

M-32

TO: G.C. COMFORT
FROM: B.J. HOFFMAN

WV-52 TEL: 716 942-4572

NRC HEADQUARTERS

DATE: 10/30/96
PAGE: 1

TRANSMITTAL NUM: 000008372

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Attached is a CONTROLLED COPY of the following document(s) and its applicable index. Add or replace your existing copy with the attached.

CONTROLLED COPY#	PROC ID	REV#	FC#	ISSUE DATE	PROCEDURE TITLE
007	PSR-16	4		10/30/96	ANHYDROUS AMMONIA REQUIREMENTS

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I have complied with the above instructions:

Original signed by G. Comfort
Signature (BLACK INDELIBLE INK ONLY)

11/6/96
Date

RETURN BY: 11/13/96

9611130430 961026
PDR PROJ
M-32 PDR

FOR YOUR CONVENIENCE, A SELF-ADDRESSED, STAMPED ENVELOPE HAS BEEN INCLUDED.

NFO8 0/1

DATE: 10/30/96
TIME: 09:45

PROCESS SAFETY REQUIREMENTS
WVDP-218
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<u>PROC ID</u>	<u>REV</u>	<u>FC</u>	<u>PROCEDURE TITLE</u>	<u>STATUS</u>	<u>ISSUE DATE</u>	<u>COGNIZANT MANAGER</u>
WVDP-218	7		PREFACE FOR PROCESS SAFETY REQUIREMENTS	ACTIVE	08/09/96	LAZZARO, J.A.
PSR-1	1		REQUIREMENTS FOR LIQUID TRANSFERS OF FISSILE MATERIAL	ACTIVE	03/15/96	POTTS, W.J.
PSR-2	1		MAIN PLANT STACK AIRBORNE EFFLUENT SAMPLING SYTEM REQUIREMENTS	ACTIVE	03/15/96	POTTS, W.J.
PSR-3	1		BUILDING AND VESSEL VENTILATION SYSTEM REQUIREMENTS	ACTIVE	03/15/96	POTTS, W.J.
PSR-5	1		STANDBY AND BACKUP POWER REQUIREMENTS	ACTIVE	03/15/96	POTTS, W.J.
PSR-6	1		FISSILE MATERIAL PACKAGING AND STORAGE REQUIREMENTS	ACTIVE	07/10/96	KLANIAN, P.S.
PSR-7	1		EVACUATION ALARM, EMERGENCY PAGING SYSTEM, AND SHELTERING ALARM REQUIREMENTS	ACTIVE	03/15/96	WINGER, P.G.
PSR-8	1		FIRE PROTECTION SYSTEMS REQUIREMENTS	ACTIVE	03/15/96	WINGER, P.G.
PSR-10	2		HIGH-LEVEL WASTE TANK LEAK DETECTION SYSTEM REQUIREMENTS	ACTIVE	05/08/96	MEESS, D.C.
PSR-11	1		HIGH-LEVEL WASTE TANK SPARE CAPACITY REQUIREMENTS	ACTIVE	03/15/96	MEESS, D.C.
PSR-12	2		VITRIFICATION FACILITY VENTILATION AND OFF-GAS SYSTEMS REQUIREMENTS	ACTIVE	03/28/96	MEESS, D.C.
PSR-12	2	1	VITRIFICATION FACILITY VENTILATION AND OFF-GAS SYSTEMS REQUIREMENTS	ACTIVE	07/11/96	MEESS, D.C.
PSR-12	2	2	VITRIFICATION FACILITY VENTILATION AND OFF-GAS SYSTEMS REQUIREMENTS	ACTIVE	10/07/96	MEESS, D.C.
PSR-13	2		VITRIFICATION FACILITY STANDBY POWER REQUIREMENTS	ACTIVE	03/28/96	MEESS, D.C.
PSR-13	2	1	VITRIFICATION FACILITY STANDBY POWER REQUIREMENTS	ACTIVE	05/24/96	MEESS, D.C.
PSR-13	2	2	VITRIFICATION FACILITY STANDBY POWER REQUIREMENTS	ACTIVE	07/11/96	MEESS, D.C.
PSR-15	2		VITRIFICATION FACILITY NON-RADIOLOGICAL SYSTEM MONITORING REQUIREMENTS	ACTIVE	05/16/96	MEESS, D.C.
PSR-16	4		ANHYDROUS AMMONIA REQUIREMENTS	ACTIVE	10/30/96	MEESS, D.C.
PSR-17	1		MINIMUM STAFFING LEVELS FOR SAFE FACILITY OPERATION	ACTIVE	08/05/96	LAZZARO, J.A.
PSR-9	1		TN-BRP AND TN-REG SHIPPING CASK LID INSTALLATION	CANCELLED	03/15/96	LAZZARO, J.A.
PSR-14	1		VITRIFICATION FACILITY CONFINEMENT BARRIER REQUIREMENTS	CANCELLED	03/15/96	LAZZARO, J.A.

West Valley Demonstration Project

PROCESS SAFETY REQUIREMENTS

Doc. Number PSR-16

Revision Number 4

Revision Date 10-30-96

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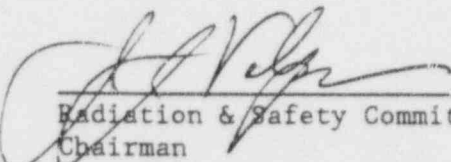
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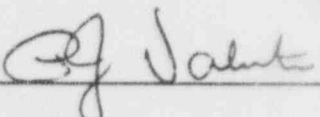
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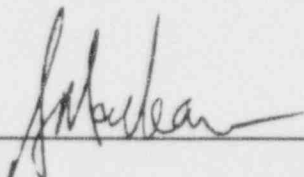
10/26/96
Date

AUTHORIZATION


TO IMPLEMENT Vittrification Operations Manager

10-25-96
Date

AUTHORIZATION


TO IMPLEMENT Site Operations Manager

10/17/96
Date



West Valley Nuclear Services Co., Inc.

P.O. Box 191

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PSR:0003995.01

WV-1816, Rev. 1

WVNS RECORD OF REVISION

DOCUMENT

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

- Placing a vertical black line in the margin adjacent to sentence or paragraph that was revised.
- Placing the words GENERAL REVISION at the beginning of the text.
- Placing either FC#> or PC#> (whichever applies) in the left-hand margin at the beginning of the paragraph or section where the field/page change has been made AND placing a vertical black line in the margin adjacent to the actual change.

Example:

The vertical line in the margin indicates a change. |

FC1> The FC#> in the margin along with the vertical line |
line (redline) indicates a change. |

Rev. No.	Description of Changes	Revision On	
		Page(s)	Dated
0	Document approved - Reference Letter WD:95:0195, J. A. Lazzaro to T. J. Rowland, "WVDP Process Safety Requirements (PSRs)," dated 03/03/95. Original document approved, but not issued through controlled distribution.	All	03/03/95
1	Incorporate DOE-WV comments received from review of Rev. 0.	All	08/16/95
2	Expansion of Table 1, "Ammonia Monitoring System Locations"	6	10/06/95
3	Removed ANSI K61.1 requirements, replaced with NFPA requirements	3	06/13/96
	Added NFPA and PSR-8 references	5	
	Added alarm setpoints and alarm locations	6	
	Added tag numbers for 01-14 System NH3 sensors	6	
	DOE approval on letter DW:96:0461, dated May 31, 1996		

WVNS RECORD OF REVISION CONTINUATION FORM

Rev. No.	Description of Changes	Revision On Page(s)	Dated
PC1	Table 1 - NH ₃ sensor #1, #3, #4, #5, #6 and #8 changed "A1" to "AI" due to typographical error. These changes are insignificant modifications per WV-365, Section 7.11; DOE approval is not required.	6	07/31/96
4	Added Applicability statements to Table 1 for clarification. Changed title of WVDP-082. Added SOP 00-04 to references. Changed drawing numbers in Table 1. These changes are insignificant modifications per WV-365, Section 7.11, DOE approval is not required.	6 3, 5 3, 5 6	10/30/96

PROCESS SAFETY REQUIREMENT - 16

TITLE: Anhydrous Ammonia Requirements

CRITERIA: Provide prevention and/or mitigation for credible accidents involving inventories of anhydrous ammonia in excess of 500 pounds.

UNACCEPTABLE EVENTS: Exposure of WVDP personnel to greater than ERPG-3 concentrations of anhydrous ammonia.

Process Safety Requirement - 16

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PROCESS SAFETY REQUIREMENT
ANHYDROUS AMMONIA REQUIREMENTS

APPLICABILITY

This Process Safety Requirement (PSR) applies to facility inventories of anhydrous ammonia which exceed 500 pounds, the threshold planning quantity (TPQ) specified in Appendix A of 40 CFR 355, Emergency Planning and Notification.

OBJECTIVES

The objective of this PSR is to minimize the risk to workers from the use of anhydrous ammonia at the WVDP.

SPECIFICATIONS

1. LIMITING CONDITION FOR OPERATION

Ammonia monitoring equipment and the associated alarms (listed in Table 1) shall be OPERABLE.

ACTION

If it is determined that any of the ammonia monitoring equipment (listed in Table 1) or associated alarms are not OPERABLE, IMMEDIATE efforts shall be undertaken to restore the affected equipment to OPERABILITY.

SURVEILLANCE REQUIREMENT

Ammonia monitoring equipment (listed in Table 1) shall be calibrated SEMI-ANNUALLY per the requirements of an approved procedure. Alarms shall be operationally checked MONTHLY per the requirements of an approved procedure.

2. LIMITING CONDITION FOR OPERATION

The Automatic Water Deluge System provided for the ammonia storage tank (64D-004) shall meet the OPERABILITY requirements of Process Safety Requirement Number Eight (PSR-8), "Fire Protection Systems Requirements." PSR-8 requirements are derived from National Fire Protection Association (NFPA)-15 (Fixed Water Spray Systems), NFPA-25 (Testing of Water Based Fire Suppression Systems), and NFPA-72 (National Fire Alarm Code).

ACTION

If it is determined that the Automatic Water Deluge System does not meet the OPERABILITY requirements of NFPA-15, 25, and 72, IMMEDIATE efforts shall be undertaken to restore OPERABILITY of the affected equipment.

SURVEILLANCE REQUIREMENT

The Automatic Water Deluge system shall be operationally checked SEMI-ANNUALLY per the requirements of an approved procedure.

3. LIMITING CONDITION FOR OPERATION

The XCR Monorail shall be locked out/tagged out of service when 64D-004 contains anhydrous ammonia, unless the lifts (except load tests) using the XCR Monorail are designated as critical lifts, per WVDP-082, *DOE Hoisting and Rigging Handbook*.

ACTION

If it is determined that the XCR Monorail is not locked out/tagged out of service, the XCR Monorail shall be locked out/tagged out of service IMMEDIATELY, per SOP 00-04, *Lock, Tag and Confirm Procedure*.

SURVEILLANCE REQUIREMENT

The lock out/tag out device shall be visually confirmed MONTHLY per the requirements of an approved procedure.

4. LIMITING CONDITION FOR OPERATION

The high-level alarm for Tank 64D-004 shall be OPERABLE during ammonia filling operations.

ACTION

If it is determined that the high-level alarm is not OPERABLE, Tank 64D-004 shall not be filled.

SURVEILLANCE REQUIREMENT

The high-level alarm shall be operationally checked PRIOR to filling operations per the requirements of an approved procedure.

BASES

The monitoring and alarm equipment serve to reduce worker risk by alerting workers to a significant release of ammonia gas. The Automatic Water Deluge System acts to prevent overpressurization of 64D-004 in the event of a fire and may act to mitigate an ammonia release. The XCR Monorail is proximal to 64D-004 and the highest safeguards must be taken to control its use. Therefore, when not in use the XCR Monorail is locked out/tagged out of service. The XCR Monorail may be required to move equipment into the Main Plant; therefore, all lifts are performed with the highest rigor, i.e., critical lifts. The high-level alarm provides indication of the potential for exceeding the working capacity of Tank 64D-004. This allows for actions to be taken which will eliminate the potential for an ammonia release to the

environment. The high-level switch which actuates the high-level alarm has a design set-point of 950 gallons.

ATTACHMENTS

Table 1 - Ammonia Monitoring System Locations

REFERENCES

29 CFR 910.111. Storage and Handling of Anhydrous Ammonia.

40 CFR 355, Appendix A. Emergency Planning and Notification.

WVDP-082. DOE Hoisting and Rigging Handbook.

NFPA 101, Code for Safety to Life from Fire in Buildings and Structures

PSR-8, Fire Protection Systems Requirements

SOP 00-04, Lock, Tag and Confirm Procedure

TABLE 1
AMMONIA MONITORING SYSTEM LOCATIONS

Monitor	Elevation (ft)	Location	(Dwg. No.)
VF Ex-Cell Off-gas System, 01-14 Building ¹ (Applicable when Tank 64D-004 contains NH ₃)			
NH ₃ Sensor #1 (64-AI-7211)	144.0	Blower Room Extension	(906D-008)
NH ₃ Sensor #3 (64-AI-7213)	130.0	Third Floor (Near HEPA Room)	(906D-008)
NH ₃ Sensor #4 (64-AI-7214)	124	Instrument Room	(906D-008)
NH ₃ Sensor #5* (64-AI-7215)	114.0	01 Cell	(906D-008)
NH ₃ Sensor #6* (64-AI-7216)	117.0	Ammonia Valve Gallery	(906D-008)
NH ₃ Sensor #8 (64-AI-7218)	100.5	01-14 Stairwell	(906D-008)
Vitrification Test Facility ² (Applicable when the Ammonia Storage Room (ASR) contains NH ₃)			
NH ₃ Continuous Air Monitor (61-AIT-096)	NA	Ammonia Storage Room	(900D-3096) Sheet 1 of 2
Site Area Sensors ³ (Applicable when either Tank 64D-004 or the ASR contains NH ₃)			
MSA Chillgard NH ₃ Sensor (64-AE/AI-8200)	NA	Trailer Z-04	(906B-305 Sheet 188)
MSA Chillgard NH ₃ Sensor (64-AE/AI-8201)	NA	Trailer F	(906B-305 Sheet 189)
MSA Chillgard NH ₃ Sensor (64-AE/AI-8202)	NA	Trailer B	(906B-305 Sheet 190)
MSA Chillgard NH ₃ Sensor (64-AE/AI-8203)	NA	Ammonia Storage Tank	(906B-305 Sheet 191)
MSA Chillgard NH ₃ Sensor (64-AE/AI-8204)	NA	Main Plant	(906B-305 Sheet 192)

- 1 35ppm alarm (local, at Vitrification Process Control Room (VPCR) 01-14 general alarm and at AMS)
2 25ppm, 100ppm, and 200ppm alarms (local and at AMS)
3 25ppm and 200ppm alarms (at AMS)
* Local and VPCR alarms only