West Valley Demonstration Project

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SYSTEM DESCRIPTION

VF DEMINERALIZED WATER SYSTEM

SYSTEM 63DW

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Summary

The Vitrification Facility Demineralized Water System (63DW) receives demineralized water from the Main Plant and distributes it to users in the Vitrification Building, Cold Chemical Building and Supernatant Treatment Building. It is basically a passive distribution system with little or no operator intervention required.

The primary uses for demineralized water during the vitrification process are for chemical make-up, process addition, flushing and decontamination.

VF DEMINERALIZED WATER SYSTEM
SYSTEM 63DW

Rev. 0

1.0 SYSTEM FUNCTIONS & DESIGN CRITERIA

1.1 Functions

The function of the Vitrification Facility Demineralized Water System is to pressure stabilize the demineralized water received from the main plant demineralized water system and to distribute it throughout the Vitrification Building, Cold Chemical Building and Supernatant Treatment Building.

1.2 Design Criteria

Overall design requirements governing the Vitrification Facility are found in WVNS-DC-022, "Vitrification of High-Level Wastes".

1.2.1 Process Requirements

The VF Demineralized Water System shall be capable of supplying demineralized water to its users at maximum conductivity of 10 micro-mhos and at intermittent flow rates of up to 70 gpm, with supply pressures at 55 psig.

1.2.2 Structural Requirements

The Demineralized Water System shall be constructed with stainless-steel pipe that is either socket welded or butt welded.

Over all construction of the VF Demineralized Water System shall comply with the requirements set forth in the Uniform Building Code-1988, Seismic Zone 1 and importance factor 1.25.

The system design life is seven (7) years, but other functional system requirements have extended the system life expectancy to well over fifteen (15) years.

1.2.3 Essential Features

The VF Demineralized Water shall be regulated to a dynamic pressure of 55 psig at flow rates between 2-70 gpm.

The demineralized water shall exhibit a maximum conductivity of 10 micro-mhos.

The piping system, that penetrates the zone 1 boundary, shall be designed to prevent the backflow of solution from contaminated to clean areas.

1.2.4 Maintenance and Inspection

All Ex-Cell maintenance of the VF Demineralized Water System shall be based on direct contact procedures. Component maintenance shall be performed per manufacturer's standard as provided in their procedures or instructions manual(s). Maintenance of In-Cell components are the responsibility of the user and maintenance of the plant demineralized water system is the responsibility of Plant Operations.

1.2.5 Instrumentation and Control

Adequate instrumentation and control shall be provided to set and maintain a constant demineralized water pressure in the primary distribution header.

Each line drop from the header shall have an independent shut-off valve.

Additional instrumentation and controls shall be provided as deemed necessary.

All user specific instrumentation and control shall be the responsibility of the user.

1.2.6 Interfacing Systems

The VF Demineralized Water System shall interface with the following systems to either receive or provide required services.

System 32 (Plant Demineralized Water System) via. System 15 (Main Plant Distribution System)

System 50 (Supernatant Treatment)

System 63H (Off-Gas and Vessel Vent)

System 63I (Primary Process)

System 63J (Canister Decontamination)

System 63SC (VF Steam and Condensate)

System 63UA (VF Utility Air)

System 65 (VF Cold Chemical)

System 69A (VF Sampling)

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**

Operation of the Demineralized Water System shall be in accordance with NQA-1, the Quality Assurance Program Plan and WVNS Standard Operating Procedures.

1.2.9 **Safety Classes and Quality Levels**

Safety Classes and Quality Levels shall be in accordance with Quality Management Manuals 2, "Organization," and 3, "Quality Assurance Program." Safety classifications and quality levels assigned to the major components of this system are provided in paragraph 2.6.

1.2.10 **Codes and Standards**

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

ASME Boiler Code - Pressure and temperature ratings of heat exchanger, 6-DW-E-040.

SOP-32-01 - Plant Water System

SOP-32-02 - Demineralized Water System

2.0 DESIGN DESCRIPTION

Background

Demineralized water is produced in the Main Plant Utility Room by passing water through a two-bed, cation-anion demineralizer - ion exchange unit. This water is stored in an 18,000 gallon Demineralized Water Storage Tank, 32D-2, and distributed through the Main Plant piping systems using pumps 32G-5A, 32G-5B, or 32G-5C, with recirculation from the pumps returning to the 32D-2 tank.

The storage tank is not insulated but is equipped with a steam coil to maintain the temperature of the demineralized water at 70° F during cold weather.

Demineralized water exits the Utility Room at 50 psig when pump 32G-5A or 32G5B is in service, and at 150 psig when pump 32G-5C is used.

2.1 Functional Description

The VF Demineralized Water System is primarily a passive distribution system designed to receive demineralized water from the Plant Demineralized Water System, regulate and stabilize the water pressure, and distribute it for use in the Vitrification Building, the Cold Chemical Building and the Supernatant Treatment Building. The demineralized water is used for chemical make-up, process addition, flushing, decontamination and utility services. Where the piping system penetrates the zone 1 boundary, physical measures are implemented to prevent the backflow of solution from contaminated areas to clean areas.

2.1.1 Utility Stations

Demineralized water is available at nine (9) utility stations; eight (8) stations are located in the vitrification building one (1) in the supernatant treatment building. Demineralized water from utility stations is used for general cleaning of equipment where mineral contamination has to be low, and for connections to equipment that only needs demineralized water on a temporary, as required, basis.

Demineralized Water Utility Stations

Location	Line #	Valve #
Vit Bldg, Drop-2, UEOA	6-DW-1-025	6-DW-GL-015
Vit Bldg, Drop-2, MEOA	6-DW-1-030	6-DW-GL-035
Vit Bldg, Drop-2, LEOA	6-DW-1-020	6-DW-GL-001
Vit Bldg, Drop-5, UNOA	6-DW-1-026	6-DW-GL-029
Vit Bldg, Drop-5, LNOA	6-DW-1-018	6-DW-GL-018
Vit Bldg, Drop-8, UWOA	6-DW-1-028	6-DW-GL-034
Vit Bldg, Drop-8, MWOA	6-DW-1-024	6-DW-GL-027
Vit Bldg, Drop-8, LWOA	6-DW-1-013	6-DW-GL-011
STS Bldg, Drop-4, Upr Flr	6-DW-1-104	6-DW-GL-104

2.1.2 Chemical Make-up

Demineralized water is the base ingredient for all chemical slurries and solutions used in the vitrification process, supernatant treatment process and canister decontamination. This includes the make-up of the glass former slurry, decontamination solutions, process shims, zeolite slurries and waste dilution. Chemical make-up for vitrification and canister decontamination is accomplished in the Cold Chemical Building and then transferred to the user in the Vitrification

Building. The chemical make-up for the supernatant treatment is all performed within the Supernatant Treatment Building.

2.1.3 **Flushing**

Flushing applications require demineralized water when the flush is added or returned to the process or returned to the high level waste facility for further processing. The following flushing functions require VF demineralized water.

After each transfer of the glass former slurries or shims from the chemical make-up tank to the Concentrate Feed Make-up Tank (CFMT), the chemical make-up tank and the transfer pipes are flushed, adding the flush to the CFMT. The flush is required to assure the complete transfer of the chemicals in order to achieve the desired chemical balance in the CFMT. Excess water in the CFMT is evaporated and released to the Off-Gas and Vessel Vent System.

The Supernatant Treatment System requires flushing after each treatment cycle, and a zeolite flush is initiated about every two months.

The Off-Gas and Vessel Vent System requires demineralized water to flush and clear the pads in the Mist Eliminator, two High Efficiency Mist Eliminators (HEMEs), two HEME loop seals, the Vessel Vent Condenser loop seal, and the Off-Gas Trench.

Other demineralized water flushes are required for the CFMT and MFHT Mist Eliminators, the Air Displacement Slurry (ADS) feed pump, two ADS slurry sampler pumps, two slurry sample extraction systems, 18 bubbler lines, the Sample Transfer Station, the Scrub Tank and the vitrified waste storage canisters after decontamination.

2.1.4 **Other Uses**

Demineralized water is also used to fill and maintain the proper water level in the Submerged Bed Scrubber (SBS) and the Seal Pots.

2.2 Physical Description

The VF Demineralized Water System is constructed of stainless steel pipe. Demineralized water enters the Vitrification Building from the Main Plant through a two-inch pipe, 15-DW-302-2, near the south-east corner of the Middle East Operating Aisle (MEOA) at elevation 110'. After passing through the system shut-off valve, 6-DW-H-049, the line is directed to the Upper East Operating Aisle (UEOA) at elevation 124', where the pressure is stabilized with valve PRV-071 and set to the desired pressure using pressure indicator PI-072. From here the header pipe, 6-DW-2-001, traverses the vitrification building in the utility pipe rack through the Upper East, North and West Operating Aisles, and eight (8) drops distribute the demineralized water from the header

throughout the vitrification building, the Cold Chemical Building and the Supernatant Treatment Building. Backflow prevention of demineralized water across zone 1 bounderies, from contaminated areas (in-cell) to clean areas (ex-cell), has been incorporated in the system design through the use of check valves, isolation valves, piping elevation differences, and air purges (see the appended drawings for piping details). The following paragraphs describe the drops from the main manifold.

2.2.1 Drop # 1

The first drop, through pipe number 6-DW-2-032, provides demineralized water to the Nitric Acid Hold Tank, 63-D-048, (shown as Decon Mix Tank in P&ID), located in the UEOA, with hand valve 6-DW-H-610 controlling the flow. Since decontamination fluids are prepared in the Cold Chemical Building and then transferred to this tank, this drop will not require demineralized water on a regular basis.

2.2.2 Drop # 2

The second drop, through pipe number 6-DW-2-010, is located in the UEOA, isolated by shut-off valve 6-DW-GT-014 and branches to three Utility Stations, the Canister Decontamination Tank (63-V-044), instrument rack 2E9-8, and an in-cell maintenance utility station. The utility stations are located in the Upper, Middle, and Lower East Operating Aisles and use water on an as required basis. The rinse cycle in the Canister Decon Tank requires approximately 60 gallons of water. Demineralized water requirements for the Canister Turn Table through rack 2E9-8 have been eliminated. Use of the maintenance station during vitrification is TBD. The maintenance station, located in the MEOA, provides three demineralized water outputs. The first output, through gate valve 6-DW-GT-040 and control valve 6-DW-GL-043, provides demineralized water at the standard input conditions. The second output, through gate valves 6-DW-GT-037/038 and control valve 6-DW-GL-044, can be heated to 180° F with steam heat exchanger 6-DW-E-040. Relief valve PSV-4011 prevents the line pressure from exceeding a safe margin. The output pressure of the third output, through gate valves 6-DW-GT-39/41 and control valve 6-DW-GL-042, can be increased to 300 psig with boost pump 6-DW-G-047, using pressure indicator PI-4903 to monitor the output.

2.2.3 Drop # 3

The third drop, through pipe number 6-DW-2-044, is routed to and capped in the MEOA. Use of this drop for vitrification is not anticipated.

Located between drop # 2 and drop # 3 is a valve, 6-DW-GT-026, which permits flow isolation for all drops beyond drop # 2.

2.2.4 Drop # 4

The fourth drop is initiated in the UNOA, with pipe 6-DW-2-004, and services the Supernatant Treatment Building through valve 6-DW-H-082 located in the MNOA, Instrument Rack 2N8 which provides controls for flushing ADS feed pump 63-G-011, Instrument Rack 2N6-5 which provides controls to flush Mist Eliminator 63-V-012, and line 6-DW-1/2-016 through valve 6-DW-GT-019 which provides demineralized water to flush the two Slurry Samplers 63-V-005 and 63-V-025.

After drop # 4 in the UNOA another valve, 6-DW-H-048, has been inserted in the main distribution line permitting flow isolation of the demineralized water beyond drop # 4.

2.2.5 Drop # 5

This drop is initiated with pipe 6-DW-2-014 and controlled with valve 6-DW-GT-008 located in the MNOA. It provides demineralized water to two Utility Stations, one in the UNOA and the other in the LNOA, and the Sample Transfer Cell 63-V-006.

2.2.6 Drop # 6

Drop number 6 is initiated with pipe 6-DW-2-011 and controlled with valve 6-DW-GT-009 located in the MWOA. The lines then branch to Instrument Rack 3W5 which controls the flushing of the two ADS Sampler Pumps 63-G-002 and 63-G-012, and hand control valves in the LWOA that permit flushing of the loop seals coming from Vent Condenser 63-E-015 and the two HEMEs, and add demineralized water to Seal Pot 63-V-003. Further more hose connections and hand valves have been installed to permit the addition of chemicals to the loop seal flush at the Vent Condenser and HEME # 1, and to add chemicals to the water in the Seal Pot.

2.2.7 Drop # 7

This drop is initiated with pipe 6-DW-2-401 and supplies VF Demineralized Water to the Cold Chemical Building and Instrument Rack 3W8. After entering the Cold Chemical Building, through shut-off valve 6-DW-GT-401, the Demineralized Water flow is split into a fill line and a flush line. Both lines are connected to three Slurry Make-up Tanks 65-D-02, 03, and 04, Decon Make-up Tanks 65-D-07, 08, and 09, and Scrub Solution Tank 65-D-10. The other branch, through pipe 6-DW-1/2-045 and shut-off valve 6-DW-H-036, provides demineralized water to Instrument Rack 3W8 which houses the controls to flush the bubbler tubes in the CFMT and MFHT.

2.2.8 **Drop # 8**

The last drop is initiated with pipe 6-DW-2-007 and supplies demineralized water to three Utility Stations, Instrument Rack 2W3-2, Instrument Rack 3W1, and the Off-Gas Trench. The Utility Stations are located in the UWOA, MWOA and LWOA respectively. Hand valve 6-DW-H-675 in Instrument Rack 2W3-2 permits addition of demineralized water to the Submerged Bed Scrubber, V-031, via the cold chemical input control lines. This back-up method can be used if the normal input from cold chemical is inoperable. Instrument Rack 3W1 provides the controls to flush the filter pads of the two High Efficiency Mist Eliminators. Hand valve 6-DW-H-008, located in the MWOA, is used to provide demineralized water to the Off-Gas Trench Sump.

2.3 Interface Descriptions

2.3.1 **System 32 (Plant Demineralized Water)**

Provides demineralized water to the Vitrification Demineralized Water System, through pipe 15-DW-302-2, at the input to valve 6-DW-H-049. STS and Vit will not operate at the same time. Demineralized water requirements are:

Maximum Conductivity - 10 micro-mhos

Flow Rate - Intermittent at 2 to 70 gpm

Supply Pressure - 55 to 100 psig at the required flow rate

Vit usage - 3300 gallons per melter feed preparation cycle (nominal 8.5 days)

STS usage - 27500 gallons per treatment cycle (5 days, every other week)

1000 gallons per zeolite flush (every other month)

2.3.2 **System 50 (Supernatant Treatment)**

Receives VF demineralized water through pipe 6-DW-2-101 at the input to valve 6-DW-GT-101. Demineralized water is used for the 4.5 day process cycle, every other week, followed by a system flush after each process cycle. In addition a zeolite flush is performed about every other month. The supernatant treatment process and the vitrification process will not be performed at the same time.

Process Flow Rate - 3.5 gpm

Flush Flow Rate - 8 gpm

Supply Pressure - 55 psig

Process usage - 22700 gallons per treatment cycle

Flush usage - 4800 gallons per treatment cycle

Zeolite flush - 1000 gallons

2.3.3 **System 63H (Off-Gas and Vessel Vent)**

Receives demineralized water to flush the two HEME pads, the HEME loop seals, and the Vent Condenser loop seal.

Flush usage - occasional, an estimate of 10 gallons per flush, every four melter feed preparation cycles (actual requirements are TBD)

Process add. - not anticipated

Interfaces:

HEME #1 Loop Seal - input to flush valve 6-DW-GL-021 located in LWOA

HEME #2 Loop Seal - input to flush valve 6-DW-GL-022 located in LWOA

Vent Condenser Loop Seal - input to valve 6-DW-GL-033 located in LWOA

HEME #1 and #2 Element Flush - input to valve 6-DW-H-660, Instrument Rack 3W1

Off-Gas Trench Sump - input to valve 6-DW-H-008 located in MWOA

Note: Demineralized water can also be channeled through the cold chemical control lines to the scrubber (V-031) via valve 6-DW-H-675 located in Instrument Rack 2W3-2. This connection can be used as a secondary demineralized water feed to the scrubber and/or to flush the scrubber after decommissioning.

2.3.4 **System 63I (Primary Process)**

Receives demineralized water to flush the MFHT Mist Eliminator, MFHT ADS Feed Pump, and the MFHT and CFMT Bubblers. Occasionally adds demineralized water to the seal pots.

Flush usage - periodic at 15 gallons per melter feed preparation cycle

Seal usage - except for initial fill, not anticipated

Interfaces:

MFHT Mist Eliminator (63-V-012) - input to valve 6-DW-H-619, Instrument Rack 2N6-5

MFHT ADS Feed Pump (63-G-011) - input to valve 6-DW-H-614, Instrument Rack 2N8
MFHT Bubbler Flush (63-V-011) - input to valve 6-DW-H-066, Instrument Rack 3W8

CFMT Bubbler Flush (63-V-001) - input to valve 6-DW-H-064, Instrument Rack 3W8

Seal Pot (63-V-003) - input to valve 6-DW-GL-032, located in the LWOA

Seal pot (63-V-013) - input to valve 6-DW-GL-023, located in the LNOA

2.3.5 **System 63J (Canister Decontamination)**

VF demineralized water is used to rinse the vitrified waste canister as it is lifted out of the decontamination tank. It is also provided to the Nitric Acid Hold Tank (Decon. Mix Tank), but not anticipated to be used.

Flow Rate - Periodic at 38 gpm

Pressure - 50 psig

Usage - approximately 60 gallons per canister rinse (actual requirements are TBD) which corresponds to 192 gallons per melter feed preparation cycle

Interfaces:

Spray ring, Canister Decon. Tank (63-V-044) - input to valve 6-DW-H-602 located in the MEOA

Spray ring, Canister Decon. Tank (63-V-044) - input to valve 6-DW-H-605 located in the MEOA

Nitric Acid Hold Tank (63-D-048) - input to valve 6-DW-H-610 located in the UEOA

2.3.6 **System 63SC (VF Steam and Condensate)**

Steam is required for heat exchanger 6-DW-E-40 to raise the demineralized water temperature in the maintenance station to 180° F. The heat exchanger is located in the MEOA.

Demin. water flow rate - 1 gpm

Demin. water input temperature - 60 to 90° F

Demin. water output temperature - 180° F

Steam pressure - 10 psig

Heat transfer - 20 to 26 KW

Usage - not anticipated

Steam interfaces to Heat Exchanger (6-DW-E-040):

Input - pipe 6-SH-1/2-4012

Output - pipe 6-SH-1/2-092

2.3.7 **System 63UA (VF Utility Air)**

Utility air is required to power the air-driven liquid pump (6-DW-G-047) located in the MEOA.

Demin. water flow rate - 1 gpm

Demin. water output Pressure - 250 psig

Utility air pressure - set control valve 6-UA-FR-075 to produce demin. water at 250 psig

Utility air flow rate - as required

Usage - not anticipated

Utility air interfaces to demineralized water booster pump (6-DW-G-047):

Air input - pipe 6-UA-1/2-062

2.3.8 **System 65 (VF Cold Chemical)**

Uses VF demineralized water to make-up glass former slurries, decontamination solutions, shims and flushes. Input requirements:

Flow rate - periodic at 70 gpm

Supply Pressure - 55 psig

Usage - 3000 gallons per melter feed preparation cycle

Interface:

Pipe 6-DW-2-401 - at input to valve 6-DW-GT-401 located in the Cold Chemical Building, upper north east corner.

2.3.9 **System 69A (VF Sampling)**

Receives VF demineralized water to flush two slurry sampler stations and sampler ADS pumps, that provide slurry samples from the CFMT and MFHT respectively. Three flushes are required for each sample group, with three sample groups planned for the CFMT and none for the MFHT per vitrification cycle.

Flow rate - periodic at 2 gpm

Pressure - 5 psi

Sampler flush - 30 sec

ADS pump flush - 20 sec

Usage - 15 gallons per melter feed preparation cycle

Interfaces:

ADS pump (CFMT) - pipe 6-DW-1/2-0209 into valve 6-DW-H-650 in Instr. Rack 3W5

ADS pump (MFHT) - pipe 6-DW-1/2-1209 into valve 6-DW-H-652 in Instr. Rack 3W5

Sampler station (CFMT) - pipe 6-DW-1/2-0501 into valve 6-DW-H-647

Sampler station (MFHT) - pipe 6-DW-1/2-0501A into valve 6-DW-H-649

2.3.10 **System 69B (VF Sample Transfer)**

VF demineralized water is used to flush sample transfer cell 63-V-006.

Flow rate - set by hand valve

Pressure - 55 psi max.

Usage - 15 gallons per melter feed preparation cycle

Interface:

Sample Transfer Cell (63-V-006) - pipe 6-DW-1/2-027 into valve 6-DW-H-017, LWOA

Connections to Instrument Racks

Inst. Rack	Line #	First Valve In Rack	Pene-tration	User	System
2N6-5	6-DW-3/4-022	6-DW-H-619	1209B	MFHT 63-V-011	63I
2W3-2	6-DW-1 1/2-3115	6-DW-H-675	2107, 2202	SCRUBBER V-31	63H
2N8	6-DW-1-021	6-DW-H-614	1128C	HV-1135 MFHT ADS PUMP	63I
3W5	6-DW-1-005	6-DW-H-650, 6-DW-H-652	4219C, 4231C	CFMT - SMPLR, MFHT - SMPLR	69A
3W1	6-DW-2-042	6-DW-H-660	5758, 5756	63-T-033, 63-T-036	63H
3W8	6-DW-1/2-045	6-DW-H-066	4233ABC	MFHT BUBBLERS	63I
3W8	6-DW-1/2-045	6-DW-H-066	4134ABC	MFHT BUBBLERS	63I
3W8	6-DW-1/2-045	6-DW-H-066	1221ABC	MFHT BUBBLERS	63I
3W8	6-DW-1/2-045	6-DW-H-064	4130ABC	CFMT BUBBLERS	63I
3W8	6-DW-1/2-045	6-DW-H-064	4215ABC	CFMT BUBBLERS	63I
3W8	6-DW-1/2-045	6-DW-H-064	2821ABC	CFMT BUBBLERS	63I

2.4 Component Descriptions

PRV-071 - Pressure Reducing and Regulating Valve - Cashco 1000HP or equivalent, maximum allowable inlet pressure 400 psig, maximum allowable outlet pressure 200 psig. Nominal system operating pressure is 55 psig.

PI-072 - Pressure Indicator - Ashcroft model 1279 or equivalent, designed to indicate pressure from 0 - 160 psi. Nominal system operating pressure is 50 psig.

6-DW-G-047 - 1.5 hp, air-driven liquid pump. Design capacity 4.3 gpm, head ft. 554. Continuous air pressure 240 psig, intermittent pressure 300 psig.

6-DW-E-040 - High-efficiency, tube design, counter-flow heat exchanger. Type 304 stainless-steel inner coil with copper outer coil. Outer dimensions 1/2", weldlok socketweld. Design pressure 150 psig, design temperature 366° F.

2.5 Periodic Testing

Check pressure indicator PI-072 to verify that pressure regulator PRV-071 is set to 55 psig.

If used, verify that pump, 6-DW-G-047, produces 1 gpm at 250 psig.

If used, verify that heat exchanger, 6-DW-E-040, produce 1 gpm at 30 psig and 180° F.

2.6 Safety Classes and Quality Levels

COMPONENT	LOCATION	SAFETY CLASS	QUALITY LEVEL
Piping	Vit, Cold Chem & STS Bldg	N	C
PRV-71	Vit Bldg	N	C
PI-72	Vit Bldg	N	C
6-DW-G-047	Vit Bldg	N	C
6-DW-E-040	Vit Bldg	N	C

3.0 OPERATIONAL REQUIREMENTS

The Vitrification Facility Demineralized Water System is a passive distribution system. The system should perform all its required functions without operator intervention as long as all isolation valves and control valves are properly set.

Vitrification Facility Operations must coordinate requirements for the high pressure pump, 32G-5C, with Plant Operations so that other demineralized water users can be notified and prepare for the higher pressure head.

Operation of the Booster Pump, 6-DW-G-047, is per manufacturer standard, "Haskel Operation and Maintenance Manual."

Operation of the Pressure Control Valve, PRV-71, is per manufacturer standard, "Cashco Type 1000 HP."

During a site-wide power outage, there is little or no demand for demineralized water. However, for a prolonged power outage, demineralized water may be required to maintain the proper level in the scrubber and seal pods. This requirement can be met by manually starting either pump 32G-5A or 32G-5B on emergency diesel generator power.

For Reference only: Operation of the Main Plant Demineralized Water System is described in SOP-32-02, "Demineralized Water System."

4.0 LIMITATIONS, PRECAUTIONS, RANGES

4.1 Limitations

The Vitrification Facility Demineralized Water System Pressure is set to 55 psig. Water pressure throughout the system may vary at the user locations dependent upon the number of demineralized water users, the type of service required, and the output of the pump being used. A demineralized water resource leveling analysis for the vitrification cycle can provide time slots for each user to minimize pressure drops and limit maximum flow rate requirements to 70 gpm.

4.2 Precautions

Due to internal leakage of valve PRV-071 the system pressure may rise to the pump output pressure during periods of zero demands for demineralized water.

The water in this system is not maintained as potable per NYS Health Department Standards.

4.3 Ranges/Setpoints

6-DW-G-047 - 100 to 300 psig, operating pressure 250 psig.

6-DW-E-040 - up to 366° F, operating temperature 180° F.

PI-072 - 0 to 160 psig, system operating pressure is 55 psi.

PRV-071 - inlet up to 400 psig, outlet up to 200 psig, set point pressure is 55 psig.

5.0 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-32-01 - Main Plant Water System

SOP 32-02 - Demineralized Water System

Appendix A - Drawings

900-E-705, sht 21 - P&ID Melter Off-Gas System, Pre Heater and HEMEs

903-D-013 - P&ID Supernatant Treatment System Utility Water System

905-D-015 - P&ID Cold Chemical Preparation and Feed System

905-D-016 - P&ID Cold Chemical Preparation and Feed System

905-D-018 - P&ID Cold Chemical Preparation and Feed System

905-D-021 - P&ID Cold Chemical Water Systems

905-D-045, sht 4 - P&ID Vitrification Facility Instrument Rack 2N6-5

905-D-045, sht 7 - P&ID Vitrification Facility Instrument Rack 2W3-2

905-D-045, sht 10 - P&ID Vitrification Facility Instrument Rack 2N8

905-D-045, sht 15 - P&ID Vitrification Facility Instrument Rack 3W1

905-D-045, sht 20 - P&ID Vitrification Facility Instrument Rack 3W5

905-D-045, sht 21 - P&ID Vitrification Facility Instrument Rack 3W8

905-D-048, sht 2 - P&ID Vitrification Facility Demineralized Water System

905-D-053, sht 2 - P&ID Vitrification Facility Non-Rack Cold Chemical Decon & Slurry System

905-D-058, sht 1 - P&ID Pneumatic Sample Transfer System

906-E-017 - P&ID Vitrification Facility Off-Gas Trench

15R-A-71, - (Bechtel) Utility P&ID Water Systems Utility Building

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:002 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:005 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: CFMT BUBBLER CONTROL

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

900-E-705 Sht:002 Rev:017 Title: CTS concentrator feed makup tk 63 v001 P&ID

900-E-705 Sht:003 Rev:014 Title: CTS melter feed hold tk 63 v011 P&ID

900-E-705 Sht:004 Rev:013 Title: CTS waste header V-045 vit. cell P&ID

900-E-705 Sht:005 Rev:008 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:012 Title: CTS MELTER AND HEATER POWER SUPPLY AND CONTROLS

900-E-705 Sht:011 Rev:012 Title: SAMPLER FOR V001 & V011 PROCESS & INSTR. DIA.

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

900-E-705 Sht:014 Rev:016 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:004 Title: CTS GLASS LEVEL DETECTOR SYSTEM

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

900-E-705 Sht:021 Rev:011 Title: CTS melt off gas sys preheater & hemes P&ID

900-E-705 Sht:022 Rev:016 Title: CTS vessel off gas filters & heaters P&ID

900-E-705 Sht:023 Rev:010 Title: canister decontamination Tank 63-V-044 P&ID

900-E-705 Sht:024 Rev:006 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:006 Title: P&ID STS UTILITY WATER SYSTEM

903-D-014 Sht:001 Rev:015 Title: P&ID STS UTILITY & INSTRUMENT AIR

903-D-014 Sht:002 Rev:010 Title: STS P&ID (V&S Bldg) UTILITY & INST. AIR

903-D-016 Sht:001 Rev:015 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:007 Title: P&ID Sludge mobilization system 8Q-1 pit

904-D-013	Sht:001	Rev:009	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:007	Title: P&ID sludge mobilization sys utility water/checmical 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:000	Title: VF SHIELDING GAS & ARGON GAS SYSTEM P&ID
905-D-011	Sht:001	Rev:009	Title: P&ID Vitrification Drainage system high level
905-D-015	Sht:001	Rev:013	Title: P&ID COLD CHEMICAL PREPARATION & FEED SYSTEM
905-D-016	Sht:001	Rev:012	Title: P&ID COLD CHEMICAL PREPARATION & FEED SYSTEM
905-D-017	Sht:001	Rev:013	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:006	Title: P&ID COLD CHEMICAL STEAM & CONDENSATE SYSTEM
905-D-020	Sht:001	Rev:009	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:012	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:009	Title: P&ID vitrification facility instrument & utility air sys
905-D-044	Sht:001	Rev:001	Title: VP SPR & CMR HIGH PRESSURE AIR SYSTEM P&ID
905-D-045	Sht:001	Rev:003	Title: P&ID Vitrification facility instrument rack 3W2-1A
905-D-045	Sht:002	Rev:004	Title: P&ID Vitrification facility instrument rack 3E8-7A
905-D-045	Sht:003	Rev:005	Title: P&ID Vitrification facility instrument rack 2N7-6
905-D-045	Sht:004	Rev:004	Title: P&ID Vitrification facility instrument rack 2N6-5
905-D-045	Sht:005	Rev:004	Title: P&ID Vitrification facility
905-D-045	Sht:006	Rev:003	Title: P&ID Vitrification facility instrument rack 2E9-8
905-D-045	Sht:007	Rev:002	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:004	Title: P&ID Vitrification facility instrument rack 3W7
905-D-045	Sht:010	Rev:004	Title: P&ID Vitrification facility instrument rack 2N8
905-D-045	Sht:011	Rev:006	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:005 Title: P&ID Vitrification facility instrument rack 3W6

905-D-045 Sht:014 Rev:002 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:003 Title: P&ID Vitrification facility instrument rack 2W5

905-D-045 Sht:018 Rev:003 Title: P&ID Vitrification facility instrument rack 3E10

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

905-D-045 Sht:020 Rev:003 Title: P&ID Vitrification facility instrument rack 3W5 Sheet 2

905-D-046 Sht:001 Rev:020 Title: P&ID vitrification facility utility air system

905-D-046 Sht:002 Rev:009 Title: P&ID vitrification facility instrument air system

905-D-046 Sht:003 Rev:009 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:011 Title: P&ID vitirification facility steam system

905-D-047 Sht:002 Rev:010 Title: P&ID vitrification facility condensate system

905-D-047 Sht:003 Rev:010 Title: P&ID vitrification facility steam sy

905-D-048 Sht:001 Rev:008 Title: P&ID vitrification facility utility water system

905-D-048 Sht:002 Rev:010 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:006	Title: P&ID vitrification drainage sys es low level
905-D-051	Sht:001	Rev:009	Title: P&ID vitrification facility [illegible]able water system
905-D-052	Sht:001	Rev:007	Title: Vitrification facility closed [illegible] cooling water system P&ID
905-D-052	Sht:002	Rev:011	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:007	Title: P&ID vitrification facility non rack cold chem decon & slurry system
905-D-054	Sht:001	Rev:009	Title: P&ID vtirification 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:003	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:005	Title: HVAC air flow diagram vitrification facility
905-D-451	Sht:001	Rev:005	Title: HVAC air flow diagram & P&ID control room
905-D-452	Sht:001	Rev:013	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:006 Title: Vitrification facility HVAC chilled water P&ID sh 2

905-E-045 Sht:021 Rev:002 Title: P&ID VITRIFICATION FACILITY INSTRUMENT RACK 3W8

906-D-009 Sht:001 Rev:001 Title: /F EX-CELL OFF-GAS MISCEL ANEOUS UTILITIES P&ID

906-D-014 Sht:001 Rev:004 Title: VF MELTER OFF-GAS P&ID MELTER EX CELL OFF GAS SYSTEM

906-D-015 Sht:001 Rev:005 Title: VF MELTER OFF-GAS P&ID MELTER EX CELL OFF GAS SYSTEM

906-D-018 Sht:001 Rev:004 Title: VF MELTER OFF-GAS HVAC AIR FLOW DIAGRAM & P&ID

906-D-019 Sht:001 Rev:001 Title: VOID PER ECN 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:006 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:006 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:001 Title: VF P&ID MELTER EX-CELL OFF-GAS SYS

906-E-013 Sht:001 Rev:007 Title: VF MELTER OFF-GAS P&ID MELTER EX CELL OFF GAS SYSTEM

906-E-016 Sht:001 Rev:006 Title: VF MELTER OFF-GAS P&ID INSTRUMENT AIR

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

PIPING LINE CODING

LINE CODING	DESCRIPTION
	MAIN SYSTEM LINE X
	CONNECTION TO PROCESS OR INSTRUMENT SUPPLY
	PNEUMATIC SIGNAL
	ELECTRICAL SIGNAL
	CAPILLARY TUBING
	COMPUTERIZED INSTRUMENT SOFTWARE LINK

PIPING ACCESSORIES

SYMBOL	DESCRIPTION
	QUICK DISCONNECT HOSE CONNECTION
	HOSE CONNECTION
	INCREASER, REDUCER
	SCREWED OR SOCKET WELD CAP
	BUTT WELD CAP
	BLIND FLANGE CONNECTION
	BREAK FLANGES
	SPOOL PIECE
	UNION
	LOOP SEAL
	"Y" TYPE STRAINER
	TRAP
	PLATE ORIFICE (ALL TYPES)
	FLEXIBLE CONNECTION
	AIR EJECTOR (STEAM OR WATER JET OR VAC)

VALVES AND VALVE OPERATORS

SYMBOL	DESCRIPTION
	GATE VALVE
	GLOBE VALVE
	CHECK VALVE
	ANGLE VALVE
	SAFETY AND RELIEF VALVE
	BUTTERFLY
	NEEDLE VALVE
	PLUG VALVE
	THREE WAY VALVE
	FOUR WAY VALVE
	DIAPHRAGM VALVE
	BALL VALVE
	PRESSURE REGULATOR OR PRESSURE CONTROL VALVE
	VACUUM BREAKER OR VACUUM RELIEF VALVE
	DIAPHRAGM
	PISTON
S	SOLENOID
	REMOTE IMPACT VACUUM OPERATED

NOTE: ALL NORMALLY CLOSED VALVES TO BE SHOWN SHADED

MISCELLANEOUS

SYMBOL	DESCRIPTION
	CONTINUATION REFERENCE NUMBER
	LINE DESIGNATION
	VALVE DESIGNATION
	FLOW ARROWS
	PIPE SPEC CHANGE
	REMOTE CONNECTOR (SMALL PIPE CONNECTION)
	REMOTE CONNECTOR (SMALL PIPE CONNECTION 3 WAY)
	BALL VALVE IMPACT VACUUM OPERATED
	IMPACT VACUUM OPERATED SCREW
	AGITATOR
	SUBMERGED PUMP
MCC	MOTOR CONTROL CENTER
	HEATING OR COOLING COIL

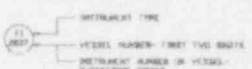
INSTRUMENTATION SYMBOLS

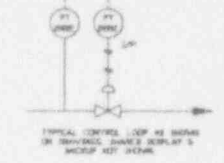
SYMBOL	DESCRIPTION
	INSTRUMENT FIELD MOUNTED OR IN LINE
	INSTRUMENT ON FRONT OF MAIN PANEL
	DCS CONTROL ANALOG DISPLAY LOOP ACCESSIBLE TO OPERATOR
	PLC CONTROL
	FLOW INDICATOR
S	SOLENOID VALVE (3 WAY)
	INTERLOCK
	4-WAY SOLENOID VALVE PORT "A" ENERGIZED

INSTRUMENT SYMBOL MODIFIERS

	TYP OR X
I/P	CURRENT TO PNEUMATIC
R/I	RESISTANCE TO CURRENT
TC/I	THERMOCOUPLE TO CURRENT
ISO	ISOLATOR
E/M	ELECTROMAGNETIC RELAY
S	SAMPLE

INSTRUMENT SYMBOL IDENTIFICATION





TYPICAL CONTROL LOOP AS SHOWN ON DRAWINGS. SHARED DISPLAY & BACKUP KEY SCHEME

INSTRUMENTATION IDEN

TABLE I

ITEM	FIRST LETTER	SECOND
A	ANALYZER	
C	CONDUCTIVITY	
D	DENSITY	
E	VOLTAGE	
F	FLOW	
H	HAND	
I	CURRENT	
K	POWER X	
L	LEVEL	
M		
O		
P	PRESSURE	
R	RADIATION RESISTANCE, HELIOS	
S	FREQUENCY	
T	TEMPERATURE	
U	MULTI-VARIABLE	
V		
W	WEIGHT	
X	CHECK X	
Y		
Z	POSITION	

X VALVE MODIFICATION

ABBREVIATIONS

AE	ANALOG INPU
AO	ANALOG OUTP
DI	DIGITAL INPU
DO	DIGITAL OUTP
ATP	ANALOG TEMP
C	COUPLED, PU AND SCRUBB
CS	CARBON STEE
CT	COPPER TUBI
CTP	BASE TERMINA
DAS	DATA ACQUIS
DCS	DISTRIBUTED
EPP	ELECTRIC PO
E	HEAT EXCHAN
FC	FAIL CLOSED
FO	FAIL OPEN
G	FLOW
H	HEATER
J	JET
M	AGITATOR
LO	LOCKED OPEN
LS	LIMIT SWITCH
NC	NORMALLY CL
NO	NORMALLY OP
SS	STAINLESS S
SSC	POWER CONDI
SSR	SOLID STATE
T	TRAP
TV, MTP	TELEVISION
UTIL	UTILITIES
V	PACKAGE UNIT

REVISIONS			
NO.	DESCRIPTION	DATE	APP'D
1			
2			
3			
4			

4 | 3 | 2 | 1

...IFICATION

SYSTEM SYMBOL DESIGNATIONS OR SERVICE CODES

AM	AMMONIA
AS	AIR SUPPLY
CA	CHEMICAL ADDITION
CH	CHEMICAL
CWR	COOLING WATER RETURN
[illegible]	DRY UTILITY AIR [illegible]
DW	DEMINERALIZED WATER
E	ELECTRICAL
ES	ELECTRICAL SIGNAL
HPA	HIGH PRESSURE AIR
HPCWS	HIGH PRESSURE COOLING WATER SUPPLY [illegible]
IA	INSTRUMENT AIR
LPCWS	LOW PRESSURE COOLING WATER SUPPLY [illegible]
P	PROCESS
SH	STEAM HIGH
SL	STEAM LOW
SC	STEAM CONDENSATE
UA	UTILITY AIR
UW	UTILITY WATER
VH	EX-CELL VENT HEADER
V	VENT
WW	WASTE WATER

EQUIPMENT SYMBOLS

SINGLE PASS HEATER OR COOLER


MOTOR


FAN BLOWER


FILTER


HORIZONTAL PUMP

NOTES

1) FOR OTHER SYMBOLS, NOTES AND LEGEND SEE THE FOLLOWING DRAWINGS [illegible]

2) TRANSMITTER IDENTIFIED AS FT-XXX, [illegible], LT-XXX, PDT-XXX AND PT-XXX ARE FURNISHED WITH LOCAL INDICATIONS

3) THIS DRAWING SUPERSEDES EXISTING DRAWING 900E-705 SHEET 1 REV 5 AND [illegible] DRAWING [illegible]

ANSTEC APERTURE CARD

Also Available on Aperture Card

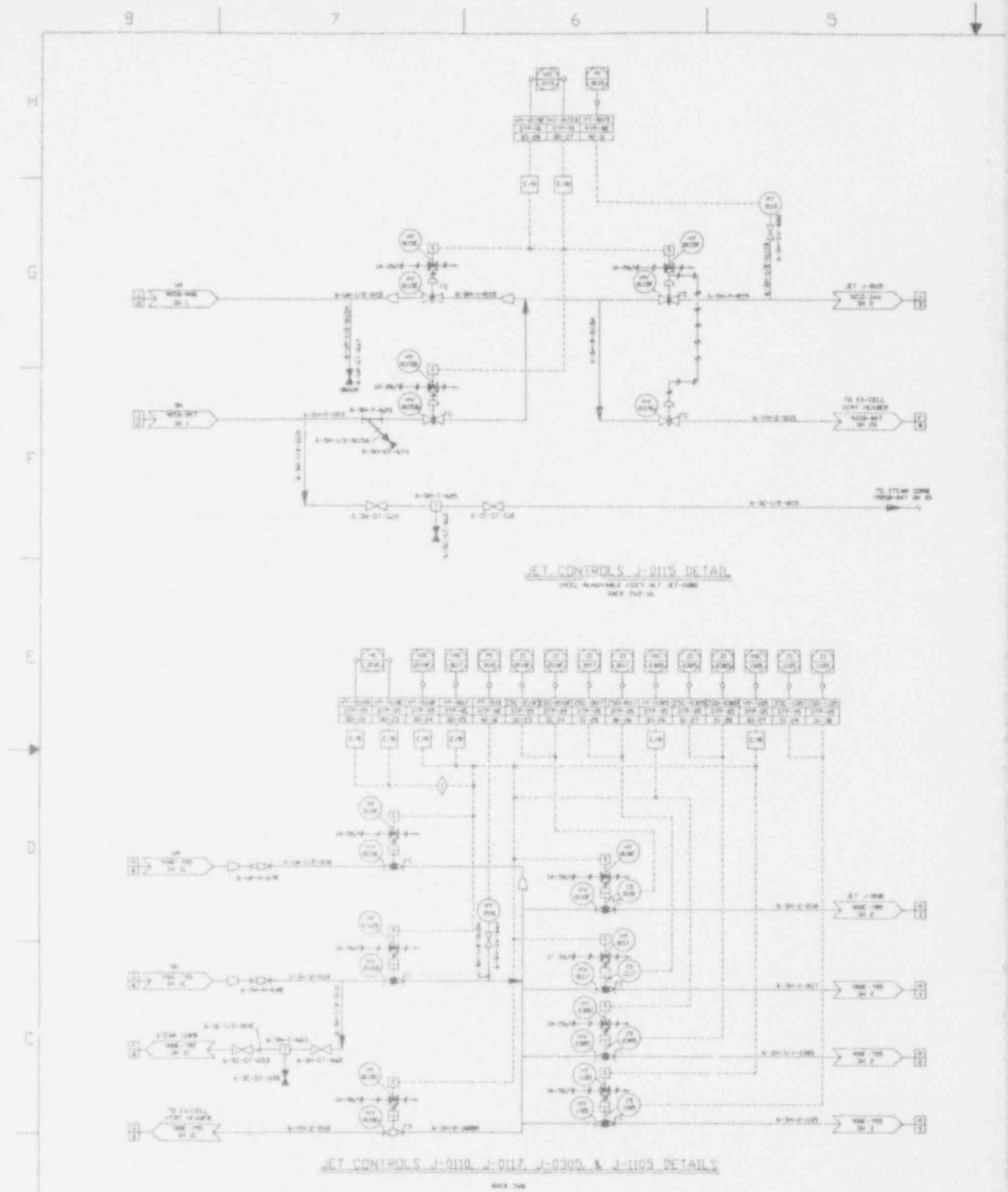
PARTS LIST

FOR WEST VALLEY NUCLEAR SERVICES CO., INC. WEST VALLEY, NEW YORK

ABREVIATIONS AND LEGEND SHEET

DWG NO 900E-705 REV 6

9403140262-01


JET CONTROLS J-0115 DETAIL
JET CONTROLS J-0110, J-0117, J-0305, & J-1105 DETAILS

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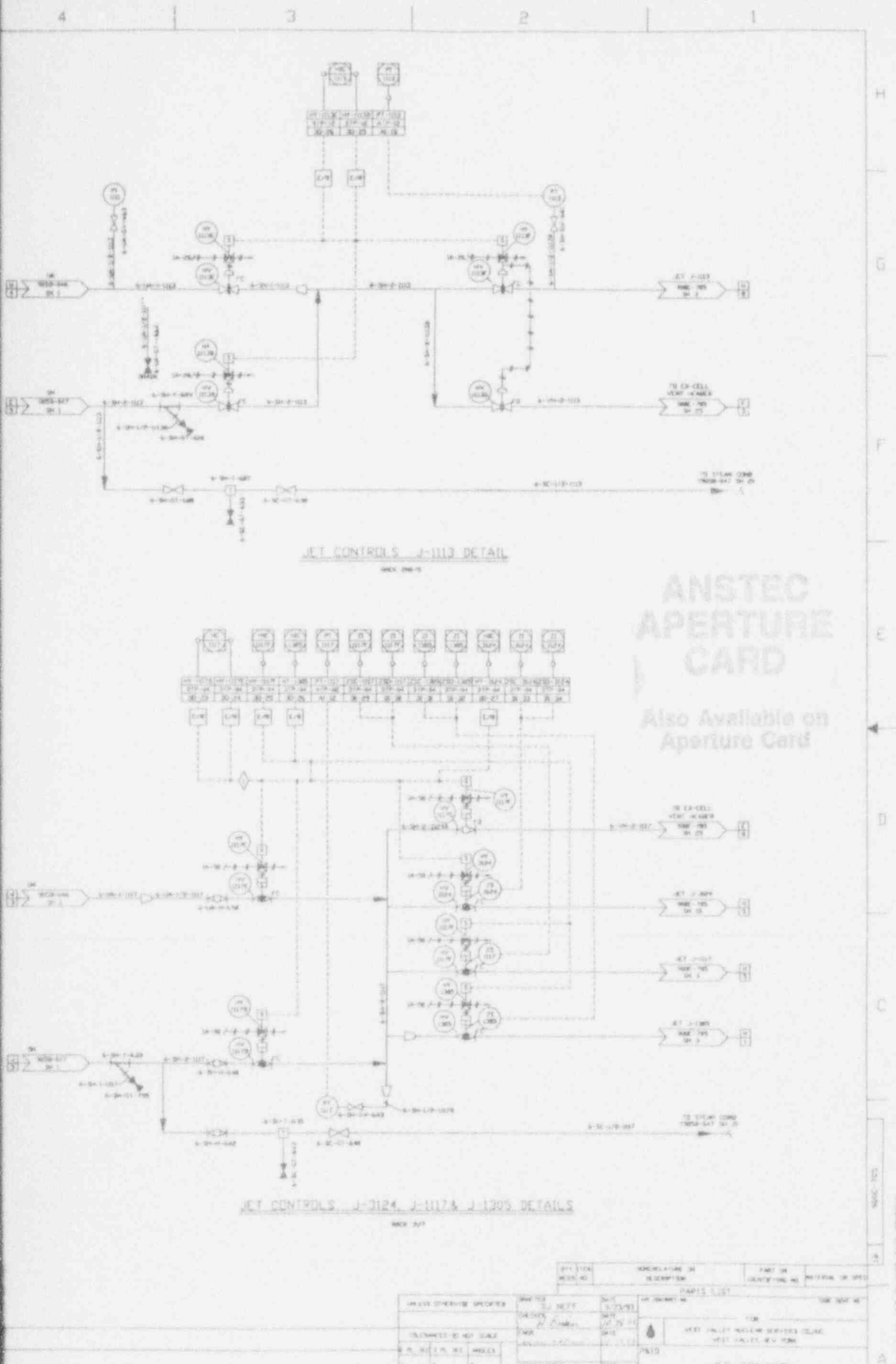
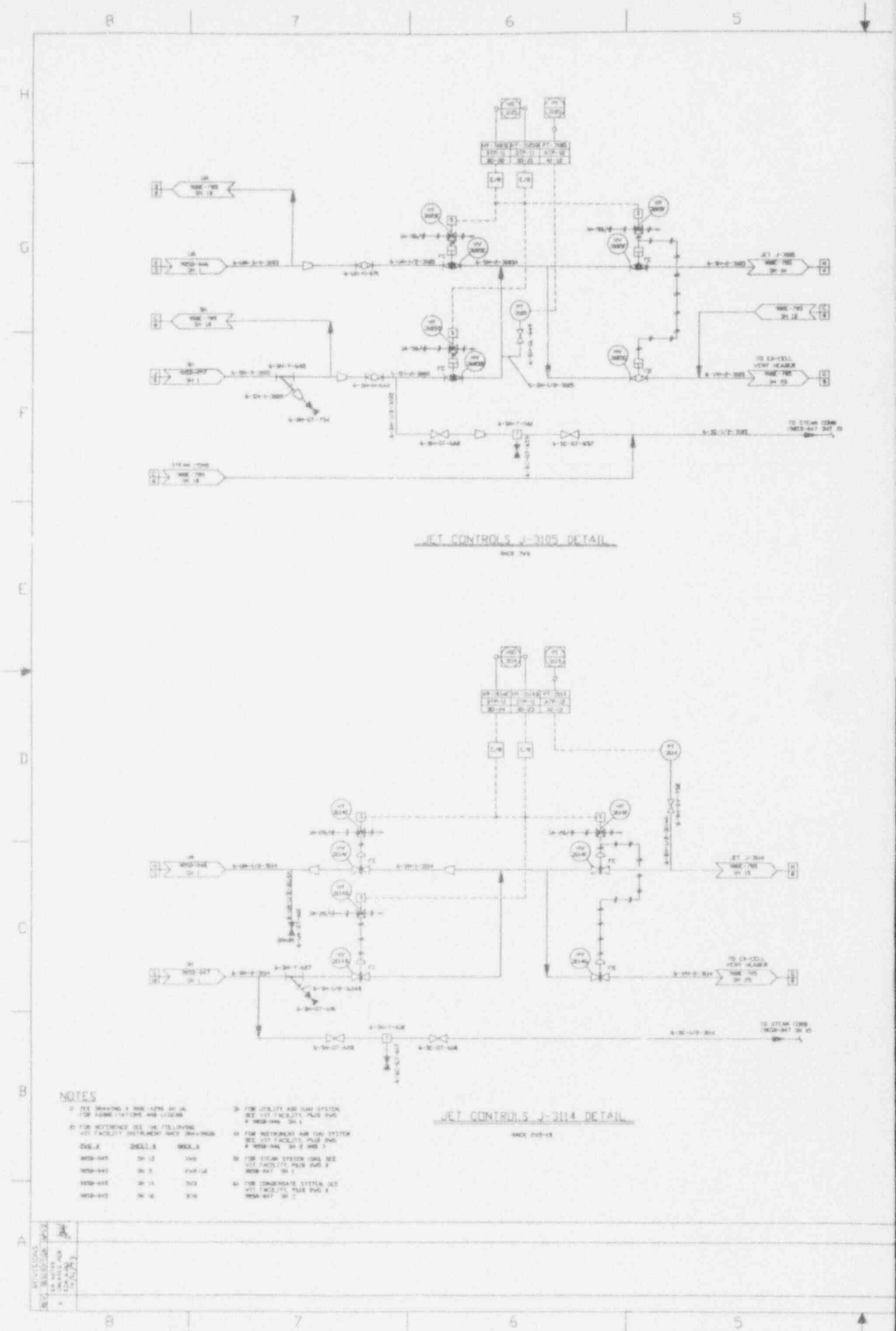
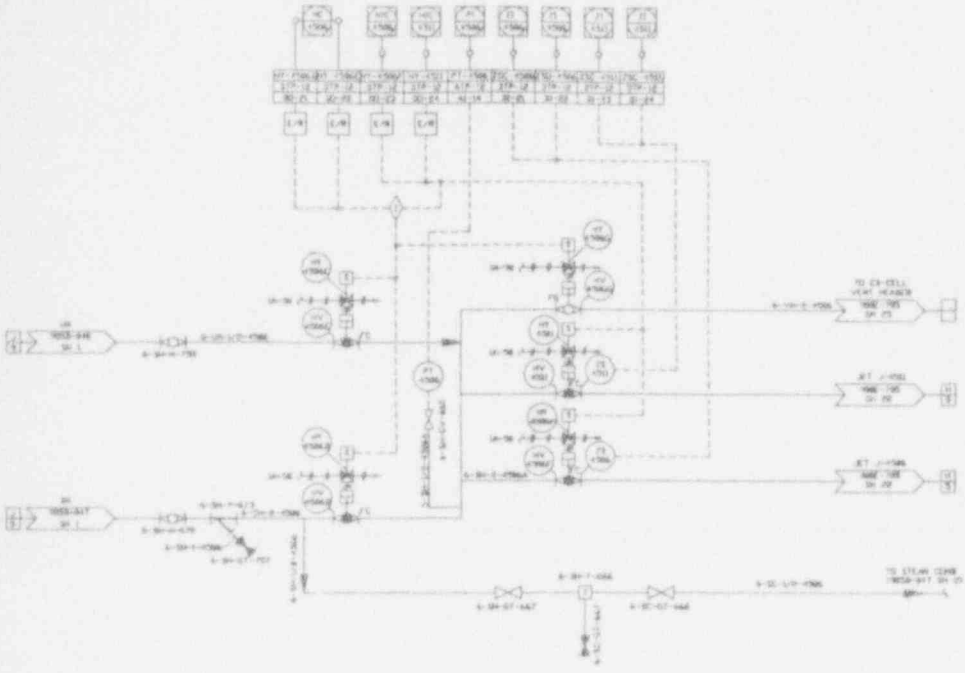
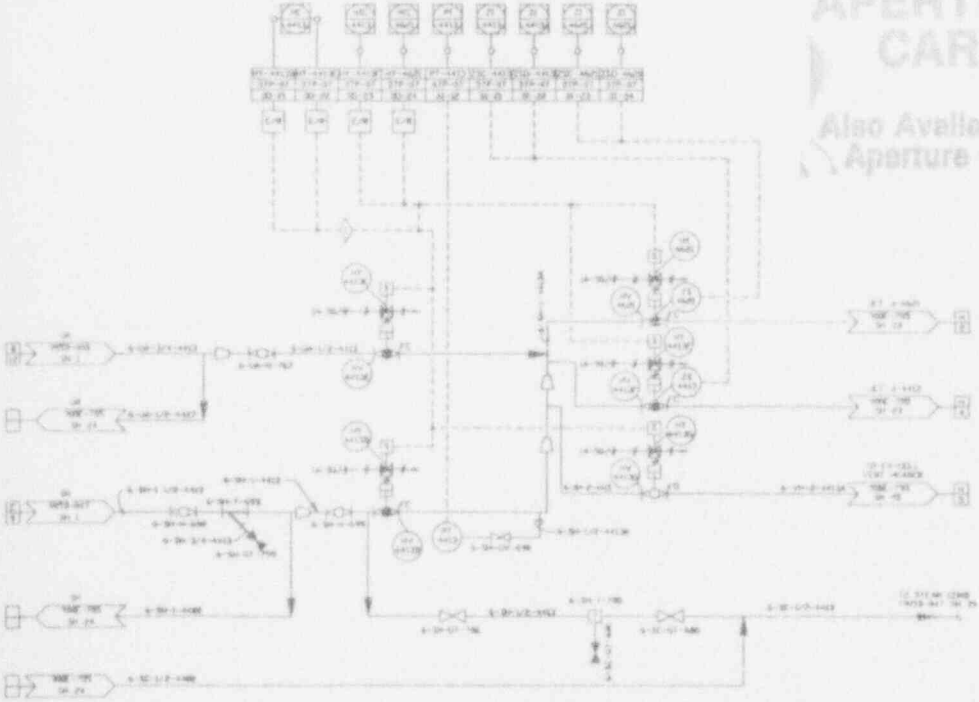


9403140262-02


JET CONTROLS J-3105 DETAIL
JET CONTROLS J-3114 DETAIL
NOTES



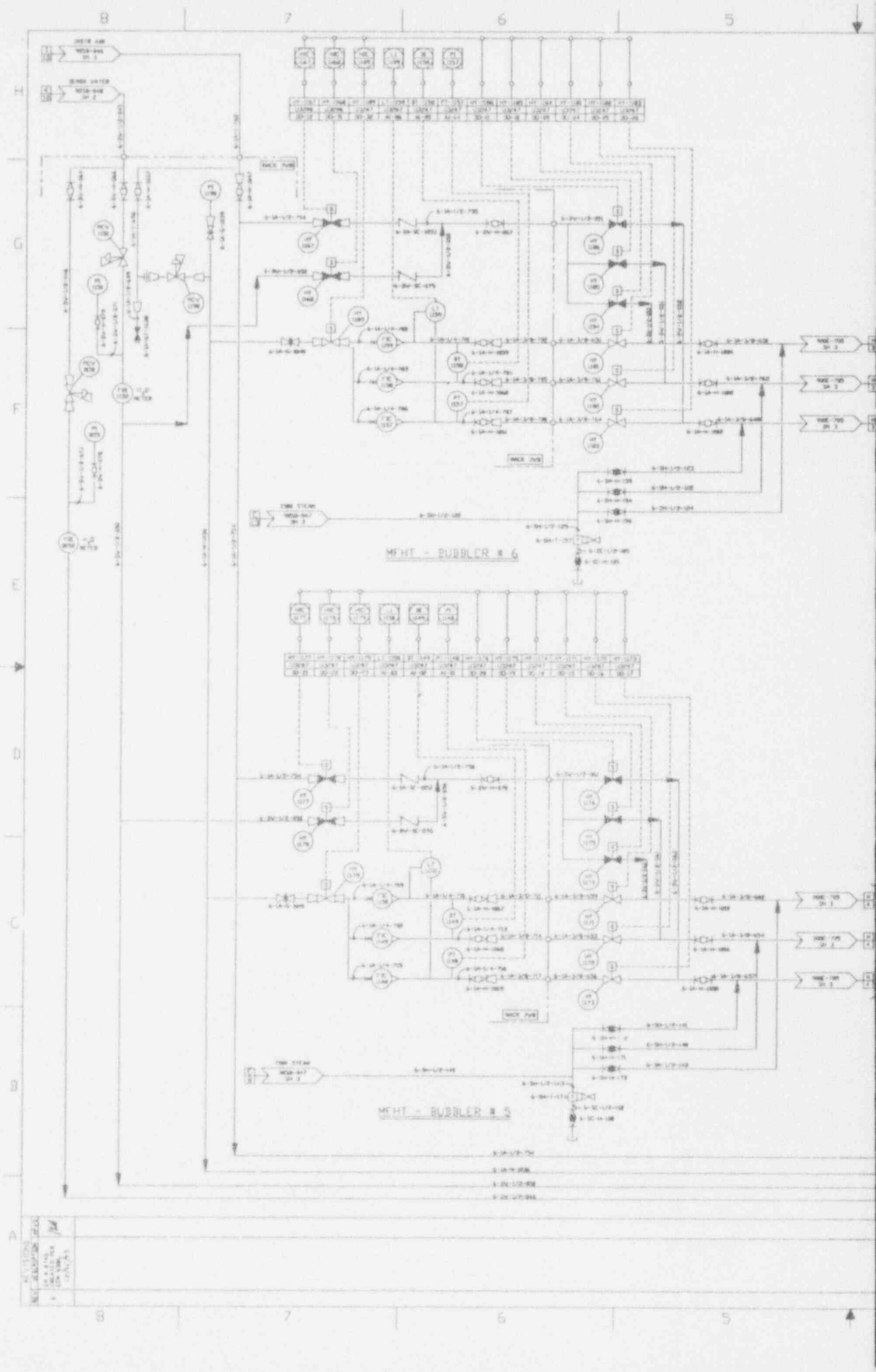
JET CONTROL S J-4506 & J-4511 DETAILS

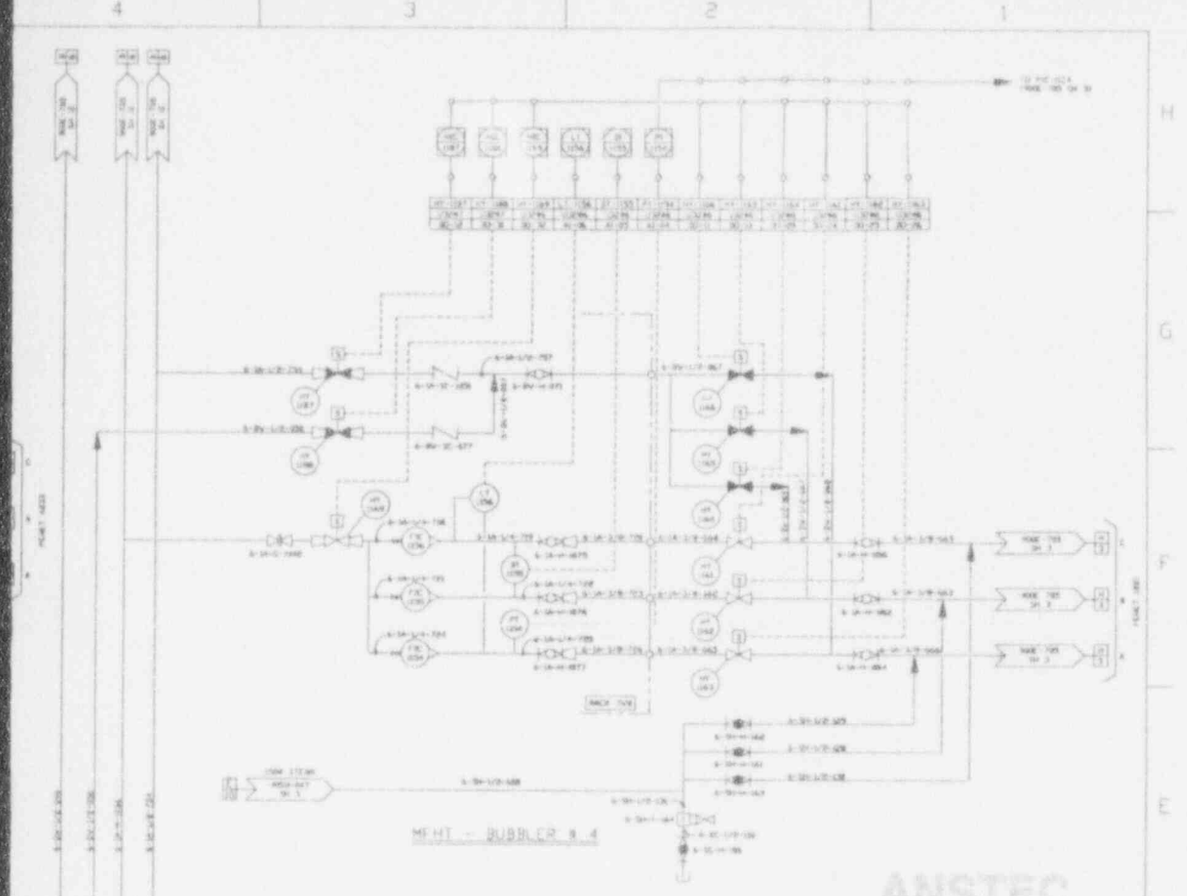


JET CONTROLS J-4513 & J-4621 DETAILS

JET CONTROL DETAILS

9403140262-03


MFHT - BUBBLER # 6
MFHT - BUBBLER # 5

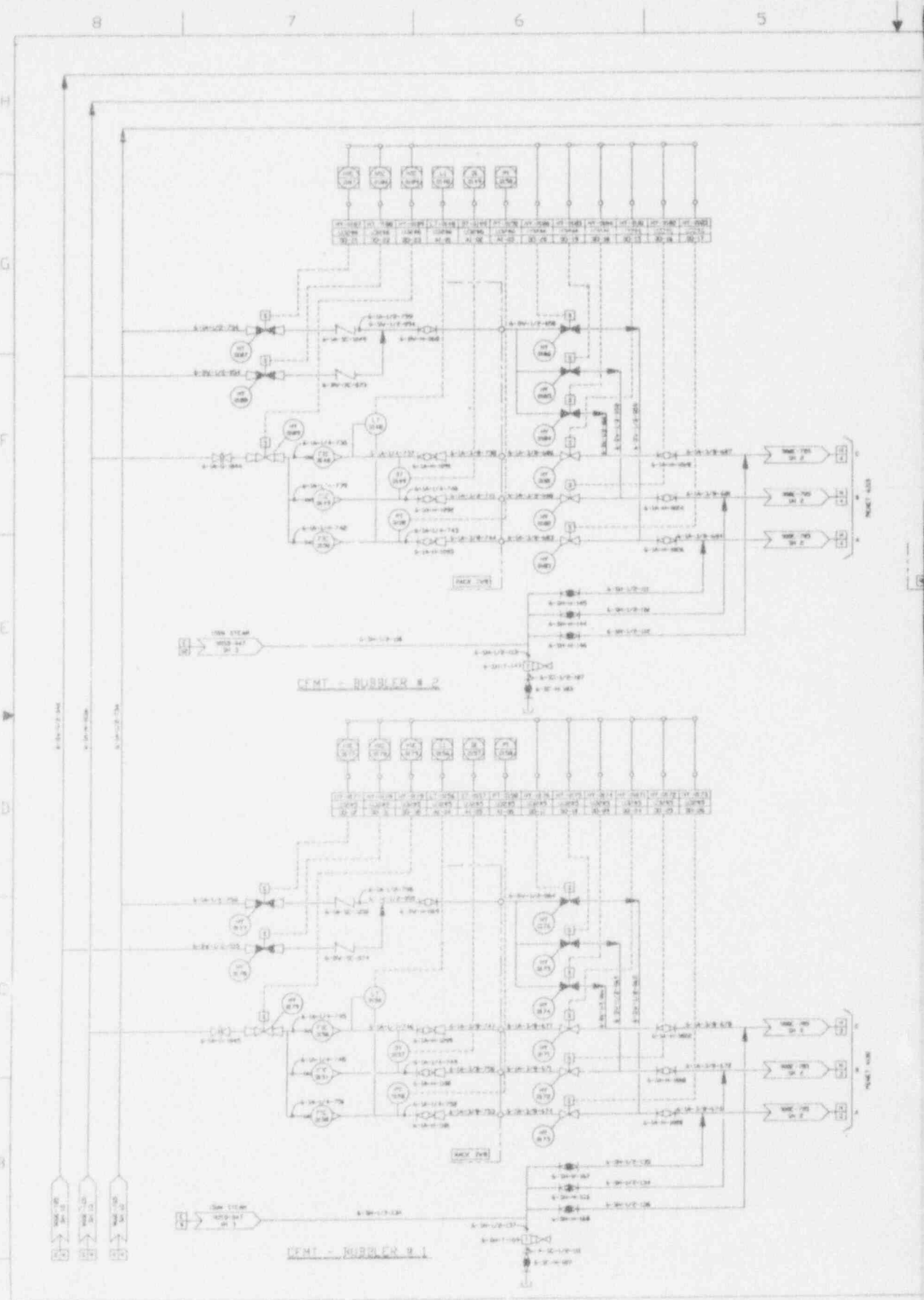


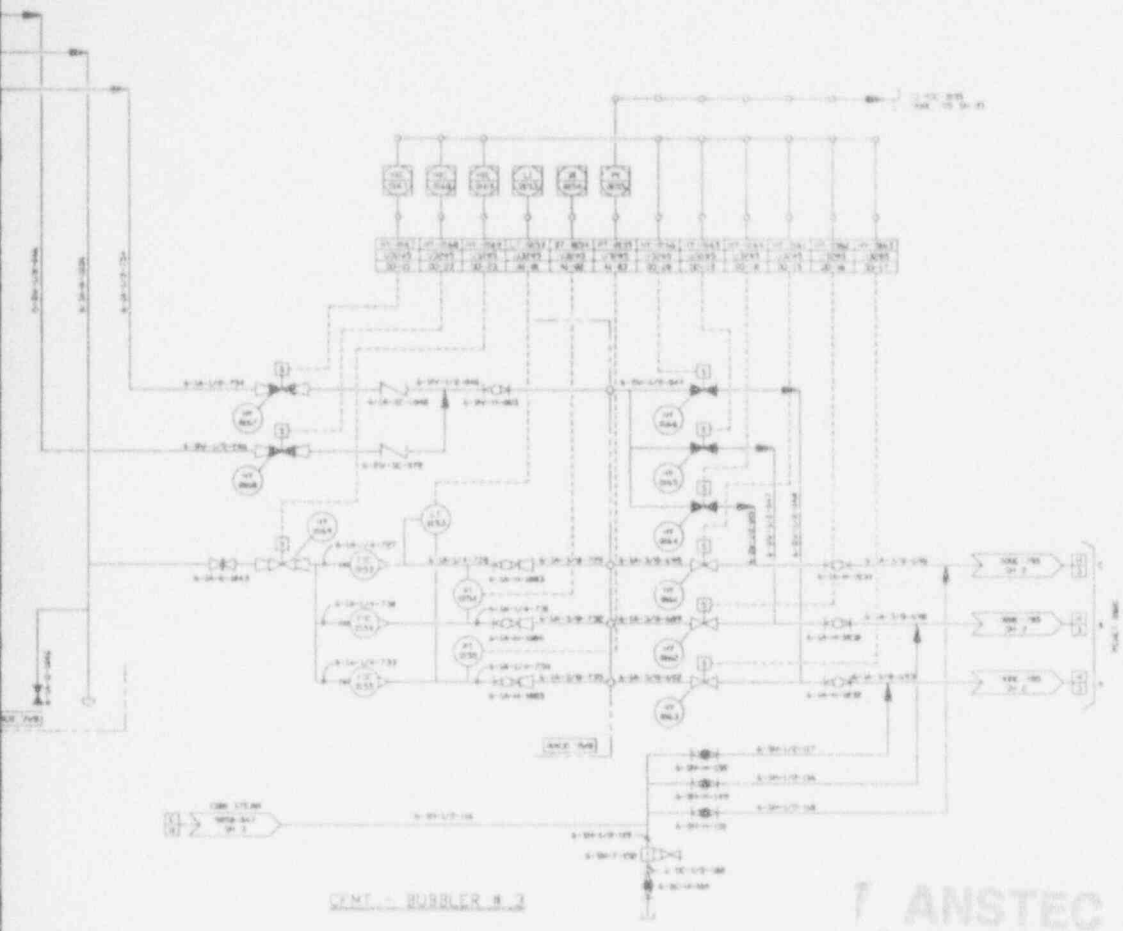
MEHT - BUBBLER 3 & 4

NOTES:

MEHT
BUBBLER CONTROL DETAILS

9403140262-04

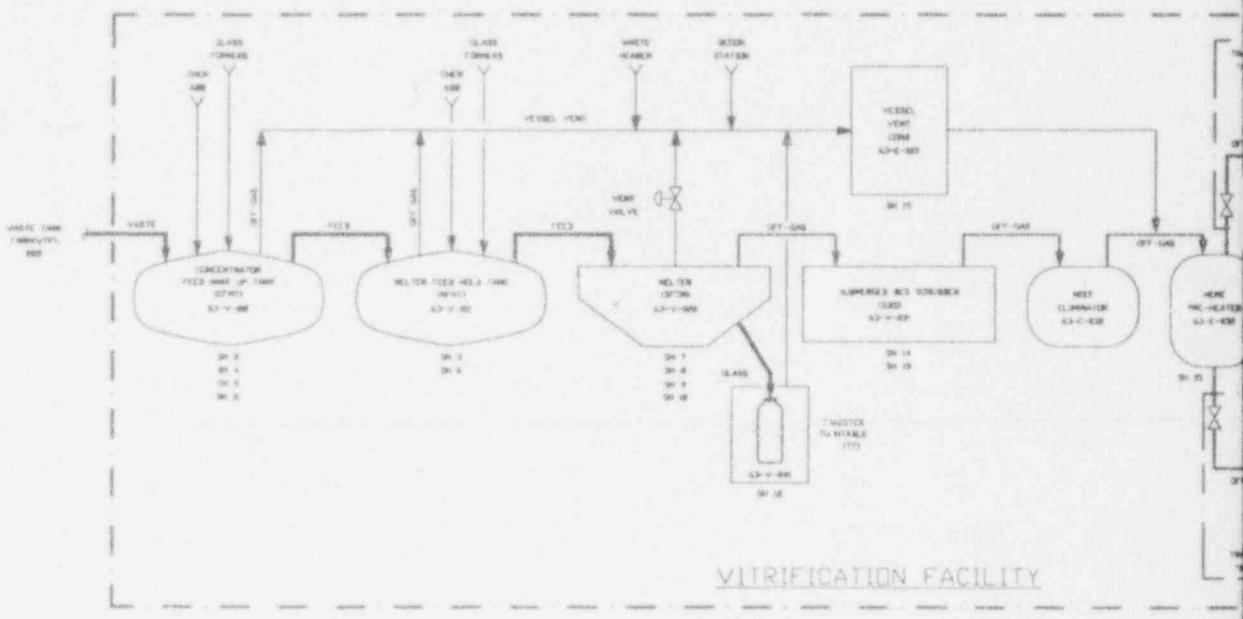

8
7
6
5
H
G
F
E
D
C
B
A
CFMT - BUBBLER # 2
CFMT - BUBBLER # 1

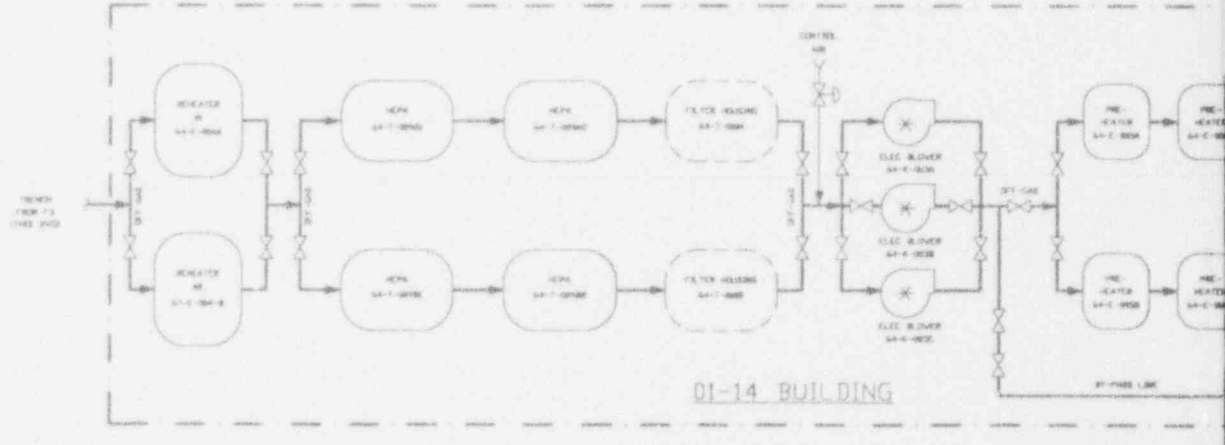


CFMT - BUBBLER # 3

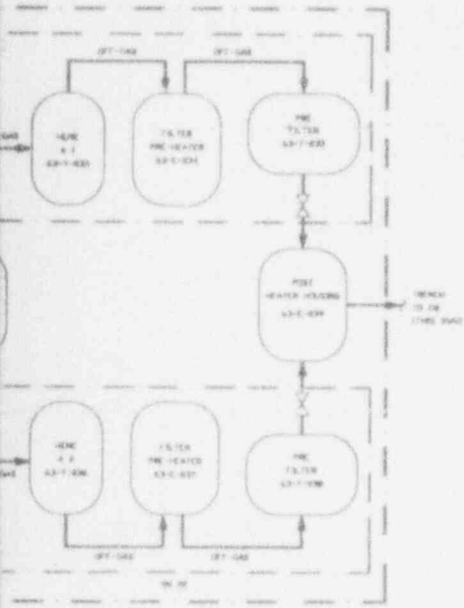
CFMT
BUBBLER CONTROL DETAILS

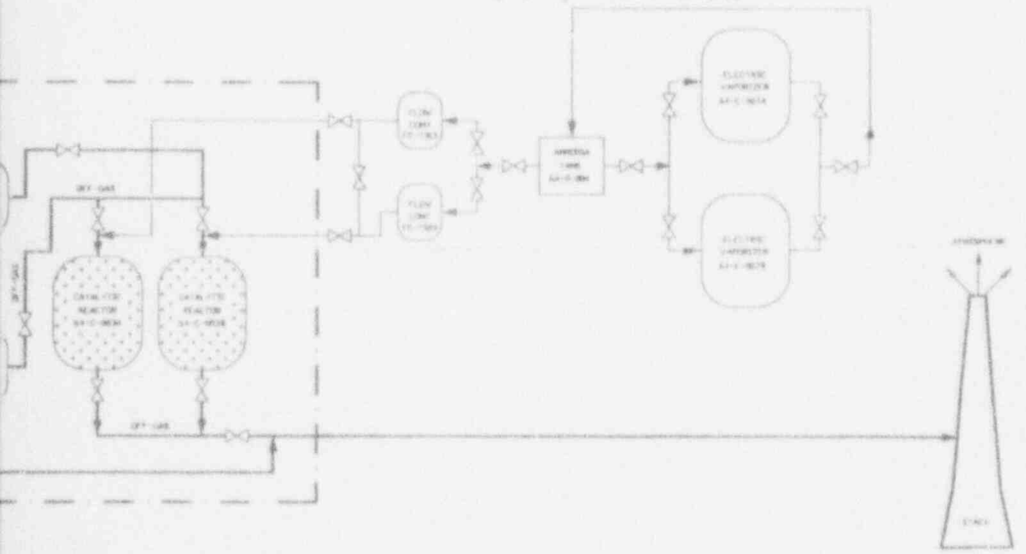
9403140262 - 05


VITRIFICATION FACILITY


01-14 BUILDING

DRAWING NO		TITLE
900E-705	SH 1A	ABBREVIATIONS AND LETTER SHEET
900E-705	SH 1B	JET CONTROL DETAILS
900E-705	SH 1C	JET CONTROL DETAILS
900E-705	SH 1D	NFHT BUBBLER CONTROL DETAILS
900E-705	SH 1E	CFMT BUBBLER CONTROL DETAILS
900E-705	SH 1F	INDEX VITRIFICATION AND 3I-1X
900E-705	SH 2	CTS CONCENTRATOR FEED MAKE-UP TANK 63-V-[illegible]
900E-705	SH 3	MELTER FEED HOLD TANK 63-V-[illegible]
900E-705	SH 4	WASTE HEADER 63-V-[illegible] VIT CELL
900E-705	SH 5	63-G-[illegible] AND 63-G-[illegible] CFMT AND MFHT SAMPLE PUMPS
900E-705	SH 6	[illegible] PUMP 63-G-[illegible]
900E-705	SH 7	INTERNAL MELTER THERMOCOUPLES
900E-705	SH 8	MELTER COOLING SYSTEM
900E-705	SH 9	MELTER PNEUMATIC INSTRUMENTATION
900E-705	SH 10	MELTER AND HEATER POWER SUPPLY AND CONTROLS
900E-705	SH 11	SAMPLERS FOR V-[illegible] AND V-[illegible]
900E-705	SH 12	TURNTABLE
900E-705	SH 13	
900E-705	SH 14	PRIMARY SCRUBBER SCRUB SECTION
900E-705	SH 15	PRIMARY SCRUBBER RECEIVER TANK
900E-705	SH 16	
900E-705	SH 17	
900E-705	SH 18	
900E-705	SH 19	CTS VESSEL VENT SYSTEM
900E-705	SH 20	
900E-705	SH 21	MELTER OFF-GAS SYSTEM PRE-HEATER AND HEMES
900E-705	SH 22	VESSEL OFF-GAS FILTERS AND HEATERS
900E-705	SH 23	CANISTER DECONTAMINATION TANK 63-V-[illegible]
900E-705	SH 24	CANISTER WELDING STATION 63-V-[illegible]
900E-705	SH 25	CE-CELL VENT HEADER





PARTS LIST

UNLESS OTHERWISE SPECIFIED

TOLERANCES DO NOT SCALE

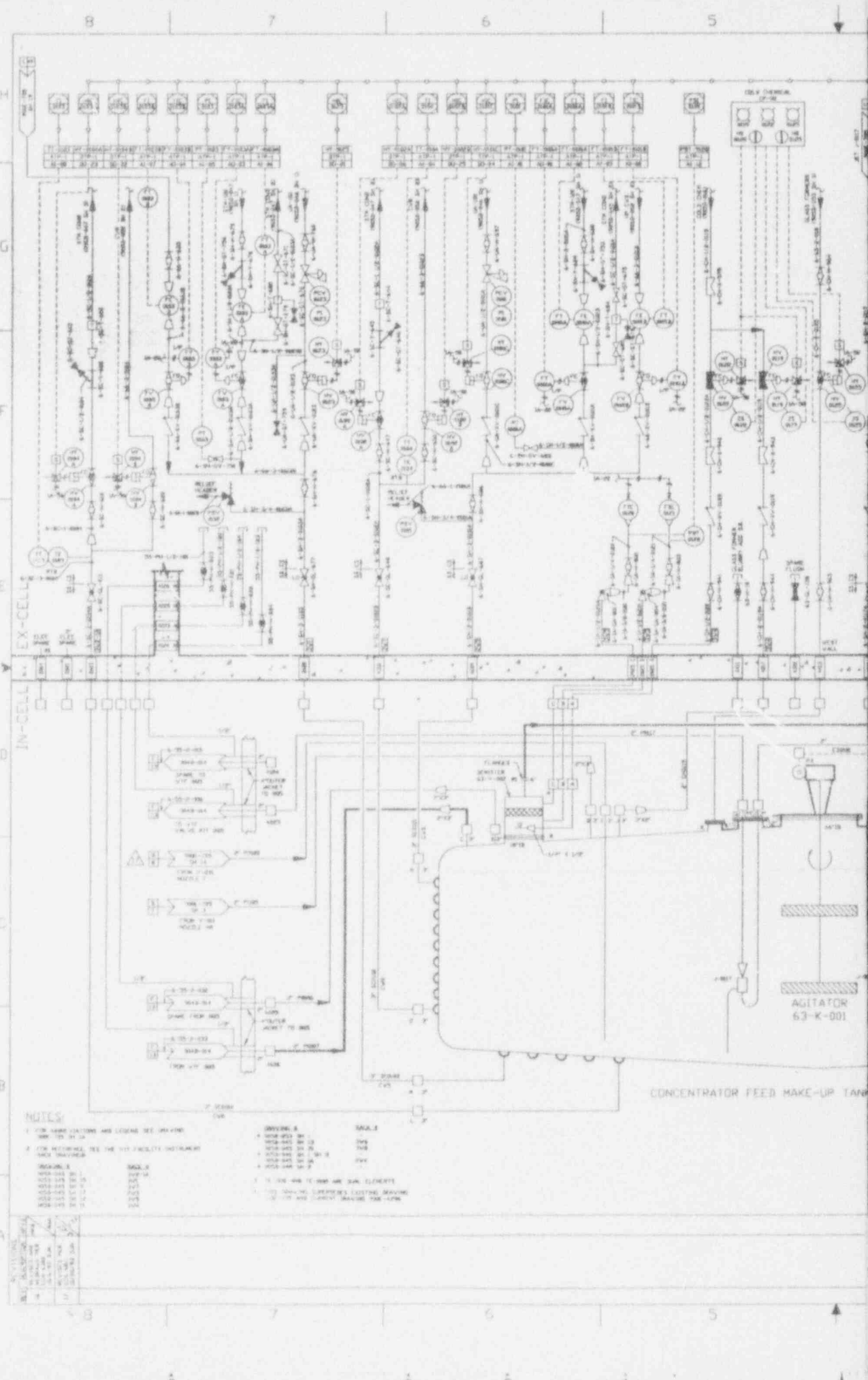
FOR WEST VALLEY NUCLEAR SERVICES CO. INC. WEST VALLEY, NEW YORK

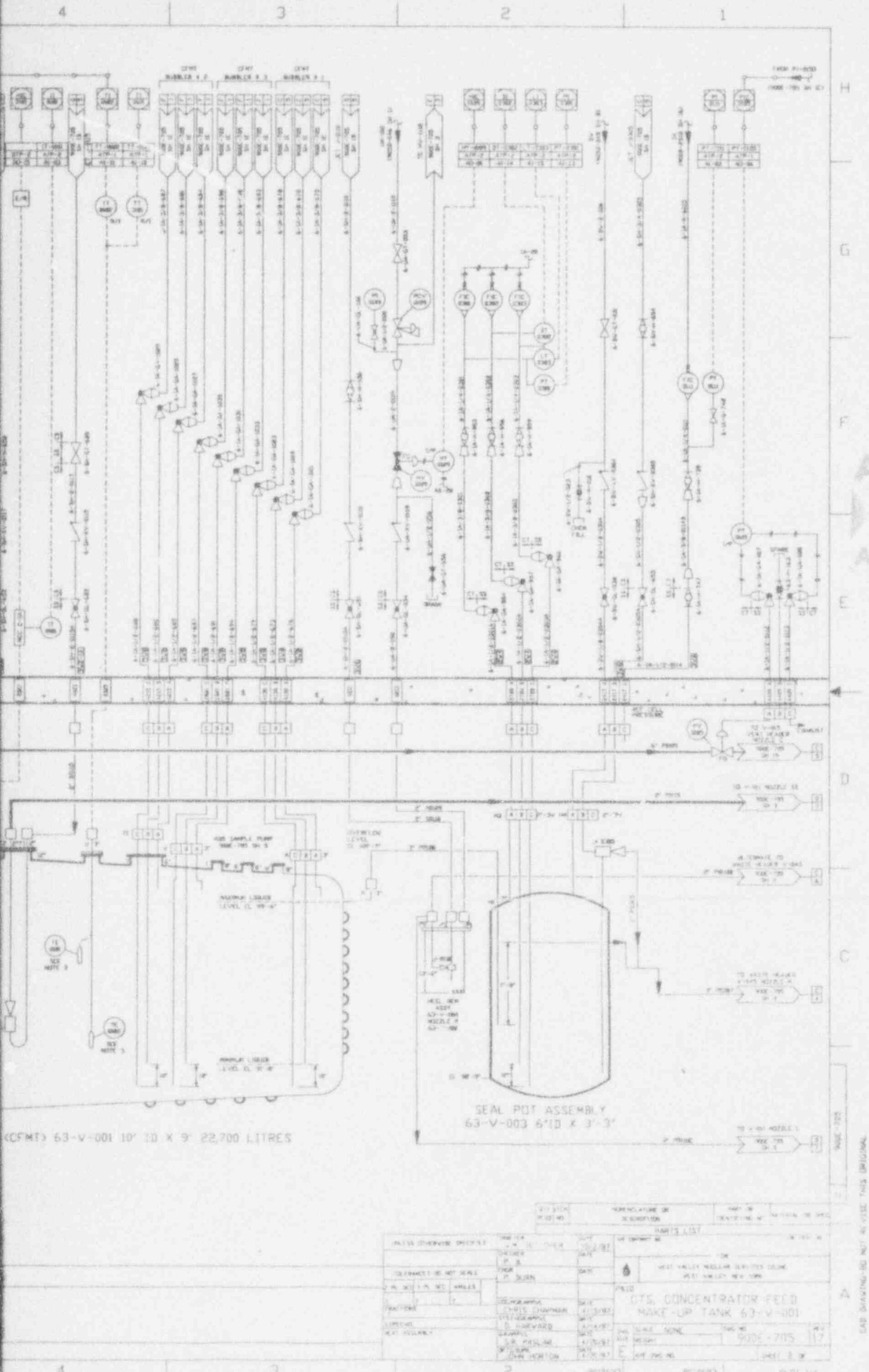
INDEX VITRIFICATION AND 3I-1X

SCALE NONE

DWG NO 900E-705

9403140262 - 06


EX-CELL
IN-CELL
AGITATOR
63-K-001
CONCENTRATOR FEED MAKE-UP TAN
NOTES:

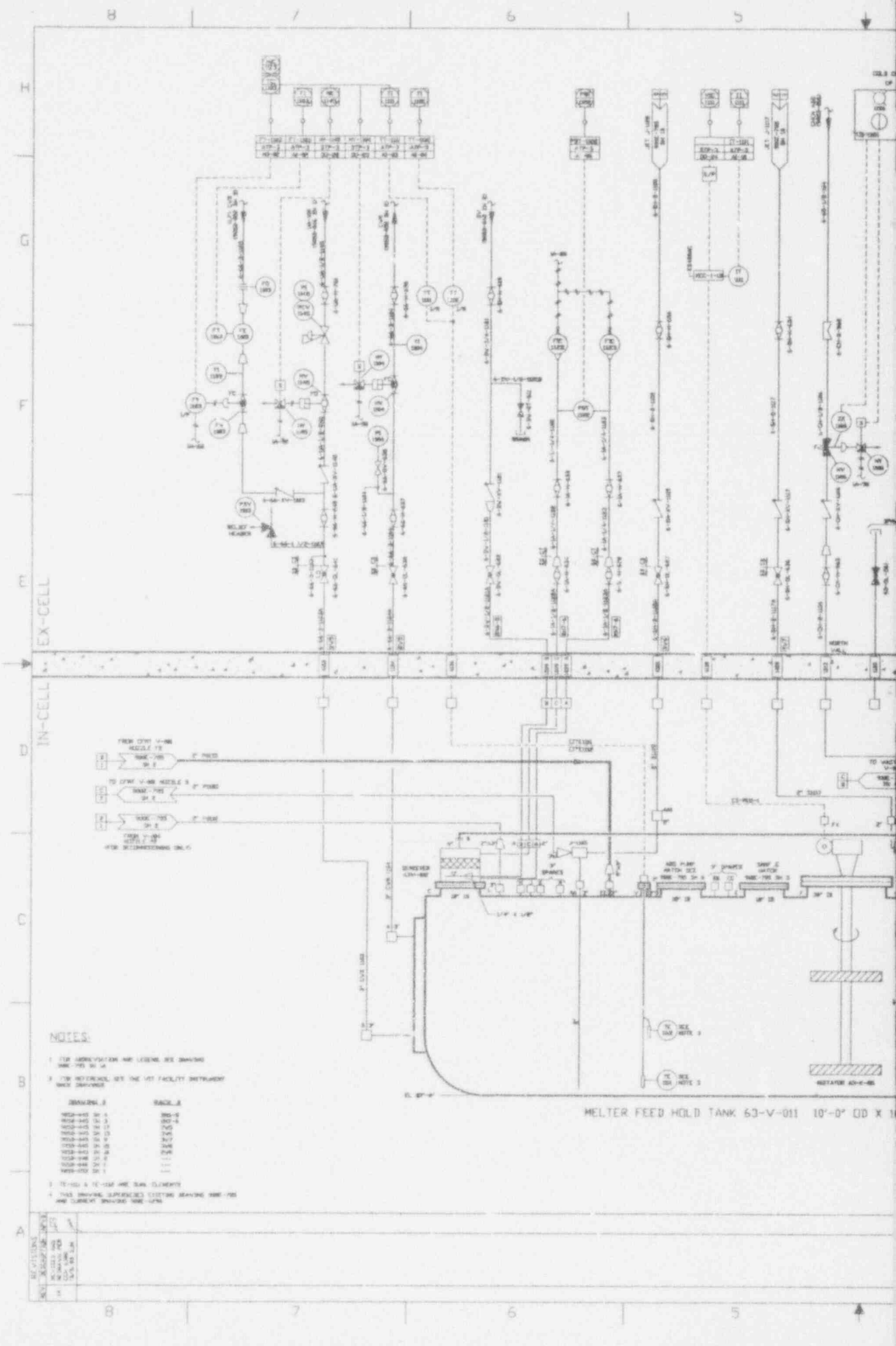


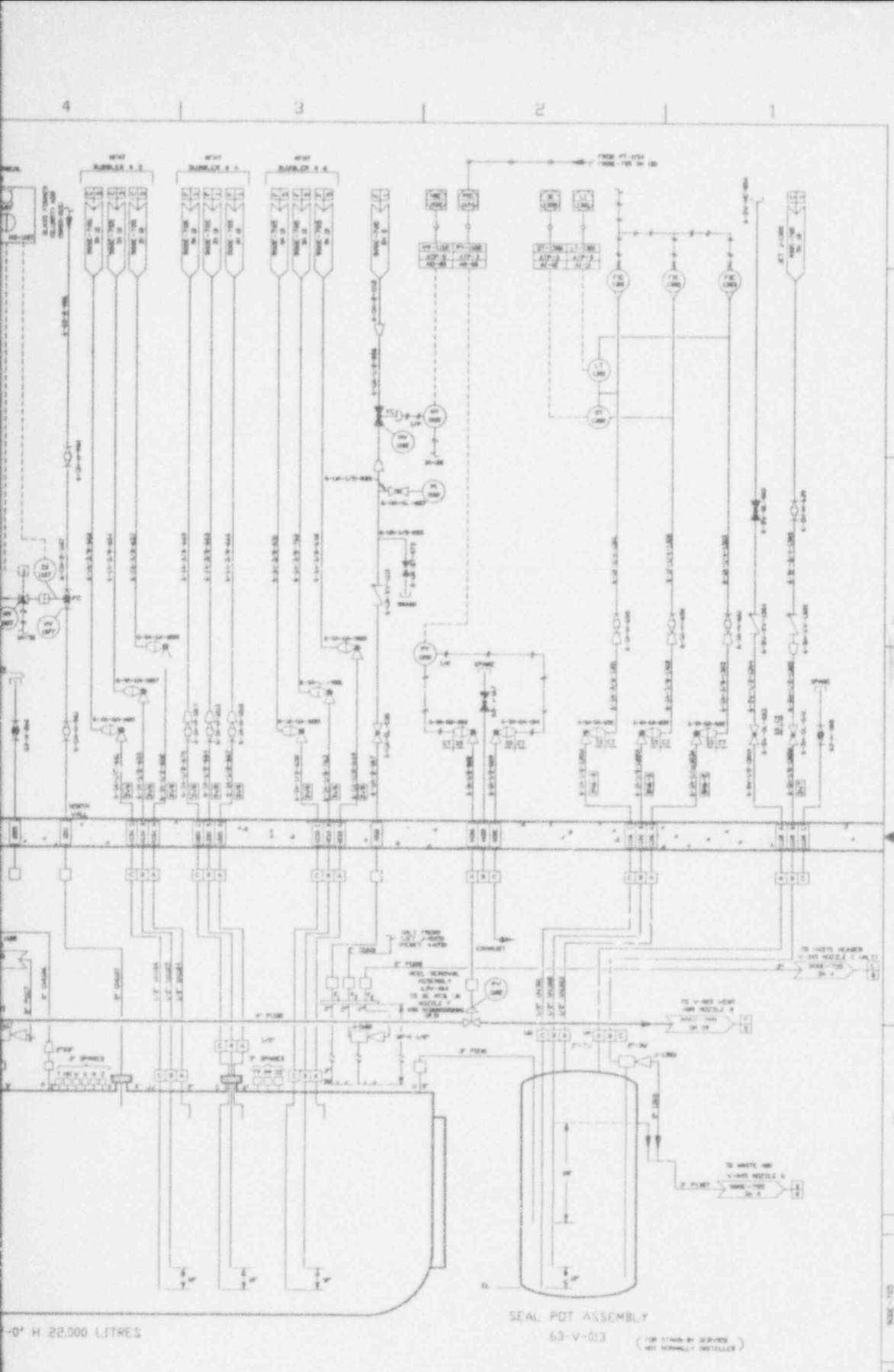
ANSTEC APERTURE CARD

Also Available on Aperture Card

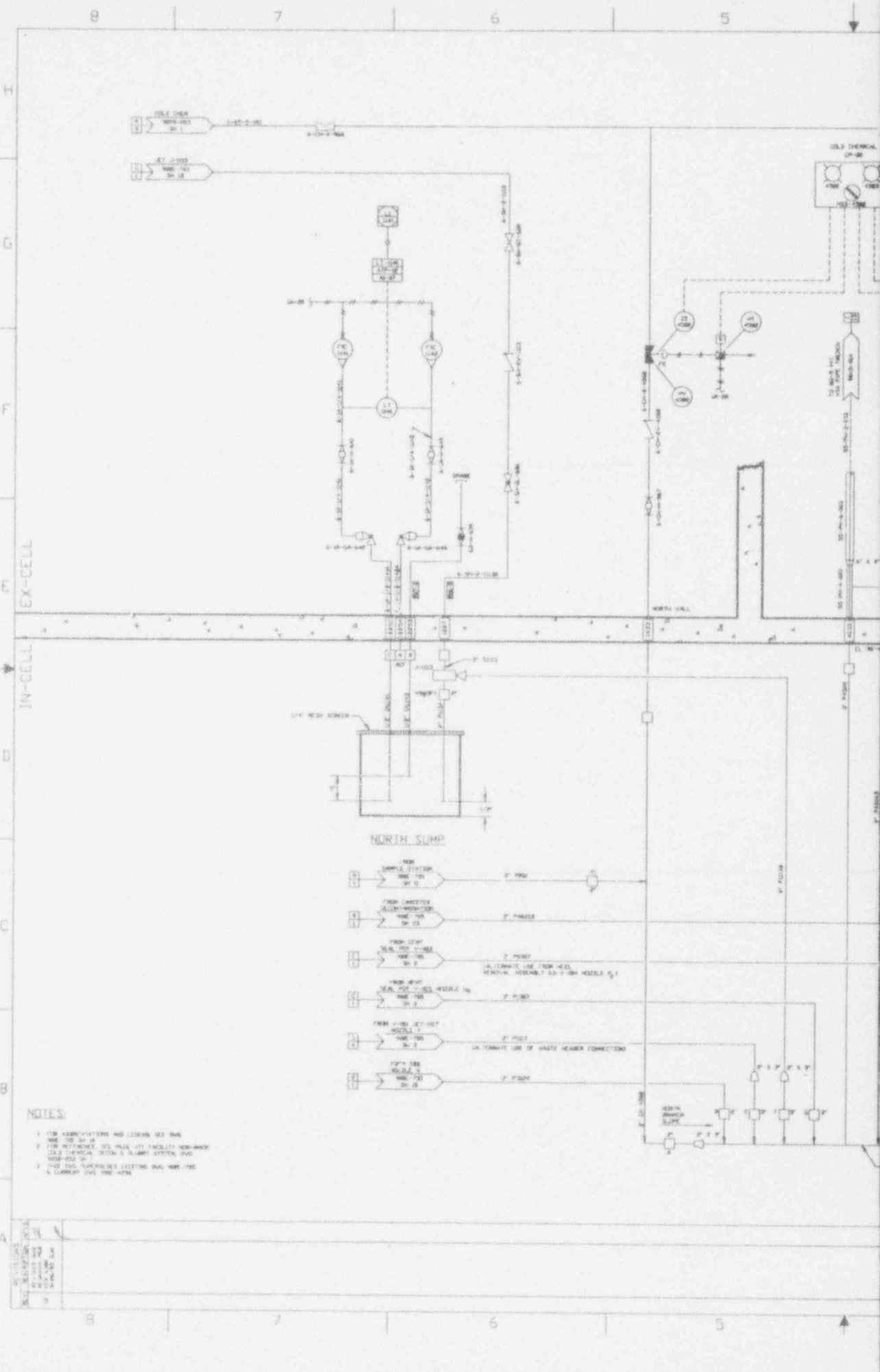
CAUTION

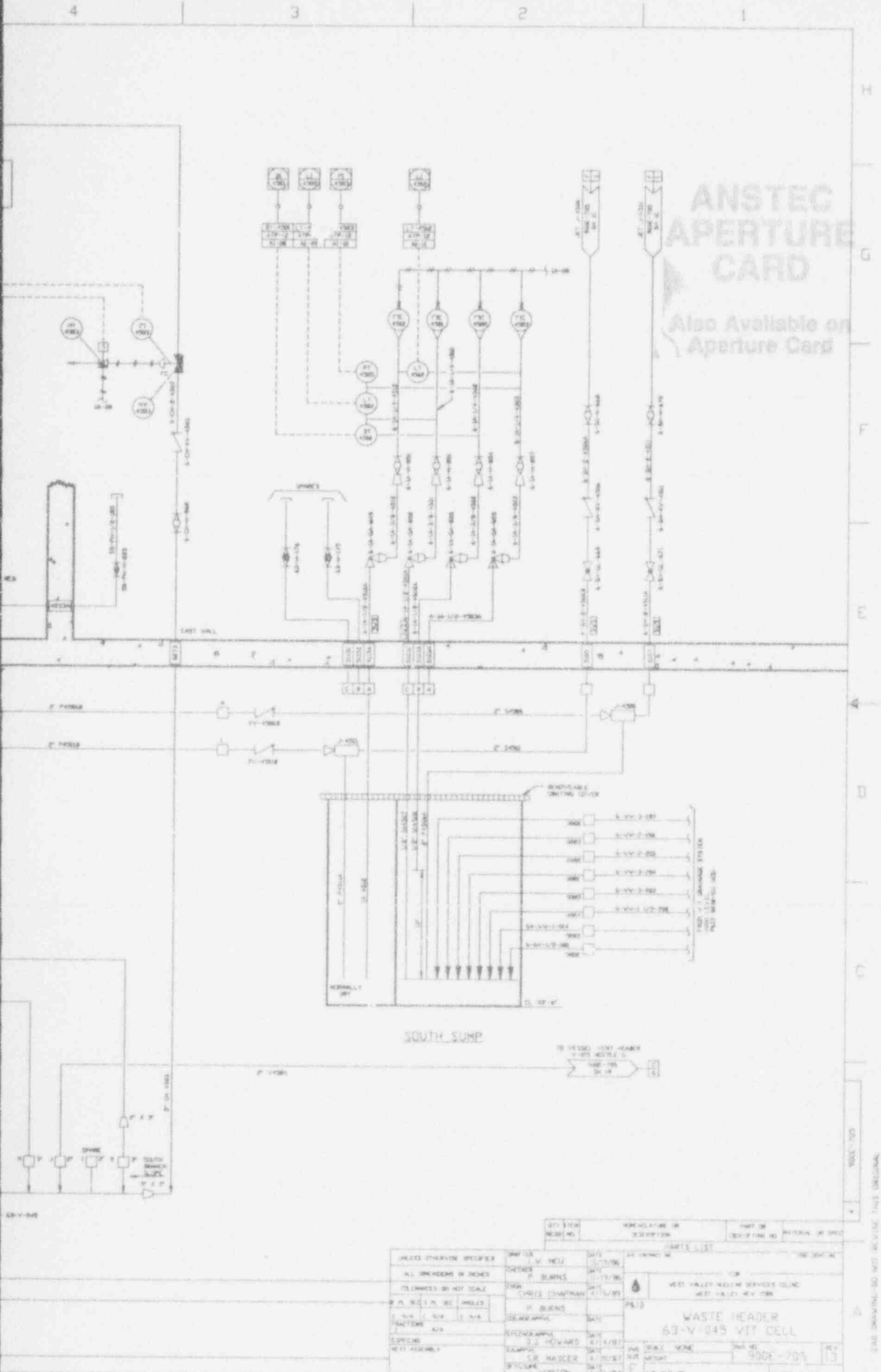
9403140262-07


EX-CELL
IN-CELL
NOTES:
MELTER FEED HOLD TANK 63-V-011 10'-0" OD X

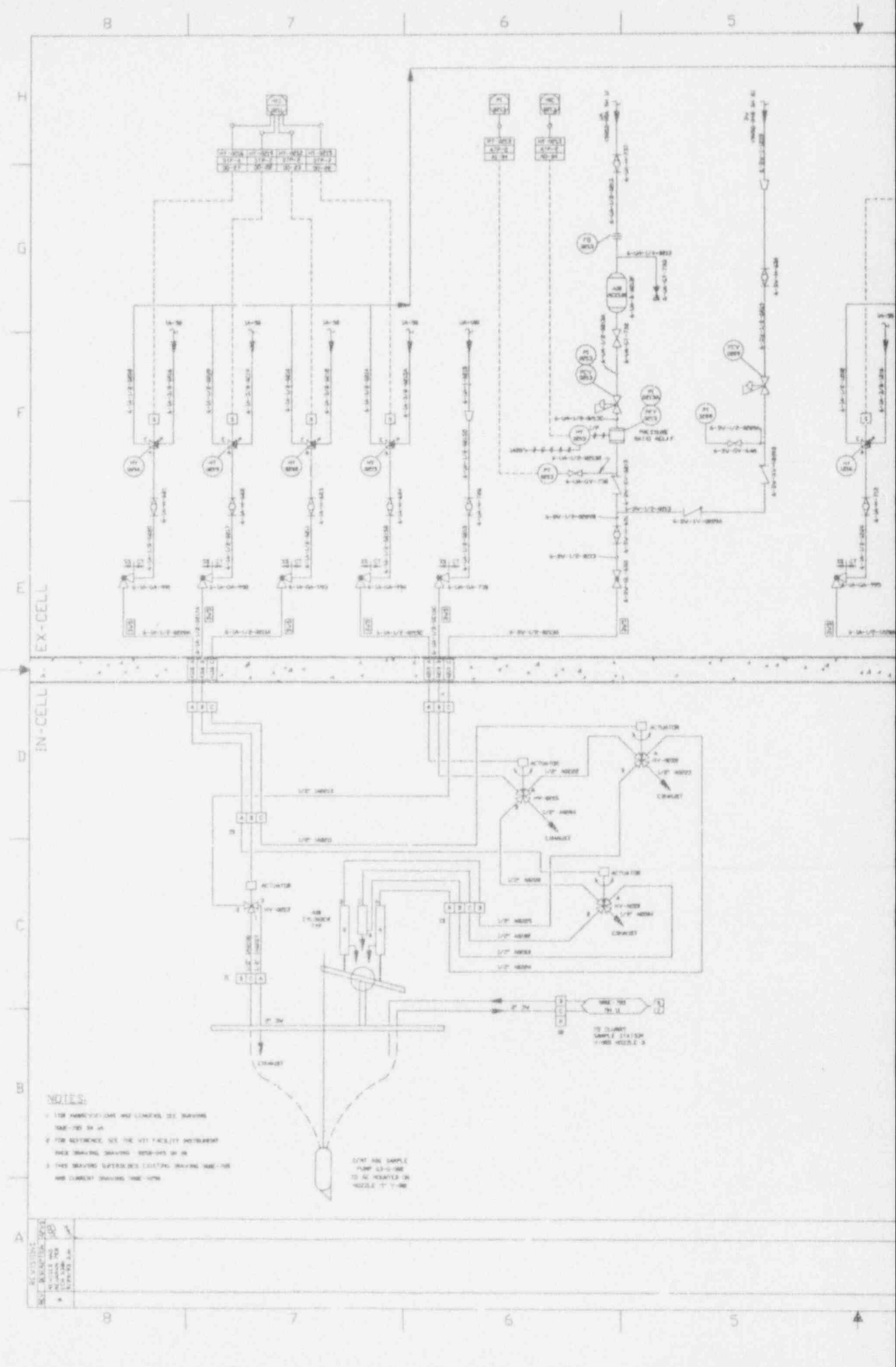


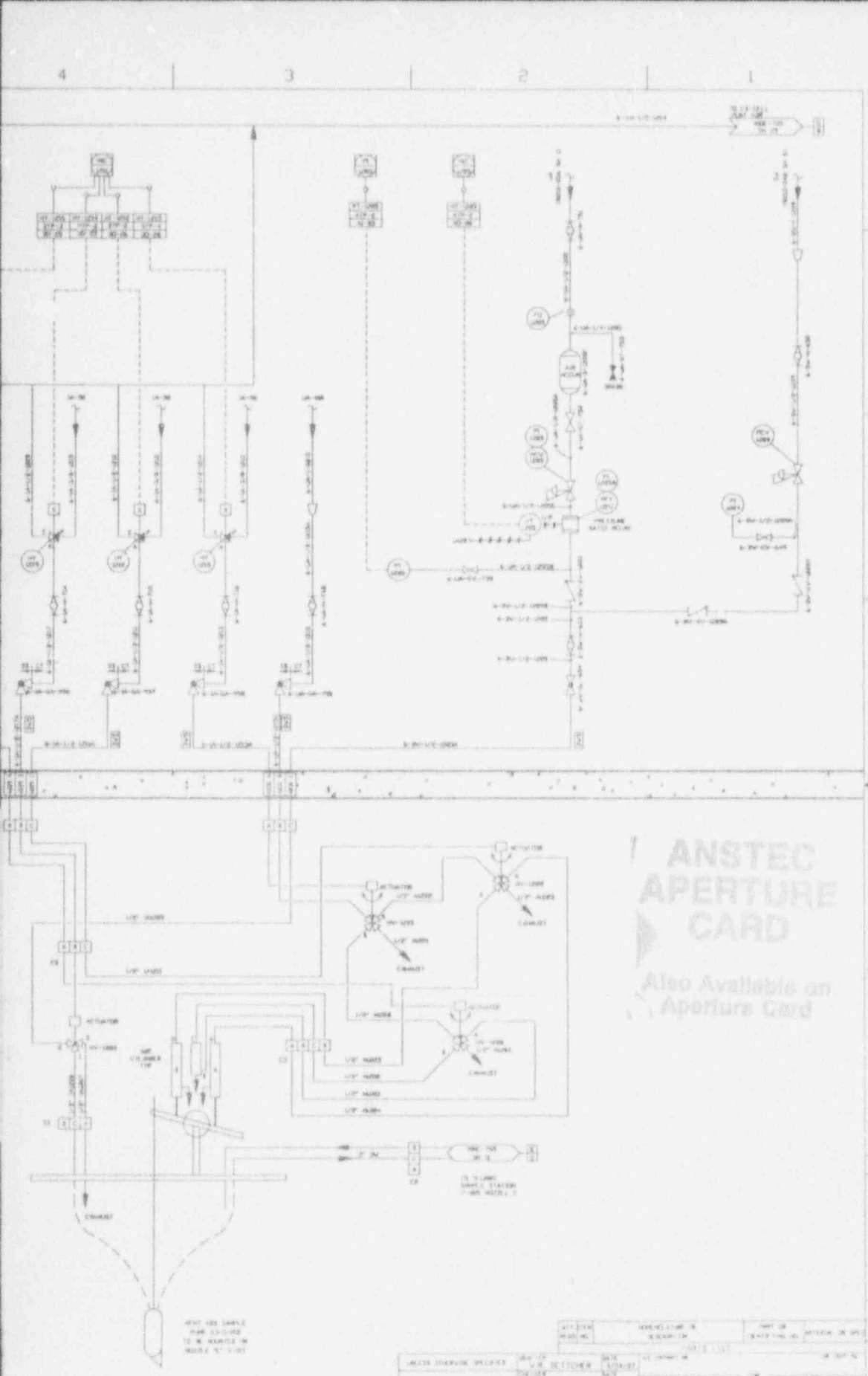
9403140262-08

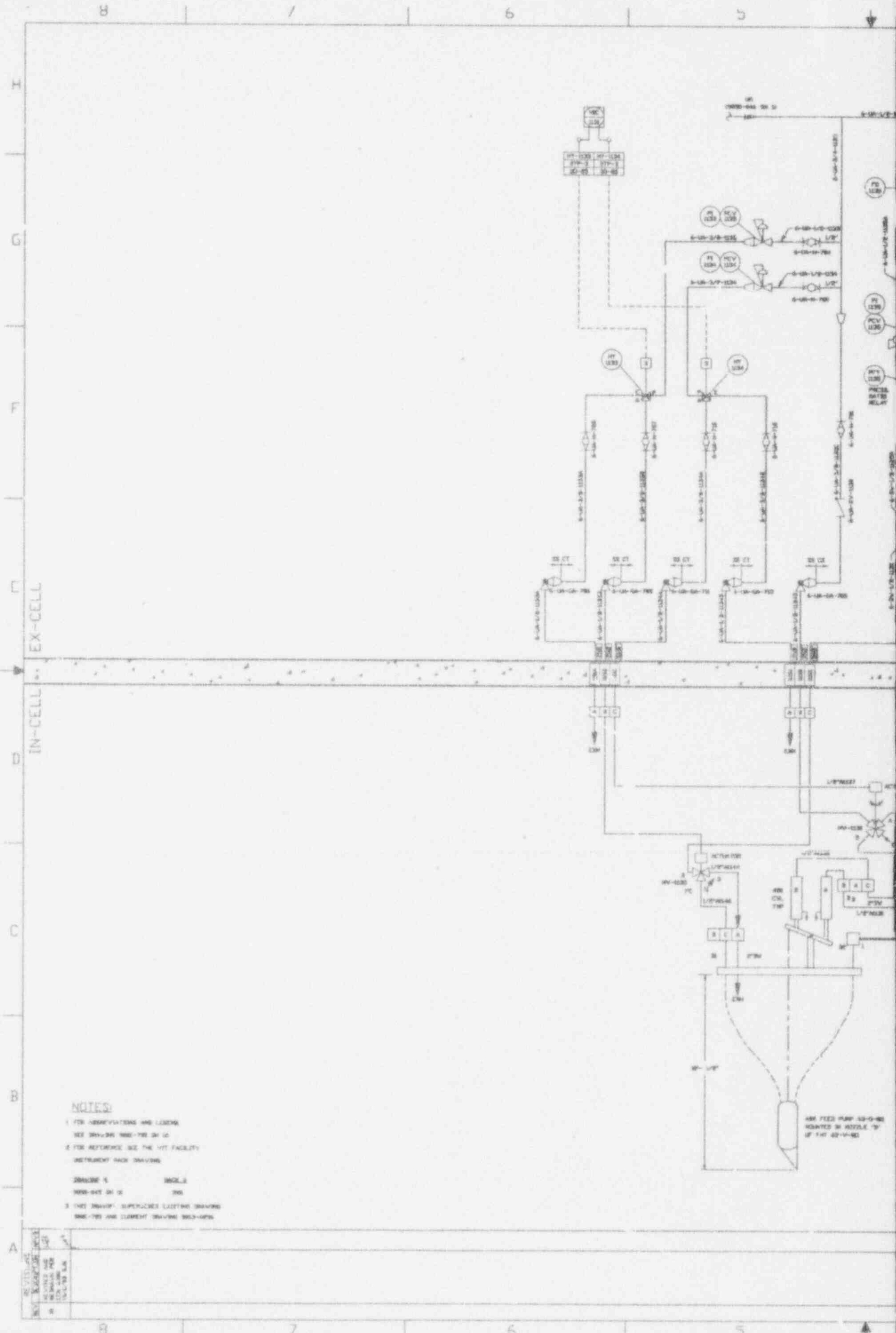

EX-CELL
IN-CELL
NORTH SUMP
NOTES:



9403140262-09


EX-CELL
IN-CELL
NOTES:




8
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H
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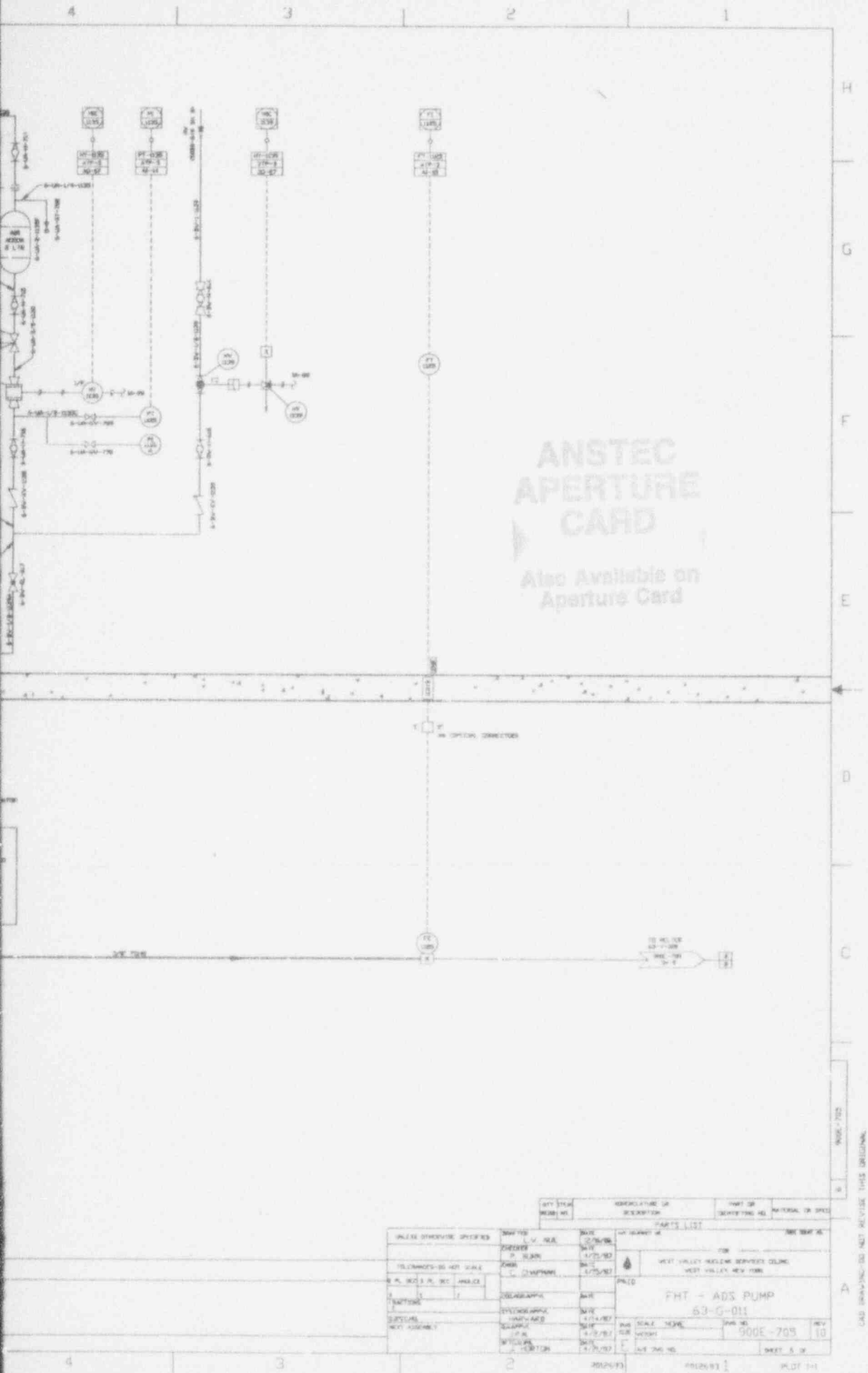
F
E
D
C
B
A
EX-CELL
IN-CELL
NOTES:

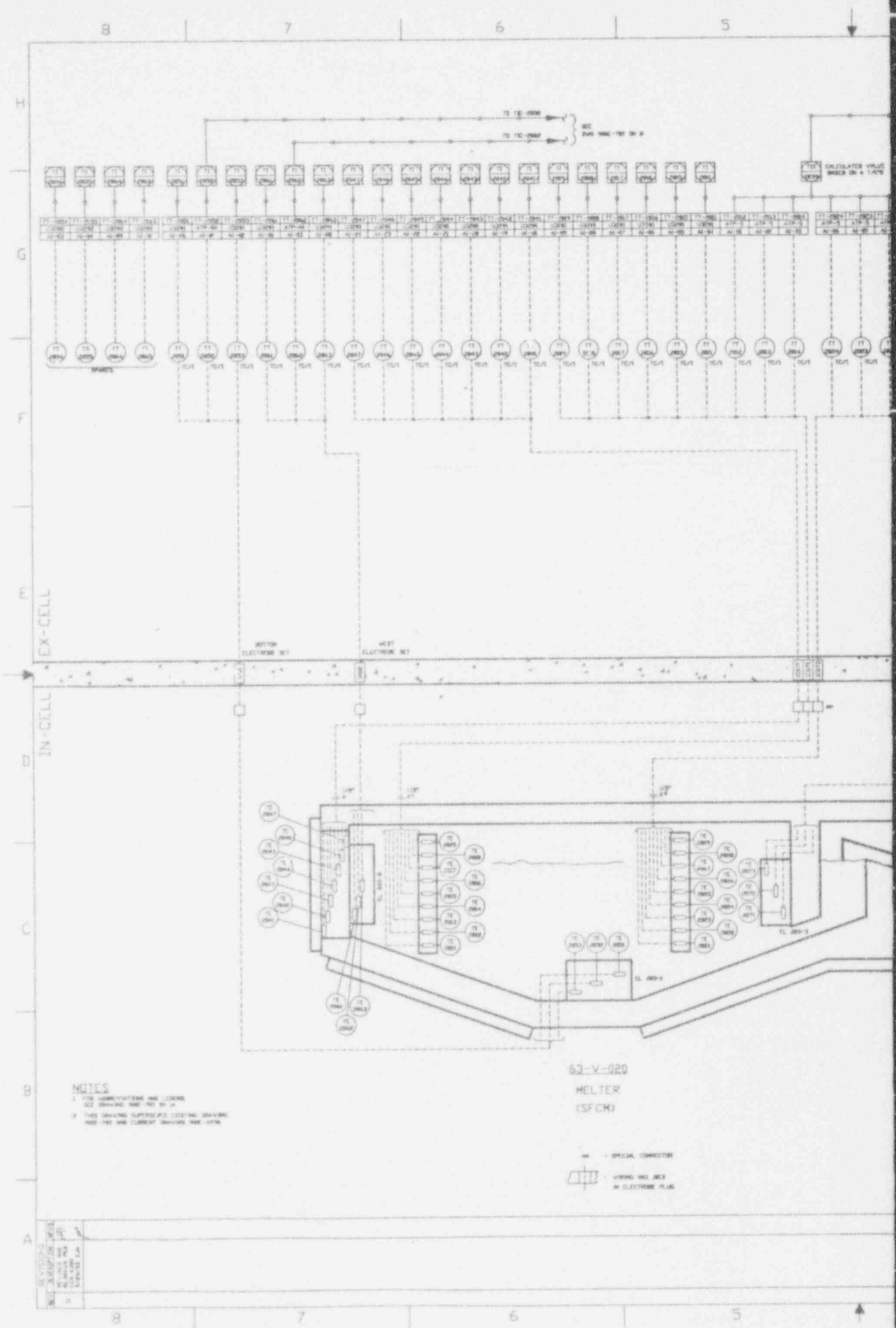


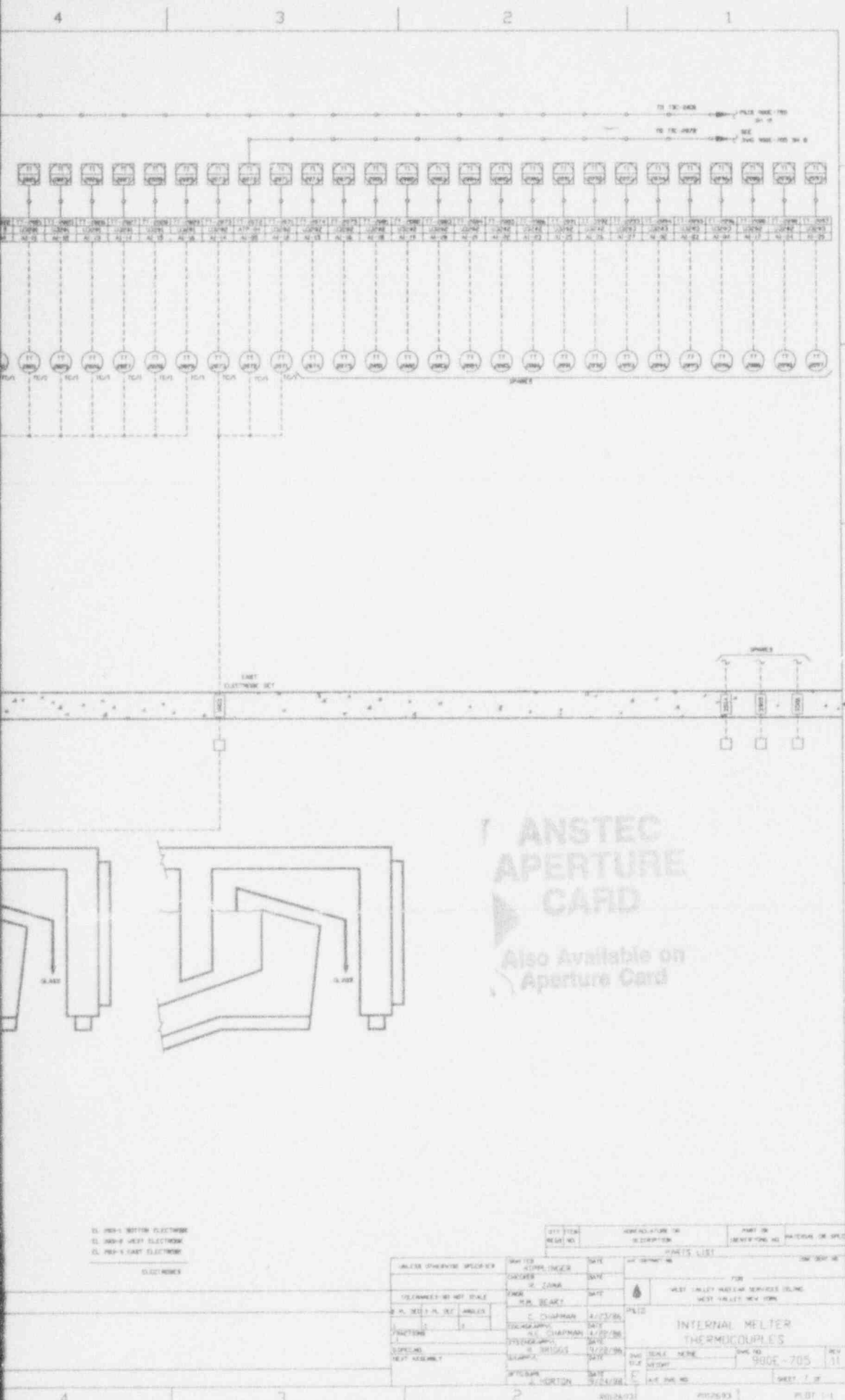
PARTS LIST

WEST VALLEY NUCLEAR SERVICES CO.,INC.
WEST VALLEY, NEW YORK

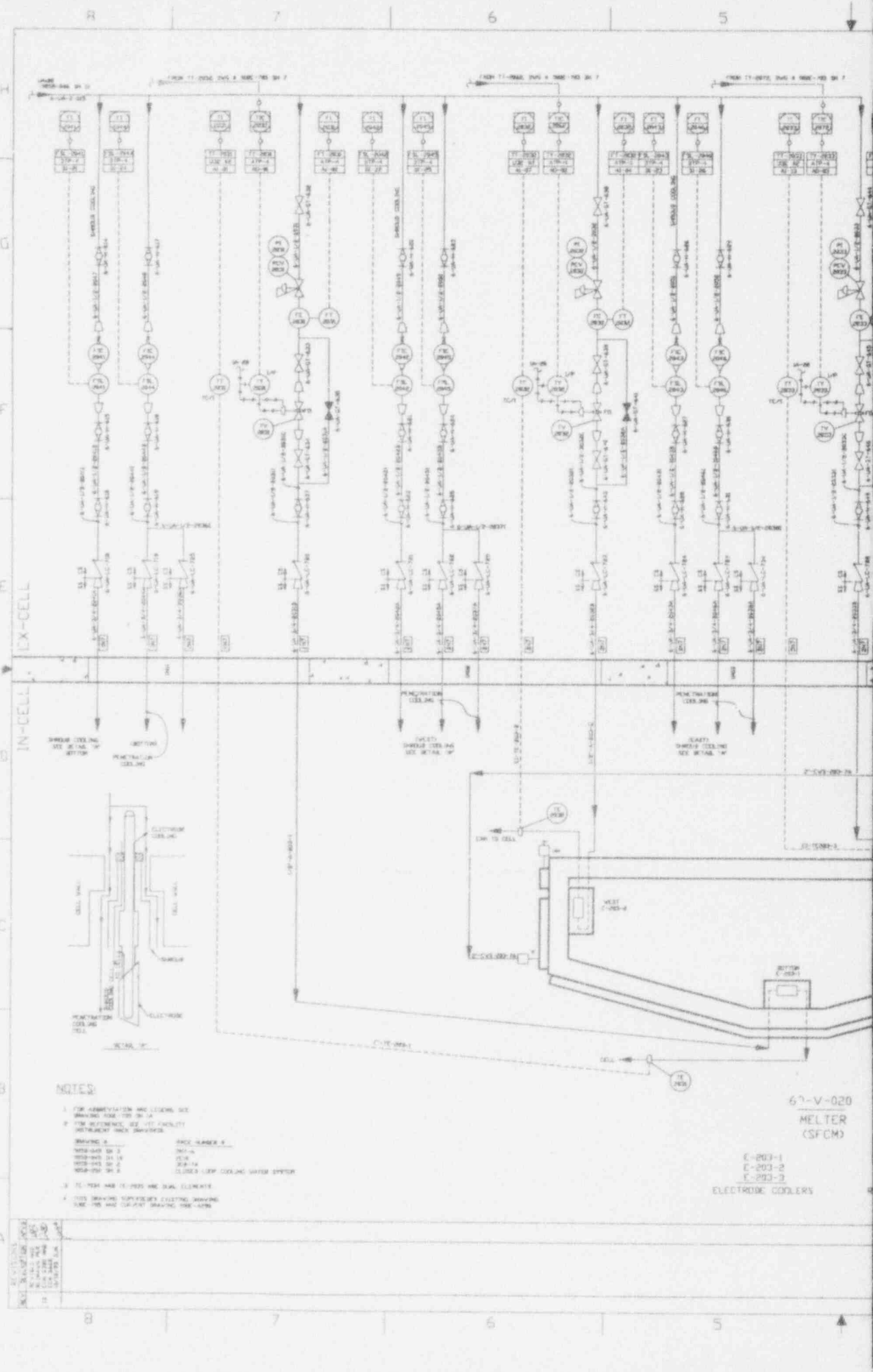
FHT - ADS PUMP
63-G-011

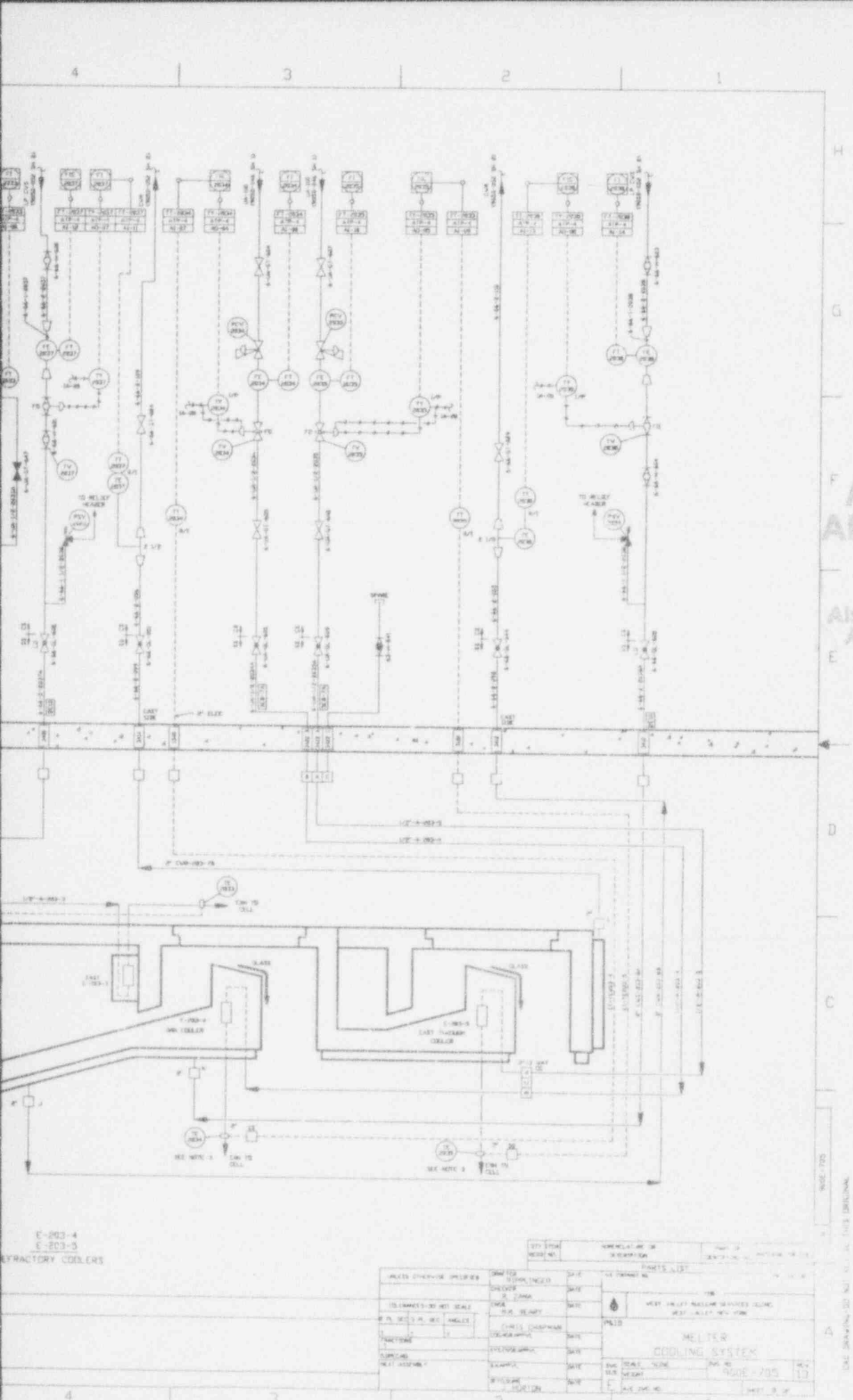
9405-705


EX-CELL
IN-CELL
SPARES
NOTES
63-V-020
MELTER
(SFCM)



9403140262-12

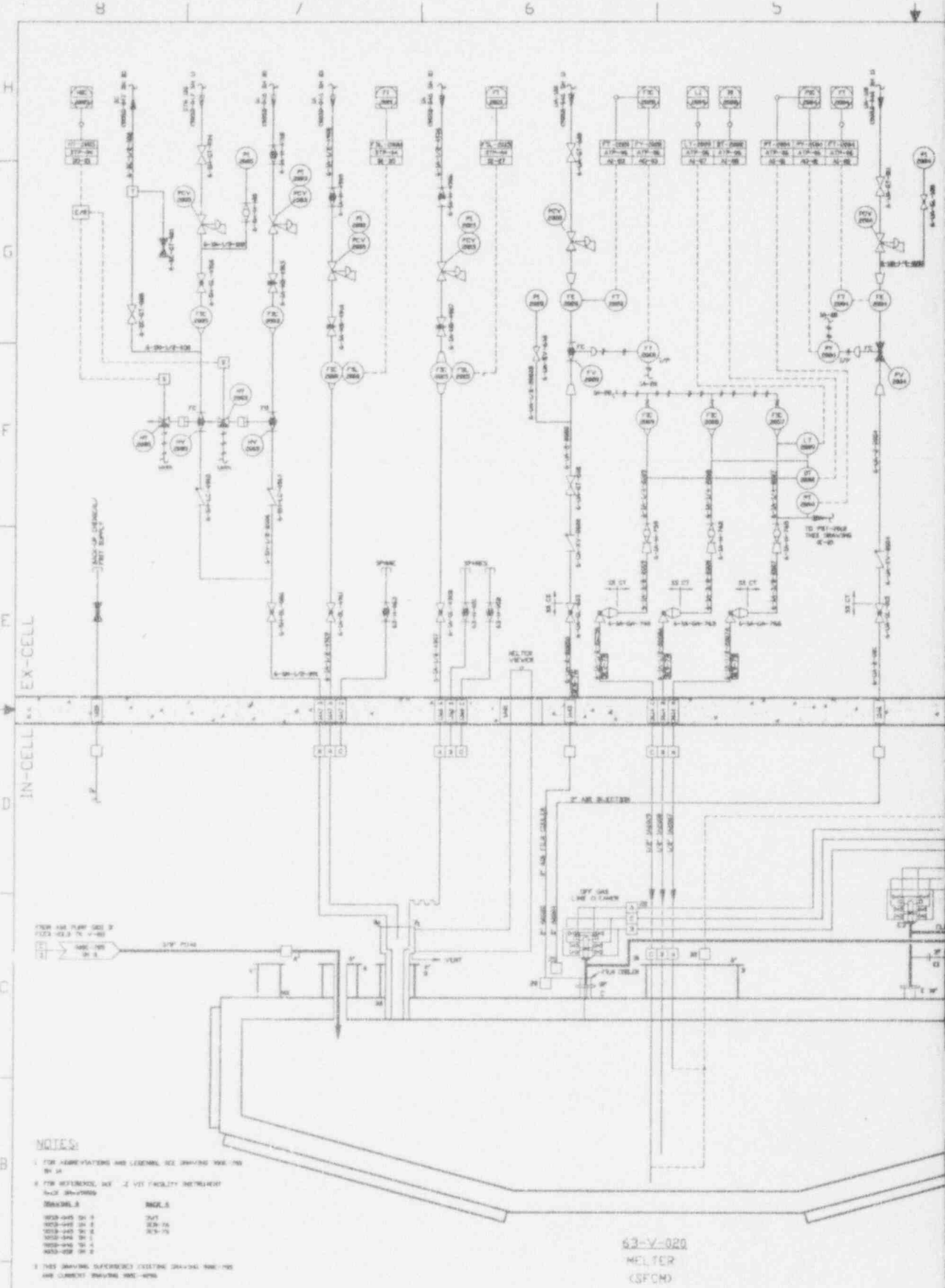

EX-CELL
IN-CELL
NOTES:
MELTER
(SFCM)
ELECTRODE COOLERS

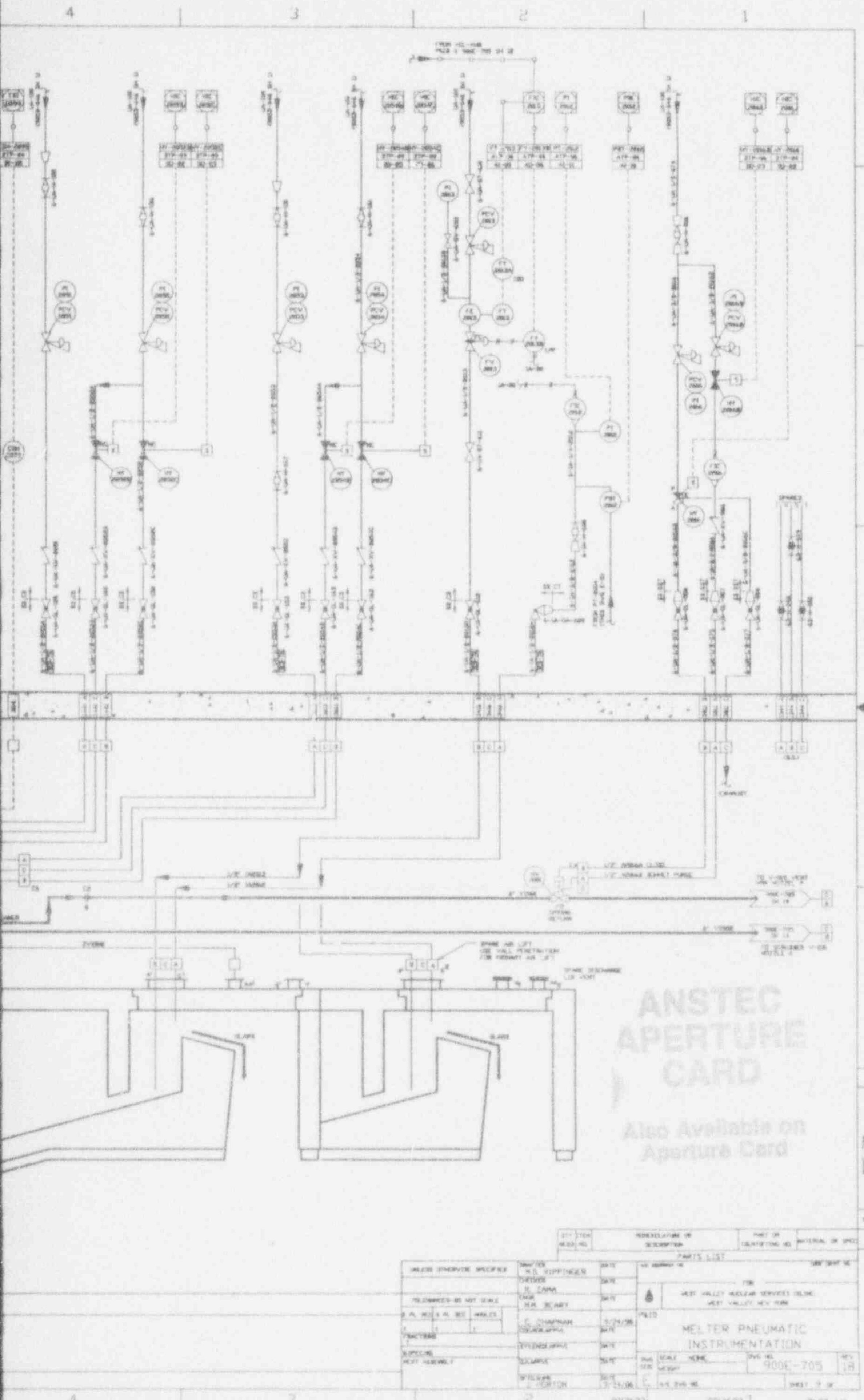


E-203-4
E-203-5
REFRACTORY COOLERS

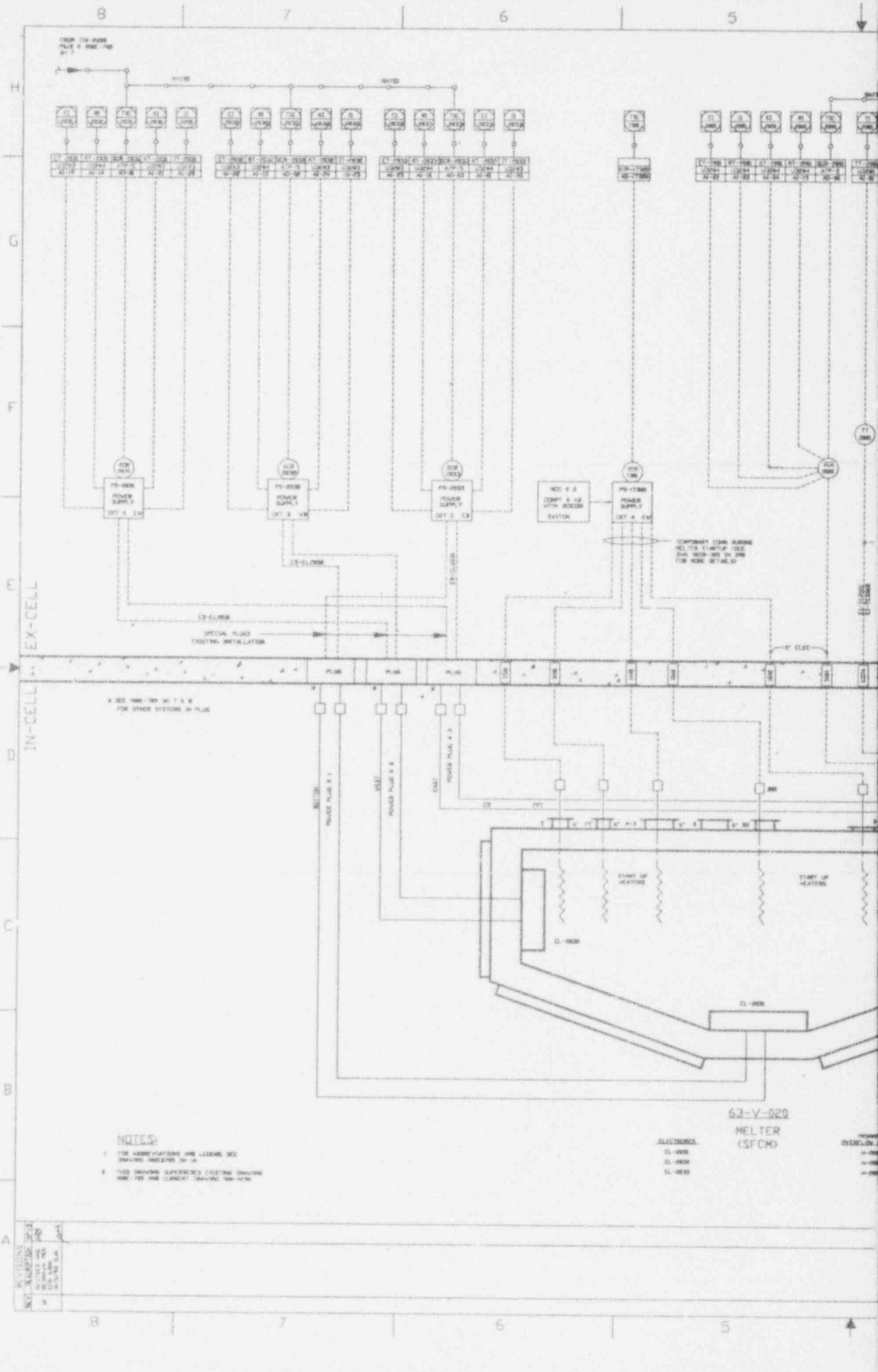
MELTER
COOLING SYSTEM

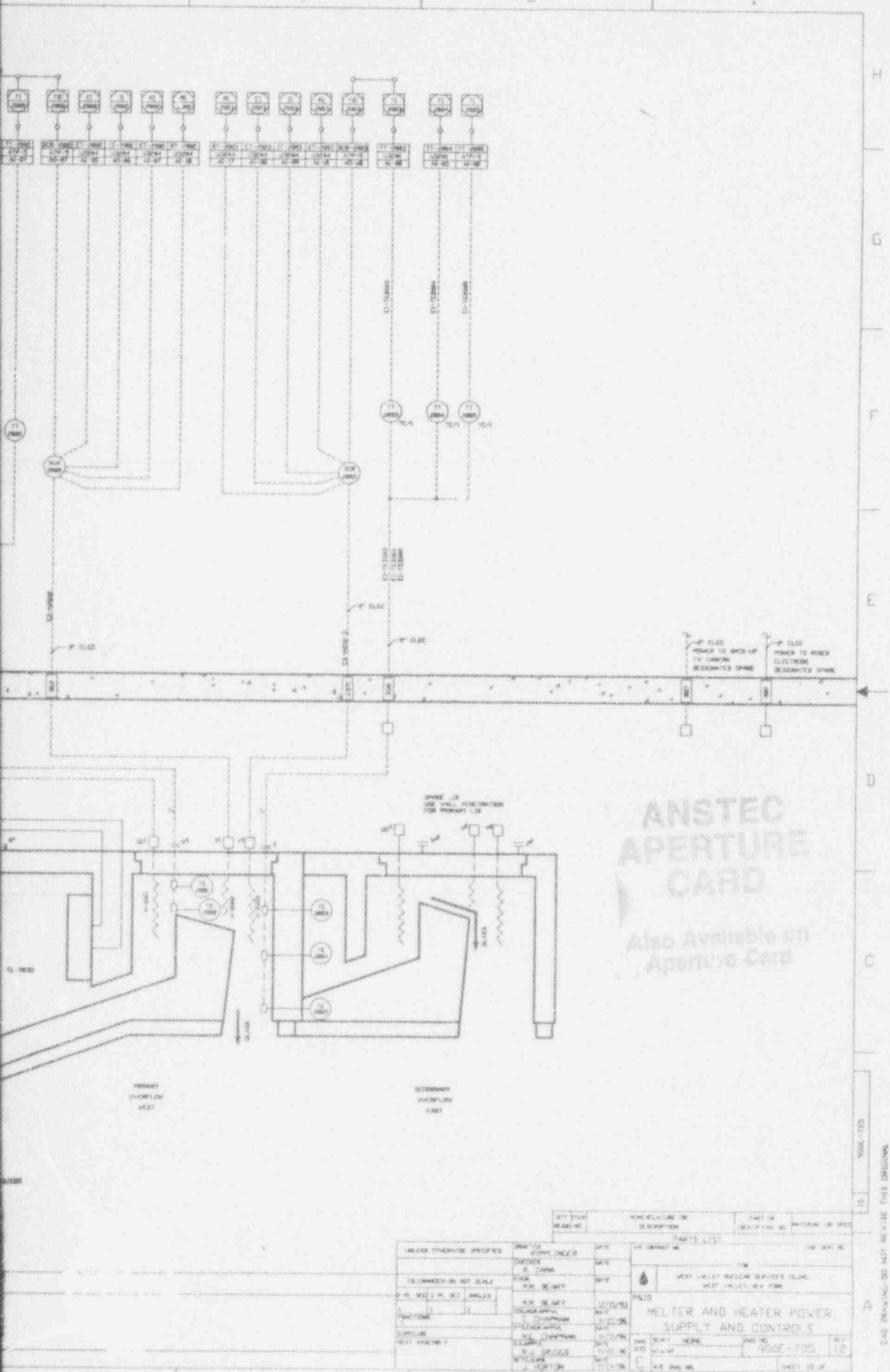
NODE-705


EX-CELL
IN-CELL
NOTES:
63-V-020
MELTER
(SFCM)



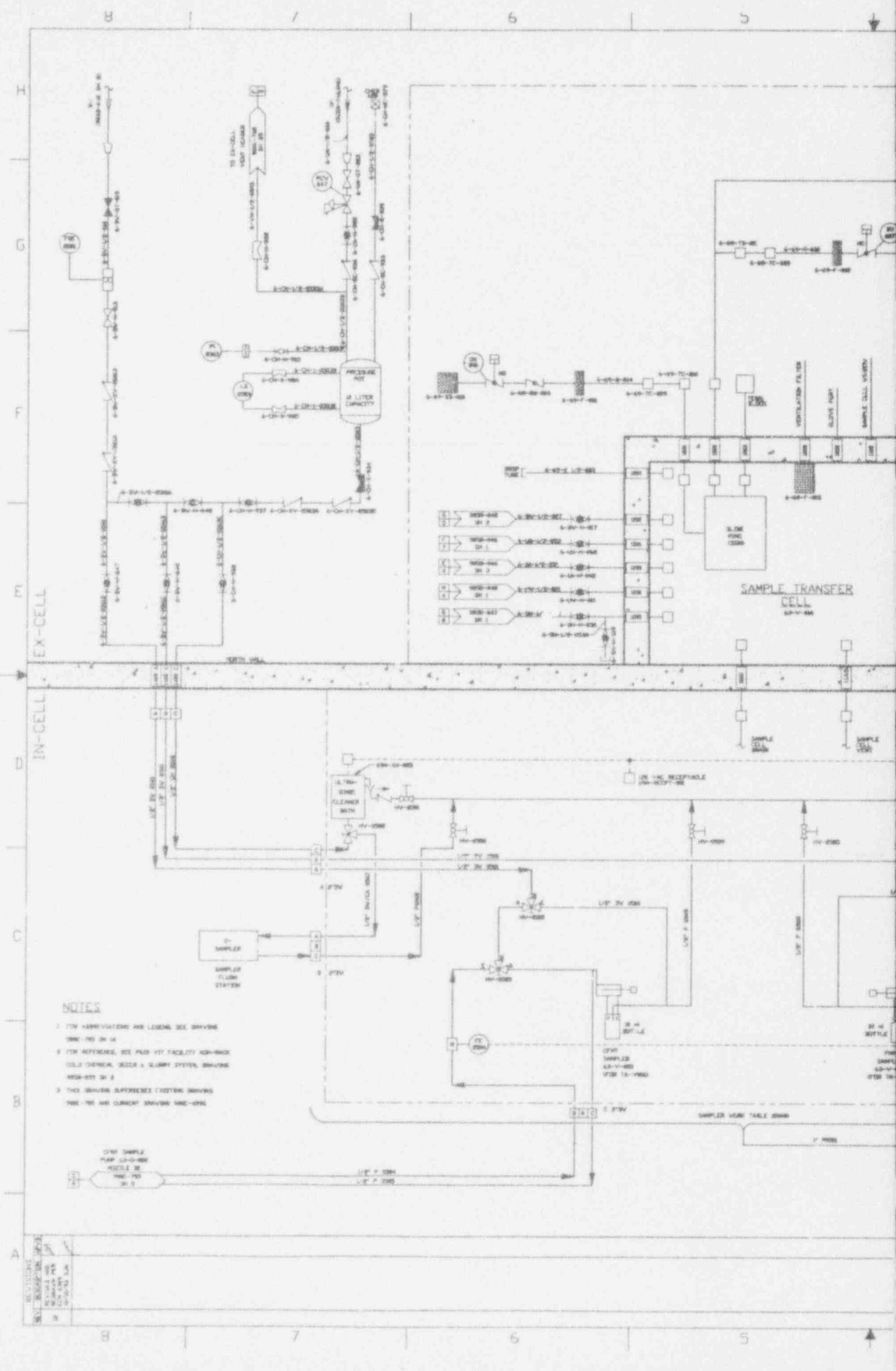
9403140262-14

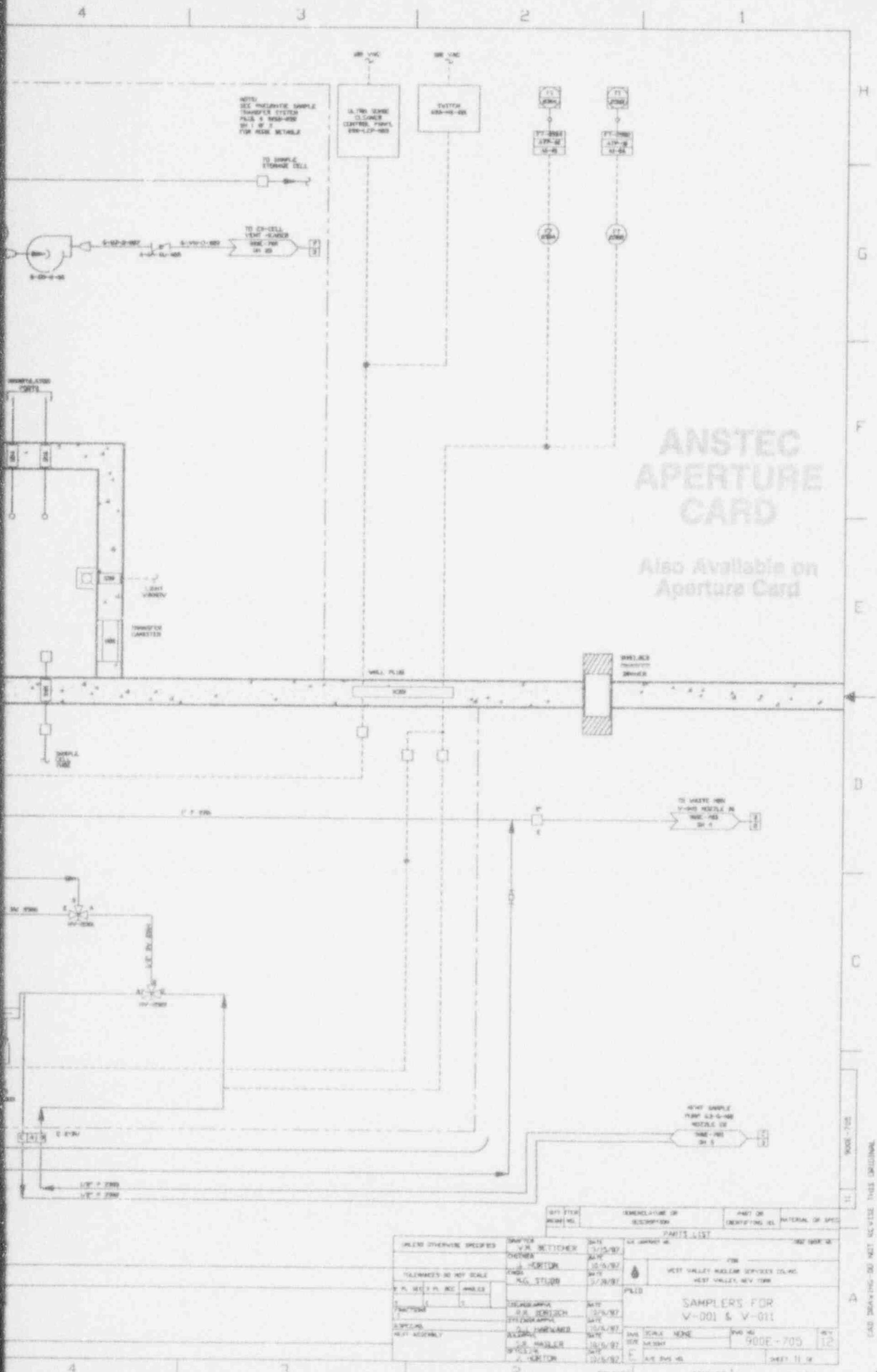

EX-CELL
IN-CELL
POWER SUPPLY
START UP HEATERS
63-V-020
MELTER
(SFCM)
NOTES:



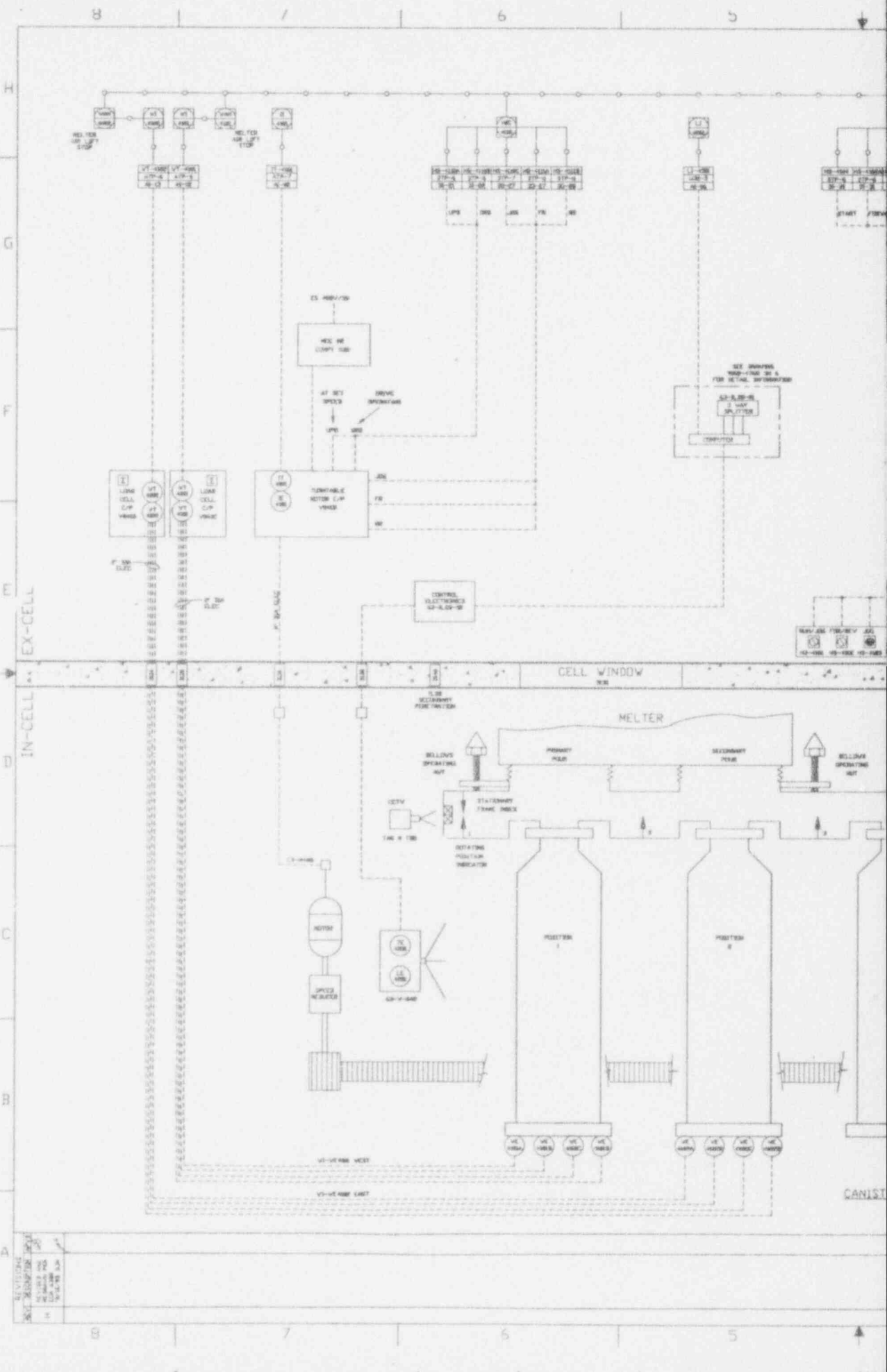
MELTER AND HEATER POWER SUPPLY AND CONTROLS

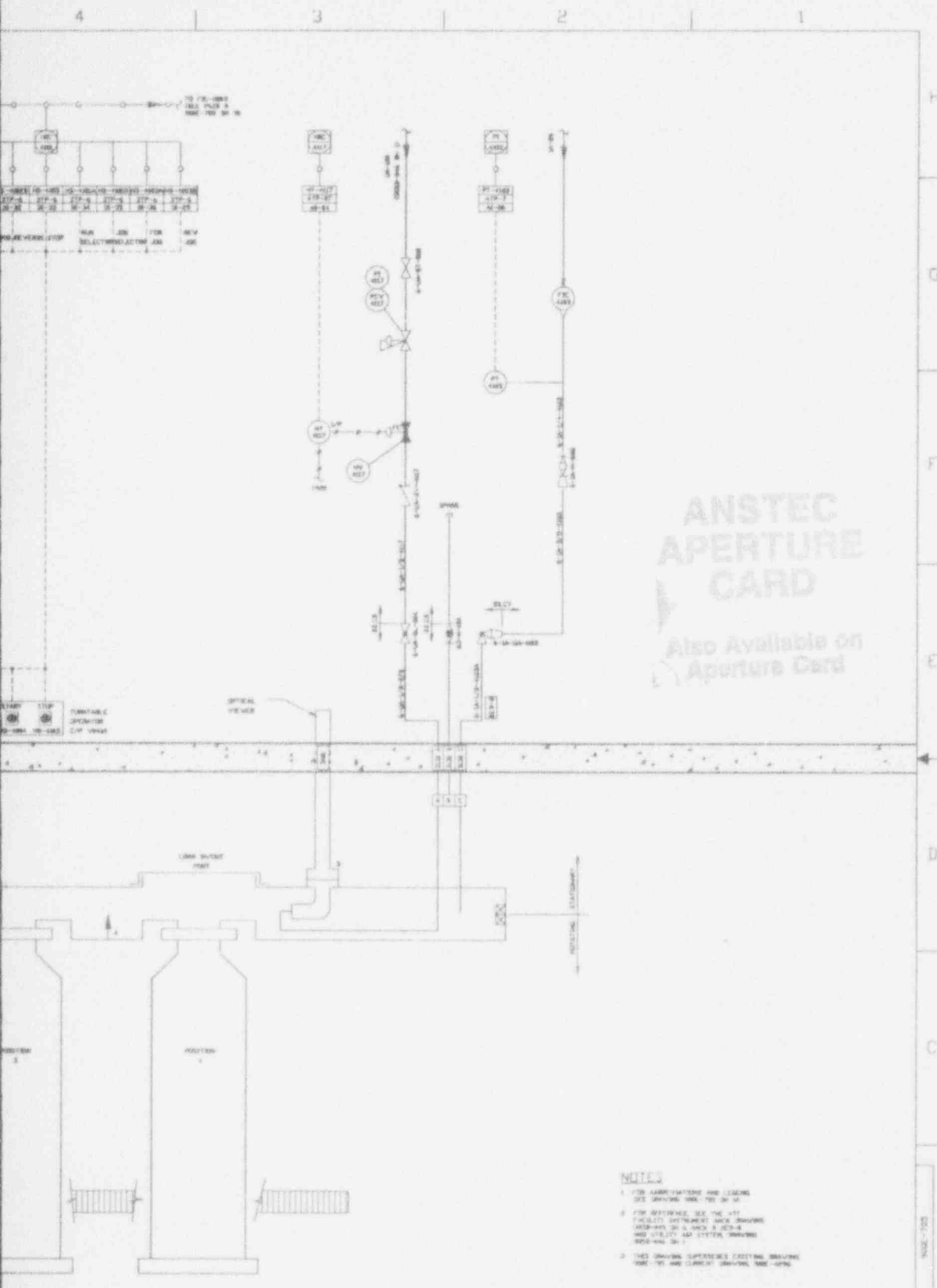
9403140262-15


EX-CELL
IN-CELL
SAMPLE TRANSFER CELL
NOTES



9403140262-16


EX-CELL
IN-CELL
CELL WINDOW
MELTER
PRIMARY POUR
SECONDARY POUR
CCTV
STATIONARY FRAME INDEX
POSITION 1
POSITION 2
CANIST



NOTES

1. FOR ABBREVIATIONS AND LEGEND SEE DRAWING 9005-705 SH 10.
2. FOR REFERENCE SEE THE HTF FACILITY INSTRUMENT RACK DRAWING 9005-M45 SH 4, RACK 5 PCM-4 AND UTILITY AIR SYSTEM, 9005-M46 SH 1.
3. THIS DRAWING SUPERSEDES EXISTING DRAWING 9005-705 AND CLANCEY DRAWING 9005-4096.

V-041
ER TURNTABLE

ITEM NO.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	MATERIAL OR SPEC

PARTS LIST

UNLESS OTHERWISE SPECIFIED	DRAFTER H.D. KOPPLINGER	DATE 3/22/96
	DESIGNER R. RAMA	DATE 3/22/96
TOLERANCES DO NOT SCALE	ENGR. J. CHAPMAN	DATE 3/25/96
X ±.XX ±.X ±.1° ANGLES	PM W. BEARY	DATE 3/25/96
FRACTIONS	DESIGN APPR. N.E. CHAPMAN	DATE 3/25/96
SURFACES NEXT ASSEMBLY	CUSTOMER APPR.	DATE
	QUALITY A. BRIGGS	DATE 3/25/96
	SPECIFICATION A. HORTON	DATE 3/25/96

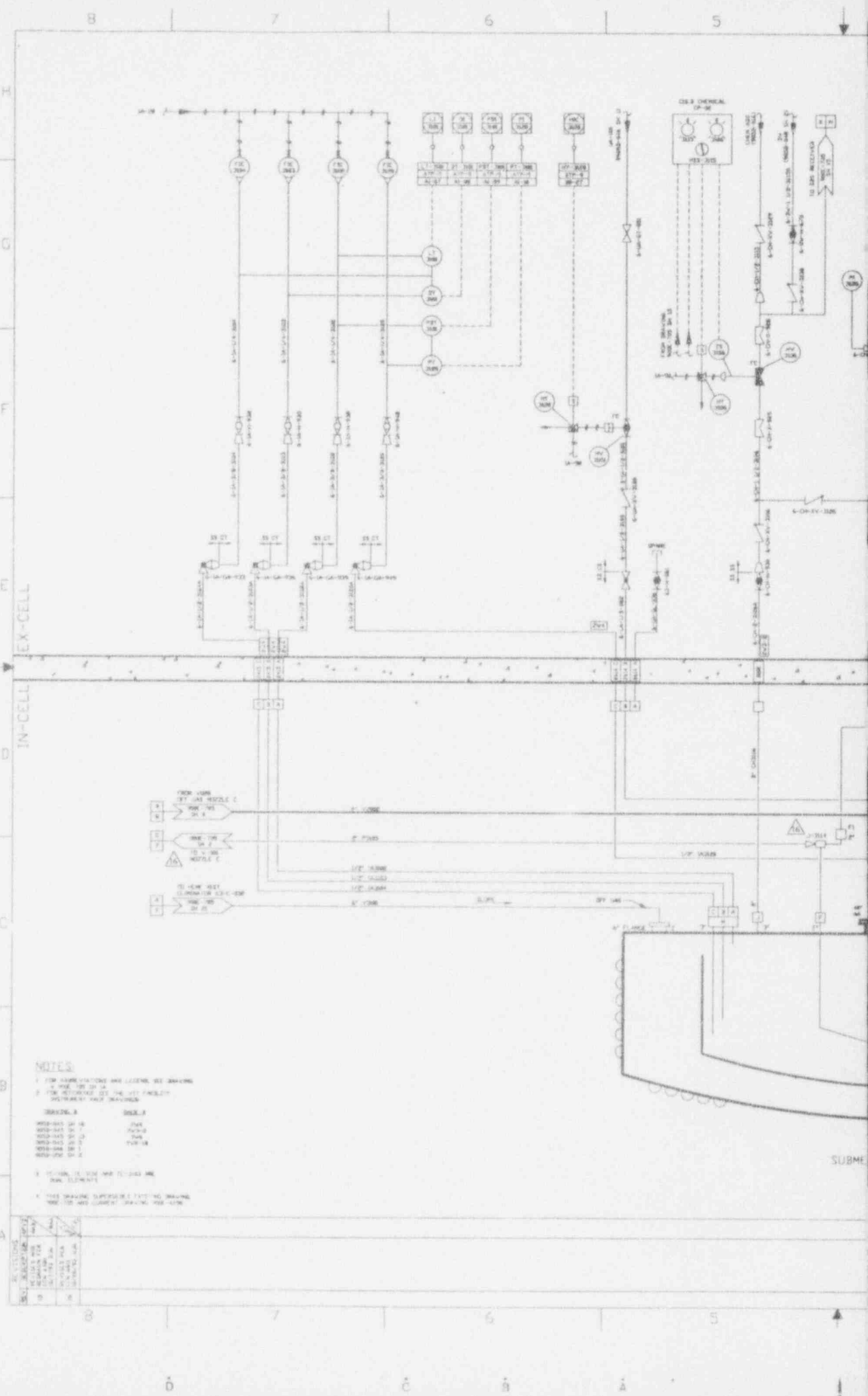
WEST VALLEY NUCLEAR SERVICES (CLIMAX)
WEST VALLEY, NEW YORK

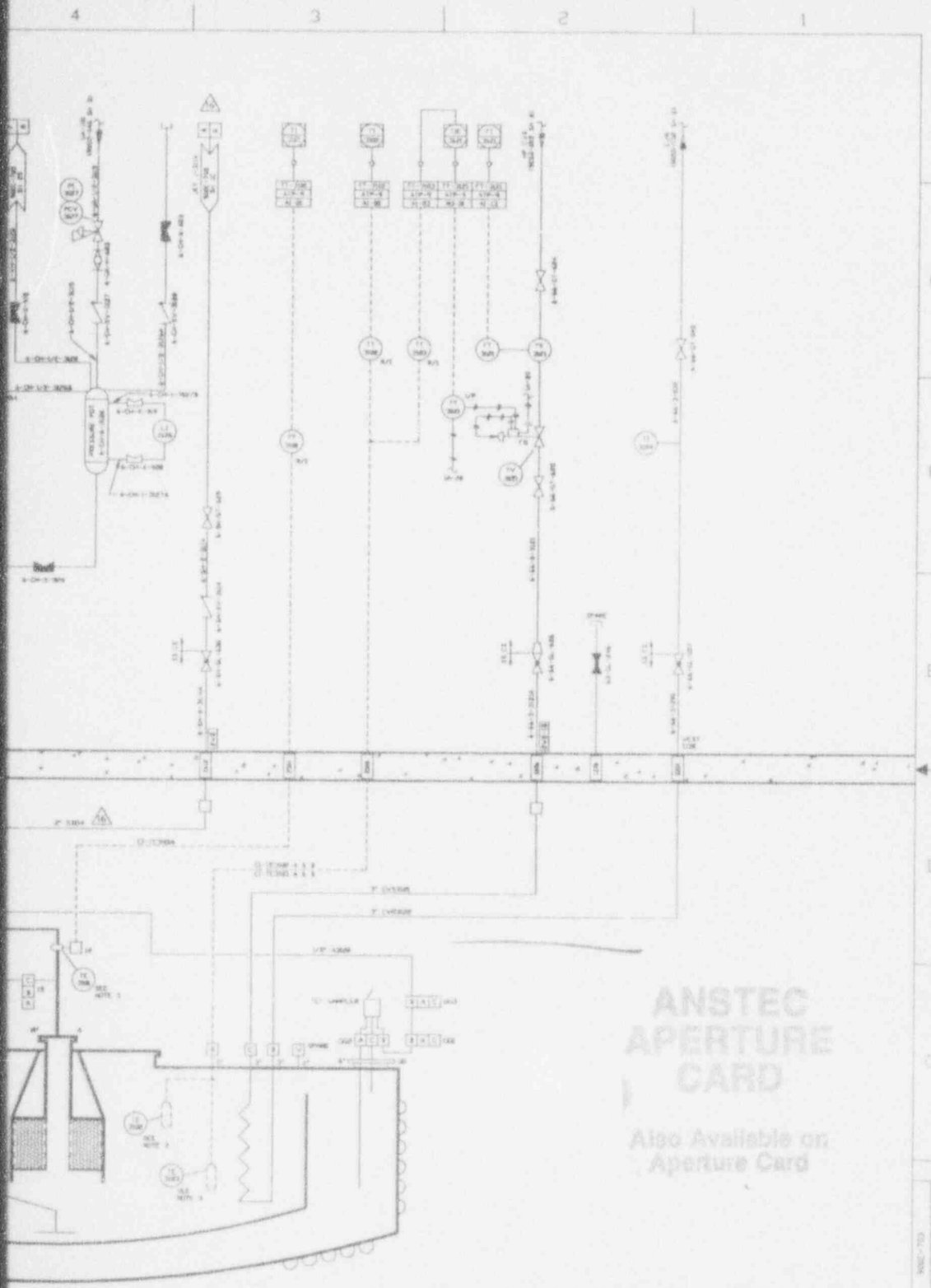
TURNTABLE

SIZE	SCALE: NONE	DWG NO. 9005-705	REV 14
E			SHEET 12 OF

LAS DRAWING DO NOT REVISE THIS ORIGINAL

9405140262-17


EX-CELL
IN-CELL
NOTES:
SUBME

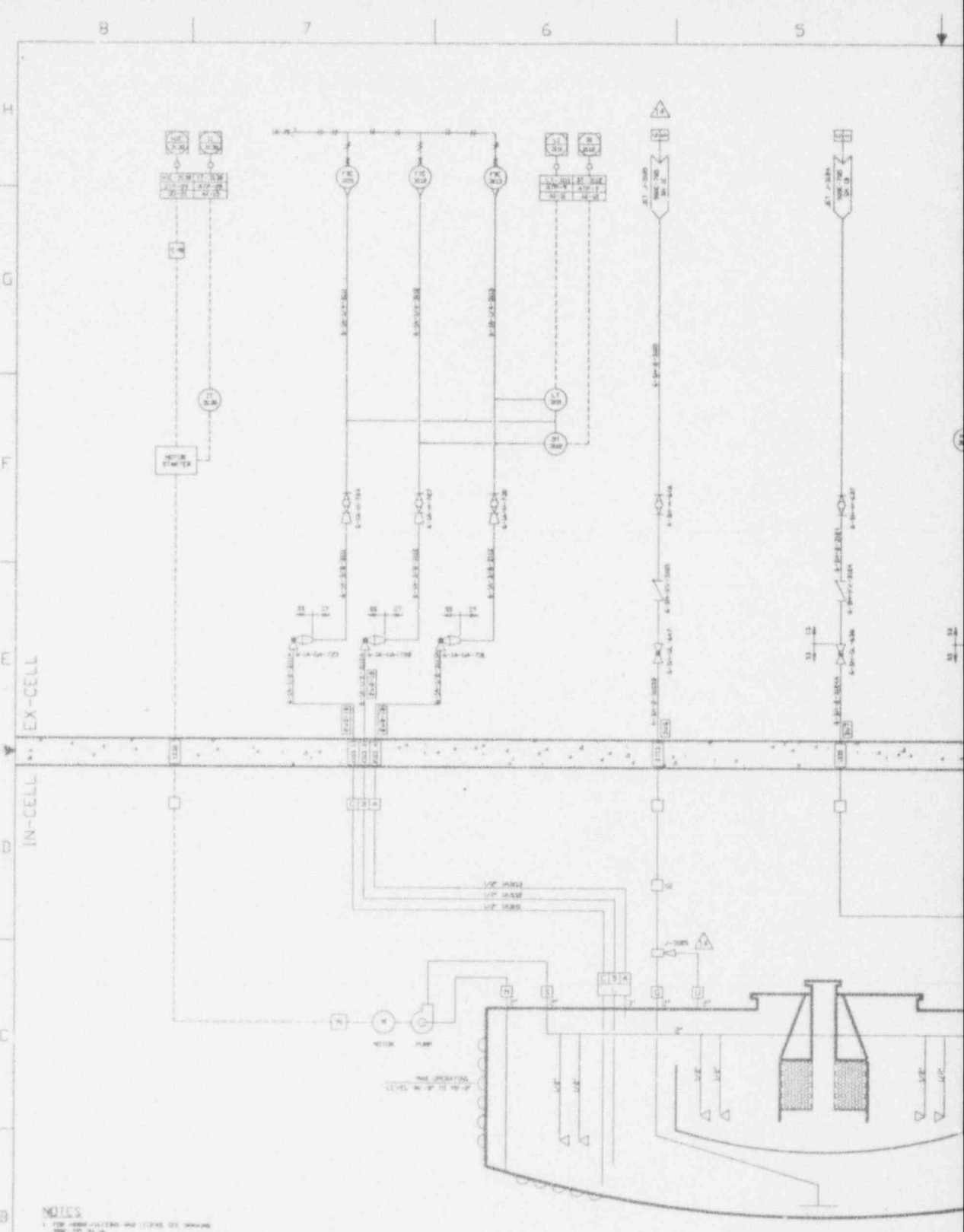


62-V-021

D BED SCRUBBER (SBS)
MARY SCRUBBER
SCRUB SECTION)
-0" ID X 5'-5"
3507 LITRES

PRIMARY SCRUBBER
SCRUB SECTION

9403140262-18



NOTES

63-V-031

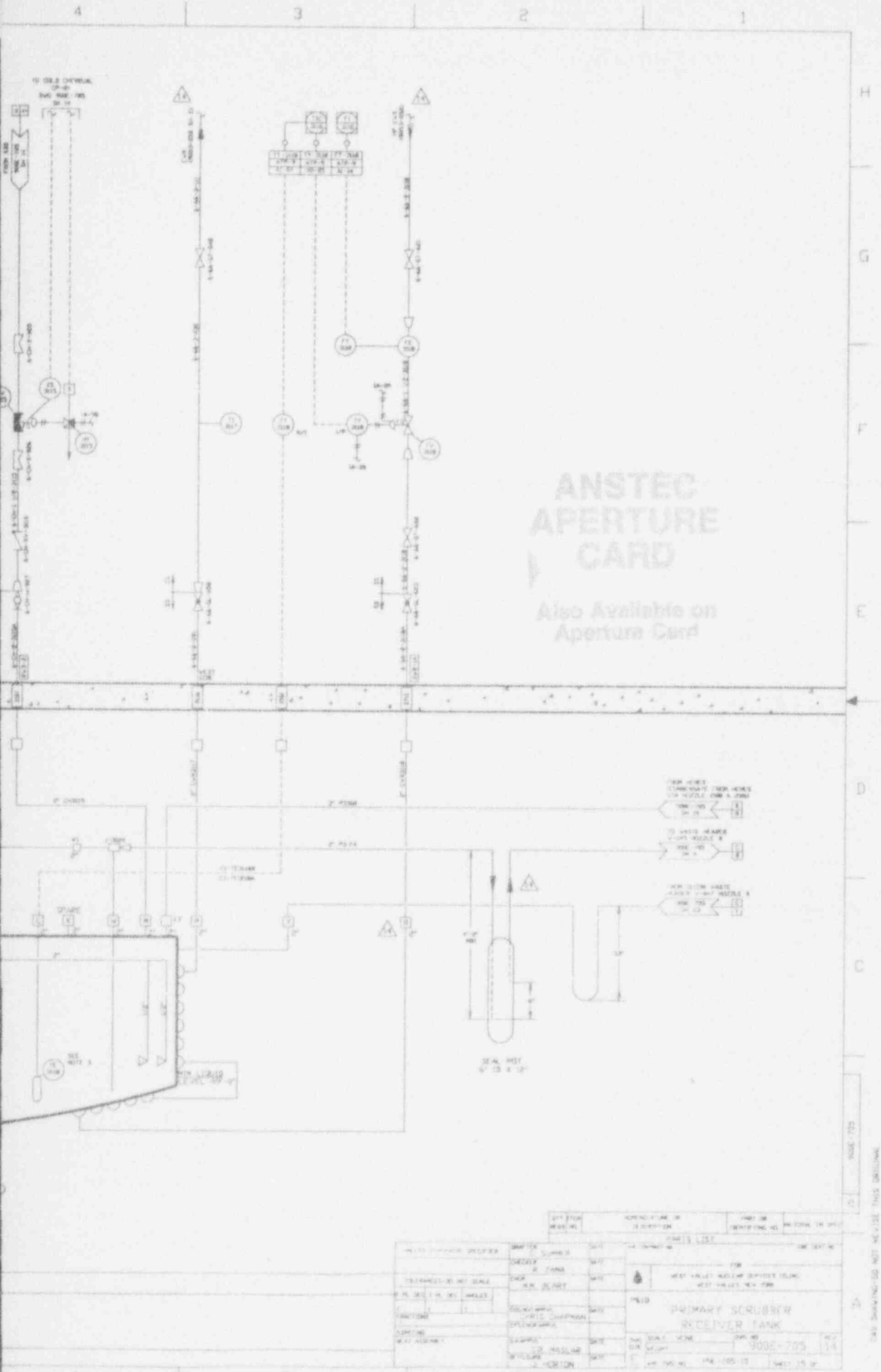
SUBMERGED BED SCRUBBER (SBS

PRIMARY SCRUBBER

(RECEIVER TANK)

9'- 6" OD X 10'- 9"

6,815 LITRES NORMAL LIQUID VOLUME



9403140262-19

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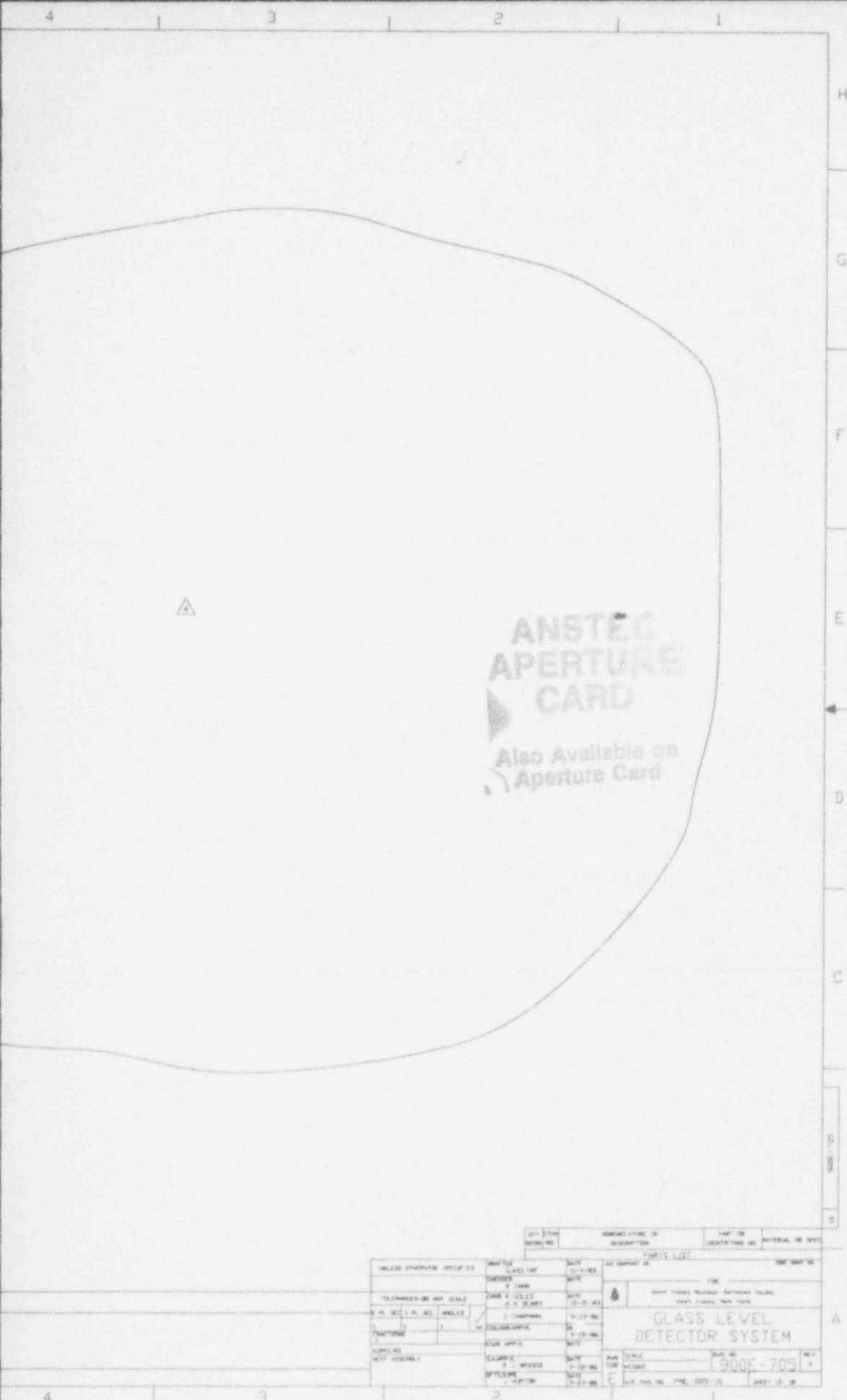
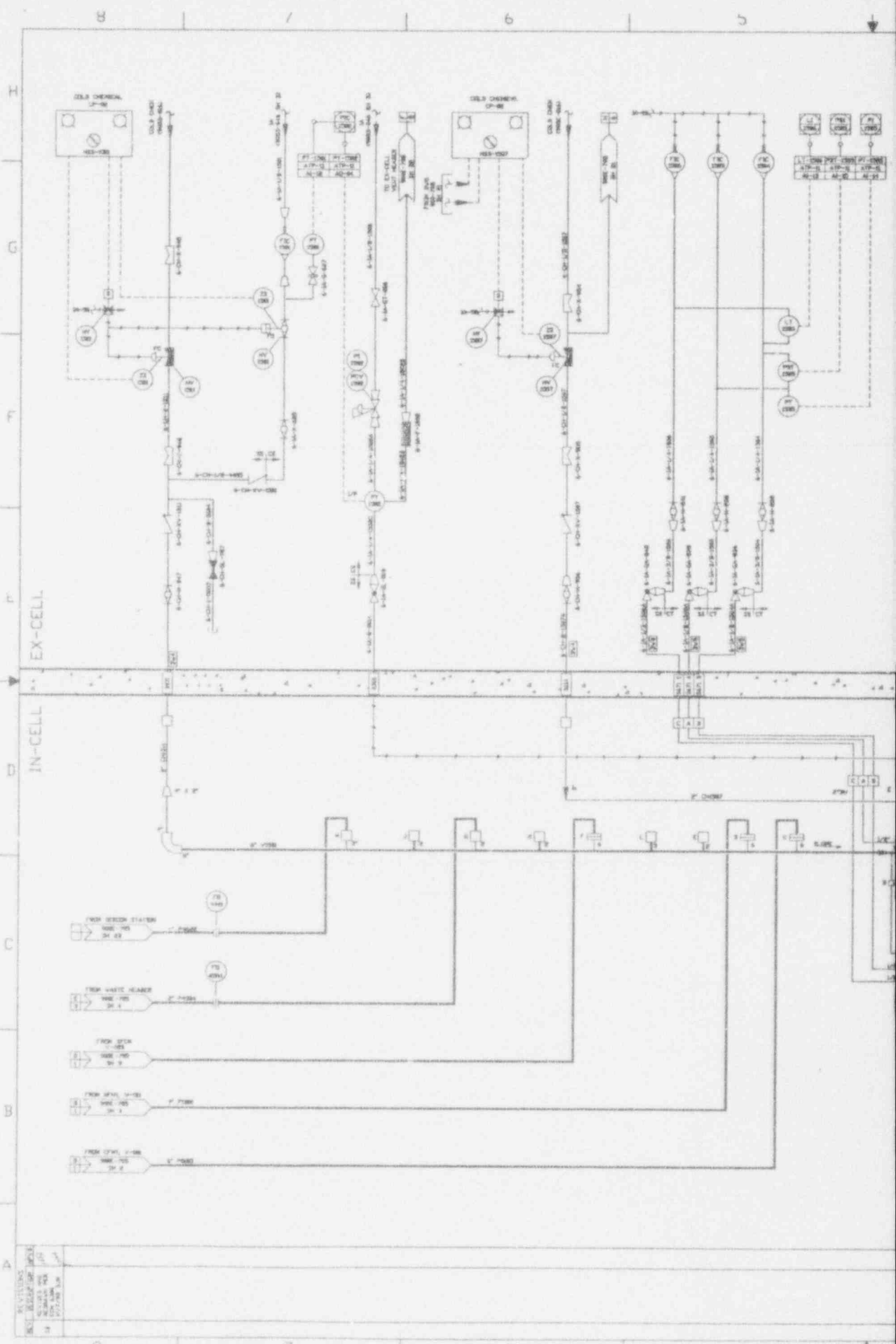
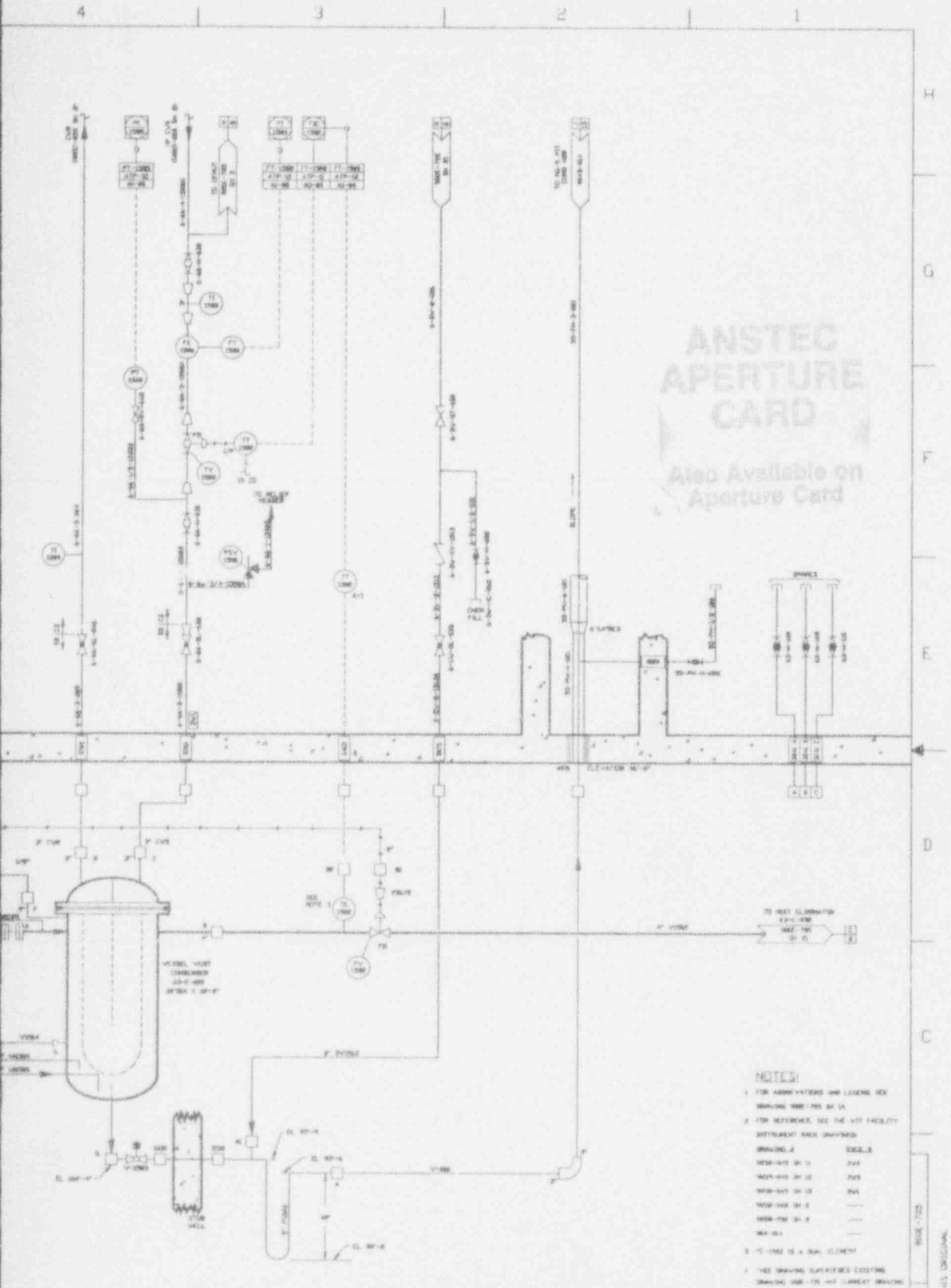


GLASS LEVEL
DETECTOR SYSTEM

900E-705


EX-CELL
IN-CELL



NOTES:

1. FOR ABBREVIATIONS AND LEGEND SEE DRAWING 9008-705 SH 1A
2. FOR REFERENCE, SEE THE VTT FACILITY INSTRUMENT RACK DRAWINGS

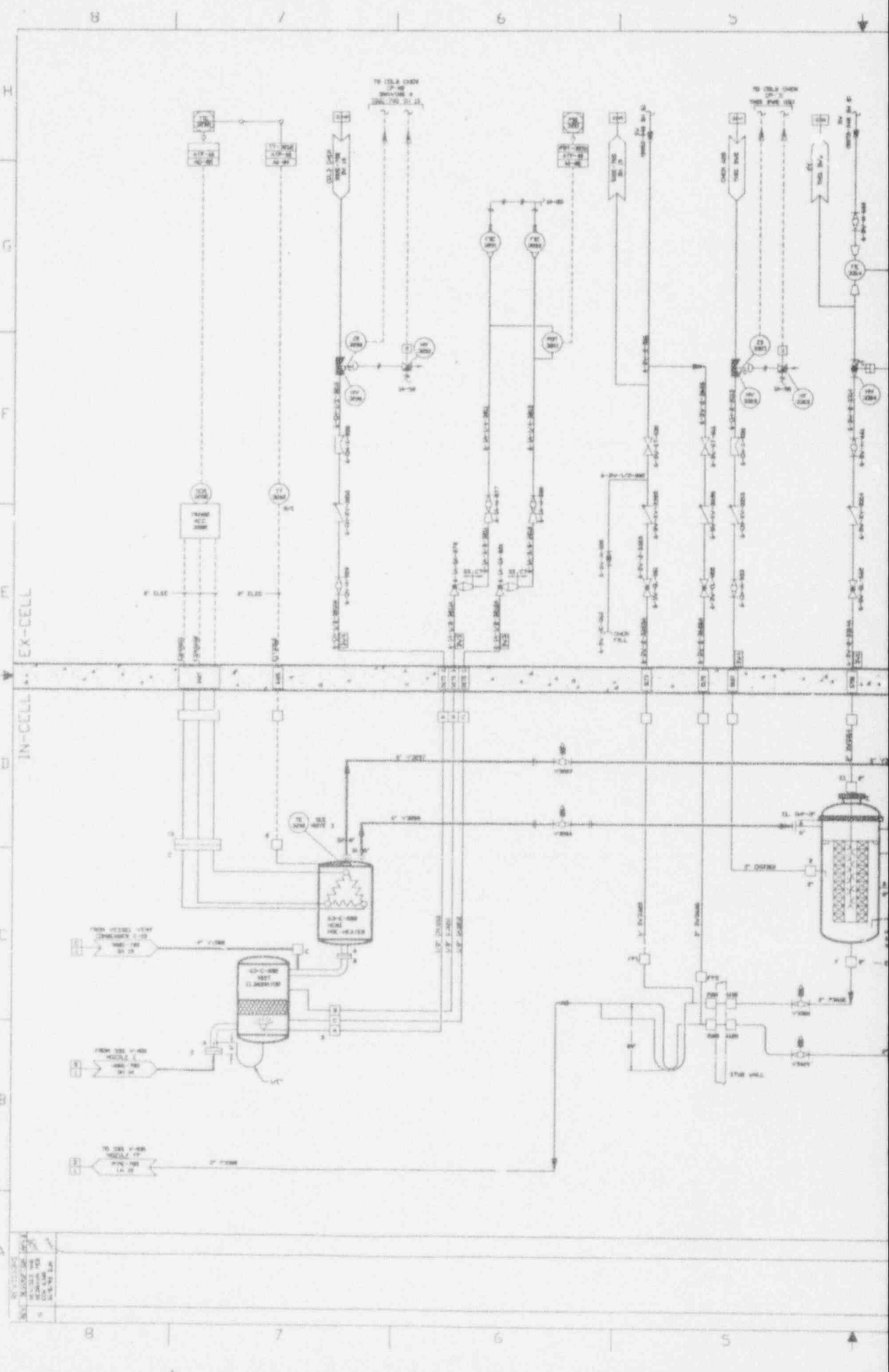
DRAWING #	SHEET #
9008-643 SH 1	2 of 5
9008-643 SH 12	3 of 5
9008-643 SH 13	4 of 5
9008-668 SH 2	----
9008-758 SH 2	----
9M4-004	----

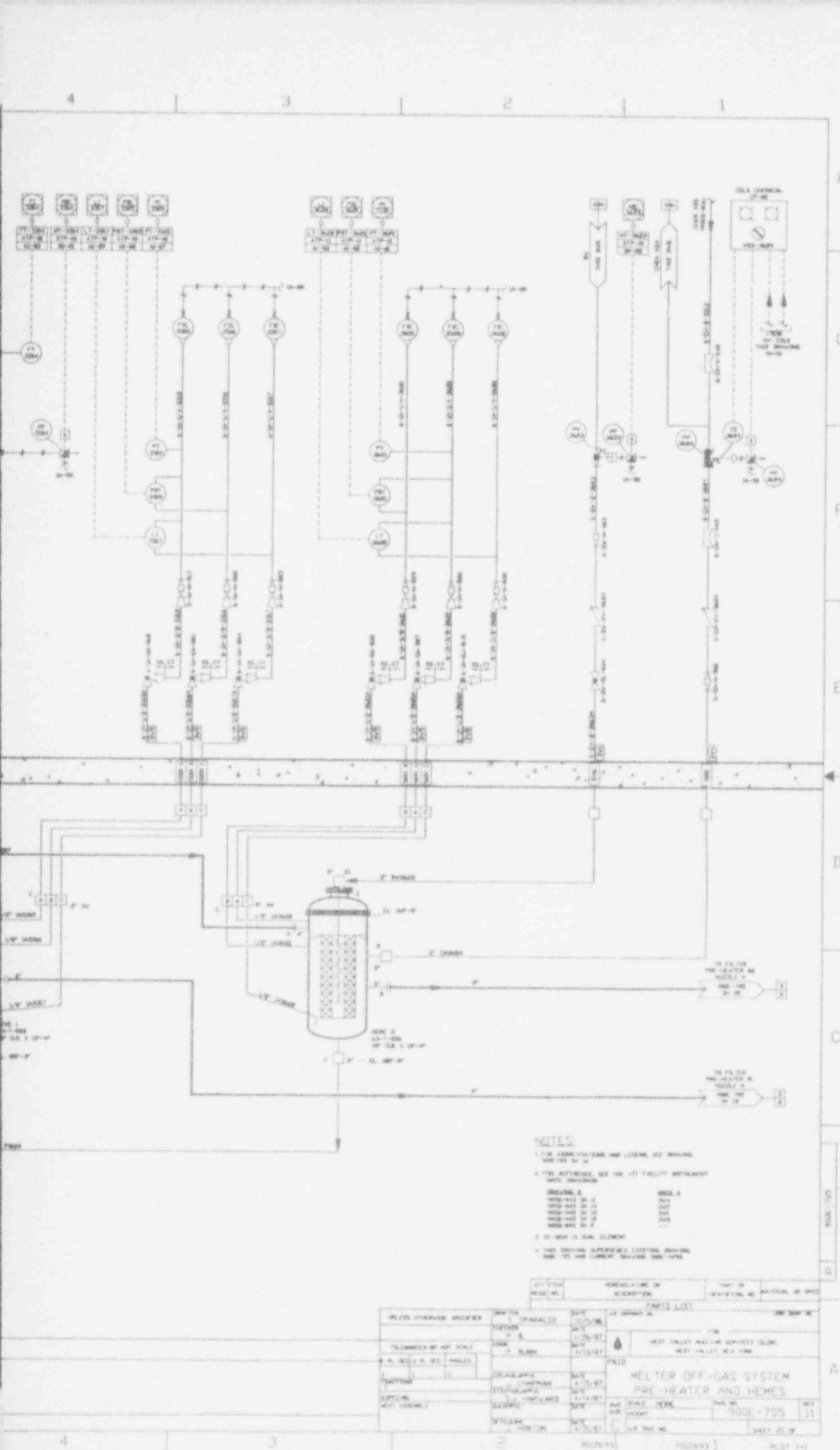
3. TC-1062 IS A DUAL ELEMENT
4. THIS DRAWING SUPERSEDES EXISTING DRAWING 9008-705 WHT CURRENT DRAWING 9M8-4296

QTY	ITEM NO.	DESCRIPTION	PART OR IDENTIFYING NO.	MATERIAL OR SPEC
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED	DRAWN: E. SPARACIO	DATE: 6/25/96	WE DRAWING NO. 9008-705 SH 1A
DIMENSIONS IN INCHES	CHECKED: P.B.	DATE: 1/25/97	FOR: WEST VALLEY NUCLEAR SERVICES (USA), INC. WEST VALLEY, NEW YORK
TOLERANCES (IF NOT SHOWN): X ± .XX ± .XXX; ANGLES ± 1°	CLIENT: P. SUNN	DATE: 4/14/97	TITLE: CTS VESSEL VENT SYSTEM
FRACTIONS ± 1/16	DESIGNED:	DATE:	
SURFACES: WELD ASSEMBLY	DRAWING: E. SPARACIO	DATE: 4/14/97	SIZE: A; SCALE: NONE; DWG. NO.: 9008-705; REV: 13
	CHECKED: J. HORTON	DATE: 1/25/97	SHEET 1 OF 5

THIS DRAWING SUPERSEDES DRAWING 9008-705 REVISION 12


EX-CELL
IN-CELL



NOTES:

1. FOR ABBREVIATIONS AND LEGEND, SEE DRAWING [illegible]
2. P&ID REFERENCE, SEE WSRC-VTF FACILITY INSTRUMENT GAPS DRAWINGS

DRAWING #	SHEET #
[illegible]	[illegible]

DRAWING #	SHEET #
[illegible]	[illegible]

3. [illegible]
4. THIS DRAWING SUPERSEDES EXISTING DRAWING [illegible]

ITEM NO.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	MATERIAL OR SPEC

PARTS LIST

UNLESS OTHERWISE SPECIFIED

	NAME	DATE
DRAWN	[illegible]	1/20/97
CHECKED	[illegible]	1/29/97
ENGR APPROV.	[illegible]	1/13/97
MFG APPROV.	[illegible]	1/15/97
PROJ MGR	[illegible]	1/14/97
QA	[illegible]	[illegible]
APPROVED	[illegible]	1/15/97

TOLERANCES-DO NOT SCALE

X IN.	XX IN.	XXX IN.	ANGLES
±	±	±	±

FINISH

MATERIAL

DO NOT SCALE DRAWING

CONTRACT NO. [illegible]

SUPERSEDING [illegible]

NEXT ASSEMBLY

APPLICATION

DISTRIBUTION

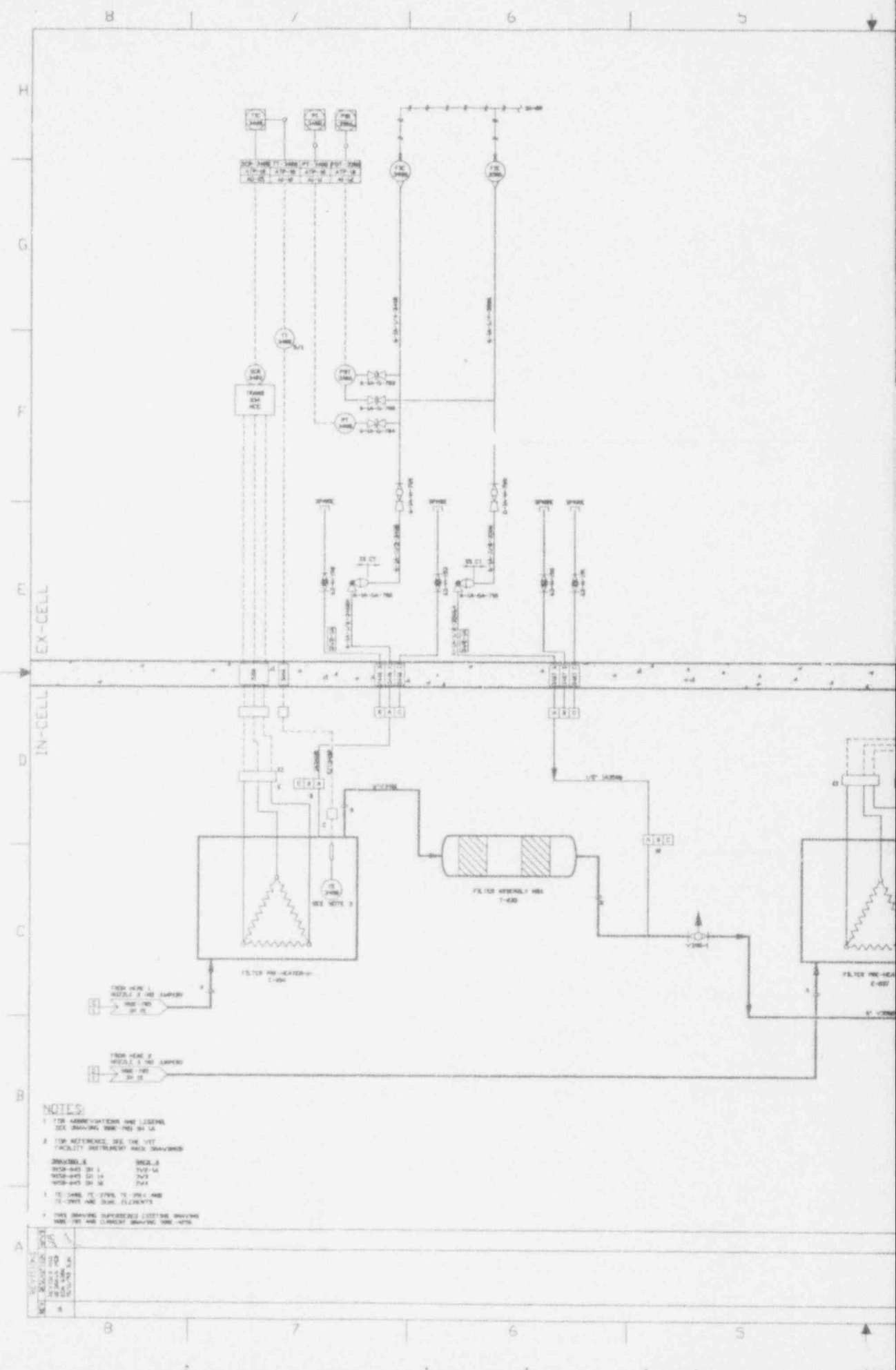
WEST VALLEY NUCLEAR SERVICES CO.INC.
WEST VALLEY, NEW YORK

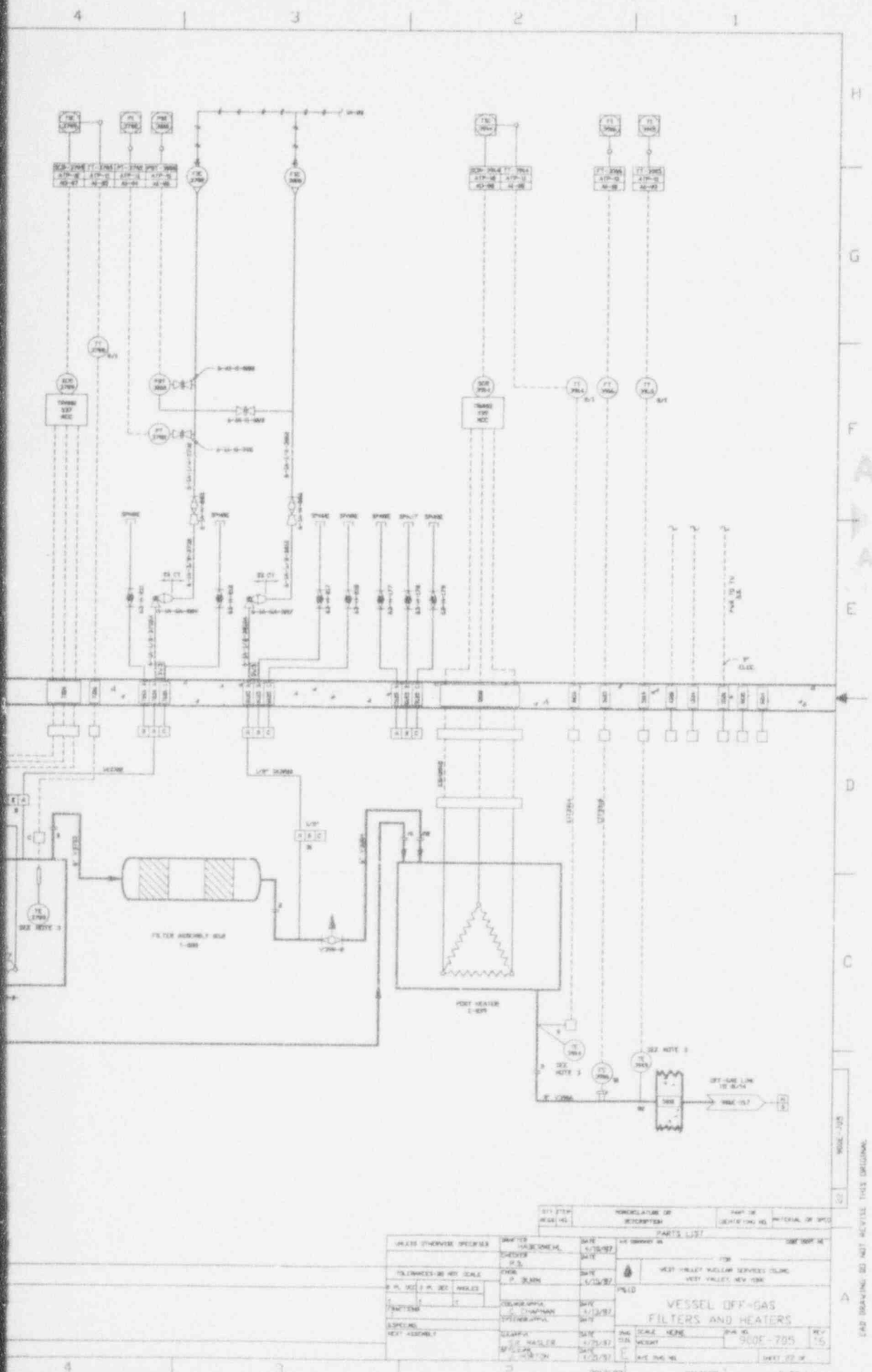
TITLE

MELTER OFF-GAS SYSTEM
PRE-HEATER AND HEMES

SIZE	SCALE: NONE	DWG NO.	REV
D	WEIGHT:	900E-705	11
	USE [illegible] NO.	SHEET 21 OF	

CAD DRAWING DO NOT REVISE THIS ORIGINAL


EX-CELL
IN-CELL
NOTES:

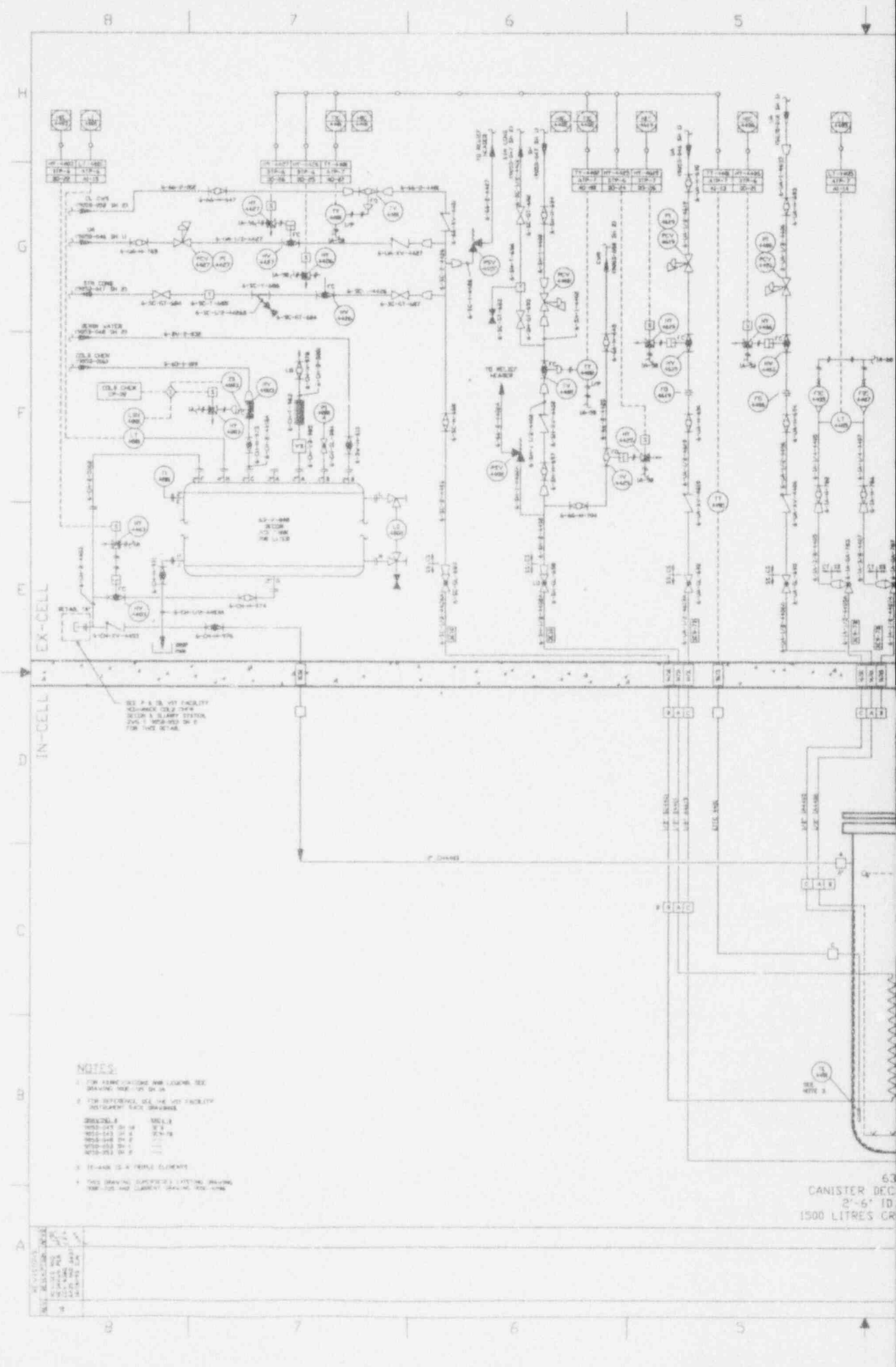


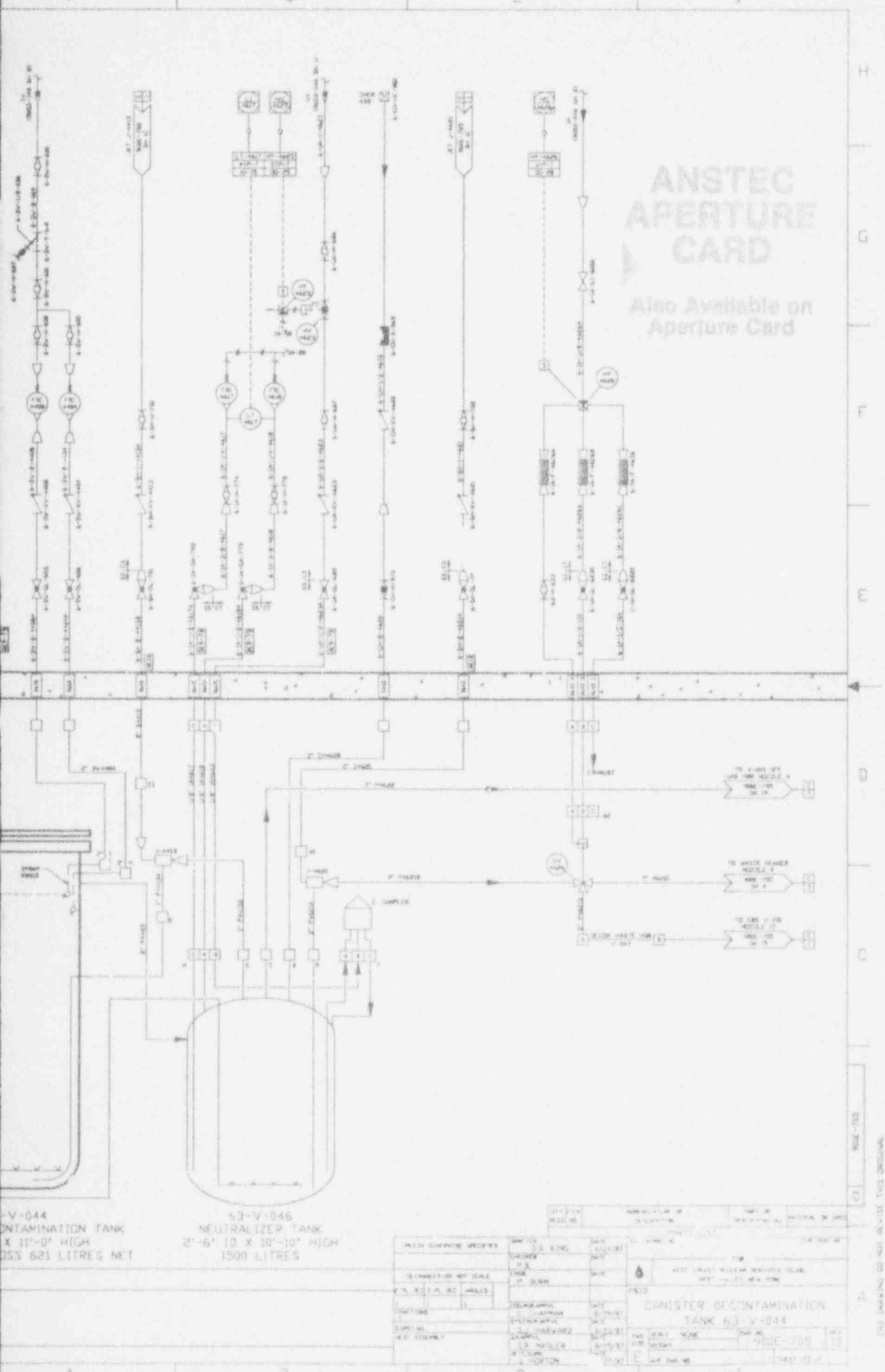
PARTS LIST

VESSEL OFF-GAS
FILTERS AND HEATERS

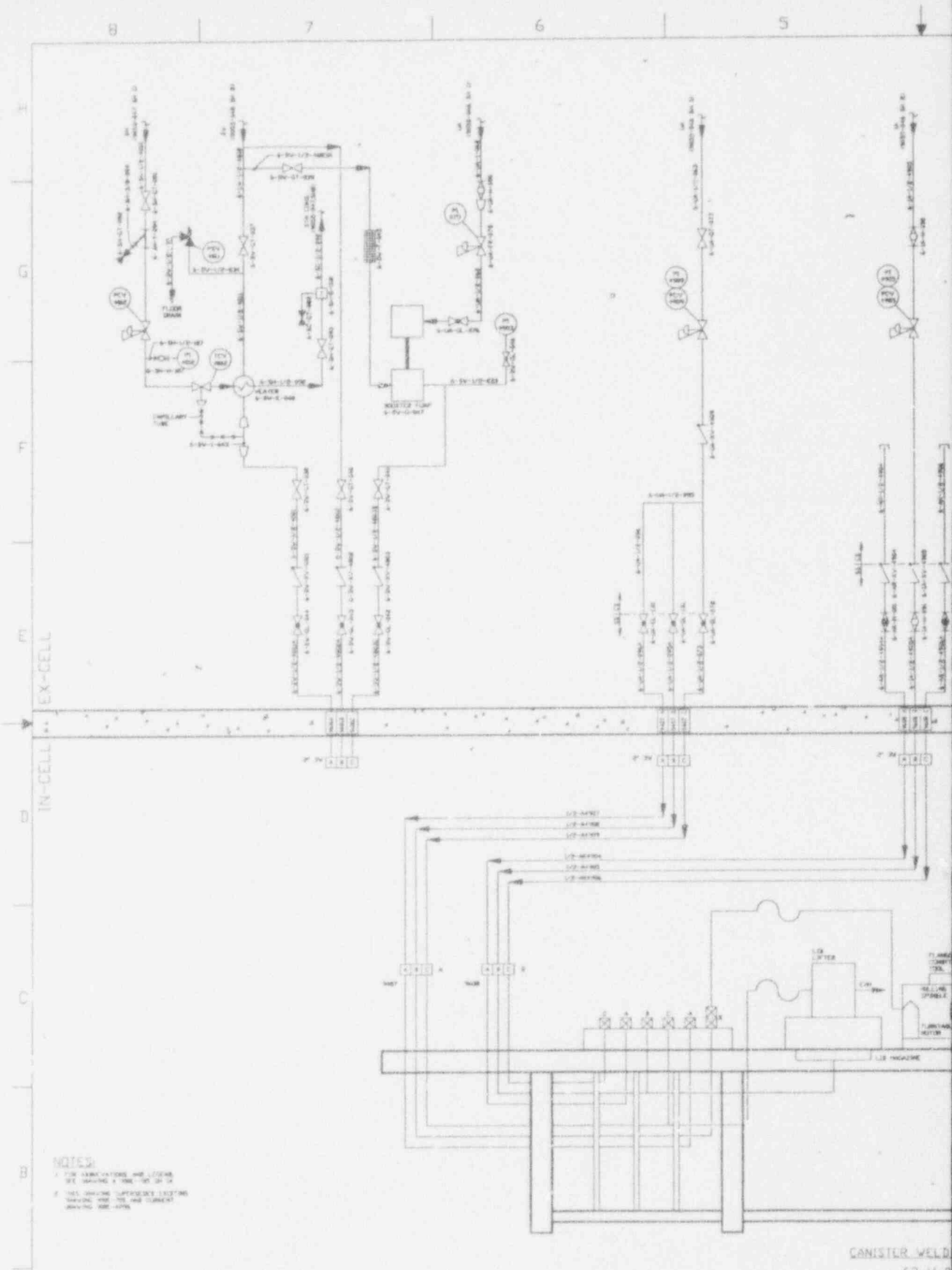
900E-785

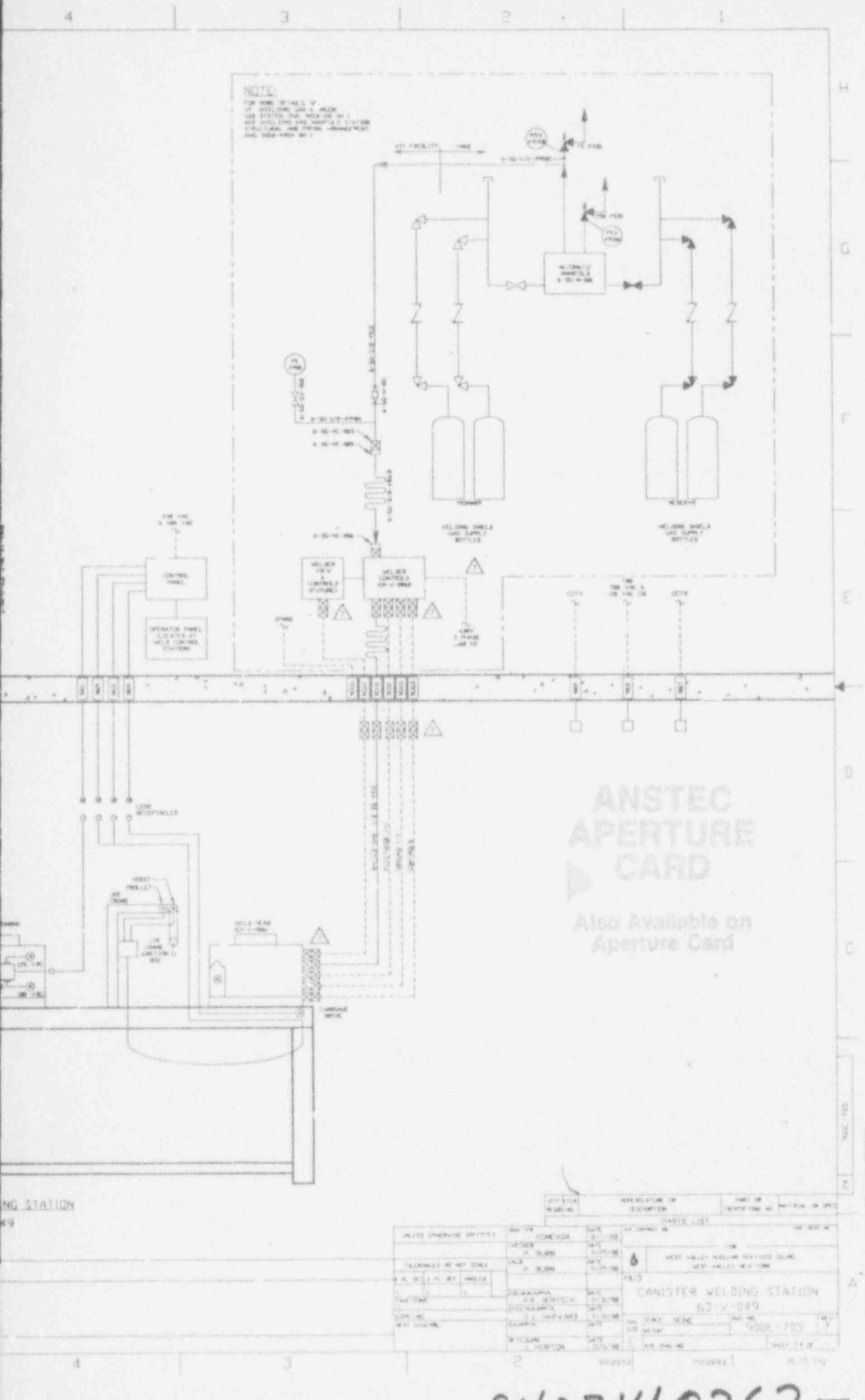
9403140262-23


EX-CELL
IN-CELL
NOTES:
CANISTER DEC
2'-6" ID
1500 LITRES GR



9403140262-24


EX-CELL
IN-CELL
NOTES:



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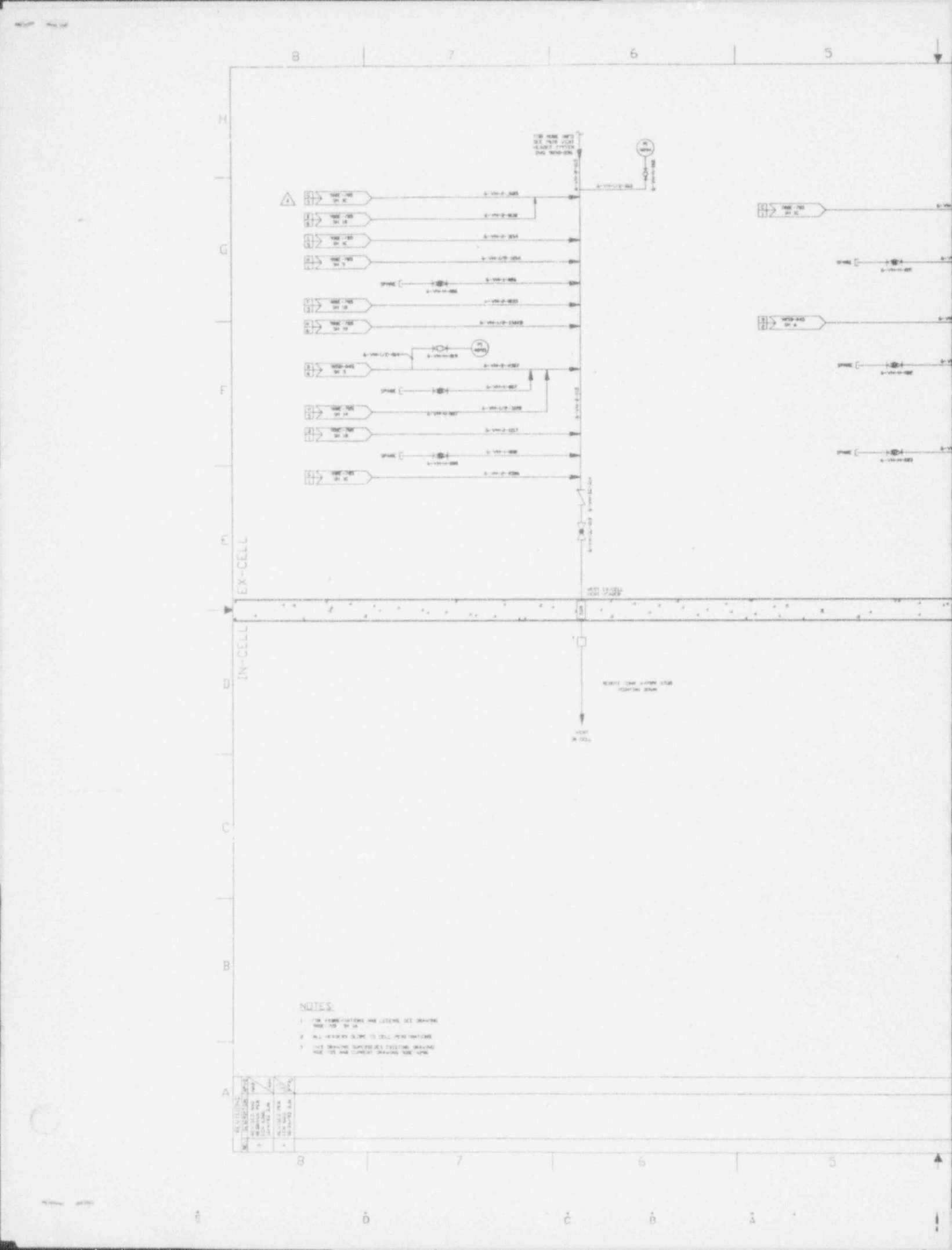
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IN-CELL
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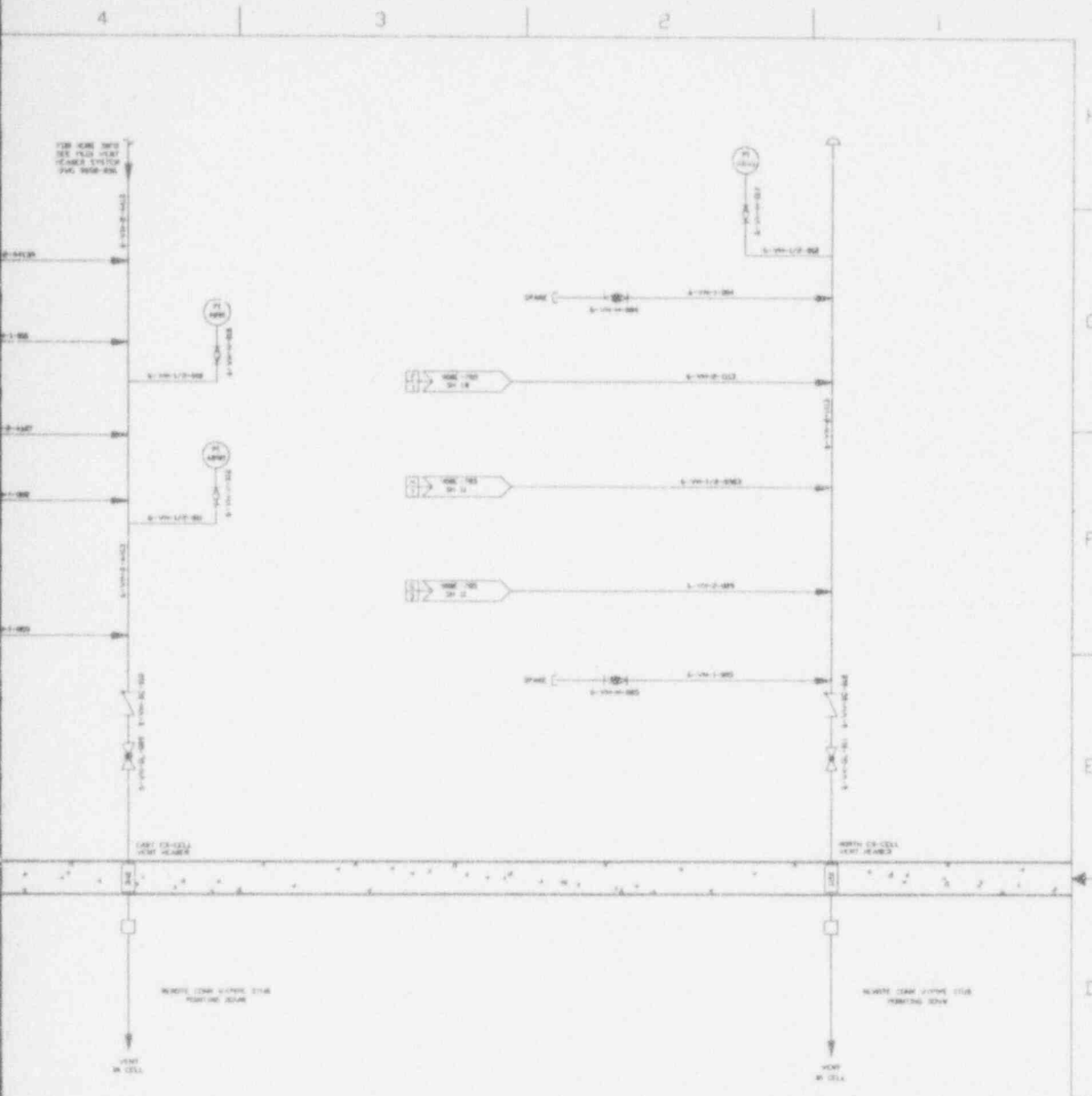

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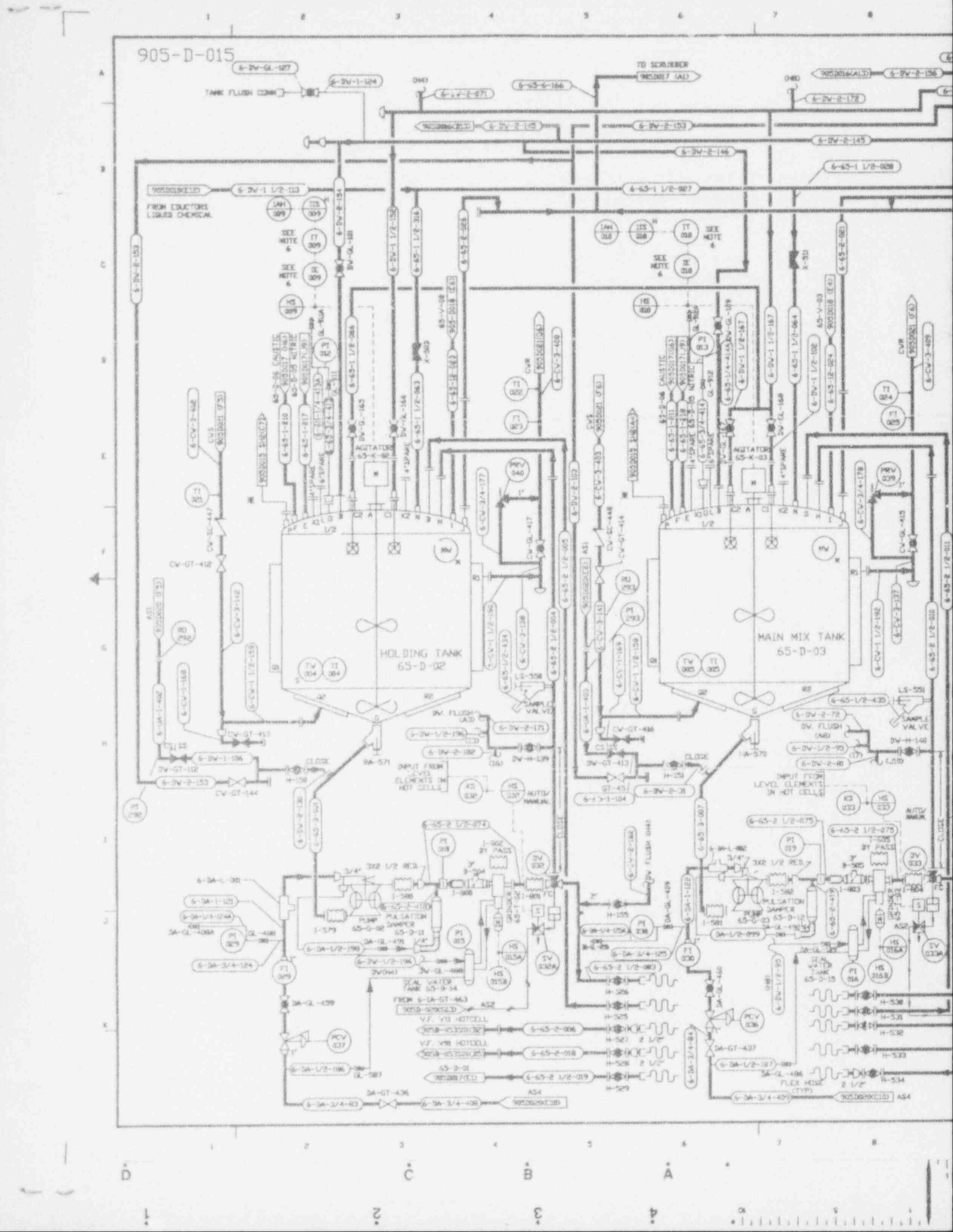
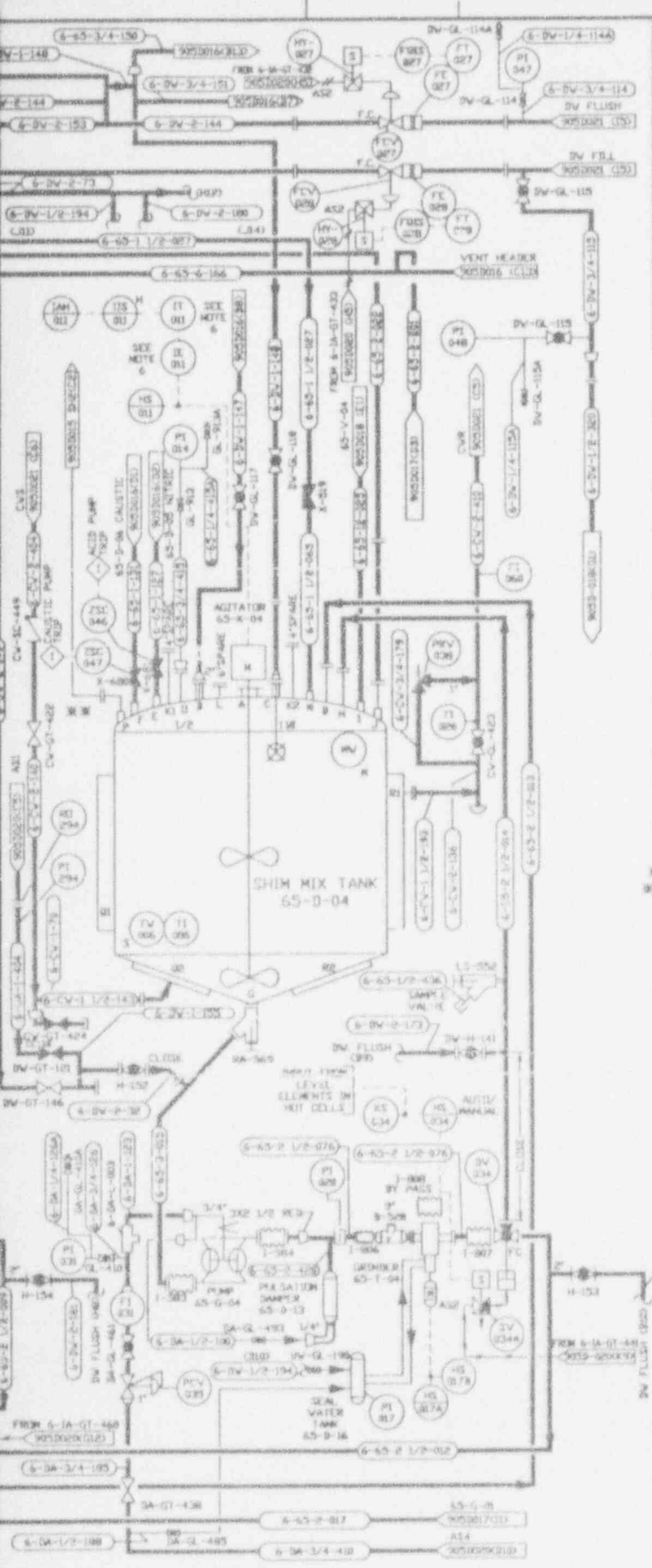

905-D-015
TANK FLUSH CONN
TO SCRUBBER
FROM EDUCTORS
LIQUID CHEMICAL
SEE NOTE 6
AGITATOR
65-K-02
AGITATOR
65-K-03
HOLDING TANK
65-D-02
MAIN MIX TANK
65-D-03
SAMPLE VALVE
DW. FLUSH
INPUT FROM LEVEL ELEMENTS IN HOT CELLS
AUTO/MANUAL
CLOSE
BY PASS
PULSATION DAMPER
SEAL WATER TANK
V.F. VIII HOTCELL
FLEX HOSE
AS4
D
C
B
A



NO.	DATE	REVISION	DR	CH	APPROVED		
B	03-14-87		T.JK	A.JD	R.A.	A.JD FJK	MDW
		GENERAL REVISION					
C	08-14-87		T.JK	A.JD	CGS R.A.	A.JD FJK	MDW
		REVISION PER CBAR 945A					
D	10/23/87		T.JK	WK	R.A.	A.JD	MDW
		REVISION PER CBAR 9458					
0	10/3/88	ER 1468			JRH		
11	10/8/93	REV'D PER ECN 6729	AJC	HAB	HAJ 10/8/93		
12	10/19/93	GEN REV PER ECN 6766 & 6139	GN	HAB	DJR		
13	10/27/93	GEN REV PER ECN 6993	SRD	KMG	RD		
9	8/24/93	GEN REV PER ECN 6455	JLH	HAB	GGT		
10	9/3/93	REV'D PER ECN 6656	WCK	HAB	DDD 9/15/93 JCD 9/21/93		

REFERENCE DRAWINGS

COLD CHEMICAL UTILITY P & ID'S — 905-D-019, 905-D-020, 905-D-021, 905-D-022

NOTES

1. AIR SUPPLY LEGEND
   AS1=100 PSIG UTILITY AIR
   AS2= 50 PSIG INSTRUMENT AIR
   AS3= 20 PSIG INSTRUMENT AIR
   AS4=100 PSIG DRY UTILITY AIR
2. ALL SLURRY LINES SHALL BE DESIGNED WITH LONG RADIUS (5D) BENDS.
3. ALL SLURRY TRANSFER LINES TO BE DESIGNED WITH BREAK FLANGES LOCATED EVERY 10 FEET MINIMUM.
4. ALL BALL VALVES IN SLURRY SERVICE TO BE FULL PORTED WITH BOLT ON BONNETS.
5. DELETED.
6. THIS ITEM IS LOCATED IN MCC.
7. ALL INSTRUMENT ITEM NUMBERS ARE PRECEDED BY 65-.
8. ALL VALVE/SPECIALTY ITEM NUMBERS ARE PRECEDED BY 6-65- UNLESS OTHERWISE NOTED
9. HORNS SHALL BE PLACED IN WEIGH SCALE AREA AND AT THE EAST SIDE OF THE EL. 135.00' OPERATING PLATFORM.
10. ALL VALVE AND LINE NUMBERS ARE PRECEDED BY 6

* LEVEL CONTROL STATION #1
** LEVEL CONTROL STATION #2

EQUIPT. NUMBER	NAME	REFERENCE DWG. NO.	DESCRIPTION
65-D-02	SLURRY HOLD TANK	E-1489	5000 GAL. WORKING VOL. 9'-6"ØX8'-9 S.S.304LSS
65-D-03	MAIN MIX TANK	E-1490	5000 GAL. WORKING VOL. 9'-6"ØX8'-9 S.S.304LSS
65-D-04	SHIM TANK	E-1492	500 GAL. WORKING VOL. 4'-0"ØX5'-9 S.S.304LSS
65-G-02 65-G-03 65-G-04	SLURRY PUMPS	——	AIR OP DOUBLE DIAPHRAGM PUMPS WR MODEL 1B3-A 0-260GPM,3"SIZE
65-K-02 65-K-03	SM TANK AGITATORS	•	15 HP,68 RPM,1-36"DIA.& 2-54"DIA.BLADES,304LSS
65-K-04	SHIM TANK AGITATOR	——	2 HP,84 RPM,2-24"DIA. BLADES,304L SS
65-D-14 65-D-15 65-D-16	SEAL WATER POTS	——	IKA WORKS SUPPLIED SEAL POTS
65-D-11 65-D-12 65-D-13	SLURRY PUMP PULSATION DAMPERS	——	WARREN RUPP TRANQUILIZER
65-T-02 65-T-03 65-T-04	SLURRY GRINDERS	——	IKA WORKS, 10 HP DISPAX, 100 GPM

FOR DRAWING INDEX SEE DRAWING NO.

EBASCO SERVICES INCORPORATED

A/E D.F.S. NO. 2300 — TASK ORDER 323

FOR

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

WEST VALLEY DEMONSTRATION PROJECT

P & ID
COLD CHEMICAL PREPARATION AND FEED SYSTEM

APPROVED WVNS CO.	
PROJECT MGR R.D. WEINGART	03-30-87
ENGINEER SUPV A.J. DIFILIPPO	03-30-87
LEAD DISC ENGR F. TULIPANO	03-30-87
DESIGN R.J. LEWKO	03-30-87
CHECKED T.J. PIAZZA	03-30-87
DRAWN R.J. LEWKO	DATE 03-30-87
DE-AC07-81NE44139	
PROJECT NO. 19-CWV-32275	
SUBCONTRACT NO.	
ISSUED FOR CONSTRUCTION	

SIZE: D — DRAWING NO. 905D-015 — REV 13

SCALE: NONE — A/E SHEET NO. 905-D-015 S01

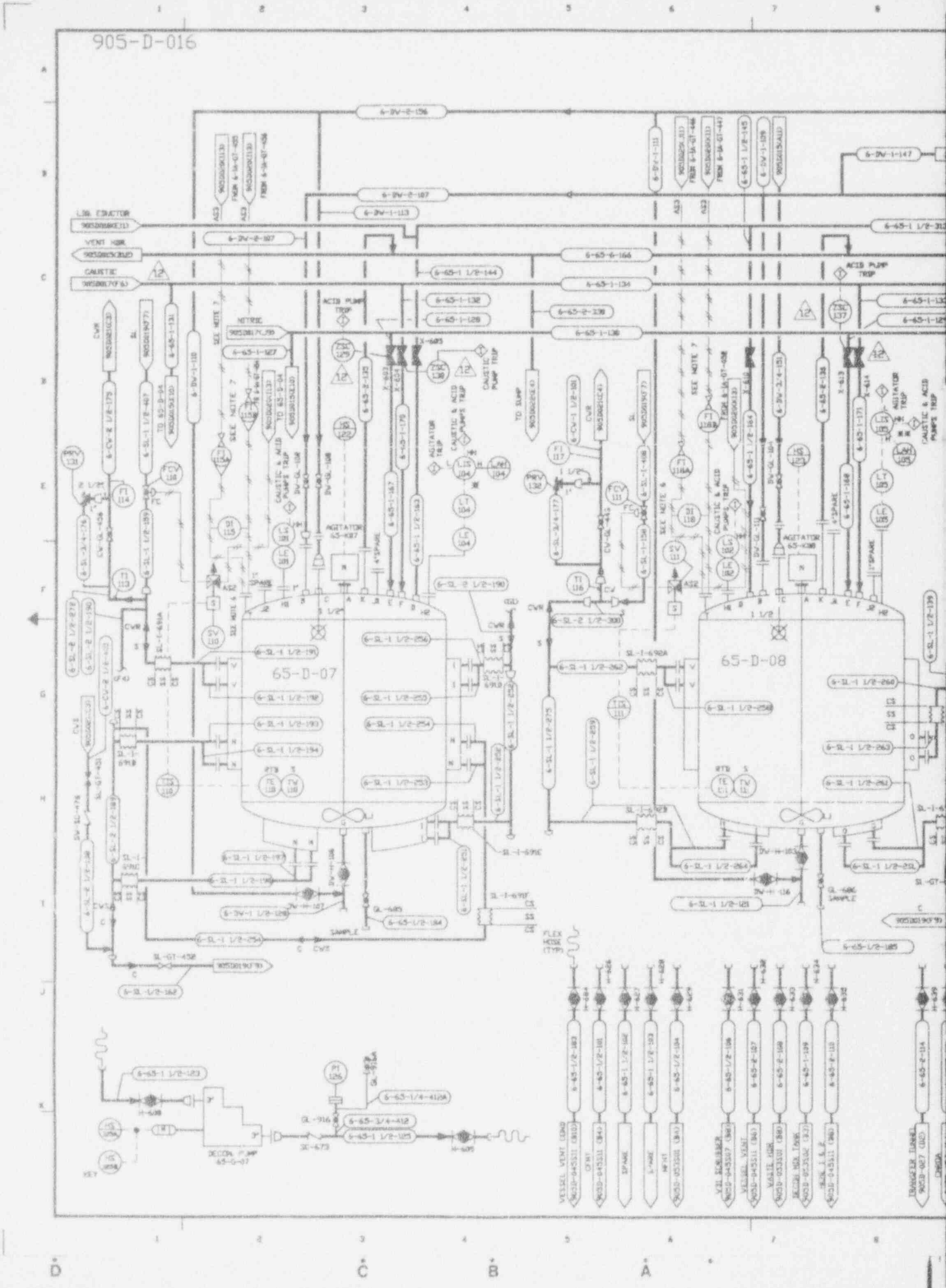
ANSTEC APERTURE CARD

Also Available on Aperture Card

ECN(S) PENDING #6844

CURRENT AS OF ... CHECK DOCUMENT CONTROL FOR LATEST REVISION

9403140262-27


905-D-016
65-D-07
65-D-08
AGITATOR 65-K07
AGITATOR 65-K08
ACID PUMP TRIP
CAUSTIC & ACID PUMPS TRIP
AGITATOR TRIP
CAUSTIC PUMP TRIP
NITRIC
CAUSTIC
VENT HDR
LIQ. EDUCTOR
SEE NOTE 7
SEE NOTE 6
TO SUMP
SAMPLE
FLEX HOSE (TYP)
DECON PUMP 65-G-07
KEY
VESSEL VENT COND
SPARE
TRANSFER TUNNEL
6-DW-2-136
6-DW-2-107
6-DW-1-113
6-DW-1-147
6-65-6-166
6-65-1-134
6-65-1-136
6-65-1 1/2-144
6-65-1-132
6-65-1-128
6-65-1-127
6-SL-2 1/2-190
6-SL-1 1/2-256
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6-SL-1 1/2-162
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6-65-1/2-185
6-65-1 1/2-123
6-65-1/4-418A
6-65-3/4-412
6-65-1 1/2-125
SL-GT-458
GL-916
GL-685
SPARE
D
C
B
A
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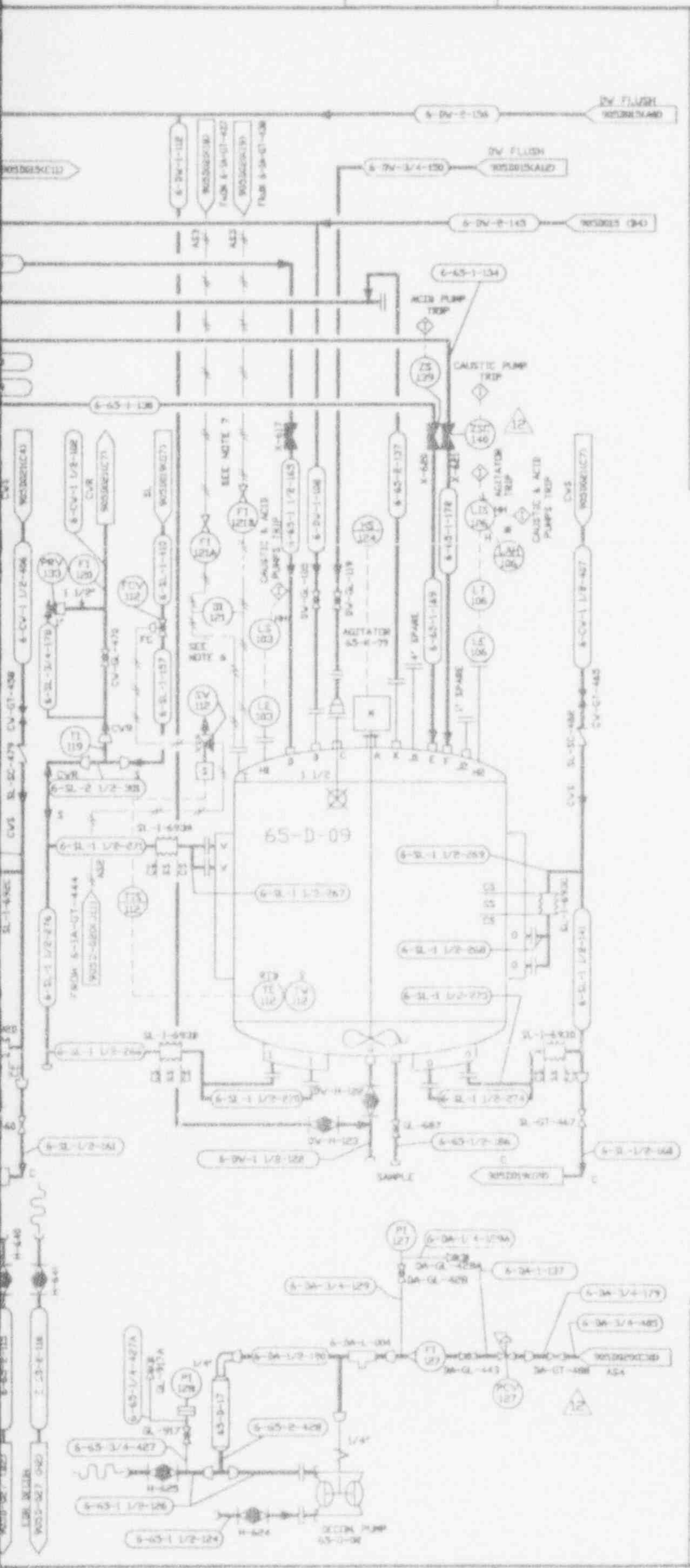
2
3
4



NO.	DATE	REVISION	DR	CH	APPROVED		
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GENERAL REVISION							
C	08-14-87		T.JK	A.J.D	EGS R.A.	A.J.D FSK	KDW
REVISION PER EBAR 949A							
B	10-23-87		T.JK	JV	R.A.	A.J.D	KDW
REVISION PER EBAR 992A							
0	10-03-88	ER 1468			JRH		
11	10/20/93	GENERAL REVISION/ECN 6139	H.A.	HAB	DJR		
12	10/27/93	REV'D PER ECN 6993	SRD	CHR	KD		
3	7/13/90	REV'D PER ECN 3802	AVN	DRS	RB 5/27/90		
4	6/6/91	REV'D PER ECN 4224	SRD	DRS	NEC 6/25/91		
5	3/25/92	REV'D PER ECN 5040	CGR	HAB	TEC		
6	3/1/93	REV'D PER ECN 5974	SRD	DRS	DDD		
7	3/25/93	REV'D PER ECN 6000	SRC	HAB	GGT		
8	4/15/93	REV'D PER ECN 6205	DAK	HAB	TB		
9	8/23/93	REV'D PER ECN 6435	JLH	HAB	GGT		
10	9/1/93	REV'D PER ECN 6656	WCK	HAB	DDB		

NOTES

1. FOR GENERAL NOTES SEE DWG. 905-D-015.
2. ACID, CAUSTIC, AND EDUCTED LIQUIDS LINES SHALL BE OF ALL WELDED CONSTRUCTION. WHEN THESE TRANSFER LINES ENTER A VESSEL THEY SHALL EXTEND 4" INTO TANK.
3. 65-D-07 TANK MANWAY TO BE UTILIZED AS POWDER INLET IF PNEUMATIC CONVEYING SYSTEM IS ADDED IN FUTURE.
4. ALL VALVE/SPECIALTY ITEM NUMBERS PRECEEDED BY 6-65- UNLESS OTHERWISE NOTED.
5. ALL INSTRUMENT ITEM NUMBERS ARE PRECEEDED BY 65-.
6. FOR OTHER COMPONENTS ASSOCIATED WITH SOLENOID VALVES SV-110, SV-111 AND SV-112, REFER TO COLD CHEM SYSTEM, INSTR. INSTALL. DETAILS DWG NO 905D-355, SH06
7. FOR OTHER COMPONENTS ASSOCIATED WITH ROTAMETERS FI-115A & B, FI-118A & B, AND FI-121A & B, REFER TO COLD CHEM SYSTEM, INSTR. INSTALL. DETAILS DWG NO 905D-355, SH22

* LEVEL CONTROL STATION #1

** LEVEL CONTROL STATION #2

EQUIPT. NO.	EQUIPT. NAME	REF. DWG.	DESCRIPTION
65-D-07	DECON TK.	900D-1900	1000 GAL. V. VOL. 4'-6 DIA 9'-0 TYPE 304L S.S. WITH BOLT-ON JACKETS
65-D-08	DECON TK.	E-1495	250 GAL. V. VOL. 3'-0 DIA 5'-6 TYPE 304L S.S. WITH BOLT-ON JACKETS
65-D-09	DECON TK.	E-1496	250 GAL. V. VOL. 3'-0 DIA 5'-6 TYPE 304L S.S. WITH BOLT-ON JACKETS
65-G-07	DECON METERING PUMP	—— 12	1500 GPH @ 90 PSI VARIABLE DISPLACEMENT PUMP, TYPE 316 SS & PTFE WETTED PARTS, MILROYAL TCMD4-160-9081-C, 5 HP
65-G-08	DECON TRANSFER PUMP	——	AIR OP DOUBLE DIAPHRAGM WR MODEL ST 1 1/2 TYPE 3, 316 SS & TEFLON 50 GPM 3 GPM(?)
65-J-17	PULSATION DAMPER	——	VARNER 9.9" TRANQUILIZER
65-K-07	AGITATOR	——	1.0 HP, 84 RPM, 1-12" DIA PROP, 304L SS
65-K-08	AGITATOR	——	0.5 HP, 430 RPM, 1-11" DIA PROP, 304L SS
65-K-09	AGITATOR	——	0.5 HP, 430 RPM, 1-11" DIA PROP, 304L SS

FOR DRAWING INDEX SEE DRAWING NO.

EBASCO SERVICES INCORPORATED

A/E W.O. NO. 2288 TASK ORDER 009

FOR

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

WEST VALLEY DEMONSTRATION PROJECT

P & ID COLD CHEMICAL PREPARATION AND FEED SYSTEM

APPROVED WVNS CO.		
PROJECT MGR	A.D. VEJNEGART(?)	09-30-87
ENGINEER SUPV	A.J. DIFILIPPO	09-30-87
LEAD DISC ENGR	F. TULIPANO	09-30-87
DESIGN	R.J. LEVKO	09-30-87
CHECKED	T.J. PIAZZA	09-30-87
DRAWN	K. KOLODZIEJ(?)	09-30-87
DE-AC07-81NE44139 PROJECT NO.		
19-CWV-92275 SUBCONTRACT NO.		
ISSUED FOR CONSTRUCTION		

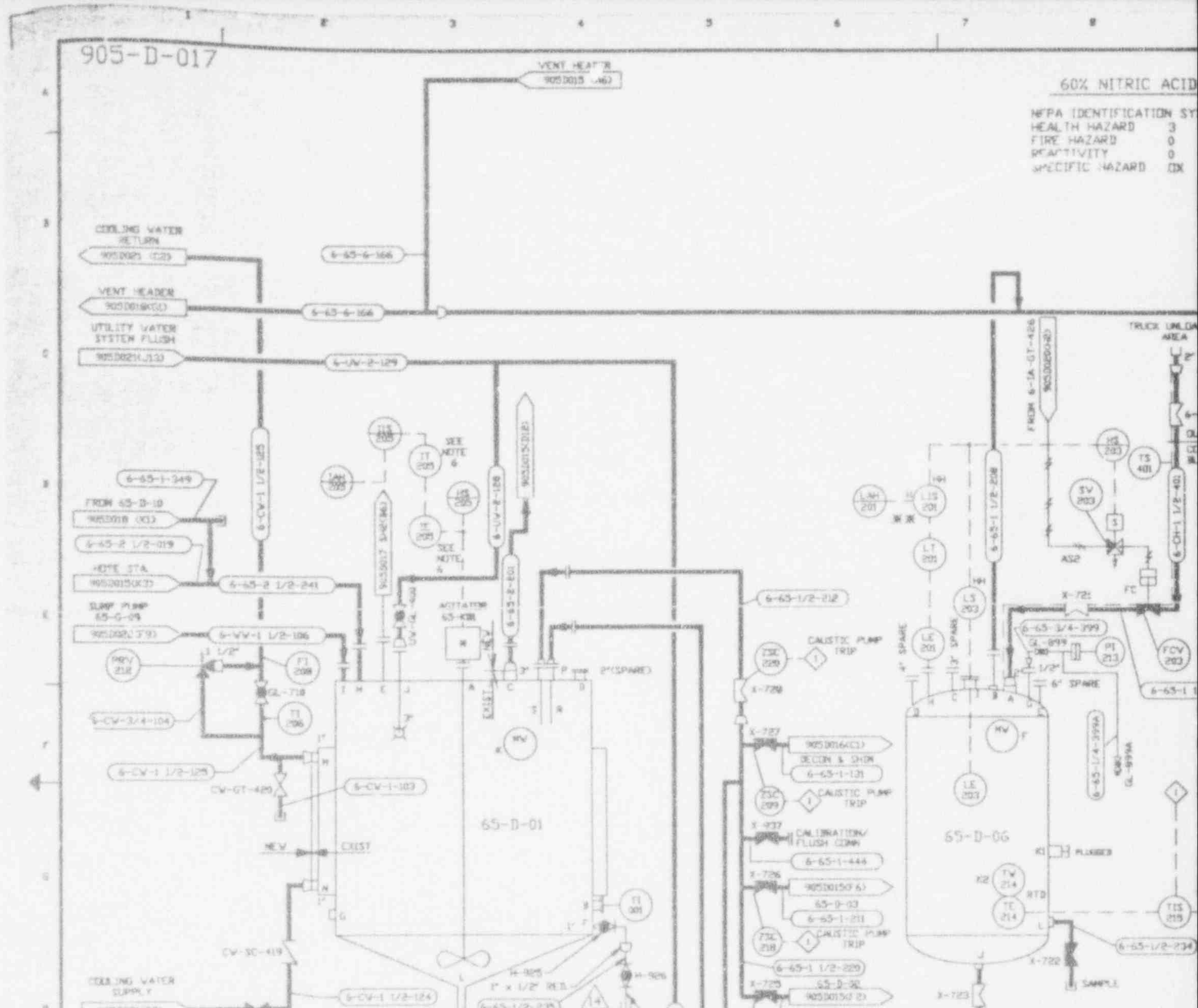
SIZE	INDEX CODE NUMBER	DRAWING NO.	REV
D		905D-016	12
SCALE: NONE	SPEC. CODES	A/E SHEET NO. 905-D-016 D	

ECN(S) PENDING #6844

ANSTEC APERTURE CARD

Also Available on Aperture Card

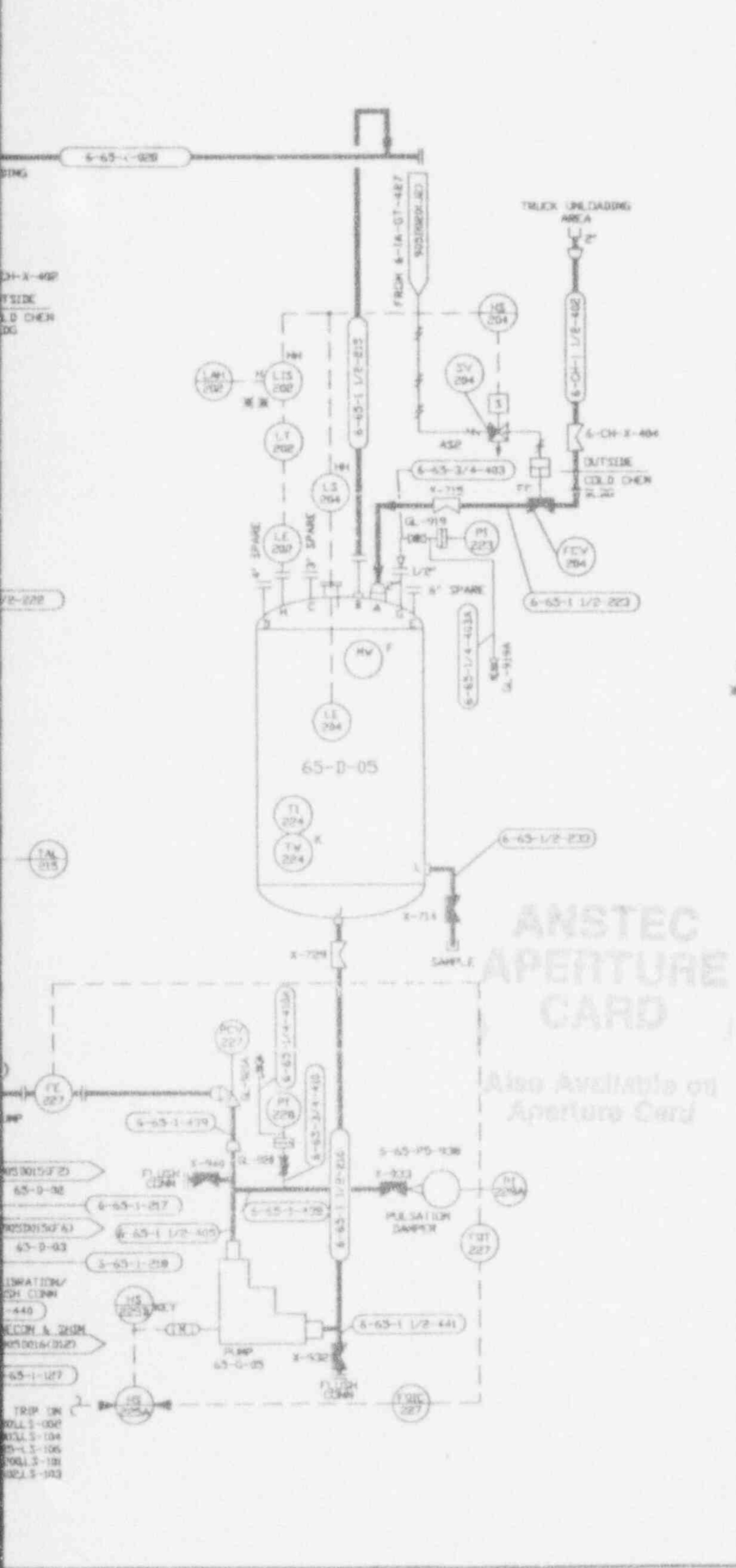
9403140262-28



905-D-017
60% NITRIC ACID
NFPA IDENTIFICATION SY
HEALTH HAZARD 3
FIRE HAZARD 0
REACTIVITY 0
SPECIFIC HAZARD OX
VENT HEATER
COOLING WATER RETURN
VENT HEADER
UTILITY WATER SYSTEM FLUSH
FROM 65-D-10
NOTE STA.
SUMP PUMP 65-G-09
COOLING WATER SUPPLY
TO SLURRY TANKS
TANK TRUCK DISPOSAL
TRUCK CONN.
HP DRY AIR
AGITATOR
65-D-01
NEW
EXIST
SEE NOTE 6
SAMPLE
PUMP 65-G-01
CAUSTIC PUMP TRIP
DECON & SHIM
CALIBRATION/ FLUSH CONN
65-D-06
PLUGGED
TRUCK UNLOADING AREA
PULSATION DAMPER
PUMP 65-G-06
FLUSH CONN
ACID PUMP TRIP
TRIP ON

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	05-14-87		TJK	AJD	RJL AJD ESK MDW
		GENERAL REVISION			
C	08-14-87		TJK	AJD	EGS RJL AJD ESK MDW
		REVISION PER EBAR 945A			
3	10-23-87		TJK	AJD	RJL AJD ESK MDW
		REVISION PER EBAR 945B			
0	10/3/88	ER 1468			JRH
12	10/20/93	REV'D. PER ECN 6139	HJL	HAB	DJR
13	10/27/93	REV'D PER ECN 6993/6995	SRD	KGI	RWN/RD 10/27/93
14	11/02/93	REV'D PER ECN 6972	KGZ	KGI	RWB
4	6/6/91	REV'D PER ECN 4224	SRD	DRS	MEC 6/25/91
5	1/29/92	REV'D PER ECN 4755	SRD	HAB	DJR 10/20/92
6	10/21/92	GEN REV PER ECN 5468	SRC	HAB	ZB 10/27/92
7	11/04/92	REV'D PER ECN 5633	AAJ	DRS	DJR
8	3/2/93	REV'D PER ECN 5974	SRD	DRS	DDD
9	3/29/93	REV'D PER ECN 6000	SRC	HAB	GGT
10	8/23/93	REV'D PER ECN 6455	JLH	HAB	GGT
11	9/7/93	REV'D PER ECN 6656	VCK	HAB	DDD

NOTES:

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

* LEVEL CONTROL STATION #1

** LEVEL CONTROL STATION #2

EQUIPT. NO.	NAME	REF DWG.	DESCRIPTION
65-D-08	DRAIN TANK	E-1180	11,000 GAL. CAPACITY, 11'-6" DIA. X 14'-0" S.S., 304 S/S
65-D-06	CAUSTIC DAY TANK	E-1580	500 GAL. WORKING VOL., 4'-0" DIA. X 6'-0" S.S., 316 S/S
65-D-05	NITRIC ACID DAY TANK	E-1498	1500 GAL WORKING VOL., 6'-0" DIA. X 7'-6" S.S., 304L S/S
65-G-05	NITRIC ACID TRANSFER PUMP	—	MILROY "B" VARIABLE DISPLACEMENT METERING PUMP, 500 GPH MAX @ 100 PSIG MODEL MBH-12C-56 01-E 2.0 HP
65-G-06	CAUSTIC TRANSFER PUMP	—	MILROY "B" VARIABLE DISPLACEMENT METERING PUMP 330 GPH MAX @ 100 PSIG MODEL MBH-188-56 01-E 1.5 HP
65-G-08	DRAIN PUMP	900-D-979	AIR-OP VR DOUBLE DIAPHRAGM, MODEL SA2A2-140 GPM, 2" SIZE
65-K-08	DRAIN TANK AGITATOR	900-D-970	7.5 HP, 1760 RPM, 460/3/60 MOTOR, GEARED DOWN TO 56 RPM, 3 BLADE

ECN(S) PENDING #6844

ANSTEC APERTURE CARD

Also Available on Aperture Card

CAUTION

CHECK DOCUMENT CONTROL FOR LATEST REVISION

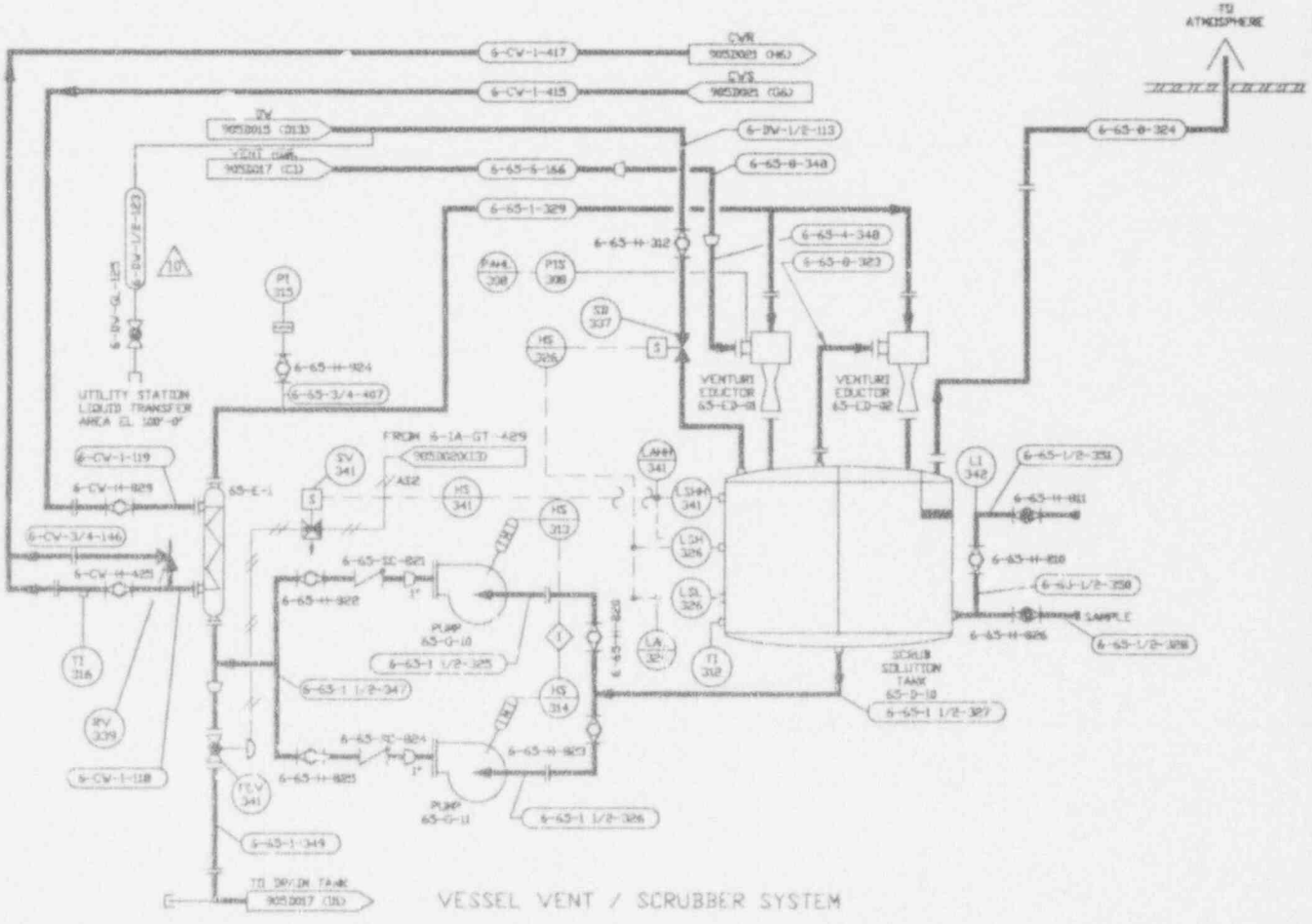
CAD DRAWING - Do not revise this original

FOR DRAWING INDEX SEE DRAWING NO.

APPRV'D WVNS CO.		EBASCO SERVICES INCORPORATED	
PROJECT MGR R. T. WEINGART	03-30-87	A/E DFS. NO. 2388 FOR TASK ORDER 009	
ENGINEER SUPV A. J. DIFILIPPO	03-30-87	WEST VALLEY NUCLEAR SERVICES COMPANY, INC WEST VALLEY, NEW YORK	
LEAD DISC ENGR F. TULIPANO	03-30-87	WEST VALLEY DEMONSTRATION PROJECT	
DESIGN R. J. LEVKO	03-30-87	P & ID	
CHECKER T. J. PIAZZA	03-30-87	COLD CHEMICAL PREPARATION	
DRAWN R. J. LEVKO	DATE 03-30-87	AND FEED SYSTEM	
DE-AC07-81NE44139 PROJECT NO. 19-CWV-92275 SUBCONTRACT NO.	SIZE D	DRAWING NO. 905D-017	REV. 14
ISSUED FOR CONSTRUCTION	SCALE NONE	A/E SHEET NO. 905D-017	S01

9403140262-29

905-D-018


TO ATMOSPHERE
6-CW-1-417
6-CW-1-415
6-DW-1/2-113
6-65-0-340
6-65-1-329
6-65-4-348
6-65-0-323
6-65-0-324
6-65-1/2-358
6-65-1/2-350
6-65-1/2-328
6-65-1 1/2-327
6-65-1 1/2-326
6-65-1 1/2-347
6-65-1 1/2-325
6-65-1-349
6-CW-1-119
6-CW-1-118
6-CW-3/4-146
6-65-3/4-407
6-65-1/2-125
UTILITY STATION LIQUID TRANSFER AREA EL 100'-0"
FROM 6-1A-GT-429
TO DRYER TANK
VENTURI EDUCTOR 65-EJ-01
VENTURI EDUCTOR 65-EJ-02
SCRUB SOLUTION TANK 65-D-10
PUMP 65-G-10
PUMP 65-G-11
65-E-1
SAMPLE
VESSEL VENT / SCRUBBER SYSTEM

NO.	DATE	REVISION	DR	CH	APPROVED		
B	05-14-87		T.JK	ABJ	R.J.	AJD FSK	HDW
GENERAL REVISION							
C	08-14-87		T.JK	ABJ	CGS R.J.	AJD FSK	HDW
REVISION PER EBAR 9454							
D	10-23-87		T.JK	JV	R.J.	AJD	HDW
REVISION PER EBAR 9458							
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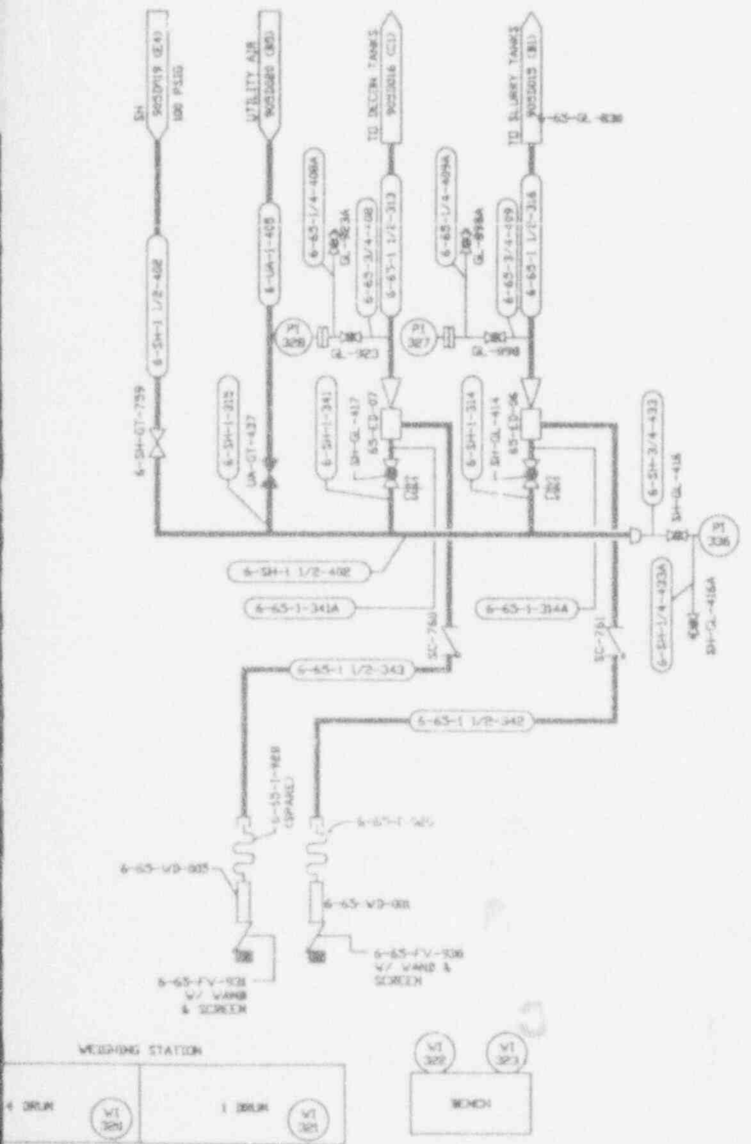
1	11-10-88	REV'D PER ECN 2679	DAS		RB 11-14-88		
2	02-01-90	REV'D PER ECN 3429	DRW	DRS	RD 4/25/90		
3	7/16/90	REV'D PER ECN 3882	AVN	DRS	RD 5/27/90		
4	6/6/91	REV'D PER ECN 4224	SRD	DRS	NEC 6/25/91		
5	7/16/91	REV'D PER ECN 4398	AVN	HAB	DJR		
6	3/3/93	REV'D PER ECN 5974	SRD	DRS	DDD		
7	4/15/93	REV'D PER ECN 6205	DAK	HAB	ZB		
8	9/3/93	REV'D PER ECN 6656	VCK	HAB	HDB / JCD		
9	10/6/93	GEN REV PER ECN 6808	SRD	DRS	PAW		
	10/21/93	REV'D PER ECN 6766	SRD	DRS	PAW		
	10/21/93	REV'D PER ECN 6139	SRD	DRS	PAW		
	10/21/93	REV'D PER ECN 6847	SRD	DRS	PAW		
10	10/27/93	REV'D PER ECN 6993	SRD	KHQ			



NOTES:

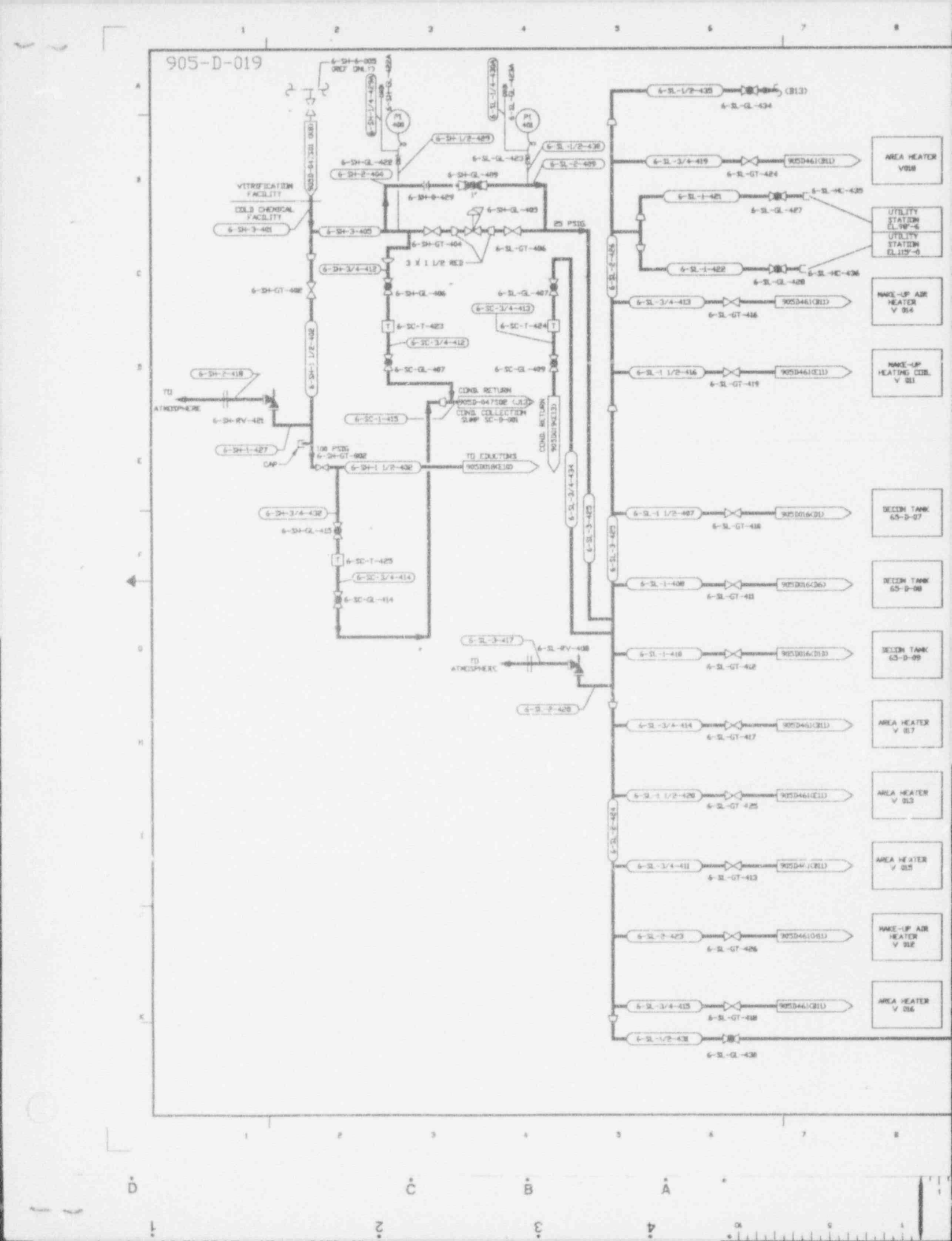
1. FOR GENERAL NOTES SEE DWG. 905-D-015.
2. ALL VALVE/SPECIALTY ITEM NUMBERS PRECEDED BY 6-65-, UNLESS OTHERWISE NOTED.
5. THIS ITEM IS LOCATED ON VENDOR PROVIDED PANEL. ALL OTHER PANEL MOUNTED INSTRUMENTS ARE LOCATED AT THE COLD CHEMICAL SYSTEM CONTROL STATION.
7. VACUUM LINE ELBOWS SHALL HAVE A 48" RADIUS. IF FIELD CONDITIONS PREVENT USAGE, PVC HOSE MADE OF FDA AND USDA APPROVED INGREDIENTS, FOOD GRADE, STATIC-CONDUCTIVE BY EMBEDDED COPPER STRAND WIRE, CAN BE SUBSTITUTED.
8. ALL LINE, VALVE & INSTRUMENT NUMBERS IN PARENTHESIS (XXX) ARE VENDOR P & ID NUMBERS.
9. ALL INSTRUMENT ITEM NUMBERS ARE PRECEDED BY 65-.

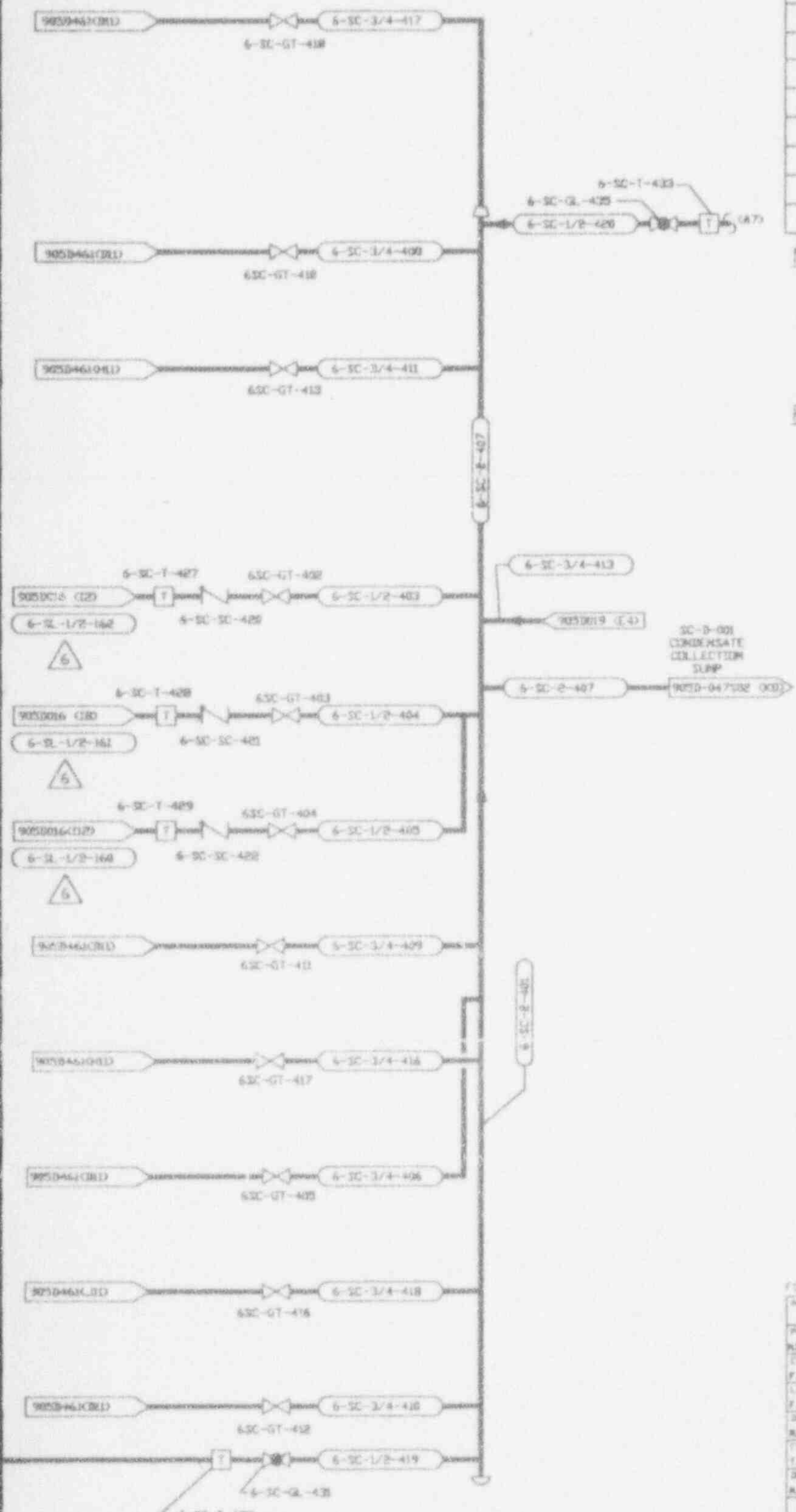
EQUIPT. NUMBER	EQUIPT. NAME	REF. DWG. NUMBER	DESCRIPTION
65-V-02	FILL HOPPER	-----	10 CU. FT
65-V-03	FILL HOPPER	-----	10 CU. FT
65-V-04	FILL HOPPER	-----	10 CU. FT
65-H-01	VACUUM PUMP	-----	ROTARY LOBE,
65-G-10	SCRUB SOL. TANK RECIRC PUMP	-----	CENTRIFUGAL TYPE, 25 GPM, 304 SS
65-G-11	SCRUB SOL. TANK RECIRC PUMP	-----	CENTRIFUGAL TYPE, 25 GPM, 304 SS
65-D-10	SCRUB SOL. TANK	-----	100 GAL VOLUME, 304 SS
65-CD-01 65-CD-02	VAC. CLN & SCRUBBER	-----	6" INLET & OUTLET MAX. 8" H2O VACUUM TOTAL
65-ED-06 65-ED-07	LIQUID EDUCTOR	-----	1 1/2" SUCTION/ DISCHARGE, 1" PRESS. CONN. 400 PPH STEAM MAX
65-B-01	FILTER ASSEMBLY	-----	MANUFACTURERS STD.

9403140262-30

FOR DRAWING INDEX SEE DRAWING NO.

APPRV'D VVHS CO.		EBASCO SERVICES INCORPORATED
PROJECT MGR M.D. WEINGART	3-31-87	A/E DFS. NO. 2388 FOR TASK ORDER 309
ENGINEER SUPV A.J. DIFILIPPO	3-31-87	WEST VALLEY NUCLEAR SERVICES COMPANY, INC WEST VALLEY, NEW YORK
LEAD DISC ENGR F. TULIPANO	3-31-87	
DESIGN R.J. LEWKO	3-31-87	WEST VALLEY DEMONSTRATION PROJECT P & ID COLD CHEMICAL PREPARATION AND FEED SYSTEM
CHECKED T.J. PIAZZA	3-31-87	
DRAWN T.J. KITE	DATE 3-31-87	
DE-AC07-80NE44139 PROJECT NO.	SIZE D	INDEX CODE NUMBER: AREA / SR / TYP / CL / DRIG
19-CWV-90275 SUBCONTRACT NO.		DRAWING NO. 905D-018 REV. 10
ISSUED FOR CONSTRUCTION	SCALE NONE / SPEC CODES	A/E SHEET NO. 905-D-018 D


905-D-019
VITRIFICATION FACILITY
CDLD CHEMICAL FACILITY
6-SH-3-401
6-SH-3-405
6-SH-GT-404
3 X 1 1/2 RED
6-SL-GT-406
6-SH-3/4-412
6-SH-GT-402
6-SH-GL-406
6-SL-GL-407
6-SC-3/4-413
6-SC-T-423
6-SC-T-424
6-SC-3/4-412
6-SC-GL-407
6-SC-GL-409
6-SH-2-418
TO ATMOSPHERE
6-SH-PV-421
6-SH-1-427
CAP
6-SH-1 1/2-402
100 PSIG
6-SH-GT-402
6-SC-1-415
CONDS RETURN
CONDS COLLECTION SUMP SC-D-001
COND. RETURN
6-SL-3/4-434
6-SL-3-425
6-SL-3-417
6-SL-PV-438
TO ATMOSPHERE
6-SL-2-428
6-SH-3/4-432
6-SH-GL-415
6-SC-T-425
6-SC-3/4-414
6-SC-GL-414
25 PSIG
6-SL-2-426
6-SL-1/2-435
6-SL-GL-434
6-SL-3/4-419
6-SL-GT-424
AREA HEATER V018
6-SL-1-421
6-SL-GL-427
6-SL-HC-435
UTILITY STATION EL 98'-6
UTILITY STATION EL 119'-0
6-SL-1-422
6-SL-GL-428
6-SL-HC-436
6-SL-3/4-413
6-SL-GT-416
MAKE-UP AIR HEATER V 014
6-SL-1 1/2-416
6-SL-GT-419
MAKE-UP HEATING COIL V 011
6-SL-1 1/2-407
6-SL-GT-418
DECON TANK 65-D-07
6-SL-1-408
6-SL-GT-411
DECON TANK 65-D-08
6-SL-1-410
6-SL-GT-412
DECON TANK 65-D-09
6-SL-3/4-414
6-SL-GT-417
AREA HEATER V 017
6-SL-1 1/2-420
6-SL-GT-425
AREA HEATER V 013
6-SL-3/4-411
6-SL-GT-413
AREA HEATER V 015
6-SL-3-423
6-SL-GT-426
MAKE-UP AIR HEATER V 012
6-SL-3/4-415
6-SL-GT-418
AREA HEATER V 016
6-SL-1/2-438
6-SL-GL-438



NO.	DATE	REVISION	DR	CH	APPROVED		
B	6-19-87		T.JK	R.JL	R.JL	FSK	MDV
		GENERAL REVISION					
C	08-14-87		T.JK	CGS	CGS R.JL	FSK FSK	MDV
		REVISION PER EBAR 949A					
D	10-29-87		T.JK	JW	R.JL	FSK	MDV
		REVISION PER EBAR 949B					
0	10-3-88	CR 1468			JRH		
1	11-10-88	REV'D PER ECN 2679	DAS		RD 11/14/88		
2	02-01-90	REV'D PER ECN 3429	DRW	DRS	RD 4/25/90		
3	7/13/90	REV'D PER ECN 3802	AVH	DRS	ZB 5/27/90		
4	3/3/93	REV'D PER ECN 5974	SRD	DRS	DDB 3/8/93		
5	9/20/93	REV'D PER ECN 6703	LRK	DRS	HAJ		
6	10/20/93	REV'D PER ECN 6139	H.A.	[illegible]	DJF		

NOTES

1. FOR GENERAL NOTES SEE DWG 905-D-015.
2. TRAPS ARE TO BE SUPPLIED WITH INTEGRAL STRAINERS.

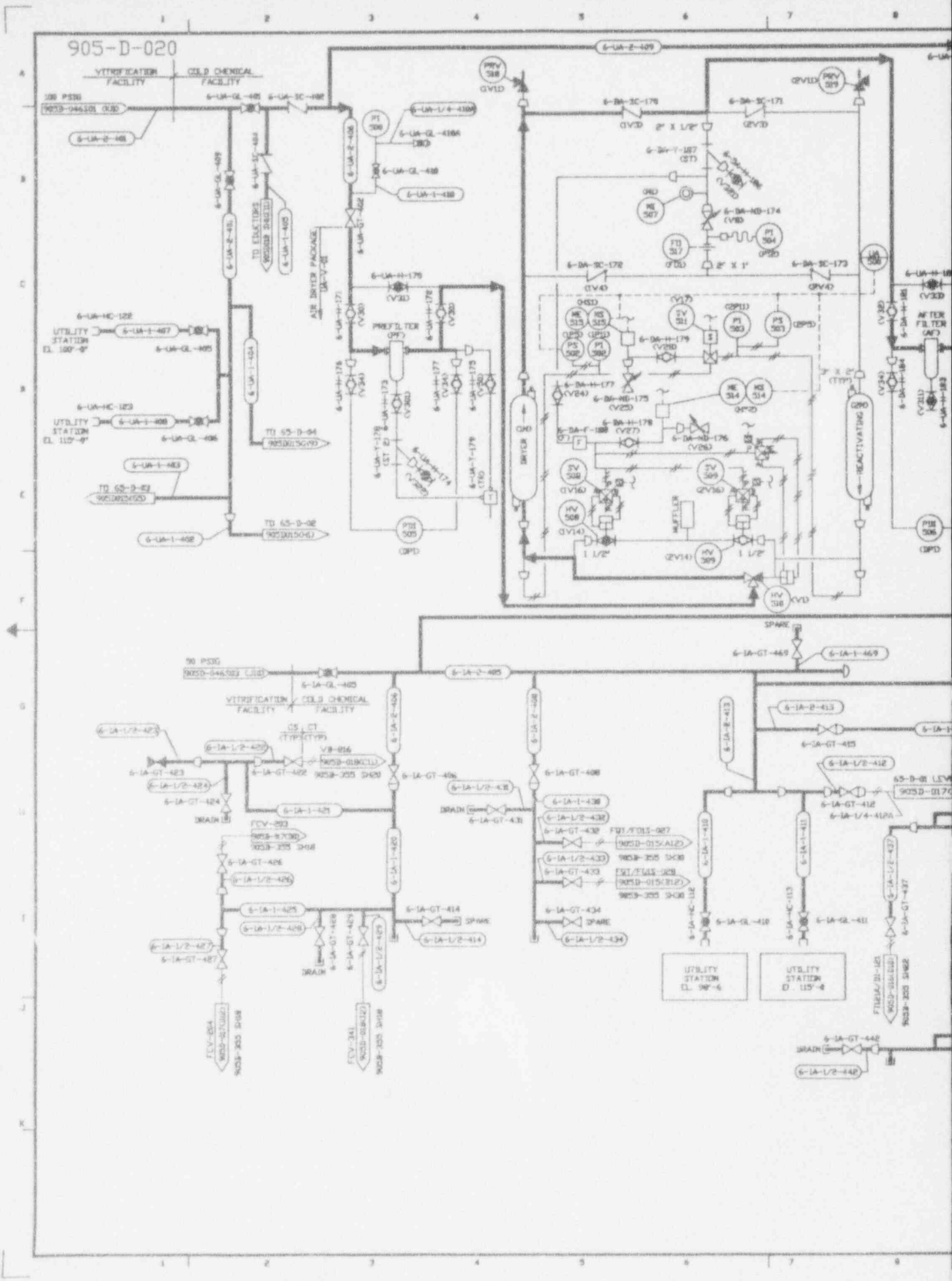
REFERENCE DRAWINGS

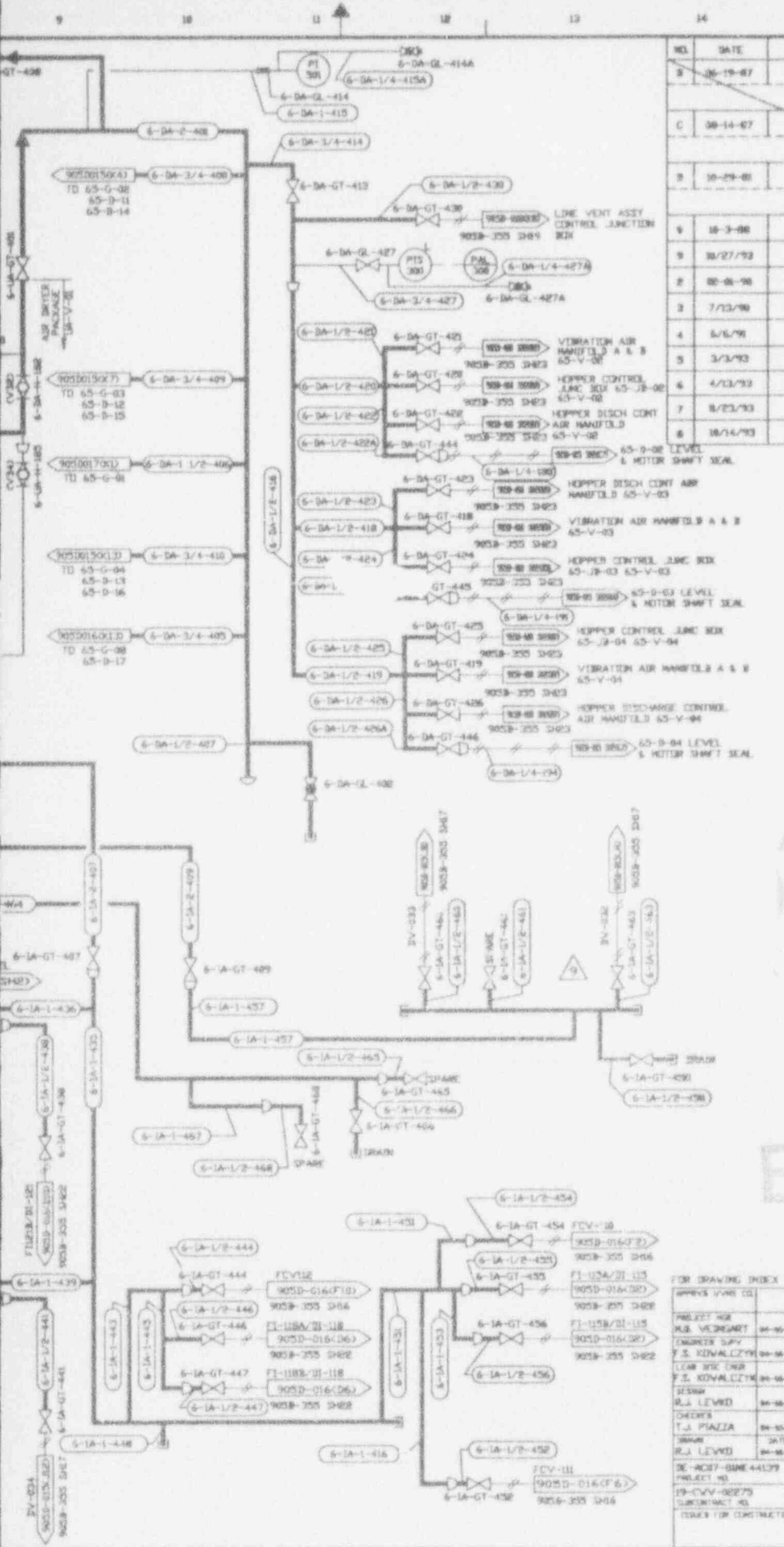
COLD CHEMICAL PREP. AND FEED SYSTEM P&ID'S — 905-D-015, 905-D-016, 905-D-017, 905-D-018

FOR DRAWING INDEX SEE DRAWING NO. ____

APPRV'D VEND. CO.		EBASCO SERVICES INCORPORATED
PROJECT MGR R.B. HORNGART	04-16-87	A/E DFS NO. 2308 — FOR — TASK ORDER 001
ENGINEER SUPV F.S. KOVALCZYK	04-16-87	WEST VALLEY NUCLEAR SERVICES COMPANY, INC WEST VALLEY, NEW YORK
LEAD DISC ENGR F.S. KOVALCZYK	04-16-87	WEST VALLEY DEMONSTRATION PROJECT
DESIGN R.J. LEVINO	04-16-87	P & ID
CHECKER T.J. PIAZZA	04-16-87	COLD CHEMICAL
DRAWN R. KOLODZIEJSKI	04-16-87	STEAM & CONDENSATE SYSTEM
DE-AC07-80NE44139 PROJECT NO.		SIZE D — INDEX CODE NUMBER — DRAWING NO. 905D-019 — REV. 6
79-CVV-00075 SUBCONTRACT NO.		
ISSUED FOR CONSTRUCTION		SCALE: NONE — SPEC. CODES — A/E SHEET NO. 905-D-019 D

9403140262-31


905-D-020
VITRIFICATION FACILITY
COLD CHEMICAL FACILITY
100 PSIG
50 PSIG
AIR DRYER PACKAGE
PREFILTER
AFTER FILTER
DRYER
REACTIVATING
UTILITY STATION EL. 100'-9"
UTILITY STATION EL. 115'-9"
UTILITY STATION EL. 98'-6
UTILITY STATION EL. 115'-4
SPARE
DRAIN



NO.	DATE	REVISION	DR	CH	APPROVED		
B	06-19-87		TJK	R.L.	R.L.	FSK	HDW
		GENERAL REVISION					
C	08-14-87		TJK	EGS	R.L.	AJB FSK	FSK HDW
		REVISION PER EDAR 949A					
D	10-29-88		TJK	JV	R.L.	FSK	HDW
		REVISION PER EDAR 992A					
1	10-3-88	ER 1468			JRH		
9	10/27/93	REV'D PER ECN 6993	SRB	KWJ	[illegible]		
2	02-06-90	REV'D PER ECN 3429	DRW	DRS	RD 4/25/90		
3	7/13/90	REV'D PER ECN 3808	AVN	DRS	RD 5/27/90		
4	6/6/91	REV'D PER ECN 4224	SRB	DRS	MEC 6/25/91		
5	3/3/93	REV'D PER ECN 5974	SRB	DRS	DDD 3/8/93		
6	4/13/93	REV'D PER ECN 6169	AAJ	DRS	DJR 4/26/93		
7	8/23/93	REV'D PER ECN 6455	JLH	HAB	GGT		
8	10/14/93	REV'D PER ECN 6873	LRK	DRS	PAM		

1. FOR GENERAL NOTES SEE DWG 905-D-015
2. AIR SUPPLY LEGEND (WHERE APPLICABLE)
   AS1-100 PSIG UTILITY AIR
   AS2-50 PSIG INSTRUMENT AIR
   AS3-20 PSIG INSTRUMENT AIR
   AS4-100 PSIG DRY UTILITY AIR

#6844

FOR DRAWING INDEX SEE DRAWING NO.

EBASCO SERVICES INCORPORATED

A/E D/S NO. 2308 FOR TASK ORDER 325

WEST VALLEY NUCLEAR SERVICES COMPANY, INC
WEST VALLEY, NEW YORK

WEST VALLEY DEMONSTRATION PROJECT

P & ID
COLD CHEMICAL
UTILITY AND INSTRUMENT AIR

Role	Name	Date
APPRVD WVNS CO.		
PROJECT MGR	M.B. WEINGART	04-06-87
ENGINEER SUPV	F.S. KOWALCZYK	04-06-87
LEAD DISC ENGR	F.S. KOWALCZYK	04-06-87
DESIGN	R.J. LEWKO	04-06-87
CHECKED	T.J. PIAZZA	04-06-87
DRAWN	R.J. LEWKO	04-06-87

DE-AC07-81NE44139 PROJECT NO.

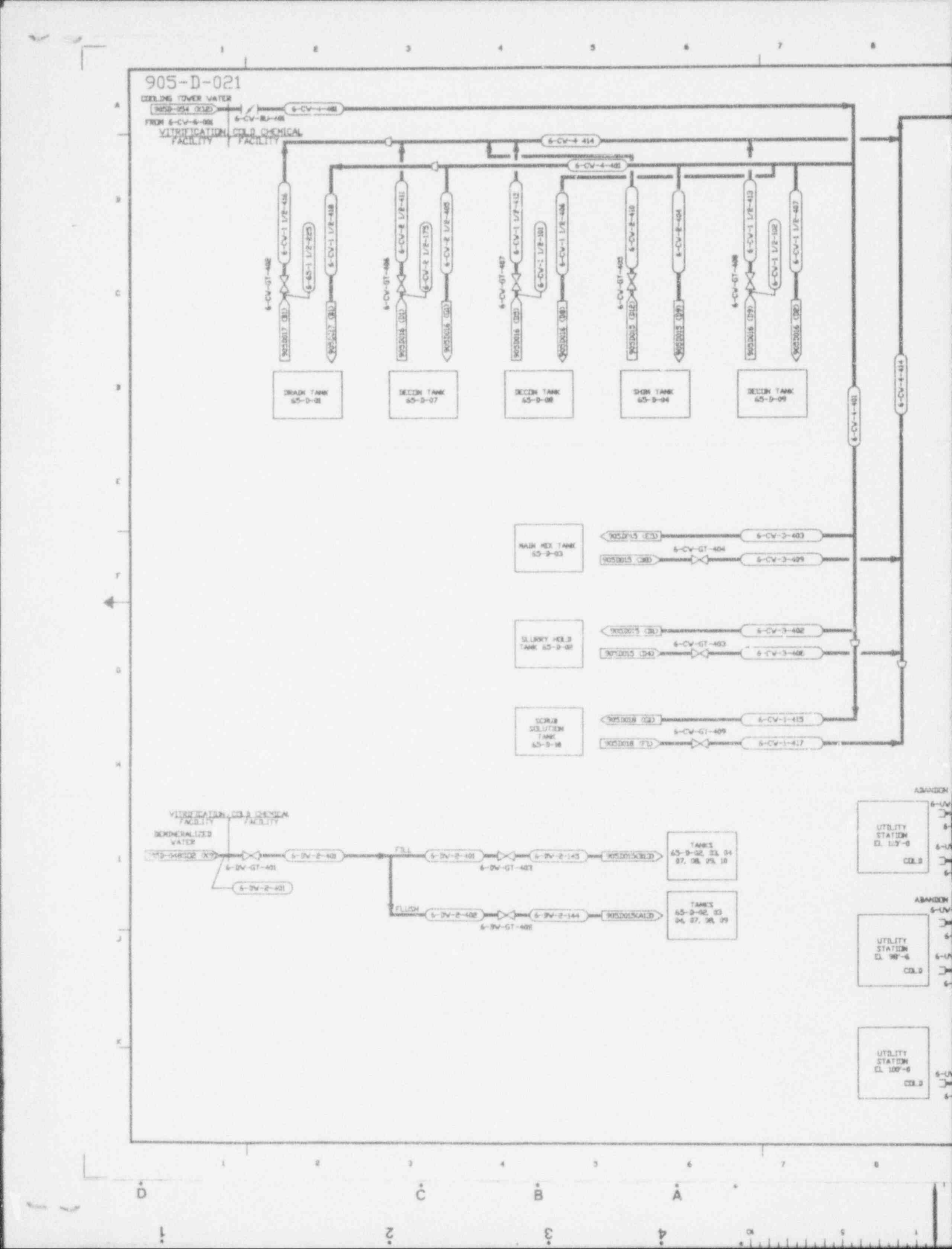
19-CWV-00275 SUBCONTRACT NO.

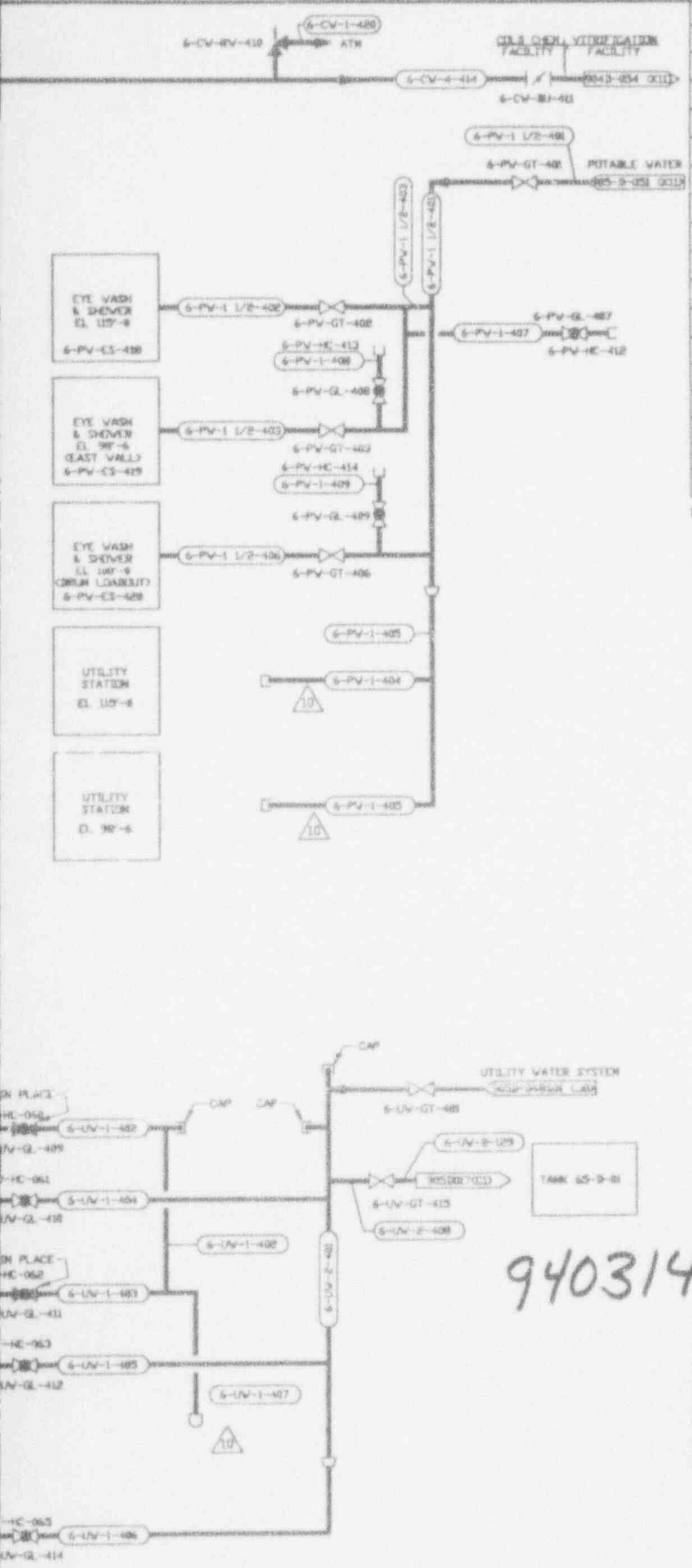
ISSUED FOR CONSTRUCTION

SIZE: D | INDEX CODE NUMBER: AREA, SR, TYP, CL, ORIG | DRAWING NO. 905D-020 | REV 9

SCALE: NONE | SPEC. CODES | A/E SHEET NO. 905-D-020 B

9403140262-32


905-D-021
COOLING TOWER WATER
FROM 6-CV-6-001
VITRIFICATION FACILITY
CDL & CHEMICAL FACILITY
6-CV-4-414
6-CV-4-401
6-CV-1-401
6-CV-1-414
DRAIN TANK 65-D-01
DECON TANK 65-D-07
DECON TANK 65-D-08
SHOW TANK 65-D-04
DECON TANK 65-D-09
MAIN HEX TANK 65-D-03
SLURRY HOLD TANK 65-D-02
SCRUB SOLUTION TANK 65-D-10
6-CV-3-403
6-CV-3-409
6-CV-3-402
6-CV-3-408
6-CV-1-415
6-CV-1-417
6-CV-GT-404
6-CV-GT-403
6-CV-GT-409
VITRIFICATION FACILITY
CDL & CHEMICAL FACILITY
DEMINERALIZED WATER
6-DW-2-403
6-DW-2-401
6-DW-2-145
6-DW-GT-401
6-DW-GT-403
6-DW-2-431
FILL
FLUSH
6-DW-2-402
6-DW-2-144
6-DW-GT-402
TANKS 65-D-02, 03, 04, 07, 08, 09, 10
TANKS 65-D-02, 03, 04, 07, 08, 09
ABANDON
UTILITY STATION EL. 113'-6
UTILITY STATION EL. 98'-6
UTILITY STATION EL. 100'-6
CDL 3



NO.	DATE	REVISION	DR	CH	APPROVED		
B	06-19-87		T.JK	R.J.	R.J.	FSK	HDV
		GENERAL REVISION					
C	08-14-87		T.JK	EGS	EGS R.J.	FSK FSK	HDV
		REVISION PER EBAR 948A					
D	10-29-87		T.JK	JV	R.J.		HDV
		REVISION PER EBAR 990A					
0	10-03-88	ER 1468			JRH		
1	11-11-88	REV'D PER ECN 2679	DAS		RD 11/14/88		
2	02-05-90	REV'D PER ECN 3429	DRV	DRS	RD 4/25/90		
3	7/16/90	REV'D PER ECN 3802	AWN	DRS	RD 5/27/90		
4	6/6/91	REV'D PER ECN 4224	SRB	DRS	NEC 6/25/91		
5	12/17/91	REV'D PER ECN 4695	SRC	HAB	DJR		
6	2/27/92	REV'D PER ECN 4921	CGR	HAB	DJR		
7	3/3/93	REV'D PER ECN 5974	SRB	DRS	DDB 3/8/93		
8	9/28/93	REV'D PER ECN 6703	LRK	DRS	HAJ		
9	10/28/93	REV'D PER ECN 6139	HJL	HAB	DJR		
10	10/27/93	REV'D PER ECN 6993	SRB	HAJ	[illegible]		

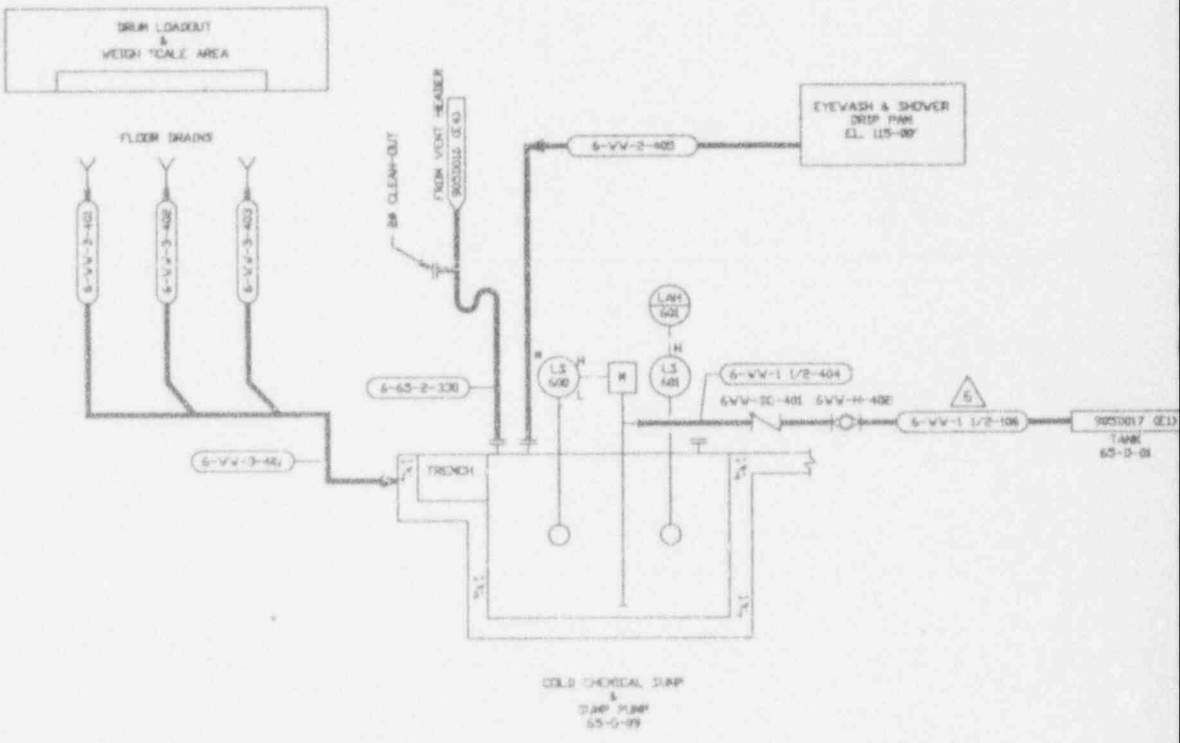
1. FOR GENERAL NOTES SEE DWG 905-D-015.

9403140262-33

FOR DRAWING INDEX SEE DRAWING NO.

APPRVD WVNS CO.		EBASCO SERVICES INCORPORATED
PROJECT MGR M.D. WEINGART	04-16-87	A/E O/A NO. 2388 TASK ORDER 329 — FOR — WEST VALLEY NUCLEAR SERVICES COMPANY, INC WEST VALLEY, NEW YORK
ENGINEER SUPV F.S. KOWALCZYK	04-16-87	
LEAD DISC ENGR F.S. KOWALCZYK	04-16-87	WEST VALLEY DEMONSTRATION PROJECT
DESIGN R.J. LEVKO	04-16-87	P & ID
CHECKED T.J. PIAZZA	04-16-87	COLD CHEMICAL
DRAWN R.J. LEVKO	DATE 04-16-87	WATER SYSTEMS
DE-AC07-81NE44139 PROJECT NO.		SIZE D — INDEX CODE NUMBER (AREA, DB TYP, CL, DRSG) — DRAWING NO. 905D-021 — REV 10
19-CVV-02875 SUBCONTRACT NO.		
ISSUED FOR CONSTRUCTION		SCALE NONE — SPEC CODES — A/E SHEET NO. 905-D-021 D

905-D-022 C


DRUM LOADOUT
&
WEIGH SCALE AREA
FLOOR DRAINS
6-VV-3-425
6-VV-3-426
6-VV-3-427
DR CLEAN-OUT
FROM VENT HEADER
9053002 (E4)
6-VV-2-405
EYEWASH & SHOWER
DRIP PAN
EL. 115'-00"
LAH
6401
LS
6400
LS
6401
6-65-2-330
6-VV-1 1/2-404
6VV-EC-401
6VV-H-402
6
6-VV-1 1/2-106
9053017 (E13)
TANK
65-D-01
6-VV-3-44x
TRENCH
COLD CHEMICAL SUMP
&
SUMP PUMP
65-G-09

NO.	DATE	REVISION	DR	CH	APPROVED		
B	8-19-87		T.JK	R.JL	R.JL	FSK	KDV
GENERAL REVISION							
C	11-16-87		T.JK	R.JL	R.JL	FSK	FSK/KDV
REVISION PER EBAR 949A							
0	10-03-88	CR 1468			JRH		
1	11-11-88	REV'D PER ECN 2679	DAS		RD 11/14/88		
2	02-28-90	REV'D PER ECN 3383	CV		DJR		
3	04-20-90	REV'D PER ECN 3429	DRW		RD		
4	06/06/91	REV'D PER ECN 4224	SRD	DRS	MCC 6/21/91		
5	09/03/93	REV'D PER ECN 6656	VCK	HAB	DDD		
6	10/28/93	REV'D PER ECN 6139	H.JL	[illegible]	[illegible]		

NOTES:

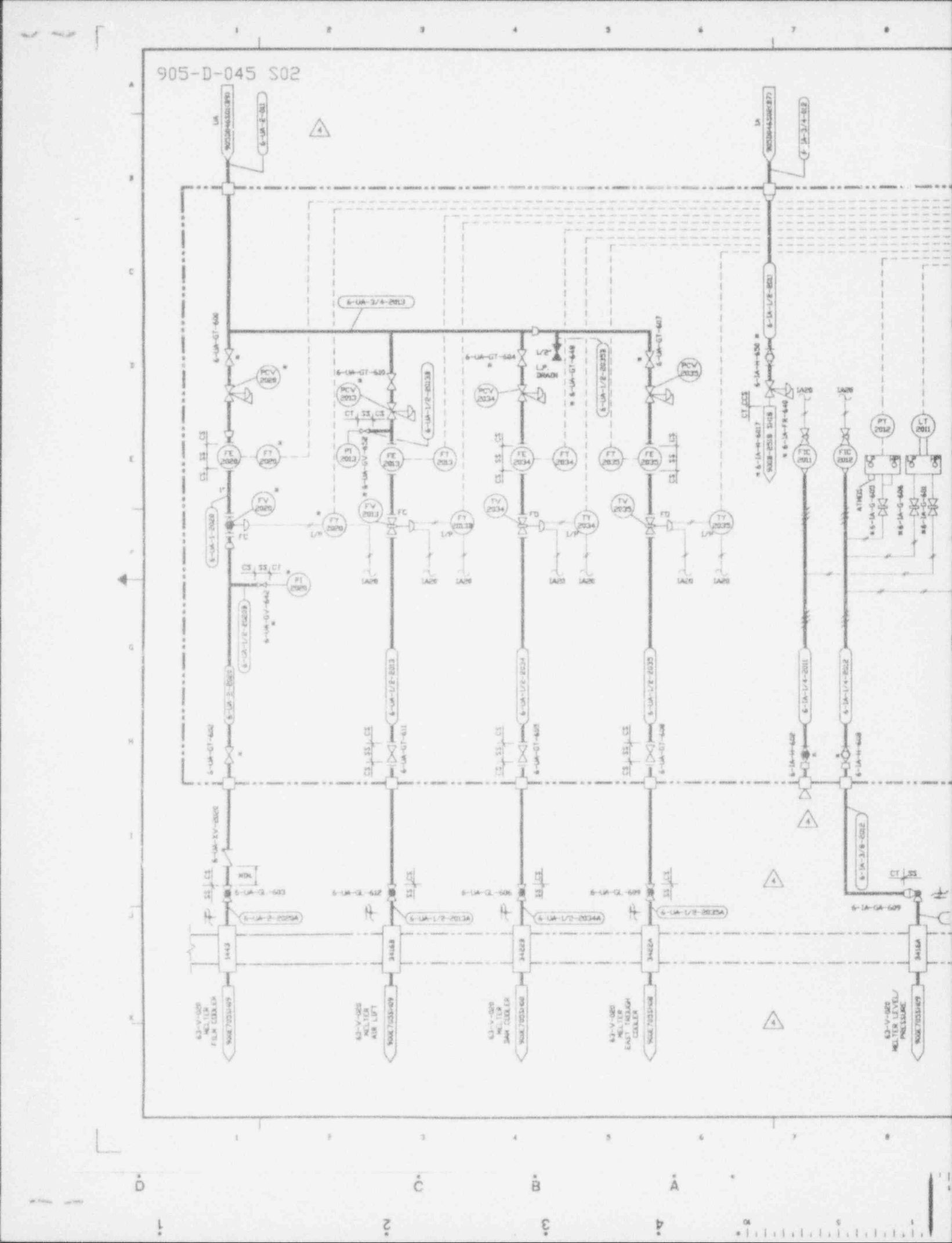
1. FOR GENERAL NOTES SEE DRAWING 905D-015

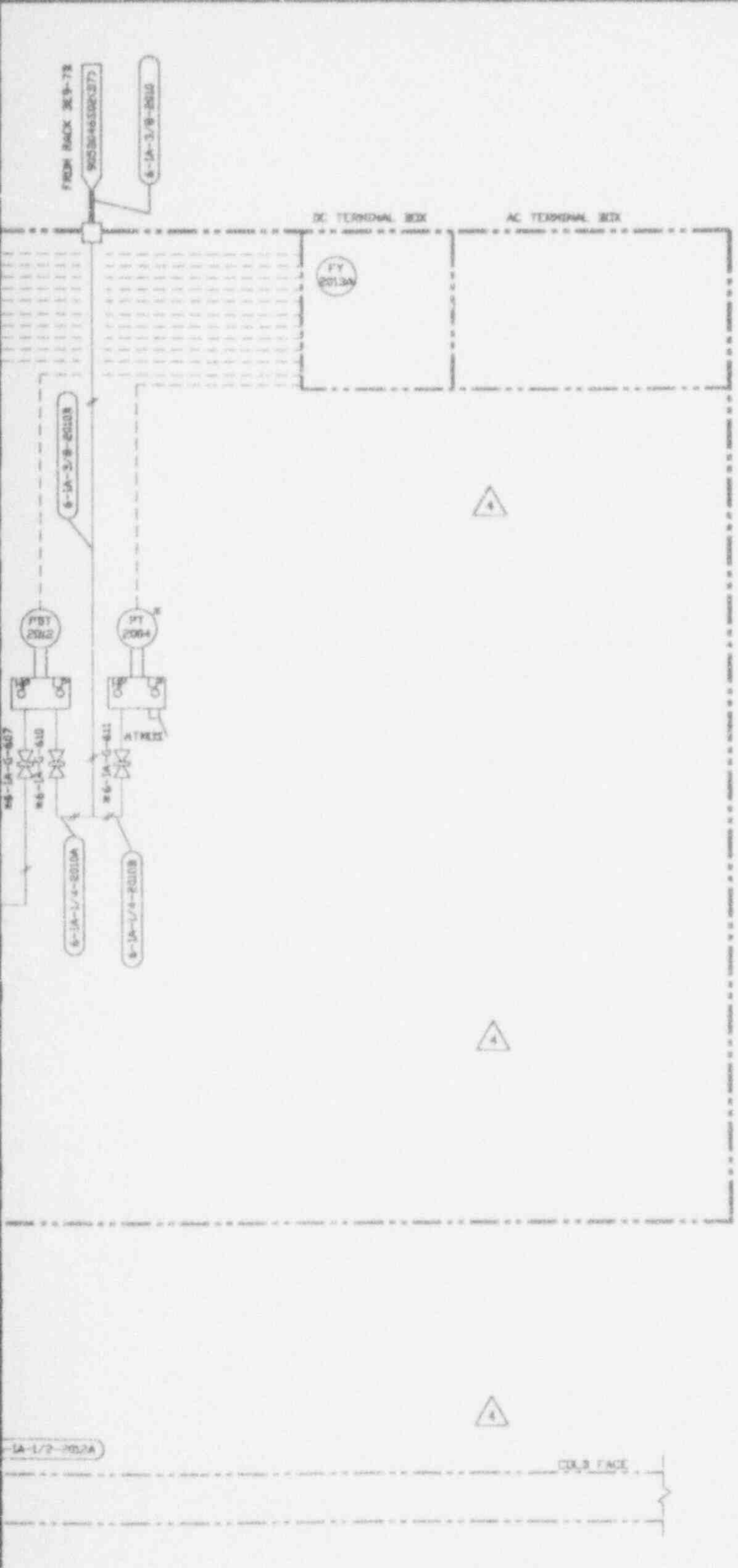
3. # DENOTES PART OF EQUIP. PACKAGE.

9403140262-34

FOR DRAWING INDEX SEE DRAWING NO.

APPRVE WVNS CO		EBASCO SERVICES INCORPORATED
PROJECT MGR M.B. WEINGART	04-06-87	A/E D/S NO. 2308 FOR TASK ORDER 005
ENGINEER SUPV F.S. KOWALCZYK	04-06-87	WEST VALLEY NUCLEAR SERVICES COMPANY, INC WEST VALLEY, NEW YORK
LEAD DISC ENGR F.S. KOWALCZYK	04-06-87	WEST VALLEY DEMONSTRATION PROJECT
DESIGN R.J. LEWKO	04-06-87	P & ID
CHECKED T.J. PIAZZA	04-06-87	COLD CHEMICAL SYSTEM
DRAWN M. KOLODZIEJSKI	DATE 04-06-87	ACID & CAUSTIC SYSTEMS
DE-AC07-81NE44139 PROJECT NO.		SIZE D; INDEX CODE NUMBER (AREA, SE, TYP, CL, ORIG); DRAWING NO. 905D-022; REV. 6
19-CVV-02275 SUBCONTRACT NO.		
ISSUED FOR CONSTRUCTION		SCALE NONE; SPEC CODES; A/E SHEET NO. 905-D-022 C


905-D-045 S02



NO.	DATE	REVISION	DR	CH	APPROVED		
B	06-15-88		T.K.	R.J.	R.J. SM	A.D	MDW
GENERAL REVISION INCLUDING TA 767							
C	10-31-88		P.JS	R.J.	R.J.	T F.SM	F.D
GENERAL REVISION INCLUDING TA 825							
0	6-12-89	ER 1631			JRM		
1	1-17-90	ECN 3359	DRW	PAN	MEC		
2	7/5/91	REV PER ECN 4341	AWN	HAB	DJR		
3	9/22/92	GEN REV PER ECN 5200	SRC	HAB	PAN		
4	10/14/93	REV PER ECN 6250	DAK	LES	RWM		

NOTES:

1. NEW INSTRUMENTS & VALVES TO BE INSTALLED ON THIS EXISTING RACK ARE TO BE MARKED WITH A SINGLE ASTERISK (*).
2. IA 20 AIR SERVICE FROM MANIFOLD 6-IA 20-M-6017. SEE DRAWING 900D-2518 SH18.

ECN(S) PENDING #6891

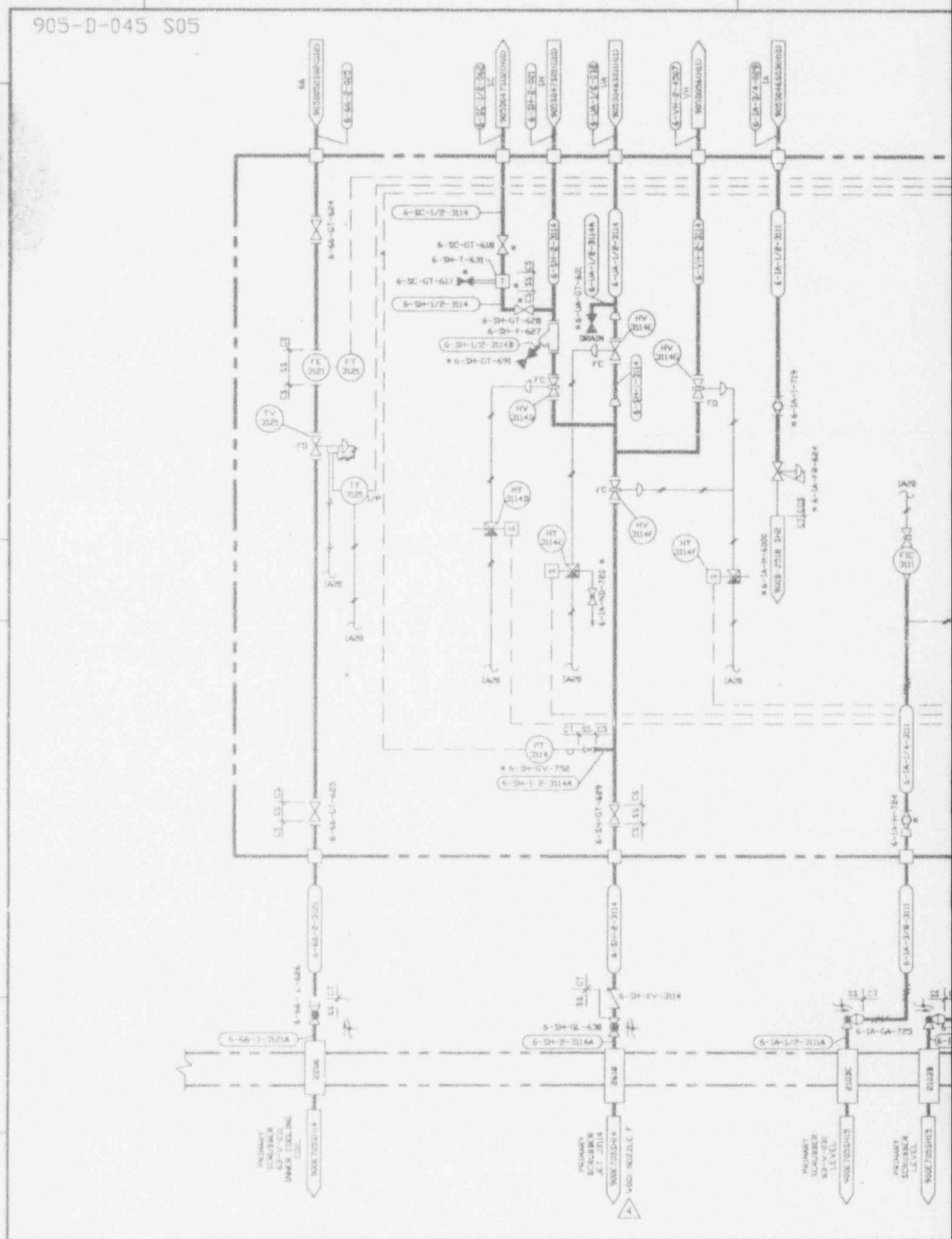
CAD DRAWING - Do not revise this original

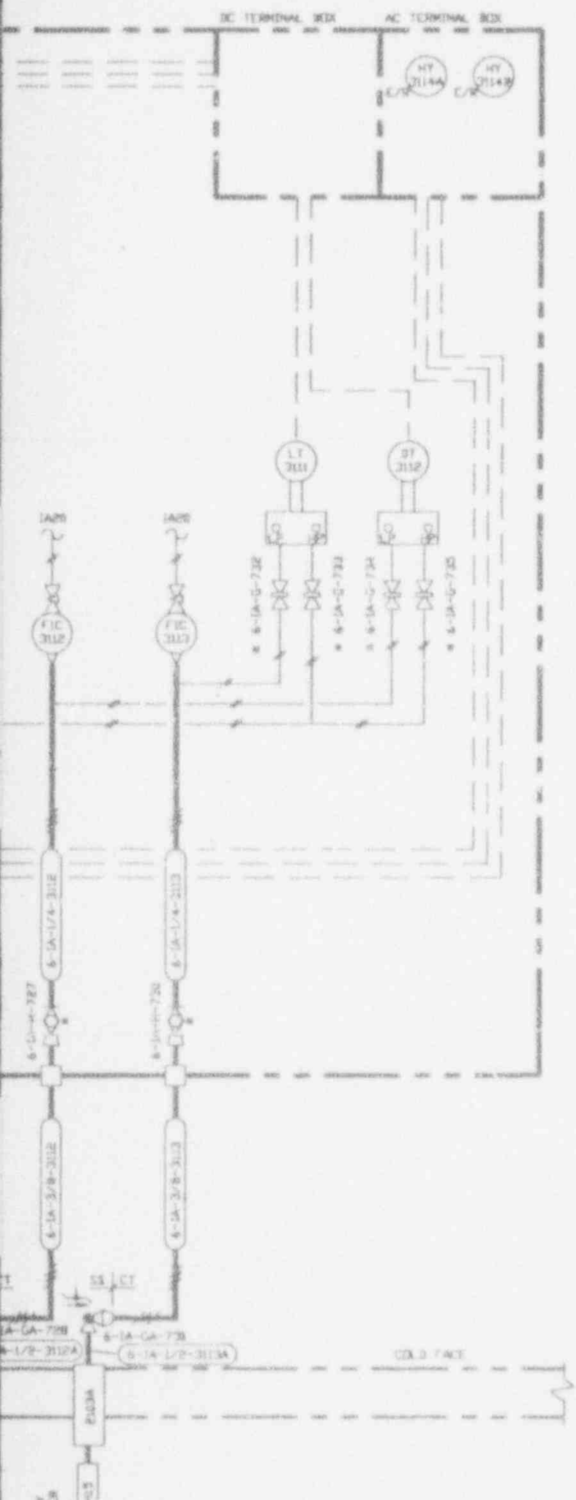
FOR DRAWING INDEX SEE DRAWING NO. ____

APPROVING AGENCY		EBASCO SERVICES INCORPORATED
PROJECT MGR M.D. WEINGART	06-07-88	A/E OFS. NO. 2388 — FOR — TASK ORDER 322
ENGINEER SUPV A.J. DIFILIPPO	06-07-88	WEST VALLEY NUCLEAR SERVICES COMPANY, INC WEST VALLEY, NEW YORK
LEAD DISC ENGR S. NATH	06-07-88	WEST VALLEY DEMONSTRATION PROJECT
DESIGN A. ZILG	06-07-88	
CHECKER D.F. REYNOLDS	06-07-88	P & ID VITRIFICATION FACILITY INSTRUMENT RACK 3EB-7A
T.J. KITZ	DATE 06-07-88	

DE-AC07-81NE44139 PROJECT NO.	SIZE	INDEX CODE NUMBER: AREA / BR. / TYP / CL. / ORIG	DRAWING NO.	REV.
19-CVV-02275 SUBCONTRACT NO.	D		905D-045	4
ISSUED FOR CONSTRUCTION	SCALE: NONE	SPEC. CODES	A/E SHEET NO. 905-D-045 S02 C	

9403140262-35


905-D-045 S05



NO.	DATE	REVISION	DR	CH	APPROVED		
B	06-15-88		T.JK	R.JL	R.JL SN	AJD	KDV
GENERAL REVISION INCLUDING TA 767							
C	10/31/88		PJS	R.JL	R.JL	R.JL	FJES
GENERAL REVISION							
D	4/13/89		R.JL	JJV	R.JL	FJE FJE	FJES
GENERAL REVISION							
[illegible]	06/12/89	CR 438			JRH		
1	05/24/90	ECN 3359	DRW	PAN	NEC		
2	7/9/91	REV PER ECN 4341	AWN	HAB	DJR		
3	11/13/91	REV PER ECN 4660	DAK	HAB	DJR		
4	10/26/93	REV PER ECN 6811	DJN	pk5	CRA		

NOTES:

1. NEW VALVES TO BE INSTALLED ON THIS EXISTING RACK ARE MARKED WITH A SINGLE ASTERISK (*).
2. IA 20 AIR SERVICE FROM MANIFOLD 6-IA 20-M-6000. SEE DRAWING 9008-2418 SH2.

ANSTEC APERTURE CARD

Also Available on Aperture Card

9403140262-36

FOR DRAWING INDEX SEE DRAWING NO.

EBASCO SERVICES INCORPORATED

A/E O/F.S. NO. 2288 FOR TASK ORDER 329

WEST VALLEY NUCLEAR SERVICES COMPANY, INC
WEST VALLEY, NEW YORK

WEST VALLEY DEMONSTRATION PROJECT

P & ID
VITRIFICATION FACILITY
INSTRUMENT RACK 2W2-1B

APPROVED VVNS CO.
PROJECT MGR: M.D. WEINGART
ENGINEER SUPV: A.J. DIFILIPPO
LEAD DISC ENGR: S. NATH
DESIGN: A. ZILG
CHECKED: R.F. REYNOLDS
DRAWN: T.J. KITZ

DE-AC07-81NE44139
PROJECT NO.
19-CWV-92275
SUBCONTRACT NO.
ISSUED FOR CONSTRUCTION

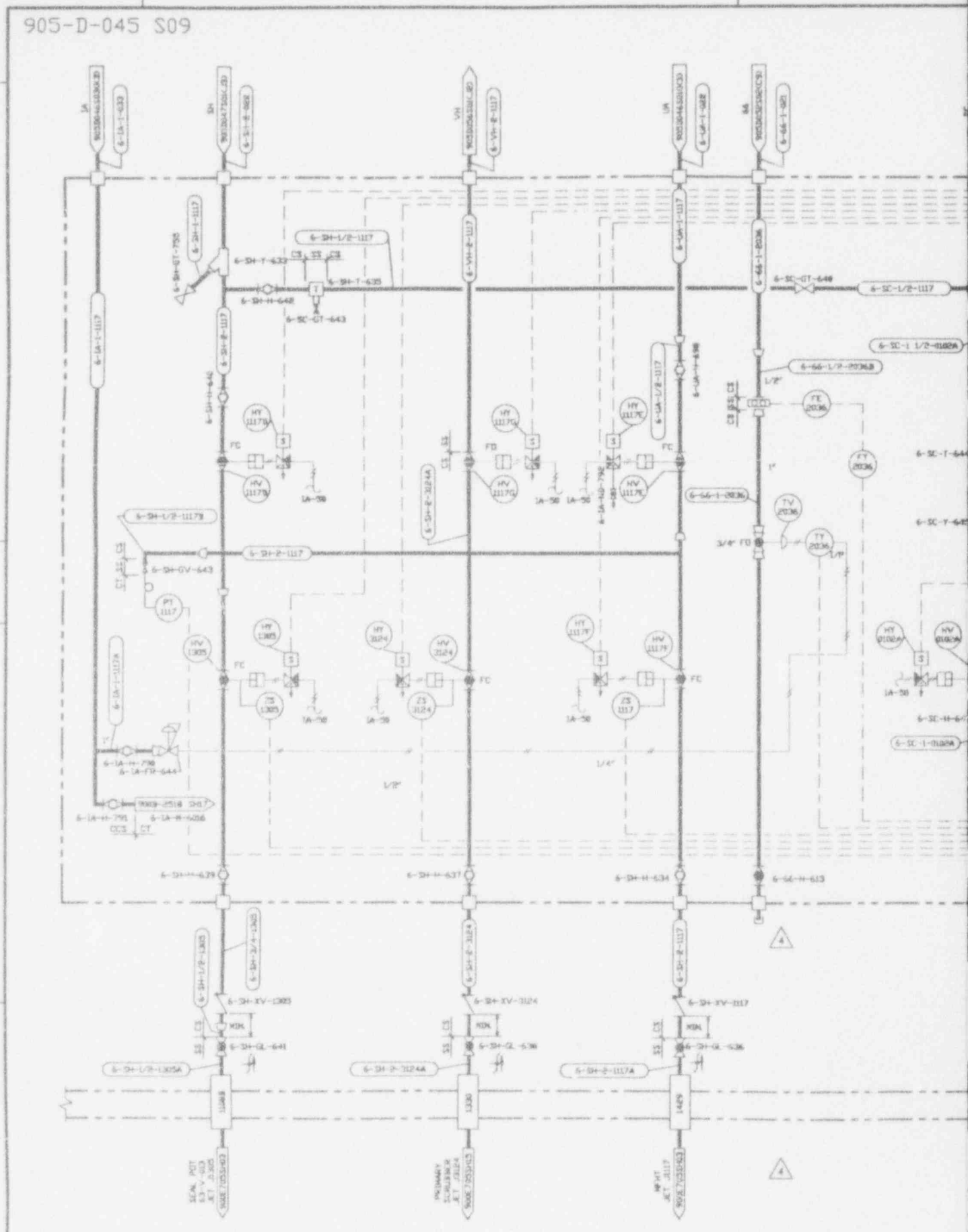
SIZE	INDEX CODE NUMBER	DRAWING NO.	REV.
D		905D-045	4

SCALE: NONE | SPEC. CODES | A/E SHEET NO. 905D-045 S05 D

CAUTION
CHECK DOCUMENT CONTROL FOR LATEST REVISION

CAD DRAWING - Do not revise this original.

905-D-045 S09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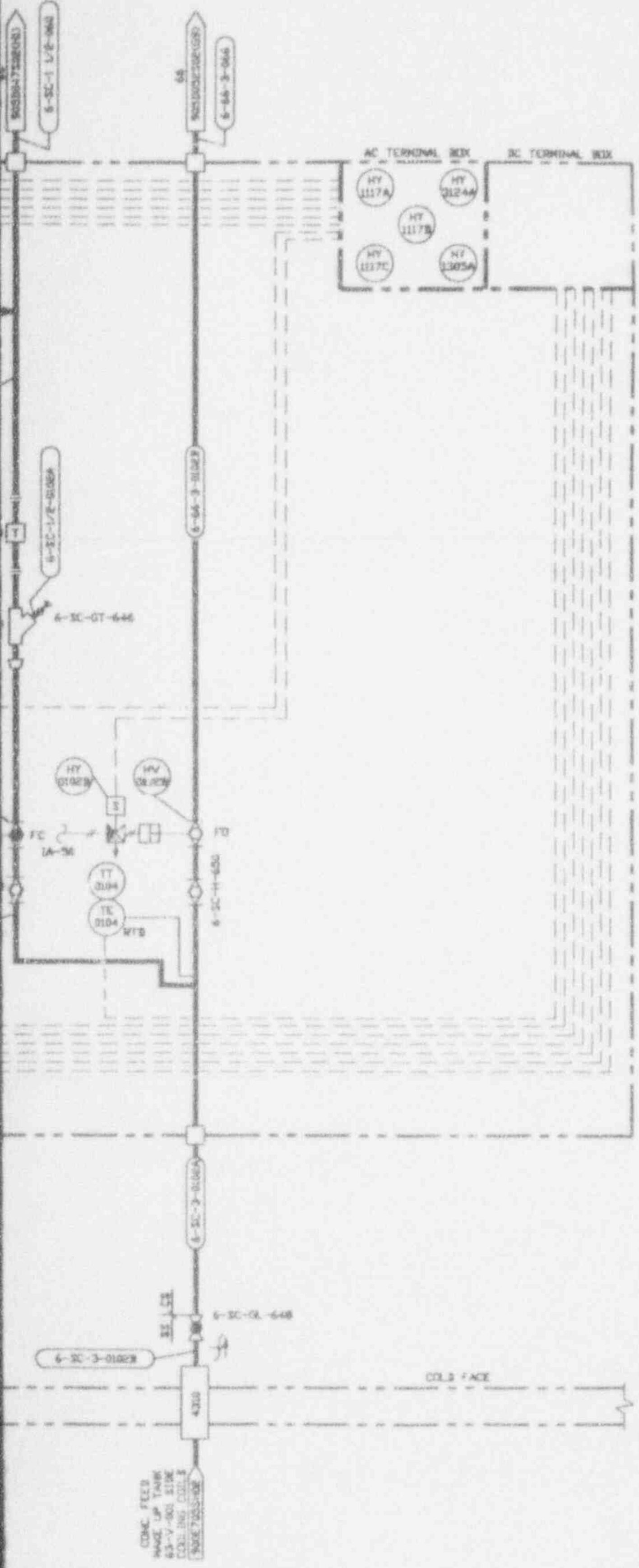

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3	8-18-88		T.JK	R.JL	R.JL SH	AJB	NDV
GENERAL REVISIONS INCLUDING TA 767							
C	2-16-89		RJS	JJV	R.JL	F.JK CPS	F.JES
GENERAL REVISIONS							
0	6-12-89	ER 1638			JRH		
1	12-15-89	ECN 3259	DRV	PAH	NEC		
2	5/14/90	ECN 3698	LRK	DRS	DJR		
3	7/9/91	REV PER ECN 4341	AVN	HAB	DJR		
4	10/14/93	REV PER ECN 6250	DAK	DRS	[illegible]		

NOTES:

1. IA-50 AIR SERVICE FROM MANIFOLD 6-IA-M-6016. SEE DETAIL ON 900D-2518 SH17.

ANSTEC APERTURE CARD

Also Available on Aperture Card

CAUTION CURRENT AS OF NOV 1 0 1993 CHECK DOCUMENT CONTROL FOR LATEST REVISION

ECN(S) PENDING #6891

FOR DRAWING INDEX SEE DRAWING NO.

APPRVD VVNS CO.		EBASCO SERVICES INCORPORATED
PROJECT MGR R.J. HILL NDV	08-27-88	A/E D/F.S. NO.2788 FOR TASK ORDER 009
ENGINEER SUPV A.J. DIFILIPPO	08-27-88	WEST VALLEY NUCLEAR SERVICES COMPANY, INC WEST VALLEY, NEW YORK
LEAD DISC ENGR S. NATH	08-27-88	
DESIGN M. KHUSHALANI	08-27-88	WEST VALLEY DEMONSTRATION PROJECT
CHECKED A.J. DIFILIPPO	08-27-88	P & ID VITRIFICATION FACILITY
DRAWN T.J. KITZ	DATE 08-27-88	INSTRUMENT RACK 3W7
DE-AC07-81NE44139 PROJECT NO.	SIZE D	DRAWING NO. 905D-045 REV. 4
19-CWV-02275 SUBCONTRACT NO.		
ISSUED FOR CONSTRUCTION	SCALE NONE	A/E SHEET NO. 905-D-045 S09 C

CAD DRAWING - DO NOT REVISE THIS ORIGINAL

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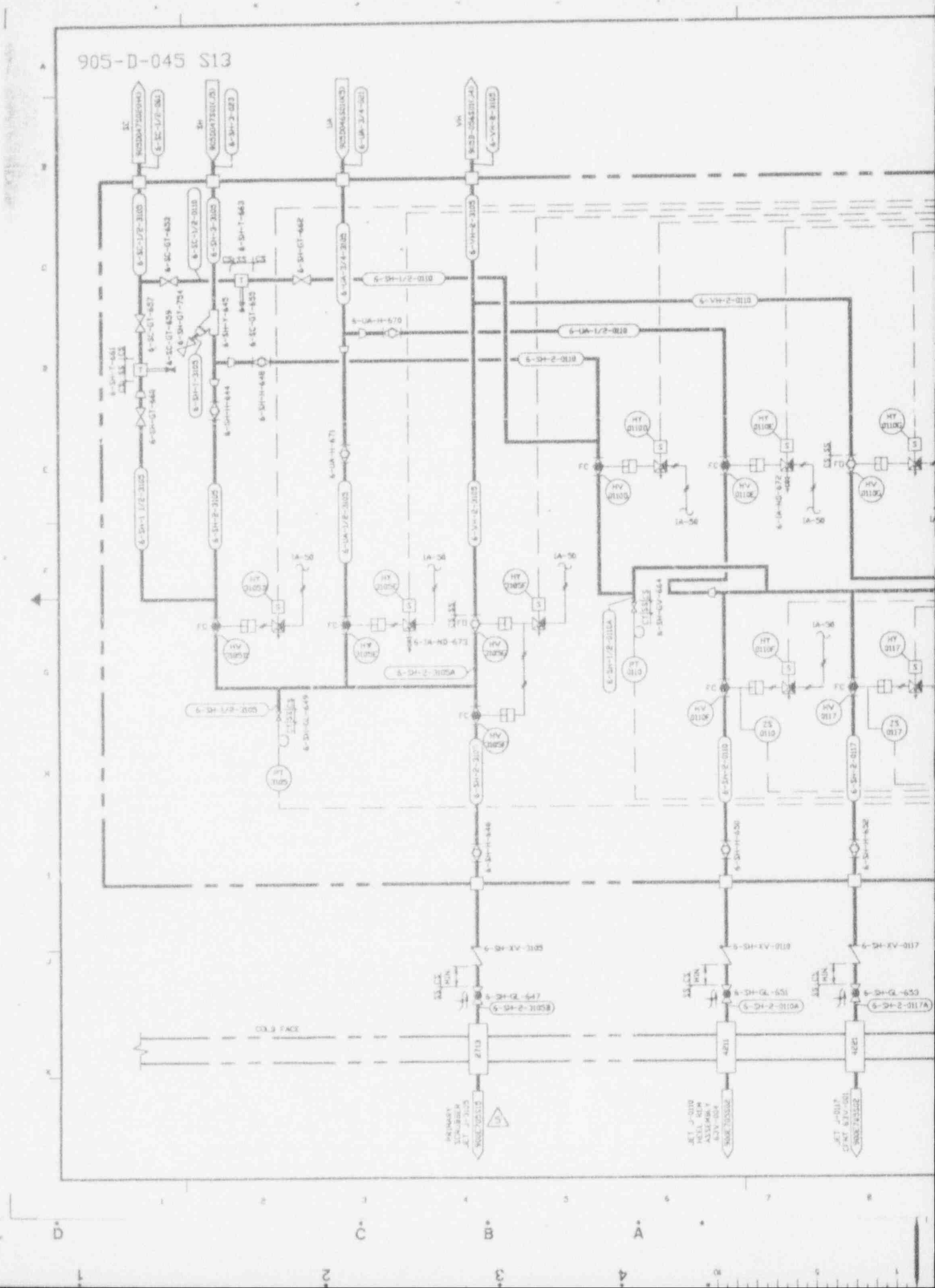

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6-UA-H-670
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PRIMARY SCRUBBER JET J-3105
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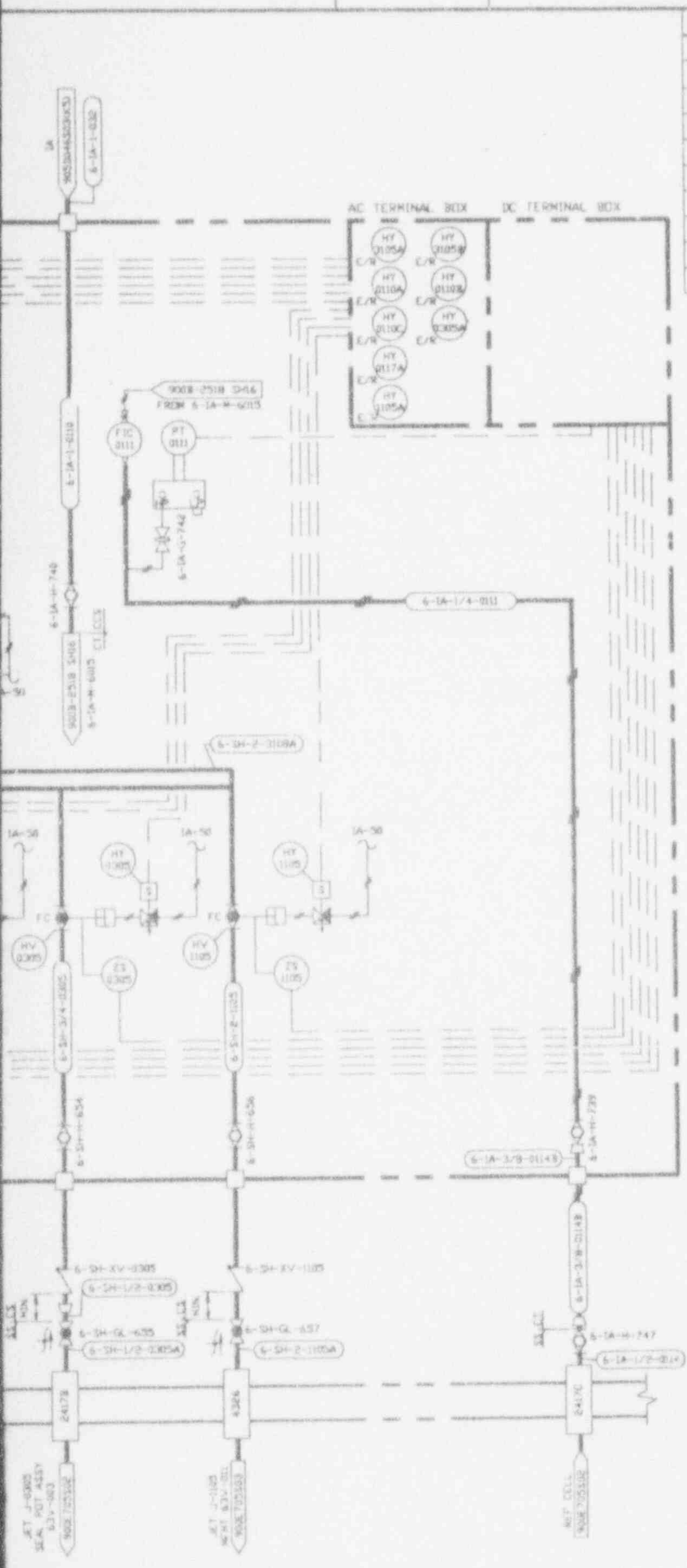


NO.	DATE	REVISIONS	DR	CH	APPROVED		
B	8-05-88		WR	R.A.	D.JL SM	AJD	HDV
		GENERAL REVISIONS INCLUDING TA 767					
C	2-16-89		RJS	JJV	D.A.	FJK FSK	FJES
		GENERAL REVISIONS					
0	6-12-89	ER 1631			JRH		
1	12-15-89	ECN 3255	DRW	PAN	NEC		
2	5/15/90	ECN 3593	LRK	FJK	DJR		
3	7/9/91	REV PER ECN 4341	AWN	HAB	DJR		
4	11/18/92	REV PER ECN 4560	AWN	HAB	DJR		
5	10/26/93	REV PER ECN 6811	DJN	gk5	KAs		

NOTES:

1. IA-50 AIR SERVICE FROM MANIFOLD 6-IA-M-6015. SEE DETAIL ON 9008-2518 SHEET 16.

ANSTEC APERTURE CARD

Also Available on Aperture Card

CAUTION CURRENT AS OF NOV 1 6 93 CHECK DOCUMENT CONTROL FOR LATEST REVISION.

ECN(S) PENDING

#6891

FOR DRAWING INDEX SEE DRAWING NO.

APPRV'D VYNS CO.	
PROJECT MGR H.D. WEINGART	08-25-88
ENGINEER SUPV A.J. DIFILIPPO	08-25-88
LEAD DISC ENGR S. NATH	08-25-88
DESIGN K. KHUSHALANI	08-25-88
CHECKED R.J. LEWKO	08-25-88
DRAWN T.J. KITZ	DATE 08-25-88
DE-AC07-81NE44139 PROJECT NO.	
19-CVV-02275 SUBCONTRACT NO.	
ISSUED FOR CONSTRUCTION	

EBASCO SERVICES INCORPORATED

A/E W.O. NO. 2288 TASK ORDER 222

FOR

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

WEST VALLEY DEMONSTRATION PROJECT

P & ID

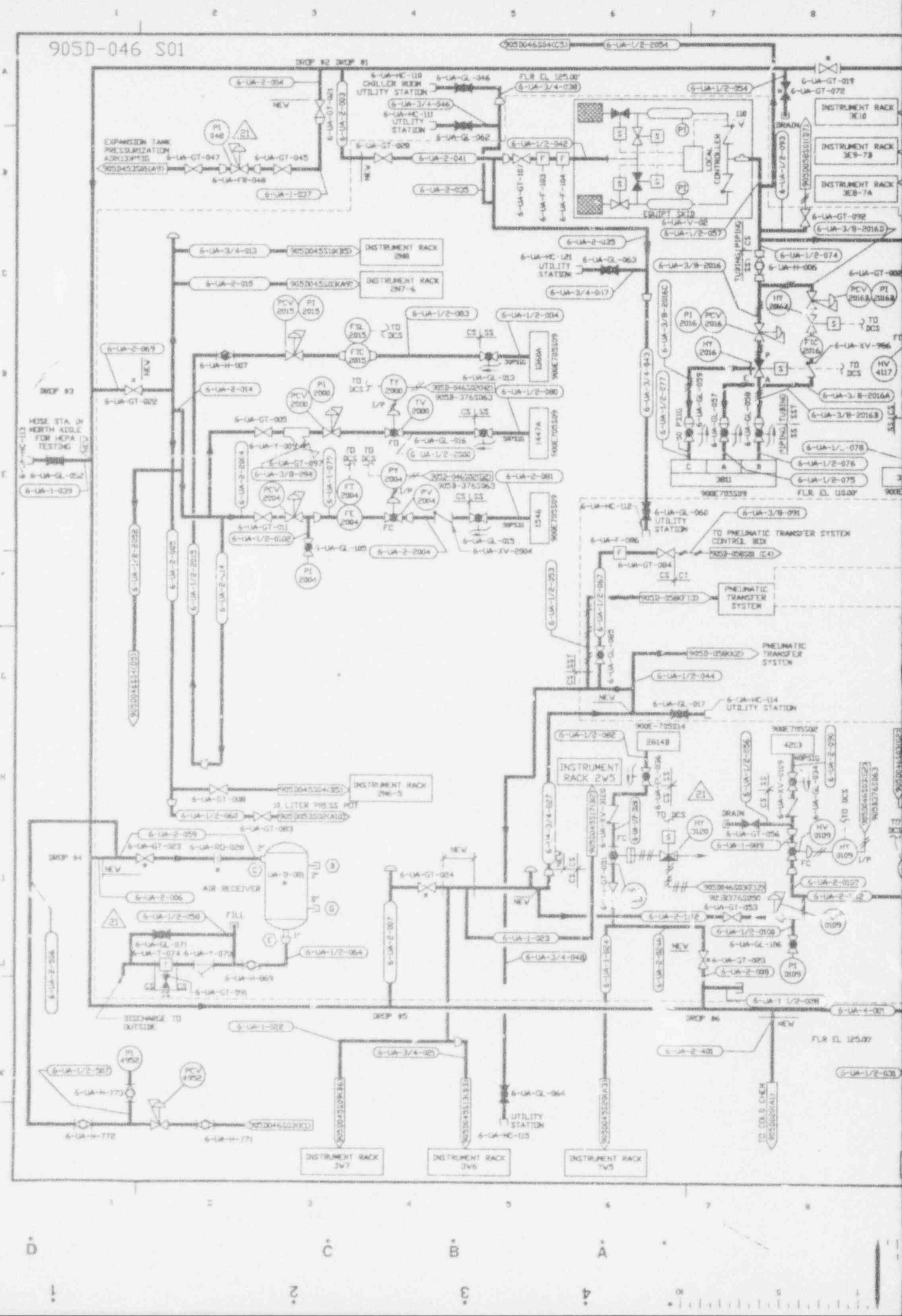
VITRIFICATION FACILITY

INSTRUMENT RACK 3W6

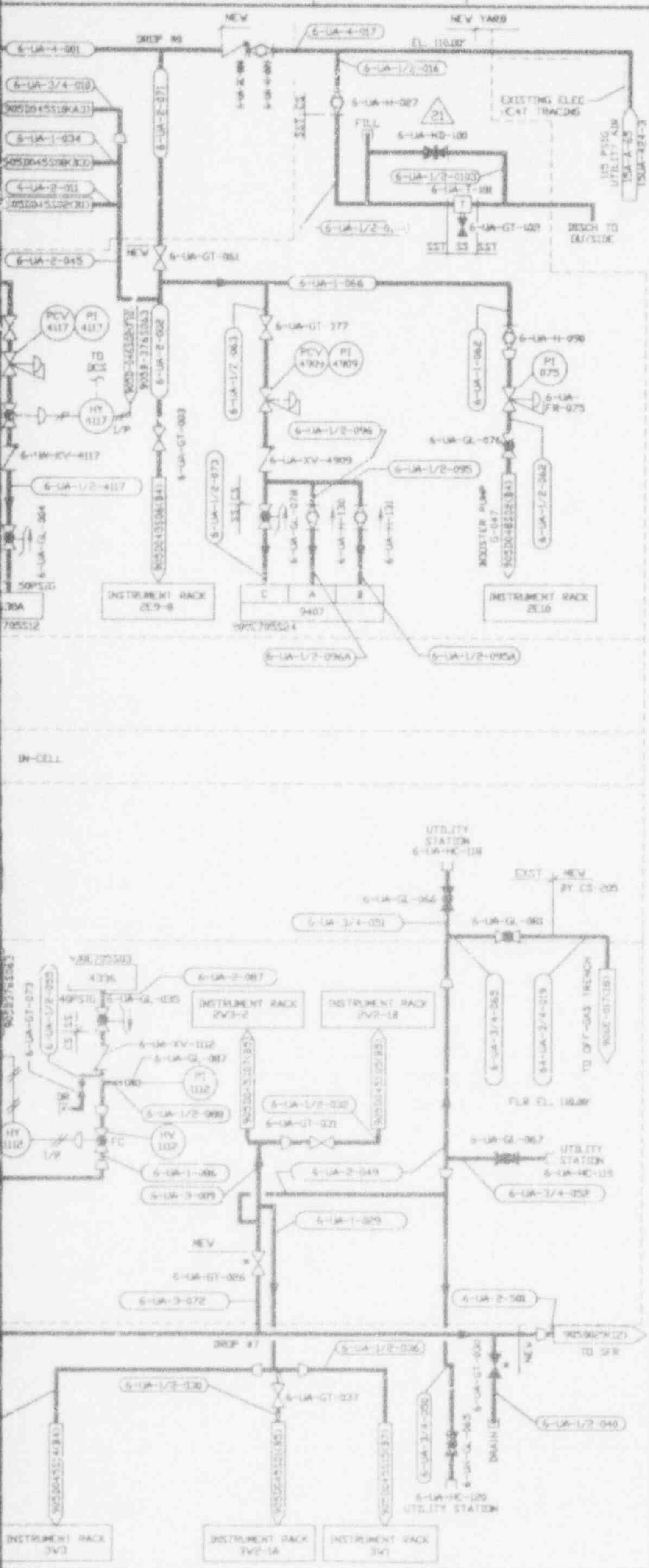
SIZE	INDEX CODE NUMBER (AREA / DR / TYP / CL / DWG)	DRAWING NO.	REV.
D		905D-045	5
SCALE: NONE	SPEC CODES	A/E SHEET NO. 905-D-045 S13 C	

CAD DRAWING - DO NOT REVISE THIS ORIGINAL

9403140262-38



905D-046 S01
DROP #2
DROP #1
CHILLER ROOM UTILITY STATION
FLR EL 125.00'
EXPANSION TANK PRESSURIZATION
UTILITY STATION
INSTRUMENT RACK 3E10
INSTRUMENT RACK 3E9-7B
INSTRUMENT RACK 3E8-7A
LOCAL CONTROLLER
EQUIPT SKID
DRAIN
TUBING
PIPING
INSTRUMENT RACK 2N8
INSTRUMENT RACK 2N7-6
TO DCS
DROP #3
HOSE STA. IN NORTH AISLE FOR HEPA TESTING
TO PNEUMATIC TRANSFER SYSTEM CONTROL BOX
PNEUMATIC TRANSFER SYSTEM
NEW
INSTRUMENT RACK 2W5
INSTRUMENT RACK 2N6-5
10 LITER PRESS POT
DROP #4
AIR RECEIVER
FILL
DISCHARGE TO OUTSIDE
DROP #5
DROP #6
FLR EL 125.00'
INSTRUMENT RACK 3W7
INSTRUMENT RACK 3W6
INSTRUMENT RACK 7W5



NO.	DATE	REVISIONS	DR	CH	APPROVED		
B	8/23/88		DFR	R.A.	R.A.	AC FSK	MDW
		GENERAL REVISION					
C	6-28-89		PJT	AC	R.A.	AC	FJES
		GENERAL REVISION					
0	7-13-89	CR1649			JRH		
1	3-15-90	REVISED PER ECN 3383	PES	DRS	DJR		
2	5-11-90	REVISED PER ECN 3633	PES	DRS	DJR		
3	6-1-90	REVISED PER ECN 3669	CTC				
4	7-11-90	REVISED PER ECN 3780	BP	HAB	VAD		
5	10-22-90	REVISED PER ECN 3978	JHG	HAB	DJR		
6	01-29-91	REVISED PER ECN 4102	RJR	HAB	DJR		
7	03/28/91	REVISED PER ECN 4197	BAR	HAB	DJR		
8	11/25/91	REVISED PER ECN 4376	DAK	HAB	DJR		
9	3/30/92	REVISED PER ECN 4937	LRK	HAB	DJR		
10	5/8/92	REVISED PER ECN 5044 REVISED PER ECN 5081	CGR	DRS	DJR		
11	6/29/92	REVISED PER ECN 5198	JLH	HAB	DJR		
12	09/21/92	GEN REV PER ECN 5200	SRC	HAB	PAM		
13	10/16/92	REVISED PER ECN 5259	SRD	DRS	ZB		
14	1/4/93	REVISED PER ECN 5331	GM	DRS	RWM		
15	1/21/93	REVISED PER ECN 5761	GM	DRS	DJR		
16	1/25/93	REVISED PER ECN 5443	SRD	DRS	PAM		
17	03/09/93	REVISED PER ECN 5986	SRC	HAB	FAP		
18	03/22/93	REVISED PER ECN 6054	SRC	HAB	PAM		
19	10/7/93	REVISED PER ECN 5630	AAJ	HAB	PAM		
20	10/14/93	REVISED PER ECN 6250	DAK	DFS	RWM		
21	11/02/93	REVISED PER ECN 6981	AJG		JMS		

REFERENCE DRAWINGS:

SYMBOLS, NOTES & LEGEND	900-D-1306
SYMBOLS, NOTES & LEGEND	900-D-1307
SYMBOLS, NOTES & LEGEND	900-D-1308
P & ID VITRIFICATION FACILITY UTILITY & INSTRUMENT AIR SYS	905-D-029
P & ID COLD CHEMICAL UTILITY & INSTRUMENT AIR SYS	905-D-020
INSTRUMENT INSTALLATION DETAILS	905-B-376

NOTES:

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

CAD DRAWING-DO NOT REVISE THIS ORIGINAL

FOR DRAWING INDEX SEE DRAWING NO.

EBASCO SERVICES INCORPORATED

FOR

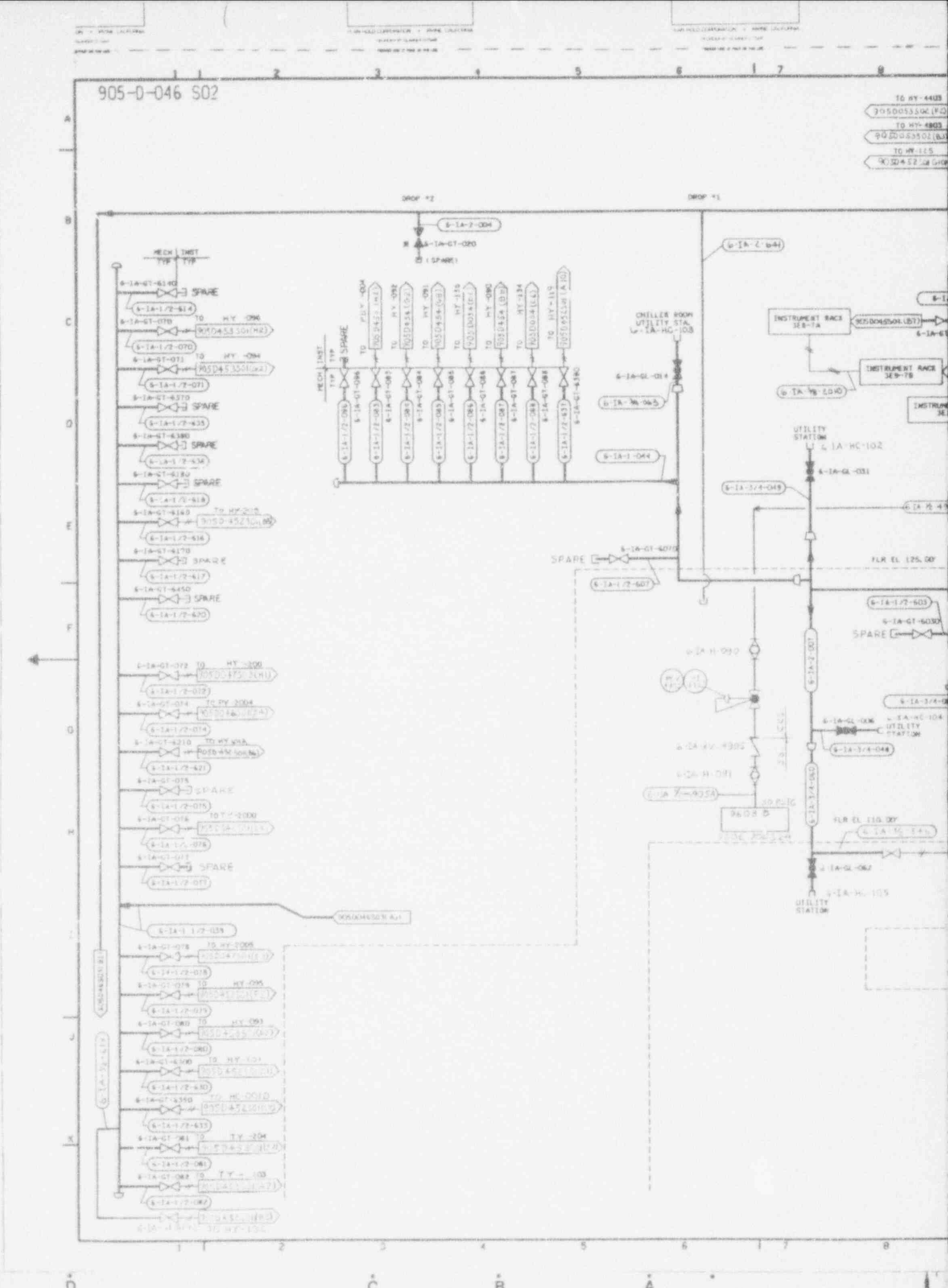
WEST VALLEY NUCLEAR
SERVICES COMPANY, INC.
WEST VALLEY, NEW YORK

WEST VALLEY DEMONSTRATION PROJECT

P & ID
VITRIFICATION FACILITY
UTILITY AIR SYSTEM

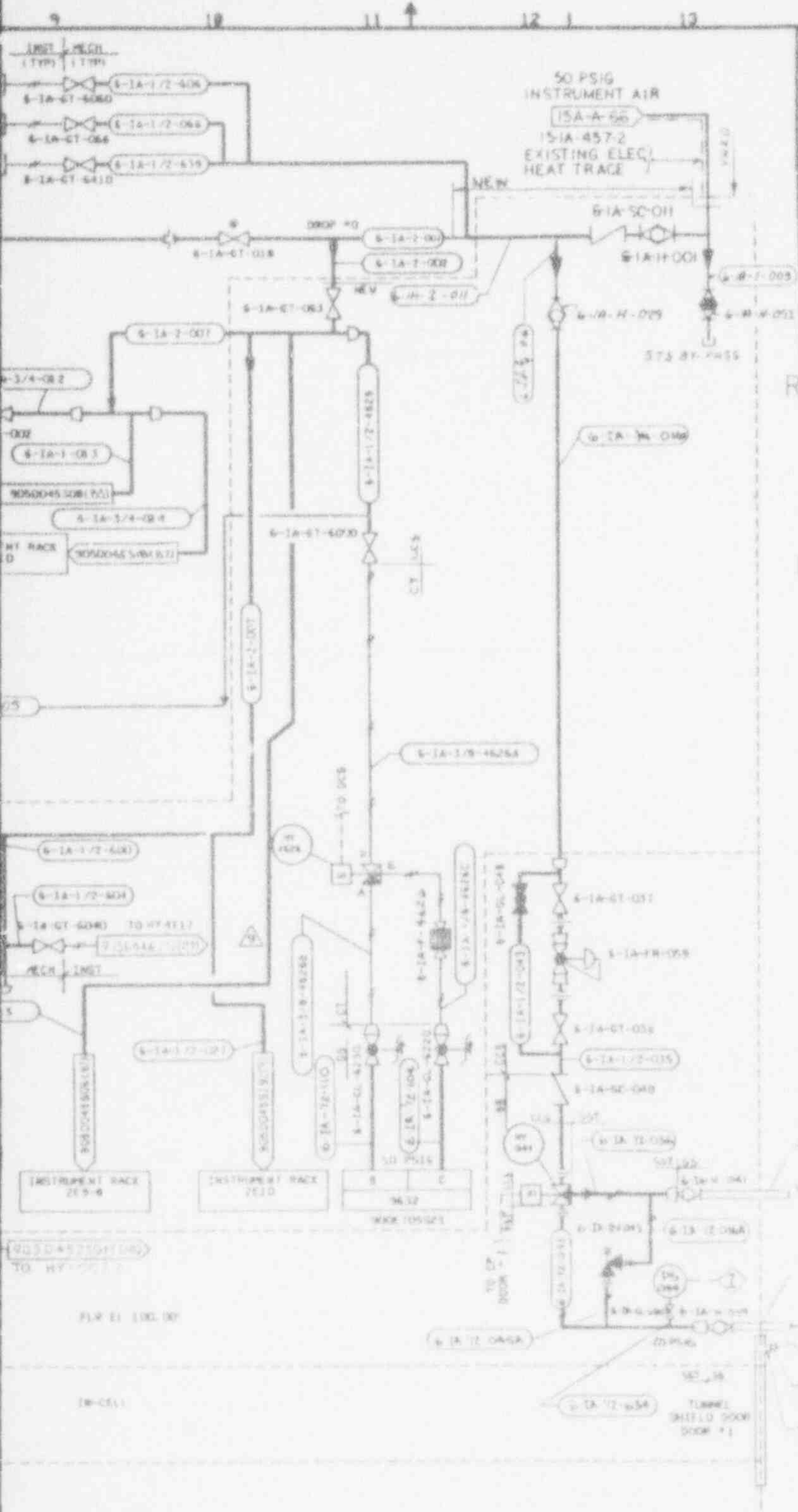
PROJECT MGR	M. WEINGART FSK
ENGINEERING SUPV	F.S. KOWALCZYK
LEAD DISC ENGR	F.S. KOWALCZYK
DESIGN	R.J. LEWKO
CHECKED	R.J. LEWKO
DRAWN	T.J. KITZ
DE-AC07-81NE44139 PROJECT NO.	
19-CWV-92275 SUBCONTRACT NO.	
ISSUED FOR CONSTRUCTION	
SIZE	D
DRAWING NO.	905-D-046
REV	21
SCALE	NONE
A/E SHEET NO.	905-D-046 S01 C

9403140262-39



905-D-046 S02
DROP #2
DROP #1
6-IA-2-004
6-IA-GT-020
(SPARE)
MECH INST
TYP TYP
SPARE
CHILLER ROOM
UTILITY STA.
6-IA-HC-103
INSTRUMENT RACK
UTILITY
STATION
6-IA-HC-102
6-IA-GL-031
FLR EL 125.00'
FLR EL 110.00'
SPARE
6-IA-HC-104
UTILITY
STATION
6-IA-HC-105
UTILITY
STATION
6-IA-GL-006
6-IA-2-007

905D-046 SH. 2



NO.	DATE	REVISION	DR	CH	APPROVED
B	06-23-88	GENERAL REVISION			
C	6-27-??	GENERAL REVISION			
0	7/5/??	ER1649			
8	1-19-93	REV PER ECN 5445			
9	10-8-93	REV/ECN 6506			
3	1 29 91	REVD PER ECN 4102	RBH		
4	3-30-92	ECN 4957			
5	6-29-92	REV PER ECN 5198			
6	7-28-92	REV/FCN VF-28-0159	PD		
7	9-22-92	REV/ECN 5263			

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-D-029

NOTES:

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

ANSTEC APERTURE CARD

Also Available on Aperture Card

FOR DRAWING INDEX SEE DRAWING NO.

EBASCO SERVICES INCORPORATED

A/E S.T.S. NO. 2188 TASK ORDER 029

FOR

WEST VALLEY NUCLEAR SERVICES COMPANY, INC
WEST VALLEY, NEW YORK

WEST VALLEY DEMONSTRATION PROJECT

P & ID
VITRIFICATION FACILITY
INSTRUMENT AIR SYSTEM

SIZE: D

DRAWING NO. 905-D-046 REV. 9

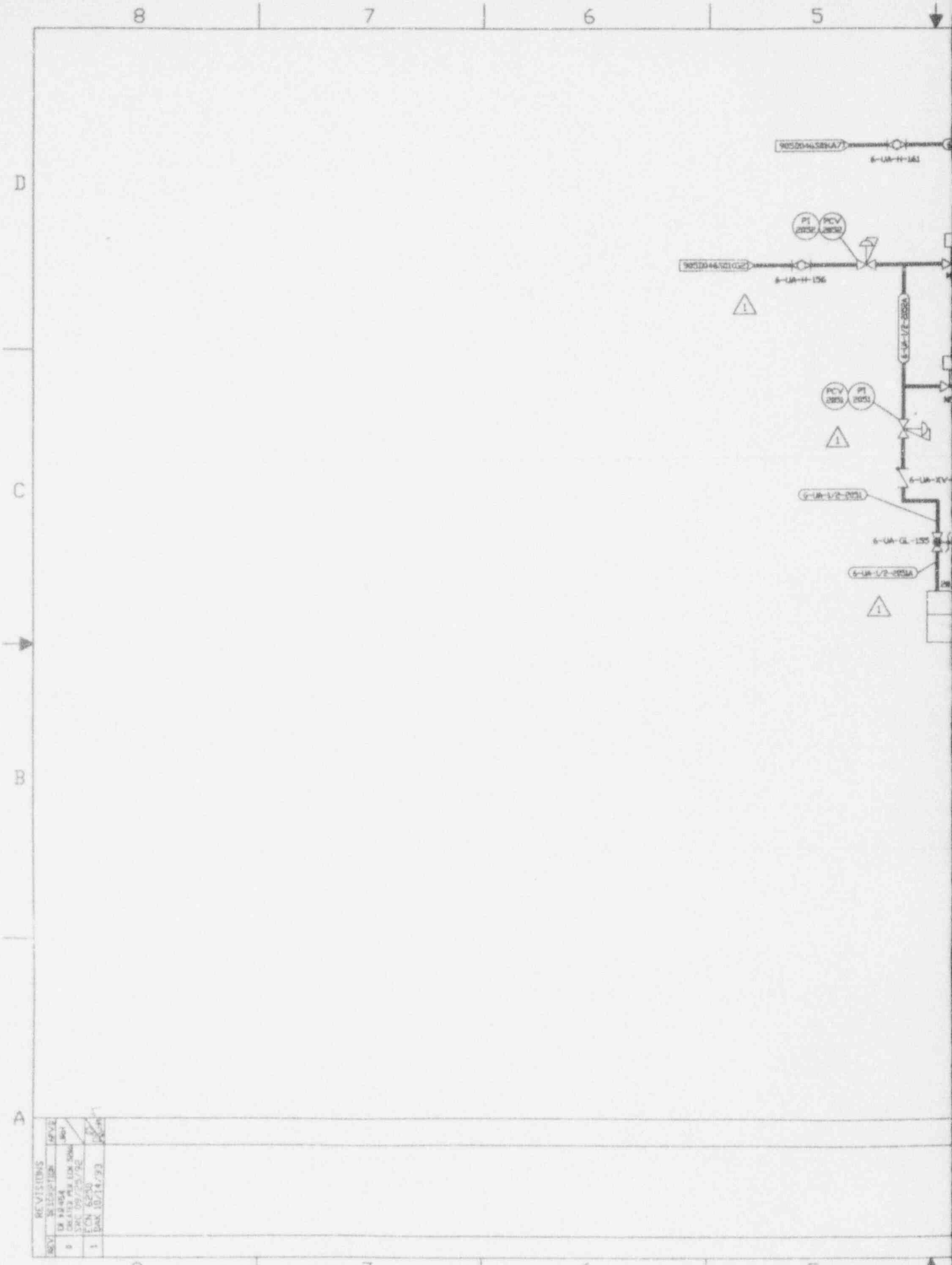
SUBCONTRACT NO. 19-CWV-02275

ISSUED FOR CONSTRUCTION

SCALE NONE

A/E SHEET NO. 905-0-046 S02 C

9403140262-40



8
7
6
5
D
C
B
A
905D046S8KA7
6-UA-H-161
PI 2852
PCV 2852
905D046S01C02
6-UA-H-156
6-UA-1/2-2852A
PCV 2856
PI 2851
6-UA-XV-
6-UA-1/2-2851
6-UA-GL-155
6-UA-1/2-2851A
REVISIONS
REV
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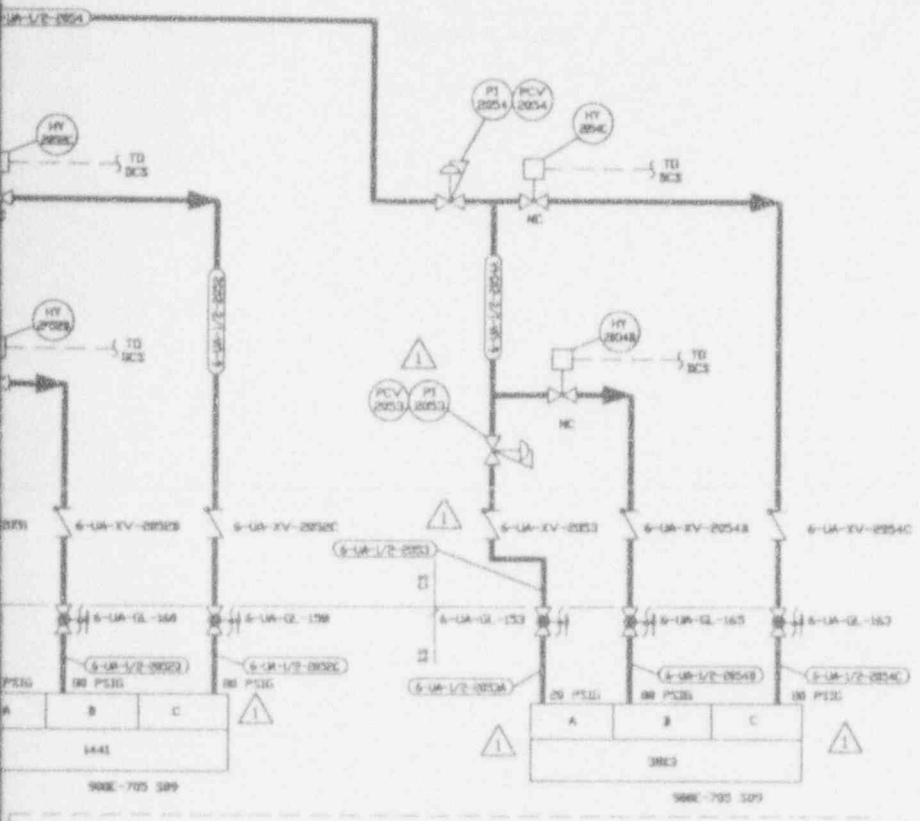
0
1
ECN 6250
DAK 10/14/93



NOTE:
FOR REFERENCE DWG & NOTES
SEE DWG 905D-046 SH 1

9403140262-47

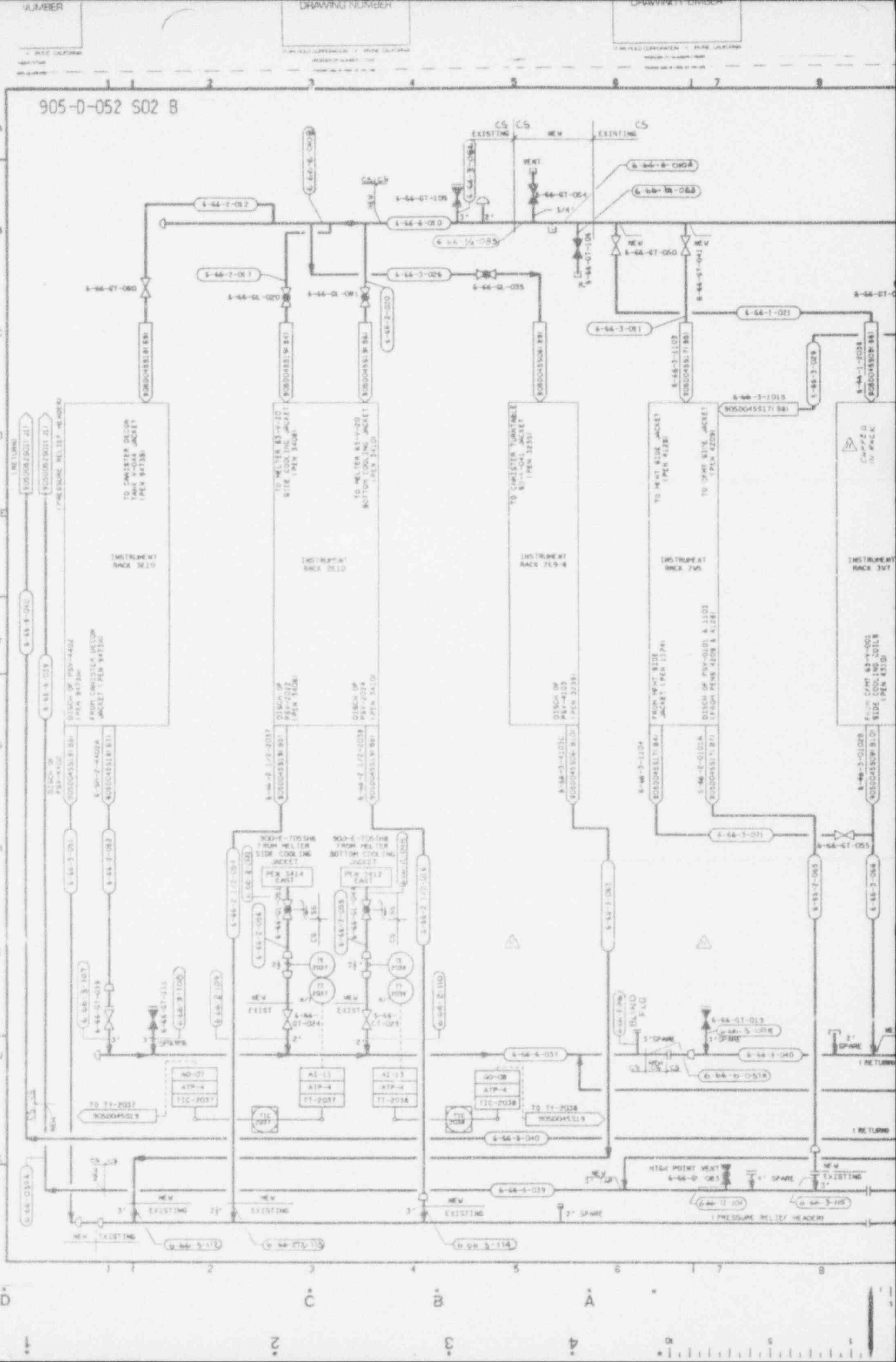
QTY PER/REQD	ITEM NO.	NOMENCLATURE OR DESCRIPTION	PART OR IDENTIFYING NO.	MATERIAL OR SPEC
		PARTS LIST		

UNLESS OTHERWISE SPECIFIED	DRAFTER SR CORALLO	DATE 10/24/92	A/E CONTRACT NO. / CDRL SPEC NO.
ALL DIMS IN INCHES	CHECKER H. BARKER	DATE 10/4/92	FOR
TOLERANCES-DO NOT SCALE	ENGR. PAUL A NESTER	DATE 10/5/92	WEST VALLEY NUCLEAR SERVICES CO.,INC. WEST VALLEY, NEW YORK
2 PL DEC ± N/A / 3 PL DEC ± N/A / ANGLES ± N/A / SURF FINISH			P & ID VITRIFICATION FACILITY UTILITY AIR SYSTEM
FRACTIONS ± N/A	CELWEB APPVL TE COTTRELL	DATE 10/8/92	
SPEC NO.	SYSTEM APPVL DJ RICKETTSON	DATE 10/5/92	
NEXT ASSEMBLY	QA APPVL PP WILLEMS	DATE 10/6/92	DWG SIZE D / SCALE NONE / WEIGHT / DWG NO. 905D-046 / REV 1
	RELEASE JOHN HORTON	DATE 10/8/92	A/E DWG NO. / SHEET 4 OF

CAD DRAWING-DO NOT REVISE THIS ORIGINAL

CHECK DOCUMENT CONTROL FOR LATEST REVISION

CAUTION CURRENT AS OF



905-D-052 S02 B
DRAWING NUMBER
CS
EXISTING
NEW
VENT
INSTRUMENT RACK 3E10
INSTRUMENT RACK 2E10
INSTRUMENT RACK 2E9-B
INSTRUMENT RACK 2W5
INSTRUMENT RACK 3V7
TO CANISTER DECON TANK V-044 JACKET (PEN 9473B)
TO MELTER 63-V-20 SIDE COOLING JACKET (PEN 3408)
TO MELTER 63-V-20 BOTTOM COOLING JACKET (PEN 3410)
TO CANISTER TURNTABLE JACKET (PEN 3235)
TO HEAT SIDE JACKET (PEN 4128)
(RETURN)
(PRESSURE RELIEF HEADER)
FROM MELTER SIDE COOLING JACKET
FROM MELTER BOTTOM COOLING JACKET
PEN 3414 EAST
PEN 3412 EAST
TO TY-2037
TO TY-2038
9050045S19
HIGH POINT VENT
BLIND FLG
2" SPARE
3" SPARE

905D-052 SH. 2

NO.	DATE	REVISION	DR	CH	APPROVED
8	2-18-98	GENERAL REVISION			
7	12-29-97	REV PER ECN 5737	SKD		
8	1-8-95	REV PER ECN 5331	GM		RWM
9	4-16-93	REV PER ECN 6201	PD		HAJ
10	5-25-93	REV/ECN 6342			JAY
11	10-12-93	REV/ECN 6250			RWM
6	7-16-92	ECN 5362			

NOTES

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

FOR DRAWING INDEX SEE DRAWING NO.

EBASCO SERVICES INCORPORATED

WEST VALLEY NUCLEAR SERVICES COMPANY, INC
WEST VALLEY, NEW YORK

WEST VALLEY DEMONSTRATION PROJECT

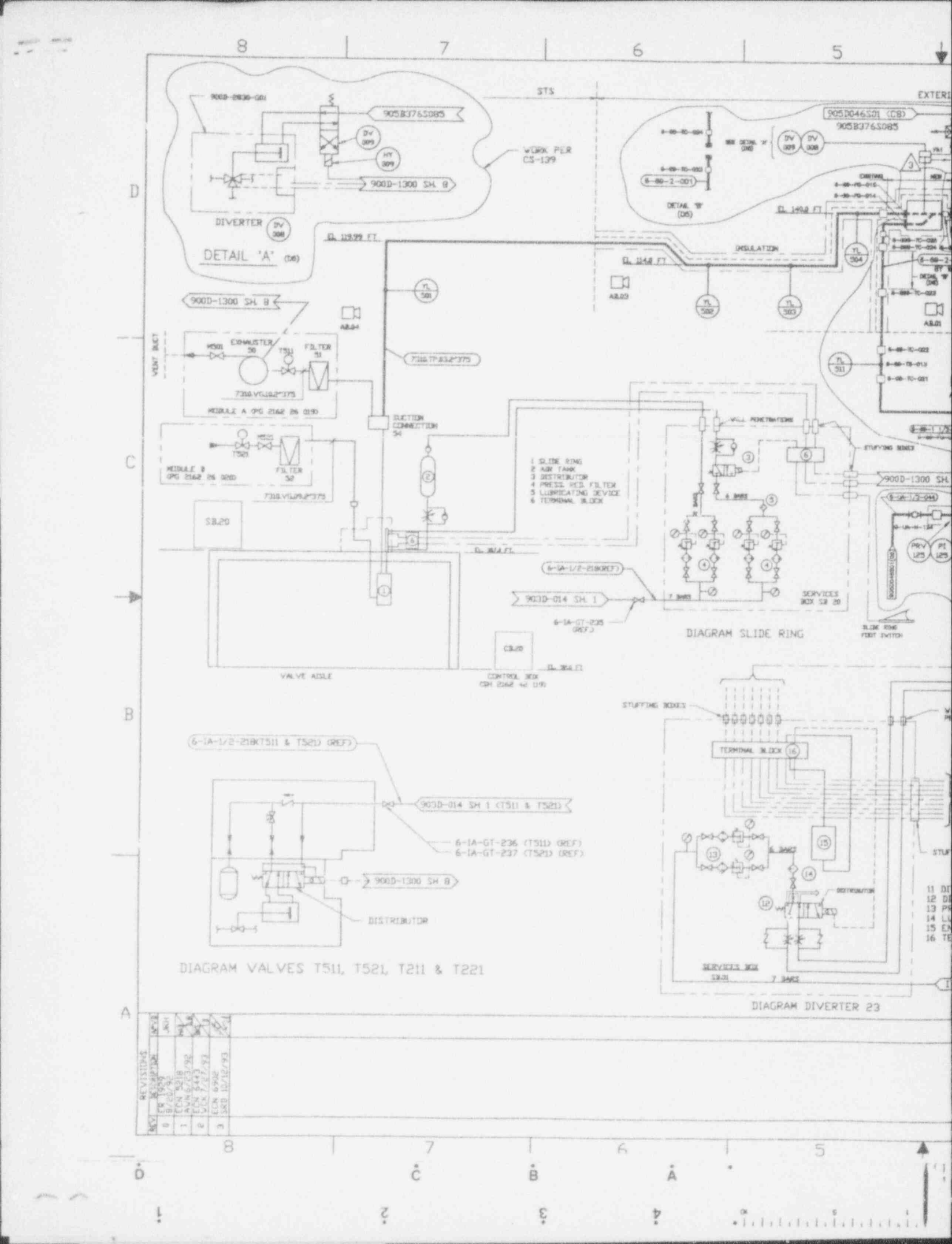
VITRIFICATION FACILITY
CLOSED LOOP COOLING
WATER SYSTEM P&ID

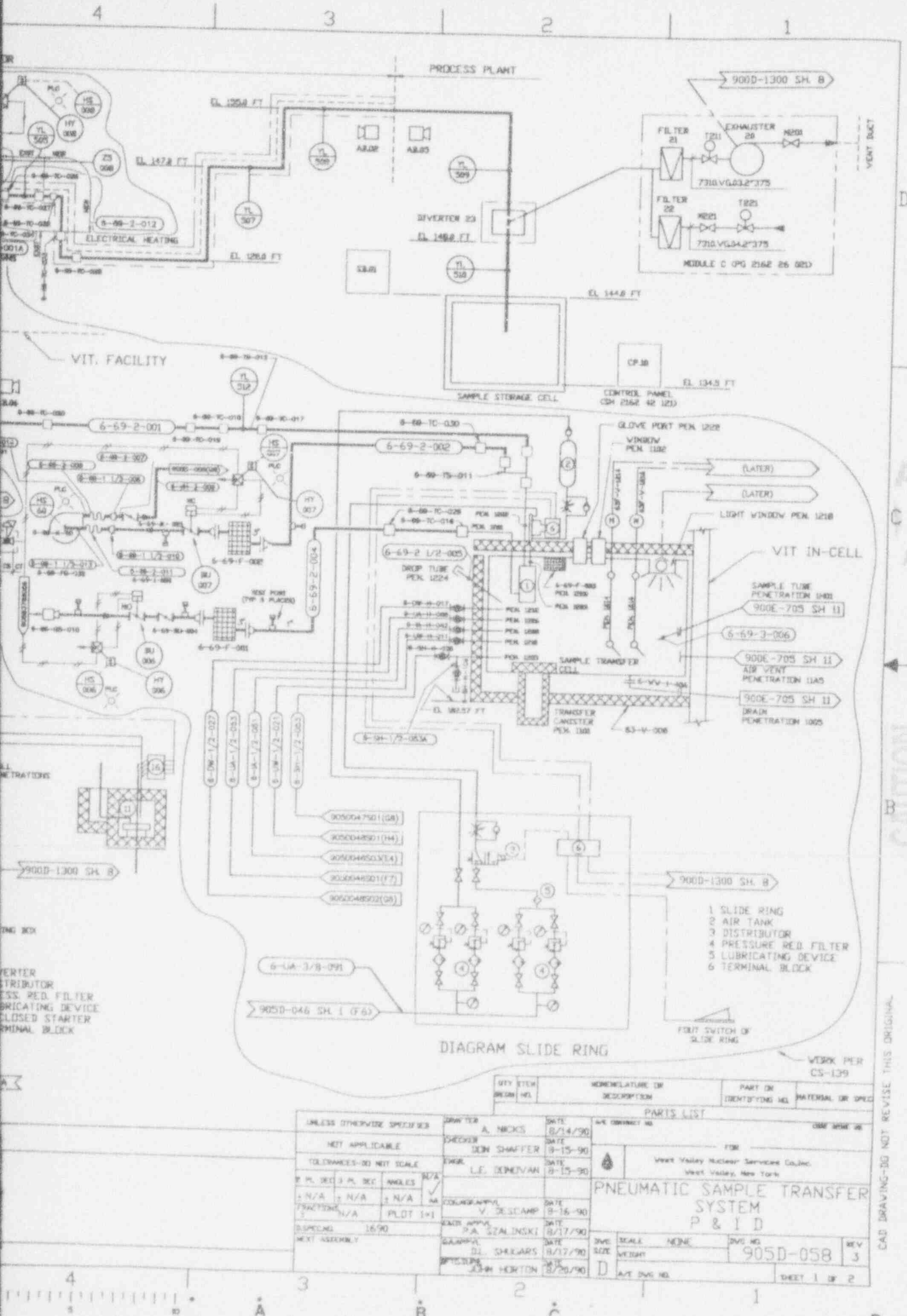
DRAWING NO. 905D-052 REV. 11

SCALE NONE

905-0-052 SO2 B

9403140262-42


DETAIL 'A' (D6)
DIVERTER
DIAGRAM SLIDE RING
DIAGRAM VALVES T511, T521, T211 & T221
DIAGRAM DIVERTER 23
VALVE AISLE
1 SLIDE RING
2 AIR TANK
3 DISTRIBUTOR
4 PRESS. REG. FILTER
5 LUBRICATING DEVICE
6 TERMINAL BLOCK
DISTRIBUTOR
TERMINAL BLOCK
STUFFING BOXES



PROCESS PLANT
900D-1300 SH. 8
EXHAUSTER 28
FILTER 21
FILTER 22
VENT DUCT
DIVERTER 23
MODULE C (PG 2162 26 021)
VIT. FACILITY
SAMPLE STORAGE CELL
CONTROL PANEL
ELECTRICAL HEATING
GLOVE PORT PEN. 1222
WINDOW PEN. 1102
(LATER)
(LATER)
LIGHT WINDOW PEN. 1210
VIT IN-CELL
SAMPLE TUBE PENETRATION 1H01
900E-705 SH 11
6-69-3-006
900E-705 SH 11
AIR VENT PENETRATION 11A5
900E-705 SH 11
DRAIN PENETRATION 1005
SAMPLE TRANSFER CELL
TRANSFER CANISTER PEN. 1108
DROP TUBE PEN. 1224
TEST PORT (TYP 5 PLACES)
900D-1300 SH. 8
900D-1300 SH. 8
1 SLIDE RING
2 AIR TANK
3 DISTRIBUTOR
4 PRESSURE RED. FILTER
5 LUBRICATING DEVICE
6 TERMINAL BLOCK
6-UA-3/8-091
905D-046 SH. 1 (F6)
FOOT SWITCH OF SLIDE RING
DIAGRAM SLIDE RING
WORK PER CS-139
PARTS LIST
UNLESS OTHERWISE SPECIFIED
NOT APPLICABLE
TOLERANCES-DO NOT SCALE
DRAFTER A. NICKS 8/14/90
CHECKER DON SHAFFER 8-15-90
ENGR. L.E. DONOVAN 8-15-90
V. DESCAMP 8-16-90
P.A. SZALINSKI 8/17/90
D.L. SHUGARS 8/17/90
JOHN HORTON 8/20/90
West Valley Nuclear Services Co.,Inc.
West Valley, New York
PNEUMATIC SAMPLE TRANSFER SYSTEM P & I D
SCALE NONE
905D-058
REV 3
SHEET 1 OF 2
CAD DRAWING-DO NOT REVISE THIS ORIGINAL

ANSTEC APERTURE CARD

Also Available on Aperture Card

CAUTION CURRENT AS OF
CHECK DOCUMENT CONTROL FOR LATEST REVISION

9403140262-43