE	VITRIFICATION FACILITY
INSTRUMENT	INSTRUMENT RACK-3E10
NO. SHEETS	REV
NO. SHEETS COMPLETED	5
PROJECT NO.	905B-045
NO. WORKSHEET	5
SUBCONTRACT NO.	
ISSUED FOR CONSTRUCTION	

CALL DRAWING - DO NOT REVISE THIS ORIGINAL



9405260270-21



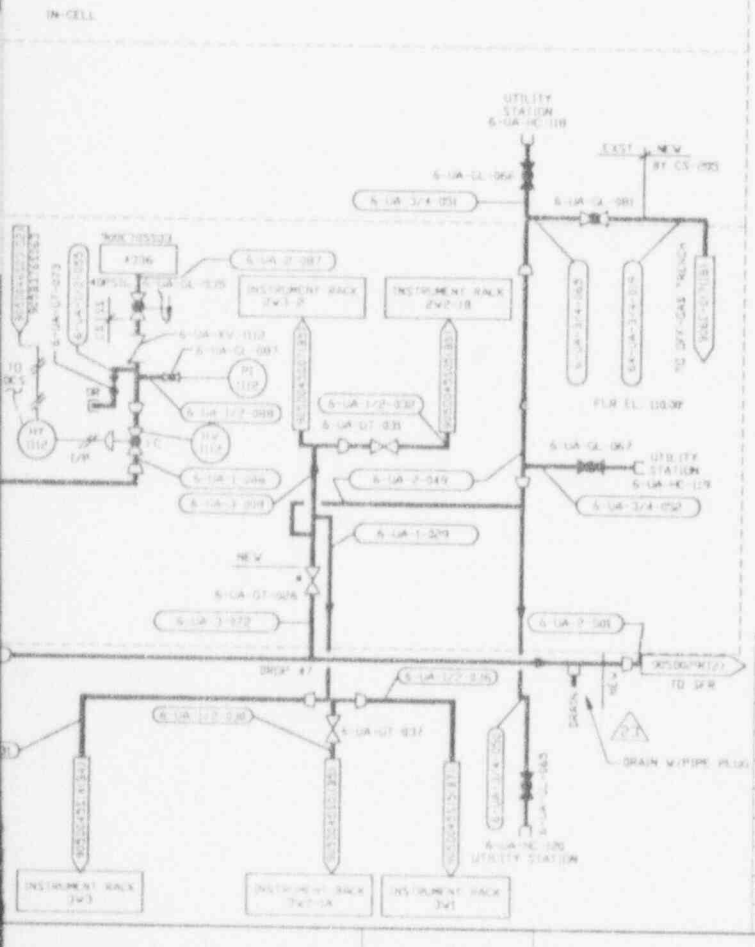
NO.	DATE	REVISIONS	DR	CH	APPROVED
B	07/27/90		DR	R.A.	AC
GENERAL REVISION					
C	6-25-89		DR	AC	R.A.
GENERAL REVISION					
D	7-13-89	ERR644			JWH
E	3-15-90	REVISED PER ECN 3063	PES	DRS	DJR
F	3-11-90	REVISED PER ECN 3623	PES	DRS	DJR
G	6-11-90	REVISED PER ECN 3669	ETC		
H	7-11-90	REVISED PER ECN 3790	SP	HAB	VAJ
I	10-22-90	REVISED PER ECN 3978	JHS	HAB	DJM
J	01-29-91	REVISED PER ECN 4102	RJR	HAB	DJR
K	03/29/91	REVISED PER ECN 4197	BAR	HAB	DJR
L	04/25/91	REVISED PER ECN 4376	DAK	HAB	DJM
M	3/30/92	REVISED PER ECN 4937	LRX	HAB	DJR
N	5/8/92	REVISED PER ECN 5044 REVISED PER ECN 5081	CCR	DRS	DJR
O	5/29/92	REVISED PER ECN 5198	J.H.	HAB	DJR
P	09/25/92	GEN REV PER ECN 5200	DRS	HAB	PAN
Q	10/16/92	REVISED PER ECN 5259	TT	DRS	ZB
R	1/4/93	REVISED PER ECN 5331	GH	DRS	PVM
S	1/21/93	REVISED PER ECN 5391	GH	DRS	DJR
T	1/25/93	REVISED PER ECN 5445	DRS	DRS	PAN
U	03/09/93	REVISED PER ECN 5906	SHC	HAB	PAN
V	03/09/93	REVISED PER ECN 6054	SHC	HAB	PAN
W	06/2/93	REVISED PER ECN 6030	AAJ	HAB	PAN
X	10/14/93	REVISED PER ECN 6250	DAK	DRS	PVM
Y	11/30/93	REVISED PER ECN 5981	A.D.	HAB	PAN
Z	2/2/94	REV PER ECN 7500 & 7505	KJC	HAB	PAN
AA	3/12/94	REV PER ECN 7626	M.A.		

ANSTEC APERTURE CARD

Also Available on Aperture Card

- REFERENCE DRAWINGS:
- SYMBOLS, NOTES & LEGEND 900-D-1306
 - SYMBOLS, NOTES & LEGEND 900-D-1307
 - SYMBOLS, NOTES & LEGEND 900-D-1308
 - P & ID VITRIFICATION FACILITY 905-D-029
 - UTILITY & INSTRUMENT AIR SYS 905-D-030
 - P & ID CHEMICAL 905-D-031
 - UTILITY & INSTRUMENT AIR SYS 905-D-032
 - INSTRUMENT INSTALLATION DETAILS 905-D-176

NOTES:
 1. A SINGLE ASTERISK (*) INDICATES EXISTING VALVES AND EQUIPMENT TO BE RETAINED.



ECN(S) PENDING
 #7423

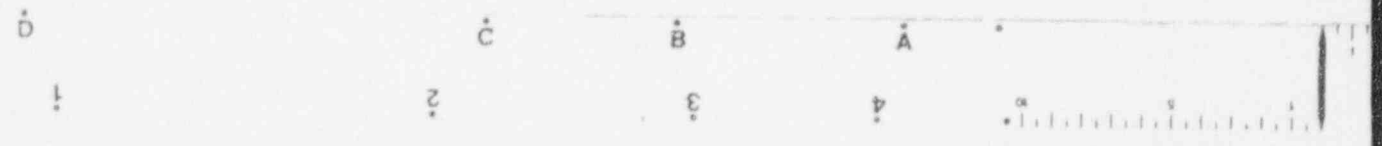
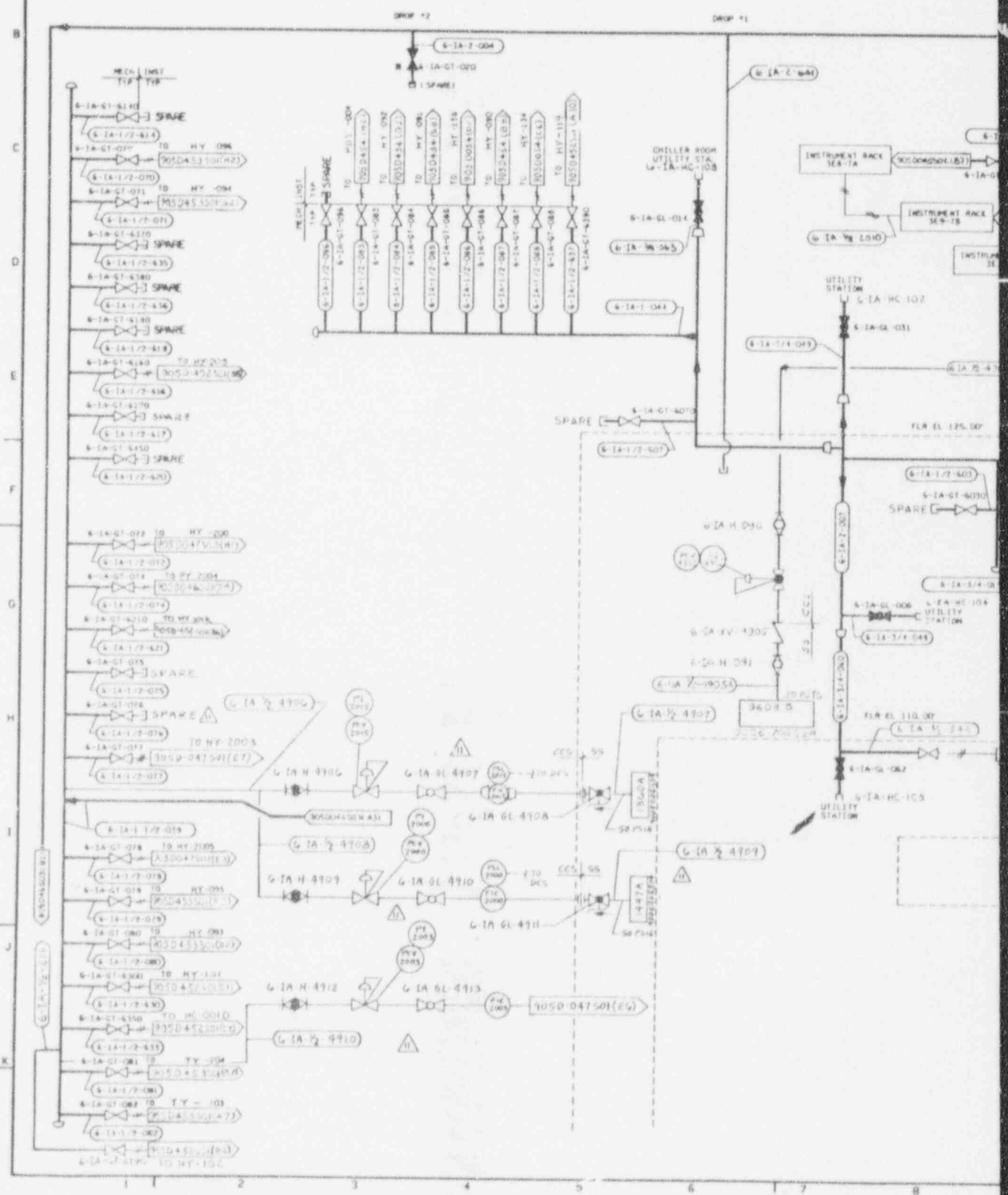
CAD DRAWING - REVISE THIS ORIGINAL

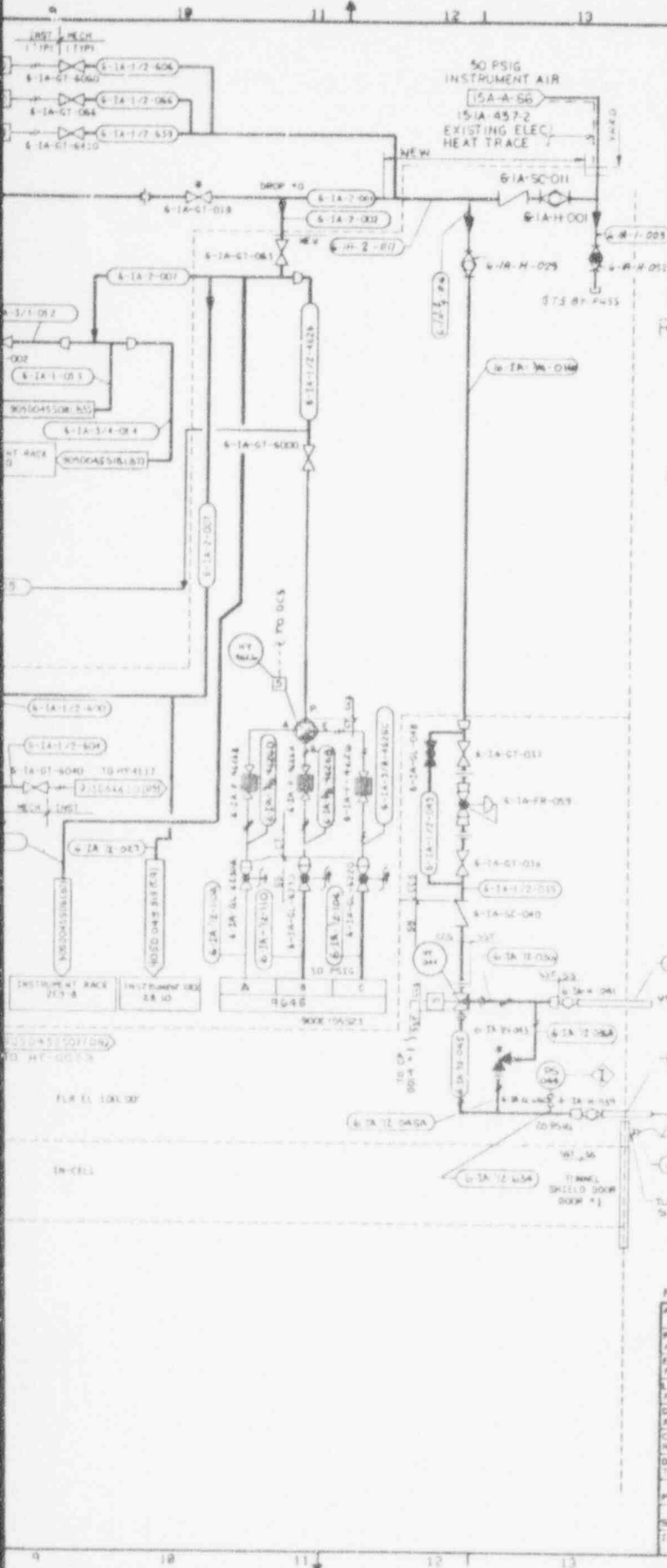
NO.	DATE	REVISIONS	DR	CH	APPROVED
B	07/27/90		DR	R.A.	AC
C	6-25-89		DR	AC	R.A.
D	7-13-89	ERR644			JWH
E	3-15-90	REVISED PER ECN 3063	PES	DRS	DJR
F	3-11-90	REVISED PER ECN 3623	PES	DRS	DJR
G	6-11-90	REVISED PER ECN 3669	ETC		
H	7-11-90	REVISED PER ECN 3790	SP	HAB	VAJ
I	10-22-90	REVISED PER ECN 3978	JHS	HAB	DJM
J	01-29-91	REVISED PER ECN 4102	RJR	HAB	DJR
K	03/29/91	REVISED PER ECN 4197	BAR	HAB	DJR
L	04/25/91	REVISED PER ECN 4376	DAK	HAB	DJM
M	3/30/92	REVISED PER ECN 4937	LRX	HAB	DJR
N	5/8/92	REVISED PER ECN 5044 REVISED PER ECN 5081	CCR	DRS	DJR
O	5/29/92	REVISED PER ECN 5198	J.H.	HAB	DJR
P	09/25/92	GEN REV PER ECN 5200	DRS	HAB	PAN
Q	10/16/92	REVISED PER ECN 5259	TT	DRS	ZB
R	1/4/93	REVISED PER ECN 5331	GH	DRS	PVM
S	1/21/93	REVISED PER ECN 5391	GH	DRS	DJR
T	1/25/93	REVISED PER ECN 5445	DRS	DRS	PAN
U	03/09/93	REVISED PER ECN 5906	SHC	HAB	PAN
V	03/09/93	REVISED PER ECN 6054	SHC	HAB	PAN
W	06/2/93	REVISED PER ECN 6030	AAJ	HAB	PAN
X	10/14/93	REVISED PER ECN 6250	DAK	DRS	PVM
Y	11/30/93	REVISED PER ECN 5981	A.D.	HAB	PAN
Z	2/2/94	REV PER ECN 7500 & 7505	KJC	HAB	PAN
AA	3/12/94	REV PER ECN 7626	M.A.		

9405260270-22

905-D-046 S02

TO NY-4403
30SD053501 (E)
TO NY-4803
90SD053501 (E)
TO NY-115
30D432 (E) S02





NO.	DATE	REVISION	DR	CH	APPROVED
8	10-12-98		BR	JL	
GENERAL REVISION					
9	10-8-93	REV PER EGN 5445	SK	JS	
GENERAL REVISION					
10	2-17-95	REV PER EGN 6977	GW	CL	
11	2-17-94	REV PER EGN 7030	JH	JS	
5	6-29-92	REV PER EGN 5198	JM	JS	DIE
6	7-28-92	REV/ECLV 25-0159	FD	HB	DIE
7	9-21-92	REV/ECH 5269	MS	JS	-17

REFERENCE DRAWINGS:

- SYMBOLS, NOTES & LEGEND 900-0-1306
- SYMBOLS, NOTES & LEGEND 900-0-1307
- SYMBOLS, NOTES & LEGEND 900-0-1308
- P & ID VITRIFICATION FACILITY UTILITY & INSTRUMENT AIR SYS 905-0-029

NOTES:

- A SINGLE ASTERISK (*) INDICATES EXISTING VALVES AND EQUIPMENT TO BE RETAINED.

FOR DRAWING INDEX SEE DRAWING NO.

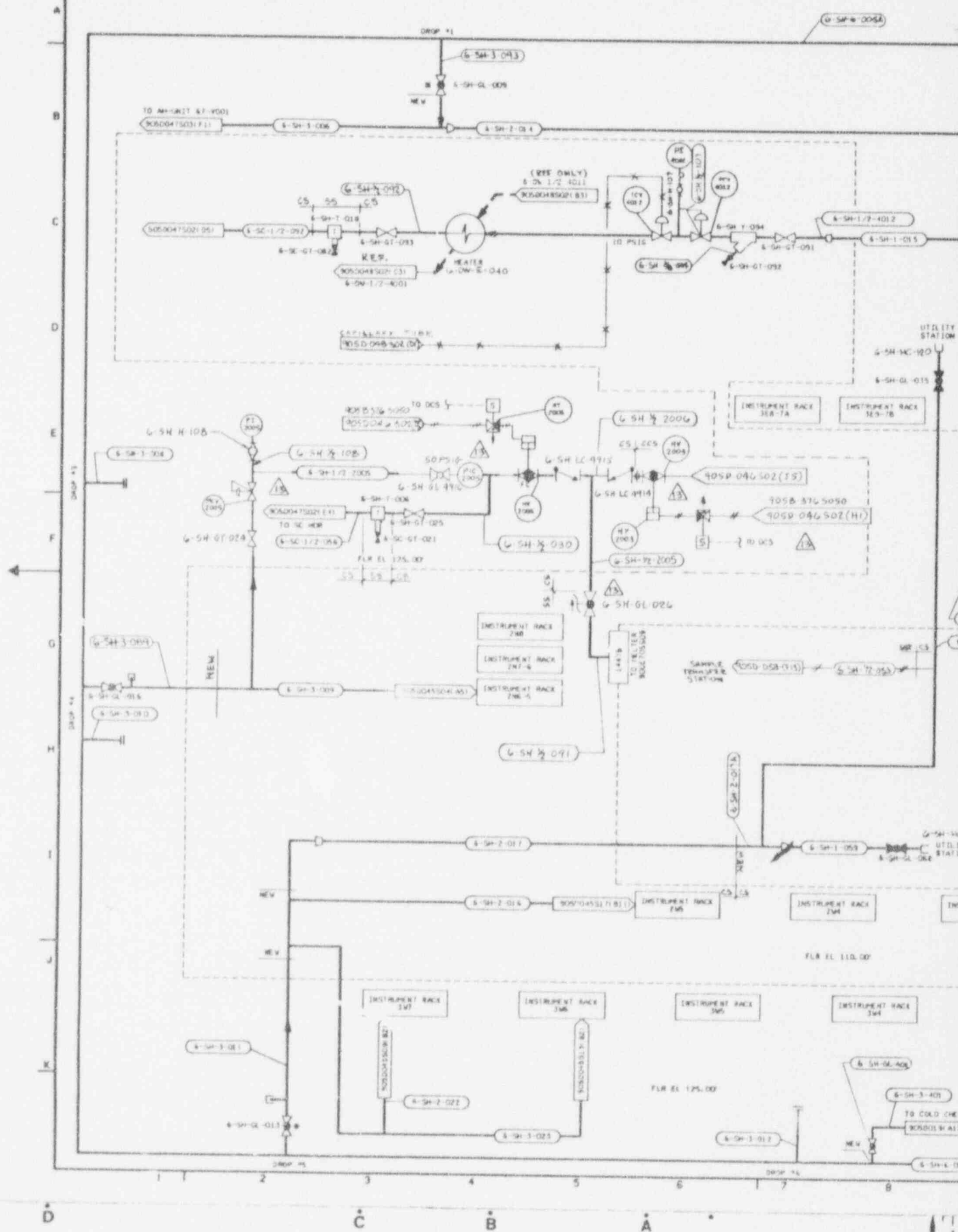
APPROV WWS CO.	EBASCO SERVICES INCORPORATED
PROJECT MGR A. R. SCATTI 02-23-98	TASK ORDER 002
ENGINEER P. J. CUNY 02-23-98	WEST VALLEY NUCLEAR SERVICES COMPANY, INC WEST VALLEY, NEW YORK
PLANT DESIGN P. J. CUNY 02-23-98	WEST VALLEY DEMONSTRATION PROJECT
DESIGN A. J. LEE 02-23-98	P & ID VITRIFICATION FACILITY INSTRUMENT AIR SYSTEM
CHECKED A. J. LEE 02-23-98	
DRAWN J. LEE 02-23-98	
ISSUED FOR CONSTRUCTION	SCALE: AS SHOWN
PROJECT NO. 19-CV-02775	DRAWING NO. 905D-046
CONTRACT NO.	SHEET NO. 11
ISSUED FOR CONSTRUCTION	SCALE: AS SHOWN

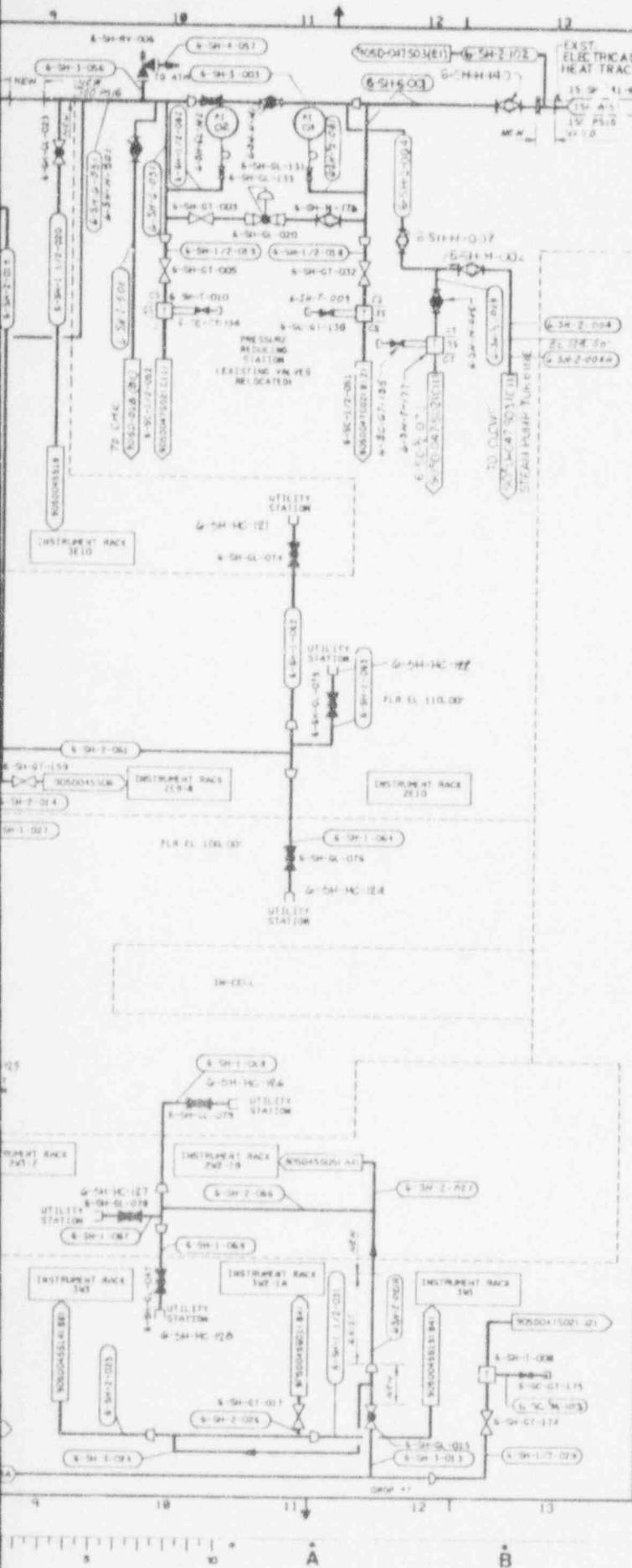
ANSTEC APERTURE CARD

Also Available on Aperture Card

9405260270-23

905-0-047 S01





REFERENCE DRAWINGS:
 NOTES, SYMBOLS & LEGEND 900-0-1306
 NOTES, SYMBOLS & LEGEND 900-0-1307
 NOTES, SYMBOLS & LEGEND 900-0-1308
 P & ID VITRIFICATION FACILITY STEAM SYSTEM 905-0-028
 INSTRUMENT INSTALLATION DETAILS 905-0-570

NOTES:
 1. A SINGLE ASTERISK (*) INDICATES EXISTING VALVES AND EQUIPMENT TO BE RETAINED.
 2. OMITTED

8	7-25-92	REV PER ECN 5259	SM	CRS	HAJ
9	1-14-93	REV PER ECN 5442	SM	CRS	HAJ
10	6-11-93	REV PER ECN 6459	SM	CRS	HAJ
11	8-4-93	REV/ECN 6414	SM	CRS	HAJ

WVNS APPROVAL
 DRG. SUP. [Signature]
 INSTR. SUP. [Signature]
 QA SUP. [Signature]
 NO. SUP. [Signature]

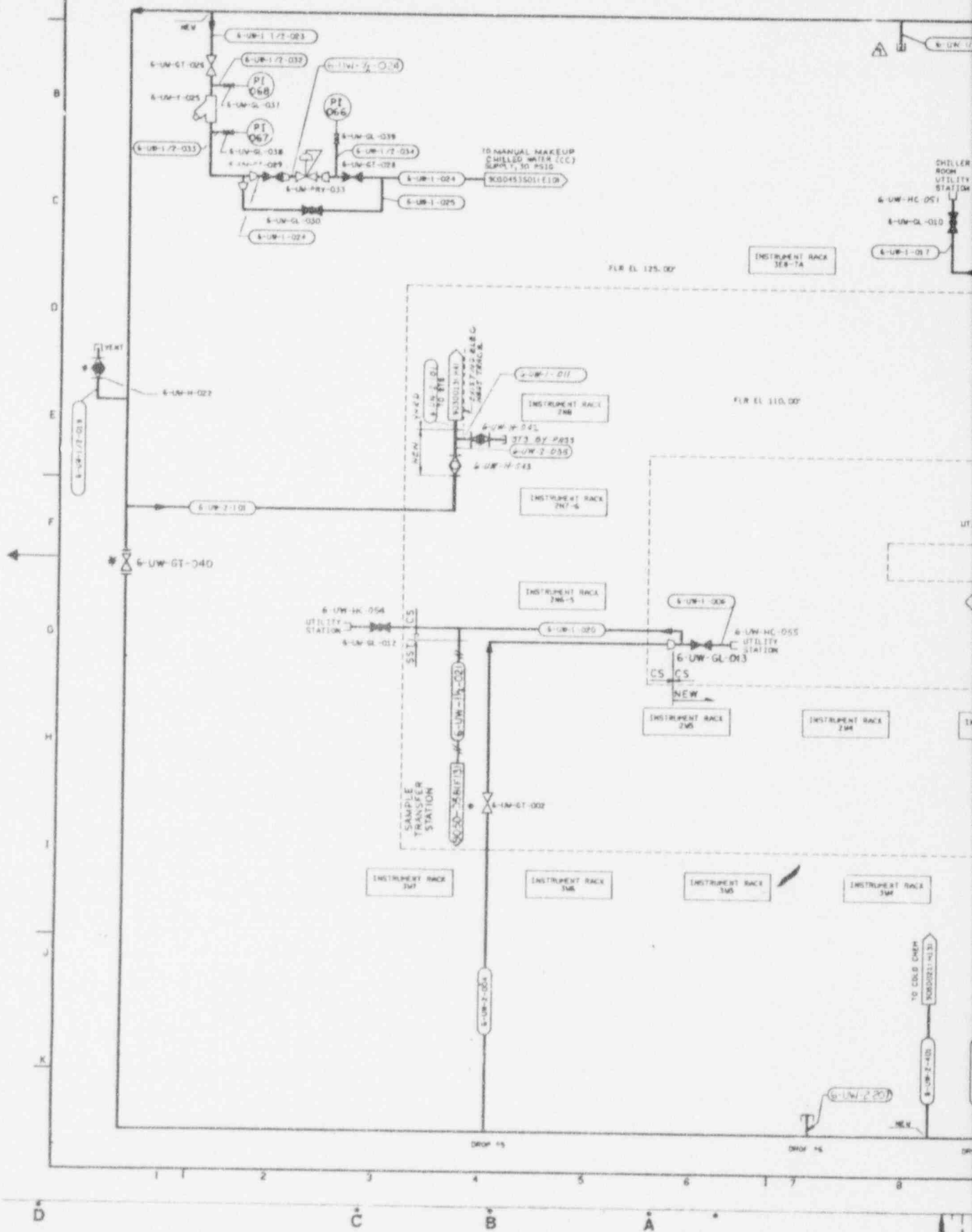
FOR DRAWING INDEX SEE DRAWING NO.

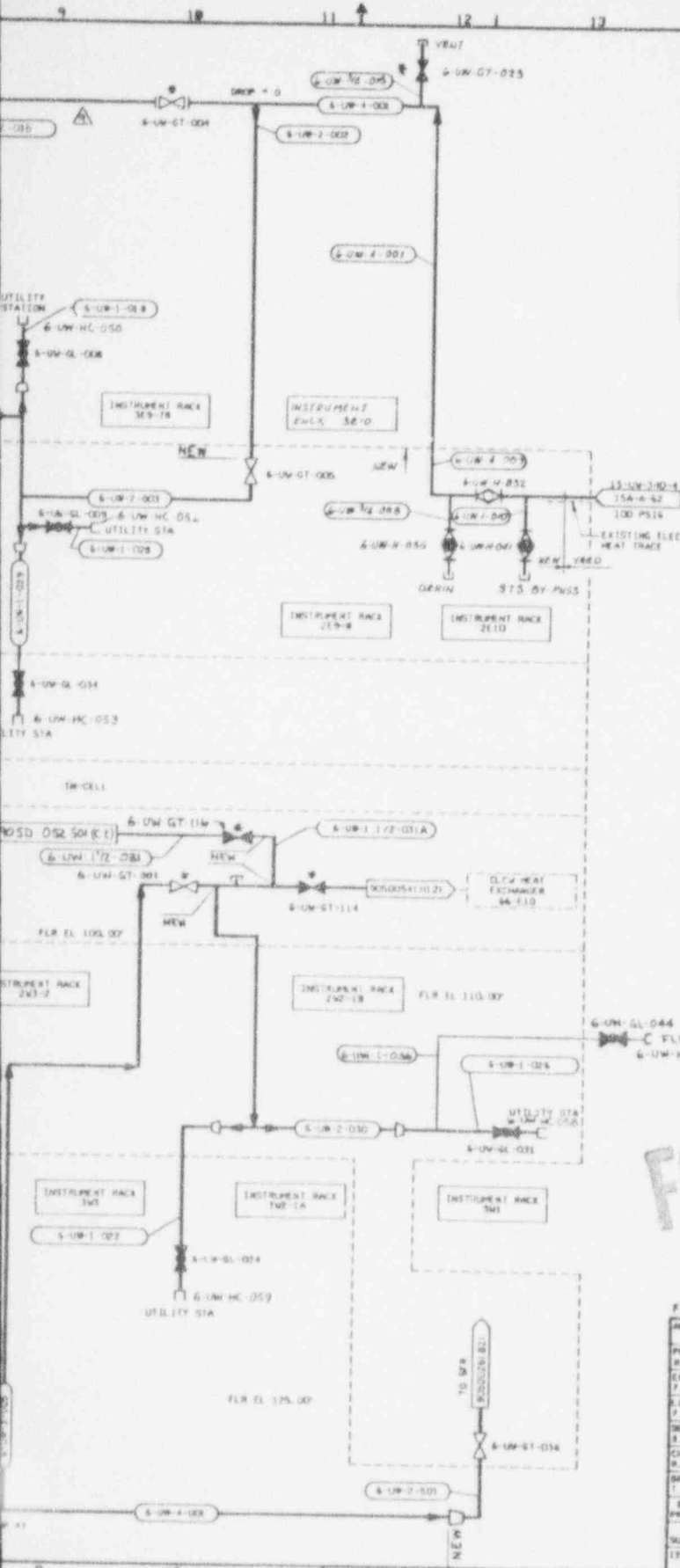
APPROVED W/PRO. CO.	EBASCO SERVICES INCORPORATED
PROJECT NO. 8-8-88-10-107	A/E D.P.S. NO. 2388
ENGINEER SUP. P. J. F. MALONEY	TASK ORDER 0029
LEAD DISK ENGR. F. J. MALONEY	WEST VALLEY NUCLEAR SERVICES COMPANY, INC.
DESIGN. E. J. L'PREL	WEST VALLEY, NEW YORK
CHECKED. S. A. LEMO	WEST VALLEY DEMONSTRATION PROJECT
DRAWN. T. J. KITE	P & ID VITRIFICATION FACILITY STEAM SYSTEM
ISSUED FOR CONSTRUCTION	SCALE: 1" = 10'-0"
DATE: 08-12-88	DRAWING NO. 905D-047
	SHEET NO. 13
	PROJECT NO. 905-0-047 S01 C

ANSTEC APERTURE CARD
 Also Available on Aperture Card

CHECKED BY: [Signature]
 FOR LATEST REVISIONS

905-D-048 S01





NO.	DATE	REVISION	DR	CH	APPROVED
8	06-23-88		BR	JL	JL
GENERAL REVISION					
C	6-23-89		AL	IC	JL
GENERAL REVISION					
0	7-18-91	REV PER ECH 443			
8	7-5-93	REV PER ECH 6483	GW	JL	JL
9	2-8-94	REV PER ECH 7468	KGZ	KD	HUJ
3	1-10-91	REV PER ECH 9102	REH	MS	JL
4	5-25-91	REV PER ECH 4197	PL	MS	JL
5	6-24-91	REV PER ECH 4302	GW	MS	JL
6	7-24-92	REV PER ECH 5759	MS	MS	JL
7	8-31-93	REV PER ECH 6599	PD	KD	JL

**ANSTEC
APERTURE
CARD**

Also Available on
Aperture Card

REFERENCE DRAWINGS:

SYMBOLS, NOTES & LEGEND 900-0-1306
 SYMBOLS, NOTES & LEGEND 900-0-1307
 SYMBOLS, NOTES & LEGEND 900-0-1308
 P & ID VITRIFICATION FACILITY 905-0-026
 UTILITY WATER SYSTEM

NOTES:

1. A SINGLE ASTERISK (*) INDICATES EXISTING VALVES AND EQUIPMENT TO BE RETAINED.

FOR INFORMATION ONLY

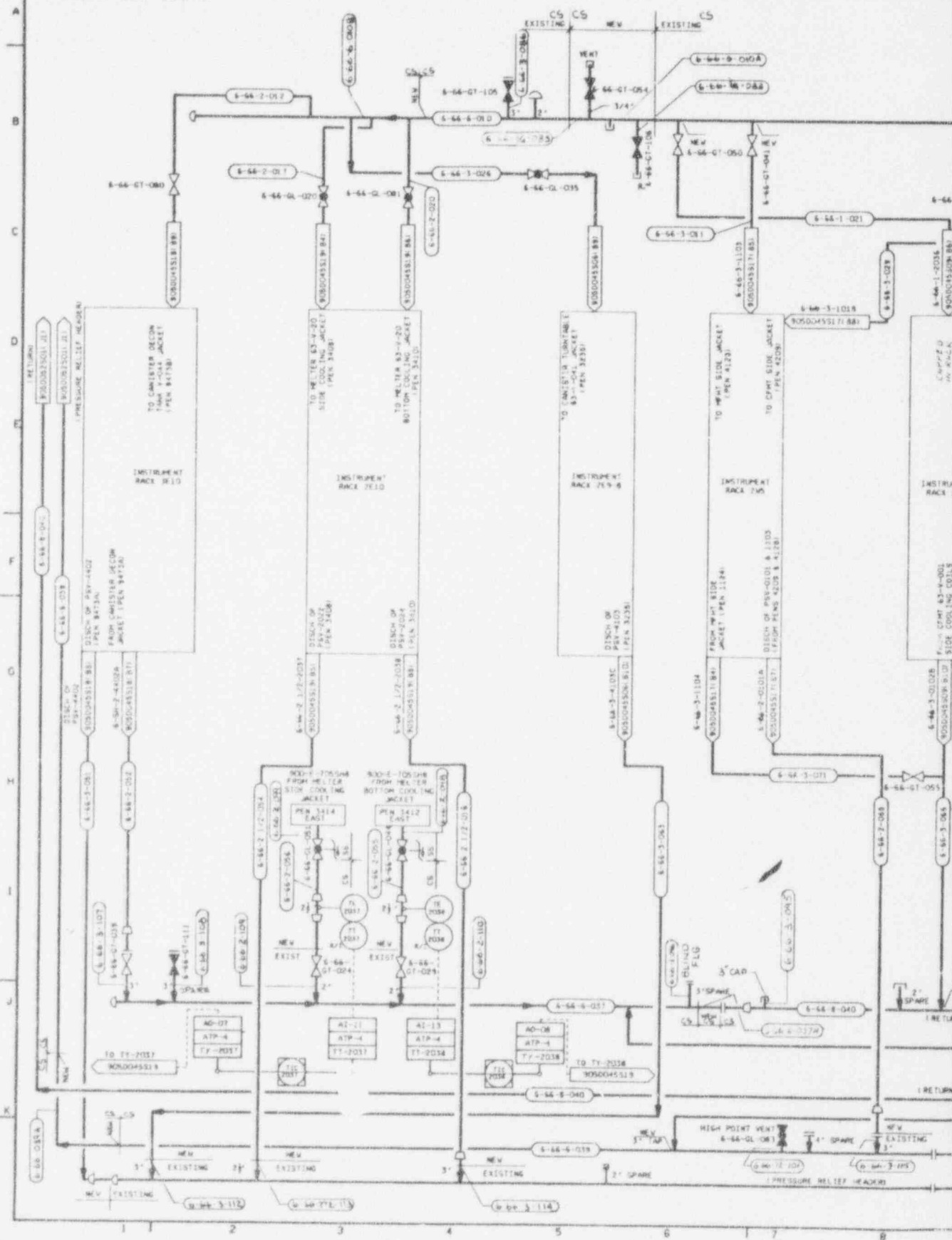
FOR DRAWING INDEX SEE DRAWING NO.

APPROVED BY: [Signature]
 DATE: [Date]

APPROVED BY: [Signature]	DATE: [Date]	PROJECT NO. 91-21-00	ENGINEER: [Signature]	DESIGN: [Signature]	CHECKED: [Signature]	DRAWN: [Signature]	BY ACOT-BE-411-70	PROJECT NO. 91-21-00	SCALE: 1"=10'	DATE FOR CONSTRUCTION: [Date]
E BASCO SERVICES INCORPORATED		WEST VALLEY NUCLEAR SERVICES COMPANY, INC		WEST VALLEY DEMONSTRATION PROJECT		P & ID VITRIFICATION FACILITY UTILITY WATER SYSTEM		DRAWING NO. 905-0-048		REV. 9
SUBCONTRACT NO.		SCALE: 1"=10'		DATE FOR CONSTRUCTION: [Date]		DRAWING NO. 905-0-048		SHEET NO. 501 C		

9405260270-26

905-D-052 S02 B



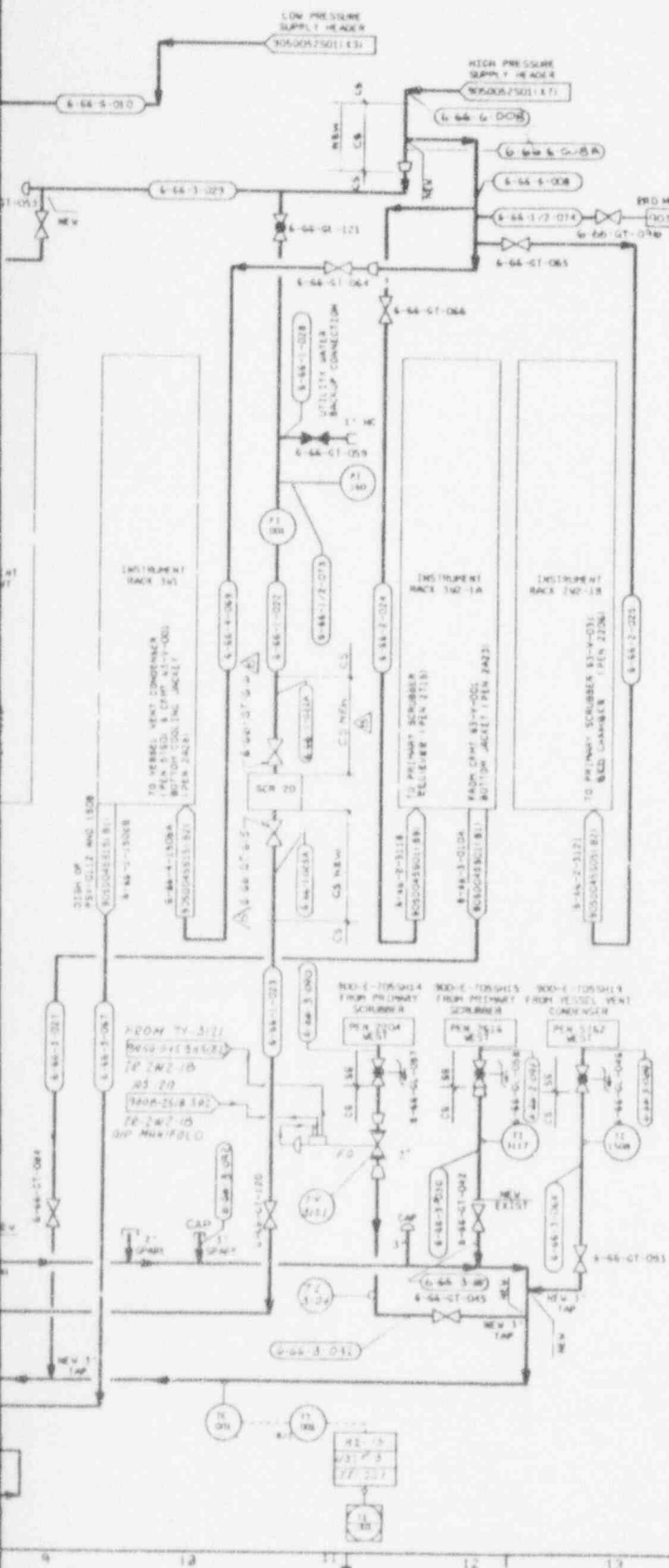
A
 B
 C
 D
 E
 F
 G
 H
 I
 J
 K

1
 2
 3
 4
 5
 6
 7
 8

NO.	DATE	REVISION	DR	CH	APPROVED
8	2-23-68		RIT	ML	Q/L
GENERAL REVISION					
9	7/1/67				
13	1-28-94	REV PER ECN 7430	OW	ES	OR
14	3-11-94	REV PER ECN 7431	OW	ES	OR
15	3-24-94	REV PER ECN 7431	OW	ES	HAJ
19	5-25-75	REV PER ECN 2542	HW	CS	JAY
1	10-12-75	REV PER ECN 5353	HW	CS	RUM
22	12-30-75	REV PER ECN 7276	HW	CS	JAY

ANSTEC APERTURE CARD

Also Available on Aperture Card



NOTES

1. FOR NOTES SEE 905-0-052 SH 1.

WVNS APPROVAL

DESIGNER: [Signature]

CHECKED: [Signature]

DATE: [Signature]

FOR DRAWING INDEX SEE DRAWING NO.		EBASCO SERVICES INCORPORATED	
APPROVED WVNS CO.		PROJECT NO.	AVT D.P. S. NO. 2388
PROJECT NO.	11-12-68	TASK ORDER NO.	
ENGINEER SUPV.	11-22-68	WEST VALLEY NUCLEAR SERVICES COMPANY, INC. WEST VALLEY, NEW YORK	
LEAD DISC ENGR.	11-22-68		
DESIGN	11-22-68	WEST VALLEY DEMONSTRATION PROJECT	
CHECKED	11-22-68	VITRIFICATION FACILITY	
DRAWN	11-22-68	CLOSED LOOP COOLING	
DATE	11-22-68	WATER SYSTEM P&ID	
PROJECT NO.	11-12-68	DWG. NO.	905D-052 15
ISSUED FOR CONSTRUCTION	SCALE	SHEET NO.	905-0-052 502 B

9405260270-27

NO.	DATE	REVISION	DR	CH	APPROVED
0	7-1-87	CR 10+g			
1	1/8/90	GEN KEY PER ECH 3362	CGR	KMG	
2	3-19-90	REV PER ECH 3818	GW	KMG	
3	5-9-90	REV PER ECH 3655	CGR	WJ	
4	7-12-90	REV PER ECH 5777	GW	WJ	
5	2-20-91	REV PER ECH 6169	CM	WJ	
6	08-3-92	REV PER ECH 5019	HPS	WJ	
7	11-12-92	REV PER ECH 5326	GW	WJ	
8	12-10-93	REV PER ECH 7110	GW	WJ	
9	3-7-94	REV PER ECH 7545	HJC	WJ	

ANSTEC APERTURE CARD

Also Available on Aperture Card

NOTES:

- 1. SEE NOTES ON DRAWING NO. 905-D-053501.

ECN(S) PENDING #1165

REFERENCE DRAWINGS:

- P & ID VITRIFICATION FACILITY NON-RACK COLD CHEMICAL DECON SYS 905-D-027
- INSTRUMENT INSTALLATION DETAILS 905-S-376

WVNS APPROVAL

COS FOR [Signature]
 SPT. SUPR. [Signature]
 QA MGR. [Signature]
 WJW FOR [Signature]

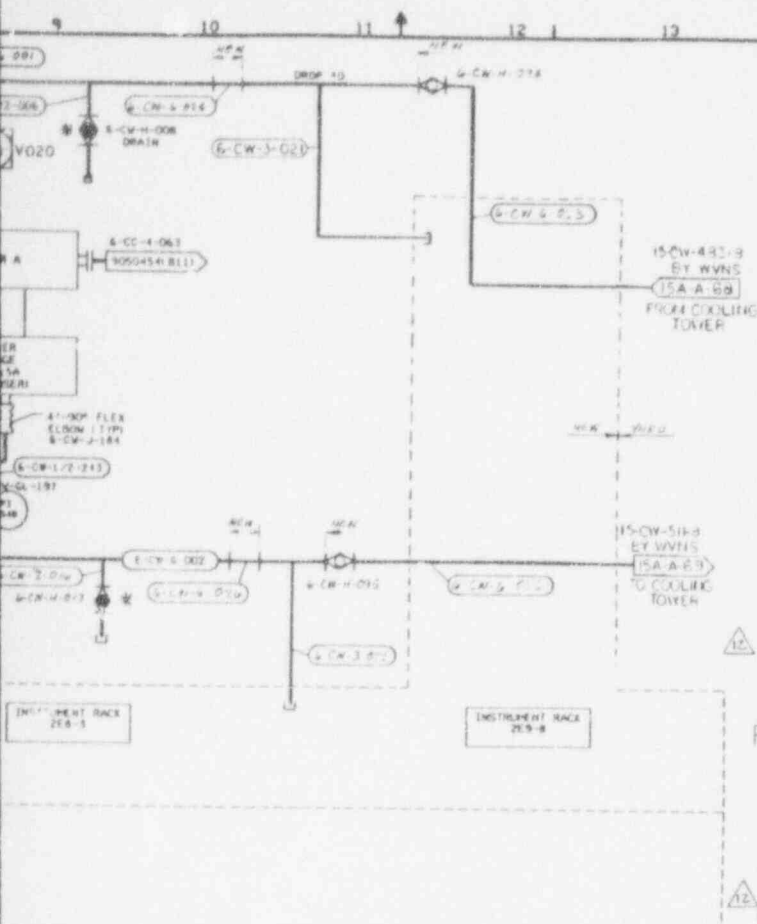
FOR DRAWING INDEX SEE DRAWING NO.

APPROV WJW CO. PROJECT NO. DRAWING REV. LEAD DISE ENGR. DESIGN CHECKED DRAWN P. UNITS DE ACCT BELMONT 139 PROJECT NO. 13-CVF-0027A SUBCONTRACT NO. ISSUED FOR CONSTRUCTION	EBASCO SERVICES INCORPORATED ONE S.P.C. RD. 1288 FOR TASK ORDER 002 WEST VALLEY NUCLEAR SERVICES COMPANY, INC WEST VALLEY, NEW YORK WEST VALLEY DEMONSTRATION PROJECT P & ID VITRIFICATION FACILITY NON-RACK COLD CHEMICAL DECON & SLURRY SYSTEM SCALE: 1" = 10'-0" SHEET NO. 905-D-053502 A DATE: 12-10-93
--	--

9405260270-28

ANSTEC APERTURE CARD

Also Available on Aperture Card



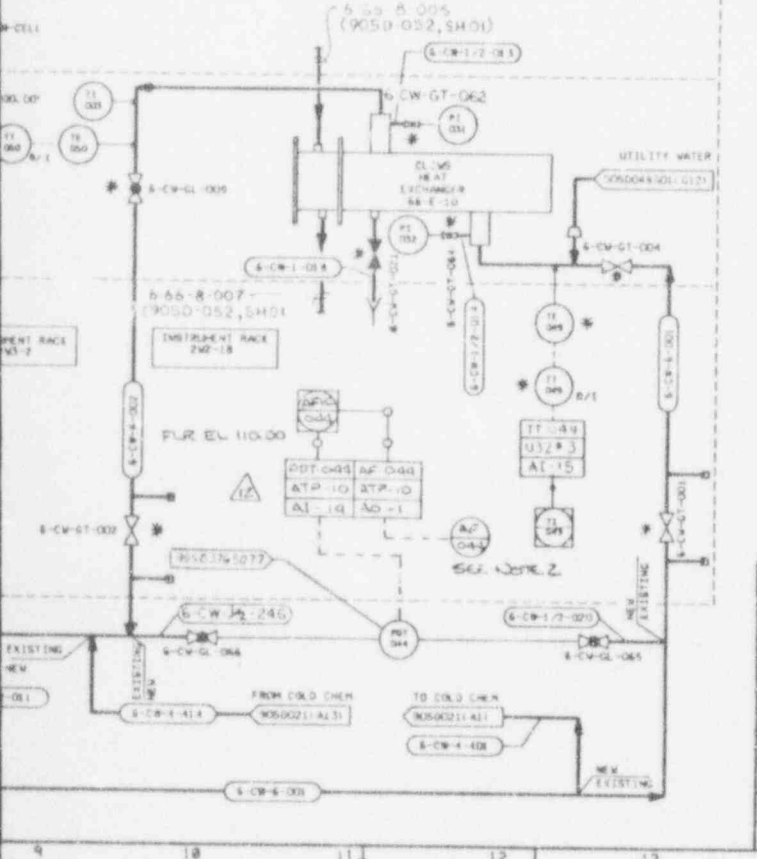
NO.	DATE	REVISION	DR	CH	APPROVED
8	01-28-83		R/L	P/E	R/L
GENERAL REVISION					
C 6-28-87					
GENERAL REVISION					
0	7/1/87	REV. TO P&ID			
1	3-19-90	GEN. REV. PER ECN 3549	LR	P&S	LS
2	5-29-90	GEN. REV. PER ECN 3670	AWN	P&S	LS
3	7-12-90	REV. PER ECN 3777	GW	DDK	DR
4	9-10-90	REV. PER ECN 3907	AWN	P&S	DR
5	1-20-91	REV. D. PER ECN 4110	REN	DDK	DR
6	3/27/91	REV. ECN 4117	TH	AWB	
7	6-24-92	ECN 5025	PD	JB	BY
8	9-25-92	REV. PER ECN 5029	PA	P&S	1-D
9	8-21-93	REV. PER ECN 6039	PD	KJ	XP
10	11-29-93	REV. PER ECN 7087	GW	DDK	BY
11	2-16-94	REV. ECN 7262	PD	P&S	BY
12	3-8-94	REV. PER ECN 7210	AAJ	CA	BY

NOTES:

1. A SINGLE ASTERISK (*) INDICATES EXISTING VALVES AND/OR EQUIPMENT TO BE RETAINED.
2. ADJUSTABLE FREQUENCY DRIVE MOUNTED IN MAIN PLANT CHEMICAL OPERATING HALL.

REFERENCE DRAWINGS:

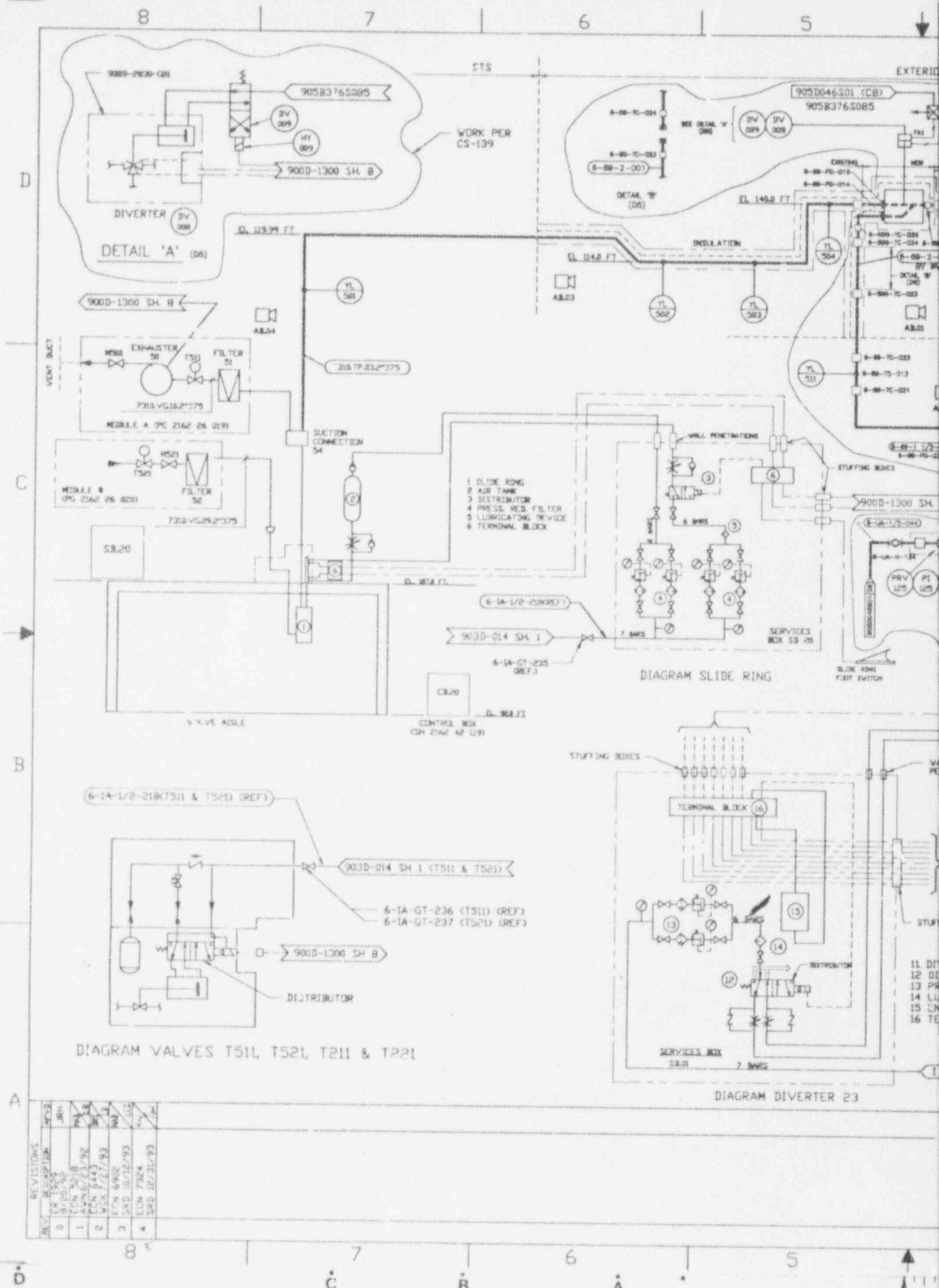
- VITRIFICATION FACILITY HVAC CHILLED WATER SYSTEM P & ID SHEET 2 905-0-454
- P & ID COLD CHEMICAL WATER SYSTEMS 905-0-021
- INSTRUMENT INSTALLATION DETAILS 905-0-376
- COOLING WATER BOOSTER PUMP 905-0-548
- ELECTRICAL DIAGRAMS 905-0-305
- CONTROL WIRING DIAGRAMS 905-0-305



ECN(S) PENDING
#1651

WVNS APPROVAL
[Signature]

FOR DRAWING INDEX SEE DRAWING NO.	
APPROVED WVNS CR	EBASCO SERVICES INCORPORATED
PROJECT NO. P-1 STAFF	AVE. D.F.S. NO. 1208 TASK ORDER 002
ENGINEER LEAD P. S. KRALOVIC	WEST VALLEY NUCLEAR SERVICES COMPANY, INC.
LEAD DESIG ENGR P. J. EMMER	WEST VALLEY, NEW YORK
DESIGNER P. J. LUTER	WEST VALLEY DEMONSTRATION PROJECT
CHECKED P. J. LUTER	P & ID
DRAWN P. J. LUTER	VITRIFICATION FACILITY
DATE 10-15-94	COOLING TOWER WATER SYSTEM
DE-ACCT-01-0044329	SHEET NUMBER 12
PROJ. NO. 905D-02775	REV. 12
SCALE NONE	905D-054
SCALE FOR CONSTRUCTION	905-0-054

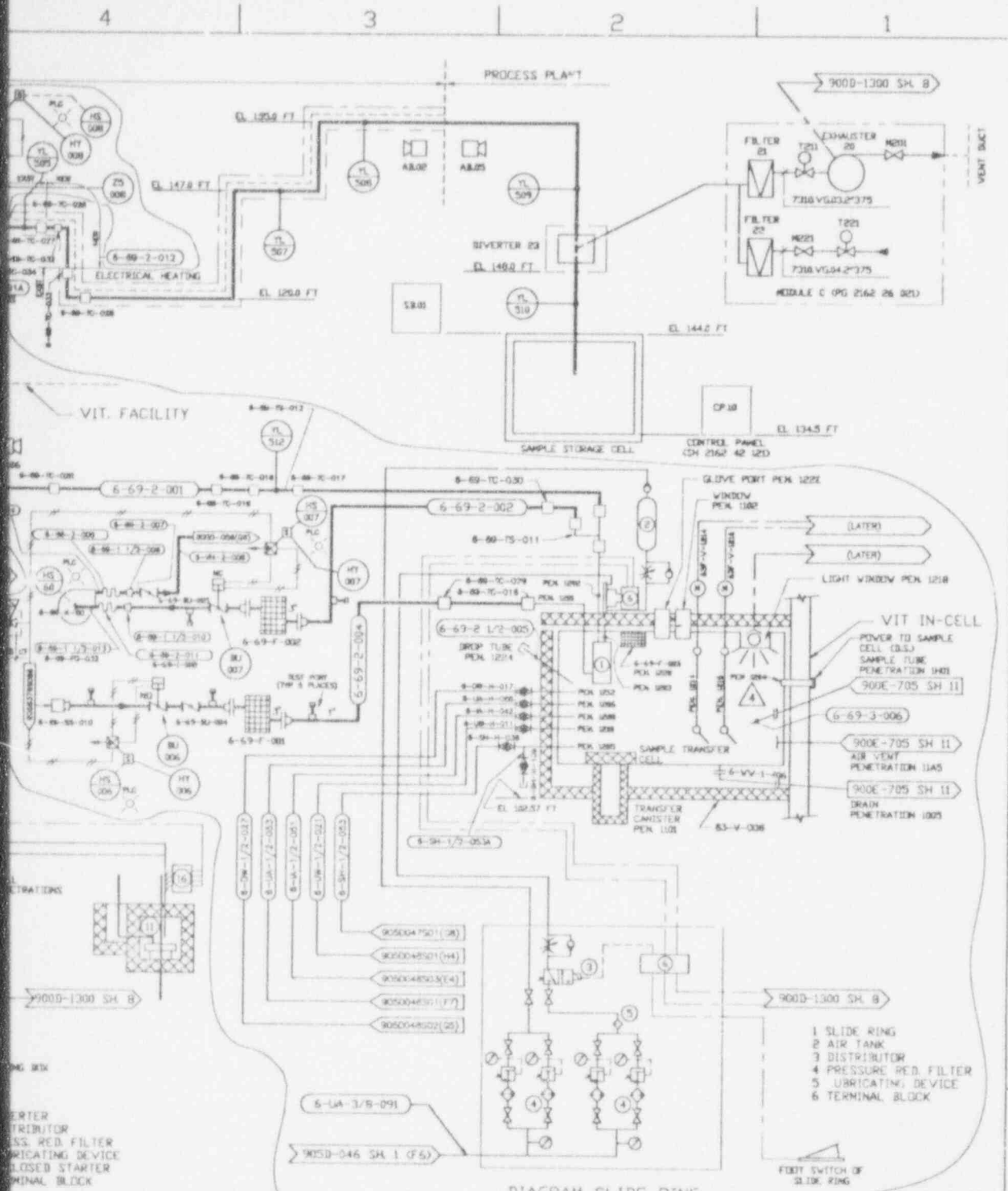


REVISIONS

REV.	DATE	DESCRIPTION	BY	CHK.
0	10/12/93	ISSUED FOR CONSTRUCTION	W/S	W/S
1	10/16/93	REVISED TO REFLECT FIELD CHANGES	W/S	W/S
2	10/27/93	REVISED TO REFLECT FIELD CHANGES	W/S	W/S
3	10/27/93	REVISED TO REFLECT FIELD CHANGES	W/S	W/S
4	10/27/93	REVISED TO REFLECT FIELD CHANGES	W/S	W/S

ANSTEC APERTURE CARD

Also Available on Aperture Card



CAUTION
 CHECK DISCUSSING CONTROL
 FOR LATEST REVISION

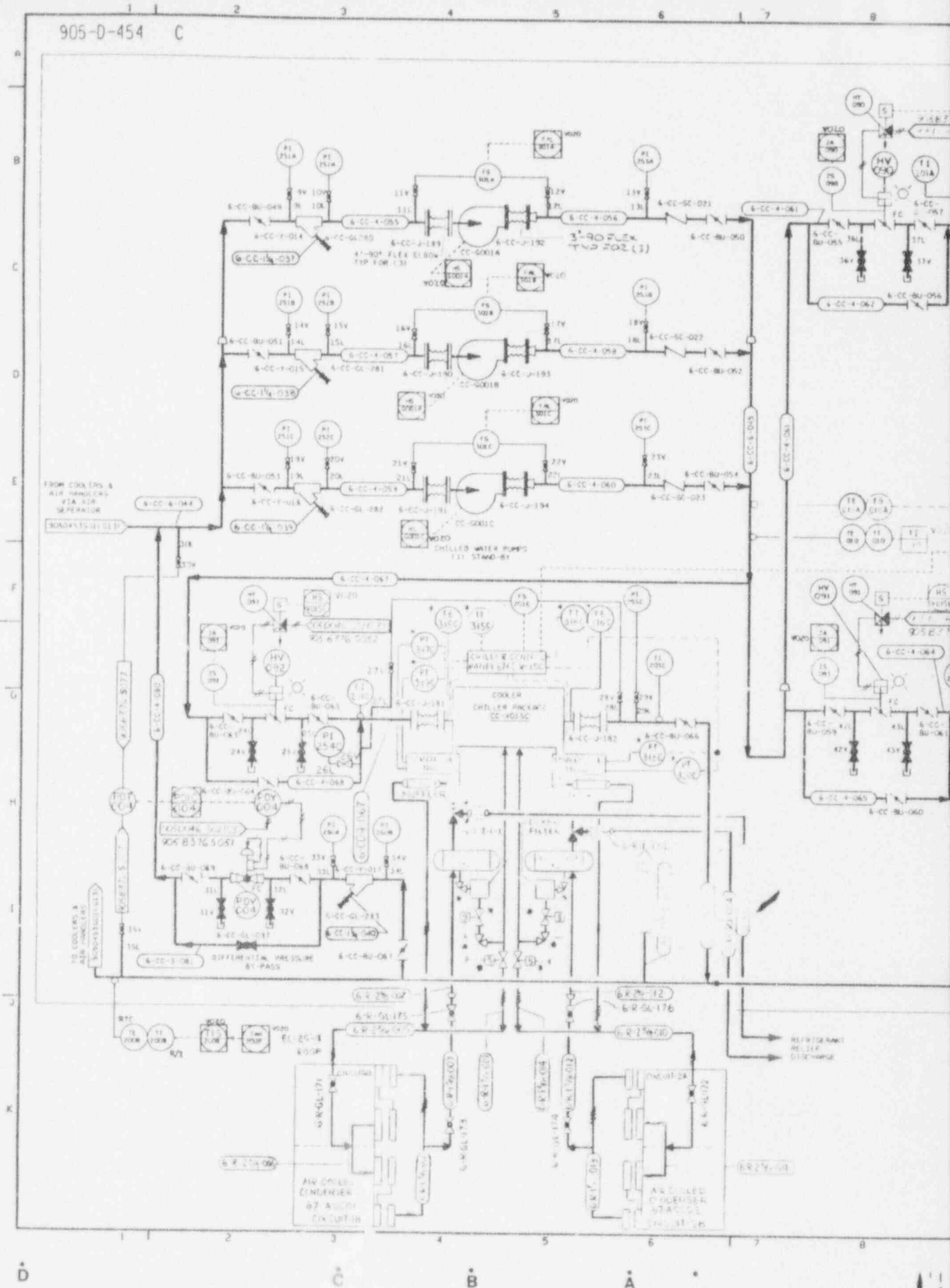
CAD DRAWING-DO NOT REVISE THIS ORIGINAL

QTY	ITEM	DESCRIPTION	PART OR IDENTIFYING NO.	MATERIAL OR SPLC.
PARTS LIST				
1	SLIDE RING			
1	AIR TANK			
1	DISTRIBUTOR			
1	PRESSURE RED. FILTER			
1	URRICATINI DEVICE			
1	TERMINAL BLOCK			

UNLESS OTHERWISE SPECIFIED	DRAWN BY	DATE	SCALE	REV.
NOT APPLICABLE	A. NICKS	8/14/90	NONE	4
TOLERANCES-NO. NOT SCALE	CHECKED	DATE		
	BON SHAFFER	8-15-90		
F. P. DEC. 3 PL. DEC. ANGLES	ENGR.	DATE		
N/A	L.E. DONOVAN	8-15-90		
N/A	CORROGRAPHY	DATE		
N/A	V. DESCAMP	8-16-90		
PL. 16/90	CLASS APPR.	DATE		
NEXT ASSEMBLY	P.A. SZALINSKI	8/17/90		
	DL SHUGARS	8/17/90		
	JOHN HERTON	8/30/90		

9405260270-30

905-D-454 C



1 2 3 4 5 6 7 8

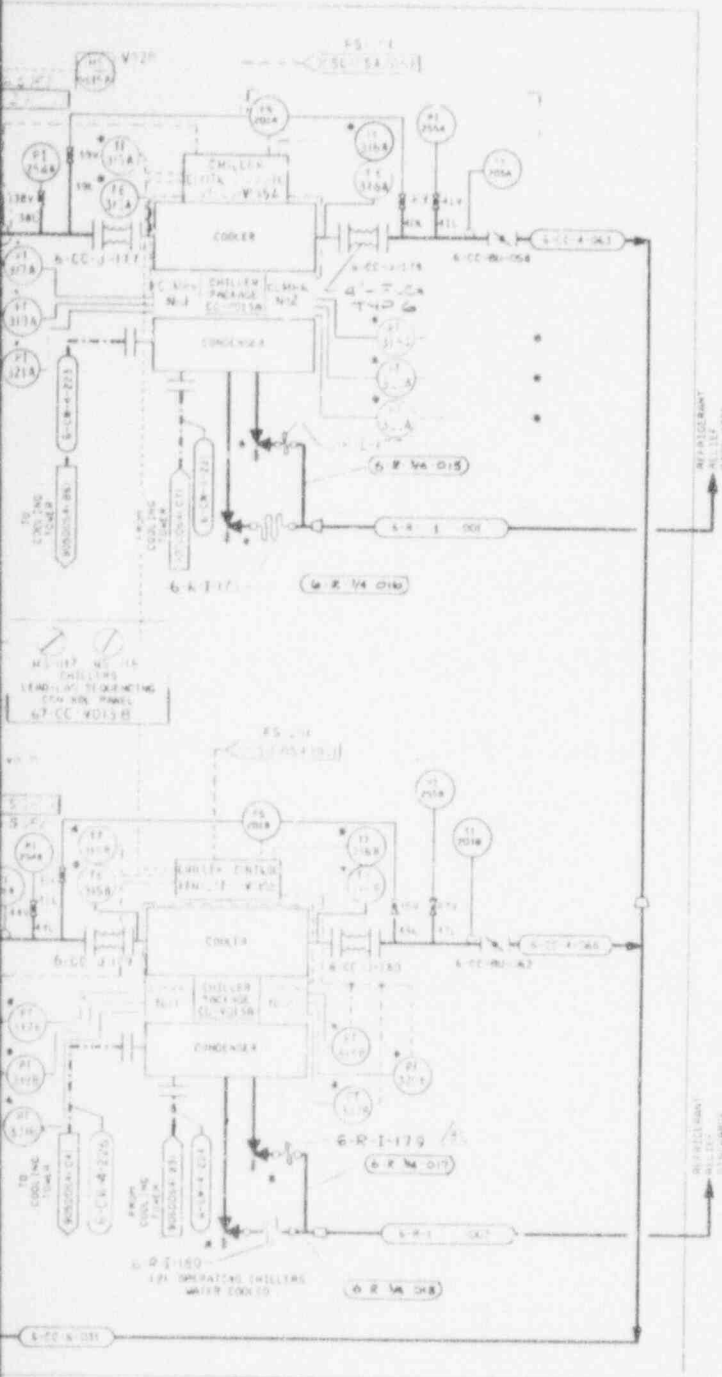
D C B A

1 2 3 4 5 6 7 8

ANSTEC APERTURE CARD

Also Available on Aperture Card

NO	DATE	REVISION	BY	CHK	APPROVED
0	09-10-88		...	...	...
1	03-20-88	REV. PER ECH-5M	LR	...	...
2	04-14-88	REV. PER ECH-5M	...	...	...
3	04-14-88	REV. PER ECH-5M	...	...	...
4	04-14-88	REV. PER ECH-5M	...	...	...
5	04-14-88	REV. PER ECH-5M	...	...	...
6	04-14-88	REV. PER ECH-5M	...	...	...
7	04-14-88	REV. PER ECH-5M	...	...	...
8	04-14-88	REV. PER ECH-5M	...	...	...



NOTES

- FOR SYMBOLS, NOTES AND LEGEND SEE DRAWING 9050-D-1106, 1107 & 1108.
- * DENOTES "SUPPLIED WITH EQUIPMENT".
- ALL INSTRUMENTS AND EQUIPMENT NO. 'S' ARE PREFIXED BY 'CC' UNLESS OTHERWISE NOTED.
- REPRESENTS DESIGNATED CONTROL PANEL. INTERNAL CIRCUITRY SYMBOLS ARE SHOWN IN PARENS. INDICATES CRT DISPLAY OR OTHER CONTROL.
- FOR DESIGNATED LINE NO. 'L' & VALVE NO. 'V' SEE TABLE ON DWG 9050-D-453502.

REFERENCE DRAWINGS

- 9050-453 HVAC CHILLED WATER SYSTEM
- 9050-376 INSTRUMENT INSTALLATION DETAIL

CAUTION
 CURRENT AS OF
 11/1/82
 CHECK INSTRUMENT CONTROL
 FOR LATEST REVISIONS

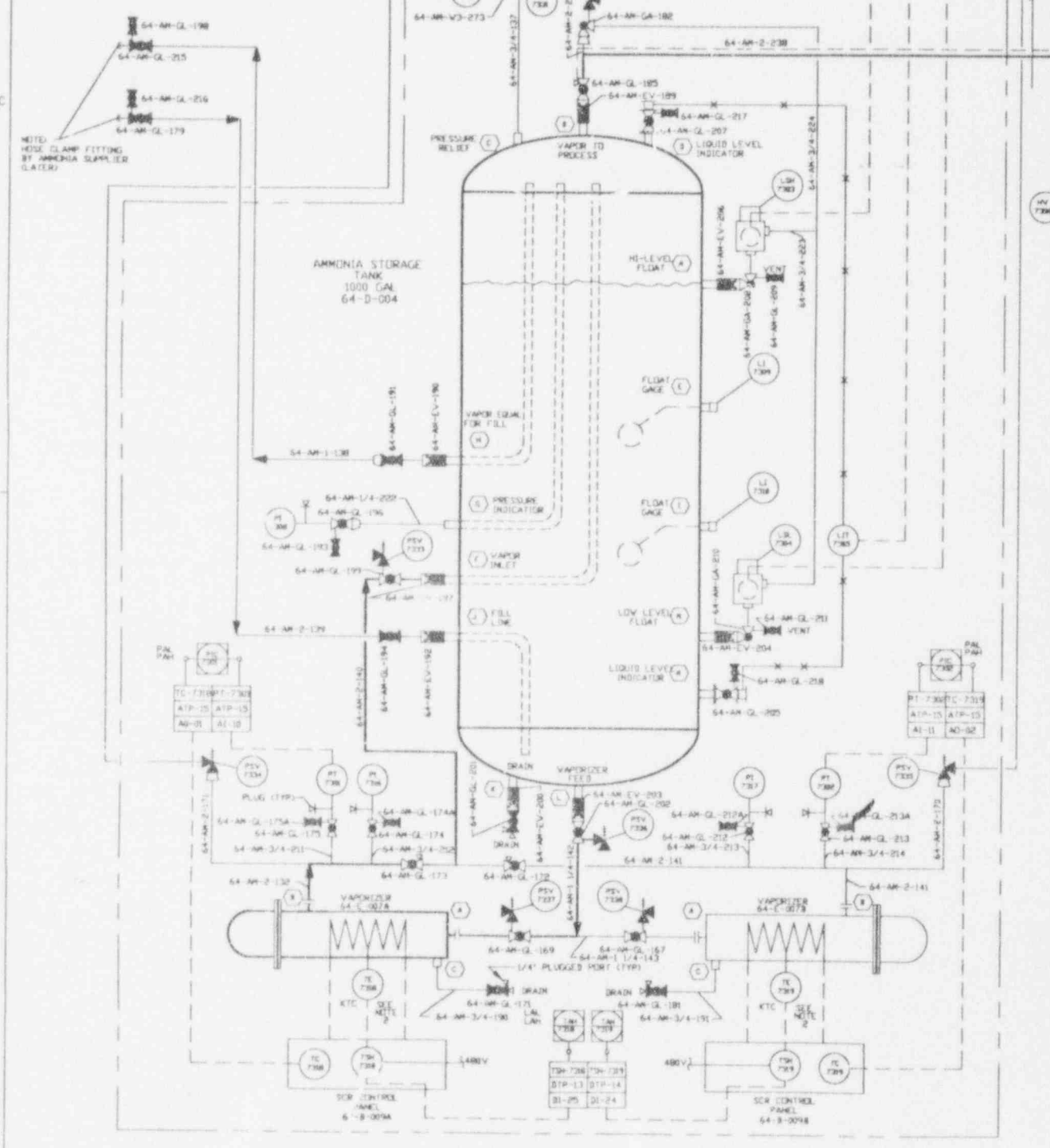
FOR DRAWING INDEX SEE DRAWING NO.

APPROVED BY: [Signature]	DATE: 08-11-88	PROJECT NO: 19-CV-0275	SCALE: AS SHOWN
EBASCO SERVICES INCORPORATED AVE. G & S. NO. 2158 TOWN OF WEST VALLEY, NEW YORK			
WEST VALLEY NUCLEAR SERVICES COMPANY, INC. WEST VALLEY, NEW YORK			
WEST VALLEY DEMONSTRATION PROJECT VITRIFICATION FACILITY HVAC CHILLED WATER SYSTEM P & ID SHEET 2			
PROJECT NO: 19-CV-0275	DRAWING NO: 9050-454	SHEET NO: 8	REV: 8
DATE: 08-11-88	SCALE: AS SHOWN	SHEET NO: 9050-D-454	

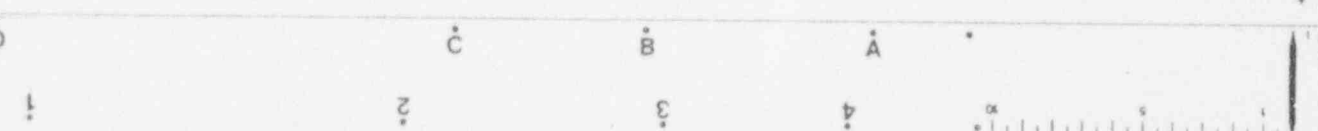
9405260270-31!

906-D-014
 ANHYDROUS AMMONIA
 NFPA IDENTIFICATION SYSTEM

HEALTH HAZARD	3
FIRE HAZARD	1
REACTIVITY	0
SPECIFIC HAZARD	N/A



NOTE: HOSE CLAMP FITTING BY AMMONIA SLAMMER GLAZER

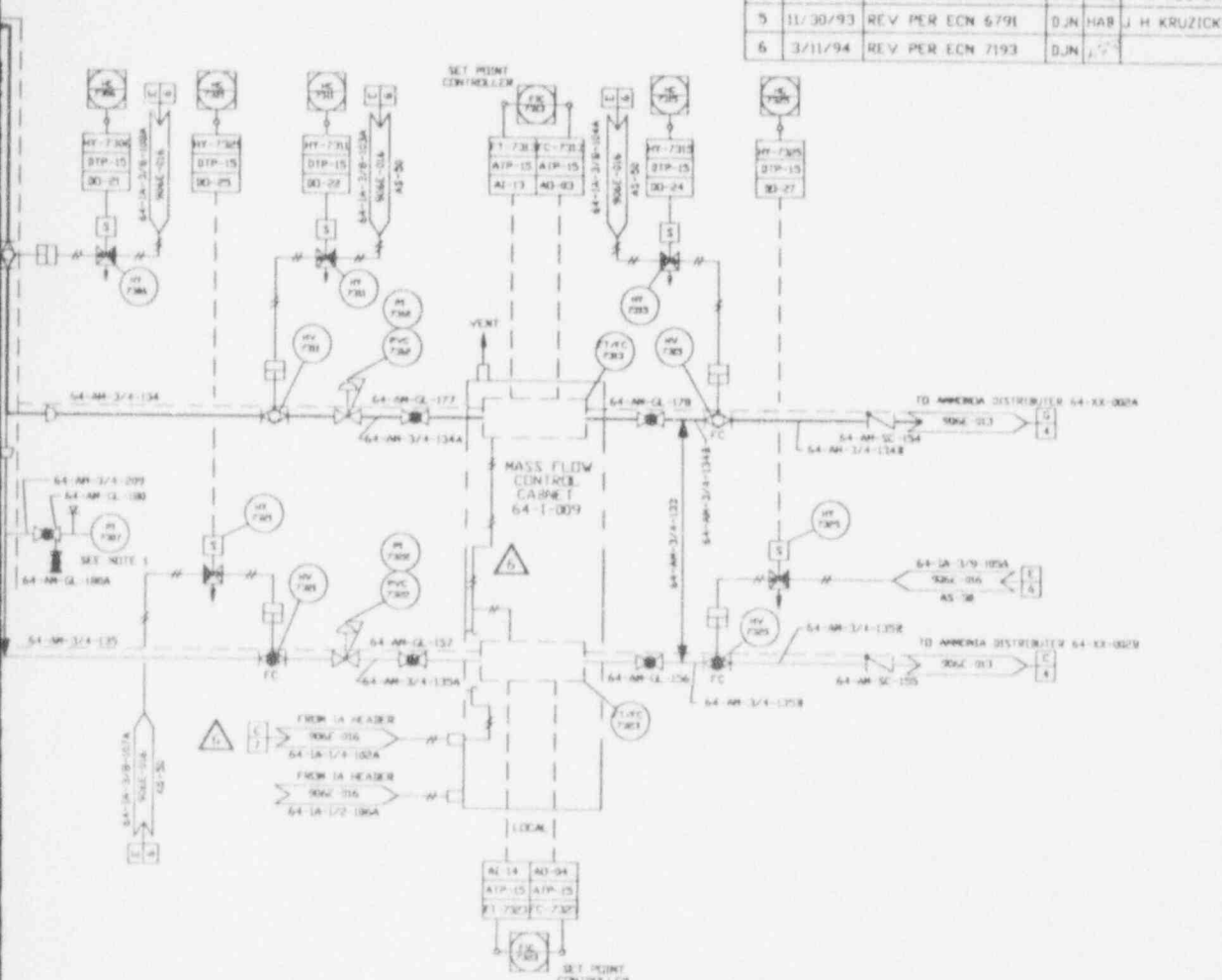


NO.	DATE	REVISION	DR	CH	APPROVED
B	07-18-90		YP	JK	RE RM TJS
GENERAL REVISION					
C	10-04-90		YP	JK	RE RM TJS
GENERAL REVISION					
0	9/24/91	ER 2193			JRH
1	10/2/91	GEN REV PER ECN 4553	LWK	HAB	B L GERMOND
2	02/19/93	GEN REV PER ECN 5908	SRC	HAB	J H KRUZICKI
3	02/19/93	GEN REV PER ECN 6137	SRC	KMG	P A NESTER
4	04/05/93	REV PER ECN 6136	SRC	KMG	P A NESTER
5	11/30/93	REV PER ECN 6791	DJN	HAB	J H KRUZICKI
6	3/11/94	REV PER ECN 7193	DJN		

ANSTEC APERTURE CARD

Also Available on Aperture Card

VENDOR SEE NOTE 1
A VALVE GALLERY



NOTES:

1. INSTRUMENTS AND VALVES SUPPLIED BY THE AMMONIA TANK MANUFACTURER.
2. THERMOCOUPLE MOUNTED ON VAPORIZER.
3. ——— HEAT TRACED PIPES.
4. ALL INSTRUMENT NUMBERS PREFIXED BY SYSTEM NO '64'

REFERENCE DRAWINGS:

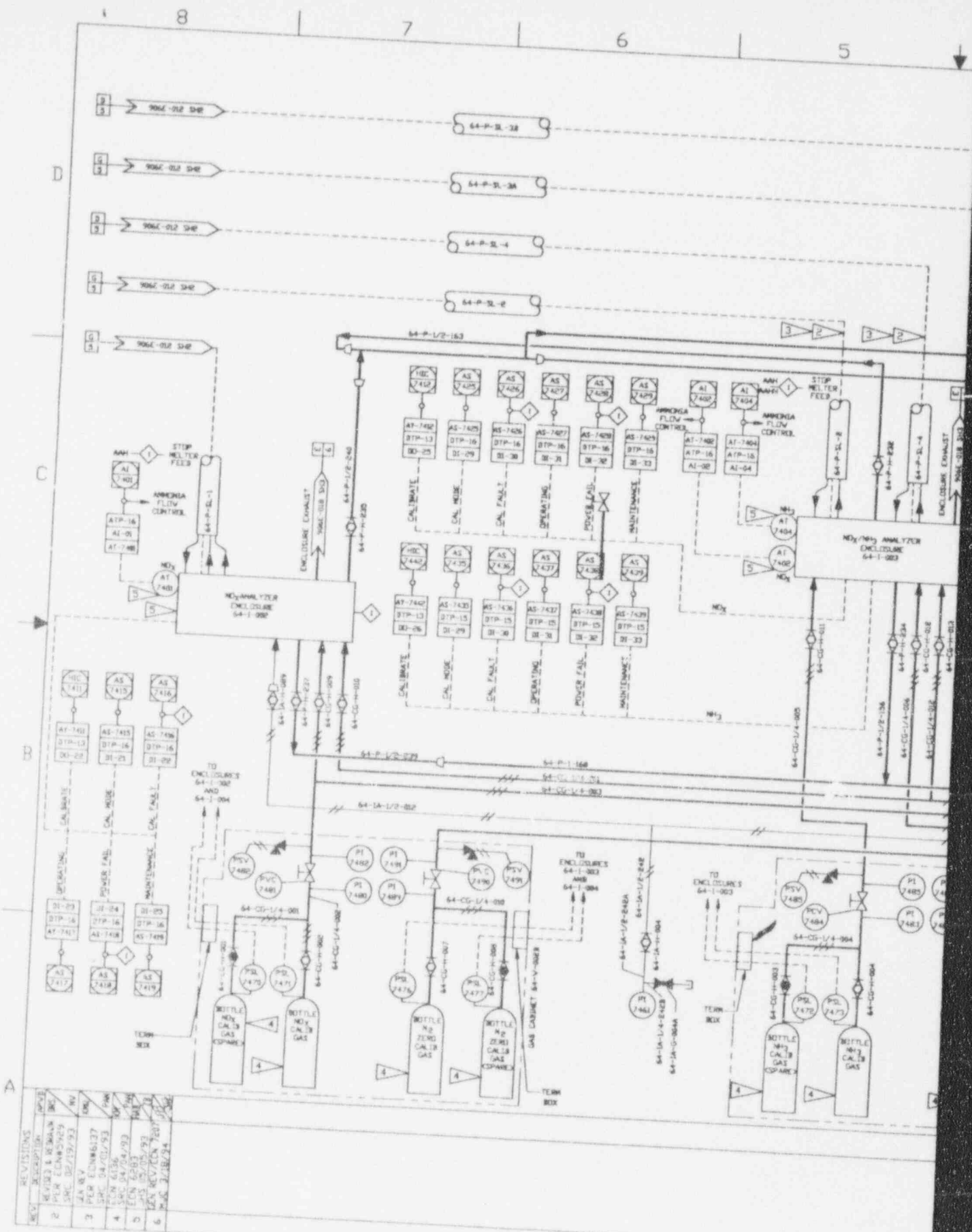
V.F. P&ID MELTER OFF-GAS SYSTEM	906E-012
V.F. P&ID MELTER OFF-GAS SYSTEM	906E-013
V.F. P&ID MELTER OFF-GAS SYSTEM	906D-015
INSTRUMENT AIR SYSTEM P&ID	906E-016
SYMBOLS NOTES & LEGEND	900D-1306
SYMBOLS NOTES & LEGEND	900D-1307
SYMBOLS NOTES & LEGEND	900D-1308
AMMONIA STORAGE TANK	906D-020

FOR DRAWING INDEX SEE DRAWING NO.

APPROVED BY: [Signature]	E BASCO SERVICES INCORPORATED AVE OF S. BELLEVILLE FOR TASK ORDER 025
PROJECT NO: 64-00-00	WEST VALLEY NUCLEAR SERVICES COMPANY INC WEST VALLEY, NEW YORK
ENGINEER: SLAPP 02-00-00	WEST VALLEY DEMONSTRATION PROJECT
LEAD DESIGNER: TLA SPANDE 02-00-00	VITRIFICATION FACILITY P&ID MELTER EX-CELL OFF-GAS SYSTEM
DESIGNER: R. J. LEWIS 02-00-00	
CHECKED: P. HANAUCE 02-00-00	
DRAWN: T. PATRICK 02-00-00	
SCALE: NONE	DRAWING NO: 906D-014
DATE: 02-00-00	REV: 6
ISSUED FOR CONSTRUCTION	906D-014 C

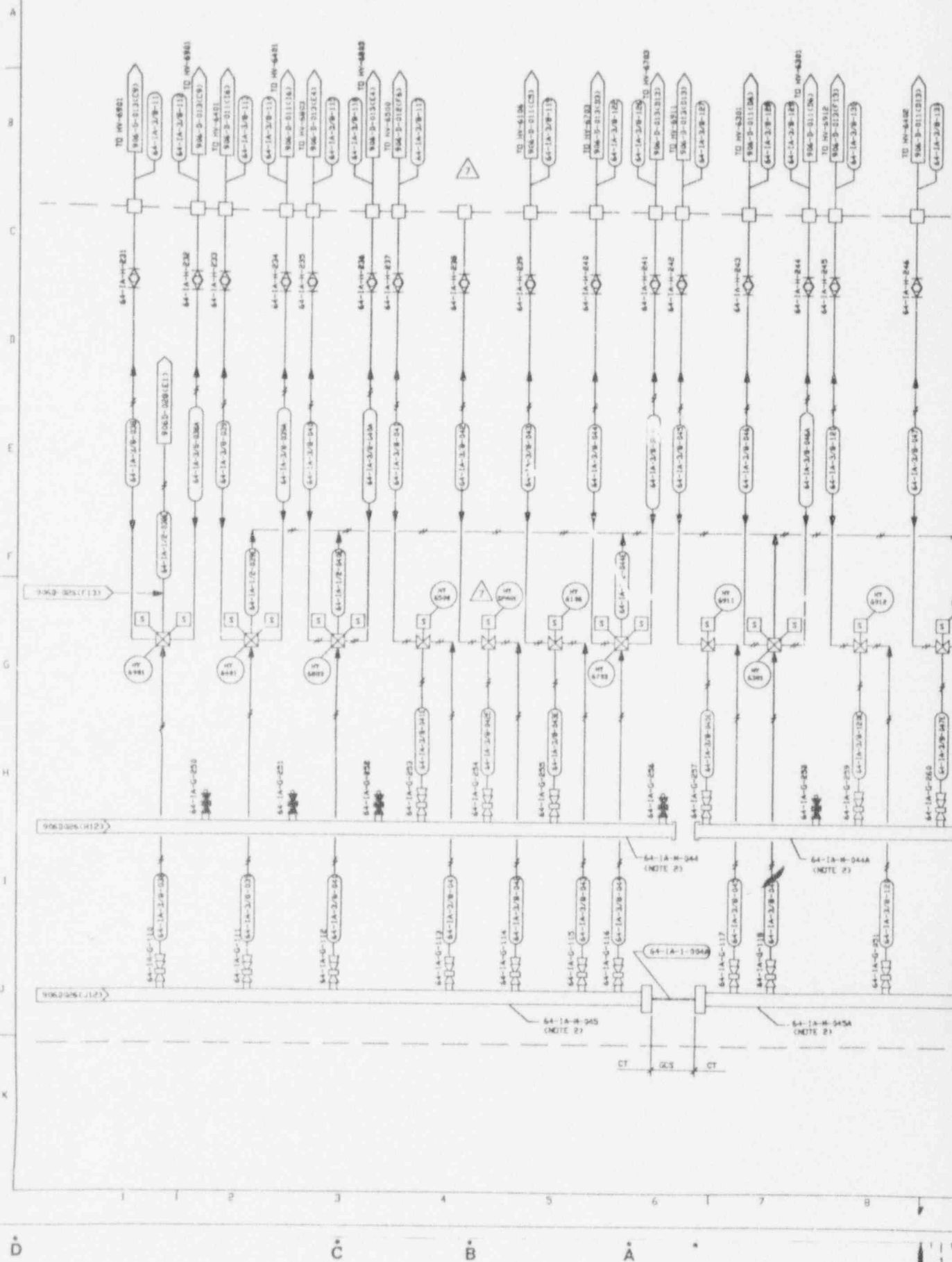
CAD DRAWING - DO NOT REVISE THIS ORIGINAL

9405260270-32



REV	DESCRIPTION	DATE
1	REVISED & REBUILT	08/01/93
2	PER EGM/2929	08/19/93
3	AN REV	08/19/93
4	PER EGM/6137	08/19/93
5	CON 6136	08/19/93
6	CON 6283	08/19/93
7	CON 6283	08/19/93
8	CON 6283	08/19/93
9	CON 6283	08/19/93
10	CON 6283	08/19/93
11	CON 6283	08/19/93
12	CON 6283	08/19/93
13	CON 6283	08/19/93
14	CON 6283	08/19/93
15	CON 6283	08/19/93
16	CON 6283	08/19/93
17	CON 6283	08/19/93
18	CON 6283	08/19/93
19	CON 6283	08/19/93
20	CON 6283	08/19/93
21	CON 6283	08/19/93
22	CON 6283	08/19/93
23	CON 6283	08/19/93
24	CON 6283	08/19/93
25	CON 6283	08/19/93
26	CON 6283	08/19/93
27	CON 6283	08/19/93
28	CON 6283	08/19/93
29	CON 6283	08/19/93
30	CON 6283	08/19/93
31	CON 6283	08/19/93
32	CON 6283	08/19/93
33	CON 6283	08/19/93
34	CON 6283	08/19/93
35	CON 6283	08/19/93
36	CON 6283	08/19/93
37	CON 6283	08/19/93
38	CON 6283	08/19/93
39	CON 6283	08/19/93
40	CON 6283	08/19/93
41	CON 6283	08/19/93
42	CON 6283	08/19/93
43	CON 6283	08/19/93
44	CON 6283	08/19/93
45	CON 6283	08/19/93
46	CON 6283	08/19/93
47	CON 6283	08/19/93
48	CON 6283	08/19/93
49	CON 6283	08/19/93
50	CON 6283	08/19/93
51	CON 6283	08/19/93
52	CON 6283	08/19/93
53	CON 6283	08/19/93
54	CON 6283	08/19/93
55	CON 6283	08/19/93
56	CON 6283	08/19/93
57	CON 6283	08/19/93
58	CON 6283	08/19/93
59	CON 6283	08/19/93
60	CON 6283	08/19/93
61	CON 6283	08/19/93
62	CON 6283	08/19/93
63	CON 6283	08/19/93
64	CON 6283	08/19/93
65	CON 6283	08/19/93
66	CON 6283	08/19/93
67	CON 6283	08/19/93
68	CON 6283	08/19/93
69	CON 6283	08/19/93
70	CON 6283	08/19/93
71	CON 6283	08/19/93
72	CON 6283	08/19/93
73	CON 6283	08/19/93
74	CON 6283	08/19/93
75	CON 6283	08/19/93
76	CON 6283	08/19/93
77	CON 6283	08/19/93
78	CON 6283	08/19/93
79	CON 6283	08/19/93
80	CON 6283	08/19/93
81	CON 6283	08/19/93
82	CON 6283	08/19/93
83	CON 6283	08/19/93
84	CON 6283	08/19/93
85	CON 6283	08/19/93
86	CON 6283	08/19/93
87	CON 6283	08/19/93
88	CON 6283	08/19/93
89	CON 6283	08/19/93
90	CON 6283	08/19/93
91	CON 6283	08/19/93
92	CON 6283	08/19/93
93	CON 6283	08/19/93
94	CON 6283	08/19/93
95	CON 6283	08/19/93
96	CON 6283	08/19/93
97	CON 6283	08/19/93
98	CON 6283	08/19/93
99	CON 6283	08/19/93
100	CON 6283	08/19/93

906-D-027



ANSTEC
APERTURE
CARD

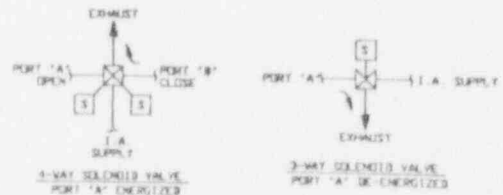
Also Available on
Aperture Card

NO	DATE	REVISION	DR	CH	APPROVED
0	9/24/91	ER 2193			JRH
1	10/7/91	GEN REV PER ECM 4553	LRK	HAB	BLGERMOND
2	4/15/92	REV PER ECM 5095	CGR	HAB	BLGERMOND
3	06/16/92	REV PER ECM 5251 & 5252	SRC	HAB	BLGERMOND
4	12/9/92	GEN REV PER ECM 5698	SRD	HAB	LED BLGERMOND
5	03/15/93	REV PER ECM 5997	DAK	HAB	JHK
6	9/3/93	REV PER ECM 6598	AAJ	HAB	BLG
7	3/16/94	REV PER ECM 7113	JLH	PLS	PLS

NOTES:

- FOR NOTES AND REFERENCE DRAWINGS SEE 906-D-025
- ACTUAL LOCATION OF MANIFOLD VALVES, SEE DVGS 900D-4842 AND 906D-072.

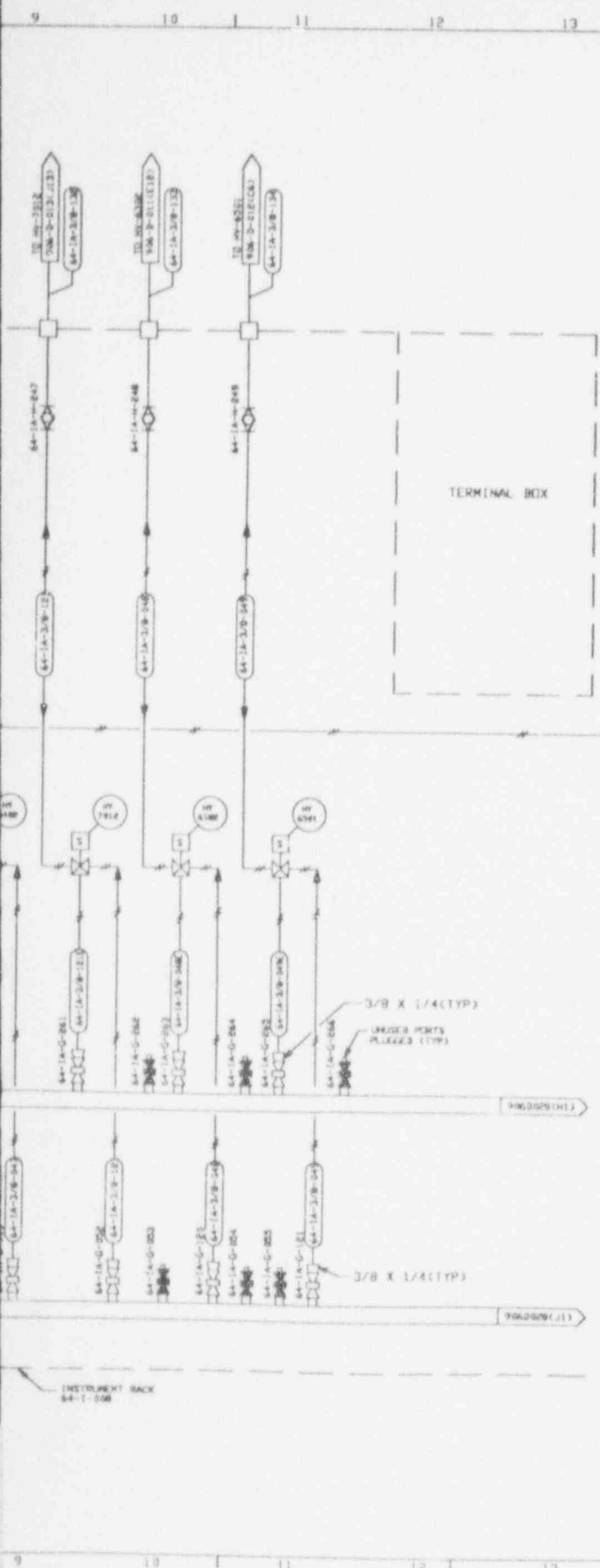
LEGEND:



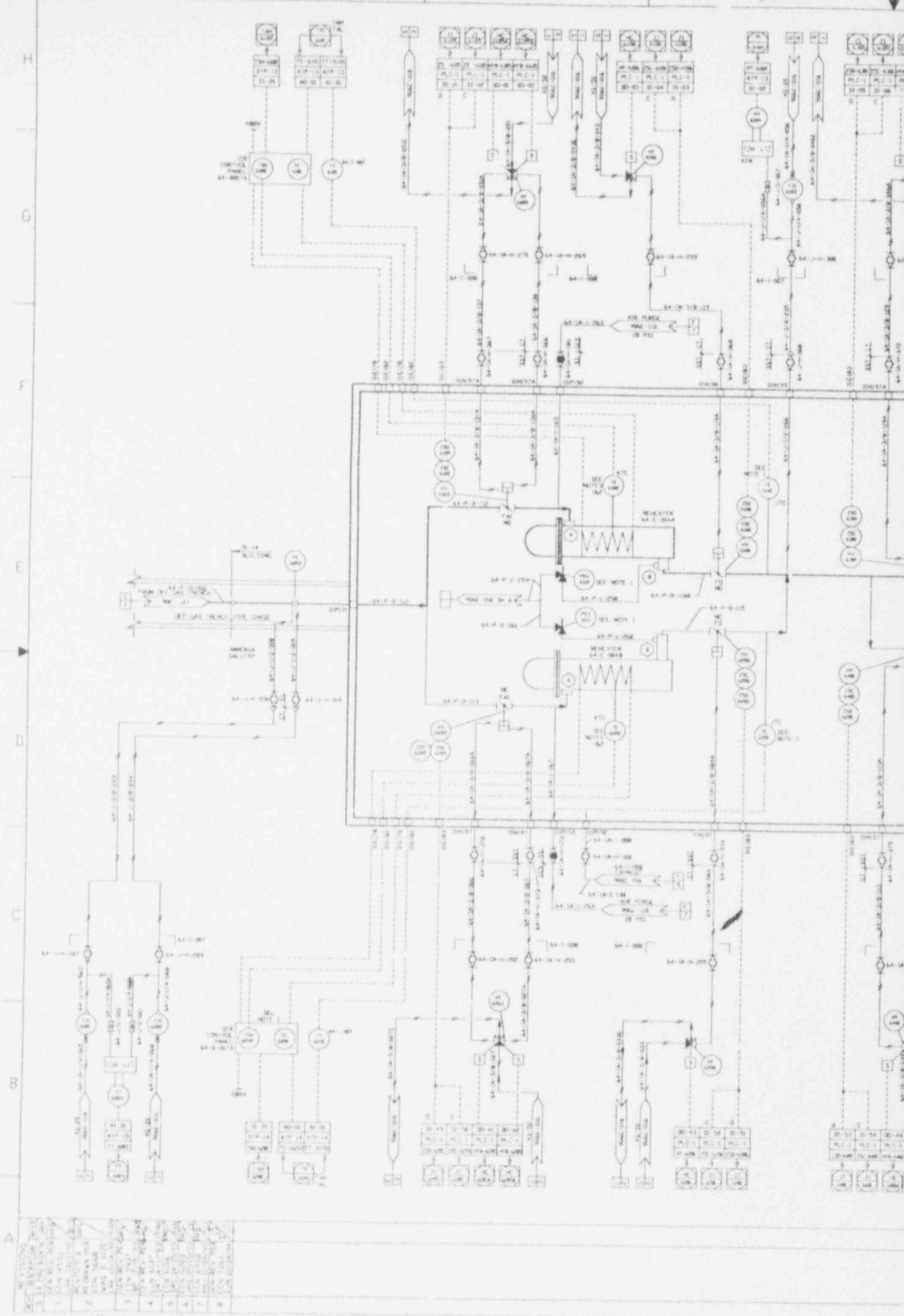
FOR DRAWING INDEX SEE DRAWING NO

APPROVED BY: VVNS CB	DATE: 12-10-93	PROJECT: WEST VALLEY NUCLEAR SERVICES COMPANY, INC
PROJECT NO: F. J. E. STORBY	DATE: 12-10-93	TASK ORDER: 905
ENGINEER: SUPY J. KLEIN	DATE: 12-10-93	WEST VALLEY DEMONSTRATION PROJECT
LEAD DISC ENGR: S. NATH	DATE: 12-10-93	VITRIFICATION FACILITY
DESIGN: R. J. LEWIS	DATE: 12-10-93	EX-CELL OFF-GAS P & ID
CHECKED: Y. SHANBHAG	DATE: 12-10-93	INSTRUMENT RACK I-008 (SHEET 2)
DRAWN: R. J. LEWIS	DATE: 12-10-93	
PROJECT NO: 906D-027	DWG NO: 7	
ISSUED FOR CONSTRUCTION	SCALE: NONE	DATE: 12-10-93

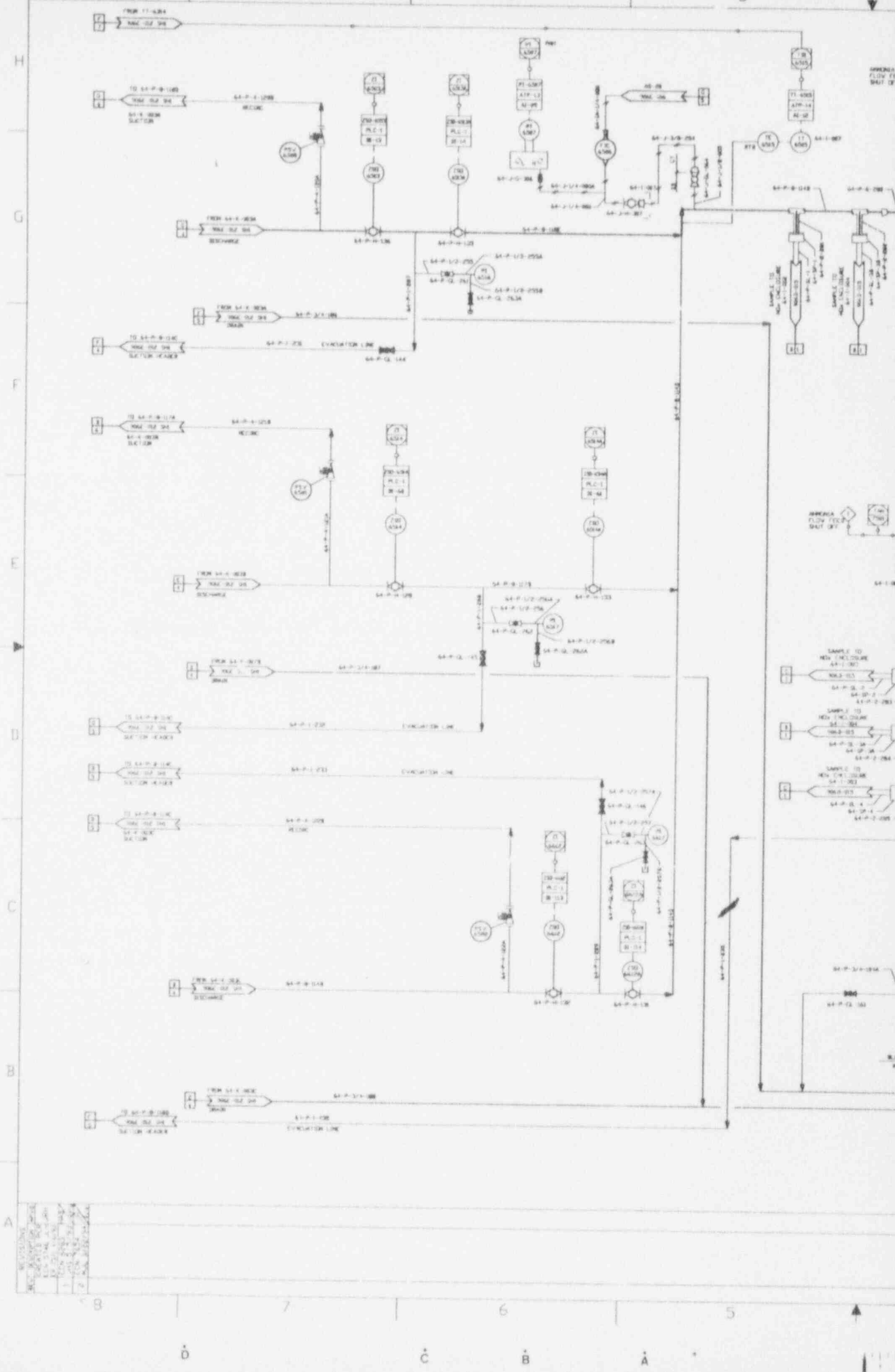
CAD DRAWING - DO NOT REVISE THIS ORIGINAL



9405260270 - 34



1	SA-1-100	SA-1-100	SA-1-100
2	SA-1-100	SA-1-100	SA-1-100
3	SA-1-100	SA-1-100	SA-1-100
4	SA-1-100	SA-1-100	SA-1-100
5	SA-1-100	SA-1-100	SA-1-100
6	SA-1-100	SA-1-100	SA-1-100
7	SA-1-100	SA-1-100	SA-1-100



REVISIONS

NO.	DATE	DESCRIPTION
1	11/15/88	ISSUED FOR CONSTRUCTION
2	12/15/88	REVISED TO REFLECT CHANGES
3	01/15/89	REVISED TO REFLECT CHANGES
4	02/15/89	REVISED TO REFLECT CHANGES
5	03/15/89	REVISED TO REFLECT CHANGES
6	04/15/89	REVISED TO REFLECT CHANGES
7	05/15/89	REVISED TO REFLECT CHANGES
8	06/15/89	REVISED TO REFLECT CHANGES
9	07/15/89	REVISED TO REFLECT CHANGES
10	08/15/89	REVISED TO REFLECT CHANGES
11	09/15/89	REVISED TO REFLECT CHANGES
12	10/15/89	REVISED TO REFLECT CHANGES

GENERAL FLOW SHEET

GENERAL FLOW SHEET

GENERAL FLOW SHEET

GENERAL FLOW SHEET

GENERAL FLOW SHEET

GENERAL FLOW SHEET

GENERAL FLOW SHEET

GENERAL FLOW SHEET

GENERAL FLOW SHEET

GENERAL FLOW SHEET

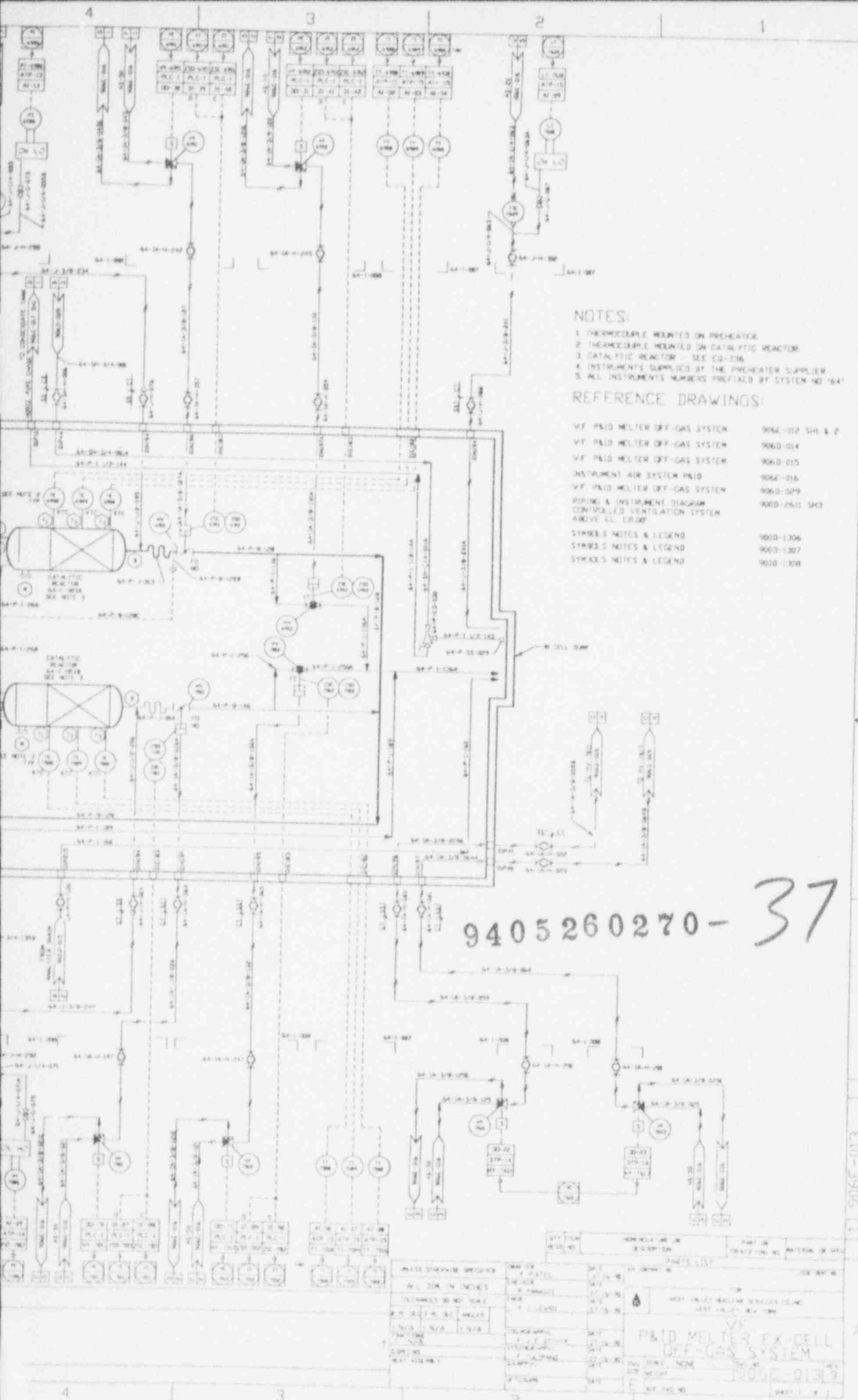
GENERAL FLOW SHEET

GENERAL FLOW SHEET

GENERAL FLOW SHEET

ANSTEC APERTURE CARD

Also Available on Aperture Card



NOTES:

1. THERMOCOUPLE MOUNTED ON PREHEATER
2. THERMOCOUPLE MOUNTED ON CATALYTIC REACTOR
3. CATALYTIC REACTOR - SEE CD-136
4. INSTRUMENTS SUPPLIED BY THE PREHEATER SUPPLIER
5. ALL INSTRUMENTS NUMBERS PREFIXED BY SYSTEM NO '64'

REFERENCE DRAWINGS:

VF P&ID MELTER OFF-GAS SYSTEM	906E-012 SH & P
VF P&ID MELTER OFF-GAS SYSTEM	906D-014
VF P&ID MELTER OFF-GAS SYSTEM	906D-015
INSTRUMENT AIR SYSTEM P&ID	906E-016
VF P&ID MELTER OFF-GAS SYSTEM	906D-029
PIPING & INSTRUMENT DIAGRAM CONTROLLED VENTILATION SYSTEM ABOVE CELL 13100	900D-2611 SHE3
SYMBOLS NOTES & LEGEND	900D-1306
SYMBOLS NOTES & LEGEND	900D-1307
SYMBOLS NOTES & LEGEND	900D-1308

9405260270-37

CAUTION
EXHAUST AIR

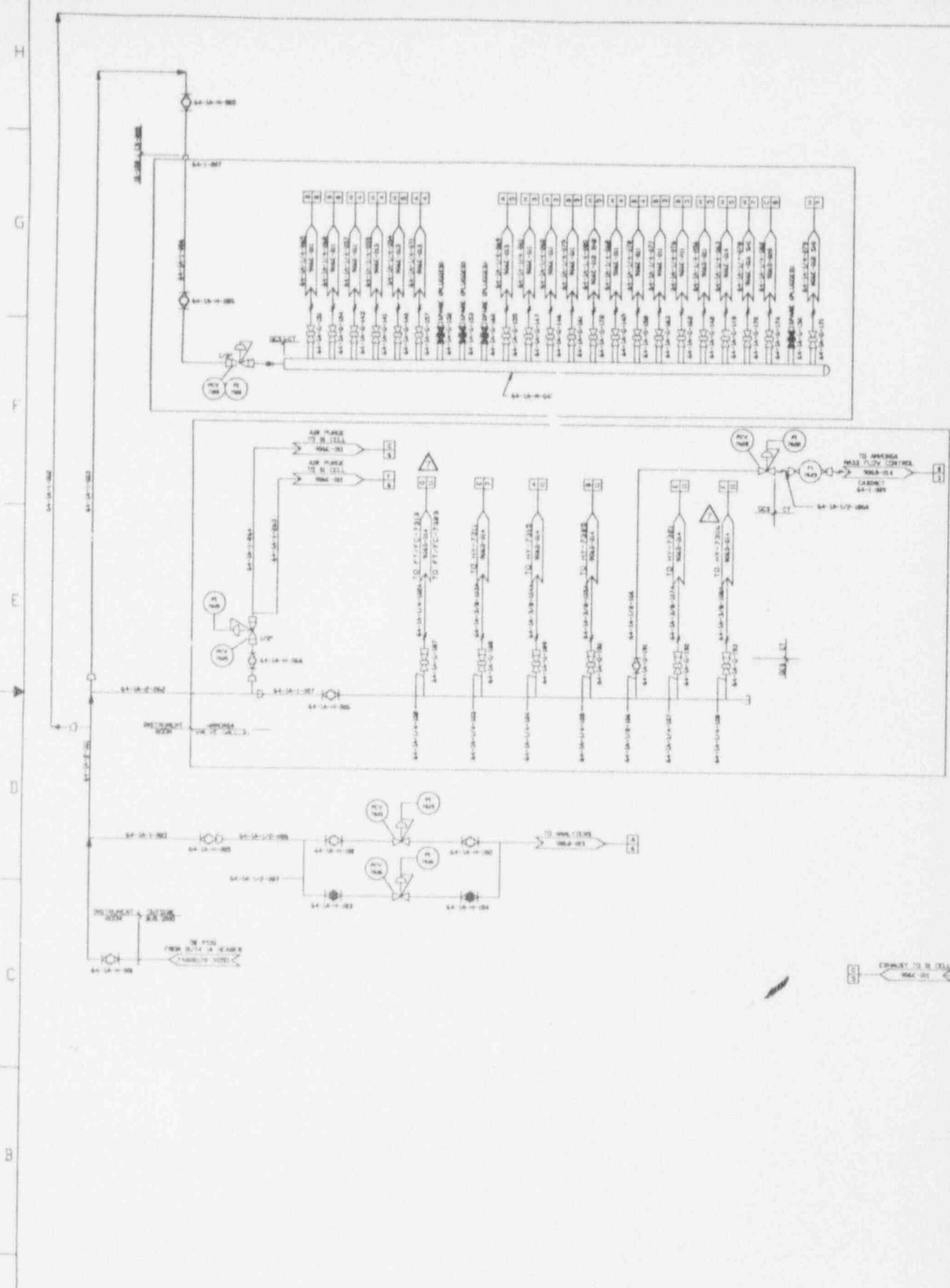
Fig. 2.2

11 906E-013

GAS DRAWING DO NOT REVERSE THIS ORIGINAL

<p>ALL DIM. IN INCHES</p> <p>UNLESS NOTED OTHERWISE</p> <p>SCALE: AS SHOWN</p> <p>DATE: 11/1/64</p> <p>BY: [Signature]</p> <p>CHECKED: [Signature]</p> <p>APPROVED: [Signature]</p>	<p>SYMBOLS LIST</p> <p>VF P&ID MELTER OFF-GAS SYSTEM</p> <p>906E-013</p> <p>11/1/64</p>
---	---

REV.	DESCRIPTION	DATE	BY
1	ISSUED FOR CONSTRUCTION	10/1/68	J. H. [unclear]
2	REVISED TO REFLECT [unclear]	10/1/68	J. H. [unclear]
3	REVISED TO REFLECT [unclear]	10/1/68	J. H. [unclear]
4	REVISED TO REFLECT [unclear]	10/1/68	J. H. [unclear]
5	REVISED TO REFLECT [unclear]	10/1/68	J. H. [unclear]
6	REVISED TO REFLECT [unclear]	10/1/68	J. H. [unclear]
7	REVISED TO REFLECT [unclear]	10/1/68	J. H. [unclear]



H
G
F
E
D
C
B
A

7
6
5
4
3
2
1

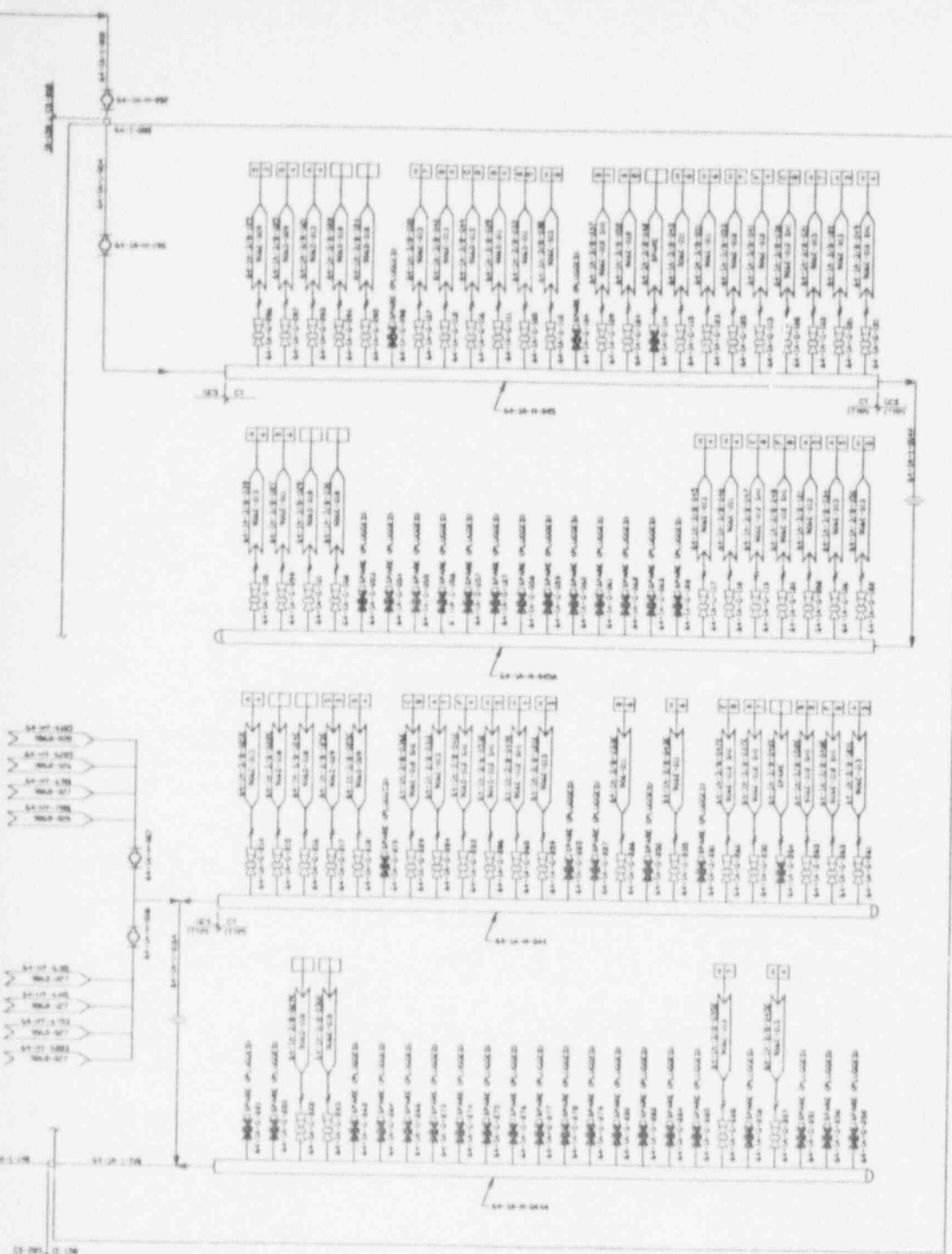
ANSTEC APERTURE CARD

Also Available on Aperture Card

CAUTION
CURRENT ASCE

NO. 1

EXERCISE EXTREME CARE
IN HANDLING THIS FILM



REFERENCE DRAWINGS:

- SYMBOLS, NOTES & LEGEND 900-1306
- SYMBOLS, NOTES & LEGEND 900-1307
- SYMBOLS, NOTES & LEGEND 900-1308
- V.F. P&ID MELTER DEF-GAS SYSTEM 906-011
- V.F. P&ID MELTER DEF-GAS SYSTEM 906-012
- V.F. P&ID MELTER DEF-GAS SYSTEM 906-013
- V.F. P&ID MELTER DEF-GAS SYSTEM 906-014
- V.F. P&ID MELTER DEF-GAS SYSTEM 906-015
- HYDRAIR FLOW DIAGRAM & P&ID 906-018
- UTILITY FLOW DIAGRAM PLANT & INSTR. 2401-01-170-1
- AIR OXYGEN, BRESSEL OIL & AIR SAMPLER

NOTES

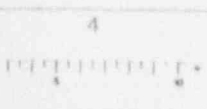
1. ALL INSTRUMENT NUMBERS PREFIXED BY SYSTEM NO. 164

9405260270-38

1 906E-016

GRID DRAWING-DO NOT REVISE THIS ORIGINAL

QTY	SYM	REMARKS OR DESCRIPTION	PART OR IDENTIFYING NO.	MATERIAL OR SPEC.
PARTS LIST				
1	94-11-1-100	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-101	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-102	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-103	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-104	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-105	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-106	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-107	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-108	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-109	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-110	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-111	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-112	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-113	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-114	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-115	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-116	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-117	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-118	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-119	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-120	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-121	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-122	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-123	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-124	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-125	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-126	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-127	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-128	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-129	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-130	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-131	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-132	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-133	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-134	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-135	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-136	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-137	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-138	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-139	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-140	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-141	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-142	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-143	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-144	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-145	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-146	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-147	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-148	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-149	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	
1	94-11-1-150	EX-CELL DEF-GAS SYSTEM P&ID INSTRUMENT AIR SYSTEM	906E-016	



A B C D E

1 2 3 4