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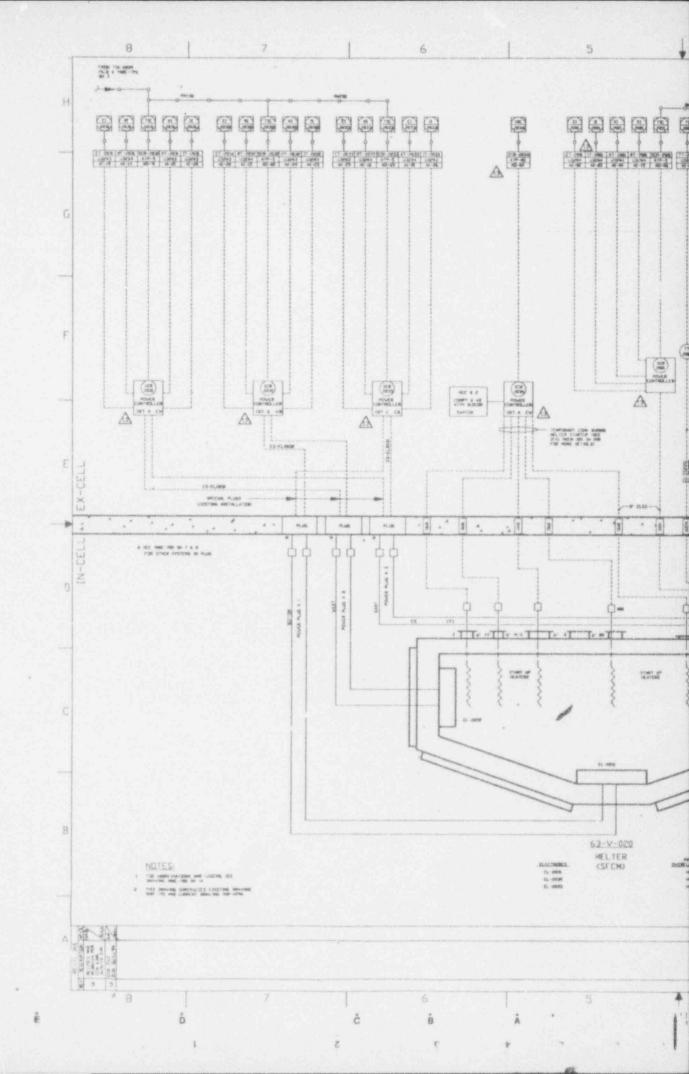


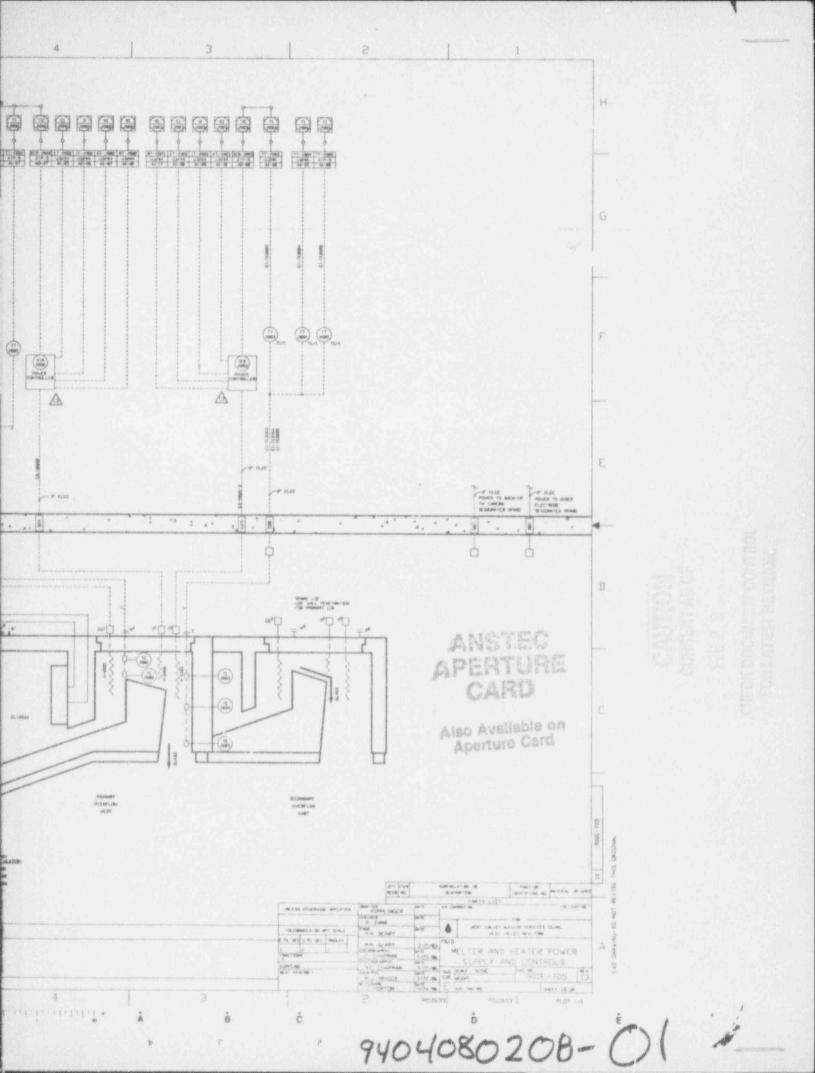


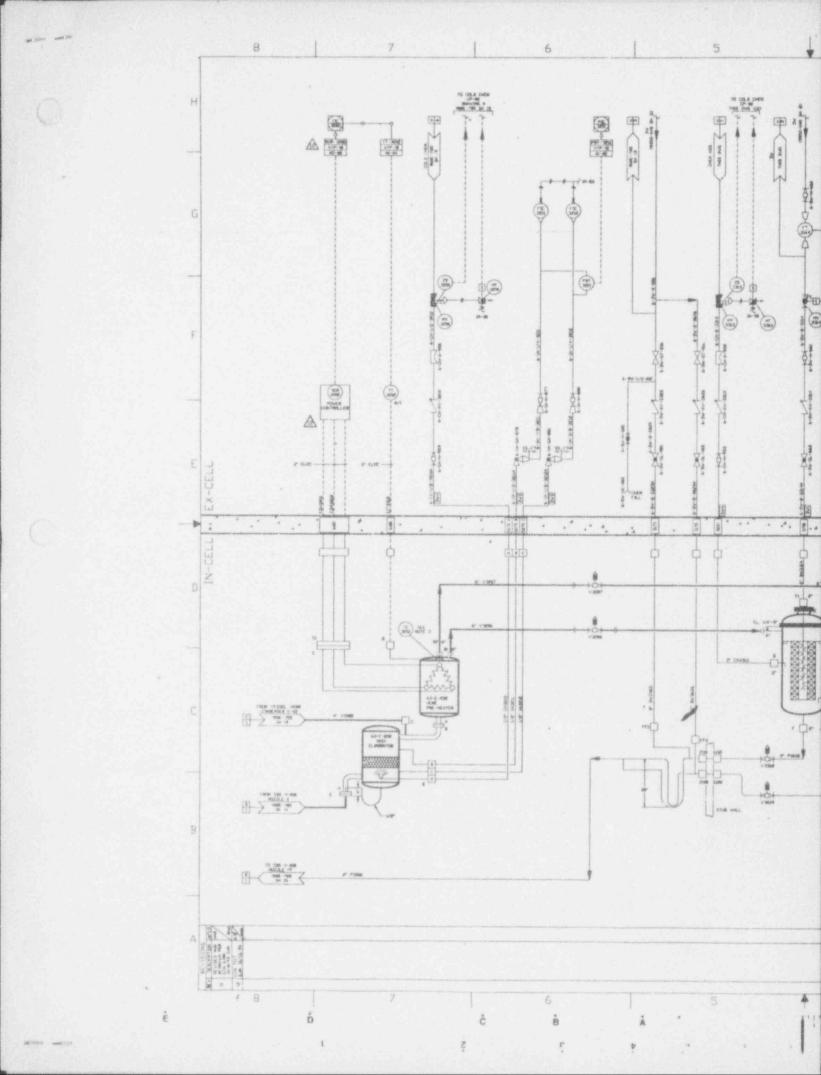


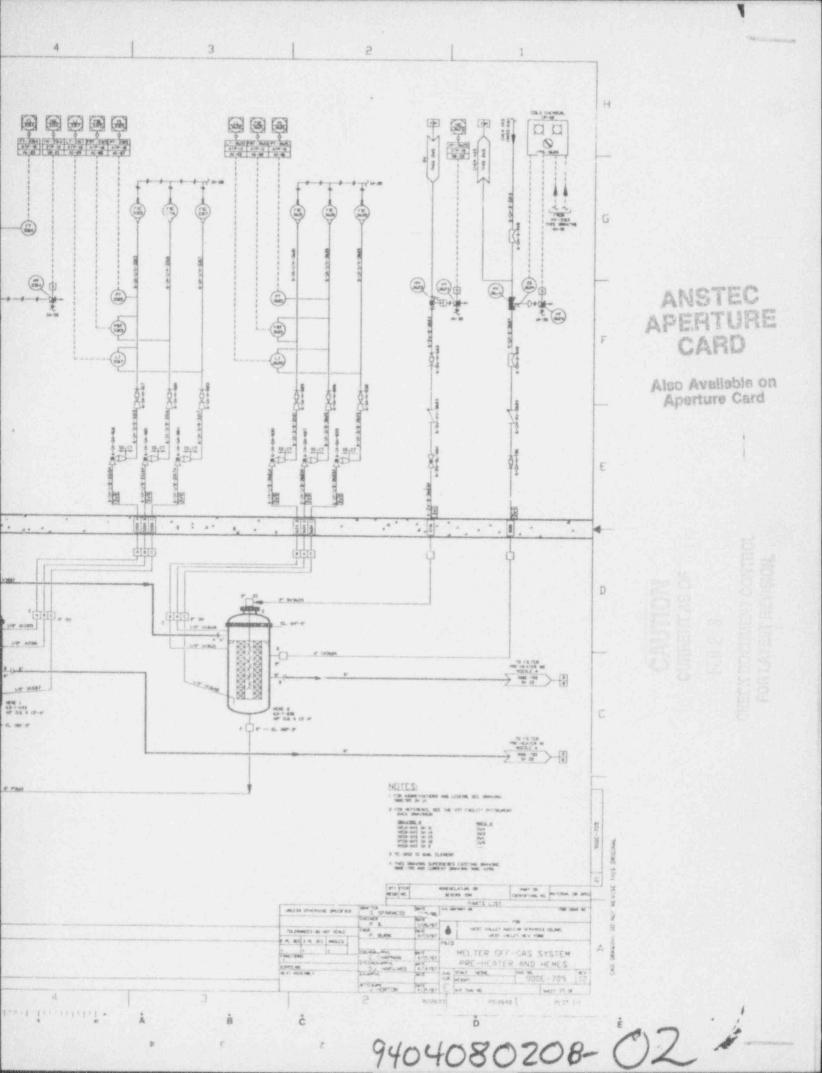


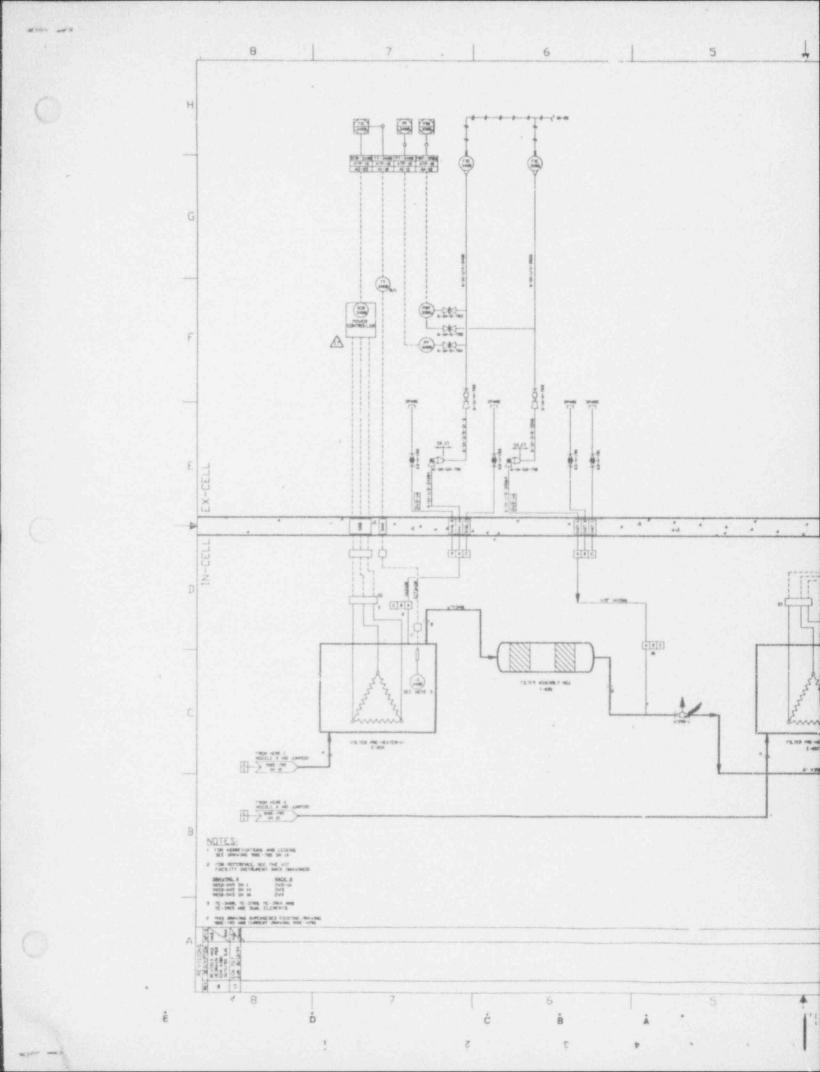


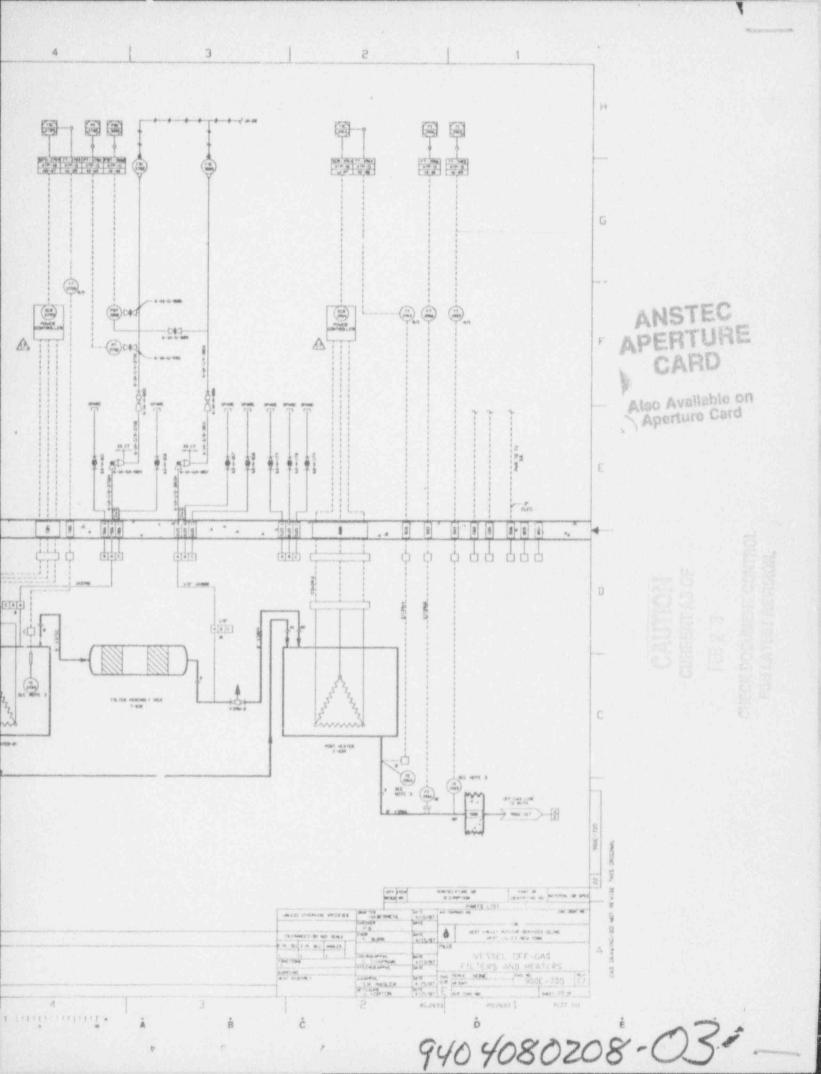


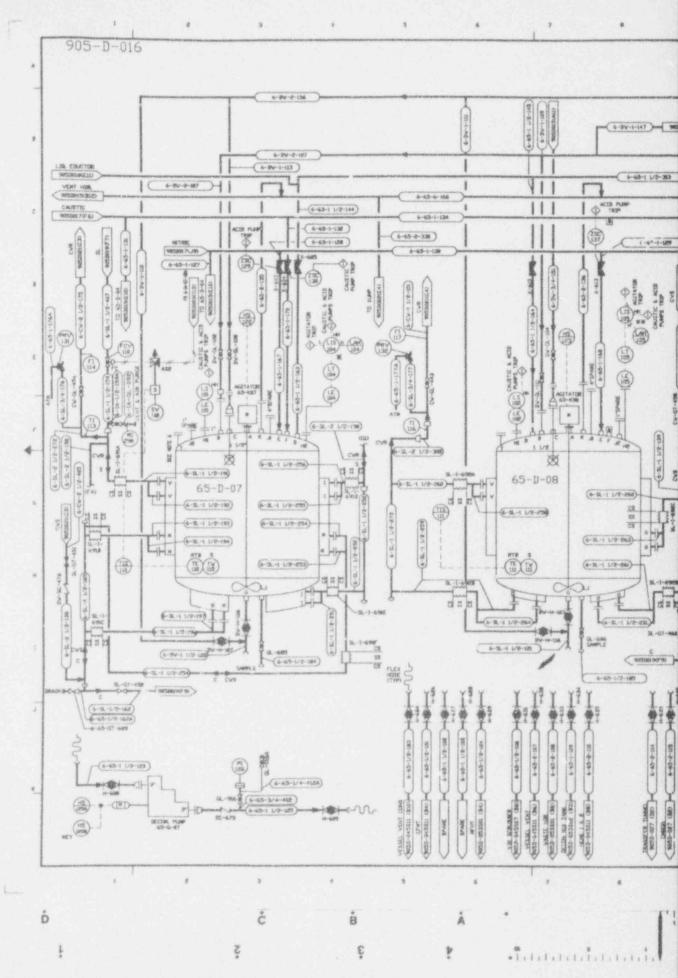


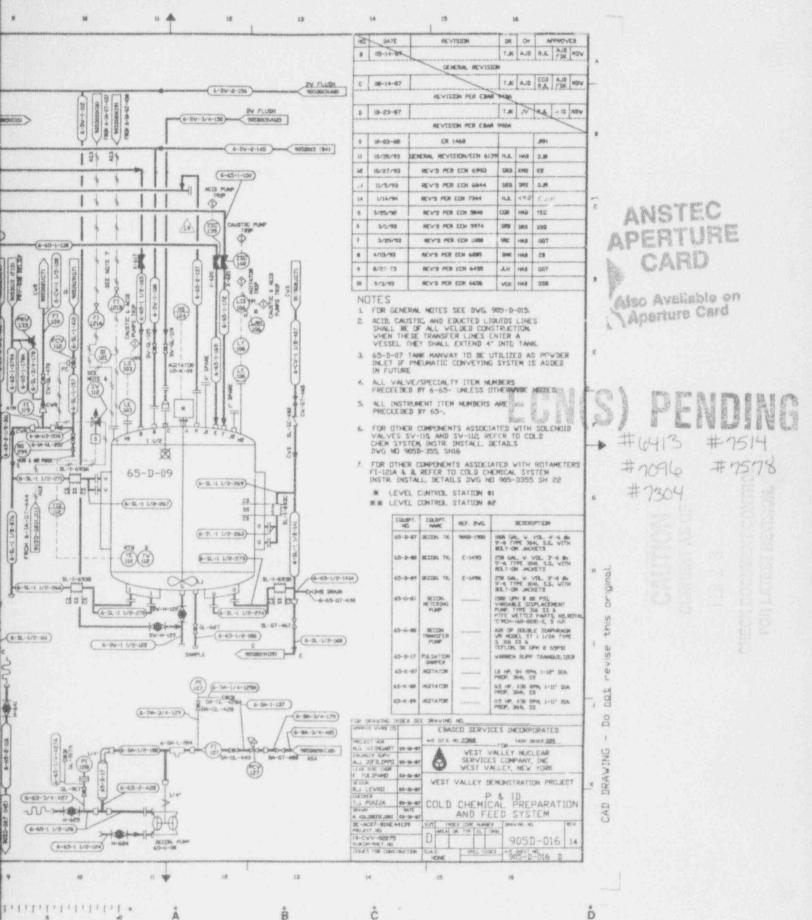






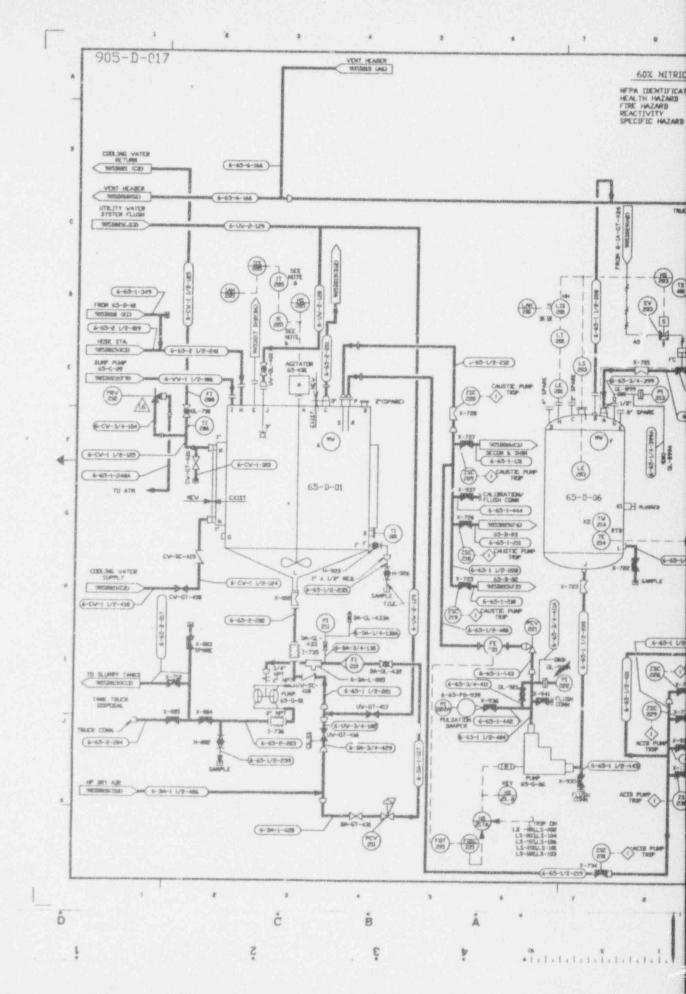


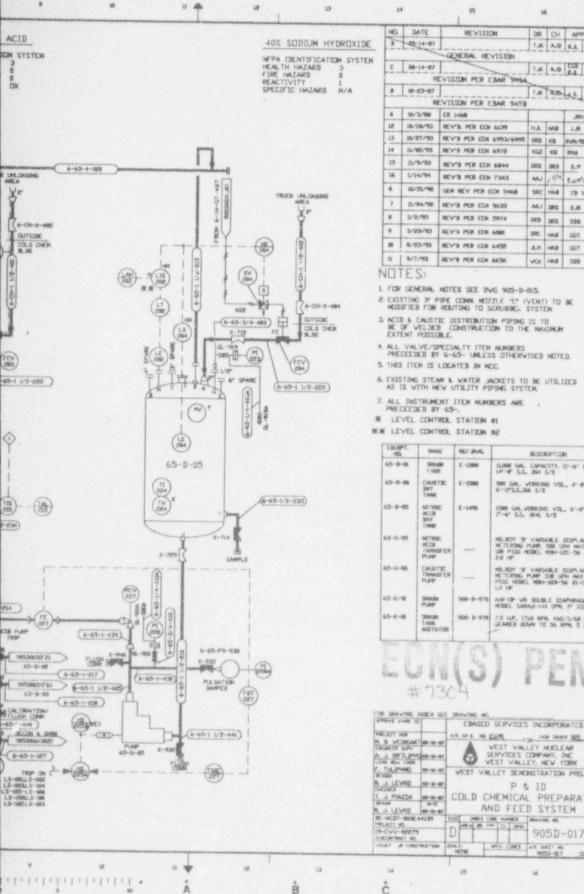




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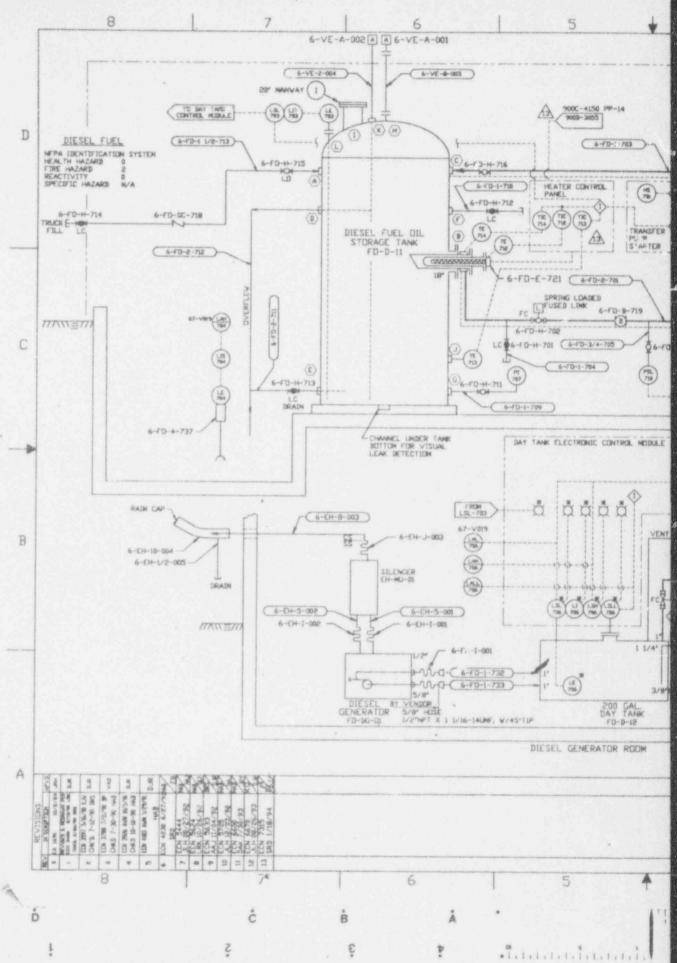
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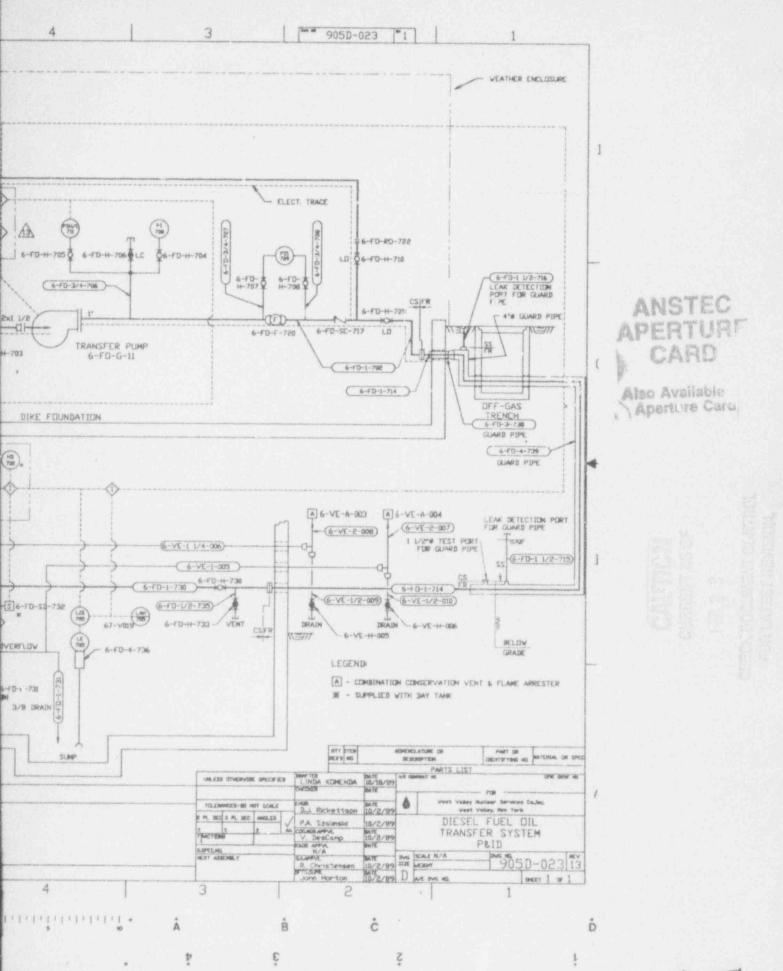
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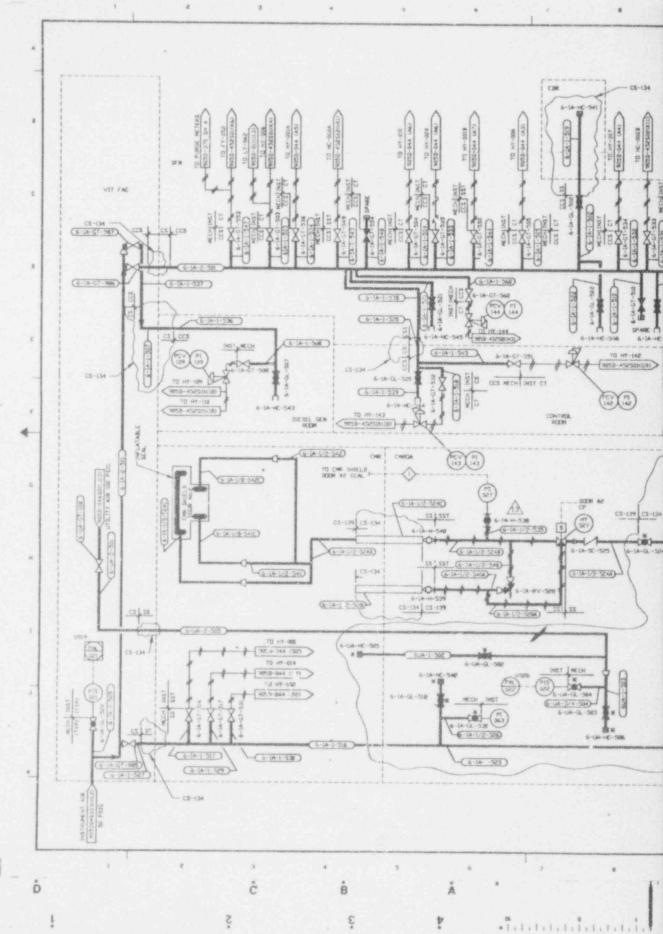
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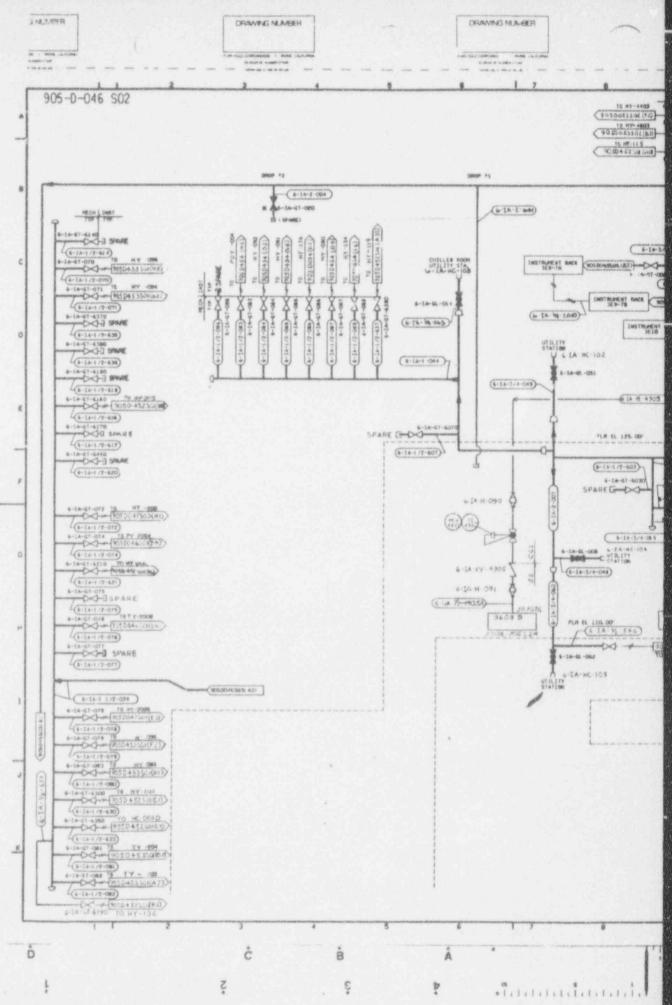


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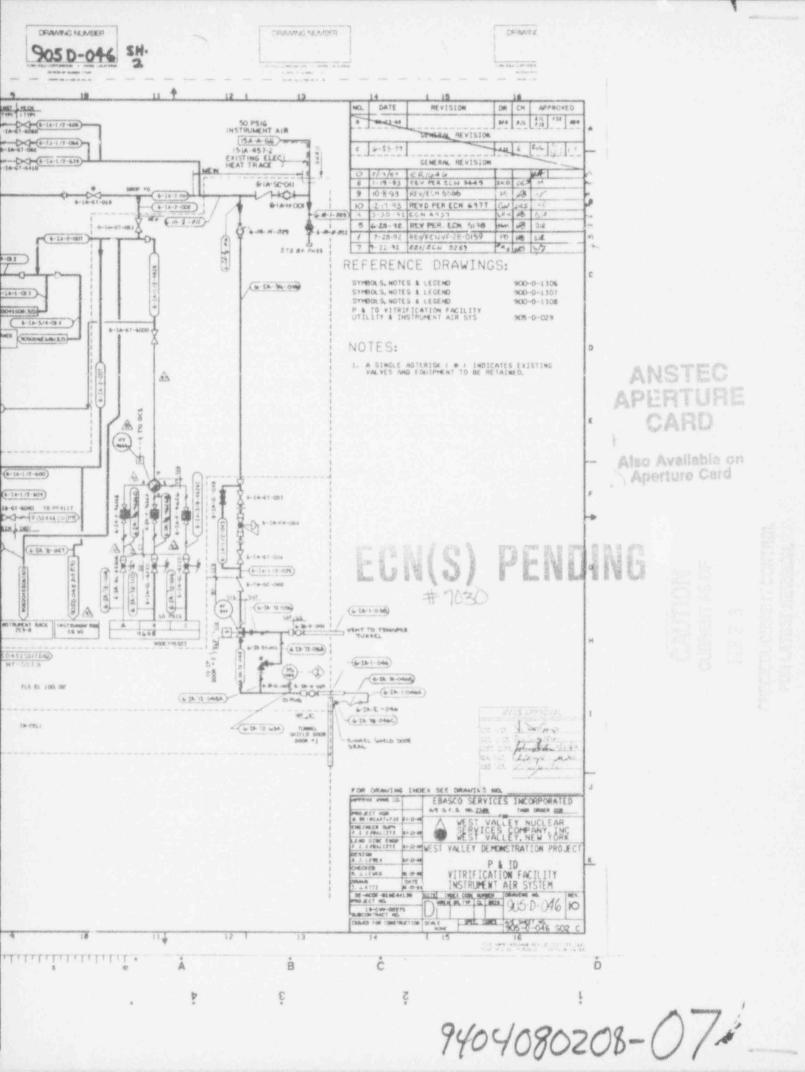


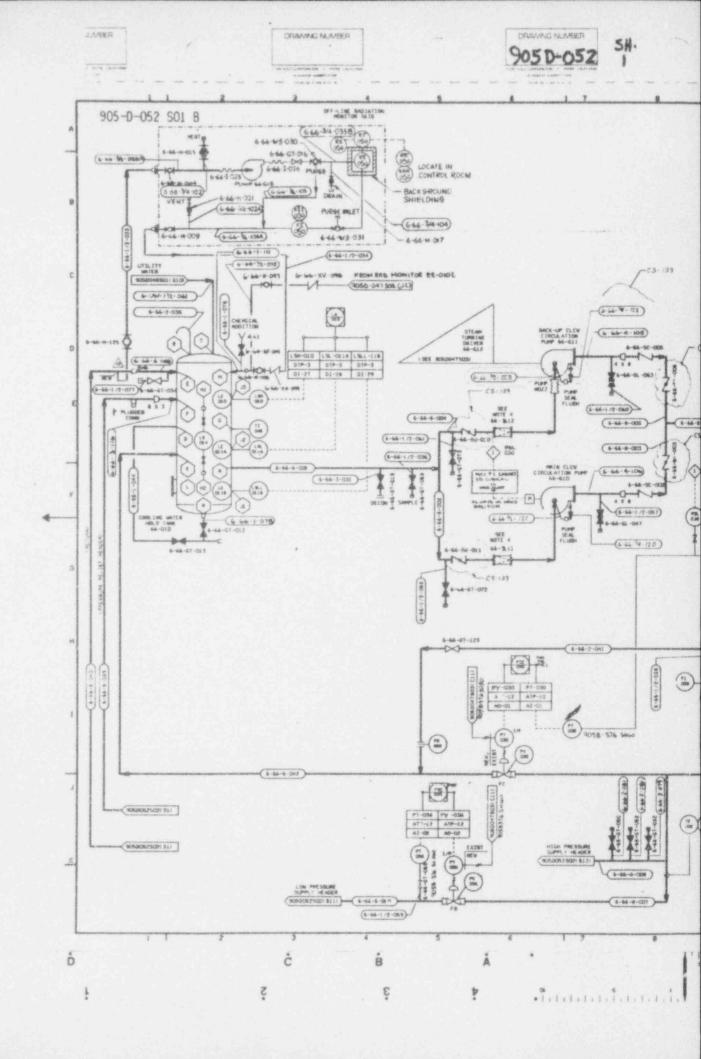
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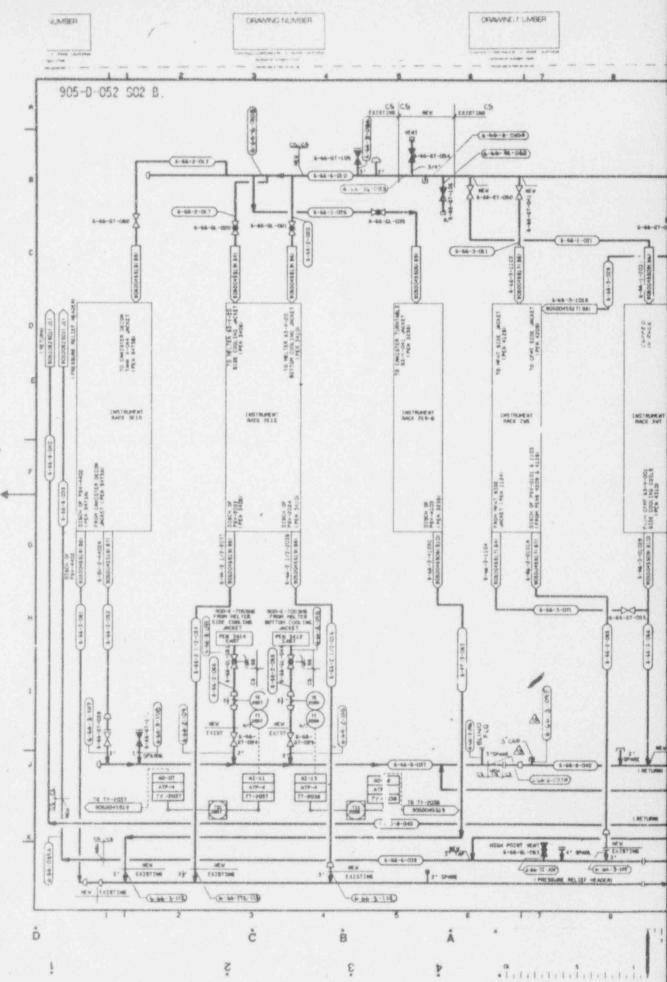


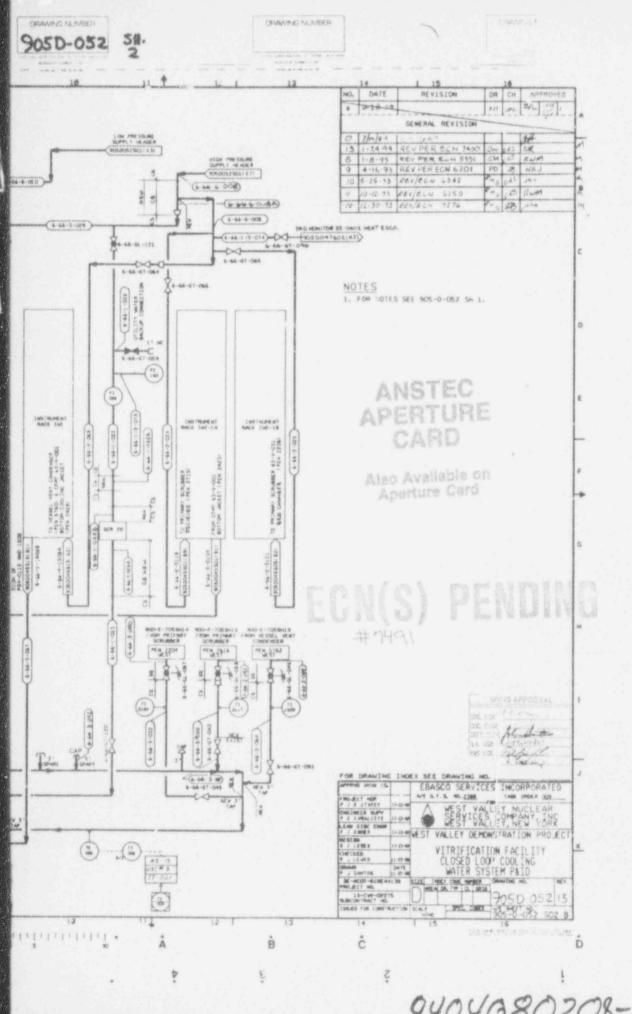
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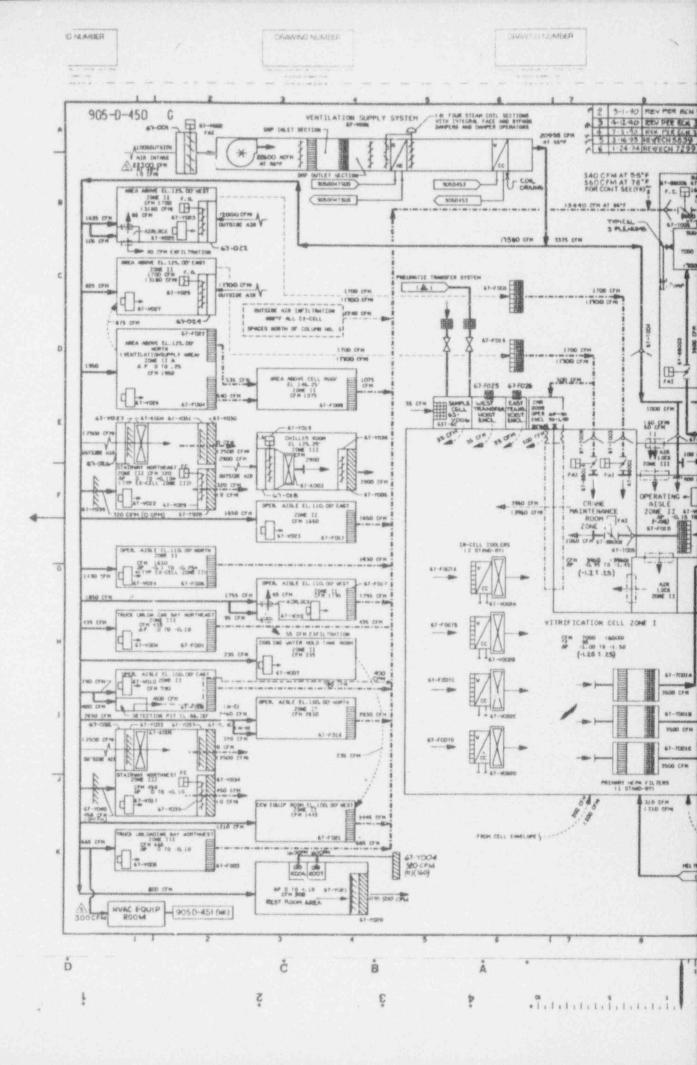


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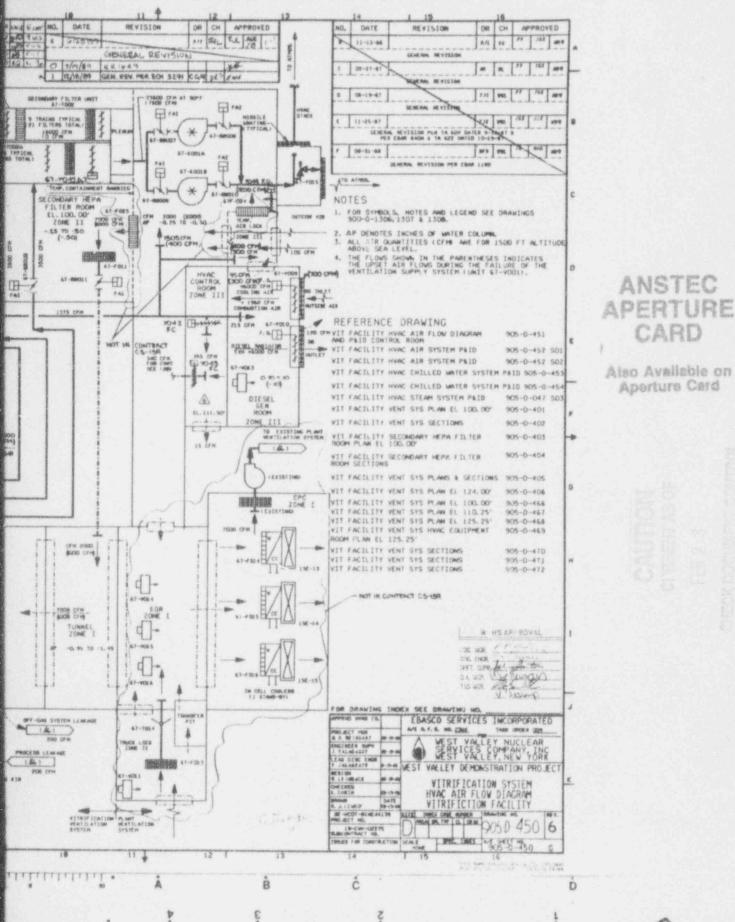


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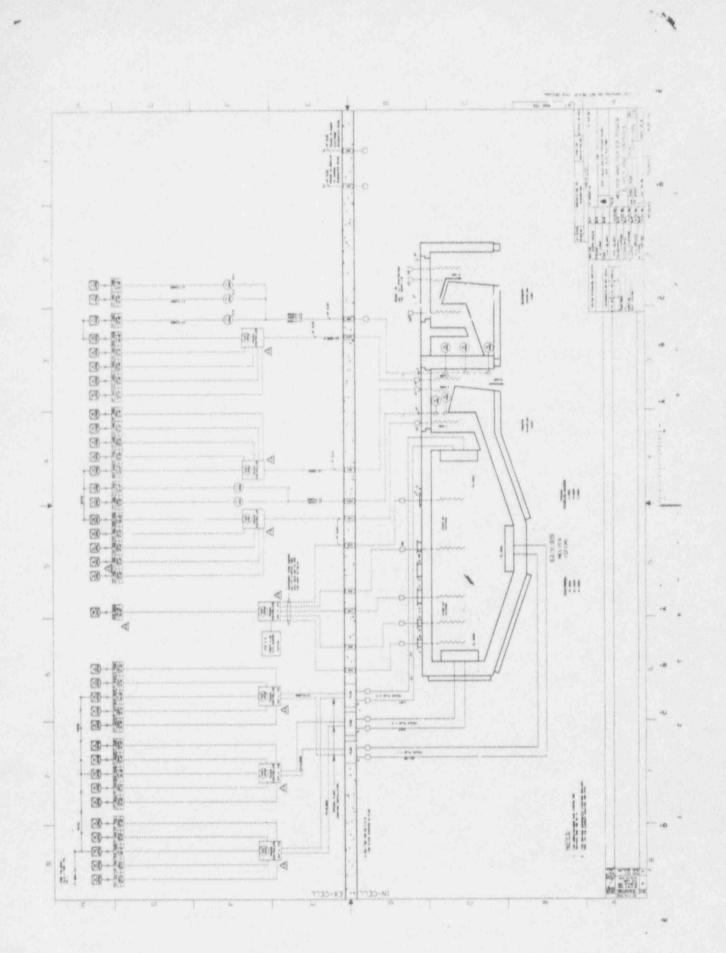


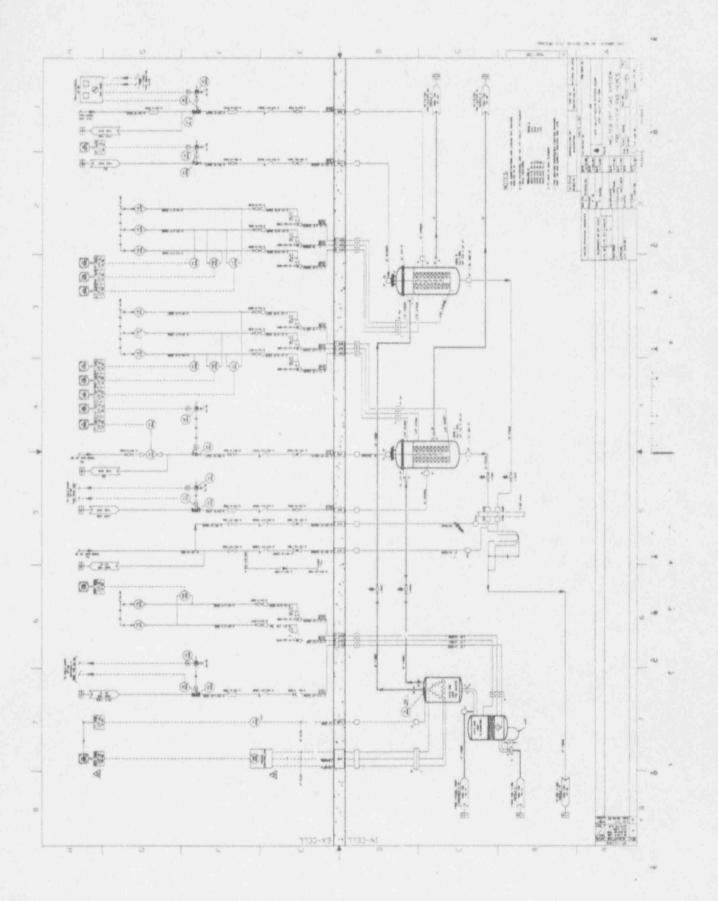
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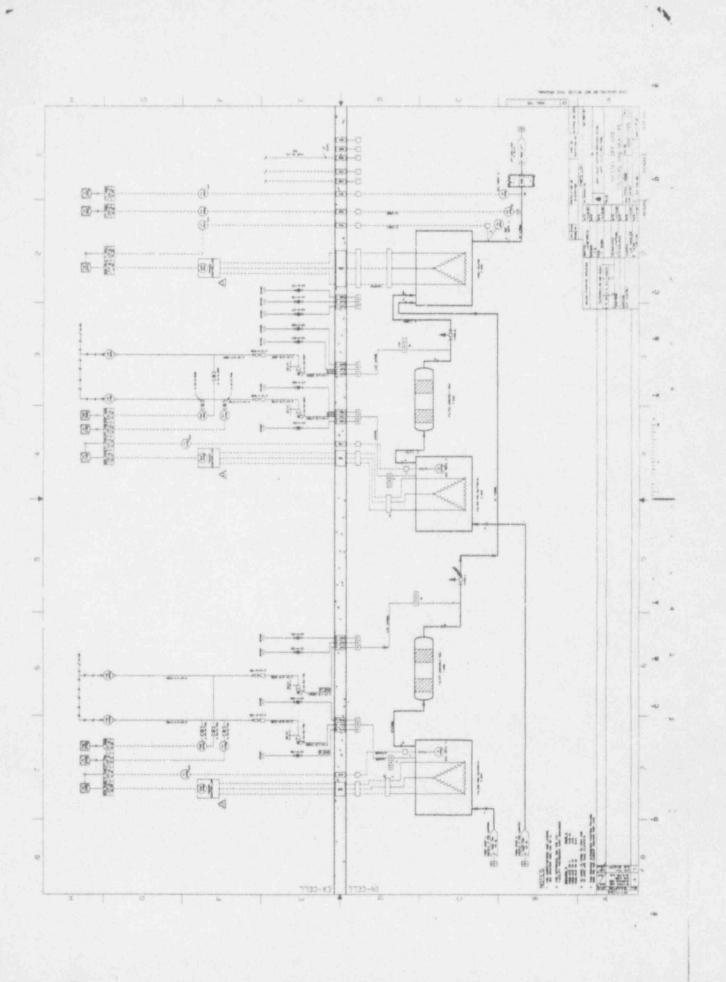


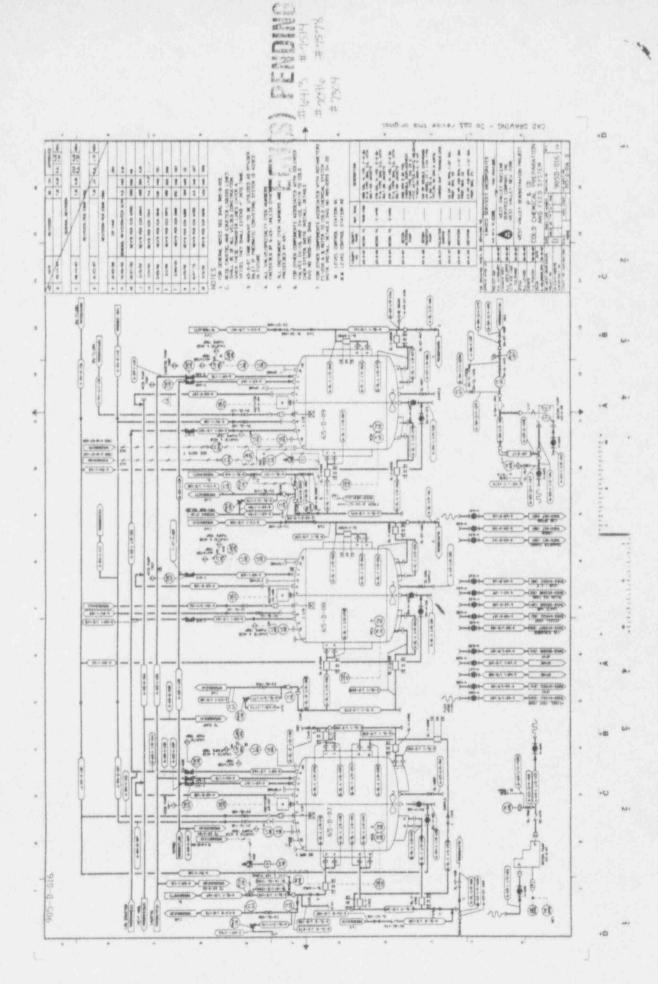
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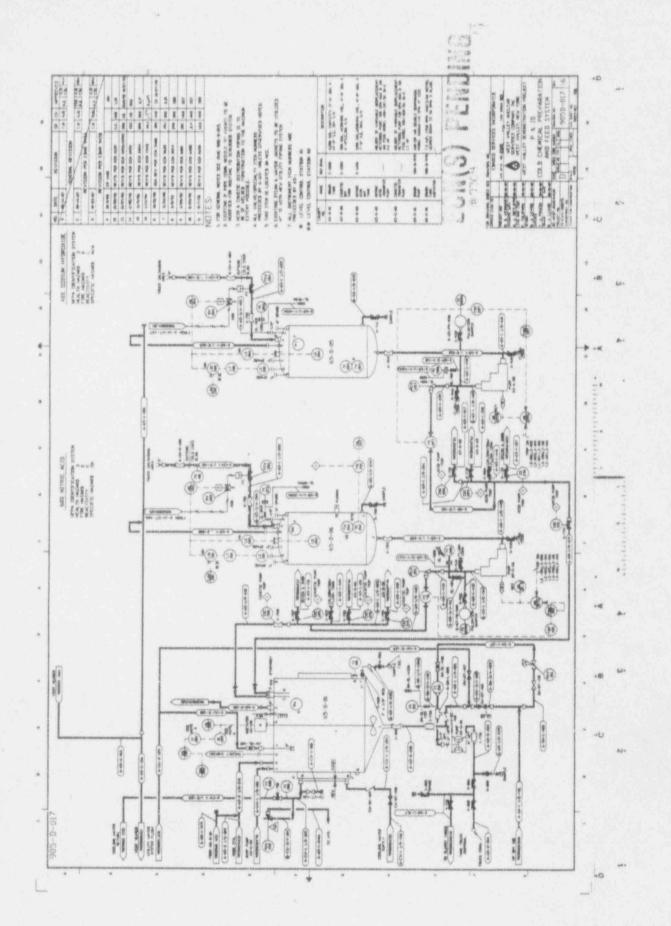


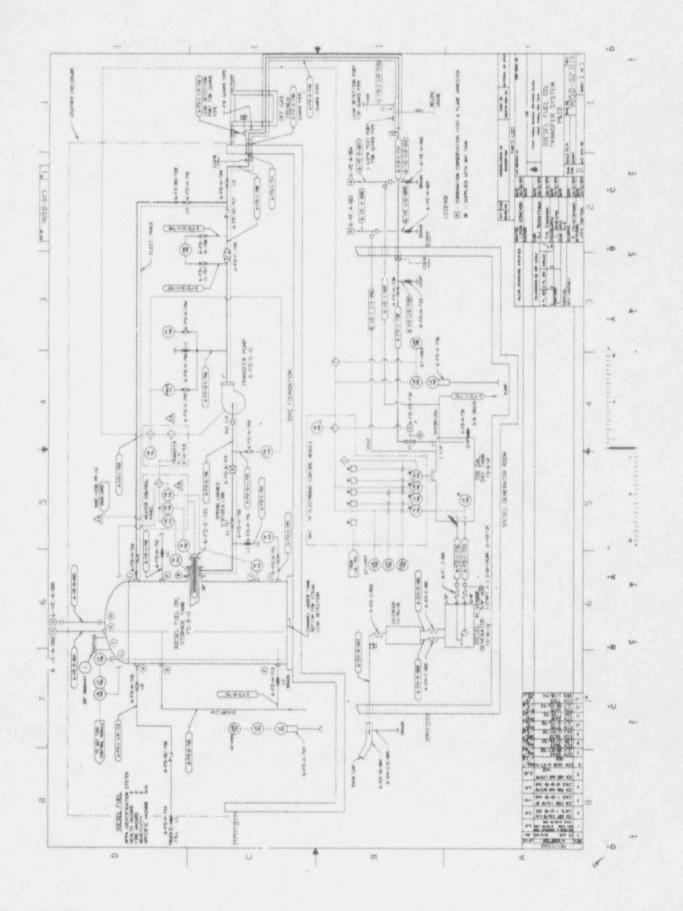


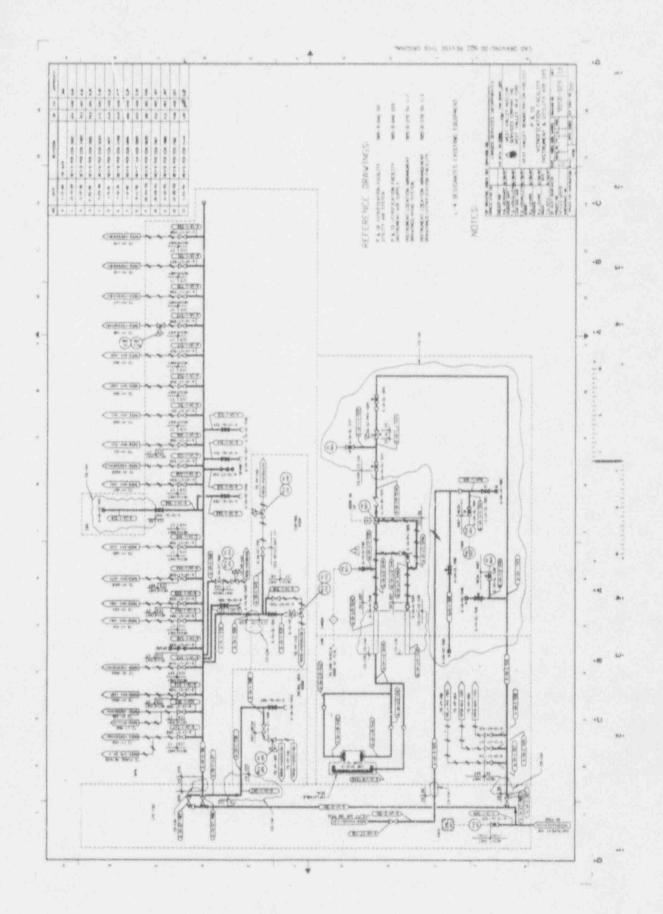
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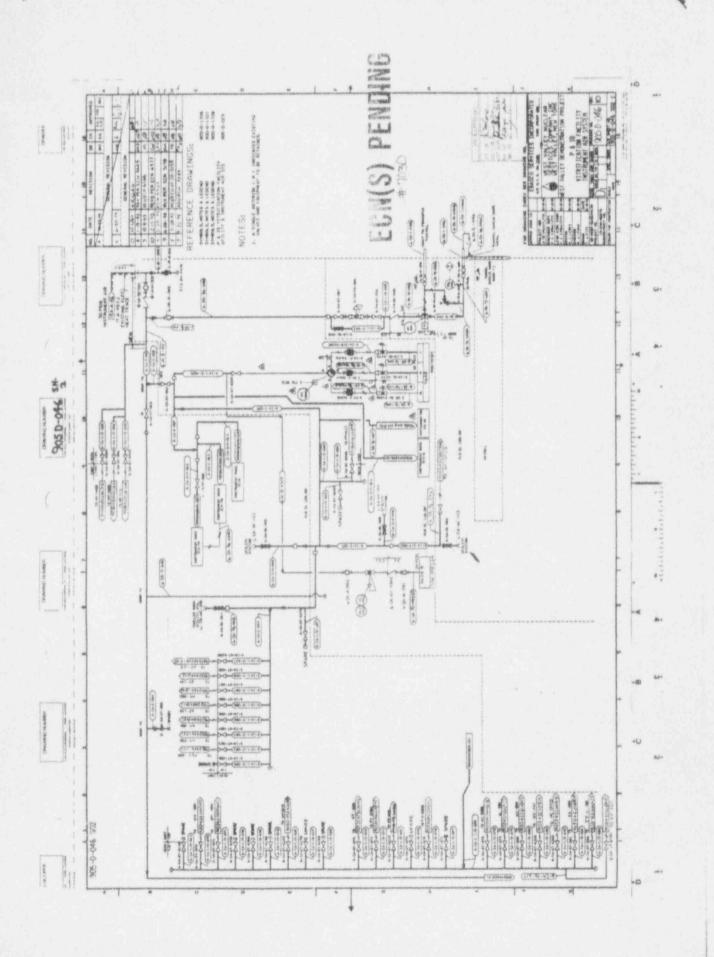


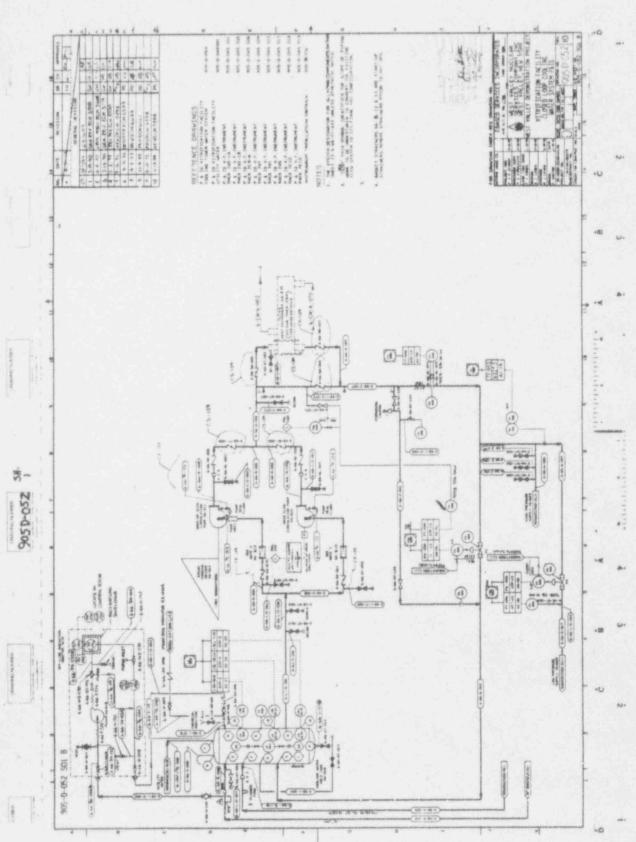


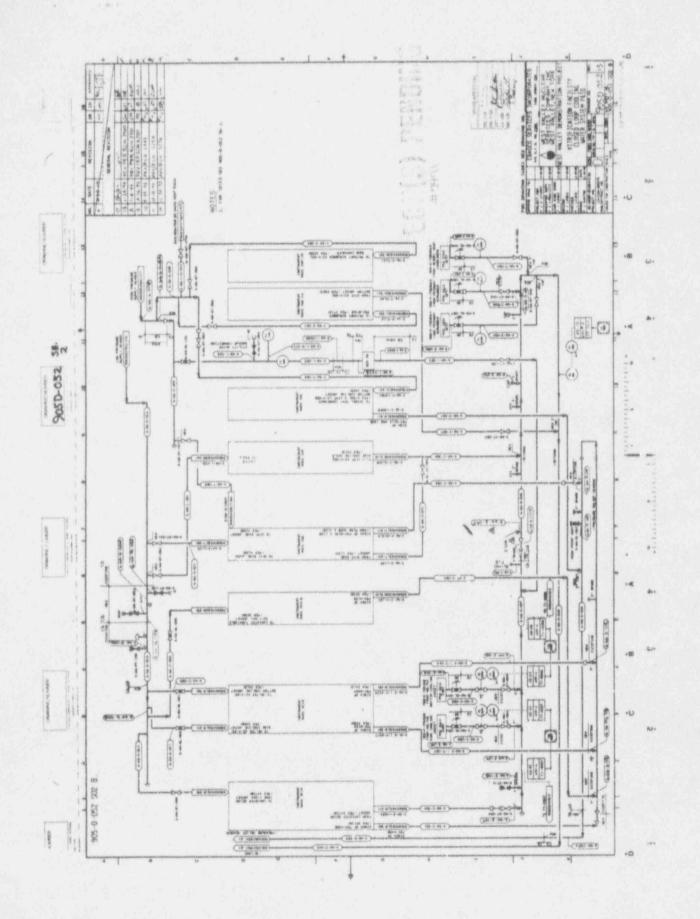






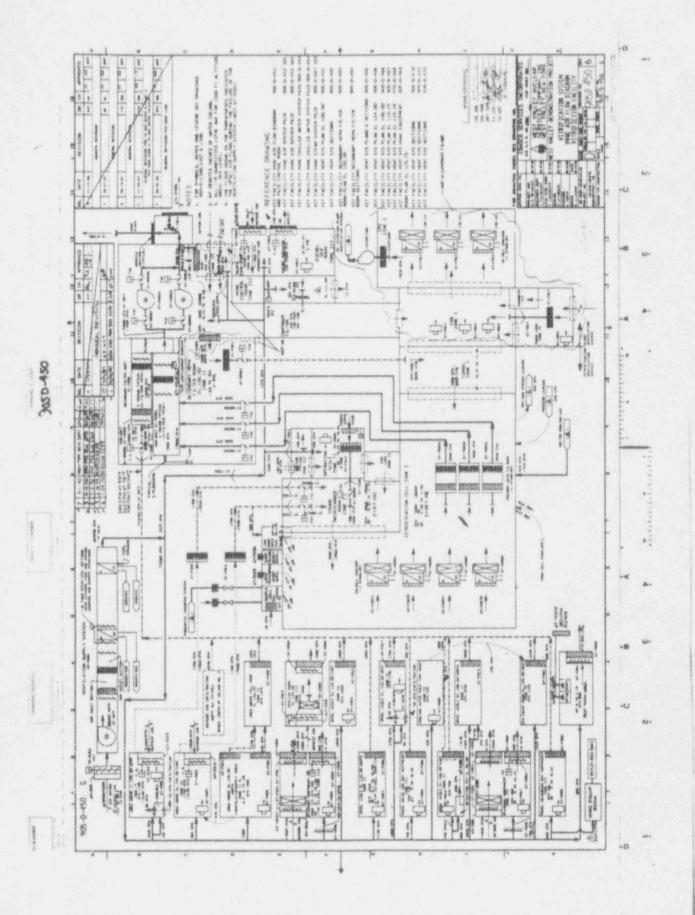






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West Valley Demonstration Project

Doc. Number ____WVNS-FD-001

Revision Number ____0

Revision Date 01/28/94 Engineering Release #2841

FACILITY DESCRIPTION

HIGH-LEVEL WASTE SOLIDIFICATION FACILITIES

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P.O. Box 191

FD:0002856.01

West Valley, NY 14171-0191

WV-1816, Rev. 1

RECORD OF REVISION

PROCEDURE

If there are changes to the controlled document, the revision number increases by one. Depending on the document type (per WV-100) changes are indicated by:

- a heavy vertical black line located in the right-hand margin adjacent to the sentence or paragraph which was revised
- an arrow at the beginning of the paragraph which was revised
- identifying as GENERAL REVISION

Example:

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

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LIST OF ACRONYMS

ACT	Operating Logic Diagram Activity
ADS	Air Displacement Slurry (pump)
ALARA	As Low As Reasonably Achievable
CC	Cold Chemical
CCR	Chemical Crane Room
CCS	Cold Chemical System
CCTV	Closed Circuit Television
CDS	Canister Decontamination System
CFMT	Concentrator Feed Makeup Tank
CLCWS	Closed Loop Cooling Water System
CMR	Crane Maintenance Room
CPC	Chemical Processing Cell
CR	Control Room
CSS	Cement Solidification System
CTS	Component Test Stand
CTW	Cooling Tower Water
CVA	Chemical Viewing Aisle
CW	Cooling Water
CWS	Canister Welding System
D&D	Decontamination and Decommissioning
DBA	Design Base Accident
DBE	Design Base Earthquake
DCD	Design Criteria Document
DCS	Distributed Control System
DOE	United States Department of Energy
DW	Demineralized Water
EDR	Equipment Decontamination Room
EDS	Electrical Power Distribution System
EOA	Equipment Decontamination Room Operating Aisle
EP	Engineering Procedure
EPA	United States Environmental Protection Agency

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LIST OF ACRONYMS

FD	Facility Description
FDP	Fire Detection and Protection
FO	Fuel Oil System
HEME	High Efficiency Mist Eliminator
HEPA	High Efficiency Particulate Air Filter
HLW	High Level Waste
HLWIS	High Level Waste Interim Storage
HLWSF	High Level Waste Solidification Facilities
HVAC	Heating Ventilating and Air Conditioning
I&C	Instrumentation and Control
I&CH	Instrumentation and Control, Hardware
I&CS	Instrumentation and Control, Software
IA	Instrument Air
ILDS	Infrared Level Detection System
IR	Instrument Room
IRHV	In-Cell Remote Handling and Viewing
LL	Load In/Load Out Facility
LLWT	Low Level Waste Treatment System
MFHT	Melter Feed Hold Tank
NYSDEC	New York State Department of Environmental Conservation
OGS	Off-Gas System
P&ID's	Piping and Instrument Drawings
PLC	Programmable Logic Controller
PPS	Primary Process System
PSTS	Pneumatic Sample Transfer System
PVS	Permanent Ventilation System
PW	Potable Water
QA	Quality Assurance
SBS	Submerged Bed Scrubber
SC	Steam and Condensate System
SD	System Description

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LIST OF ACRONYMS

SFCM	Slurry-Fed Ceramic Melter
SMS	Sludge Mobilization System
SOP	Standard Operating Procedure
SSC	Sample Storage Cell
STS	Supernatant Treatment System
UA	Utility Air System
UPS	Uninterruptible Power Supply
UW	Utility Water System
Vit Cell	Vitrification Cell
VF	Vitrification Facility
VS	Vitrification System
VSS	Vitrification Sampling System
WAPS	Waste Acceptance Product Specification
WH	Waste Header System
WTFVS	Waste Tank Farm Ventilation System
WVDP	West Valley Demonstration Project
WVNS	West Valley Nuclear Services, Incorporated
WVPO	West Valley Project Office
WW	VF Drain Systems
EQUIPMENT NU	MBERS
8D-1	High Level Waste Tank
8D-2	High Level Waste Tank
8D-3	High Level Waste Tank

8D-4 High Level Waste Tank

WVNS-FD-001

HIGH-LEVEL WASTE SOLIDIFICATION FACILITIES

REV. O

SUMMARY

Ι.

The West Valley Demonstration Act passed in 1980 required the United States Department of Energy to solidify over 2 270 m3 (600,000 gallons) of liquid high-level nuclear wastes currently stored in underground steel tanks at West Valley, New York. The West Valley Demonstration Project overall plan is to vitrify the high-level wastes into a borosilicate glass form, making maximum use of existing technology, facilities, and equipment, while minimizing new development.

This document describes the facilities and systems which function collectively to mix and remove High Level Waste from the storage tanks (8D-1, 8D-2, 8D-4) and process that waste into borosilicate glass in stainless steel canisters. It also, includes the transfer and storage of the canisters in the Chemical Process Cell in the existing Main Plant Building.

The facilities which will be constructed or modified for use in the solidification of High Level Waste are shown in Fig I.1, "High Level Waste Solidification Facilities." The view identifies five major segments comprising the High Level Waste Solidification Facilities, namely; the Sludge Mobilization Facility, the Vitrification Facility, the Cold Chemical Facility, the f-Gas Facility and the High Level Waste Interim Storage Facility. These fact ties are located on the site of the former commercial nuclear fuel reprocessing plant.

The Sludge Mobilization System consists primarily of equipment to process the High Level Waste for delivery to the Vitrification Facility. The Sludge Mobilization System includes pumps, valves, piping, grinders and leak detection equipment, along with the concrete pits and trenching with covers in which the equipment is housed. The original high level waste tanks and the ventilation system are used as part of Sludge Mobilization System but continue to be part of their original plant system.

The Vitrification Facility consists of the shielded Vitrification Cell which houses the Primary Process System, the canlster processing and handling systems and the confinement systems. The Vitrification Facility Ex-Cell, which surrounds the Vitrification Cell, houses the associated vitrification support systems and the Vitrification Control Rcom from which the High Level Waste Solidification Facilities process is controlled and monitored.

The Vitrification Facility includes the shielded off-gas trench which connects to the Off-Gas Facility. The Off-Gas Facility, which filters and treats the melter off-gases to protect the environment, is housed in the existing Ol 14 Building.

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West Valley Demonstration Project

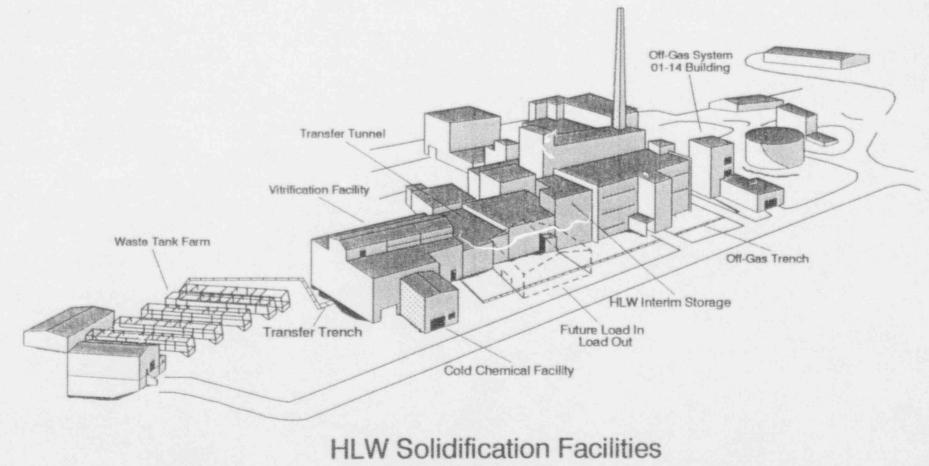


Figure I.1

The Cold Chemical Facility, in which batch chemicals are prepared for addition to the process, is housed in a separate independent facility attached to the west side of the VF.

The High Level Waste Interim Storage Facility, which consists of canister storage racks, canister handling equipment, canister monitoring equipment and cooling system is located in the existing Main Plant Building and is connected to the Vitrification Cell by a new shielded transfer tunnel.

All operating parts of the site have been assigned to individual systems for engineering design and analyses. Engineering Procedure EP-1-001 mandated a "Cognizant Responsibilities List for Systems and Facilities at WVDP" [1] be developed and maintained current. The Cognizant Responsibilities List includes more than one hundred systems.

Of the above 100 systems, fifty one systems are identified as part of the High Level Waste Solidification Facilities and are listed in appendix C. Of the fifty one systems ten are no longer used or are not part of the High Level Waste Solidification Facilities process and are designated as "none". Of the remaining forty one systems, twenty are part of the feed preparation cycle or the canister processing and handling cycles. The remaining twenty one systems are ongoing utilities of which 9 are general utilities for the High Level Waste Solidification Facilities and twelve subsystems to the general utilities or are special systems (Argon and Shielding Gas) for one operation.

The feed preparation cycle and canister processing and handling cycle, as well as the general utilities are denoted on Figure I.2, "High Level Waste Solidification Facilities." The utilities that are direct support to only one system or are subsystems of the general utilities are not shown on Figure I.2. Figure I.2 represent the total scope of the HLWSF Description Document. All other systems listed in reference [1] are not part of the HLWSF, although many interface with or otherwise serve these facilities.

This document describes the design of the combined facilities with emphasis on the system to system functions. Detailed descriptions of single systems are presented in the individual System Descriptions.

I would like to thank the following cognizant system engineers for their contribution to this document:

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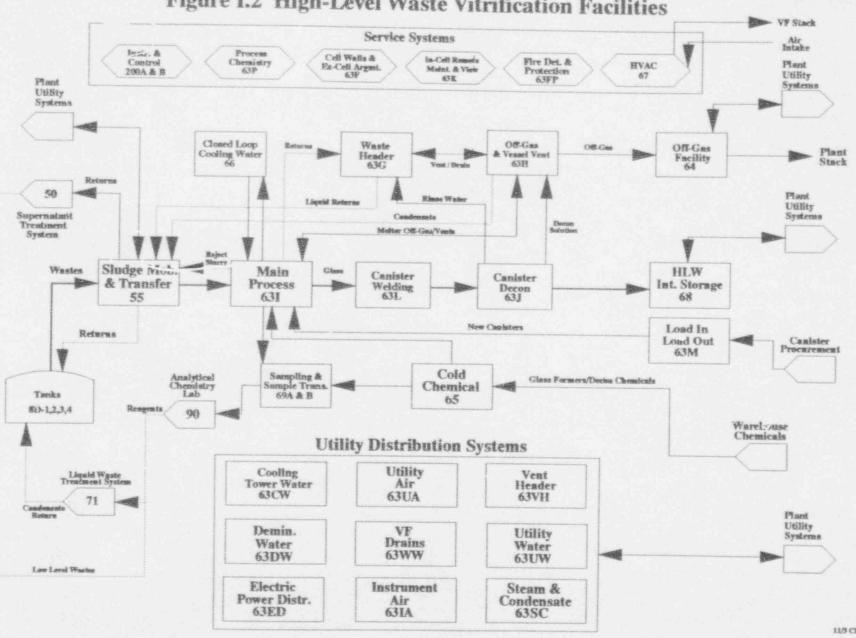


Figure I.2 High-Level Waste Vitrification Facilities

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WVNS-FD-001

HIGH-LEVEL WASTE SOLIDIFICATION FACILITIES

REV. O

1.0 FUNCTIONS AND DESIGN CRITERIA

1.1 Functions (Fnctns)

The function of the High Level Waste Solidification Facilities (HLWSF) is to convert the High Level Waste (HLW) from the initial sludge/liquid forms in the HLW tanks into a borosilicate glass waste form in canisters. The canisters are to be temporarily stored in the High Level Waste Interim Storage (HLWIS) area in the existing Main Plant Building.

The major functions for each of the five separate facilities are discussed in this section. Also, the System Description(s) (SD) in which compliance with the function is given in this section.

- 1.1.1 Sludge Mobilization Facility (SMS) Fnctns
 - A. Wash the sludge in Tank 8D-2 to remove soluble salts prior to mixing the waste from the other tanks in Tank 8D-2. (SD-55)
 - B. Combine the wastes from the other waste tanks (8D-1 and 8D-4) into Tank 8D-2. (SD-55)
 - C. Suspend and mix (mobilize) the combined HLW in Tank 8D-2 for delivery to the Vitrification Facility (VF). (SD-55)
 - D. Transfer the combined wastes from Tank 8D-2 to the Primary Process System (PPS) in the Vitrification Cell (Vit Cell). (SD-55 and 631)
 - E. Accept process streams returning from the VF and transfer the process streams or slurries between the tanks within the tank farm. (SD-55, 631, 63H, 63G and 63J)
- 1.1.2 Vitrification Facility Fnctns
 - A. Receive into the PPS the combined HLW from Tank 8D-2. (SD-55 and 63I)
 - B. Concentrate the HLW and add and mix the glass formers and chemicals with the concentrated HLW mixture, using the PPS feed preparation equipment. (SD-63I)
 - C. Deliver the verified melter feed mixture to the melter using the feed delivery system. Vitrify the feed in the melter and pour the glass into canisters. (SD-631 and 63P)



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- D. Using the canister positioning equipment, position an empty canister under the melter pour spout and position the filled canister for removal. (SD-63I)
- E. Protect site cooling water from contamination by use of a closed loop cooling water system that can be monitored for radioactivity. (SD-66)
- F. Seal the filled canister by welding a closure lid to the canister and verify the weld. (SD-63L)
- G. Minimize the risk of contamination spread by use of a canister decontamination system. (SD-63J)
- H. Verify process control by use of the sampling and laboratory analysis. (SD-69A, 69B and 90)
- Collect and deliver contaminated or off-normal process waste, using a waste header system, back to the waste tanks in the tank farm. (SD-55, 631, 63G, 63H and 63J)
- J. Prevent spread of radioactive contamination by use of barriers and differential pressure zones to maintain the air flow from the least to the most contaminated area. (SD-67)
- K. Provide fire detection and protection for the VF. (SD-63FP)
- L. Arrange the cells, walls, windows, doors, in-cell and ex-cell process equipment and remote handling equipment to facilitate both operations and maintenance. (SD-63F, 63I and 63K)
- M. Ensure the safe and effective operation of the HLWSF through the use of Instrumentation and Control Systems. Provide the operators information and operational management for the HLWSF. (SD-200A and 200B)
- N. Deliver utility services as required throughout the VF through use of Vitrification Utility Distribution Systems. (SD-63CW, 63DW, 63ED, 63IA, 63SC, 63UA, 63UW, 63VH and 63WW)
- O. Provide method for moving empty canister and required equipment into the Vit Cell and removing the filled canister and replaced equipment from the Vit Cell. (SD-63K and 63M)

- P. Provide for the safe removal of process gases from the melter and other PPS vessels while maintaining vessels and ducting at a slight vacuum for contamination control. (SD-63H)
- Q. Collects radioactivity contaminated materials from the off-gas inside the Vit Cell to assure radiation exposures to operators be kept As Low As Reasonable Achievable (ALARA). (SD-63H)
- 1.1.3 Cold Chemical (CC) Facility Fnctns
 - A. Provide for the receipt, staging, and disposal of nonradioactive process chemicals. (SD-65)
 - B. Prepare and deliver specified CC and shim mixtures to the PPS. (SD-65 and 631)
 - C. Take and transfer samples to the laboratory to verify CC Mixture is acceptable. (SD-65 and 90)
 - D. Prepare decontamination solution for the VF, as required. (SD-63I, 63G, 63H, 63J and 65)
- 1.1.4 Off-Gas Facility System (OGS) Fnctns
 - A. Provides the motive force to maintain the in-cell waste vitrification equipment at a slight vacuum compared to the vitrification cell ambient pressure for purposes of contamination control (SD-63H and 64)
 - B. Provides environmental atmospheric protection by removing radioactive particulate and destroying the acidic oxides of nitrogen that escapes the off-gas and vessel vent system. (SD-63H and 64)
- 1.1.5 High Level Waste Interim Storage Fnctns
 - A. Store HLW canisters in the Chemical Process Cell (CPC) in the Main Plant Building pending shipment off site. (SD-68)
 - B. Store (Vit Cell) failed or used equipment in the CPC, as required. (SD-68)
 - C. Remove the decay heat from the canisters and protect the CPC concrete cell walls. (Uses existing HVAC System 15)

- D. Crane(s) shall interface with a canister transfer cart and be capable of handling canisters and/or equipment in the storage area. (SD-68)
- E. Cell walls to provide shielding to permit access as required in the operating aisles (full time access). (SD-68)

1.2 Design Criteria

Design Criteria Documents (DCD) have been prepared for each of the facilities. The designs described in this document are subject to and are mandated to comply with the requirements of the applicable Design Criteria as follows:

WVNS-DC-046 - Sludge Mobilization Waste Removal System [2]

WVNS-DC-022 - Vitrification of High Level Wastes [3] WVNS-DC-022 - Off-Gas System WVNS-DC-022 - Cold Chemical System

WVNS-DC-048 - High Level Waste Interim Storage System. [4]

These DCD are higher tier than this Facility Description Document (FD). Any discrepancy between the content of a DCD and the content of this document shall be resolved in favor of the DCD. The latest revision of the above criteria shall apply to this precedence mandate. The design criteria are delineated in the DCD and are to be taken from there. Any subject repeated here from the list of subjects treated in DCD are consistent with and only elaborate upon the DCD content.

1.2.1 Process Requirements (PR)

The process requirements for the SMS, the VF, the CCS, the OGS and the HLWIS are driven by the needs of the vitrification process and constrained by protection of both the environment and the safety and health of the workers and the public.

Some processes occur within one system and others occur across system boundaries. Both types of processes are addressed for each system in the following sections.

- A. Sludge Mobilization System PR
 - The HLW are initially in the three tanks known as 8D-1, 8D-2 and 8D-4. These wastes are mixed together in Tank 8D-2 and delivered in one stream to the PPS. The combined and mixed wastes produce a more uniform composition, which simplifies the feed preparation operations.

1 - 4

- The piping and valves are arranged to allow selection of flow paths depending on the operation required. The HLW are transferred from tank to tank, to other systems and are received from other systems.
- Control stations for local SMS operations are located in the Permanent Ventilation System (PVS) Building.
- B. Vitrification Facility PR
 - The HLWSF's goal is to process the HLW into a borosilicate glass waste form in a maximum period of thirty (30) months after the start of radioactive (hot) operations.
 - The PPS is capable of vitrification of the waste slurries delivered from the SMS.
 - The feed preparation cycle is a "batch" operation used to prepare a predetermined melter feed recipe.
 - The vitrification process and canister filling is based on continuous melter operation.
 - 5. Compliance with the requirements of the following documents:

"Waste Acceptance Product Specification for Vitrified High-Level Waste Forms" (WAPS), [5];

WVDP-185, "Waste Form Compliance Plan," (WCP), [6];

WVDP-186, "Waste Form Qualification Report,"
(WQR), [7];

WVDP-187, "Vitrification Process Control Plan,"
(PCP), [8]

is required. The vitrification process control parameters will be utilized to ensure the glass characteristics lie within a acceptable range. Sampling and laboratory analysis are provided, to the extent necessary, to verify the process control parameters and provide the data to show compliance with above requirements.

- 6. The management of the HLWSF Operations is vested in the Vitrification Control Room (CR). A Distributed Control System (DCS) is used to accomplish the appropriate combination of information acquisition and display, and controls, for effecting permissive, stops, and actuation, for the overall management of the operations.
- Rejected process batches are recycled in the PPS or back to the HLW Tank Farm for reprocessing.
- 8. The Heating, Ventilation, and Air Conditioning, (HVAC) System will maintain the proper environmental conditions in the VF. The HVAC System's confinement requirements are accomplished by the use of negative atmosphere pressure and differential pressure zones to control the air flow from the least contaminated areas to the most contaminated area of the VF. The exhaust portion of this HVAC system provides filtration to assure discharges to the environment meet the United States Department of Energy (DOE), United States Environmental Protection Agency (EPA), and New York State Department of Environmental Conservation (NYSDEC) regulations.
- 9. The cell, walls, shielding doors, windows, ex-cell working levels, and remote handling, maintenance, and viewing equipment are designed and arranged to enhance both the operation and maintenance functions and requirements in the VF. This includes every day routine jobs to the change out of major components.
- 10. The VF utility distribution systems are sized to satisfy the process equipment and/or facility demands. The existing plant and site utility systems are used to the maximum extent possible.
- C. Cold Chemical Facility PR
 - The CC Facility includes the building to house and support the CCS equipment used to receive, mix, sample, and dispose of the chemicals and glass formers used.
 - The CC Facility includes the building and equipment for the preparation and delivery of batch chemicals mixtures in support of the melter feed preparation.

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- 3. The cold chemical and glass former batches are slurries requiring agitation, recirculation and grinding to maintain the solids in suspension for obtaining representative samples for analysis.
- 4. This system also provides for preparation and delivery of chemical solutions, as needed.
- D. Off-Gas System PR
 - 1. The pressure in the major tankage and melter within the PPS and throughout the off-gas process train upstream of the High Efficiency Particulate Air (HEPA) filters will be maintained at a negative atmosphere pressure, to avoid the spread of contamination through any leak paths.
 - The OGS will filter and process the radioactive particles and toxic gases in the melter off-gas. The EPA and NYSDEC requirements will be met prior to release of the processed off-gas to the environment.
- E. High Level Waste Interim Storage System PR
 - Use the CPC in the Main Plant Building to house and support the HLWIS system equipment.
 - Provide remote equipment for storing the filled canisters and identifying each canister storage location.
 - 3. Modify the existing cranes for use in the HLWIS to transfer filled canisters from the canister transfer cart to two tier high storage racks.
 - Modify the existing HVAC System to remove canister generated heat and to protect the canister and the concrete walls from thermal damage.
 - 5. Control stations for local HLWIS operations are located in the aisle ways adjacent to the CPC near a shielding window for viewing the operations. The viewing is also backed up by a Closed Circuit Television (CCTV) System.
 - 6. Modify the existing Equipment Decontamination Room (EDR) to connect the Vit Cell transfer tunnel to the CPC for the transfer of filled canisters. The EDR will also receive material and equipment for the Vit Cell from the LL Room.

1.2.2 Structural and Component Design Requirements

The structural and component design requirements are delineated in the relevant Design Criteria Documents, viz. DC-046 for the SMS; DC-022 for the VF, the CCS and the OGS Facilities; and DC-048 for the HLWIS Facility. Compliance with the structures and components design and analysis requirements are detailed in the individual system descriptions.

1.2.3 Facility Configuration and Essential Features (C&EF)

The configuration of the HLWSF is heavily influenced by the existing structures and site layout at the start of the project. The new facilities are located and shaped in deference to the given conditions.

The essential features are compelled by the project's central purpose which mandates handling and processing high level radioactive waste. Protection of operating and maintenance personnel from radiation exposure and the protection of the environment from radioactive contamination impose many of the essential features. These considerations are reflected in this section.

A. Sludge Mobilization Facility

The Sludge Mobilization Facility includes the SMS process equipment, the utilities systems and the buildings, vaults, pits and trenches in which the equipment is housed, shielded, and supported. The equipment and structures are shown on General Arrangement Drawing 900-D-2860, "SMS Utilities Distribution to Pump/Distribution Pits General Arrangement."

1. The SMS embodies four pump pits, one for Tank 8D-4, pits 8Q-1 and 8Q-2 and diversion pit 8Q-5, for the transfer of the HLW in the SMS and to be PPS. Each of the pits and trenches are sized to accommodate the required process equipment and piping. Access to the process equipment in the pits or piping in the trenches is through the pit and trench removable covers. 2.

Contamination control is maintained by a negative atmospheric pressure in the HLW tanks, the tank vaults and the pump pits. The existing Waste Tank Farm Ventilation System (WTFVS) is used to maintain the confinement in the pits, vaults and tanks. During pit cover removal the PVS is used to maintain the proper air flow across the face of the opening.

- 3. The limit switches on the HLW valves are used to monitor the valve position and through software act as interlocks for the valves to prevent unwanted diversions of the waste streams.
- B. Vitrification Facility C&EF

The Vitrification Facility includes the process equipment, utilities systems and the Vit Cell, Ex-Cell and buildings, in which the equipment is housed, shielded and supported. The arrangement of the equipment in the buildings and structures is shown on General Arrangement Drawings 900-D-030, 900-D-032, 900-D-034, 900-D-036, and 900-D-037 through 900-D-043. Discussion of the general arrangement follows.

- 1. The Vit Cell is located immediately North of the Main Plant Building and occupies the same space as the former Component Test Stand (CTS) Facility. To the optimum extent, the CTS structure and equipment have been used in the design and construction of the VF. The PPS and other highly radioactive systems are located in the Vit Cell.
- 2. The vitrification operating spaces surround the shielded Vit Cell. The Vit Cell shield wall thicknesses are chosen to achieve radiation levels consistent with Full-Time-Access requirements.
- 3. Shielding windows are provided to allow viewing of the operation and maintenance in the Vit Cell. Viewing of the Vit Cell operation and maintenance is backed up by CCTV system.
- 4. In-cell handling and maintenance rely upon bridge crane(s) with complete cell coverage capability. The more dexterous jobs (sampling and sample handling) are handled by manipulators.

- Equipment for remote retrieval of a failed crane to the Crane Maintenance Room (CMR) is installed. The CMR is provided for the decontamination and hands on maintenance of the crane(s). A steel shield door provides crane access to the CMR and personnel protection during maintenance in the CMR. The operations in the CMR are controlled and monitored from an operating space located South of the CMR.
- 6. The first stages of filtration for the Vit Cell atmosphere and the process off-gases, which are subject to HLW contamination, are located in the Vit Cell to effect control and confinement of the radioactive elements.
- 7. To support the confinement requirements a seismically designed, tornado protected room located adjacent to the South wall of the Vit Cell houses: the essential exhaust ventilation equipment and the alternate electric power source (diesel generator) for the Vit Cell.
- 8. Ingress and egress of canisters, material and equipment for the Vit Cell is through a shielded air - lock tunnel and the EDR which interfaces with both the HLWIS and Load In/Load Out Facility. The filled canisters and the replaced equipment are moved from the Vit Cell through the tunnel and EDR to the HLWIS. The empty canisters and required equipment are moved from the LL through the EDR and tunnel to the Vit Cell.
- 9. Roof hatches in the Vit Cell, the CMR and the Transfer Tunnel are provided in case of unplanned maintenance access demands.
- Stainless steel cell liners and epoxy coatings, as appropriate, are installed to facilitate post solidification decontamination and decommissioning (D&D)
- C. Cold Chemical Facility

5.

The Cold Chemical Facility includes the process equipment, utilities systems and building in which the equipment is housed and supported. The arrangement of the equipment in the building and is shown on General Arrangement Drawings 900-D-041, 900-D-043, and 900-D-044. Discussion of the general arrangement follows.

- The CCS is located in an independent facility attached to the West side of the vitrification building and houses the equipment for receiving, mixing, sampling, transferring, and disposing of nonradioactive chemicals.
- The precision metering and weighing devices are provided to mix CC and shim batches to precise specifications.
- To assure the transfer of the total batch the mix tank and the transfer system are flushed to the PPS.
-). Off-Gas Facility System

The Off-Gas Facility includes the process equipment, supporting utilities systems and the building and structures, in which the equipment is housed, shielded and supported. The arrangement of the equipment in the building and is shown on General Arrangement Drawings 906-D-030, 906-D-031, 906-D-032, 906-D-033, and 906-D-034. Discussion of the general arrangement follows.

- The OGS is located in the existing 01-14 building. This system is connected to the Melter and vessel vent OGS in the Vit Cell by stainless steel ducting in a concrete trench which runs between the Vit Cell and the 01/14 building.
- 2. The OGS is used to maintain a negative atmosphere pressurs in the PPS major tankage and melter as well as the off-gas system to the blowers.
- 3. The melter off-gases are processed through HEPA Filters to remove radioactive particulate matter, and Catalytic Reactors to destruct the toxic gases to protect the environment.
- E. High Level Waste Interim Storage C&EF

The arrangement of the HLWIS, including a site key plan, is on drawings 905-D-031, -033, and -035.

 The HLWIS System canister and equipment storage space is located in the Main Plant Building in the CPC.

- Canister handling is controlled from outside the CPC. Operator visibility is through shielding windows and/or by remote CCTV to protect the operator from radiation exposure. The shielding is adequate to permit Full-Time- Access outside of the CPC.
- Storage spaces are provided for up to 396 HLW canisters.

1.2.4 Maintenance (Mntnc)

- A. Sludge Mobilization Facility Mntnc
 - The SMS equipment located in the concrete pump pits is designed for zero maintenance. The pits are sized and configured for remote replacement. Work will be conducted from a safe (radiation exposure) distance and geometry through open hatches in the pit.
 - Operation of any of the process equipment in a pit in which maintenance is being conducted is not allowed.
 - Contamination control is achieved by maintaining an inward air velocity across any pit access opening required for individual equipment manipulations.
- B. Vitrification Facility Mntnc
 - 1. The basic plan for maintenance of in-cell equipment in the Vit Cell is remote removal and replacement. Components in high radiation areas are designed either to be remotely maintainable in place, or remotely removable and replaceable.
 - 2. Routine maintenance or change out operations which are recognized as interruptive to otherwise continuous operations are accommodated by installation of redundant equipment to permit operation while the maintenance or change out is conducted.
 - 3. Components with a high probability of failure are located outside the remote areas to the maximum extent possible. Outside the Vit Cell the equipment is designed for isolation and Hands-On maintenance.

- 4. Equipment and connections are installed to permit in-situ decontamination to enhance hands-on maintenance where practicable or mandatory. This is most evident in the CMR.
- Normal egress from the Vit Cell for failed equipment is through the Transfer Tunnel to the CPC.
- C. Cold Chemical Facility- Mntnc
 - Hands on maintenance is planned for the CC Facility. Spare tanks are provided so the equipment requiring maintenance can be emptied and flushed before the work begins.
 - The CCS will be maintained using the WVNS procedures for identifying, handling and disposing of nonradioactive chemicals.
- D. Off-Gas Facility System -Mntnc
 - The OGS is designed for direct (hands-on) maintenance.
 - 2. The blowers, and OGS equipment upstream from the blowers, outside the Ol-Cell, are designed for hands-on maintenance during melter operations with off-gases being directed through equipment connected in parallel.
 - 3. Equipment in the Ol-Cell (Preheaters and Catalytic Reactors) is designed for hands-on maintenance when feed to the melter has been suspended, and off-gases are directed through an Ol-Cell by-pass line. Before performing work in the Ol-Cell e radiation and NOx levels in the cell are measured.
- E. High Level Waste Storage Facility Mntnc
 - The existing Chemical Crane Room (CCR) in the Main Plant Building is used as a shielded hands on maintenance area for the HLWIS cranes.
 - Handling and HVAC equipment subject to contamination is repairable by remote tooling.

1.2.5 Surveillance and In-Service Inspection

Surveillance or in-service inspection requirements and features, when and if appropriate, are addressed in the individual system descriptions.

1.2.6 Instrumentation and Control (I&C)

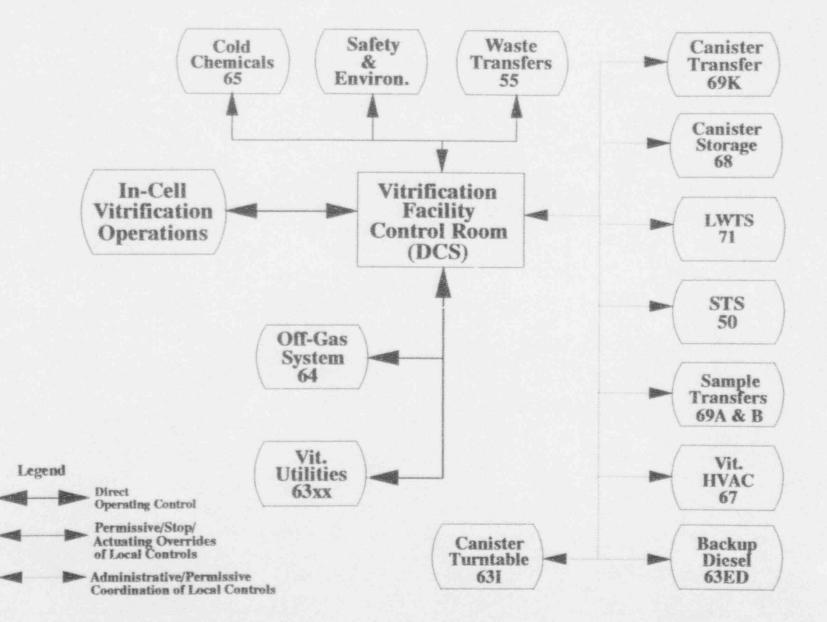
The overall control management scheme invoked in the HLWSF operations is depicted schematically in Fig 1.1, "Vitrification Overall Control Management." All operations which relate to or impact the Vitrification Process are directed, permitted, and/or terminated in the Vitrification CR. A DCS is installed and wired throughout the HLWSF to acquire and display process information, and provide control and data logging for the process. The DCS is used by the operating personnel to manage the process.

This control philosophy extends to site systems not included in the HLWSF, per se, but which interact with the Vitrification Process. The connections to the DCS are permissive, interruptive and/or informational.

In this regard, the Supernatant Treatment System (STS) and the Liquid Waste Treatment System (LWTS) are schematically identified as connected to the DCS, but are actually under administrative control of the CR.

- A. Sludge Mobilization and Transfer Facility I&C
 - An electronic system for monitoring and control of the mobilization and transfer operations is located in the PVS Building.
 - SMS instrument signals showing the information required to effect overall management of the HLW Tank Farm are connected to the DCS in the Vitrification CR.
 - 3. SMS instrument signals are used to effect automatic responses where needed. For example, during transfer to the VF, high level in the CFMT shuts down the sludge transfer pump in Tank 8D-2.
 - 4. The instrumentation in each of the pits is used to monitor the transfer system. Whenever possible, the instrument transmitters are located outside the pits, in a non radiation area, for ease of calibration and maintenance.





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B. Vitrification Facility - I&C

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- Instrumentation is used to monitor the process, fire detection and protection and radiation monitoring systems. The DCS is the central component for process control, process monitoring, information display, and data logging for report generation. The DCS control consoles are located in the Vitrification CR.
- 2. Alarms are provided in the Vitrification CR, for the safety related and process systems of the HLWSF, to warn the operator when a system or process is off normal. The centralized alarm system provides a display of the HLWSF alarms as part of the DCS and standard alarm displays. The HLWSF alarms are tied into the site alarm systems, as appropriate.
- 3. Normal operation of the Vitrification Facility is controlled from the Vitrification CR via the DCS. However, in the event the DCS work stations cannot be used, e.g., fire in the control room, loss of communications, etc., most DCS functions are still available from the individual controllers in the field.
- 4. An uninterruptible power source with automatic switch over is installed in the Vitrification Control Systems. This power source will operate long enough to place the process in a safe stable condition and to monitor the process pending implementation of corrective action.
- 5. The canister turntable, weld station, decontamination station and handling are remotely controlled from the operating aisles.
- 6. The canister transfer carts and doors are remotely controlled from the operating aisles. The operation can be viewed from the Vitrification CR using the CCTV.
- C. Cold Chemical Facility I&C
 - A local control panel is provided to monitor and control the weighing and metering of the chemicals and glass formers during the mixing process.
 - A local control panel is provided to monitor and control the sampling and transfer of the CC Mix to PPS.

- Permissive from the Vitrification CR is also required to transfer the CC mix to the PPS.
- A. The alarms in the CC Facility will also alarm in the Vitrification CR if not acknowledged in the CC Facility.
- D. Off-Gas Facility System 1&C

Parts of the OGS are monitored and controlled from the Vitrification CR. Other parts are monitored with just the capability of shutting down those part. The instrumentation signals and controls are tied to the DCS through the controllers and PLCs in the 01-14 Building.

- The blowers are controlled by Programmable Logic Controller (PLC) and are instrumented for remote automatic switch over from one blower to the next should the use of the operating blower be lost for any reason. The PLC interfaces with the DCS.
- 2. The Ammonia Supply System is monitored and controlled by the DCS in the Vitrification CR. The Continuous NOx Analyzer located upstream from the Catalytic Reactors provide input to the DCS for computation of the required ammonia feed rate and of the NOx destruction efficiency.
- E. High Level Waste Storage Facility I&C
 - Controls for HLWIS crane operations, EDR/HLWIS door, transfer cart motions, and HLWIS cameras are located in the Chemical Viewing Aisle (CVA). The controls are located near a CPC shielding viewing window to facilitate operator viewing of activities.
 - The capability shall exist to identify and record the canister number and its location in the interim storage racks.
 - 3. The Main Plant Building HVAC System is used to remove the canister generated heat and control the temperature in the CPC. The existing Main Plant Building air monitoring systems are used to monitor the ventilation discharge. Back up cooling is provided by forced air through water coolers.

1.2.7 Interfacing Facilities (IF)

The interfaces both physical and programmatic between the facilities, or between a facility and a plant service are most meaningfully expressed in terms of the individual systems involved and the major interfaces are shown on drawing 900 J 1363, "Interconnection Flow Diagram for STS, SMS, LWTS, CSS, HLWSF and Supporting Utilities."

The drawing 900 J 1363 is a block diagram which shows the systems major process interfaces and the utilities that service each of the HLWSF systems. The system interfaces are designated on the drawing by triangles. Each interface has its own unique number. The numbering system is as follows; 55/63-001, the 55/63 designates the flow is from System 55 (SMS) to System 63 (VF) and the 001 is the unique number for the interface.

The specific and quantitative system interface are contained in the individual System Descriptions.

A. Sludge Mobilization Facility - IF

The SMS major system process interfaces are with the STS, PVS, LWTS and VF. The STS interfaces with HLW Tanks 8D-1, 8D-2, and 8D-3. The LWTS interfaces with HLW Tanks 8D-3 and 8D-2. The VF interfaces to HLW Tanks 8D-2, 8D-3, and 8D-4. The SMS also interfaces with System 8, "HLW Tank Farm".

The following service utilities are currently available for the SMS in the HLW Tank Farm.

- 031 Utility Air
- 031 Instrument Air
- 032 Utility Water
- 030 Electrical Distribution
- 031 Steam
- 032 Demineralized Water
- 032 Cooling Water

B. Vitrification Facility - IF

The VF major system process interfaces are with the; SMS, CCS, OGS and HLWIS and the supporting utilities.

The VF interfaces to and from the SMS are as follows:

- HLW Tank 8D-2 to 631 (CFMT)
- HLW Tank 8D-2 to 631 (CFMT) spare
- 63I (CFMT) to HLW Tank 8D-2
- 63I (CFMT) to HLW Tank 8D-4
- 63H (Condenser) to HLW Tank 8D-3
- 63G Waste Header to HLW Tank 8D-4

The VF process interfaces from the CCS are as follows:

- CC Mix Tank to 63I (CFMT)
- CC Mix Tank to 631 (MFHT)
- Shim Mix Tank to 631 (CFMT)
- Shim Mix Tank to 631 (MFHT)

The Decontamination interfaces from the CCS are as follows:

See SD-65 for the decontamination interfaces.

The VF interfaces to the OGS

63H (heaters) to 64 (separator)

The VF interfaces to and from the HLWIS

- 63K (Transfer Cart) to 68 (storage racks)
- 63K (Transfer Cart) from 63M (LL)

The Utilities provided to the VF by the plant systems and internal supply functions can be summarized as:

Plant Systems

- 63CW Cooling Tower Water for VF
- 63DW Demineralized water for VF
- 63ED Electrical Distribution for VF
- 63EH Diesel Exhaust for Diesel Generator
- 63FO Fuel oil to Diesel Generator
- 63IA Instrument Air for VF
- 63PW Potable Water, as required
- 63SC Steam and Condensate for VF
- 63UA Utility Air for VF
- 63UW Utility Water for VF
- 63WW Drains for VF

Internal Systems

- 63R Refrigerant for 67 HVAC
- 63AR Argon Gas for 631. Welding
- 63CC Chilled Water for 67 HVAC
- 63DA Dry Air part of 63UA
- 63HP High Pressure Air for 63IA

The VF also has internal systems and interfaces with the WVDP site systems or functions. The interfaces are as follows:

- Fire Detection and Protection System
- Radiation Monitoring System
- External and Internal Communication Systems (radios, telephones and intercom)

- Personnel Protection Equipment such as showers and eye washes and emergency medical equipment and supplies
- C. Cold Chemical Facility

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The CCS has four process system interface which are:

- 65 (Mix Tank) to 631 (CFMT).
- 65 (Mix Tank) to 631 (MFHT)
- 65 (Shim Tank) to 631 (CFMT)
- 65 (Shim Tank) to 631 (MFHT)

The CCS decontamination interfaces:

See the System Description 65

The following utilities are supplied to the CCS from the VF utilities:

- 63DW Demineralized Water
- 63ED Electrical Distribution
- 63PW Potable Water
- 63IA Instrument Air
- 63UA Utility Air
- e 63UW Utility Water
- 63SC Steam and Condensate
- 63CW Cooling Tower Water
- 63DA Dry Air
- 63WW Drains
- D. Off-Gas Facility System

The OGS has three system process interfaces. They are:

- 63H (postheater) to 64 (Separator)
- 64 (Catalytic Reactor) to Main Plant Stack

The following utilities are supplied to the Off-Gas Facility System:

- 032 Demineralized Water to 64
- 032 Cooling Water to 64
- 030 Electrical Distribution to 64
- 031 Instrument Air to 64
- 031 Utility Air to 64
- 15 Drains for 64
- 47 HVAC
- E. High Level Waste Storage Facility IF

The HLWIS major process system interface with the VF is System 63K where the canister is removed from the cart and placed in System 68 (storage racks).

The following utilities are supplied to the HLWIS Facility:

- 030 Electrical Distribution to 68
- 15 HVAC
- 1.2.8 Quality Assurance

The Quality Assurance Program applied to the HLWSF are the eighteen criteria of American Society of Mechanical Engineers Nuclear Quality Assurance (ASME NQA-1), 1986 and all supplements as stated in the Design Criteria Documents DC-022, DC-046 and DC-048. High Level Waste QA Program RW-0333P also applies [9]

The WVNS "Quality Management Manual (QM)" [10] provides information for defining a quality level for the structures and components that will be used on the project. Quality level is established from the safety class and service class considerations and specifies design requirements as delineated in the applicable design criteria.

The Quality Levels are assigned in the individual System Descriptions and/or equipment specifications.

1.2.9 Codes and Standards

Applicable codes and standards are found in the individual DCDs - DC-022, DC-046 and DC-048 or the individual SD.

1.2.10 Reliability Assurance

The reliability requirements for structures, systems, subsystems, and components are evaluated on their required availability, time to repair, ALARA, cost to repair, industrial experience and proven acceptance.

The reliability (service classification) is reflected in the quality level assignments described in the Quality Assurance section 1.2.8 above.



2.0 DESIGN DESCRIPTION

2.1 General

The HLWSF is made up of 41 systems whose primary purpose is to: transfor and receive the mixed HLW from the HLW Tank Farm and mix the HLW with the proper amounts of cold chemicals and glass formers to produce a Borosilicate Glass Waste Form, in the SFCM. The Borosilicate Glass Waste Form is then poured into stainless steel canisters, which are cooled, sealed, decontaminated and transferred to the HLWIS.

2.2 Site Selection and Facilities Overview

2.2.1 Criteria

In selecting the HLWSF locations the following design criteria requirements are given priority: protecting the health and safety of the public and site personnel, protecting the environment, keeping radiation exposure "As Low As Reasonably Achievable" (ALARA), fire protection for the facility and using the existing plant facilities and equipment to the maximum extent possible. Other siting requirements considered are: security, traffic flow to and from the HLWSF, room for future expansion and availability of utilities.

2.2.2 Sludge Mobilization Facility

The site location was a given as the HLW to be processed are stored in the existing HLW Storage Tanks. The HLW Tanks 8D-1, 8D-2, and 8D-4 are used in their present locations and are integrated into the HLWSF through the HLW Pipe Trench, Pump Pits, Utility Pits and Diversion Pit.

2.2.3 Vitrification Facility

West Valley Nuclear Services Company, Incorporated (WVNS) recommended and The United States Department of Energy (DOE) concurred that the existing CTS Building should be converted for radioactive operations. The CTS is now designated as the VF. As shown on Figure 2.1 "Vitrification Facility" the VF is located adjacent to and between both the HLW Tank Farm and the HLWIS located in the existing Main Plant Building.

The HLW Transfer Trench is also shown on Figure 2.1. The HLW Transfer Trench provides the shortest distance and shielding for the double wall piping used to transfer the mixed HLW from Tank 8D-2 in the Tank Farm to the CFMT in the VF.

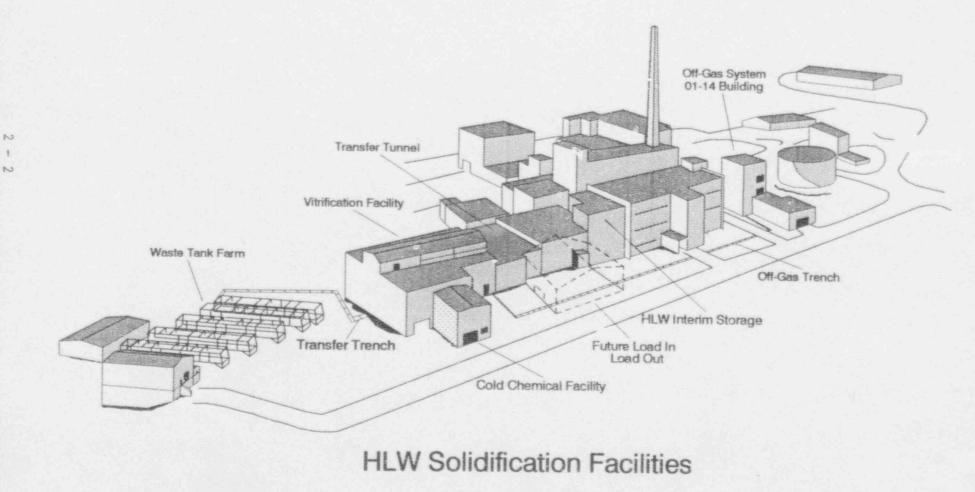
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The Vitrification Transfer Tunnel is also shown on Figure 2.1. The tunnel provides the shortest distance and shielding for moving the sealed and decontaminated glass filled canisters from the Vit Cell to the HLWIS.

2.2.4 Cold Chemical Facility

The CC Facility as shown in Figure 2.1 is located in an independent facility attached to the West side of the VF. The independent facility was chosen to assure the chemicals and glass formers would not become radioactive. The facility was attached to the VF to provide the shortest transfer distance possible. The West side of the VF was also chosen because space was available and provided good access to the present roads for the delivery of the nonradioactive chemicals.

2.2.5 Off-Gas Facility

In keeping with the ALARA requirements the SFCM off-gas and vessel vent gases are scrubbed and filtered by the OGS in the Vit Cell. Figure 2.1 shows the Off-Gas Trench in which the OGS in the Vit Cell is piped to the OGS in Building 01-14. The off-gas piping, external to the cells is located in the shielded transfer trench and, when operating, is maintained at a negative atmospheric pressure.

Building 01-14 was selected as the location for the OGS as the original off-gas system was located here and some of the existing components are being used in the new system. The 01-14 Building location also provided ready access to the Main Plant Discharge Stack through which the processed off-gas is released to the environment.

2.2.6 High Level Waste Interim Storage

The HLWIS is located in the CPC in the Main Plant Building and is shown in Figure 2.1. The CPC was chosen for canister storage for the following reasons:

- A. it is designed for natural hazards:
- B. the walls provide adequate shielding;
- C. it is large enough to store all the canisters;
- D. the existing HVAC provides adequate cooling for the canisters in storage;
- E. the existing crane is large enough to handle the canisters and place them two tiers high and

F. the shield door and railroad type tracks are available for moving the canisters into the CPC.

In the CPC the existing equipment has been removed and the cell decontaminated to meet ALARA requirements. The doors, windows, lighting and cranes have either been repaired, refurbished or modified to meet the new design requirements.

The EDR attaches to and forms a part of the Vitrification Transfer Tunnel between the Vit Cell and the CPC. The EDR location and walls provide adequate shielding when transferring the canisters and the cart tracks in the EDR are continued into the CPC.

The EDR is used to receive empty canisters and canister lids, as well as, other equipment such as replacement jumpers and filters, and handling fixtures for transfer into the Vit Cell. Using the EDR crane, the equipment is placed on the canister transfer cart for delivery to the Vit Cell through the Vitrification Tunnel.

A shielding and confinement door provides access from the EDR to the CPC, and to the LL and a confinement door is provided from the EDR to the Vitrification Tunnel.

2.2.7 HLWSF Vehicular and Personnel Access

Using Figures 2.2 "View looking Northwest" and Figure 2.3 "View looking Northeast" it can be seen that vehicular access has been maintained on both the West and East sides of the VF. Vehicular access has also been retained to the HLW Tank Farm, Building 01-14 and to the Main Plant Building. Personnel access has been provided on the West, North and East sides of the VF. The existing personnel access to the HLW Tank Farm, Building 01-14 and the Main Plant have been maintained.

2.2.8 Utilities Availability

The utilities such as water, steam, condensate roturn, air, cooling water, and electrical power for the VF are available from the adjacent Main Plant Building and Utility Room. The utilities are run directly to a distribution header and electrical buses in the VF for distribution to the systems and equipment requiring them. The utilities are already available in the SMS Facility, Off-Gas Facility, and Main Plant Building.

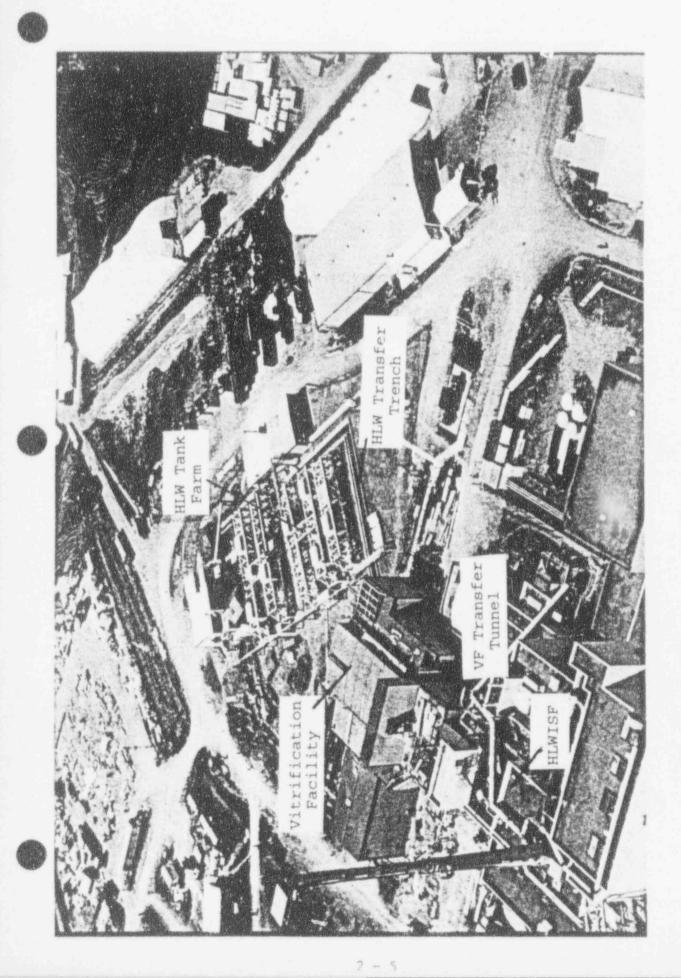


Figure 2.2 HLWSF, View Looking Northwest

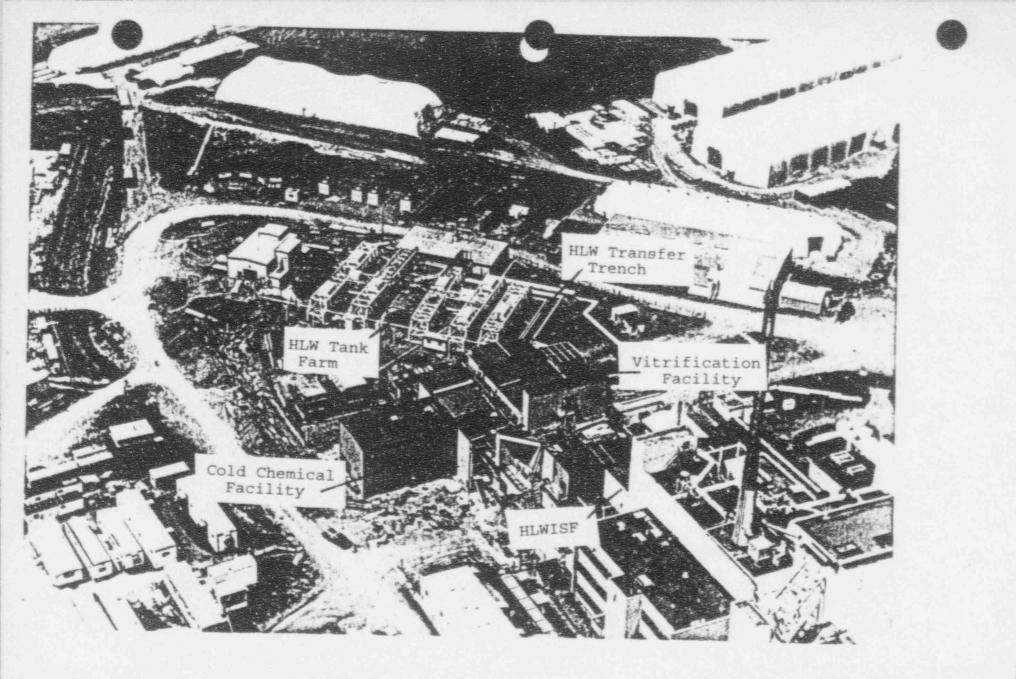


Figure 2.3 HLWSF, View Looking Northeast

Additional utilities and services required to support the HLWSF operation such as: chilled water for the HVAC and argon and shield gas for welding are included in the new design.

2.2.9 Security

The location selected for the HLWSF is inside the existing security area. The security area is fenced and controlled access is provided to both the area and to the HLWSF.

2.2.10 Fire Protection

The VF and CC Facilities are sited to utilize the existing Fire Protection System water piping which loops around the Main Plant Building. The VF and CC Fire Protection System ties into the fire protection piping in two separate places to provide flow in two directions. The Fire Pump Station and Water Storage Tank are also located in the same general area south of the main plant. The SMS and HLWIS Facilities use their existing Fire Protection Systems and the Off-Gas Facility fire protection is being modified to accommodate the building and equipment changes.

2.2.11 Future Expansion

Figures 2.2, "View Looking Northwest" and 2.3, "View Looking Northeast" shows there is room for future expansion on both the East and West sides of the VF and West side of the HLW Tank Farm. Figure 2.1, "HLW Solidification Facilities" shows in phantom the future Load In/Load Out Facility (LL). The present plan calls for the LL to provide space for receiving, inspecting and transferring new canisters into the EDR and from there to the Vit Cell.

2.3 Programmatic Requirements

2.3.1 Criteria

The facility and equipment arrangement is not only determined by efficient operations and maintenance, but also by two other major factors: 1) the use and arrangement of the existing facilities and equipment, and 2) Design Criteria (DC-022, DC-046, DC-048) which requires the utilization of a "Safety Classification System."

2.3.2 Safety Considerations

The "Safety Classification System" determines the importance of each component and structure relative to ensuring the health and safety of the workers and the general public during all phases of the project, as well as protecting the environment. The bases for the safety classifications is given in Figure 2.4, "Safety Classification."

The safety classification for each component and structure is provided in each SD.

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Safety Classification

Criteria for Determination Based on Type of Risk

Туре		and the second state	Criteria	Les de la companya	
General Risk	On-site	A	B >1 Fatality	C >5 Injury	N Routine
	Off-Site	A >1 Fatality	B >1 Injury	C	N Routine
Radiological Risk	On-site	A	B >5 rem	C >1 rem **	N <0.01 rem
	Off-Site	A >25 rem	B >0.5 rem	C >0.01 rem	N <0.01 rem
Chemical Risk	On-site	A	B >1 IDLH	C >1 STEL	N Routine
	Off-Site	A	в	c	N Routine
Environs Damage		A Longterm Damage	B Significant Transient Damage	C Minor Damage	N No Damage

** Radiation Worker Qualified

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In designing the HLWSF the safety classifications for the components and structures are considered. The basic engineering approach is to eliminate the hazard, provide engineered barriers, provide redundancy, increase the reliability of the components or structures, or make the component easily replaceable. The Design Criteria major design considerations for safety are as follows:

A. Natural Hazards - Structures or components that are required to confine radioactive material that could be hazardous to the public or workers, shall be able to withstand the effects of natural hazards without loss of their capability to perform their confinement functions,

Natural hazards include: earthquakes, tornados, differential pressures, wind forces, snow loading and flooding.

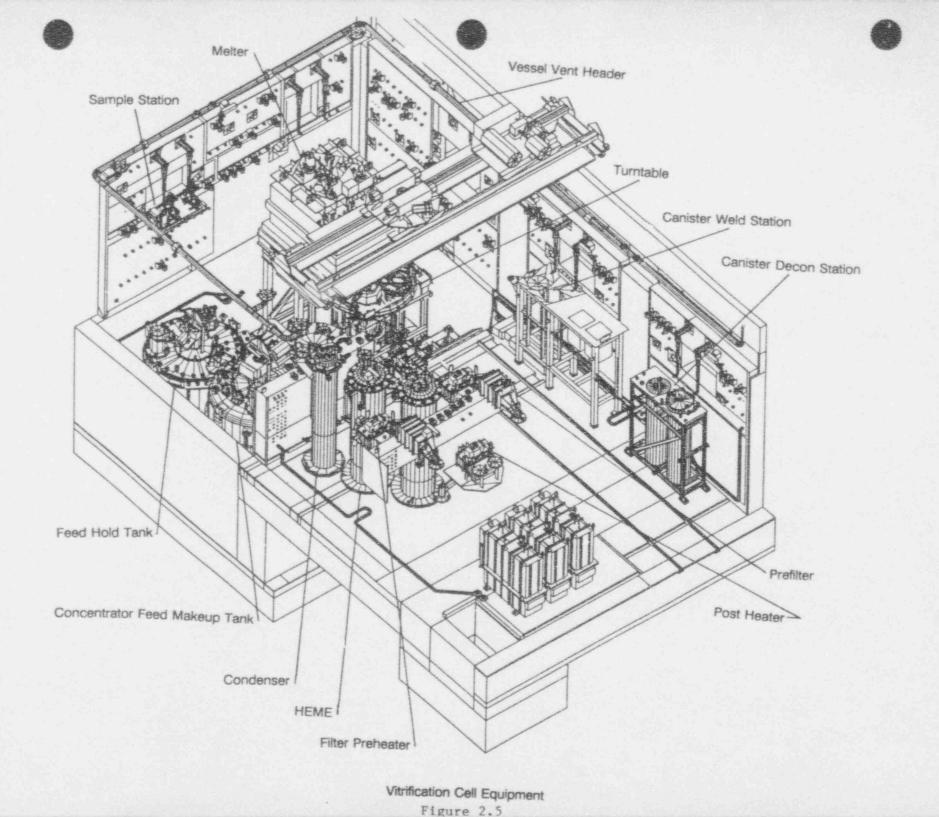
- B. Radiation The principle of ALARA shall be applied to all aspects of radiation exposure. The shielding design shall be based on the highest energy radiation source, distance from the source(s) and time of exposure (full-time occupancy, full-time access or no occupancy).
- C. Confinement Confinement of radioactive material shall be accomplished using three primary design principles: sufficiently air tight physical boundaries, multiple confinement barriers and maintaining pressure differentials between confinement barriers.
- D. Criticality Provide criticality safety through the use of geometry, fixed external Neutron-absorbing materials and facility design for normal and abnormal operating and maintenance conditions consistent with the existence of fissile material in the waste. A criticality alarm system with detectors, local and remote alarms and readouts shall be provided if required.
- E. Fire Occupied areas shall be protected by an automatic wet-pipe system and be provided with fire detection systems that will monitor and alarm. The HLWSF fire protection and alarm system shall be integrated into the existing plant fire protection and alarm system, as required.
- F. Industrial/Occupational Safety The design requirements in the industrial/occupational safety area are numerous. The designer must reference the source documents DOE Order 5480.1 [10] and Occupational Safety and Health Act (OSHA) Document 29-CFR-1910 [11].

Items such as chemical receiving, handling and disposal; electrical, welding, material handling and pressurized equipment; aisles, walkways and platforms; dust, fumes, vapors and gases; and personnel protective equipment need to be addressed.

- G. Emergency planning The facility design shall include emergency equipment and assure that facility features provide for ease of personnel evacuation. The facility alarm and public address (PA) systems shall be integrated into the WVDP site alarm and PA systems.
- H. System or Control Malfunctions A "Fail Safe" philosophy shall be used in designing the HLWSF. A single failure or malfunction, of any system or equipment item, shall not initiate a failure sequence that results in uncontrolled release of radiation to the environment or radiation exposure to the operating personnel and the general public that exceed the limits of reference [7].
- I. Loss of Normal Electrical Power An alternate power system shall be provided to those systems and equipment necessary to maintain confinement. Alternate power shall be unaffected by natural hazards, fire or other failure in the normal power switch gear or cables.
- 2.4 Vitrification Cell and Equipment Arrangement
 - 2.4.1 Engineered Barriers

After the safety classifications for the components and structures were completed and reviewed, it was determined that an engineered barrier designed for natural hazards and confinement is required. Figure 2.5 "Vitrification Cell Equipment" and General Arrangement and Section Drawings: 905 D 030, 032, 034, 036, 037, and 038 shows the barrier encloses the following systems and their components;

- A. System 63I, "PPS" which includes CFMT, MFHT, SFCM, Canister Turntable, ILDS, Canister Weighing System, and the associated piping, electrical, instrumentation and controls, and jumpers.
- B. System 63H, "OGS" which includes the SBS, High Efficiency Mist Eliminators (HEME), preheaters, two prefilters in series, Vessel Vent Header, Vessel Vent Condenser and its associated piping, electrical, instrumentation and controls and jumpers.



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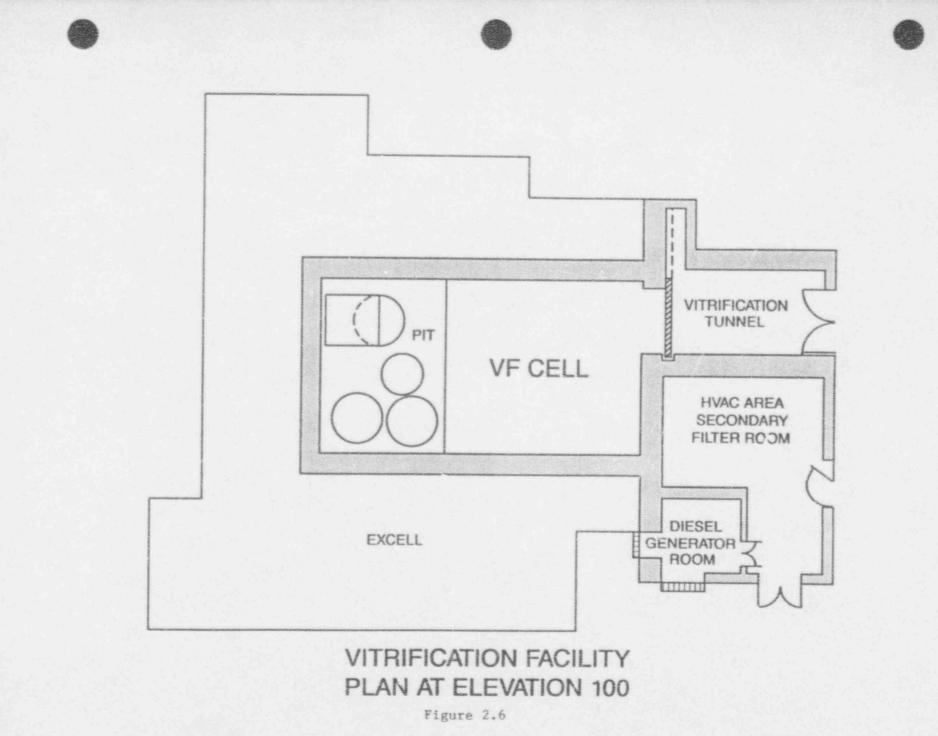
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 - C. System 63G, "WH" is a stainless steel header that is mounted on the cell walls and is designed to receive overflows from the tanks in the Vit Cell and waste from the Vit Cell sumps.
 - D. System 63J, "CDS" which contains a packaged work station for decontaminating, rinsing and disposing of the decontamination and rinse solutions. A manipulator and pass through drawer are available for swabbing the decontaminated canister and transferring the swab out of the Vit Cell for analysis.
 - E. System 63L, "CWS" which contains a packaged work station for: removing glass shards from the canister and placing them in sample bottles, handling and aligning the canister lid, remotely welding the lid to the canister, and remotely performing a visual inspection of the weld.
 - F. System 63K, "IRHV" which consists of the doors, overhead cranes, manipulators, CCTV, transfer cart, canister storage racks and the associated equipment to remotely repair, remove, handle and install the components in the Vit Cell remotely.
 - G. System 69A, "VSS", which consist of the shard sampler, the slurry samplers, the "C" samplers and their associated pipes and pumps. The CFMT and MFHT are sampled by the slurry samplers, the SBS and decon station are sampled by the "C" sampler, and the glass shard are removed from the filled canisters.

2.4.2 Radiation Protection

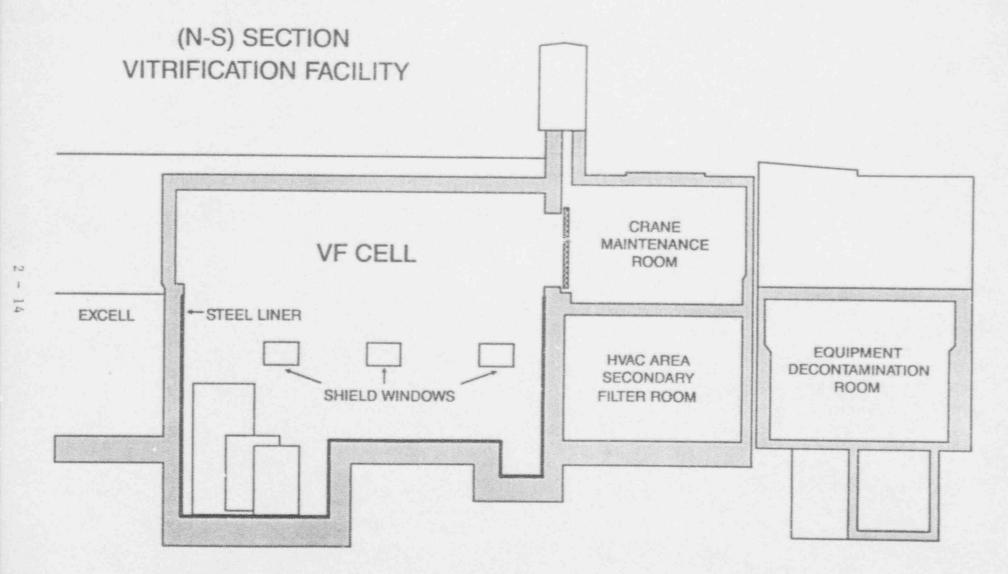
The Vit Cell, which forms a shielded confinement boundary, having approximately 10.37 m (34 ft.) wide by 16.16 m (50 ft.)long by 13.11 m (43 ft.) high interior dimensions, provides the engineered barrier for the above systems and components and is shown in Figure 2.6 "Vitrification Facility Plan at Elevation 100" and Figure 2.7 "(N-S) Section Vitrification Facility."

The Vit Cell boundary is determined by the existing pad of the original CTS building and is designed to withstand natural hazards. Much of the wall structure consists of prefabricated "wall modules" placed between previously cast-in-place concrete columns. The modules consist of a structural frame work to support internal piping and various penetrations for windows and utilities. A stainless-steel plate faces the radioactive or "hot" cell interior. The nonradioactive or "cold " side of the 1.22 m (4 ft) thick module was formed after the modules were installed by filling each module with concrete. A total of seven wall modules









were installed and welded together. They form an integral part of the cell's structural, radiological and seismic barrier. The upper walls and ceiling of the Vit Cell are cast-in-place reinforced concrete approximately 0.838 m (2.75 ft,) thick. These are thinner than the lower walls and as determined by the distance from in-cell radiation sources and anticipated occupation of these areas.

2.4.3 Confinement

The rest of the Vit Cell confinement is made up of shield doors. Door No. 1 is to the Vit Cell Transfer Tunnel and provides access and egress to the Vit Cell for canisters and other equipment and supplies during radioactive operations. Door No. 2 is to the CMR which allows for the cranes operations and maintenance during radioactive operations. Both Doors 1 and 2 are designed to satisfy confinement and shielding.

The Exhaust portion of the Vit Cell Heating Ventilation and Air Conditioning (HVAC) System is required to maintain the Vit Cell as a confinement cell by maintaining a negative atmospheric pressure. Based on this requirement, the Vit Cell HVAC Exhaust System, the HVAC Area Secondary Filter Room, the Diesel Generator Room and the HVAC Control Room are designed to withstand natural hazards.

2.4.4 Criticality

Based on the Feed Preparation Cycle being a batch operation, the HLW in Tank 8D-2 being thoroughly mixed, the quantity of boron in the HLW mix and the size of the feed preparation batches, it was determined that criticality would not occur. The Vit Cell in-cell equipment geometry is not designed specifically to address criticality.

2.4.5 Fire Detection and Protection

During radioactive (hot) operations personnel are not allowed in the Vit Cell. A review showed that combustible materials are not used in the Vit Cell, so fire protection is not provided.

2.4.6 Industrial and Occupational Safety

Based on no occupancy in the Vit Cell industrial/occupational safety design is concentrated on assuring the reliability of In-Cell remote handling, maintenance and viewing capabilities. Cranes are provided in the Vit Cell and shall be used for every day operation such as canister handling and sampling and for maintenance such as jumper removal and replacement and other high capacity lifts, as required. This

system includes a double 4.5-ton crane, a 25-ton backup crane, a powered hook rotator, an impact wrench, a bridge trolley and rails and special handling equipment. Cranes allow for the remote replacement and or removal of the vitrification equipment.

In-cell piping, valves, instrumentation and electrical components are incorporated into crane-removable jumpers. Most major components in the Vit Cell are remotely removable using only crane mounted equipment.

Additional remote handling requirements within the Vit Cell are performed by manipulators. Operations requiring manipulator use are primarily high-dexterity jobs such as sampling and sample packaging.

In addition to shielding windows, operations occurring in the Vit Cell are also monitored using a CCTV System.

2.4.7 Emergency Planning

The emergency planning in the Vit Cell is based on supporting the operation and maintenance of the equipment in the Vit Cell.

- The equipment is designed to be remotely replaceable.
- Sumps and Waste Header System is provided to clean up a possible overflow from the process vessels.
- A retrieval system is provided to move the overhead crane back to the CMR in case of failure.
- Redundancy is provided for both the Melter Off-Gas and Vessel Vent System and the Vit Cell HVAC System.
- Piping is provided to recycle an unacceptable process batch back to the tank farm for reprocessing.

2.4.8 System or Control Malfunctions

In case of a system or control malfunction the PPS is shut down and placed in a stable condition. The process is also monitored until the malfunction is identified and resolved. The Vitrification Control System is backed up by an uninterruptible power supply (UPS) in case loss of normal electrical power occurs. At the same time a negative atmospheric pressure is maintained in the Vit Cell maintaining confinement.

The Vit Cell HVAC system has parallel filter trains and blower systems, that are backed up by alternate power systems in case loss of normal electrical power occurs.

2.4.9 Loss of Power

In the case of the loss of Normal Electrical Power an UPS provides control power to: shut down and monitor the vitrification process; shut down the Vit Cell HVAC Inlet System; close the Vit Cell inlet dampers and valves sealing the Vit Cell; and open the exhaust valves and dampers. The Vit Cell can continue to vent through the filter trains, the exhaust fans, the VF stack to the atmosphere. The alternate power source, the diesel generator, will provide power to the HVAC exhaust fans to maintain the negative atmospheric pressure in the Vit Cell.

2.4.10 Decontamination and Decommissioning

The Vit Cell design incorporates features that facilitate future D&D of the facility. The cell walls are lined with stainless-steel up to 6.71 m (22 ft.) above the floor. See Figure 2.8, "Vit Cell walls". The tunnel shield door is epoxy-coated carbon steel. All areas above the 122 ft. level (the cell floor is at the 100 ft. elevation) are painted with an epoxy coating suitable for decontamination.

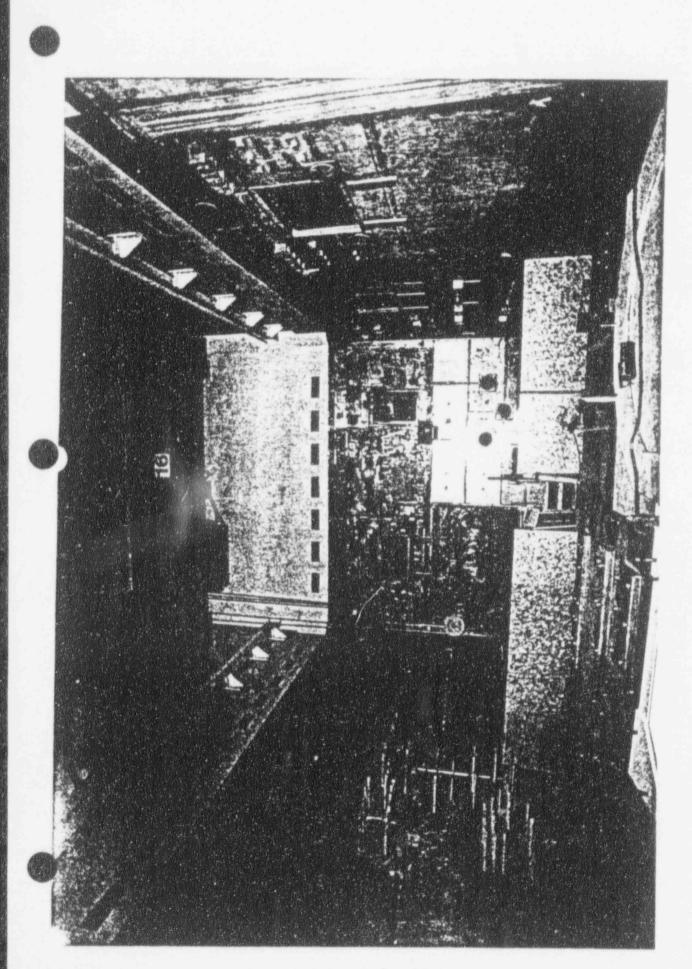
2.4.11 Drains

The sloped floor in the cell allows radioactive contaminants to drain or be washed to one of three sumps for removal through the Waste Header System. Contaminated liquids present in the waste header are eventually returned to the Waste Tank Farm where they are reintroduced to the vitrification process.

2.5 VF Ex-Cell Arrangement on the North, East and West Sides of the Vit Cell

2.5.1 Ex-Cell General

The primary purpose of the Ex-Cell portion of the VF is to house the systems that support the vitrification systems housed in the Vit Cell. Figure 2.9, "Vitrification Facility" is a cut away view of the VF showing the VF Ex-cell surrounds the Vit Cell on three sides, the East, North and West. The Ex-Cell has three working levels; 100 ft., 110 ft., and 124 ft., with the Vitrification CR located at 114 ft. and 117 ft. levels.



Vitrification Cell Liner Figure 2.8

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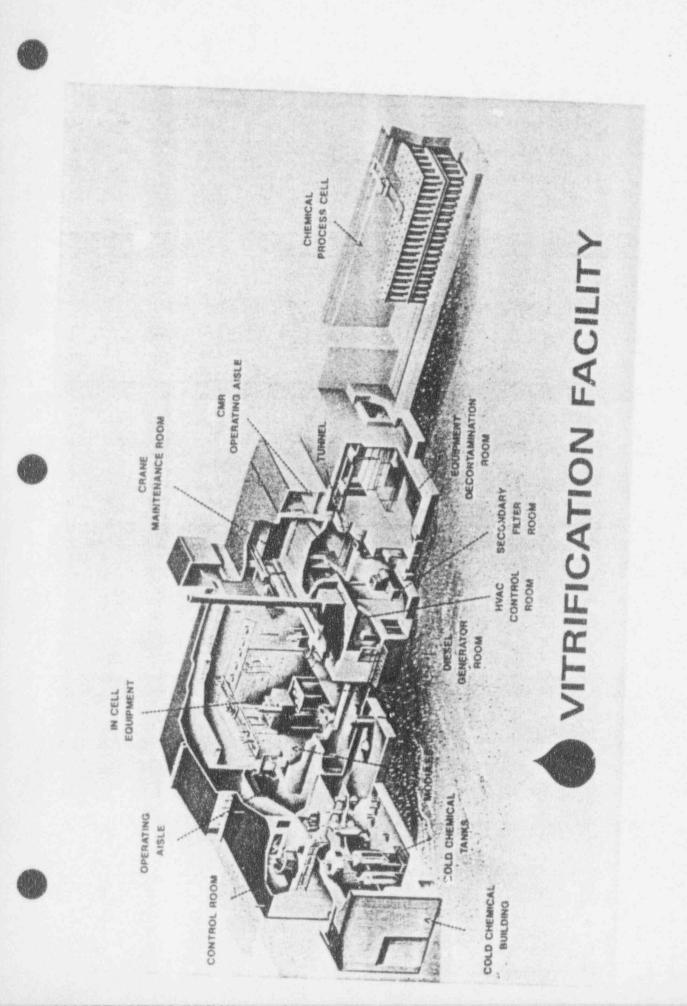


Figure 2.9

2.5.2 Ex-Cell Arrangement at the 100 ft. Level

General Arrangement Drawing 905-D-030 shows the VF Ex-Cell 100 ft. level which contains the following systems and their components:

- A. System 63H, "OGS" which includes the heater control cabinets;
- B. System 66, "CLCWS" which includes the pumps, heat exchanger, water hold tank and radiation monitoring rack;
- C. System 63SC, "SC" which includes the condensate return tanks, and the condensate radiation monitor rack;
- D. System 69B, "SST" which includes the Vit Cell sample transfer cell and the PSTS.
- E. System 63ED, "EDS" which includes transformers, motor control center, bus enclosure, the power controller for the melter, switchgear, cables, UPS, power distribution and lighting panels.

NOTE: 63ED IS ON ALL EX-CELL LEVELS

2.5.3 Ex-Cell Arrangement at the 110 ft. Level

General Arrangement Drawing 905-D-032 shows the VF Ex-Cell 110 ft. level which is the operating aisle providing access to both the Vitrification and HVAC CRs and contains the following systems and their components:

- A. System 63K, "IRHV" which includes six viewing windows, ten manipulators, and four fixed plug-in control stations for the Vit Cell cranes;
- B. System 63FP, "FDP" which includes the halon fire protection system for both the Vitrification and HVAC CRs;
- C. System 200A, "Instrumentation and Controls, Hardware" (I&CH) which includes the DCS, IO cabinets and nine instrument racks for the various support utilities;
- D. System 67, "HVAC" which includes the VF instrument racks for the stack radiation monitoring;
- E. System 63J, "CDS" which includes the swab transfer drawer.

2.5.4 Ex-Cell Arrangement at the 124 ft. Level

General Arrangement Drawing 905-D-034 shows the VF Ex-Cell 124 ft.level and includes the following systems and their components:

- A. System 67, "HVAC" which includes the air handling units for the Vitrification CR and the VF HVAC Intake System;
- B. System 63J, "CDS" which includes the cold chemical mixing tank;
- C. System 200A, "I&CH" which includes; the piping corridor and drop offs to the eleven (11) instrument racks which support process and Utility Systems.
- 2.5.5 Vitrification Control Room

General Arrangement Drawing 905-D-032 shows the Vitrification CR located at the 114 and 117 ft. levels and includes the following systems and equipment:

A. System 200A, "I&CH" and System 200B, "Instrumentation and Controls. Software" (I&CS) which includes three control stations each consisting of: two DCS viewing screens and controls, two CCTV viewing screens and controls, one Telephones and Intercom System console and one ILDS viewing screens and controls, reference manuals, and procedures. The stations also contain bookshelves for the software and a common screen and event logging printer.

Two of the stations are located on the 114 ft. level and are designated for the operators and the third station is located on the 117 ft. level and is designated for the shift engineer.

There is a fourth DCS station, for the shift supervisor, on the 117 ft. level consisting of a single DCS viewing screen, key board and mouse, and CCTV screen with controls.

There are cabinets for the hardware for the Fire Detection and Protection System, the ILDS, the CCTV, the Radiation Monitoring System, the Melter Viewing System and the Glass Pour Viewing System.

In addition to the above components and equipment the control room has space to store and review blueprints, a Vax Terminal and dot matrix printer, a Vax laser printer, a copy machine, fax machine and lateral filing cabinets.

2.5.6 Structural

The VF Ex-Cell is designed to meet the New York State "Code Manual for the State Building Construction Code."

2.5.7 HVAC System

The VF Ex-Cell is also d∉ igned to provide barriers for the three differential pressure zones to maintain the air flow from the area with the least potential for contamination to the area with the most potential for contamination. The three zones are as follows: zone III Vitrification CR (full-time occupancy), zone II operating aisles (full-time access) and zone I (confinement areas). The VF-HVAC differential pressure zones and flow paths are shown on Figure 2.10, "Vitrification Facility - HVAC Zones", Figure 2.11, "Vitrification HVAC Supply System and Figure 2.12, "Vitrification Exhaust Ventilation System."

2.5.8 Emergency Planning

The VF has addressed Emergency Planning by providing: emergency equipment such as first aid equipment, fire blankets, eye washes and safety showers and exits on the North, East, and West sides on all working levels of the VF. Both the VF Fire Detection and Protection System (63FP) and the Radiation Monitoring and Alarm System alarms and indicates the location of the problem in the VF in the Vitrification CR. The Fire Detection and Radiation Monitoring detection and alarm systews are tied into the WVDF site alarm and monitoring systems, as appropriate. The VF "Emergency Plan" is part of the over all "WVDF Emergency Plan", WVDF-022 [13].

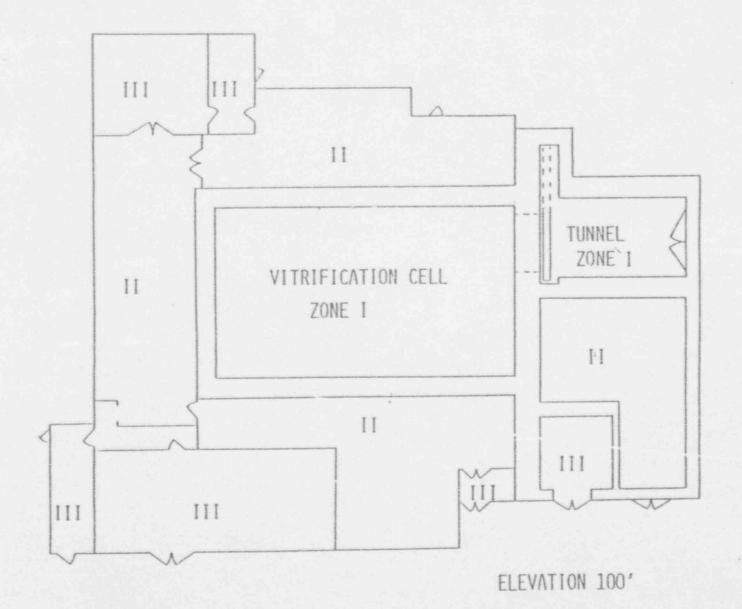
2.6 Ex-Cell Arrangement South Side (SS)

2.6.1 General

The VF HVAC Area Secondary Filter Room, Diesel Generator Room, HVAC Control Room, CMR and Vitrification Transfer Tunnel are designed for natural hazards and are located on the South side of the Vit Cell with working levels at 100 ft., 112 ft. and 124 ft..

2.6.2 Ex-Cell SS Arrangement (100 ft. level)

General Arrangement Drawing 905-D-030 shows the South side of the Vit Cell at the 100 ft. level which includes the following systems and their components: VITRIFICATION FAC. TY - HVAC ZONES



Vitrification Facil'ty - HVAC Zones

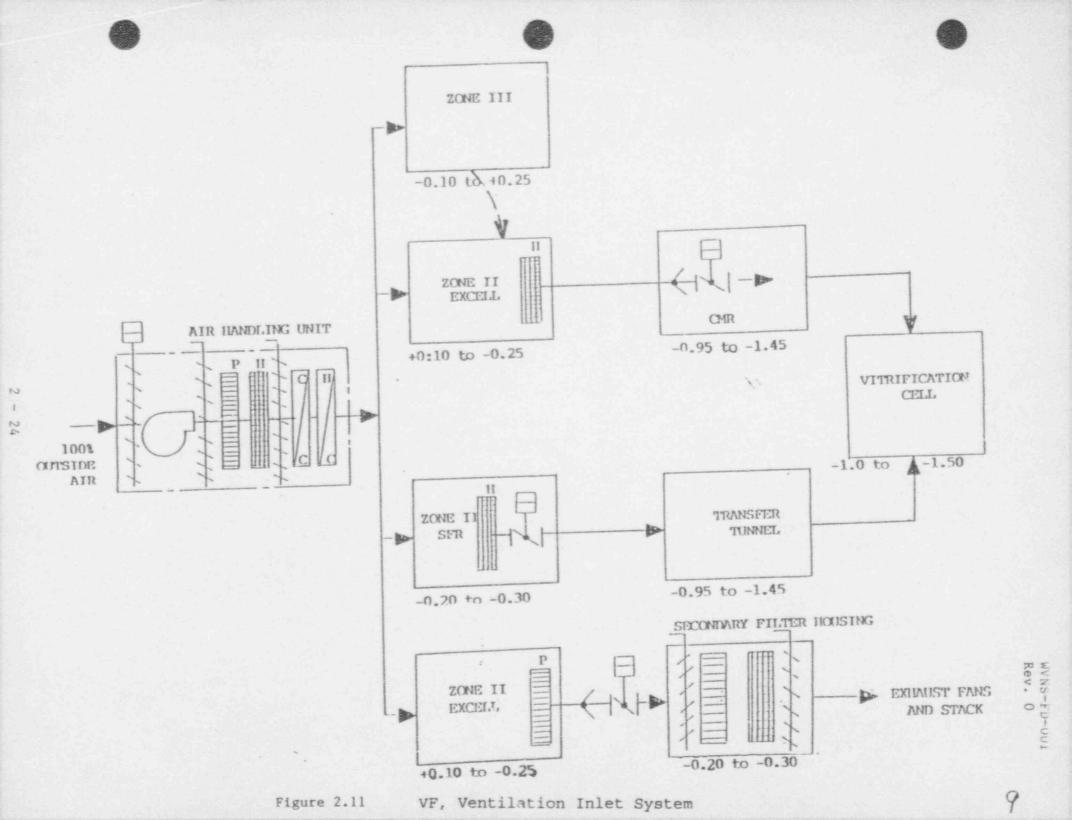
Figure 2.10

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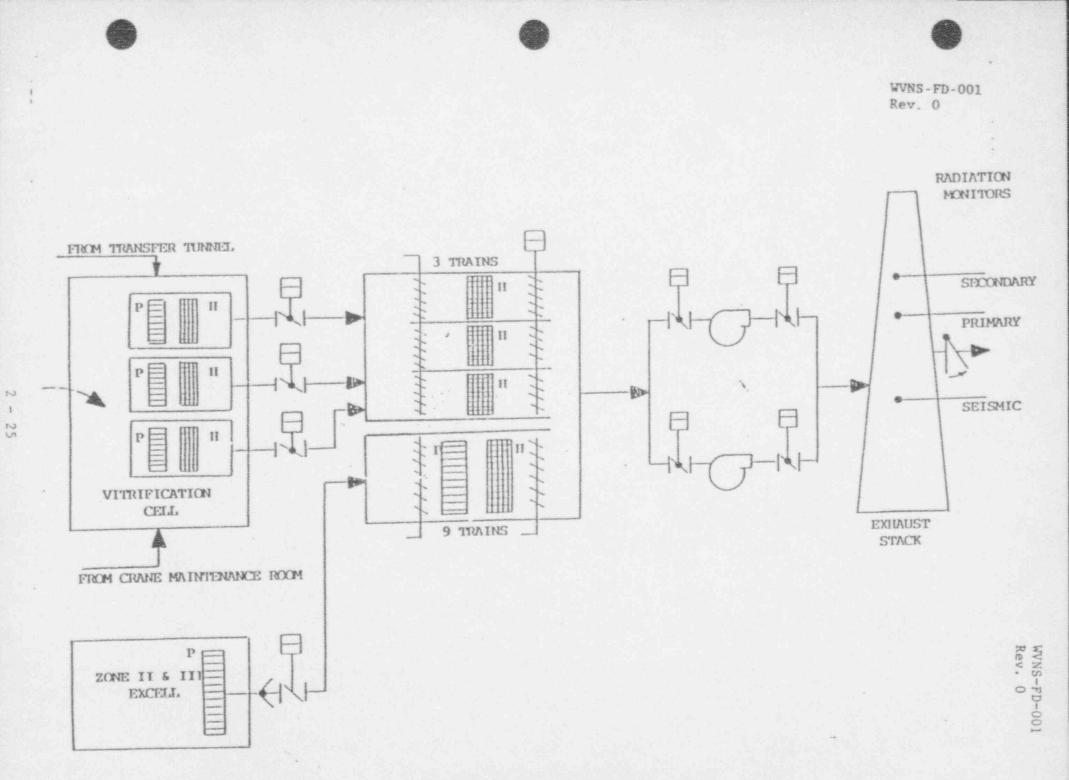


Figure 2.12 VF, Ventilation Exhaust System

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- A. System 67, "HVAC" which includes the filter trains, and the exhaust fans. The HVAC components are designed to perform their contamination confinement function during and after the occurrence of a DBE, and DBA.
- B. System 63ED, "EDS" which contains the DG, DG day tank, diesel exhaust system, battery charger, and the HVAC 480 volt switch gear, power distribution and lighting panels. The alternate electrical supply is designed for DBE, and DBA.
- C. System 63K "IRHV" which contains the Vitrification Transfer Tunnel (connecting the Vit Cell and the EDR), Shield Door No. 1 between the Vit Cell and the tunnel and Shield Door No. 8 between the tunnel and the EDR. Door No. 1 is designed for DBE, confinement and shielding. Door No. 8 is designed for confinement.
- 2.6.3 Ex-Cell SS Arrangement (level 112 ft.)

General Arrangement Drawing 905-D-032 shows the South side of the Vit Cell at the 112 ft. level which includes the following systems and their components:

- A. System 67, "HVAC" which contains; the HVAC controls panel and the start of the VF exhaust stack.
- B. System 63ED, "EDS" which contains the 24 volt battery package for the diesel generator, the 480 volt switch gear, and the uninterruptible power supply.
- C. System 63K, "IRHV" contains the Vitrification Transfer Tunnel connecting the Vit Cell with the EDR and a shielded viewing window for the secondary filter room.

2.6.4 Ex-Cell SS Arrangement (level 124 ft.)

General Arrangement Drawing 905-D-034 shows the South side of the Vit Cell at the 124 ft. level and above which includes the following systems and their components:

- A. System 63F, Cell Walls and Ex-Cell Arrangement which includes the roof section above the HVAC CR and Secondary filter Room, the CMR, and the tunnel's roof hatches.
- B. System 67, "HVAC" which includes the VF stack and the duct connections from the Ex-Cell 124 ft. level to the CMR.
- C. System 63ED, "EDS" which includes CMR lighting station , maintenance crane panel, and the VF-Cell crane system power and CCTV panels.

- D. System 200A, "I&CH" which includes crane transfer hoist main enclosure, Door No. 2 control cabinet, and Vit Cell crane system operator control station.

2.7 Other HLWSF Facility

2.7.1 General

There are four (4) systems that are located in facilities separate from the VF, but are considered part of the HLWSF. See Figure 2.1. They are:

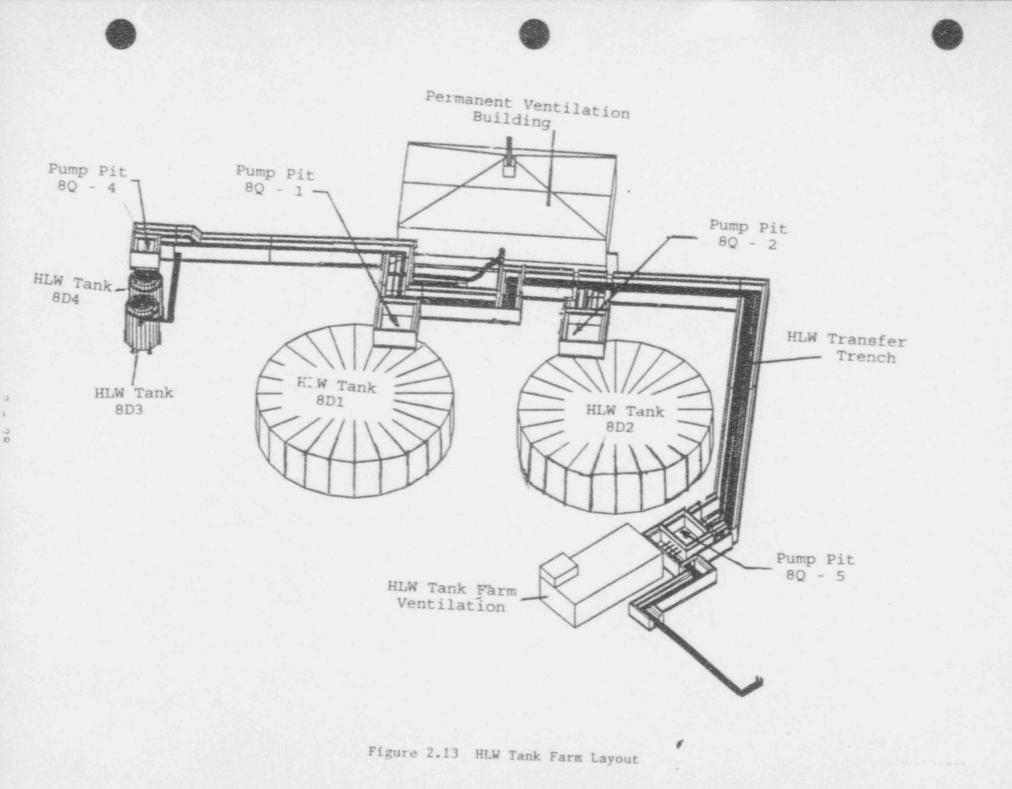
- A. System 55, "Sludge Mobilization System" located in the HLW Tank Farm;
- B. System 65, "Cold Chemical System" located to the West of the VF in an attached bu: independent facility;
- C. System 64, "Off-Gas System" located in a section of Building 01-14;
- D. System 68, "High Level Waste Interim Storage System" located in the existing Main Plant.

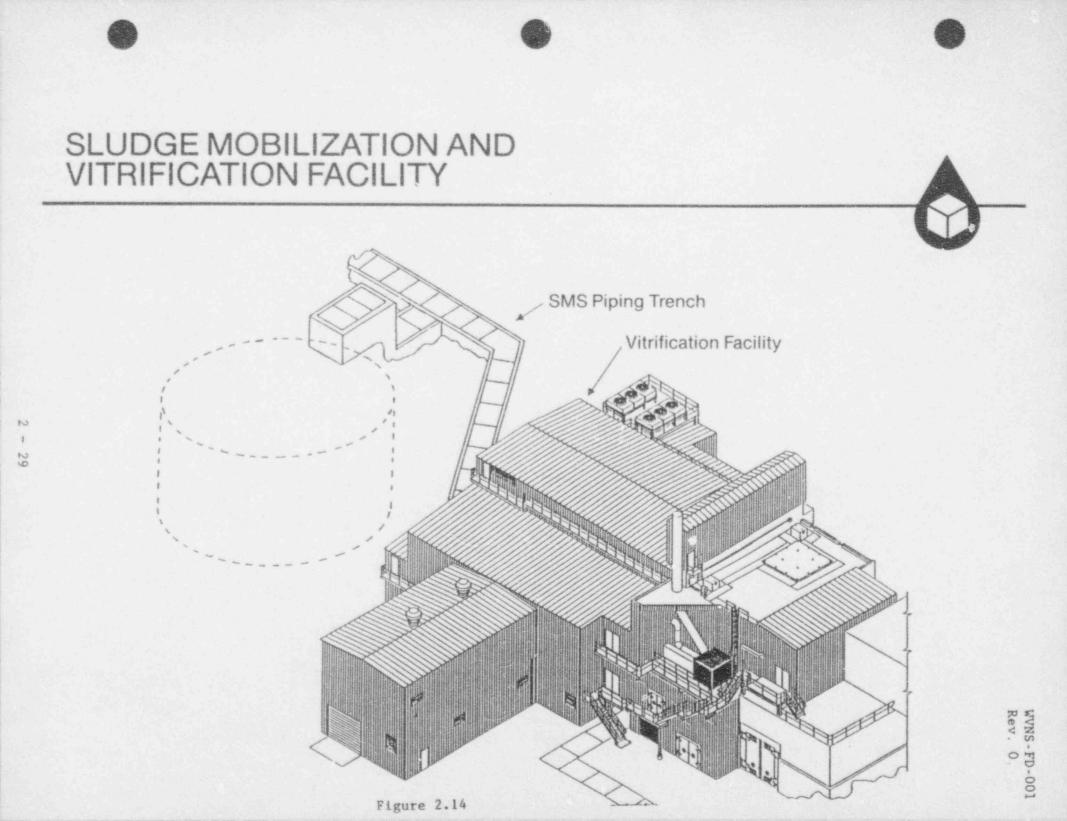
2.7.2 Sludge Mobilization System

The SMS is located North of the Vit Cell in the HLW Tank Farm. The functional and design requirements are in Design Criteria DC-046, "Sludge Mobilization and Waste Removal System" and System Description SD 55, "Sludge Mobilization and Waste Removal System."

Figure 2.13, "HLW Tank Farm Layout" and Figure 2.14, "Sludge Mobilization and Vitrification Facility" show the following major components: High Level Waste Tanks 8D-1, 8D-2, 8D-3, and 8D-4; Pump Pits: 8Q-1, 8Q-2, 8Q-4 and Diversion Pit 8Q5; PVS Building, the Equipment Shelter for the WTFVS and the HLW Transfer Trench.

Other equipment required to perform the operations in the HLW tank farm, not shown in the above figures are, mobilization pumps, transfer pumps, zeolite size reduction equipment, transfer piping, instrumentation and controls, containment system and utilities.





A. HLW Tank 8D-4

HLW Tank 8D-4 is an existing tank that contains an active THOREX Waste. It is located at the North end of the waste tank farm in a concrete reinforced vault that houses both the 8D-4 and the 8D-3 HLW Tanks. The 8D-4 HLW Tank is stainless steel and is 3.7 m (12.15 ft) in diameter and 4.8 m (15.76) high. It is used by the following systems:

- System 55, "Sludge Mobilization and Waste Transfer System" - during the waste transfer the THOREX transfer pump in Tank 8D-4 will pump the THOREX waste through the HLW Transfer Trench to Tank 8D-2 to be mixed with the other wastes to be transferred to the PPS.
- 2. System 63C, "WH" during the Vitrification Campaign each canister's decontamination rinse solution is pumped to the VF waste header which is piped directly to Tank 8D-4 through the HLW Transfer Trench. See SD-63J, "CDS" for the chemical composition and the amount of rinse solution for each canister. See SD-63G, for the types and amounts of unscheduled wastes that could be sent to 8D-4. See SD-63I for the sampling, chemical adjustment and when and where the Tank 8D-4 content is to be transferred.
- TBD The Cognizant System Engineers for Systems 631, 63G, 63J, and 55 are reviewing both the design and operations of these systems to determine if the canister rinse solution can be transferred to a tank other than 8D-4.
- B. HLW Tank 8D-3

HLW Tank 8D-3 is an existing stainless steel tank 3.7 m (12.15 ft) in diameter and 4.8 m (15.76 ft) high located in a reinforced concrete vault with Tank 8D-4 at the north end of the HLW Tank Farm. Tank 8D-3 is used by the following systems:

- System 50, "STS" Tank 8D-3 was used at the end of the process as the final receiver. Tank 8D-3 was sampled, the final analysis made and if acceptable the Low Level Waste (LLW) was transferred to the Integrated Radwaste Treatment System.
- System 55, "SMS" Tank 8D-3 is not used during this operation.

System 63H, "OGS" - Tank 8D-3 is used during the Vitrification Campaign to receive the Vessel Vent Condenser condensates. The Vent Header Condenser is located in the Vit Cell and is piped directly to Tank 8D-3 through HLW Transfer Trench.

See SD 63H and SD 63I for the times and amount of condensate to be sent to Tank 8D-3.

The STS facilities will support System 63H and are used as follows: to sample the 8D-3 condensate, transfer to the samples to the laboratory, to make chemical adjustments to the condensate. if required and to transfer the condensate to other tanks.

Where to transfer the condensate depends on the condensate's level of radioactivity. See SD-63I for when to sample and where to transfer the condensate in Tank 8D-3.

C. HLW Tank 8D-1

3.

HLW Tank 8D-1 is an existing carbon steel tank with a diameter of 21.3 m (69.92 ft) and 8.23 m (27.01 ft) high located in a reinforced concrete vault in the HLW Tank Farm. HLW Tank 8D-1 is used by the following systems:

- System 50, "STS" Tank 8D-1 was used to store the cesium loaded zeolite.
- 2. System 55, "SMS" during the sludge mobilization the five Zeolite Mobilization Pumps are used to mix and suspend the cesium leaded zeolite in Tank 8D-1. The 8D-1 zeolite transfer pump transfers the content of 8D-1 through the HLW Transfer Trench to the 8Q-2 pump pit. In the pump pit the zeolite is size reduced by the grinder which discharges into Tank 8D-2. For this operation see SD-55.

- TED Tank 8D-1 is being reviewed for possible storage of the condensate and/or waste returned from the vitrification process to the tank farm. The plan is to make the returns available as make up water for mobilization in Tank 8D-2 and recycle to the CFMT.
- D. HLW Tank 8D-2

HLW Tank 8D-2 is an existing carbon steel tank 21.3 m (69.92 ft) in diameter and 8.23 m (27.81 ft) high located in a reinforce concrete vault in the HLW Tank Farm and contained approximately 2200 m³ (560,000 gallons) of Purex Waste to be processed. Tank 8D-2 is used by the following systems:

- 1. System 50, "STS" HLW Tank 8D-2 had the supernatant (liquid on top of the sludge) removed during this operation. The supernatant was processed through zeolite columns and the cesium coated zeolite was dumped into Tank 8D-1. The remaining Low-Level Wastes (LLW) were sent to the Low-Level Waste Treatment System (LLWTS) and then processed through the Cement Solidification System (CSS) into cement drums.
- System 55, "Sludge Mobilization and Washing System" - Tank 8D-2 is used to wash the sludge. Water is added to the sludge and the five Sludge Mobilization Pumps mix the sludge and dissolves the soluble material in the sludge. The mobilization pumps are shut down and after the solids have settled the liquid on top of the sludge is pumped off and processed through the STS. This cycle is repeated until most of the soluble material is dissolved and removed. See SD-55 for this operation.
- 3. System 55, "Sludge Mobilization and Waste Transfer System" - The Purex waste, the THOREX waste and the Cesium Loaded Zeolite are mobilized into one mixture in Tank 8D-2. The 8D-2 five Sludge Mobilization Pumps run continuously during the transfer of the wastes from Tank 8D-4 and during the addition of chemicals to assure the proper pH. See SD-55 for this operation.
- 4. System 55, "Sludge Mobilization System" The mobilization is completed, and the mixture is homogenized in Tank 8D-2 prior to transferring to the CFMT. Tank 8D-2 valves are aligned for transfer to the CFMT. The 8D-2 Sludge Removal

Pump is started and brought up to speed to obtain the proper flow rate through the transfer piping to the CFMT. The 8D-2 Sludge Removal Pump is shut down when the predetermined amount to be transferred is registered on the flow totalizer. The valves are aligned to isolate Tank 8D-2 from the CFMT and the process lines to both the CFMT and Tank 8D-2 are flushed. See SD-55 and 631 for this operation.

- E. Ventilation and Confinement
 - System "WTFVS" will continue to exhaust air for contamination control from the HLW Tanks and the pump pits. Following treatment of the exhaust air it is combined with other effluent and monitored at the Main Plant Stack prior to release to the environment.
 - 2. System 56, "PVS" supports the WTFVS during installation of equipment in the tanks and during pump pit cover removal. When the PVS is used the gases are passed through roughing filters and two sets of HEPA Filters and are monitored for radioactivity in the PVS stack prior to release to the environment.
 - 3. The PVS Building is used to house the Permanent Ventilation System, the stack monitoring system, controls for the SMS operations and the backup diesel generator and air compressor.

2.7.3 Cold Chemical Facility

A. General

For the functional and design requirement see DC-022 and SD-65. The CCS is a batch plant for the preparation and transfer of nonradioactive slurries, decontamination solutions, and water to the VF during integrated testing and radioactive operational phases of the Vitrification Campaign.

The functional requirements are: the system is able to measure or meter the chemical and glass formers accurately to the mix tanks, the slurries are uniform and thoroughly mixed, samples of the mixture are taken and analyzed, and the mixtures are transferred to the proper receiver.

B. Arrangement

General Arrangement Drawings 905-D-001, 043 and 044 shows the independent 56 ft. x 34 ft. Cold Chemical building West of the VF and the system physical arrangement which includes the following systems and their components:

1. System 65, "CCS" - which includes the following components; main mix tank, shim mix tank, holding tank, three chemical addition tanks, five product pumps, three grinders, six sampling stations, four weigh scales, nitric acid day tank, sodium hydroxide day tank, drain tank with a pneumatic pump, conveying subsystem (dry), liquid conveying subsystem, nitric acid delivery system, sodium hydroxide delivery system. and the vessel ventilation subsystem. See SD-65 For description and function of the above equipment.

2.7.4 Off-Gas Facility

A. General

For the functional and design requirements see: DC-022, and SD 64. See Figure 2.15 "Off-Gas and Vessel Vent System" for a progress flow diagram of the system.

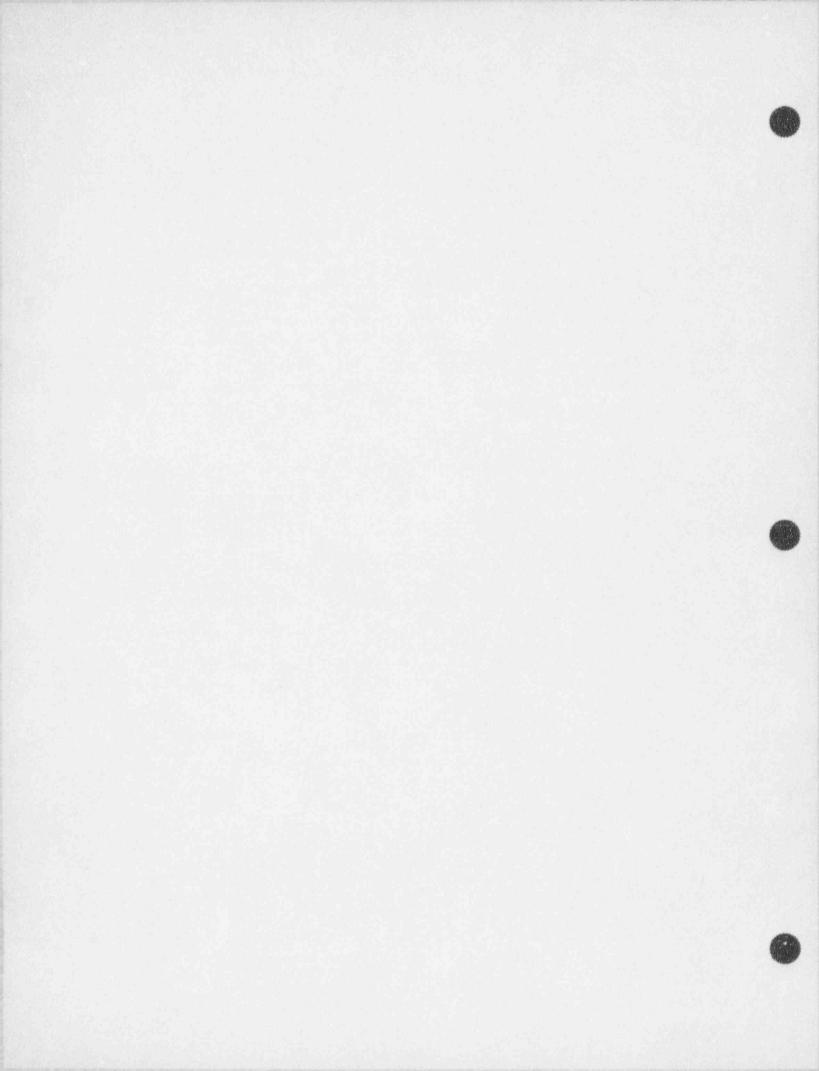
The OGS provides for the safe removal of process gases from the melter while maintaining the melter, related vessels and ducting at a slight vacuum for contamination control.

The OGS in the Vit Cell is connected, through an insulated 250 mm (10 inch) duct located in the shielded Off-Gas Trench, to the Separators in the OGS in building 01-14.

In the OGS the off-gases are filtered through HEPA filters, and the oxides of nitrogen (NOx) are eliminated by selective catalytic destruction, before release to the environment.

B. Facility Utilization

The facilities in the Ol-14 Building used by the OGS are the shielded Ol Cell, the air lock to the Ol Cell, the blower rooms, pipe chase, and Ammonia Valve Gallery.



OFF-GAS AND VESSEL VENT SYSTEM

Vitrification Facility 01-14 Bullding Ått High Efficiency Mist Eliminator High Ethciency Eillers Pre-Healer fre Healer - 200 - 30--HEPA HEPA -teench τµ Slutty Fed Submerged Oll Gas Blowei Mist Post-Heater NOx Abstement Fre-Heater Bed Ceramic Melter Eliminator -Scrubber and Spare System Oll Gas High Efficiency Mist Noncondensibles High Ethiciency Fillers 40P Pre-Heater --Fre-Realer HEPA --HEPA -Eliminator Vessel Vent Condenser D Make Up An Inlate Vessel CI MUI Vent Vent System Condensate Hold lank Vent Sample Station Vent Meller Emer Vent Waste Header Vent Decon Station Vent WVNS-FD-001 Rev. 0 Tank 8D-3

Figure 2.15

C. Facility Arrangement

General Arrangement Drawings 906-D-030, 031,032, 033, 034 and 035 show the equipment arrangements at elevations 98.00 ft., 116.50 ft., 130.00 ft., 144.00 ft. and various sections in Building 01-14.

1. 01 Cell

The 01 Cell is approximately 4.57M x 4.57M (15 x 15 feet) and extends from the 98.00 ft level to the 144 ft level. The walls are designed to the Uniform Building Codes (UBC) Zone 3 1961 requirements and provide shielding for ALARA. The 01 Cell contains parts of the following system and its components:

a. System 64, "OGS" which includes redundant process lines. Each line contains two Reheaters in series, two HEPA Filters in series, a Preheater, and a Selective Catalytic Reactor.

2. Blower Rooms

The OGS Blower Room is located at the 144 ft level and houses part of the following system and its components:

a. System 64, "OGS" which includes three Electrically Driven Blowers and the associated ducting, valves and utilities.

Instrument Room

General Arrangement Drawing 906-D-037 shows the plan view at elevation 124 ft, and the layout in OGS Instrument Room (IR) and contains the following systems and their components:

- a. System 200A, "I&CH" which includes I&C Racks and controllers for the DCS, the Ex-Cell Off-Gas Control Panel, two NOx Analyzer Enclosures and one NOx and NH-3 analyzer Enclosure.
- System 30, "EDS" which includes the Uninterruptible Power Supply (UPS), Lighting Transformer, and two Electrical Distribution Panels.

4. Ammonia Valve Gallery

The Ammonia Valve Gallery is located below the Instrument room at the 117.5 ft level. The gallery contains the connecting piping and valves for transferring the ammonia from the Ammonia Storage Tank and Vaporizers to feed the Catalytic Reactors.

5. Pipe Chase

The pipe chase is located below the ammonia valve gallery at the 111.5 ft. level. The duct from the Vit Cell is routed through the pipe chase into the O1 Cell to the reheaters.

6. Electrical Distribution

The electrical equipment is located in the MCC Room, a separate building, located at ground level on the West side of the 01-14 Building

7. HVAC

Drawings 906-D-018 and 019 show the existing System 47, "HVAC System" which is used in the 01 Cell, the 01 Cell Air Lock, the blower room, Ammonia Valve Gallery, and the Pipe Chase.

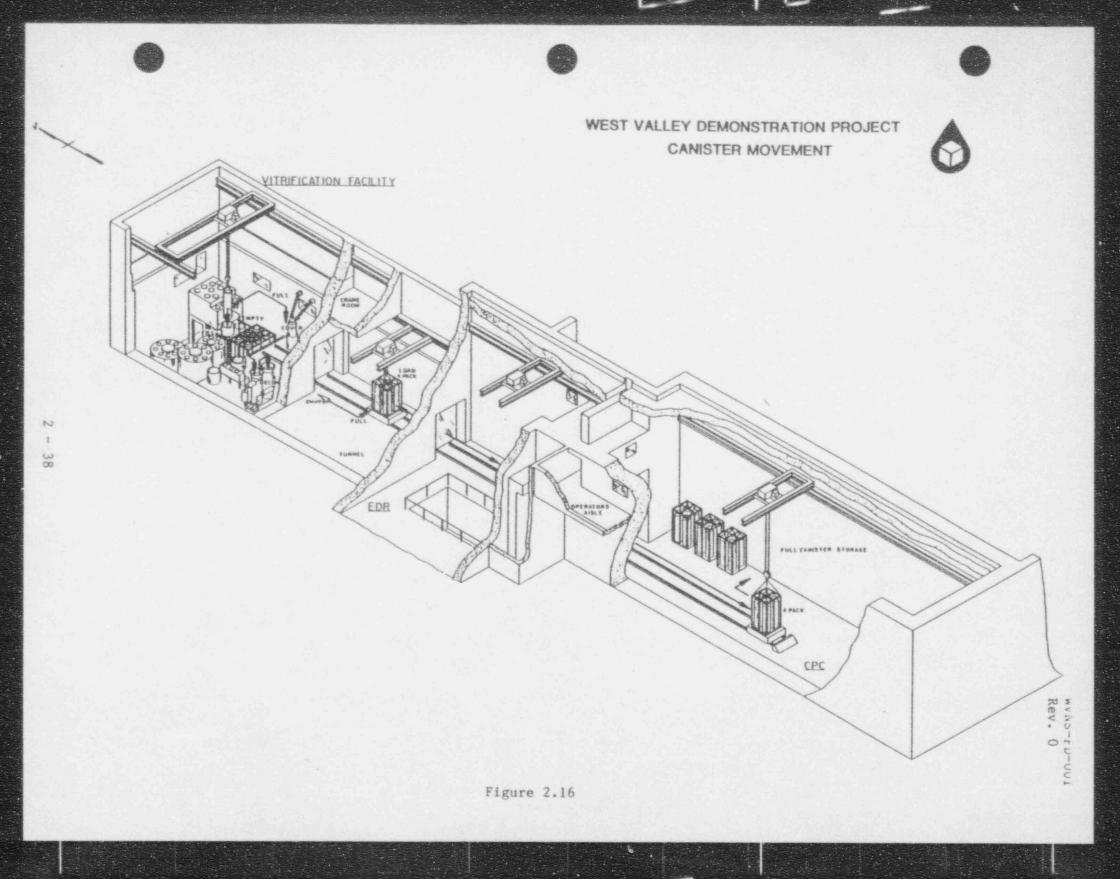
The OGS-IR uses an independent roof mounted HVAC System, but is listed as part of System 47.

- 2.7.5 High Level Waste Interim Storage
 - A. General

The HLWIS is located South of the Vit Cell in the existing Main Process Building in the CPC. For the functional and design requirements see DC 048, and SD-68. The VF and the Main Plant Building are connected from the Vit Cell to the EDR by the Vitrification Transfer Tunnel. For the canister movement see Figure 2.16 "West Valley Demonstration Project Canister Movement.

B. Facility Utilization

The HLWSF will use the following facilities and cells in the Main Process Building: CPC, Chemical Viewing Aisle (CVA) and the Chemical Crane Room (CCR).



The EDR and the EDR operating aisle (EOA) will also be used to complete the interfaces between the Vit Cell and the HLWIS and the LL and the Vit Cell.

C. Facility Arrangement

General Arrangement Drawings 900-D-031, 900-D-033, 900-D-035 and 900-D-036 show the parts of the Main Process Building that are used in the HLWIS.

The HLWIS is located in the CPC which has interior dimensions of 28.34 m (93 feet) long by 6.70 m (22 feet) wide and 13.11 m (43 feet) high, and contains the following systems and their components:

- 1. System 68, "HLWIS" which contains the canister storage racks, racks for storing the archived glass shards from each canister, and space for the Vit Cell replaced equipment. The handling equipment consist of a 16 ton crane at the 138.33 ft. level and a 2 ton crane at the 133.00 ft. level and the handling fixtures. The CVA has four shielding windows, and remote CCTV for observing the operations in the CPC.
- System 63K, "IRHV" which includes the canister transfer cart system and the CPC/EDR Door.
- System 15, "Main Plant HVAC System" contains both the HVAC inlet and outlet ducts.
- D. Chemical Crane Room

The CCR at the 127 ft. level has a personnel access lock so hands on maintenance of the cranes can be performed and includes the following systems and their components:

- System 68 "HLWIS" and includes the following: the crane retrieval system, work platforms for decontaminating and maintaining the cranes, and space to store the cranes when not in use.
- System 30, "EDS" and includes the junction boxes that provide the interfaces between the electrical switch gear located external to the CCR and the cranes and other electrical systems.

E. Equipment Decontamination Room

The EDR connects the Main Plant Building to the Vit Cell through the Vitrification Transfer Tunnel, connects to the CPC through a shielded door and provides access to the LL for bringing new equipment and canister into the Vit Cell. The EDR contains the following system and their components:

- System 63K, "IRHV" which contains the Canister Cart Transfer System, two 10 ton cranes, and three confinement and/or shielding doors. The EDR doors connect as follows: one to the CPC, one to the Vitrification Transfer Tunnel and one to the LL. The shielding window and crane controls are in the EOA.
- System 63M "LL" which will contain part of the Load-In System for moving the canisters from the LL to the Vit Cell.



3.0 OPERATIONS

- 3.1 Vitrification Operating Plan
 - 3.1.1 General

The Vitrification Operating Logic, as shown on Figure 3.1 "Operating Logic Diagram", (Sketch No. CGS 042992, rev. D) provides a basis for integrating and describing how the vitrification systems function together. The logic covers the flow and processing of the HLW from the mixed and homogenized slurry in HLW Tank 8D-2, through the primary process, to the vitrified glass in welded and decontaminated canisters delivered to the HLWIS System.

3.1.2 Vitrification Operating Logic

The "Operating Logic Diagram" represents one "Feed Preparation Cycle" and one "Canister/Turntable Cycle extracted from an on-going series of repeated operations during the Vitrification Campaign.

- A. The chosen "Feed Preparation Cycle" begins when the following occurs:
 - Accivity (ACT) 27, space is provided in the CFMT by transferring the melter feed to the MFHT.
 - ACT 8, the transfer of the liquid in the SBS receiver to the CFMT is started.
 - ACT 99, the mixed wastes in HLW Tank 8D-2 are being mixed and made ready for transfer to the CFMT.
- B. The "Feed Preparation Cycle" ends when:
 - 1. ACT 26A, the melter feed batch is verified acceptable and
 - ACT 27. the melter feed batch is transferred from the CFMT to the MFHT, to feed the SFCM.
- C. The chosen Canister/Turntable Cycle begins with:
 - ACT 29 when the turntable rotates the empty canister under the SFCM pour spout and
 - AC". 31 the SFCM is in the melter feed mode ready to start the next pour.

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- There are three prerequisites for rotating the turntable;
 - The canister under the SFOM pour spout is verified filled;
 - b. an empty canister is in the position to be rotated under the melter pour spout and
 - c. the pour from the SFCM to the canister is terminated.

The "Canister/Turntable Cycle" is identified as a continuous pour cycle and ends when the last canister of the Vitrification Campaign is filled, welded, decontaminated and transferred to the HLWIS. The SFCM is scheduled to remain hot 24 hours per day, seven days a week until the last canister is finished or an abnormal event occurs stopping the process.

The SFCM operates on a continuous basis and will maintain an average pour rate (kilograms/hour), into the canisters even if the actual pour is on an intermittent basis. Brief stops in the melter pour cycle are anticipated to replace various melter components, but during these intrusions the melter will maintain the glass in the molten state.

3.1.3 Basis for Operating Cycle

Using the Functional and Check Out Testing of Systems (FACTS) data as the basis, a 30 kilograms/hour (kg/hr) melter to canister glass pour rate is used in the Canister/Turntable logic.

Reference 5 requires that a minimum of 80 percent of the canister total volume is to contain glass. The canister/turntable logic uses an eighty seven (87) percent or 1890 kilogram (4190 pounds) plus or minus five (5) percent glass fill volume per canister.

One approach used to determine the size of feed batch to be prepared for each Feed Preparation Cycle is the usable volume of the MFHT. This volume is approximately 6,125 kilograms of glass.

In the "Canister/Turntable Cycle" at 1890 kg per canister the 6125 kg produces three full canisters and one canister eighteen percent full or 3.18 canisters per cycle. Pouring glass at 30 kg/hr would result in a 204 hour canister/turntable cycle.

Another approach was considered to determine the size of the feed batch and is based on the chemical reaction time. The best estimate, using a 175 hour cycle, is that there should be little or no change in the chemical composition of the melter feed when in the MFHT. The 175 hour cycle at 30 kg/hr requires 5250 kilograms of glass to be prepared for each Feed Preparation Cycle. Using 5250 kg the Canister/Turntable Cycle would produce two and three quarters (2.75) canisters per Feed Preparation Cycle.

The 6125 kilogram batch size is used in the "Operating Logic Diagram", since the chemical reaction times have not been verified and capabilities exist in the MFHT for chemical adjustment. Also, there would be fewer batches, and less sampling and testing. The "Operating Logic Diagram", is based on the above and uses the following:

- SFCM glass pour rate
- Canister fill volume
- Canister glass weight
- Glass per cycle
- Time per Cycle

30 kilograms/hour 87 % +/- 5 % 1890 kilograms +/- 5 % 6125 kilograms 204 hours

3.2 Types of Activities

There are four types of activities on the "Operating Logic Diagram"; ongoing, scheduled, and unscheduled.

- 3.2.1 Ongoing activities run during the entire cycle such as; process activities; ACT 4, Operate Off-Gas and ACT 6, Operate HVAC.
- 3.2.2 Ongoing utilities which are available during the entire cycle, but are only used as required by the process or facilities as need, such as: ACT-100 "Cooling Tower Water" and ACT-102 "Supply Electrical Power"
- 3.2.3 Scheduled activities are performed in a definite sequence in each cycle such as; ACT 8, SBS Liquid to CFMT and Cool, ACT 10, Waste Tank 8D-2 to CFMT, or ACT 12, Analyze Samples.
- 3.2.4 Unscheduled activities are not steps in the cycle but may be imposed occasionally during the cycle such as; ACT 77, Melter Idle to Feed, ACT 84, HVAC Filter Change Out, and ACT 88, In-Cell Preventive Maintenance.

Each ongoing and scheduled activity is described; defining when each activity begins and ends, its function, its interfaces with other activities and the primary systems impacting the activity. The unscheduled activities are addressed in subsequent sections of this document.

3.3 Ongoing Activities

NOTE: AN - The activity number shown on sketch CGS-042992 AT - Time to complete activity CT - Time in total feed preparation cycle

The process ongoing activities are numbered 1 thru 7 and the utilities ongoing activities are numbered 100 thru 108.

3.3.1 Agitate CFMT AN-1 AT-204 hrs

The CFMT's agitator runs continuously during the cycle to keep the contents of the CFMT well mixed.

See SD-63I, for the CFMT operations.

3.3.2 Agitate MFHT AN-2 AT-204 hrs

The MFHT's agitator runs continuously during the cycle to keep the contents of the MFHT well mixed.

See SD-63I for the MFHT operations.

3.3.3 Feed SFCM AN-3 AT-204 hrs

A minimum working feed level is maintained in the MFHT to provide a continuous feed from the MFHT to the SFCM.

See SD-63I for the working levels and how they are maintained.

3.3.4 Operate the Off Gas System AN-4 AT-204 hrs

The melter off-gas system runs continuously during the cycle to remove gases and maintain a negative pressure in the SFCM, CFMT, MFHT, and SBS and the off-gas train to the Off-Gas Blowers.

See SD-63H, and 64, for the Off-Gas System operations.

3.3.5 Cool Components AN-5 AT-204 hrs

The CLCWS runs continuously during the cycle to provide cooling water to the PPS components, as needed. The heat is removed from the CLCWS through the CLCWS Heat Exchanger by the CTW. The CLCWS is monitored for radioactivity and provides isolation between the PPS and the CTW.

See SD-66, "CLCWS" for the Cooling operation. See SD-63I, 63H and 63J for the components the CLCWS cools.

3.3.6 Operate HVAC AN-6 AT-204 hrs

The HVAC Systems for the; VF, SMS, OGS and HLWIS Systems, run continuously during the cycle. The primary functions of the HVAC systems is to maintain: environmental conditions, differential pressures to assure the air flow from areas of lowest potential contamination to areas of highest potential and negative atmospheric pressure in the cells required for confinement.

See SD-67, "HVAC" for the system operations. The SMS and HLWIS Systems are tied into the Main Plant Exhaust and Main Stack System. The OGS is tied into the 01-14 Building HVAC System (47).

3.3.7 Supply Cooling Tower Water AN-100 AT-204 hrs

The CTW System runs continuously during the Feed Preparation Cycle supplying cooling water to the CLCWS Heat Exchanger continuously and to the HVAC chiller A&B, and the CCS on an as needed basis.

See SD 63CW, 65, and 67 for the operation and uses of the Cooling Water System.

3.3.8 Supply Demineralized Water AN-101 AT-204 hrs

Demineralized water (DW) is available during the entire cycle from the Main Plant System (30) and is distributed in the VF, CCS, SMS and OGS. The DW is used for chemical make-up, process additions, line and equipment flushing and decontamination, on an as needed basis.

See SD-63DW, for the operation and SD-55, 63H, 63I, 63J, 63L, 64, 65, 67 and 69A for uses of the Demineralized Water System

3.3.9 Supply Electrical Power AN-102 AT-204 hrs

The Electrical Power is available during the entire cycle and the normal power is supplied from public utilities to the VF, CCS, SMS, OGS and HLWIS and their Facilities. Electrical power is used in all the HLWSF system for the operating equipment, lighting, instrumentation and controls, monitoring, communication, remote maintenance, and material handling.

Stand-by power is available to the above systems and facilities in case of loss of normal power and its primary functions are to place the process systems in a safe mode and monitor the process systems and to maintain confinement where required. The HLWSF stand-by power includes the Main Plant Diesel Generator, Vitrification Diesel Generator, PVS Diesel Generator, and uninterruptable power supplies.

See SD 63ED, 55, 64 and 68 for the electrical distribution and use.

3.3.10 Supply Instrument Air AN-103 AT-204 hrs

The Instrument Air (IA) is available during the entire cycle and is supplied from compressors in the Main Plant Utility Room to the VF, CCS, SMS, OGS and HLWIS. The IA is used for purging level control, valve actuation, and controlling instruments. The air pressure and flow is controlled by the individual components or systems.

The VF, CCS and SMS instrument air backup is supplied by the STS air compressor. The Vitrification System is also backed up by high pressure bottled air.

See SD-63-IA, "Vitrification Facility Instrument Air", SOP 31-1, "Plant Utility and Instrument Air", and SOP 50-25, "Operation of STS Compressed Air System" for the operation of the Instrument Air System. See each of the HLWSF SD for the and relegation and control of the various uses of the instrument air.

3.3.11 Supply Steam and Return Condensate AN-104 AT-204 hrs

Steam is available during the entire cycle and is supplied form the Main Plant, Steam Power Plant to the VF and CCS. The steam is used to heat, pump, and jet the process liquids and to purge and flush the lines and equipment.

The Condensate returns are associated with the heating systems and the steam turbine pump for the CLCW.

See SD-63SC, for the operation and users of the steam and condensate system.

3.3.12 Supply Utility Air AN-105 AT-204 hrs

Utility Air (UA) is available during the entire cycle and is supplied from the Main Plant, Plant Utility and Instrument Air System (System 31) to the VF, CCS, SMS, OGS and HLWIS. The UA is used for mixing. purging, conveying cold chemicals, cooling, sampling, sample transfer and pumping.

The UA System is a passive distribution system and regulating air pressure and flow to the individual components is the responsibility of the component or system being supplied.

The UA System is backed up by a steam driven air compressor in the Main Plant, Utility Room and an electrically driven air compressor in the PVS.

See SD-63UA, "VF Utility Air", SOP-31-1, "Plant Utility and Instrument A'r" and SOP 50-25, "Operation of the STS Compressed Air System" for the operation of the Utility Air System. See SD-55, 63UA, 64 and 68 for the use and regulation and control by the components and systems.

3.3.13 Supply Utility Water AN-106 AT-204 hrs

Utility Water (UW) is available during the entire cycle and is supplied from the Main Plant to the VF, CCS, SMS, OGS and HLWIS. The UW is primary used to flush dirt, spills and contaminants from floors, tanks, and pipes to the appropriate waste disposal systems. It also serves to fill and maintain cooling water in the CLCWS and Chilled Water Systems and to provide backup cooling when required.

See SD-63-UW, " VF Utility Water System", SD-55, 64 and 68 for the operation and uses of the Utility Water System.

3.3.14 Collect Waste Water in Drain AN-107 AT-204 hrs

The Drain System is a passive system that is continuously available to collect and deliver process or wash liquids from various locations for recycle or discharge. It is comprised of floor drains, piping, sumps and instrumentation. The methods of discharge or recycle depends on the liquid being handled. The Vit Cell sump collections are sent to the Waste Header System for recycling; the VF Ex-Cell drains are discharged to the interceptors; the Secondary Filter Room and the CMR drain to the Vit Cell sumps; and the CCS drain collections are sent to a hold tank for later disposal. The SMS pipe trench is sloped to drain back to the pits and the pit sumps are recycled to the appropriate HLW Tank. The HLWIS and OCS drain liquids are sent to the interceptors.

See SD-63WW, "Vitrification Facility Drains", SD-55, 64 and 68 for the operation and location of the various drains in the HLWSF.

3.3.15 Operate Vent Header AN-108 AT-204 hrs

The Vent Header (VH) is a passive system that is continuously available during the cycle and is located on all levels of the VF EX-CELL. The VH is used to exhaust the upstream air side of the solenoid valves and jets that could come in contact with the process. The VH is vented to the Vit Cell.

See SD-63VH for the Vent Header operation.

3.4 SFCM Feed Preparation Cycle

3.4.1 SBS Liquid to CFMT and Cool AN-8 AT-4 hrs CT-4 hrs

After the transfer of the melter feed from the CFMT to the MFHT is completed, the new Feed Preparation Cycle begins with the transfer of the SBS liquid to the CFMT.

The transfer of the SBS liquid begins when the SBS Transfer Jet starts transferring the SBS receiver liquid to the CFMT and ends when the SBS receiver's level indicator shows the receiver to be empty and the transfer jet is shut-off.

The rate of transfer, temperature, quantity transferred and the nominal composition of the SBS liquid are covered in SD 63H. See SD-63SC, and 63H for the SBS transfer jet operation.

The temperature of the CFMT content is controlled by the flow of the closed looped cooling water through the CFMT cooling water jackets. See SD-66, and SD 63I for the CFMT cooling operations and requirements.

The instrumentation and controls, program control logic and control interfaces for the above systems are covered in SD-200 A&B and its associated documents.

3.4.2 8D-2 Waste to CFMT AN-10 CT-4 hrs AT-8 hrs

After the SBS transfer to the CFMT is complete and the HLW in Tank 8D-2 is mixed, the mixed wastes are ready for transfer from Tank 8D-2 to the CFMT.

In preparation for the transfer, five sludge mobilization pumps are running to maintain a uniform waste mixture in Tank 8D-2.

The transfer starts when the 8D-2 sludge transfer pump is started with the HLW valves aligned in the transfer mode. The transfer pump's speed is increased until the proper flow is obtained, and the transfer to the CFMT is continued.

The quantity to be transferred to the CFMT is entered into a flow totalizer and when this quantity is obtained the flow is stopped, by shutting off the 8D-2 sludge transfer pump.

The activity ends when the HLW valve alignment is changed to isolate systems 55 and 631 from each other and the process lines to both the CFMT and Tank 8D-2 are flushed.

The amount of HLW to be transferred to the CFMT is covered in SD 631.

The mixing of the HLW, HLW valve alignments, transfer rate, totalizer setting and flushing are covered in SD-55.

Instrumentation and controls, program control logic and control interfaces for this activity are covered in SD 200 A&B and its associated documents.

3.4.3

Sample CFMT -> to Lab. AN-11 AT-2 hrs CT-10 hrs

> After the SBS and 8D-2 wastes are transferred to the CFMT, mixed and cooled, samples are taken and transferred to the Analytical Laboratory.

The samples are taken using remote sampling and handling equipment. Sampling starts with aligning the sampler's valves and starting the ADS Pump. The sample is taken when an identified sample bottle is placed in the sampler.

The sampling process ends after all the sample bottles have been filled; the sampling system is flushed and isolated from the process and the sample bottles are transferred outside the Vit Cell to the PSTS.

How to take and handle the samples is covered in SD-69A, and 63K.



The CFMT temperature, number of samples and the amount per sample are covered in SD-63I and 63P.

The activity is completed in the PSTS when the samples are placed in transfer containers and pneumatically transferred through an overhead system to the Sample Storage Cell (SSC) in the Analytical Laboratory.

How to prepare and transfer the samples from the transfer station to the laboratory is covered in SD-69B.

3.4.4

Analyze Samples AN-12 AT-53 hrs CT-63 hrs

After the samples are received in the Analytical Laboratory chemical analyses are performed.

The analyses start when the samples are removed from the SSC to be prepared for the various analyses. The samples are analyzed to determine the CFMT constituents and thus the CC Mixture to be added to the CFMT to produce a melter feed that meets the SD 63P melter feed recipe requirements. The amount of concentration, to provide the required weight percent solids (wX) and space in the CFMT for the CC mixture, is also determined.

The analysis ends when the analytical data from the various analyses is compiled and the results are transmitted for evaluation.

The analytical techniques and methods and the equipment and facilities to be used in the analyses are covered in the SD-90, "Analytical and Environmental Equipment."

3.4.5

Evaluate Analytical Data AN-12A AT-6 hrs CT-69 hrs

After the analytical results are received they are evaluated to determine the CC mixture and the amount of CFMT concentration required.

Based on the analytical results and SD 63P melter feed requirements the CC Mixture requirements and tolerances are statistically determined and this information is sent to the CC Facility for preparation of CC mixture.

The concentration required in the CFMT to obtain the proper w% solids and space for the CC mixture is determined and sent to the Vitrification CR.

These evaluations methods, tolerances and requirements for specifying the CC mixture and CFMT concentration are covered in SD-63I and 63P.

3.4.6 Prepare CC Mix AN-13 AT-14 hrs CT-83 hrs

After the CC Mixture requirements are received at the CC facility, the CC Mixture is prepared.

The preparation starts with the metering of demineralized water, concentrated nitric acid and concentrated caustic soda: the weighing and vacuuming of powdered ingredient chemicals, and the weighing and steam jet-transfer of liquid ingredient chemicals to the CC main Lix tank. The mix is continuously agitated during the mixing to assure a uniform mixture.

Two mixtures will be made; a glass former slurry mixture in the main mix tank and a sugar in water mixture in the shim tank. The separate mixtures are intentionally made to preclude forming of NOx in the Cold Chemical Facility.

The cycle ends when all the chemical and glass formers have been added and the mixture is uniform and ready for sampling.

See SD-65, for preparing the CC mixture.

3.4.7

Sample CC Mix Tank AN-14 AT-2 hrs CT-85 hrs

After the CC Mixture has been prepared, samples of the mixture are taken.

The sampling cycle starts when the cold chemical transfer pump is started, recirculating the mixture through the pump, grinder, sample station and back to the mix tank. The grinder is used to break up any clumps and the recirculation is continued to assure a uniform mixture. The samples are taken at one to two minute intervals to provide representative samples.

The activity ends when the samples are transferred to the analytical laboratory.

Methods for taking the samples, the amount per sample, the number of samples and the transfer of the samples to the laboratory are covered in SD-65 and 63P.

3.4.8 Analyze CC Samples AN-15 AT-15 hrs CT-100 hrs

After the CC samples are received in the analytical laboratory chemical analyses are performed.

The analysis starts when the samples are prepared for the various analyses to be performed. The analyses are to provide analytical data to verify the prepared CC mixture meets the requirements of the specified CC Mixture.

The analysis ends when the analytical data from the analyses is compiled and the results are sent for evaluation.

The required analyses and analytical techniques are covered in SD-63P, and 90.

3.4.9

Evaluate Analytical Data AN-15A AT-3 hrs CT-103 hrs

After the analytical results are received for evaluation they are statistically reviewed for two items:

- A. Variations between the CC mixture specification and the prepared CC mixture.
- B. Final Determination that the prepared CC Mixture will produce an acceptable melter feed when mixed with the contents of the CFMT.

The evaluation ends, when the CC mixture is determined acceptable and released for transfer to the CFMT.

The melter feed requirement and the CC mixture specification as well as the methods of evaluations are covered in SD-63I, 63P and 65.

3.4.10

Concentrate CFMT AN-16 AT-14 to 95 hrs CT-NA

After the SBS liquid and 8D-2 waste in the CFMT are mixed and sampled, the CFMT liquids are concentrated. The CFMT liquids are evaporated to provide the right w% solids and space in the CFMT to add the CC mixture.

The concentration starts when steam is supplied to the heating jackets on the CFMT. The change in the CFMT liquid level indicates both the rate and amount of concentration.

The concentration activity ends when the predetermined level in the CFMT is reached.

The steam flow rate to the CFMT is regulated to control the amount and rate of evaporation and is covered in SD-63SC, 63I, 200 A&B.

The Evaporated overheads from the CFMT flow through the vessel vent header to the vessel vent condenser. The noncondensables and residual steam continues to the melter offgas systems 63H and 64. The condensate drains directly to Tank 8D-3 in the HLW Tank Farm. This operation is covered in SD-63H.

Concentrating the wastes in the CFMT is performed in parallel with Activities 12, 12A, 13, 14 15 and 15A.

The condensate in Tank 8D-3 is analyzed and chemically adjusted, depending on where the vessel content is to be sent. Depending on the level of radioactivity the condensate is sent to the Low Level Waste Treatment System (LWTS) for processing (LWTS Evaporator bottoms are to be returned to 8D-2) or sent to Tank 8D-1 or 8D-2 for return to the Vitrification System.

The acceptable levels of radioactivity and where to transfer the condensate is covered in SD-63I.

3.4.11 CC Mix to CFMT AN-17 AT-4 hrs CT-107 hrs

After the CC Mixture has been verified as correct and the concentration of the CFMT waste is completed providing space in the CFMT, the CC Mixture is transferred to the CFMT.

The transfer is ready when the proper flow rate is obtained and the vitrification control room gives permission to transfer. The transfer is started with the diverter valve being changed from the recirculation position to the transfer position. The total volume of the CC mixture is pumped to the CFMT and the mix tank and system is flushed to the CFMT to assure all of the CC mixture has been transferred.

The transfer ends when the diverter valve is switched back to the recirculation position. This will occur after the transfer and flush are complete or on high level in the CFMT.

Controlling the transfer of the CC Mixture to the CFMT is covered in SD-63I, and 65.

The instrumentation and controls, program controls logic and control interfaces for the above systems are covered in SD-200A and its associated documents.

3.4.12

Sample CFMT AN-18 AT-6 hrs CT-113 hrs

After the CC Mixture has been transferred to the CFMT, the CC transfer valve is closed and the sampling temperature reached, samples are taken from the CFMT and transferred to the laboratory.

The activity starts when the sampling values are aligned and the ADS pump is started to recirculate the process liquid through the sampling system. The sampling starts when an identified sampling bottle is placed in the sampler and a sample is taken from the CFMT. Remote sampling and handling equipment is used to take the samples.

The sampling ends when all the samples bottles are filled and transferred to the PSTS and the sampling system is flushed and isolated from the process.

The CFMT temperature, number of samples and method for taking and moving the samples to the PSTS are covered in SD 63I, 69A and 63K.

The sampling activity ends after the samples are in the PSTS and each sample is placed in a transfer container and pneumatically transferred to the SSC in the Analytical Laboratory.

The PSTS is covered in SD-69B.

3.4.13

Analyze Samples AN-19 AT-60 hrs CT-173 hrs

After the samples are received in the analytical laboratory chemical analyses are performed.

The analysis starts when the samples are removed from the SSC for preparation for the various analyses to be performed. The analytical plan and techniques are developed to perform analyses that will verify the CFMT formulation meet the SFCM feed recipe requirements using the equipment available in the analytical laboratory.

The analysis ends when the analytical data from the various analyses are compiled and the results are sent for evaluation.

The above plan and techniques and equipment to be used are covered in SD-90.



3.4.14 Evaluate Analytical Data AN-19A AT-6 hrs CT-179 hrs

After the analytical results are received a statistical evaluation is made to verify the CFMT formulation meets the SFCM feed recipe requirements specified in SD 63P.

The evaluations methods and requirements are covered in SD-631 and 63P.

A shim mix is specified, if required. If not proceed to Section 3.4.23 Activity 27.

3.4.15 Prepare Shim Mix AN-21 AT-4 hrs CT-183 hrs

After the shim mixture specification is received in the CC Facility the shim mixture is prepared.

The activity starts with the weighing and metering of the chemicals into the shim mix tank to prepare the specified mixture.

The activity ends when the mixture is uniformly mixed and is ready for samples to be taken and sent to the laboratory.

For the system operation see SD-65.

3.4.16 Sample Shim Mix AN-22 AT-2 hrs CT-185 hrs

After the shim mixture is prepared and uniformly mixed samples are taken and transferred to the laboratory.

Sampling starts when the cold chemical transfer pump recirculates the mixture through the pump, grinder, sampler and back to the mix tank. The grinder is used to break up any clumps that may have formed and the recirculation is used to maintain a uniform and representative mixture.

The samples are taken at one to two minute intervals to obtain representative samples of the shim mixture.

The activity ends when the samples are packaged and transferred to the laboratory for analysis.

Methods for taking the samples, the amount per sample, the number of samples and the transfer of the same es to the laboratory are covered in SD-65 and 63P.

3.4.17 Analyze Shim Mix AN-23 AT-3 hrs CT-188 hrs

After the shim mixture samples are received in the laboratory they are analyzed.

The analysis starts with preparing the samples for the various analyses. The analyses performed are to verify the prepared shim mixture meets the requirement of the specified shim mixture.

The activity ends when the analytical data is compiled and the results transmitted for evaluation.

The analytical methods are covered in SD-90.

4.18 Evaluate Analytical Data AN-23A AT-1 hr CT-189 hrs

After the analytical results are received an evaluation is performed.

Two types of statistical evaluations are made: one to determine if the prepared mixture meets the requirements of the specified mixture, and two to assure the prepared shim mixture, when mixed with the contents of the CFMT, provides an acceptable melter feed mixture.

See SD-63I, 63P and 65 for evaluation techniques.

AN-24

3.4.19

Shim Mix to CFMT

After the shim mixture is evaluated and verified acceptable, the shim mixture is transferred to the CFMT.

AT-1 hr CT-190 hrs

The activity starts with the proper flow rate being established in the recirculation mode. When the Vitrification CR gives permission to transfer the shim mixture to the CFMT the diverter valve is switched from the recirculation position to the transfer position and the transfer starts.

The activity ends when the entire volume of the shim mix is transferred, the shim tank and transfer system is flushed to the CFMT and the diverter valve is changed back to the recirculation position.

See SD-63I and 65 for transferring the shim mixture.

3.4.20

20 Sample CFMT AN-25 AT-2 hrs CT-192 hrs

After the shim mixture transfer is complete, the CFMT content is mixed and the sampling temperature is obtained; samples are taken from the CFMT and transferred to the laboratory.

The activity starts when the sampling values are aligned and the ADS pump is started to recirculate the process liquid through the sampling system. The sampling starts when an identified sampling bottle is placed in the sampler and a sample is taken from the CFMT. Remote sampling and handling equipment is used to take the samples.

The sampling process ends when all the filled sample bottles have been transferred outside the VC to the PSTS and the sampling system has been flushed and isolated from the process.

How to take and handle the samples is covered in SD-69A, and 63K. The CFMT temperature, number of samples and the amount per sample are covered in SD-63I and 63P.

The sampling activity ends when the filled sample bottles are placed in transfer containers and pneumatically transferred to the SSC in the Analytical Laboratory.

How to prepare and transfer the samples from the transfer station to the laboratory is covered in SD-69B.

3.4.21 Analyze CFMT Samples AN-26 AT-8 hrs CT-200 hrs

After the samples are received in the analytical laboratory a chemical analysis is performed.

The analysis is started when the samples are removed from the SSC and are prepared for the analyses.

The chemical analysis plan for the CFMT samples is to verify the CFMT formulation does or does not meet the SD-63P, SFCM feed recipe requirements. The analytical methods are designed to produce data for the above requirements using the laboratory equipment available.

The analyses end when analytical data is compiled and the results are sent for evaluation.

For the analyses to be performed see SD-63P and 63I. For analytical techniques and procedures see SD-90.

3.4.22 Evaluate Analytical Data AN-26A AT-2 hrs CT-202 hrs

After the analytical results are received a statistical evaluation is made to verify that the CFMT formulation meets the SD 63P SFCM feed recipe requirements.

The methods for evaluating the data are covered in SD-63I and 63P.

3.4.23 Transfer CFMT to MFHT AN-27 AT-2 hrs CT-204 hrs

After the CFMT formulation is verified as meeting the SD 63P SFCM feed recipe requirements the content of the CFMT is transferred to the MFHT.

The transfer starts with supplying steam to the transfer jet. The steam to the jet is stopped at a predetermined level in the MFHT or low level in the CFMT.

The activity ends when the jet is blown out with air.

The control logic for the jet operation, controls for the rate of transfer, the CFMT and MFHT levels see SD-63I, 63SC, 200 A&B.

- 3.5 Canister/Turntable Cycle
 - NOTE: For describing the Canister/Turntable Cycle the canisters are designated A, B, C and D. Prior to Activity 29, "Rotate Turntable" the canisters are located as follows:

Canister A - is in the cooling position adjacent to load/unload position (next canister to be unloaded).

Canister B - is in the cooling position and was the last canister to be filled.

Canister C - is under the SFCM pour spout and has just been filled.

Canister D - is in the load/unload position and is empty

3.5.1 Canister C Full AN-55 AT-NA CT-NA

Canister C is under the melter pour spout and is verified filled by the canister level detection and weighing systems.

See SD-63I, for the above canister/turntable operations.

3.5.2 Rotate AN-29 AT-1 hr CT-1 hr

After canister C is verified filled, and the SFCM pour to the canister is stopped, rotate the turntable.

After the rotation the canisters are positioned as follows: empty canister D is positioned under the SFCM pour spout; filled canisters B and C are positioned in the cooling positions; and filled canister A is positioned in the load/unload station.

See SD-63I, for the above canister/turntable operations.

3.5.3 Canister A Out, A In AN-30 AT-4 hrs CT-NA

After the rotation canister A is in the turntable's load/unload position.

The load/unload position cover is removed and the filled canister A is unloaded from the turntable and placed in either the In-Cell Canister Storage Rack or the Canister Weld Station. An empty canister is loaded into position A and the cover is replaced.

See SD-63I and 63K for loading/unloading the turntable and remotely handling the canisters in the cell.

3.5.4 Fill Canister D AN-31 AT-63 hrs CT-64 hrs

After empty canister D has been rotated under the SFCM pour spout and the SFCM is in the feed mode, the canister is filled.

The SFCM pour is not one continuous pour, but several intermittent pours. The pour is controlled by the airlift in the melter pour spout and an average pour rate of 30 kg/hr is maintained.

The canister targeted fill level is eighty seven (87) percent of its total volume (1890 kg) plus or minus five (5) percent. The canister level is tracked by the ILDS and the canister is weighed by a scale consisting of four load cells.

The canister fill level, weight, level tracking, and the weighing systems are covered in SI-63I.

3.5.5 Canister A Shards AN-32 AT-2 hrs CT-NA

After canister A has been placed in the weld station, samples (glass shards) are removed from the canister.

Remote vacuuming and handling equipment is used remove the samples from the canister and place them in sample bottles for archiving or analyzing. These samples verify the glass as solidified in the canisters meets the specified glass requirements.

WVNS is required to randomly select shards from 10% of the canister for analysis. The present plan calls for the shards from every tenth canister to be analyzed. Glass shards from every canister will be taken and archived.

For determining the size, number of samples and analytical requirements see SD-63I, 63P and 90.

For the sampling technique and transferring the samples to either the laboratory or to the HLWIS see SD-63L, 63K, and 69B.

For archiving the samples in the HLWIS see SD-63K and 68.

3.5.6

Weld Canister A AN-33 AT-4 hrs CT-NA

> After the shards have been removed from canister A the canister lid is welded to the canister and the weld verified.

> The lid is remotely placed and aligned on the canister. A remotely operated shielded gas tungsten-arc system is used to weld the lid to the canister.

The weld verification is by remote visual inspection of the weld and verification of the welding parameters.

See SD-63L, for aligning the canister lid, remote welding and verification of the weld.

3.5.7 Decontaminate Canister A AN-34 AT-14 hrs CT-NA

> After canister A's lid weld has been verified, it is transferred from the weld station to the decontamination station using the remote overhead crane and special canister handling equipment.

The remote handling is covered in SD-63K.

Canister A is decontaminated by soaking the canister in a solution containing Cerium IV. The spent Cerium IV solution is neutralized sampled and analyzed by the laboratory and transferred to the SBS.

TBD

The canistor will under go a nitric acid rinse after decontamination and it is being reviewed to determine if the nitric acid rinse solution can be sent to the SBS.

The canister is rinsed using demineralized water and the rinse solution is transferred to Tank 8D-4 through the Vitrification Waste Header and the HLW Trench.

Canister decontamination is verified using swabs to swipe the canister surface and then analyzing the swabs.

For canister decontamination, verification of decontamination, decontamination solution neutralization and removal and rinse and rinse solutions removal see SD-63J, 63K, 63G, and 63H.

3.5.8 Canister A to Storage Rack AN-35 AT 2 hrs CT-NA

After canister A decontamination has been verified, it is moved from the decontamination station to the canister incell storage rack or to the canister transfer cart for transfer to the HLWIS.

See SD-63K for remote handling and transfer to the HLWIS.

3.5.9

Rotate Turntable AN-37 AT-1 hrs CT-65 hrs

After canister D is verified filled by the canister ILDS and weighing systems, and the pour from the SFCM has been stopped, activity AN-29 is repeated.

The position of the canisters is as follows: canister A is under the SFCM pour spout; canisters C and D are in the cooling position and canister B is in the load/unload position.

3.5.10 Canister B Out and B IN AN-38 AT-4 hrs CT-NA

After canister B is located in the load/unload position AN-30 is repeated for canister B.

3.5.11 Fill Canister A AN-39 AT-63 hrs CT-128 hrs

After canister A is in the SFCM pour position and the SFCM is in the feed mode AN-31 is repeated for canister A.

3.5.12 Canister B Shards AN-40 AT-2 hrs CT-NA

After canister B has been placed in the weld station, AN-32 is repeated for canister B.

3.5.13 Weld Canister B lid AN-41 AT-4 hrs CT-NA

After the shards have been removed from canister B at the weld station, AN-33 is repeated for canister B.

3.5.14 Decontaminate Canister B AN-42 AT-14 hrs CT-NA

After the canister lid weld has been verified, AN-34 is repeated for canister B.

3.5.15 Canister B to Rack AN-43 AT-2 hrs CT-NA

After canister B decontamination is verified, AN-35 is repeated for canister B.

3.5.16 Rotate the Turntable AN-45 AT-1 hr CT-129 hrs

After canister A is verified filled by the canister ILDS and weighing systems, and the SFCM pour is stopped, the turntable is rotated.

The canisters are positioned as follows: canister B is under the SFCM pour spout; canisters A and D are in the cooling positions; and canister C is in the load/unload position.

3.5.17 Canister C Out and C In AN-46 AT-4 hrs CT-NA

After canister C is in the load/unload position, AN-30 is repeated for canister C.

3.5.18 Fill Canister B AN-47 AT-63 hrs CT-192 hrs

After canister B is under the SFCM pour spout, and the SFCM is in the fill mode, AN-31 is repeated for canister B.

3.5.19 Canister C Shards AN-48 AT-2 hrs CT-NA

After canister C is placed in the weld station repeat AN-32 for canister C.

3.5.20 Weld Canister C AN-49 AT-4 hrs CT-NA

After the shards are removed AN-33 is repeated for canister C.

3.5.21 Decontaminate Canister C AN-50 AT-14 hrs CT-NA

After canister C weld is verified canister C is moved from the Weld Station to the decontamination station and AN-34 is repeated for canister C.

3.5.22 Canister C to Rack AN-51 AT-2 hrs CT-NA

After canister C decontamination is verified, AN-35 is repeated for canister C.

3.5.23 Retate Turntable AN-53 AT-1 hr CT-193 hrs

After canister B is filled and verified by the ILDS and weighing systems and the SFCM pour is stopped, the turntable is rotated.

The canisters are positioned as follows: canister C is under the SFCM pour spout; canisters A and B are in the cooling positions; and canister D is in the load/unload station.

3.5.24 Canister D Out and D In AN-54 AT-4 hrs CT-NA

> After canister D is placed under the load/unload station. AN-30 is repeated for canister D.

3.5.25 Fill Canister C AN-55 AT-11 hrs CT-204 hrs

> After canister C is positioned under the SFCM pour spout and the SFCM is in the feed mode AN-31 is repeated for canister C.

This pour is shown as two (2) pours even if it is one continuous pour. The difference is canister C is filled to 18 percent of the fill level from one feed batch and is finished to the fill level from the next feed batch.

3.5.26 Canister D Shards AN-56 AT-2 hrs CT-NA

> After canister D is positioned in the Weld Station and AN-32 is repeated for canister D.

Weld Canister D AN-57 3.5.27 AT-4 hrs CT-NA

> After the shards are removed from canister D, AN-33 is repeated for canister D.

Decontaminate Canister D 3.5.28 AN-58 AT-14 hrs CT-NA

> After the canister D weld is verified canister D is moved from the Weld Station to the Decontamination Station and AN-34 is repeated for canister D.

3.5.29 Canister D to Rack AN-59 AT-2 hrs CT-NA

> After canister D decontamination is verified, canister D is transferred from the Decontamination Station to the Canister In-Cell Storage Rack.

Canister Transfer Cart to HLWIS, Unload 3.5.30 AN-65 AT-8 hrs CT-NA

> Canisters A, B, C, and D are transferred from the Canister In-Cell Storage Rack to the Transfer Cart for moving the canisters to the HLWIS.

The loaded Transfer Cart is moved from the Vit Cell, to the VF transfer tunnel, to the EDR and to the HLWIS. Shield Doors no. 1, 8 and the shield door to the HLWIS will be operated.

Loading the canisters, operating the doors, and operating the transfer cart are covered in SD 63K.



HVAC Systems are impacted during the transfer of the canisters since VF-HVAC and the Main Plant HVAC are interacting when Door No. 8 is opened.

See SD-67 for operations of the HVAC Systems.

The sixteen ton crane and special handling equipment is used in the HLWIS to unload and place the canisters in the two tier canister storage racks.

The handling and placing of the canister in the HLWIS is covered in System Description 68, "High Level Waste Interim Storage" and SD-63K.

This transfer is performed when it is necessary to provide space in the Canister In-Cell Storage Rack for either full or empty canisters and will be performed in parallel with the Feed Preparation Cycle and the Canister/Turntable cycle.

3.6 Simultaneous Activities

The HLWSF is both a batch and continuous operation, as well as a step operation and as a result has many activities and systems operate simultaneously.

- 3.6.1 The Feed Preparation Cycle is a batch operation in which HLW, chemicals and glass former are sent in batches to the CFMT to be mixed, shimmed and analyzed in a defined sequence to produce the melter feed.
- 3.6.2 After the melter feed is verified as correct it is transferred to the MFHT. The MFHT continuously feeds the SFCM which operates continuously to maintain: the content in a molten state, a cold cap on top the molten glass, and the glass pour rate to the canisters.
- 3.6.3 Processing the filled canisters is a step operation in which one canister at a time is: moved from the turntable to the weld station where the shard samples are taken and the canister lid is welded to the canister; then transfer to the decontamination station where the canister is decontaminated and then moved to the in cell storage rack. The canisters are then transferred in units of four to the interim storage.
- 3.6.4 The tables showing the simultaneous activities are in appendix D.
 - Table D-1, "High Level Waste Solidification Facilities, Systems" identifies the systems used in the HLWSF.

- Table D-2, "High Level Waste Solidification Facilities, Activities" identifies the activities shown on Sketch CGS-042992 and used in the Feed Preparation and Canister/Turntable cycles.
- Table D-3, "Summary of Simultaneous Process Activities" list the sequential Feed Preparation Cycle activities across the top and the simultaneous activities for these activities are listed vertically.

Each ongoing process and utilities, as well as each sequential activity is detailed on separate tables, which are also part of Table D-3. Its simultaneous activities are listed across the top of the table and the systems used by each activity are listed vertically. The code for these tables is as follow:

- L This is the lead system for the activity.
- 0 The lead system makes an output to this system.
- I The lead system receives an input from this system.

Continuous Standby - The system is normally not being used, but is available if an abnormal operating event occurs.

Continuous Operation - The system operates during the entire cycle and is supplying the activities as required.

APPENDIX A

Referenced Documents

- "Cognizant Responsibility List for Systems and Facilities at WVDP," Revision 10, dated 05/1993
- Design Criteria DC-046, "Sludge Mobilization Waste Removal", Revision 0, dated 07/24/92.
- Design Criteria DC-022, "Vitrification High Level Wastes", Revision 3, dated 01/20/92.
- Design Criteria DC-048, "High-Level Waste Interim Storage System," Revision 2, dated 08/25/93.
- "Waste Acceptance Product Specification for Vitrified High Level Waste Form," (WAPS), dated Feb., 1993.
- 6. West Valley Demonstration Project Document WVDP-185, "Waste Form Compliance Plan", (WCP) Rev. 7, Jan. 13, 1994.
- West Valley Demonstration Project Document WVDP-186, "Waste Form Qualification Report", (WQR)
- 8. West Valley Demonstration Project Document WVDP-187, "Vitrification Process Control Plan", (PCP) (in progress)
- 9. High-Level Waste QA Program RW-0333P
- 10. "Quality Management Manual-3, Design Control", Revision 7, dated 11/03/92.
- Department of Energy Order 5480.1B, "Environment, Safety, Health Program for DOE Operation", dated 05/10/93.
- 12. Occupational Safety and Health Act Document "29-CFR-1910", dated 04/12/1988.
- 13. "WVDP Emergency Plan" WVDP-022, Revision 7, dated 04/16/93.

APPENDIX B

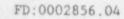
Reference Drawing List

No.	Title
900 D 2860	GA, SMS Utilities Distribution
900 J 1363	Interconnecting Flow Diagram for STS, SMS, LWTS, CSS, HLWSF and utilities
905 D 030	GA - VF, Plan at Elevation 100 Ft.
905 D 031	GA - EDR, CPC at Elevation 100 Ft.
905 D 032	GA - VF, Plan at Elevation 110 Ft.
905 D 033	GA - EDR, CPC at Elevation 117 Ft.
905 D 034	GA - VF, Plan at Elevation 124 Ft.
905 D 035	GA - EDR, CPC at Elevation 131 Ft.
905 D 036	GA - VF, Sections
905 D 037	GA - VF, Sections
905 D 038	GA - VF, Sections
905 D 039	GA - VF, Sections
905 D 041	GA - CC, Plan at Elevation 98.5 and 100 Ft.
905 D 042	GA - CC, Plan at Elevation 115 Ft and above
905 D 043	GA - CC, Sections
906 D 030	GA - 01-14 at Elevation 98 Ft.
906 D 031	GA - 01-14 at Elevation 116 Ft.
906 D 032	GA - 01-14 at Elevation 130 Ft.
906 D 033	GA - 01-14 at Elevation 144 Ft.
906 D 034	GA - 01-14 Sections
906 D 035	GA - 01-14 Sections
906 D 037	GA - 01-14 at Elevation

ATTACHMENT C

HIGH LEVEL WASTE SOLIDIFICATION FACILITIES SYSTEM AND SYSTEM DESCRIPTION NUMBERS

	System No,	SD No.	System Name
1	55	WVNS-SD-55	Sludge Mobilization & Transfer
2	63 A	NONE	In-Cell
3	63 B	NONE	Ex-Cell
4	63 C	NONE	Scale Vitrification System
5	63 D	NONE	Vitrification Test Engineering
6	63 F	WVNS-SD-63F	Cell Walls & Ex-Cell Arrangement
7	63 G	WVNS-SD-63G	Waste Header
8	63 H	WVNS-SD-63H	Off-Gas & Vessel Vent
9	63 I	WVNS-SD-631	Primary Process
10	63 J	WVNS-SD-63J	Canister Decontamination
11	63 K	WVNS-SD-63K	In-Cell Remote Handling, Maintenance and Viewing
12	63 L	WVNS-SD-63L	Canister Welding
13	63 M	WVNS-SD-63M	VF Load In & Load Out
14	63 P	WVNS-SD-63P	VF Process Chemistry
15	63 Q	NONE	Vitrification Laboratory
16	63 R	* WVNS-SD-67	VF Refrigerant
17	63 AR	* WVNS-SD-63L	VF Argon Gas
18	63 CC	* WVNS-SD-67	VF Chilled Water
19	63 CH	* WVNS-SD-65	VF Chemical
20	63 CW	WVNS-SD-63CW	VF Cooling Tower Water
21	63 DA	* WVNS-SD-63UA	VF Dry Air
22	63 DV	NONE	VF Drain, Waste, Vent
23	63 DW	WVNS-SD-63DW	Deionized Water
24	63 ED	WVNS-SD-63ED	VF Electrical Power Distribution
25	63 EH	* WVNS-SD-63FO	VF Engine Exhaust
26	63 FO	WVNS-SD-63FO	Diesel Engine Fuel Oil and Exhaust
27	63 FP	WVNS-SD-63FP	Fire Detection and Protection



AP-C-1

ATTACHMENT C

	System No.	SD No.	System Name
28	63 HP	* WVNS-SD-63IA	VF High Pressure Air, Bottles
29	63 IA	WVNS-SD-63IA	VF Instrument Air
30	63 MU	NONE	VF Plant Nitric Acid & Caustic
31	63 NG	NONE	VF Natural Gas
32	63 PW	WVNS-SD-63PW	VF Potable Water
33	63 RW	NONE	VF Recycle Water
34	63 SC	WVNS-SD-63SC	VF Steam and Condensate
35	63 SG	* WVNS-SD-63L	VF Shield Gas
36	63 SL	* WVNS-SD-63SC	VF Steam Low
37	63 UA	WVNS-SD-63UA	VF Utility Air
38	63 UW	WVNS-SD-63UW	VF Utility Water
39	63 VE	* WVNS-SD-67	VF Ventilation Duct
40	63 VH	WVNS-SD-63VH	VF Vent Header
41	63 WW	WVNS-SD-63WW	VF Drains
42	64	WVNS-SD-64	VF Ex-Cell Off-Gas
43	65	WVNS-SD-65	VF Cold Chemical
44	66	WVNS-SD-66	VF Closed Loop Cooling Water
45	67	WVNS-SD-67	VF HVAC
46	68	WVNS-SD-68	HLW Interim Storage
47	69 A	WVNS-SD-69A	VF Sampling
48	69 B	WVNS-SD-69B	VF Sample Transfer
49	90	WVNS-SD-90	A & E Laboratory
50	200 A	WVNS-SD-200 A & B	VF Instrumentation and Control, Hardware
51	200 B	WVNS-SD-200 A & B	VF Instrumentation and Control, Software
*	The sys of the	tem will not have : identified System 1	its own System Description, but will be part Description.
IONE	- These s Process	ystems are no longe	er used or are not part of the Vitrification

ATTACHMENT D

-

			Table 1	
High	Level	Waste	Solidification	Systems

	System No.	Acronym	System Name
1	55	SMS	Sludge Mobilization System
2	63 F	CWEA	Cell Walls & Ex-Cell Arrangement
3	63 G	WH	Waste Header System
4	63 H	OGS	Off-Gas System
5	63 I	PPS	Primary Process System
6	63 J	CDS	Canister Decontamination System
7	63 K	IRHV	In-Cell Remote Handling, and Viewing System
8	63 L	CWS	Canister Welding System
9	63 M	LL	Load In - Load Out Room
10	63 P	PCS	Process Chemistry System
11	63 R	RS	VF Refrigerent System
12	63 AR	AR	VF Argon Gas System
13	63 CC	HVCW	VF Chilled Water System
14	63 CH	CH	VF Chemical Distribution System
15	63 CW	CTW	Cooling Tower Water System
16	63 DA	DA	Dry Air System
17	63 DW	DW	Deionized Water System
18	63 ED	EDS	Electrical Power Distribution System
19	63 FO	FO	Fuel Oil System
20	63 FP	FDP	Fire Detection and Protection System
21	63 HP	HPA	VF High Pressure Air
22	63 IA	IA	Instrument Air System
23	63 SC	SC	Steam and Condensate System
24	63 SG	SG	VF Shield Gas System
25	63 UA	UA	Utility Air System
26	63 UW	UW	Utility Water System
27	63 VH	VH	Vent Header System (air)

ATTACHMENT D

3267HVACHeating Ventilation3368HLWISHigh Level Waster3469 AVSSVF Sampling Syster3569 BPSTSPneumatic Sampler3690A&ELAnalytical and Environment	System Name
3065CCSCold Chemical Sys3166CLCWSVF Closed Loop Co3267HVACHeating Ventilati3368HLWISHigh Level Waste3469 AVSSVF Sampling System3569 BPSTSPneumatic Sample3690A&ELAnalytical and Emiliation	n an an de faire de anna an anna an an anna an anna anna
3166CLCWSVF Closed Loop Co3267HVACHeating Ventilation3368HLWISHigh Level Waste3469 AVSSVF Sampling System3569 BPSTSPneumatic Sample3690A&ELAnalytical and Env	ysten
3267HVACHeating Ventilating3368HLWISHigh Level Waste3469 AVSSVF Sampling System3569 BPSTSPneumatic Sample3690A&ELAnalytical and Env	em
3368HLWISHigh Level Waste3469 AVSSVF Sampling System3569 BPSTSPneumatic Sample3690A&ELAnalytical and Env	ling Water System
34 69 A VSS VF Sampling System 35 69 B PSTS Pneumatic Sample S 36 90 A&EL Analytical and Env	g and Air Conditioning
35 69 B PSTS Pneumatic Sample 1 36 90 A&EL Analytical and Environmentation	nterim Storage
36 90 A&EL Analytical and Env	
ANALYCICAL AND EN	ransfer System
	ironmental Lab.
37 200 A I&CH VF Instrumentation	and Control Hardware
38 200 B I&CS VF Instrumentation	and Control Software

ATTACHMENT D

ACTIVITY NO.	LEAD SYSTEM	DESCRIPTION
		ONGOING ACTIVITIES
1	63 I	CFMT Agitator operates continuously.
2	63 I	MFHT Agitator operates continuously.
3	63 I	The MFHT feeds the SFCM continuously.
4	64	The OGS (63H) and OGS (64) operates continuously.
5	66	The CLCWS runs continuously to cool the major processing components, on an as needed basis.
6	67	The HVAC System (67) operates continuously.
		UTILITIES
100	63 CW	The CTW is supplied on a continuous basis to the CLCWS XTR and is continuously available to the HVAC and CC Systems as needed.
101	63 DW	DW is available during entire cycle from the Main Plant DW System and is supplied to the VF, CC, SMS and the OGS.
102	63 ED	The Normal Electrical Power is from Public Utilities and is available for the entire cycle for all the HLWSF systems and facilities.
103	63 IA	Instrument air is available during the entire cycle and is supplied from compressors in the Main Plant, Utility Room to the VF, CCS, SMS, HLWIS, and OGS.
104	63 SC	Steam is available during the entire cycle and is supplied from the Main Plant, Steam Power Plant to the VF and CCS.
105	63 UA	Utility air is available during the entire cycle and is supplied from the Main Plant, System 31 to the VF, CCS, SMS, HLWIS and OGS.
106	63 UW	Utility water is available during the entire cycle and is supplied from the Main Plant to the VF, CCS, SMS, HLWIS, and OGS.

Table No. 2 High Level Waste Solidification Facilities Activities

ATTACHMENT D

ACTIVITY NO.	LEAD SYSTEM	DESCRIPTION					
107	63 WW	The Drain System is a passive system that is continuously available to collect and deliver process or wash liquids from various location for recycle or discharge.					
108	63 VH	The Vent Header System is a passive system that is continuously available to exhaust the upstream air side of the solenoid valves and jets, that could be exposed to the process, to the VC.					
		SEQUENCED ACTIVITIES					
8	63 H	Transfer the Submerged Bed Scrubber (SBS) liquid to the CFMT.					
10	55	Transfer the High Level Waste from Tank 8D2 the CFMT.					
11	69 A 69 B	Sample the CFMT mixture and transfer the samples to the laboratory.					
12	90	The lab will analyze the CFMT samples.					
12a	63 P	Evaluate the Analytical Data.					
13	65	Prepare the Cold Chemical (CC) mix.					
14	65	Sample the CC Mixture and transfer it to the laboratory.					
15	90	The lab will analyze the CC samples.					
15A	63 P	Evaluate the analytical data.					
16	63 I	Concentrate the CFMT mixture.					
17	65	Transfer the CC mixture to the CFMT.					
18	69 A 69 B	Sample the CFMT mixture and transfer the samples to the laboratory.					
19	90	Lab. to analyze the CFMT samples.					
19A	63 P	Evaluate Laboratory Results					
21	65	Prepare the Shim Mixture.					
22	65	Sample the Shim Mixture and transfer to the laboratory.					
23	90	Lab. to analyze the Shim Mixture.					
23a	63 P	Evaluate the analytical data.					

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ACTIVITY NO.	LEAD SYSTEM	DESCRIPTION
24	65	Transfer Shim Mixture to the CFMT.
25	69 A 69 B	Sample the CFMT and transfer the samples to the laboratory.
26	90	Lab. to analyze the CFMT samples.
26A	63 P & 63 I	Evaluate the analytical data.
27	63 I	Transfer CFMT mixture to the MFHT.
		TURNTABLE AND CANISTER HANDLING
29, 37, 45, 53	63 I	Rotate the empty canister under the SFCM pour spout.
30, 38, 46, 54	63 K	Remove the filled canister from the turntable and replaces with an empty.
31, 39, 47, 55	63 I	Fill canister.
32, 40, 48, 56	63 L	Take glass shard samples from each canister.
33, 41, 49, 57	63 L	Weld canister lid to canister and inspect the weld.
34, 42, 50, 58	63 J	Decontaminate the canister and verify.
35, 43, 51, 59	63 K	Move canister to canister storage rack.
65	63 K	Load the canisters into cart and move to the CPC for interim storage.
96	63 G	Drain condensate to 8D-3
97	63 I	Chemical adjustment of condensate
98	50	Empty Tank 8D-3
99	55	Homogenize 8D-2 and align transfer valves



ATTACEMENT D

Table No. 3

		The	Summary	of Simu neous ac	ltaneous	Process	s Activi	ties		
8	10	11	12	12A	13	14 14	sted ver 15			
1	1	1	1	1	1	1	1	15A	17	18
2	2	2	2	2	2	2	2	1	1	1
3	3	3	3	3	3	3		2	2	2
4	4	4	4	4	4		3	3	3	3
5	5	5	5	5	5	4	4	4	4	4
6	6	6	6	6	6	5	5	5	5	5
8	10	11	12			6	6	6	6	6
29	30	16	16	12a	13	14	15	15a	17	18
30	31	31	31	16	16	1.6	16	16	39	39
31	32	33		31	38	39	39	39	97	97
99	33	22	34	37	39	42	42	96		98
23	33		35	38	40	96	43			
			96	39	41		96			
				96	42					
					96					
19	19a	21	22	23	23a	24	25	26	26a	27
1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6
39	47	47	47	47	47	47	47	53	55	55
45						106		54	57	57
46								55	21	58
47								56		20
48										
49								57		
50										
51										

Note: The details for this summary are shown on tables "Ongoing Utilities 001" through "Activity 27", "Transfer CFMT TO MFHT" (pages AP-D-7 through AP-D-30) and are considered as part of Table No. 3.



98

SYSTEM	CTIVITIES (101					an shat san a shi e sa a		(204	hrs
NOS.		100	T 101	1 100	and a support of the	Construction of the Association	ILITIES	any case makes and	-	
55	SMS	100	0	102	103	104	International Contestantian	106	107	10
63 F	CWEA		And the second	0	0	0	0	0	0	
63 G	WH						ELL ARF	LANGEME	CONTRACTOR AND INCOME A DAY	-
63 H	OGS		0	0	0	0	0		L	
63 I	PPS	0	0	0	0	0	0	0	0	
63 J	CDS	0	0	0	0	0	0	0	0	-
63 K	IRHV	Contra and the Contra de Contra de	0	0	0	Contraction of the second states	0	0	0	-
63 L	CWS			0		Wooddiana, and other seat and		-		
63 M	LL			0	0			-		
63 P	PCS			0	0		0	0	0	-
63 R	RS					Constitution of the Designation of the second	and the second second		The second s	-
63 AR	AR			0	0	and an	PARTE CONTRACTOR AND A		A Martin and Apple 1 and a state	-
63 CC	HVCW	0		0	0	Cale States Address and an	and we would deally a diversify the	-		
63 CH	CH		****	0	0			0	and the second	
63 CW	CTW	L	CONTRACTOR NOTICE PARTY	0	0		an the second	-	and the second	-
63 DA	DA			ABORD-HELEVELIN/STORY CHURCH	0			0	Status subdiversity barres	-
63 DW	DW			0	0	0	0			
63 ED	EDS	I		0	0	~		The second second second	internation in the second	-
63 FO	FO		I	L	I	I	I	I		I
63 FP	FDP			unital Promotion Statistics of the		Construction and a second second	STANDBY	the plant of the American Street American		
63 HP	HPA			CONTRACTOR OF STREET	N INTERNATIONAL PROPERTY OF COMPANY	recommendation of the second s	STANDBY	statute of the second second second	Note a local day includes	Contradiction March
63 IA	IA	I	I	0			STANDBY	a new constant of the second	Sector and the sector of the	
63 SC	SC	1	A	0	L	I	I	1	I	I
63 SG	SG			0	0	L	0	Contract of the sector sector	and the state of the second second	Miscounter How
63 UA	UA		I	0		I	7			-
63 UW	UW	ter sine data takin menangkan data	COLUMN A DESCRIPTION OF TAXABLE PARTY.	Characterization and a state of the	0	L.	L		antino antino antino anti	I
63 VH	VH	0	0	0	0	0		L	I	
63 WW	WW		0	0	0	0	0	0		L
54	OGS	0	0	0	0	0	0	0	L	
55	CCS		0	0	0	0	0	0	I	
56	CLCWS	0		Interference of the second sec	Charles and a second state of a	And the second second second second	0	C	I	
57	HVAC			0	0	0		0		
58	HLWIS			0	0	0	0	0	1	
59 A	VSS		0	0	0		0	0	1	
59 B	PSTS		0	0	0	*ChosenaleChoreau.com	0	a version provident and a sub-	-	
0	A&EL			Compact of the second system	0		0	ndouterentine su	NA ANYA, "YE ANNA MANA AN AN	
200 A	the standard distribution of Annual States and Annual State	07	01	0	07	0.7				
200 B	ICH ICS	OI OI	0I 0I	01	01	0I 0I	0I 0I	0I 0I		Nour cost of tax



ATTACHMENT D Table No. 3

SYSTEM	S ACTIVITIE	1						(204	hrs
NOS.		1	1	ON	second second	ACTIVITIES			
55	SMS		2		3	4	5		6
63 F	CWEA		OPTI	*** * *		0			
63 G	WHS		CELL	WALL	AND EX	-CELL ARRA	NGEMENT	<u>[</u>	
63 H	OGS	norma una privace alle contener merimone mathama	rtennent kleit savoon mena	0.011					
63 I	control of the second			CON		S OPERATION	other a submitter of the state		-
63 J	PPS	L	L		L	0	0	No. Perception and an address	
63 K	CDS		and an entry of the spectrum of the			AN EXPERIMENTAL OFFICE AND ADDRESS OF THE OWNER ADDRESS OF THE OWNER ADDRESS OF THE OWNER ADDRESS OF THE OWNER	0		-
63 L	IRHV		ala mado da kata yang da pada ar inga						
63 M	CWS								
63 P	LL		LOAD)-IN A	IND LOA	D OUT FOR ?	THE VC		
63 R	PCS		the second s	-				Deficiel No. / Pro concernantia	
63 AR	R RS								I
63 CC	HVCW								Concervation
63 CH	CH					Name and the second second second second second	0		1
63 CW	CTW							-	
63 DA	And strategic and an address of the second strategic and the			CON	TINUOUS	OPERATION		N. MARCANON	
63 DW	DA DW			a maintening a sea	a von der mer staat gewaa			SANONDARI, AL AND VAL	
63 ED	EDS		N The same to add the design of the same to a same			I and the second se			I
63 FO	FO		and an and a state of the second s		and the second second second	OPERATION	-		-
63 FP	FDP		-			S STANDBY			-
63 HP	HPA		INTERNET CONTRACTOR AND		Concerning of the state of the state of the	S STANDBY	-	(millionanalme	-
63 IA	IA	and the second		CO	A COLOR OF CAMPAGE AND A COLOR OF CAMPA	S STANDBY			
63 SC	SC	Non-temperature and the second s	Contraction of the local diversion of the local diversion of the local diversion of the local diversion of the	tinte the same of	<u> </u>	I	I		I
63 SG	SG					In some work with a life interest of a state to a	-		Nucleine Marco
63 UA	UA				Construction of Long and Construction		Internet of the second second second		-
63 UW	UW		and a consideration of a substantial		I	I	I		I
63 VH	and the second se						I	-	I
63 WW	VH WW		Calculation of America Street on Street	CONT	TINUOUS	OPERATION	-		-
64	Provide the state of the state		enter of the second		-		In a second day of your delivery of		
65	OGS			CONT	TNUOUS	OPERATION		Part & State of Contrast	
66	CCS						0	-	-
67	CLCWS		Constitution of the Association Section of		I	I	L		-
58	HVAC			CONT	INUOUS	OPERATION	united and the same strange		
59 A	HLWIS			Contra Statement and state	with challen when any			Contraction of the local division of the	
the second s	VSS			CONTRACTOR OF COMPANY	In Altowner Print and the se		BOARDANDS & WEINES		-
59 B	PSTS		ni kanangan na kanang ang antar ng an	reader and all of the and the same		A rest from the second s			
90	A&EL			externation and		We describe the source of the second s			-
A 002	ICH	OI	OI		OI	01	0		IC
200 B	ICS	OI	01	Constitution to see -	OI	OI	0		IC

ATTACHMENT D Table No. 3

SYSTEM	1	FER SBS LIC	ACTIVITY 8	The second day water the second state of the second state of the	IT TANEOUS	A 07717771	(4 hrs
NOS.		8	29	30	31	99	1 *
55	SMS		-	and the second second second	1 31	L 99	0
63 F	CWEA		CELL WAT	L AND FY	-CELL ARR	NAME OF TAXABLE PARTY AND A DESCRIPTION OF TAXABLE PARTY.	U
63 G	WH	Contraction of the local distance of the loc	Wardson PILL	ALL THEIL LUN	- OBLL ARR	PAING ENTEIN 1	0
63 H	OGS	L		CONTI	NUOUS OPE	DATTON	0
63 I	PPS	0	L	00111	L	RAIION	0
63 J	CDS		April Description of the second part of the particular of the second		and an	and and in which we will be seen to say that is	0
63 K	IRHV		al a principal molecular de la compo	L			0
63 L	CWS			0	 Manufal constant with an inclusion 	and desired and the second second second second	0
63 M	CLS		LOAD-TN	the second s	D OUT FOR	THE UC	
63 P	PCS	1		and the state of t	OI	ALLO YU	and an and a second
63 R	RS		NEW YORK COUNTY BOLD UNDERSTOOD OF S		and the second	NATIONAL PROPERTY IS NOT THE OWNER AND AND ADDRESS	0
63 AR	AR		na an a			a new company on any state or new particular second part	0
63 CC	HVCW			Prilond and Principles are unlikely way of	NA ONLY BUT ON ON ANY STOCKED AND		0
63 CH	CH			ing the state of the scalar state is a scalar of	With the Standard Control of Children and		0
63 CW	CTW	A CONTRACTOR OF A CONTRACTOR O	CC	NTINUOUS	OPERATIO	N	
63 DA	DA		and the share of the second	THAT AND REAL PROPERTY AND ADDRESS OF		A 1	0
63 DW	DWV	I		Check, State & Holdstate & Holdstate & Holdstate	T		OI
63 ED	EDS		CO	NTINUOUS	OPERATION	NS.	
63 FO	FO			and the second se	S STANDBY	and the second	
63 FP	FDP			the state of the s	S STANDBY	enverse enverse her daar aan de stelen d	
63 HP	HPA			the second se	S STANDBY	enclose and a structure spin-tick complying prioritist	
63 IA	IA	I	A REAL PROPERTY OF THE REAL PR		I	nin maan di baada an ti'r ar yn a	I
63 SC	SC	I	And the second second second		In the operation of some in the original sector of the sec		0
63 SG	SG		and a second a second second second				0
63 UA	UA	I	I	I	I		OI
63 UW	UW		a and a second			ne fin Constant State and a star of a second se	OI
63 VH	VH		CO	NTINUOUS	OPERATIO	N	An income the second second second second second
63 WW	WW						0
64	OGS		CON	TINUOUS	OPERATION	IS	a new York and the state of the state of the
65	CCS		an anna an	NEY HERE AN A CALL AN OLD MANY AND AND AND A		In the optimal production from the state of the second	I
66	CLCWS	I			I	and a first set of a division of the second s	OI
57	HVAC		CON	TINUOUS	OPERATION	IS	Constitution of the Address of the
58	HLWIS					NAN SUNTAN STATE OF STATE OF STATE OF SUM STATE OF SUM STATE	0
69 A	VSS					endenne an dùarch e ar air an an rear dha anna	0
59 B	PSTS				and a second second because	and a second	0
90	A&EL				and an and a second	an and the plant of the state o	0
200 A	ICH	OI	OI		OI		OI
200 B	ICS	OI	OI	A CONTRACTOR OF	OI	A MA AND MANY MANY DATES OF A DESCRIPTION	OI



ATTACHMENT D Table No. 3

ACTIVITY	TO TRANS	FER 8D2 WA	or a constraint and a second	No watch watch in the state of physics prices with a		The state of the second second second	(4 hr
SYSTEM NOS.			CTIVITY 1			And a second sec	and a second second second second
55	SMS	10	30	31	32	33	*
63 F	CWEA	L	2007 S 454			the second s	0
63 G	WH		CELL WA	LL AND EX	-CELL ARR	ANGEMENT	
63 H	OGS				-		0
63 I	PPS				NUOUS OPEI	RATION	
63 J	CDS	0		L	OI	Constant of the second s	0
63 K	and an and performance of the second s			er (Annel and a second s			0
63 L	IRHV		L	n an fallan fall an	I	I	0
63 M	CWS		0		L	L	0
63 P	LL		LOAD - IN		D OUT FOR	THE VC	NUMBER PLANNING ST
63 R	PCS		Anna an	01	Non an air tha man an air charann mhach ann		-
63 AR	RS			and a substantial strength of substant	-	And the second sec	0
63 CC	ARS		anna an	which for the scale statistic accel you		1	0
63 CH	HVCW			we called any encountry for the state of the state	State of Francisco Contractories and an	No. of States of Concession, Spinster, Spinste	0
63 CW	CH	and the second country of a second second second	a production of the second state of the second state of the	n ka na inani sa shi sa sa sa sa sa sa	The Restort Cold Statement of Statements		0
63 DA	CTW		C	ONTINUOUS	OPERATIO	N	
63 DW	DA			an a shirt and a substitution of the same	NATION POSTON AND TO ANY AND AND AND A	and the second	0
63 ED	DW			I			OI
63 FO	EDS				OPERATION	employed and the constraints and the second s	NAME OF TAXABLE PARTY OF TAXABLE PARTY.
63 FP	FO	The second s			S STANDBY		
S how have a second state of the second state	FDP		Construction of the second s	CONTRACTOR STREET, STR	S STANDBY		
63 HP	HPA		(CONTINUOU	S STANDBY	TABLE DISTURDED IN TABLE IN THE OWNER	
63 IA	IA	I		I	I	I	OI
63 SC	SC			Advatories na construction and a second		THE OTHER PARTY OF THE OTHER PARTY OF	0
63 SG	SG				The second s	I	0
63 UA	UA	I	I	I	I	I	OI
53 UW	UW			WHICH SHITLE IS SAFETY FOR MALINE MALINE			OI
53 VH	VH		CO	NTINUOUS	OPERATION	S	Concercion of the local division of the
53 WW	WW		Construction of the state of th		Participant film in the insured resultance as a realised	NUM AND STREET AND	0
54	OGS		CO	TINUOUS	OPERATION	S	Mart and a city descent of
55	CCS	+					0
6	CLCWS	+ I	alan ang mata Antoning mata kina pangangangan	I	NAME OF ADDRESS OF ADDRESS OF ADDRESS	Constant and a real sector dependent, some set	OI
7	HVAC		CO	TINUOUS	OPERATION	S	
8	HLWIS		North Statements and an end of the second		I	NAME OF TAXABLE AND ADDRESS OF TAXABLE ADDRESS OF T	0
9 A	VSS		webserver and the second s	a desired in some diversity would share a		ALC PLAY INCOME A REAL PLAY IN THE REAL PLAY INCOME.	0
9 B	PSTS				Water and the state of the stat		0
10	A&EL						0
A 00	ICH	OI	Remove and service and service and	OI			OI
00 B	ICS	OI		OI		and the second second second second	OI

ATTACHMENT D Table No. 3

ACTIVITY	11 "SAMPLE C	and the product of the second second state of the product of the second s		CONTRACTOR IN CONTRACTOR OF A CONT	(4 hr
SYSTEM			TY 11 AND SIM	and the second	TIVITIES
NOS, 55	040	11	16	33	*
63 F	SMS		0	TRANSPORT RECORD FOR THE REPORT OF THE RECORD FOR	0
THE MANY PROPERTY OF THE PARTY OF THE REAL PROPERTY OF THE REAL PARTY.	CWEA	CEL	L WALL AND EX	-CELL ARRANGE	EMENT
63 G	WH		MARKS AND BARK COMMINSION OF AN ADDRESS OF ADDRES	nik termentak aktanat dari itakan panya ang danibatang	
63 H	OGS		CONT	INUOUS OPERA	TION
63 I	PPS	01	L		0
63 J	CDS	-	and a second section of the second		0
63 K	IRHV	I	The second state of the second state of the second state of the second state of the	I	0
63 L	CWS		L		0
63 M	LL		AD-IN AND LOAD	OUT FOR THE	VC
63 P	PCS	01	OI		
63 R	RS				0
63 AR	AR			I	0
63 CC	HVCW		The surface scale is the same of the second states		0
63 CH	CH		and the state of the		0
63 CW	CTW		CONTINUOUS	OPERATION	
63 DA	DA		of the other state in some second and shape every state		0
63 DW	DW	1			OI
63 ED	EDS		CONTINUOUS	OPERATIONS	And a subscription of the subscription
63 FO	FO		CONTINUOUS	S STANDBY	
53 FP	FDP		CONTINUOUS	S STANDBY	
53 HF	HPA	-	CONTINUOUS	S STANDBY	ANY DIAL TO BE A DISTRICT OF A DISA. THE AND A DISA.
53 IA	IA	I	I	I	OI
53 SC	SC		I		0
53 SG	SG			I	0
53 UA	UA	I	I	I	OI
3 UW	UW	an over all a start of the local data and the second data and the		and a second	OI
3 VH	VH	Weighted W. Services of Street, and	CONTINUOUS	OPERATIONS	PER TRANSPORTUNIS AND AND AND A DECISION AND AND AND AND AND AND AND AND AND AN
3 WW	WW				0
4	OGS		CONTINUOUS	OPERATIONS	A RECEIPTION OF CALLS AND A DESCRIPTION
5	CCS				0
6	CLCWS		I	nin andro anna a sharara na sharara a shi shi ingas sa sarara kaya	OI
7	HVAC		CONTINUOUS	OPERATIONS	and the second
8	HLWIS			Contro Di Contro da Canada di Sala ana ana	0
9 A	VSS	L		an ann an ann an ann an ann an ann an an	0
9 B	PSTS	0	na na an a	1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 - 1979 -	0
0	A&EL	0	and a constraint of the second se	TOTAL BY MADE ANY MENT POINT AND DR. P. PRICE BY MADE AND AND	0
A 00	ICH		OI	an a	OI
00 B	ICS		OI		OI



ATTACHMENT D Table No. 3

SYSTEM	12 "ANALA		Contraction of the second second	ACCOUNT OF A DAMAGE CONTRACT	CTMITT!	TANEOUS		3 hrs
NOS		12	16	31	34	35	96	111E
55	SMS	and the second second second	0	0	0		0	0
63 F	CWEA	0	THE REAL PROPERTY AND	NY STATE OF STREET, ST	Property and in fact over	ELL ARRA	STATISTICS.	and the second se
63 G	WH	and other the second second second	And devided IV a	CAALS (PLTE	0	SLILS MARK	MGENE	CATANOLOGICAL STR
63 H	OGS		(CONTINU	CONTRACTOR OF THE PARTY OF	PERATION	25	0
63 I	PPS	OI	L	L		LAUSSI LOI	I	0
63 J	CDS	and the second	Construction of Arrists of Tables		L			0
63 K	IRHV	STOTIST DI MANDELLE COMMAN	ALLER OF BLACKSTREE	And an address of the sound of	I	L	AND THE REAL PROPERTY OF	0
63 L	CWS				Contraction of Contra	Ne Lot anno 12 anno 17 anno 17 anno 18		0
63 M	LL		LOAD - 1	N AND	LOAD C	UT FOR	THE V	And the other party in the local data and the second
63 P	PCS	OI	OI	OI	and the first of the second	Strate states and states	distant f	and the second second
63 R	RS		and we shall be a set of the set	or secondar which the sources	refusitor - undecasion	W AND DAY MORE VALUES.		0
63 AR	AR				and the second second	Const. Services of state and strategic state		0
63 CC	HVCW					See an an an and the second second second second		0
63 CH	CH			and the second		Second and in Conservation of Conservation	NET CHERRY BRIEL OF AN ANY CALLER ANY	0
63 CW	CTW		C	ONTINU	OUS OP	ERATION	S	Construction of the local division of the lo
63 DA	DA			A DATE OF COMPANY AND A DATE		CONTRACTOR OF A CONTRACTOR OF A CONTRACT	NAMES OF TAXABLE PARTY.	0
63 DW	DW				I	in linear the basis much so are about	I	0
63 ED	EDS		С	ONTINU	OUS OP	ERATION	BURN WHITH BEAUTING THE REAL	
63 FO	FO				NUCL STREAM STREAM CONTON	TANDBY	Statements Statements and St	NY DOLLARS DOLLARS
63 FP	FDP					TANDBY		
63 HP	HPA			INCOMENDARY AND A DESCRIPTION OF A DESCR	A BRING VIAPORTAL BRID	TANDBY	No March I Have an America	AVE HALFS AND THE UNIT
63 IA	IA		I	I	and the second second	and the second	I	I
63 SC	SC		I	The first of the supervised late	the section are grave at	and an a constant of the second s		0
63 SG	SG			and and a solution of a solution of a	and a second			0
63 UA	UA		I	I	I	And and the real water series	I	OI
53 UW	UW		Index on Party Style Dance one				A data was not and an and an	OI
53 VH	VH		C	ONTINUC	US OP	ERATION	S	
53 WW	WW				and a set of the set of the set of the set	A PERSONAL AND A DECEMBER OF A DECEMBER OF	IN DECEMBER OF THE OWNER.	0
54	OSG		C	ONTINUC	US OPI	ERATION	S	Phil marth All Killing
55	CCS				I		Contraction and and	0
6	CLCWS		I	I		NAMES OF CONTRACTOR OF THE REPORT OF	T	OI
7	HVAC		CC	NTINUC	US OPI	ERATIONS	S	or anterior de ante
8	HLWIS	and a second second	and the rest of the second			The Real Property and the second second	ALCON MEDICAL DISCONCESSION OF THE	0
9 A	VSS		and the latent is at the second second	a na hina a ta ang ang ang ang ang ang ang ang ang an			and a second a second a	0
9 B	PSTS	I			Manual Conden manacolog		NAMES OF NO. 10 IN CONSIST.	0
0	A&EL	L	AND ALL ALL ALL ALL ALL ALL ALL ALL ALL AL	COLOUR VE. YWYHODI ALK DIYNELOD	NISLIMINELIN SURLEY	NA PROFESSION CONTRACTOR		0
00 A	ICH		OI	OI	The party of the second second second		OI	OI
00 B	ICS		OI	OI	NAME INTO A DESCRIPTION OF A DESCRIPTION OF A DESCRIPTION OF A DESCRIPTION	NO REPORT OF THE REAL PROPERTY OF	OI	OI

ATTACHMENT D Table No. 3

SYSTEM	12A "EVALI		and the second se	ACARDON AND A REPORT PROPERTY.	TH SPATER BURNING AND THE	MITTAN	EOUS A		hrs
NOS.		12A	16	31	37	38	39	96	*
55	SMS	ATTENDED OF A DESIGNATION OF A DESIGNATIONO OF A DESIGNA	0	0	noteron and some	and an an other Process	0	0	0
63 F	CWEA	Terristicity of the State of th	CEL	WWWWWWWWWWWW	AND E	C-CELL	ARRANG	In case of the local division in the second s	
63 G	WH	O AT STREET AT A DESCRIPTION OF A DESCRIPTION OF	Contraction of the second second	Constant of the Association	Construction of the second	the bir his databar	THAT THE	LICITION T	0
63 H	OGS	And support and the second sec		CON	TINUOUS	OPER	TIONS		
63 I	PPS	L	L		L	COA LIE G	L	I	0
63 J	CDS		PERSONAL INCOME.	Contractor Linear Artist where	No sector and the sector		and the second se	*	0
63 K	IRHV		AND THE COLORS AND A DAMAGE METALS	an a	NAME AND DESCRIPTION OF TAXABLE	L	CONTRACTOR OF A DESCRIPTION OF		0
63 L	CWS		No. of London Deployees. In streets	and the set of the set of the set	enternandel fastadi anna rafarado	0	a minera di simula sata proprio del	nt in where it would be and the day	0
63 M	LL		LOA	D-IN	AND LOA	Independent Stationary success	FOR TH	E VC	
63 P	PCS	01	OI	OI	Farmed an and an or of the second rest of the second second second second second second second second second s	Prover a second of the second second	OI		
63 R	RS			nit estat kind a card and	an talan ay an	Adalah da karang sa karang			0
63 AR	AR			NAME OF TAXABLE PARTY.	NA SCHURS IN PARADOLINE SHER			Name Lands Barrando and a Street	0
63 CC	HVCW			CONTRACTOR OF COMPANY		and the second		NEW STREET, ST	0
63 CH	CH			A PLANT OF A LOW OF A PLANT OF A	The second s	and the second second	they's and Arriston's Konstanting and	and a subscription of the	0
63 CW	CTW			CONT	TINUOUS	OPERA	TIONS	SA TA MARINE STREET, STREET, ST	ter a martin filome effer al Laure
63 DA	DA		CARGODIA ALLONGALIS			Normal Street Street Street Street	NUMBER OF TRANSPORTATION OF TAXABLE PROPERTY OF	nde av not i detaan ante ale	0
63 DW	DW				Training to the local provider	100000 0 set (1000000 at 10000	New Address of the second s	Ι	OI
63 ED	EDS			CONT	TINUOUS	OPERA	TIONS	Construction of the local diversion	Conception Section
63 FO	FO				NTINUO	And a state of the second second second	NAME AND ADDRESS OF TAXABLE PARTY OF	Construction with county uncompany.	denter entreppingen
63 FP	FDP			the second s	NTINUO	the second s	NAME OF TAXABLE PARTY OF TAXABLE PARTY.	al anno 1996 Maria an Alasta a	
63 HP	HPA		an of the second of the owner	An and shares and the same state of the	NTINUO	NAMES OF ADDRESS OF ADDRESS OF	NAMES AND ADDRESS OF ADDRESS ADDRESS OF ADDRESS OF ADDR	n e un antiféti fest vong da te fors	
63 IA	IA		I	I	Statistics in a long subscription	And in concession, succession	I	I	OI
63 SC	SC		I		P Transfer Providence and The	A house of which is in a law in an	Contractor Statement Chinese of	Not carry to be a set on a set	0
53 SG	SG			NUMBER OF STREET, STREE			name fan it it it ingender terte fe	Column C. Balanca at Anna A	0
53 UA	UA		I	I	I	I	I	I	OI
53 UW	UW	THE PART OF A CRAMERIAN	In the second second	California (California)	and the American Street	No residence concernation	NUMBER OF TAXABLE PARTY OF TAXABLE	NAME OF STREET, A MORE STREET	OI
3 VH	VH		No. 2 Control of the Principal	CONT	INUOUS	OPERA	TIONS		
3 WW	WW					erreta Sindona i kanana		NY MENNE MENNE AND A	0
54	OGS			CONT	INUOUS	OPERA	TIONS		NET OLD THINK MADE
5	CCS	OI	A DESCRIPTION OF THE OWNER	Channel of Different Linescon, 2 (1994)		ter active all produced constraints	And and an other to a supervise case on		0
6	CLCWS		I	I		R die geschertschafts ein Londblas	T	T	OI
7	HVAC			CONT	INUOUS	OPERA	TIONS		and the second second
8	HLWIS		na ale da la conservat das	and the second s	PARTICIPATION PROFESSION AND ADDRESS OF	and and the second second second	and the second second		0
9 A	VSS	and the second sec	Par Palitic Stange of Solid Palay					ten konstruction og fange og fange	0
9 B	PSTS		an and an in the second second second			a data da seriente da serie da seriente			0
0	A&EL	OI	CONTRACTOR OF STREET			A STATE CALOFFIC ACTUAL CONTRACTOR AND A	N Silen y L V Solicies sources a	art marine the succession	0
00 A	ICH	and the second sector with the second sector	OI	OI	OI		OI	OI	OI
00 B	ICS	the sub-	OI	OI	OI	t the to include any statis	OI	OI	OI

	13 * PREPARI	T	ANY COMPANY AND A CARDON OF A DAY OF A DAY	ALL DOCTOR OF THE PARTY NAMES	STATEMENT CONTRACTOR OF A			and the second set of the second second	and the second se	+ hrs
SYSTEM NOS.		1 2 2	T	and the second se	Personal discrimination of the	And and a sub-	TANEOUS	CONTRACTOR DATA	a barren a subject of the second	
55	SMS	13	16	38	39	40	41	42	96	*
63 F	and a second	-	0		0	-	cis. •	0	0	0
63 G	CWEA	-	C	ELL WA	LL AND	EX-CI	ELL ARR	ANGEME	INT	NAN TRAINING TRANS
63 H	WH									0
In the particular sector of the California of th	OGS	1	-	C	Construction of the second designed in the	Production of the date of the low	PERATIO	NS		-
63 I 63 J	PPS	OI	L	Nonescie Aca vece acazaia	L	01	OI		L	0
control of the second	CDS		terre allerne menseener	N. VIII MARKA	a benatik in pakaran senatu da			L		0
63 K	IRHV	-	Nik Skalk in Salah andara	L		I	I	I	and the state of the	0
63 L	CWS			0		L	L			0
63 M	LL	+		LOAD - II		And the second second second	UT FOR	THE V	C	
63 P	PCS	OI	OI		OI	OI				
63 R	RS			and a second second second	Name of Street Party of Street					0
63 AR 63 CC	AR		ar hereide de la section de la maintaire de				I			0
the party of the state of the s	HVCW							-	and such received air solar	0
63 CH	VFCD							I		0
63 CW	CTW	-		C(DNTINU	OUS OP	ERATIO	NS .		-
63 DA	DA				and a second state and					0
63 DW	DW	I	I		I			I	I	OI
63 ED	EDS		-	CC	ONTINU(OUS OP	ERATION	VS		an kanta jaar maalaan yaa
63 FO	FO			linder in these water distances the	CONTIN	UOUS S	TANDBY			
63 FP	FDP	Concernation of the Party of th	orive. vesservator		CONTIN	UOUS S	TANDBY			
63 HP	HPA				CONTIN	uous s	TANDBY			
63 IA	IA	I	I		I	I	I	I	I	OI
63 SC	SC		I	NUMBER OF STREET STREET, STREET			I			0
63 SG	SG			_						0
63 UA	UA	I	I		I	I	I	I	I	OI
63 UW	UW	I			A RECENT OF A REAL PROPERTY.	A STOCATION CONTRACTOR OF A STOCATION			an and a sub-	OI
63 VH	VH			CO	NTINUC	US OP	ERATION	IS		of the second
63 WW	WW					and the second balance	No. of the owner owner owner owner owner owner	and the second second second second second	e y socio de la stanosi costa e vesta	0
54	OSG			CO	NTINUC	US OP	ERATION	IS	and the second	and the set of the set
65	CCS	L			A DESCRIPTION OF TAXABLE	CARD IN A REAL PROPERTY.	TO TONY WAR ADD DO AND ADD DO	I	ne of deliver the president local	0
56	CLCWS	in we had an easily because on	I	onteriorita da factorita en anticipation	I	C. Los angenerations are service	INFORMATION CONSTRUCTION		T	OI
57	HVAC	en et en anderen en berend.	NAMES OF TAXABLE PARTY OF TAXABLE PARTY	CO	NTINUC	US OP	ERATION	IS		A. A
58	HLWIS			and the second second	Concernance of the second	and a subscription of the	Construction of the local states	ning of the subscreened	and a substantial and states pass	0
59 A	VSS	And the second second second second	len allunter aller a sebara der	termore the second second second	n yourna an a		INTERNATION OF STREET,			0
59 B	PSTS	and generative states and set of	**********	antorranony Asian in Products					e and Cardol American surg	0
0	A&EL	na na ana ana ang ang ang ang ang ang an	and reaction of the second second	Norr districts has faller a selec		ne dara ang ang ang ang ang ang ang ang ang an				Columnary, and store
A 00	ICH	annan a sheric cut en agus suise	OI		OI		erine e phore a la constante en se	0	07	0
200 B	ICS		OI		OI			0	OI OI	0I 0I

ATTACHMENT D Table No. 3

SYSTEM	14 "SAMPLE			and the task of the second sec			(2 hrs
NOS.				A second second second second second	ULTANEOUS	And a second sec	The second secon
55	SMS	14	1 16	distance in the second second second	42	96	*
63 F	Contraction of the Contraction o		0	0	0	0	0
63 G	CWEA		CELL WAI	LL AND EX	-CELL ARRA	NGEMENT	CHANG LANDSON AND ANY ONLY AND ANY
63 H	WH				0	and the second	0
63 I	OGS				OPERATION	IS	
63 J	PPS	OI	L	L	A DE DEVERT DE MONTENER Y DES CARLES DE MONTENER (MARTINE)	I	0
63 K	CDS			er benadte et henterik a tekster anderska en en se at soner	L		0
63 L	IRHV			a de la deservación de la companya d	I		0
of all the summary of the product of	CWS					and a local second state on some of the state second	0
63 M	LL				D OUT FOR	THE VC	and the second
63 P	PCS	IO	OI	OI		and a special sector design for several sectors	
63 R 63 AR	RS		a a su a		A NOTICE THE OWNER AND A DESCRIPTION		0
IN MARCHINE WAS READ TO DRIVE A WARRANT AND	AR				And American Statements and American Statements	We have set to over the set of	0
63 CC	HVCW		An of a Description of the Second Street of the Second Street of the Second Street of the Second Street of the		Overview work in such to American Strategy researches	California and Anno Section of the International Section	0
63 CH	СН		ana sebalan panta ana kana kana kana kana kana kana k		ī		0
63 CW	CTW		CO	NTINUOUS	OPERATION	S	
63 DA	DA		LAN - FALME METER STORE STORE STORE STORE				0
63 DW	DW	I		I	I	I	OI
63 ED	EDS		CO	NTINUOUS	OPERATION	S	
63 FO	FO		(CONTINUOU	S STANDBY		
63 FP	FDP	and a substantial experimental in supervise station, and	(CONTINUOU	S STANDBY		
63 HP	HPA		(CONTINUOU	S STANDBY		CONTRACTOR CONTRACTOR AND INCOME
53 IA	AI	I	I	I	I	I	OI
63 SC	SC		I			FOR DY IS PUBLIC DISC STORAGE	OI
63 SG	SG					an a	0
53 UA	UA	I	I	I	I	I	OI
53 UW	UW			NUMBER (NUMBER & STREET		an a	OI
53 VH	VH		CO	NTINUOUS	OPERATION	S	******
3 WW	WW			B 1 E HE HAR OF BESTELLE BALLER AND	and the second se	NY SECOND IN CONSTRUCTION OF STREET	0
54	OGS		CO	NTINUOUS	OPERATION	S	nors a selection of and benchmark building
5	CCS	L	A RECEIVED IN CONTRACTOR OF A CONTRACTOR OF A DESCRIPTION OF	A SHARE WERE AN AND AND AND A STREET	I	NAMES Y DAYLOY OCCUPANISATION OF	0
6	CLCWS		T	T	anan aradiga - arana aragan arada arad	non-second descent and a second descent and the second descent and the second descent and the second descent and	OI
7	HVAC	the process of the first teacher states	CO	NTINUOUS	OPERATION	encorrecto antificio se consecutivas C	U1
8	HLWIS			And a set of the or of the	OT LIGHT LUIT	an seal of the state of the sta	
9 A	VSS			and decay with place dynamic that consider a star		an in the large diversion of the second s	0
9 B	PSTS	and the second se	an Banjarja, with the scalar line on an order of \$1.00		and the same or a subsection of a second state of a second	an this way a second to environ that every a	0
0	A&EL	0	tana kaya a kata a da kata kata kata kata kata k	ar na videologia antisanan antisa anta a	NATION PORTATION AND THE OWNER CONTRACTORS		0
00 A	ICH	1	OI	07	0	0.7	0
00 B	ICS		OI	01 01	0	01	01

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AP-D-15

ATTACHMENT D Table No. 3

SYSTEM		ZE COLD CHEMICAL SAMPLES" ACTIVITY 15 AND SIMULTANEOUS ACT	(15 hrs
NOS.		15 16 39 42 43	96 *
55	SMS	0 0 0	0 0
63 F	CWEA	CELL WALL AND EX-CELL ARRANGE	Address of a state of the state
63 G	WH	0	0
63 H	OGS	CONTINUOUS OPERATIONS	
63 I	PPS	OI L L	I 0
63 J	CDS	L	0
63 K	IRHV	I L	0
63 L	CWS		0
63 M	LL	LOAD-IN AND LOAD OUT FOR THE	BIRL LAND STOLEN ALL COMPLEX AND LODGED AND AND AND AND AND AND AND AND AND AN
63 P	PCS	OI OI OI	International operation in the second se
63 R	RS		0
63 AR	AR		0
63 CC	HVCW		0
63 CH	CH	I.	0
63 CW	CTW	CONTINUOUS OPERATIONS	WARE MADE IN THE REAL PROPERTY OF THE REAL PROPERTY
63 DA	DA		0
63 DW	DW	III	01
63 ED	EDS	CONTINUOUS OPERATIONS	RINE of STREET, OCCUPIER, & COLUMNICS, WELSH, 2010
63 FO	FO	CONTINUOUS STANDBY	nine and a state of the state o
63 FP	FDP	CONTINUOUS STANDBY	NAMES AND THE OTHER DESIGNATION OF THE OTHER
63 HP	HPA	CONTINUOUS STANDBY	n demonstration of the state of the strategy of the state of the
63 IA	IA	III	I OI
63 SC	SC	I	Industrial and a survey of the second
63 SG	SG		0
63 UA	AU	III	I OI
53 UW	UW		Ož
53 VH	VH	CONTINUOUS OPERATIONS	and show have been a state of the second state of the
53 WW	WW		Ö
54	OGS	CONTINUOUS OPERATIONS	Barande Fanto des Al Stependersenden articitado
55	CCS	OI I	0
56	CLCWS	I I	I OJ
57	HVAC	CONTINUOUS OPERATIONS	NEA INTO A STREET, AND A STREET,
8	HLWIS		0
19 A	VSS		0
9 B	PSTS		0
0	A&EL		0
00 A	ICH	OI OI O	10 10
00 B	ICS		DI OI

ATTACHMENT D Table No. 3

SYSTEM	15A "EVALUA		on the second	newspronten a Solden erwinzuerskolvakser skolden bede	ANEONE ACT	(3 hrs
NOS.		15A		39	ANEOUS ACT	TVITIES *
55	SMS		0	0	0	0
63 F	CWEA	CEI	and ready to want to say that the barries	CONTRACTOR ONLY DESCRIPTION OF A VALUE AND A	L ARRANGE	the strain in the second strain washington
63 G	WH	where the second s	and WELLARD EL	ND ER-OFF	L MARANGE	net hidda mediline Summer frankrist av Grutesienen dir song
63 H	OGS	or and a sector temperature sector	CONTI	NUOUS OPE	RATIONS	0
63 I	PPS	OI		L	service and a service of the service	0
63 J	CDS	Non-process constant random second	annina mer sanden evana Movea	ded II. Sevening and a sevening of a sevening of a sevening of the sevening of the sevening of the sevening of the s	and the second	0
63 K	IRHV	and the second sec		AND IN A STREET OF DAY SUBSAL AND AND A		0
63 L	CWS	on the second second second second second second second second		Alah dire malahi Sustan uni, hute alemenya an	and the second state of the large second	0
63 M	LL	LO	AD-IN ANI	LOAD OU	T FOR THE	And it is not set to be a set of the set of
63 P	PCS	OI	OI	Contraction of the American Contraction of the		
63 R	RS	and the second	an a		an a fan en de la constant d'a da an accordencementes	0
63 AR	AR	and the second s	nt CP in ann a Shire an Albaning e an ann	and an an and a state of the st	Aler in PALINE Incompletions, Laborated Science	0
63 CC	HVCW		and the Property of the Architecture of the	an barr takun birdakan menangkan	AFCOMPTX IN THE PROPERTY AND INCOMPLETE AND	0
63 CH	CH			NACHER CHEMISTERIAN AND AND AND AND AND AND AND AND AND A	anda hada a kinaka distance ana ana atan ny maja	0
63 CW	CTW	and the second se	CONTIN	UOUS OPE	RATIONS	
63 DA	DA	Contrast December 20	na oo kardina na mada kara kara kara kara kara kara kara k		And a filled with an off-owned, to prove Annuary of	0
63 DW	DW		I	T	and the second	OI
63 ED	EDS	the second s	In President Adda in colorado do los de dasterios concessas	TUOUS OPEN	RATIONS	annon marine and a second of the
63 FO	FO	and a subscription of the		INUOUS ST	Appropriate the process of the proce	
63 FP	FDP		Concernsion and the second s	INUOUS ST	NOT THE PROPERTY OF THE REAL PROPERTY AND ADDRESS OF THE PROPERTY OF THE PROPE	
63 HP	HPA	And a second state of a second	Construction of the second sec	INUOUS ST	Contract and allow and all and all and a state of the sta	er wirtele Discont with all an and an opposite
63 IA	IA		I	I	I	OI
63 SC	SC		I	Internet Contractor States	An of the local distance of the second structure design	0
63 SG	SG					0
63 UA	UA		I	I	I	I
63 LTW	UW	A CONTRACT OF A	I DE TRE TRE ANN IN COLO. A DE LA CAREGO ANN AN	CALIFORNIA CONTRACTOR AND	NEARCH MERCENERS AND AND A DEPARTMENT OF	OI
63 VH	VH		CONTIN	UOUS OPER	RATIONS	and an and the second s
63 WW	WW		s enterette en planet. A versete administra en planet en en analysis	and were the entropy of the set of a sector discussion of the	and a reasonable day of a loss of a second	0
64	OGS		CONTIN	UOUS OPER	ATIONS	NINGWARD AND ADDRESS
65	CCS	OI			and the Constant of Constant	Second processing in the second second
66	CLCWS		I	T	T	инонинские кансыны Т
57	HVAC		CONTIN	UOUS OPER	ATIONS	errennen errennen er
58	HLWIS		and the entropy of the second second	No. of Street, or other street, and a	Noncon and a state of the state	0
59 A	VSS	1	an a substance of the party of the set of the second dy-	ar na am an	alan an - Indonesian Anna Andrew Antonio A	0
69 B	PSTS			A Proper water and an experiment of and in		0
90	A&EL	OI	All Albert in print and the first factorization party sources and	na de la companya de	Canada and an and a second substance of the second second second second second second second second second seco	0
A 002	ICH	T	OI	OI	OI	OI
200 B	ICS	1	OI	OI	OI	OI
*	CONTRACTOR AND AND A SAME AND A SAM	US ACTIVIT	And in the second s	The state of the second se	and the second second second second	narmineration and an and an and an and an and an and an

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AP-D-17

ATTACHMENT D Table No. 3

ACTIVITY	I IRANSP	ER CC MIX TO	Internet of the anti-favorage data of the president of the second s	NALES CARTERING AND THE SECOND STREET AND	(4 hrs
SYSTEM NOS.				ULTANEOUS ACT	IVITIES
Personal and a second second state of the second	-	17	39	97	*
55	SMS		0	0	0
63 F	CWEA	CELI	L WALL AND EX	-C'LL ARRANGE	MENT
63 G	WH			REALINES. LONGINGUESING DAMAGEMENT	0
63 H	OGS		CONTINUOUS	OPERATIONS	
63 I	PPS	0	L	OI	0
63 J	CDS	Comments of the Owner			0
63 K	IRHV		consider an annual constant of an annual an	And the owner of the	0
53 L	CWS				0
53 M	LL	LOA	D-IN AND LOA	D OUT FOR THE	VC
Ko b	PCS		OI	OI	
63 R	RS				0
63 AR	AR				0
63 CC	HVCW				0
63 CH	CH			And the Conference of the Internation of press between the	0
63 CW	CTW		CONTINUOUS	OPERATIONS	and the second descent spectra and the second second
63 DA	DA		A REAL PROPERTY OF A REAL PROPER		na de la constanta en la constanta de la const
63 DW	DW	I	I	an an ann an	OI
63 ED	EDS		CONTINUOUS	OPERATIONS	No
63 FO	FO		A REAL PROPERTY AND ADDRESS OF A DREAM AND ADDRESS ADDR	IS STANDBY	A (element) di setti il 16,4 (secon proven es
63 FP	FDP		Contraction of the second s	IS STANDBY	in the shadow in the second second
63 HP	HPA	and the second se	AND WAR DRAW THE SALE OF A DRAW AND	IS STANDBY	a frankrigen og skriver
63 IA	IA	I	I	I	OI
63 SC	SC			and a second	0
63 SG	SG	A STREET AND IN CONTRACTOR OF A DESCRIPTION OF A	an an independent of a selection of the part of the selection of the selec	and the product of the second state of the second state of the second state of the second state of the second st	0
63 UA	UA	I	I	T	OI
53 UW	UW		and the second state of th	and a second sec	OI
63 VH	VH	an and the second s	CONTINUOUS	OPERATIONS	WALL CONTRACTOR
53 WW	WW	and the second se	001122110000	OI LEATIONS	0
54	OGS	and the second	CONTINUOUS	OPERATIONS	
55	CCS	L	00011100000	OTERALIONS	0
6	CLCWS	ARABITRA CONTRACTOR OF A DESCRIPTION OF A D	Y	N. Alexandro and the second	
7	HVAC	Contraction of the second se	CONTANIOUC	OPERATIONS	OI
8	KLWIS		CONTINUOUS	OFERALIONS	6
9 A	VSS	Charlow and the state of the st	NAMES AND ADDRESS AND ADDRESS A		0
9 B	PSTS	and the second		tal the characteristic strategies a star of damages design	0
0	A&EL			alan tagan kanan ana ang kana kana ang pangan ana sana ang kanan kanan	0
00 A	and the second of the second			01	0
TO MENT THE TOPPOST WORKS BEFORE AN OWNER	ICH	01	OI		OI
00 B /	ICS	OI US ACTIVITIE	01	alternation and an account of the relation of the second statement and	01

SYSTEM		ACTIV	TTY 18 AN	D STMITTA	NEOUS ACT	(6 hrs
NOS.		18	39	97	98	TVIIIES *
55	SMS	0	0	0	L	0
63 F	CWEA	CE	the second design we have some state of the second distance in the	CALIFIC ALL AND ADDRESS OF TAXABLE AND ADDRESS OF TAXABLE ADDRESS OF T	L ARRANGE	In Concession, and the Owner Property of
63 G	WH	0	NOR DESCRIPTION OF THE OWNER OF T	The Add B. Set and A.	ALL FRANKING LA	0
63 H	OGS		CONTIN	NUOUS OPE	RATIONS	
63 I	PPS	I	L	and the state of t	ON THE OWNER WAS ADDRESS OF THE PARTY PARTY PARTY OF	0
63 J	CDS	The second se	AND ADDRESS AND ADDRESS AND ADDRESS ADD	And the other states and the states of the states	and a subscription of the	0
63 K	IRHV	the second s	and and score would be reading and an analysis	an a succession of the second seco	References and a second se	0
63 L	CWS					0
63 M	LL	L	AD-IN ANI	LOAD OU	T FOR THE	of talgets, between the platers in succession of
63 P	PCS	OI	an Calific Arry directory and a second s	OI	and the second	States and states and states and
63 R	RS		nonara kananganananya menerakanan m	NY AN ADDRESS OF THE OWNER OF THE OWNER OF THE		0
63 AR	AR		an management and an and a second			0
63 CC	HVCW			Charles and a second	an a	0
63 CH	CH		COLORENCE DE SEVENILE COLOREN ER LA VARIABLE CA	annan a fa fa constanta an anna an anna an an	and A fait Colored States and Press and Analysis	0
63 CW	CTW		CONTIN	UOUS OPE	RATIONS	and the difference of the state
63 DA	DA		COMMERCIA-METROPHYSIC A COMMERCIAL AC AN ANY	a na sing ng mga ng		0
63 DW	DW	I	I	I		OI
63 ED	EDS		CONTIN	UOUS OPEN	RATIONS	
63 FO	FO		Concerning of Party Constitution and a party of the	INUOUS ST	the second second second states, and second second states	
63 FP	FDP			INUOUS ST	and the second se	PARTICIPACITY OF THE PART
63 HP	HPA		Contract of the second s	INUOUS ST	CONTRACTOR AND ADDRESS OF A DESCRIPTION OF	
63 IA	IA	I	I	I	The second s	OI
63 SC	SC	A REAL PROPERTY AND A REAL			an a	0
63 SG	SG		Contract of several device of the several devices of the several dev		STREET, A. C. W. S. STREET, A. S.	0
63 UA	UA	I	I	I		OI
53 UW	UW	The second	AN ADMARTIN MICLARIA DAVA AURILI, Y 70 AGA	N ¹ MCM SERVICE AND AND AND A DESCRIPTION OF A DESCRIPTION	MERINAN CONTRACTOR OF CONTRACTOR	OI
53 VH	VH		CONTIN	UOUS OPER	RATIONS	Concernant Concernant
53 WW	WW		an an constitution of a discontant	North State in Conversion of the second second	Sector Statistics of Street Street Street	0
54	OGS	and a second second	CONTIN	UOUS OPER	ATTONS	
55	CCS	1	an a	NAMES OF A DESCRIPTION OF	and the second second second	0
6	CLCWS	1	I	T	NATIONAL STATEMENT OF THE STATEMENT OF THE STATE	OI
7	HVAC		CONTIN	JOUS OPER	ATTONS	entre constanting and the second
8	HLWIS	and an and the second s	unmenne anne in handling and		GILL DITO	0
9 A	VSS	L	na 11 mil Amerika kana kata kata di kata kata kata kata kata kata kata kat	an a fois ann an	Carlanian ik felaniska sa kuta ana kuta an	0
9 B	PSTS	0	A DE REMERINSKY OF A CALE OF A DE AL SUCH THE		raid, be brock of a chain an an ann an ann an an an an an an an	0
0	A&EL	and the second se	ant sectors and an annual sector and sectors and sectors and sectors and sectors and sectors and sectors and s	INCOMPANY OF COMPANY OF COMPANY OF COMPANY	NEW STREET, STORE STREET, STREE	0
A 00	ICH		OI	line F dan tel Film in the year daring a star wa	OI	OI
00 B	ICS		OI	and and a second se	OI	OI

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Rev. 0

ACTIVITY SYSTEM	19 "ANALYZ	T	Commission of the second second second	Durates fields, the line of particular sectors	10 417	D. CTM		10110 10			hrs
NOS.		19	45	CTIVITY 46	19 AN	48	49	50 50	51	and the second se	1
55	SMS		1 45	1 40	0	40	1 49	0	1 21	98	*
63 F	CWEA		ana ana amin'ny tanàna amin'ny tanàna amin'ny tanàna amin'ny tanàna amin'ny tanàna amin'ny tanàna amin' amin'ny	CELL	I'M NAME AND ADDRESS OF TAXABLE PARTY.	ND FY	CETT	ARRANG	CHENT	L	0
63 G	WH	0		V Er Laka	WALLS A	ND ER	· UELL	INVESTIGATION OF A DESCRIPTION OF A DESC	EMENI		
63 H	OGS				CONTI	NIIOIIIS	OPEDA	0 TTONS		an a	0
63 I	PPS	OI	L	Antonio anto anto anto anto anto anto anto ant	L	OI	ULERA	TIONS		0.1	
63 J	CDS		And so and s		E.	01		L		01	0
63 K	IRHV	a han bar an		L		Т	Ť	T	Ť	Name - The Party of Contractory	0
63 L	CWS		lation and the second	T	an balan series in benefit a	L	L		1		0
63 M	LL	an and the first strength st	and the second	LOAD	TN ANI	OWNERS AND ADDRESS OF	Address of the Addres	FOR THI	F VC		0
63 P	PCS	OI			OI	OI	001	TOK IM	C VO		0
63 R	RS		ikili ne istichi da tama				-	ant shares meansons on			0
63 AR	AR			All y different start strengt a series	a ngana matanaka dapang ana pangaran		I			AND THE SECOND SECOND	0
63 CC	HVCW		and the standing of an typic to be on		an makan tangan saki kendi dan yan berna				ternin best antippart, har an	and designed of a Radiantic	0
63 CH	СН		and a state of a state of the s	and the second second second second	and the second states of the sub-system		NUMBER OF STREET	ĩ			0
63 CW	CTW				CONTIN	TUOUS	OPERA	TIONS		Nario di Ariania (Katologia da Ari	CONCEPCION DELLOS
63 DA	DA	TO DESCRIPTION OF THE PARTY OF				AND I I WAR IN AND MUCH MANN	Construction Construction of the	Contraction of the second s	1) (11/17) (11/1 A.O. (11/1 P.O.		0
63 DW	DW	1		AND ADDRESS OF A REAL PROPERTY AND A REAL PROPERTY	I			T			01
63 ED	EDS	and the second se			CONTIN	JUOUS	OPERA	TIONS	****	and the set of the set of the set of the	01
63 FO	FO				Acceleration operation and the	ALTERNA CONTRACTOR OF THE OWNER	S STAN	strategies, respective and service			e dormal manage
63 FP	FDP		and the second designation				S STAN	Contraction of the second s			
63 HP	HPA	and the second s	A PROPERTY OF A PROPERTY	and dependent with the second second	Contraction of the owned and	of the design of the local	S STAN	MARSHOW AND COMPANY OF STOR			the state and send
63 IA	IA	A set of the second			I	I	I	I			01
63 SC	SC	1			discussion and a second second	Contraction of Contraction of		Teri teri teri teri	WORKS AND A SHARE SHOW AND A SHARE SHOW	annya nya nya mangana manga	0
63 SG	SG		And and a second particular				I	n nin ann aitean da an An Connai Bry Ba			0
63 UA	UA		I		I	I	I	I		the function of the second	OI
63 UW	UW	Contraction in which is a second		Selection des environments son de				NAMES AND DESCRIPTION OF A	NY MARA ADDRESS OF A DESCRIPTION		OI
63 VH	VH	1		NAME OF CALCUMPTOR STREET, STRE	CONTIN	UOUS	OPERAT	TONS		Parameter de Origenesian, australe a	01
63 WW	WW						Transfer Management	And the second s			0
64	OGS				CONTIN	UOUS	OPERAT	TONS			
65	CCS			ne Arte and Photos Seattle Andre State	Contract of the second state of the second		States and the states	I	No Peter Contractor	an an a bear where a boost	0
56	CLCWS	Contraction to oppose the	Analysis in a second distance	for and the design of the second second second	I			Note by Charles Tables and		A. Frederick and a state of the	OI
57	HVAC	A REAL PROPERTY OF THE PROPERTY OF	12 - 10 - AN (- A.A A.A.A.		CONTIN	UOUS	OPERAT	TONS			01
58	HLWIS	Contraction of the second s		alana (sum ar an		0	or a part of a s	C & C L I D			0
59 A	VSS			APPENDIX SPECIA STREETS AND A					andream and an a state of the s	anna a stran an Anna a	0
59 B	PSTS		No. I CONTRACT IN COLUMN			0		Biological and Alexandratic solution		There are a state of the state of	0
0	A&EL	OI	Change and the second of the s	Directorial charts and conservat							0
00 A	ICH	a survey and the second second	OI		OI				Contraction designed	OI	OI
200 B	ICS		OI	in well and the section of the trade of the section of the	OI	a design of the second second second	PERSONAL PROPERTY AND INCOME.			OI	01

ATTACHMENT D Table No. 3

SYSTEM		E ANALYTICAL DATA"	A AND SIMULTANEOUS	(6 hrs
NOS.		19A	47	*
55	SMS	มีสารสรรมสารสรรมของการเกิดการสร้างสารสรรมสารสรรมสารสรรมสารส	0	0
63 F	CWEA	CELL WAT	L AND EX-CELL ARRAN	STATISTICS CONTRACTOR CONTRACTOR STATISTICS
63 G	WH	In the Archest Process and Archest Process	LI AND LA OFLI ARAA	0
63 H	OGS	CC	NTINUOUS OPERATIONS	THE R PROPERTY AND ADDRESS OF THE DRIVEN AND ADDRESS OF THE ADDRESS ADDR
63 1	PPS	OI	L	0
63 J	CDS	an a	na canadanya makana yaya na mana mana mana mana mana man	0
63 K	IRHV	nander Seit anderen i del na fraktisch Alber in den sind del den eine versen die versch de anderen anderen.	nya manana katana k	0
63 L	CWS	an er annen verben men seneren en e	an general de la ser a la sub de la tradación des des recentes de sub de la ser unite a ser company s	0
63 M	LL	LOAD-IN	AND LOAD OUT FOR T	A DELEVATION OF A DELEVATION O
63 P	PCS	OI	OI	A REAL PROPERTY OF THE OWNER PROVIDED IN THE OWNER
63 R	RS		nan an an an ann an an an an an an an an	0
63 AR	AR		and an a second s	0
63 CC	HVCW			0
63 CH	CH	A REAL PROPERTY OF THE PROPERTY OF		0
63 CW	CTW	CO	NTINUOUS OPERATIONS	an wat a service of the second for the design of the design of the design of the second second second second se
63 DA	DA		NAMES TANKAN ANA ANA AN' NA GARANGANYA MANANA ANA ANA ANA ANA ANA ANA ANA ANA	0
63 DW	DW		I and the second s	OI
63 ED	EDS	CO	NTINUOUS OPERATIONS	Contraction and an and the second
63 FO	FO		CONTINUOUS STANDBY	
63 FP	FDP		CONTINUOUS STANDBY	and the stand of the Cold Cold States and an in the States of
63 HP	HPA	(CONTINUOUS STANDBY	nin tarakar kalanan tararat karan mit di karan kar
63 IA	AI		I	OI
63 SC	SC			0
63 SG	SG			0
53 UA	UA		I	OI
53 UW	UW		and and the second s	OI
3 VH	VH	CO	NTINUOUS OPERATIONS	
53 WW	WW			0
54	OGS	CO	NTINUOUS OPERATIONS	
5	CCS			0
6	CLCWS			OI
57	HVAC	CO	NTINUOUS OPERATIONS	
8	HLWIS			0
9 A	VSS			0
9 B	PSTS			0
0	A&EL	OI		0
A 00	ICH		OI	OI
00 B	ICS		OI	OI

SYSTEM	21 *PREPARE	A second s	A S. Y.F	(4 hrs
NOS.			AND SIMULTANEOUS	Construction of the second s
55	SMS	21	47	*
63 F	CWEA	CETT HATT	0	0
63 G	WH	UELL WALL	AND EX-CELL ARRA	The summary of a subscription of the subscription of the subscription of the subscription of the York Subscription
63 H	OGS	000	TATIONO ODDIARTON	0
63 I	PPS	01	TINUOUS OPERATION	PROVIDE STOPPOLI AND ADDRESS OF A PROVIDE DEVELOPMENT ADDRESS ADDR
63 J	CDS		L	0
63 K	IRHV		an an a chur a chur a chur a bha an	0
63 L	CWS			0
63 M	LL	TOAD TN	AND LOAD OUT FOR	0
63 P	PCS	OI OI	OI	THE VC
63 R	RS	and the second		
63 AR	AR	an ann an bhannach ann an air an		0
63 CC	HVCW			0
63 CH	CH			0
63 CW	CTW	CON	TINUOUS OPERATION	NEW YORK AND A DESCRIPTION OF A DESCRIPTION OF A DESCRIPTION OF A DESCRIPR
63 DA	DA	AN ARY AREA AND A ARY AREA AREA AREA AREA AREA AREA ARE	THOUGS OF ERATION.	0
63 DW	DW	I	T	or a new part of the second of t
63 ED	EDS	An other stand and the second stand and the second stand stand and the second stand stand stand stands and a second stand	TINUOUS OPERATION	IO
63 FO	FO		NTINUOUS STANDBY	na n
63 FP	FDP		NTINUOUS STANDBY	an a
63 HP	HPA		NTINUOUS STANDBY	
63 IA	IA	I	T	OI
63 SC	SC	nen menen han som en men er var sener sine som en ander av sener at se sener her som en senere av som er sener	n Bankanan an ana ana ang kanananan ana ang kananan an ang kananan an ang kananan ang kananan ang kananan ang k	0
63 SG	SG	an "Yes Canada an an Indonesia and Anno Anno Anno Anno Anno Anno Anno An	and an every point and an every second respectively and the second second second second second second second s	0
63 UA	UA		T	OI
63 UW	UW	A MA 2 M THE BEAUTY OF A VESSEL BUT THE OF BEEL 2 BALE IS ANY AND AN ANY ANY ANY ANY ANY ANY ANY ANY ANY	Subman que ou provinción de la presente de la constante de la provinción de	OI
63 VH	VH	CON	CINUOUS OPERATIONS	and should be a sufficient of the sufficient of
63 WW	WW		meaning means and the second second	0
54	OGS	CONT	TINUOUS OPERATIONS	
55	CCS	L	PROPERTY AND A REPORT OF THE PARTY OF THE PA	0
56	CLCWS	nen et som för i tellen som at och stärstationen ändere av men er att att av en gran admitt sokken stare	na management and a second	OI
57	HVAC	CONT	INUOUS OPERATIONS	
58	HLWIS	and the second		0
59 A	VSS	n an	name and a factory constraints and an an entry of the and provide an absorbed with a providence	0
59 B	PSTS	na ann an tha an tha a bha ann ann ann an tha ann an tha ann an tha ann an tha ann ann an tha ann ann an Antara		0
0	A&EL	OI	n A ann ann a' gur gur a' far ann a' far ann a' mar e ann ann ann an ann ann ann ann ann an	0
00 A	ICH	an an an an the first of an and the Art Conversion of the second state of the state of the second state of the	OI	01
00 B	ICS	al i Malane Calanza de la processione de la construcción de la construcción de la construcción de la construcci	01	01

AP-D-22

SYSTEM	22 "SAMPLE S	ACTIVITY 22 AND SIMULTANEOUS ACTIVITIES				
NOS.		22	47	ACTIVITIES *		
55	SMS	Service Street and an and a service street and a service street and a service street and a service street and a	0	0		
63 F	CWEA	CELL WAT	L AND EX-TELL ARRA	CONTRACTOR OF A DESCRIPTION OF A DESCRIP		
63 C	WH	Contraction of the second s	LI AND LA - GLIL ARRA	And the second		
63 H	OGS	CO	NTINUOUS OPERATION	0		
63 I	PPS	01	L	0		
63 J	CDS	antanan antan mana any ina ina manananana mananana	Анд топологияльностояльных атехного разрат вологияных асположимых	0		
63 K	IRHV			0		
63 L	CWS		na na manana na manan	0		
63 M	LL	LOAD-IN	AND LOAD OUT FOR	THE REPORT OF A DESCRIPTION OF A DESCRIPTION OF A DESCRIPTION OF A DESCRIP		
63 P	PCS	OI	OI			
63 R	RS	a tana ana atao minina mangana any amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisiana amin'ny fisi		0		
63 AR	AR		an ban dan san dan mananda an san aya sanada na sa kanyan kanya sanada. Yanada sanada sa kanya kanya kanya kan	0		
63 CC	HVCW			0		
63 CH	CH			0		
63 CW	CTW	CO	NTINUOUS OPERATION	CONTRACT AND ADDRESS OF THE ADDRESS OF THE ADDRESS OF THE DRESS OF THE OWNER ADDRESS OF THE O		
63 DA	DA		n den hende folgen den konstanten men kannen er sen konstanten som som en som en som som som som som som som s	NUMBER OF A DESCRIPTION		
63 DW	DW	I	T	OI		
63 ED	EDS	CO	NTINUOUS OPERATION	the second se		
63 FO	FO	CONTINUOUS STANDBY				
63 FP	FDP	CONTINUOUS STANDBY				
63 HP	HPA		CONTINUOUS STANDBY	na ang ang ang ang ang ang ang ang ang a		
53 IA	AI	I	I	OI		
53 SC	SC		an a	0		
53 SG	SG	and a second		0		
53 UA	UA	I	Ĩ	01		
53 UW	UW	an a	Santa ny Golana. Norovena ola versky natavane postova avera sa a	OI		
3 VH	VH	CON	TINUOUS OPERATION	And a second		
3 WW	WW		CARLON CONTRACTOR OF A	0		
4	OGS	CON	TINUOUS OPERATION	THE REPORTED AND ADDRESS OF ADDRESS OF ADDRESS A		
5	CCS	L		0		
6	CLCWS	and the second	T	OI		
7	HVAC	CON	TINUOUS OPERATIONS	the second se		
8	HLWIS		and the second	0		
9 A	VSS			0		
9 B	PSTS		New York of the second second and the second and the second second second second second second second second s	0		
0	A&EL	0	a land and particular has been and all statements of an device and an analysis of a statement of the statement	0		
A 00	ICH		OI	01		
00 B	ICS	a da se a construir de la const	OI	01		

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ATTACHMENT D Table No. 3

	ZJ ANALIZE	SHIM MIX SAMPLES"	(4 hr			
SYSTEM NOS.		ACTIVITY 23 AND SIMULTANEO	US ACTIVITIES			
55	SMS	23 47	*			
63 F	and any spectrum and an an an and	0	0			
63 G	CWEA	CELL WALL AND EX-CELL AF	RRANGEMENT			
63 H	WH		0			
63 I	OGS	CONTINUOUS OPERATI	CONCERNMENT OF A DESCRIPTION OF A DESCRIPTION OF A DESCRIPT			
63 J	PPS	0I L	0			
63 K	CDS		0			
63 L	IRHV		0			
63 M	CWS		0			
63 P	LL	LOAD-IN AND LOAD OUT FO	DR THE VC			
63 R	PCS	IO IO	name Carrow in participant consider an one of the same participant and a set of the same			
63 AR	RS		0			
63 CC	AR		0			
63 CH	HVCW		0			
63 CW	CH		0			
63 DA	DA	CONTINUOUS OPERATI	CAMPARES & AMERICAL AND DARK STOLEN. P. 1998 BLAND KOMPANY, DOCATORS AND ADDRESS AND TAKEN STOLEN.			
63 DW	And the second full second state of the second s		Ó			
63 ED	DW	<u>I</u> OI				
63 FO	EDS	CONTINUOUS OPERATIONS				
63 FP	FO FDP	CONTINUOUS STANDBY				
63 HP	or a more supported in the local data of the second states in the second states of the second	CONTINUOUS STANDBY				
63 IA	HPA	CONTINUOUS STANDI				
Consequences of the second	IA		IO			
63 SC 63 SG	SC		0			
63 UA	SG		0			
63 UW	UA		OI			
the section and the result will be a section of the	UW		OI			
63 VH	VH	CONTINUOUS OPERATI	ONS			
63 WW	WW		0			
64 c e	OGS	CONTINUOUS OPERATI	ONS			
55	CCS		0			
56	CLCWS	I	OI			
57	HVAC	CONTINUOUS OPERATI	ONS			
58	HLWIS		0			
59 A	VSS		0			
59 B	PSTS		0			
0	A&EL	L	0			
A 003	ICH	IO	OI			
00 B	ICS	OI	OI			

ATTACHMENT D Table No. 3

SYSTEM		E ANALYTICAL DATA" (1 hr ACTIVITY 23A AND SIMULTANEOUS ACTIVITIES				
NOS.		23A	47	THE REPORT OF THE PARTY OF THE		
55	SMS	the of PA	<u>47</u> 0	*		
63 F	CWEA	CETT TAT	Constrained in the state of the	0		
63 G	WH	UELLE WAL	L AND EX-CELL ARRA	AND THE REAL PROPERTY AND AND ADDRESS OF THE PARTY OF THE P		
63 H	OGS		WTWINE OPPARTON	0		
63 I	PPS	L	NTINUOUS OPERATION	A DESCRIPTION OF THE REAL PROPERTY OF THE REAL PROP		
63 J	CDS	Let	L	0		
63 K	IRHV	nin kompensionen ander and	nan na mananan ana mananan kanan	0		
63 L	CWS	neng unt annun kan den dienen menter per kerkel mit it aktivisieren dryge mentek bei andere	ander an den med som de frage de son som som som en andere andere and som andere and som andere and	0		
63 M	LL	LOAD, IN	AND LOAD OUT FOR	0		
63 P	PCS	0I	OI	THE VC		
63 R	RS	near parameter a construction of the second s				
63 AR	AR	alaraha Manyangan Konderari ang kanang k		0		
63 CC	HVCW	nen han ander verstanden verstanden andere andere eine der einen einen einen andere einen andere einen einen ein	nd et demonstration with within an advanticable, indicable to California advanticable advanticies with	HE BY SYDERICS CONTRACTOR OF ANY COLORADOW CONTRACTOR OF A DESCRIPTION OF A		
63 CH	CH	ann ann an Ann an Ann an Ann Ann an Ann a	, nanan katalah	0		
63 CW	CTW	CO	NTINUOUS OPERATIONS	0		
63 DA	DA		ATTROOD OF LEATION	n hanne e planten er hanne van de van de kenne de kenne het het het het het het het het het he		
63 DW	DW	and and an	I	0		
63 ED	EDS	CONTINUOUS OPERATIONS				
63 FO	FO	CONTINUOUS STANDBY				
63 FP	FDP	CONTINUOUS STANDBY				
63 HP	HPA	CONTINUOUS STANDBY				
63 IA	AI	NAMES OF TAXABLE PARTY OF TAXABLE PARTY OF TAXABLE PARTY OF TAXABLE PARTY.	I	07		
63 SC	SC	Per anna an an ann an ann ann ann ann ann	An and a second s	01		
53 SG	SG	n mengana kana kana kangkalan dalam dalam kana kana kana kana kana kana kana ka		0		
53 UA	UA	anan ini yana mananan ini mwani can na ini mwana m	I	OI		
53 UW	UW	na na series de la calendaria de la construction de la construction de la construction de la construction de la	A. Disk menter at 1000 control of New York and Address of Statement of Statements	In the second		
3 VH	VH	CON	TINUOUS OPERATIONS	OI		
3 WW	WW		OTERATIONS	0		
4	OGS	CON	TINUOUS OPERATIONS	A DESCRIPTION OF A DESC		
5	CCS	01	ULTOUG OF BRAITONS	0		
6	CLCWS		nanonana ana matanananananananananananananananananana	Designed and the second second of some of the state of the second s		
7	HVAC	CON	TINUOUS OPERATIONS	01		
8	HLWIS		THOUS OF CRAITIONS			
9 A	VSS	AND THE REPORT OF THE PARTY OF		0		
9 B	PSTS	ning an ann an	and a surplicity of the second sec	0		
0	A&EL	OI	n de la constante estado en la constante da constante da constante de la constante de la constante de la const	0		
00 A	ICH	and the second	OI	0		
00 B	ICS	We in a process with the balance definition of the state of the process of the balance of	01	01		
*	to consider the second	ACTIVITIES		01		

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SYSTEM	T THE REAL PROPERTY AND A PARTY OF THE PARTY	R SHIM MIX TO CFM	A DESCRIPTION OF THE PROPERTY OF T	(1 h		
NOS.		24	4 AND SIMULTANEOUS	Construction of the second		
55	SMS	L 4	<u> </u>	*		
63 F	CWEA	CELT IN	The second state of the second	0		
63 G	WH	UELLE WA	LL AND EX-CELL ARRA	A A CHARLES CHEMICAL INCOME DATA SERVICE AND ADDRESS OF ADDRESS OF ADDRESS ADDRESS ADDRESS ADDRESS ADDRESS ADDR		
63 H	OGS			0		
63 I	PPS	0	ONTINUOUS OPERATION	Construction of the second		
63 J	CDS		L	0		
63 K	IRHV	n man an fair an	nan te franska kommunika anna der stad der stad som ander som ander som ander som som som som som som som som s	0		
63 L	CWS		and the second	0		
63 M	LL	TOAD. T	N AND LOAD OUT FOR	0		
63 P	PCS	TAID - 1	01	THE VC		
63 R	RS	nden bekörnigen kontraktionen andere en andere en eine steren andere eine steren andere andere eine steren bei e				
63 AR	AR	ning an and the first of the fi	non the same of a province and the domain material and available and the second statements and the same and	0		
63 CC	HVCW	AN PERSONNEL SPECIAL SECTION OF A SECTION OF THE PERSON		0		
63 CH	CH		an na shekara na mana ang mang mang mang na mang na mang na mang mang	0		
63 CW	CTW	C	ONTINUOUS OPERATION	0 c		
63 DA	DA	AND A REAL PROPERTY AND A REAL	ONTINOUS OF ERALION			
63 DW	DW	T	таланын алан алан алан алан алан алан ала	70		
63 ED	EDS	C	ONTINUOUS OPERATION	01		
63 FO	FO	CONTINUOUS STANDBY				
63 FP	FDP	CONTINUOUS STANDBY				
63 HP	HPA	al hande wat with an owned on the second second standard of the second standard of the second second second sec	CONTINUOUS STANDBY			
63 IA	IA	I	I	OI		
63 SC	SC	ne na se	A. A consistent of the second	0		
63 SG	SG	n na shekara ku maranga ka		0		
63 UA	UA	аторыналарынын түүнөн каланын түүнө каланын түүнө каланын түүнө каланын түүнө каланын түүнө каланын түүнө калан Т	nenne besterne som en som e	01		
63 UW	UW	NELSON OF MERICAN AND A STREET AND A ST	ж. интеннициональной солоколого солокалония солокалония месяналония интеннициональной солокалония солокалония солокалония месяналония солокалония солокалония солокалония солокалония			
63 VH	VH	<u>()</u>	NTINUOUS OPERATION	01		
53 WW	WW	COLUMN TRANSPORTER DE LA COLUMNATIVA DE LA COLUMATIVA DE LA COLUMNATIVA DE LA COLUMITA DE LA COLUMNATIVA DE LA COLUMNATIVA DE LA COLUMITA DE LA COLUMATIVA DE LA COLUMATIVA DE LA COLUMATIVA DE LA COLUMATIVA DE LA COLUMITA DE LA COLUMATIVA DE LA COLUMAT	TRANSOUS OF ERALLON	The state of the second st		
54	OGS	C1	NTINUOUS OPERATION	0		
65	CCS	I	TRANSCO OF GEALION	0		
56	CLCWS	т. Т	T	A LAND TO A REPORT OF THE REPORT OF A REPORT OF A REPORT OF A REPORT OF A REPORT OF		
57	HVAC		NTINUOUS OPERATIONS	OI		
68	HLWIS	Construction of the second	VI LIVIOUD VI LIVII IUNI	CONTRACTOR OF A DESCRIPTION OF A		
9 A	VSS	n v na mana na zavisla na kana na kana na zavisla na kana na saman na zavisla na kana na kana na kana na kana n	na na manana ana amin'ny finana amin'ny finana amin'ny finana amin'ny finana amin'ny finana amin'ny finana amin	0		
9 B	PSTS	AND COMPARENT AND		0		
0	A&EL		na an a	CALIFICATION AND ADDRESS AND ADDRESS AD		
A 00	ICH	OI	OI	0		
00 B	ICS	01	OI	0I 0I		

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SYSTEM	25 "SAMPLE	the set over the state of a state of an above set of the	5 AND SIMULTANEOUS	(2 hrs			
NOS.		25	47	ACTIVITIES *			
55	SMS	มาการ ครามสาขารสาขางการสาขารสาขารสาขารการการการการสาขารสาขาร	0	* 0			
63 F	CWEA	CELL WAL	LL AND EX-CELL ARRA	and the second			
63 G	WH	WAALA WELE	AND ER-VELL ARRA	A DRAW IN THE OTHER DRAW AND ADDRESS AND ADDRES			
63 H	OGS	C(ONTINUOUS OPERATION	0			
63 I	PPS	L	L	0			
63 J	CDS		anterna esta de la companya de la co La companya de la comp	0			
63 K	IRHV		ar de parte de la verse de parameter de altre de la regel de refer de la color de la verse de la verse de la c	0			
63 L	CWS		in den andere andere en den met er en verser en warmen in den de samet de ste bener war de er men. Henne verse	0			
63 M	LL	LOAD IN	AND LOAD OUT FOR				
63 P	PCS	OI	OI	THE AC			
63 R	RS	anna a an ann an an an an an an an an an		0			
63 AR	AR		All pressour and spakes and some states and a second black and source the share second and temptates	0			
63 CC	HVCW		an a	0			
63 CH	CH	and a second	ni na kao amin'ny fisia mampiasa na faritana amin'ny fisiana	0			
63 CW	CTW	CC	NTINUOUS OPERATION	In the local period water and the second			
63 DA	DA	and a more than a stand of your line of solar and method of an and a standard and a solar method of the		0			
63 DW	DW	I	T	01			
63 ED	EDS	and the second	NTINUOUS OPERATION	THAN IT FOR DESCRIPTION OF A DATA SHOW THE WAY AND A DATA SHOW THE READ AND A DATA SHOW THE A DATA SHOW THE READ AND A DATA SHOW THE RE			
63 FO	FO	CONTINUOUS STANDBY					
63 FP	FDP	CONTINUOUS STANDBY					
63 HP	HPA	A REAL PROPERTY OF A REAT	CONTINUOUS STANDBY				
63 IA	IA	I	I	OI			
63 SC	SC	nenes, en al del rese de la mandra de la del la del resolución de la del	AND DEPENDENT OF THE PARTY OF	0			
63 SG	SG	a name a destanda por a destanda de antina de tanta de la desta de la desta de ser a ser a ser a ser a ser a s	ni sana mang manganang antang dalam kalana natu di panang mga kan panangang kana kana kana kana kana kana k	0			
53 UA	UA	T	I	01			
53 UW	UW	land i marini terdek di kanan kanan dan dan dari bahan di kanan dari dan dari bahan kanan dari kanan dari kanan	IN TRANSPORT AND INCLUSION AND AND AND AND AND AND AND AND AND AN	OI			
53 VH	VH	CO	NTINUOUS OPERATIONS	F 25 Strategic Address where an association provide an and a second s			
53 WW	WW		A REAL PROPERTY AND A REAL	0			
54	OGS	CO	NTINUOUS OPERATIONS	An other states and a second state of the second states and second states and second states and second states a			
55	CCS	nin a ser an fan die sprache en en sen in die die 1ee sen henderste die some	AND	0			
6	CLCWS	anna an an an Branchana ann an Anna ann an Anna Anna An	and and a low of the second	01			
57	HVAC	CO	NTINUOUS OPERATIONS				
58	HLWIS	and of the local difference of	ST BARTION	0			
9 A	VSS	l.	ante en ante en la senara esta con esperante de la senara d	0			
69 B	PSTS	0		0			
0	A&EL		an a	0			
00 A	ICH	OI	OI	THE R. P. LEWIS CO., LANSING MICH. & DOLLARS STORED AND ADDRESS OF THE DESIGNATION OF THE			
00 B	ICS	01	10	0I 0I			

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SYSTEM	The second s	E CFMT SAMPLES" (8 hrs ACTIVITY 26 AND SIMULTANEOUS ACTIVITIES						
NOS.		26	53	54	55	S6	And and a state of the state of	IES *
55	SMS		American	1	0	1 20	57	den manuel
63 F	CWEA	******	CELL WA	TTAN	D EX-CEI		NORMENT	0
63 G	WH		Col La dutado ME	LIAS FLAT	C EA-CE	LIL ARRA	NGEMENI	ordered in a function of the
63 H	OGS		(ONTINI	JOUS OPI	PRATTON	c	0
63 I	PPS	OI	L.	OI	L	OI	01	0
63 J	CDS	stands that so pass is so that is not an	one of the second s		And Constantiation of the second	a a successive second	01	0
63 K	IRHV		T	L		T	T	0
63 L	CWS		orienterature de contractores de	I		Ĩ.	L	0
63 M	LL		LOAD - I	N AND	LOAD OL	TT FOR	THE VC	
63 P	PCS	OI			OI	OI	LIND VU	
63 R	RS				NEW YORK ALL AND AN		NAMES OF TAXABLE PARTY OF TAXABLE PARTY.	0
63 AR	AR				an Alexandra and a state of the second state of the second state of the second state of the second state of the		Ϋ́	0
63 CC	HVCW		an a		and the second			0
63 CH	СН		And the second se	AND DE LA VELET A ANTONIS (LA VALUE	nonennek lektros soorenaanse	The second second second second second		0
63 CW	CTW		C	ONTINU	JOUS OPE	RATION	S	Permanena
63 DA	DA	I COLORADO DE LIN		AND AN ICLU WHAT ARE AND	and the second second diversion of the second second			0
63 DW	DW			1963 - Later Hall Handle of States	I		NA DALWARD AL SALES AND A DALWARD	OI
63 ED	EDS	1	CONTINUOUS OPERATIONS					
63 FO	FO		CONTINUOUS STANDBY					
63 FP	FDP		CONTINUOUS STANDBY					
63 HP	HPA		Million in Second Induced States		NUOUS ST	CONTRACTOR PORTATION	Construction of the state of th	KARANALARAY'N ALGOR
63 IA	IA			and the state of the state of the state	I	I	I	OI
63 SC	SC				THE OWNER AND		And the second	0
63 SG	SG			Pro-arrestored and a second	ANA ANG ANA ANA ANA ANA ANA ANA ANA		I	0
63 UA	UA		I	and a start boost success	I	I	I	OI
63 UW	UW	on of the Antonia Scholarson and	Norver also a dividuality of	Statute to be a set of		NAME OF TAXABLE PARTY O	PERSONAL PROPERTY AND INC.	OI
63 VH	VH		C	ONTINU	OUS OPE	RATIONS		
63 WW	WW		and standard and state and an and a state back	Charles Charles The	Control of	NISSA A VILLE	And a second	0
64	OGS	And the second s	C	ONTINU	OUS OPE	RATIONS	1	
65	CCS	The second best to be a constant of	CARGE STREET, S	in an instrument of the second	anti-section association and in		Contractor of Barrier Contractor	0
66	CLCWS	And the strength of the case of the product of the	nents va den find i Disensi artisti	Contrast Contrast of States)]	Water the state of the second s	ing to preside the providence of the providence	OI
67	HVAC		C	ONTINU	OUS OPE	RATTONS		01
58	HLWIS	A PARTY MANTER SHITLE PROVIDENT	and the state of the		anananananan ananan	0	A PARTY OF THE OWNER OF TAXABLE PARTY.	0
59 A	VSS		an ann an an an Annaice an Annaic	na na ser andra da cara de Senara de M			Consider to the order of the Constant of the	0
59 B	PSTS	I				0	States and an execution table states	0
90	A&EL	L	al locardon de la filita de la deservais	None of Louis St. Same	CALIFORNIA CONTRACTOR OF A DESCRIPTION OF A	No. of Concession, Name of Concession, Name		0
A 002	ICH		I		OI	-		OI
200 B	ICS	And interesting to the second s	T		OI			OI

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SYSTEM		ACTIVITY 26A AND SIMULTANEOUS ACT	(6 hr			
NOS.		26A 55 57	*			
55	SMS	0	0			
63 F	CWEA	CELL WALL AND EX-CELL ARRANGE	MENT			
63 G	WH		0			
63 H	OGS	CONTINUOUS OPERATIONS	NAMES OF STREET, STREET			
63 I	PPS	OI L	0			
63 J	CDS		0			
63 K	IRHV	I	0			
63 L.	CWS	L	0			
63 M	LL	LOAD-IN AND LOAD OUT FOR THE	VC			
63 P	PCS	I OI II				
63 R	RS		0			
63 AR	AR	I	0			
63 CC	HVCW		0			
53 CH	CH		0			
53 CW	CTW	CONTINUOUS OPERATIONS				
53 DA	DA		0			
53 DW	DW	I	OI			
53 ED	EDS	CONTINUOUS OPERATIONS				
3 FO	FO	CONTINUOUS STANDBY				
3 FP	FDP	CONTINUOUS STANDBY				
3 HP	HPA	CONTINUOUS STANDBY	NEMPONDAL-MEMORY SPA			
3 IA	AI	I I	OI			
3 SC	SC		0			
3 SG	SG	I	0			
3 UA	UA	I I	OI			
3 UW	UW		OI			
3 VH	VH	CONTINUOUS OPERATIONS	A A SHIP I THAT I AND IT IS NOT THE INCOME.			
3 WW	WW		0			
4	OGS	CONTINUOUS OPERATIONS	and an an order of the state of			
5	CCS		0			
6	CLCWS	Т	OI			
7	HVAC	CONTINUOUS OPERATIONS	พระสารการระด้างสารการสารการสารการสารการสาร			
8	HLWIS		0			
9 A	VSS		0			
9 B	PSTS		0			
0	A&EL	0	0			
A 00	ICH	IO	OI			
00 B	ICS	IOI	OI			



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SYSTEM	27 TRANSF		And the second se			(2 hrs		
NOS.		27	TY 27 AND					
55	SMS	0	0	57	58	*		
63 F	CWEA	TRANSPORTATION AND ADDRESS AND	LL WALL AN	D DV ADTT	INTERNATION OF THE CONTRACT OF ADDRESS	0		
63 G	WH	UE1	als WALLS AN	D EA-CLLL	International State of the State of States	Statistic and and the statistic and		
63 H	OGS		CONTIN	UOUS OPER	0 ATTONC	0		
63 I	PPS	L	L	COUS OFER	ALTONS			
63 J	CDS		And and a second s	and the second	L	0		
63 K	IRHV		and the old box description are not one of the second second second second second second second second second s	T	T	0		
63 L	CWS			L	and the second second second	0		
63 M	LL	IC	AD-IN AND	In the party of th	FOR THE	And the international statement of the second statement of		
63 P	PCS		OI	LIGILD GOL	TOR THE	VU		
63 R	RS		and in contrast of some of a local design of the	ter og skalender skore enskered	denilis for estancia. A sum the sum measure in	0		
63 AR	AR		AND IN FOR THE OWNER OF THE PARTY NAME OF THE OWNER OF THE OWNER	I	Diff. Contract land are subjected as	0		
63 CC	HVCW	and the formula bear served and address		And And So we we we have the second second second second		0		
63 CH	CH	1		and a state of the set of the second state of the set of the	T	0		
63 CW	CTW	1	CONTIN	JOUS OPER	ATIONS	name our constant		
63 DA	DA	The second secon	THE REPORT OF A CONTRACT OF A	MINING STREET, STRE	Storn Solution States	0		
63 DW	DW	I	I	an di sakaka sana pertahan kenangkan penyakan sebangakan	T	OI		
63 ED	EDS		CONTINU	JOUS OPER	A DESCRIPTION OF A DESC	C.T.		
63 FO	FO	A DECEMBER OF CONTRACTOR OF CONT	CONTINUOUS OPERATIONS CONTINUOUS STANDBY					
63 FP	FDP	T		NUOUS STA	PERSONAL PROPERTY AND A DESCRIPTION	alantani angkan sakabinga wana an		
63 HP	HPA	THE REPORT AND A REAL PROPERTY.	Construction of the second s	NUOUS STA	and the second			
63 IA	IA	I	I	Ĩ	I	OI		
63 SC	SC	and the second point of the second seco	NUMBER OF STREET, STREET, STOLEN, ST. STREET, ST.	And the Cold in the Product of Party of	A CONTRACT OF CONTRACT.	0		
63 SG	SG		or is "Control of the Control of Solid States and Adding	I	the distance of the state of the second	0		
63 U.A	UA	I	I	I	I	01		
53 UW	UW			nt die ooks werderen en en en en die en	Contraction of the second s	OI		
53 VH	VH		CONTINU	OUS OPERA	TIONS	and the second s		
53 WW	WW		erent canen ing enders aren't eris daring	CONTRACTOR OF CALMARY STATES	A DE LE VIII I I I I I I I I I I I I I I I I I	0		
54	OGS		CONTINU	OUS OPERA	TIONS			
55	CCS		and a second plantation of a second second second second	and the second	I	0		
6	CLCWS	I	I		and the product of th	OI		
7	HVAC	A CONTRACT AND ADD ADD ADD ADD ADD ADD ADD ADD ADD	CONTINU	OUS OPERA	TIONS			
8	HLWIS		NAMES OF A DESCRIPTION OF	Literature Period Street	and the second second second	0		
9 A	VSS		NEW YORK AND AND AND AND A DESCRIPTION OF A		anna ann an suite ann an suite an suite ann an suite an suite an suite an suite anns an suite anns an suite an	0		
9 B	PSTS	and and and an and a second	alantari ya kananzariki. Wanan matika manar kananan	ALMONDOLA COLONIA ADVANCE		0		
0	A&EL	Construction of the second			and the second secon	0		
00 A	ICH	OI	OI		IT BY a point out y can be done in a carry singly of	OI		
00 B	ICS	OI	OI	NUMBER OF STREET, STREE	California and a state of the s	OI		