

RECORDS MANAGEMENT DEPARTMENT

50-201  
Room 32

TO: C. GLENN  
FROM: D.L. HORTON

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AOC-21 TEL: 716 942-4300

NRC HEADQUARTERS

DATE: 05/31/2002  
PAGE: 1

TRANSMITTAL NUM: 000018308

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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
006	PSR-4	3		05/30/2002	SPENT FUEL CASK STAGING AND HANDLING REQUIREMENTS

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Date

RETURN BY: 06/14/2002

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Pool

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TIME: 12:53

PROCESS SAFETY REQUIREMENTS  
WVDP-218  
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					DATE	COGNIZANT MANAGER
WVDP-218	10		PREFACE FOR PROCESS SAFETY REQUIREMENTS	ACTIVE	12/11/2000	CHILSON,L.J.
WVDP-218	10	1	PREFACE FOR PROCESS SAFETY REQUIREMENTS	ACTIVE	03/09/2001	CHILSON,L.J.
WVDP-218	10	2	PREFACE FOR PROCESS SAFETY REQUIREMENTS	ACTIVE	06/05/2001	CHILSON,L.J.
WVDP-218	10	3	PREFACE FOR PROCESS SAFETY REQUIREMENTS	ACTIVE	09/19/2001	CHILSON,L.J.
PSR-1	1		REQUIREMENTS FOR LIQUID TRANSFERS OF FISSILE MATERIAL	ACTIVE	03/15/1996	POTTS,W.J.
PSR-1	1	1	REQUIREMENTS FOR LIQUID TRANSFERS OF FISSILE MATERIAL	ACTIVE	04/03/1997	POTTS,W.J.
PSR-2	2		MAIN PLANT STACK AIRBORNE EFFLUENT SAMPLING SYSTEM REQUIREMENTS	ACTIVE	09/12/2000	POTTS,W.J.
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PSR-11	1		HIGH-LEVEL WASTE TANK SPARE CAPACITY REQUIREMENTS	ACTIVE	03/15/1996	MEESS,D.C.
PSR-11	1	1	HIGH-LEVEL WASTE TANK SPARE CAPACITY REQUIREMENTS	ACTIVE	03/26/1997	MEESS,D.C.
PSR-12	3		VITRIFICATION FACILITY VENTILATION AND OFF-GAS SYSTEMS REQUIREMENTS	ACTIVE	02/21/1997	KOCIALSKI,T.F.
PSR-12	3	1	VITRIFICATION FACILITY VENTILATION AND OFF-GAS SYSTEMS REQUIREMENTS	ACTIVE	11/03/1998	KOCIALSKI,T.F.
PSR-12	3	2	VITRIFICATION FACILITY VENTILATION AND OFF-GAS SYSTEMS REQUIREMENTS	ACTIVE	03/03/1999	KOCIALSKI,T.F.
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PSR-13	2		VITRIFICATION FACILITY STANDBY POWER REQUIREMENTS	ACTIVE	03/28/1996	KOCIALSKI,T.F.
PSR-13	2	1	VITRIFICATION FACILITY STANDBY POWER REQUIREMENTS	ACTIVE	05/24/1996	KOCIALSKI,T.F.
PSR-13	2	2	VITRIFICATION FACILITY STANDBY POWER REQUIREMENTS	ACTIVE	07/11/1996	KOCIALSKI,T.F.
PSR-15	3		NOX MONITORING INSTRUMENTATION REQUIREMENTS	ACTIVE	09/30/1998	KOCIALSKI,T.F.
PSR-15	3	1	NOX MONITORING INSTRUMENTATION REQUIREMENTS	ACTIVE	11/23/1999	KOCIALSKI,T.F.

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PSR-16	6		ANHYDROUS AMMONIA MONITORING INSTRUMENTATION AND STORAGE REQUIREMENTS	ACTIVE	11/12/1998	KOCIALSKI,T.F.
PSR-16	6	1	ANHYDROUS AMMONIA MONITORING INSTRUMENTATION AND STORAGE REQUIREMENTS	ACTIVE	06/27/2000	KOCIALSKI,T.F.
PSR-17	4		MINIMUM STAFFING LEVELS FOR SAFE FACILITY OPERATION	ACTIVE	09/24/1999	COVERT,B.C.
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PSR-17	4	2	MINIMUM STAFFING LEVELS FOR SAFE FACILITY OPERATION	ACTIVE	10/13/2000	COVERT,B.C.
PSR-17	4	3	MINIMUM STAFFING LEVELS FOR SAFE FACILITY OPERATION	ACTIVE	10/26/2000	COVERT,B.C.

# West Valley Demonstration Project

Doc. ID Number PSR-4

Revision Number 3

Revision Date 05/30/2002

## PROCESS SAFETY REQUIREMENTS

TITLE: SPENT FUEL CASK STAGING AND HANDLING REQUIREMENTS

APPROVED BY:

David K. Proets  
Cognizant Manager

12/13/01  
Date

APPROVED BY:

J. H. [Signature]  
Radiation & Safety Committee,  
Chairman

12/14/01  
Date

AUTHORIZATION  
TO IMPLEMENT:

[Signature]  
Process Plant Decontamination  
Project Manager

5/29/02  
Date



**Westinghouse**  
Government Services Group

West Valley Nuclear Services Co.  
10282 Rock Springs Road  
West Valley, NY 14171-9799

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PROCESS SAFETY REQUIREMENT - 4

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TITLE: Spent Fuel Cask Staging and Handling Requirements

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CRITERIA: Prevention of criticality during handling and storage of spent fuel assemblies. (PSR Criterion 3.a from WV-365, Preparation of WVDP Safety Documents, Attachment C, *Process Safety Requirement Criteria*.)

Assurance that actions required to comply with Nuclear Regulatory Commission (NRC) spent fuel shipping cask Certificates of Compliance are properly incorporated into IMPLEMENTING PROCEDURES and, upon execution, are witnessed and verified. (PSR Criterion 4 from WV-365, Preparation of WVDP Safety Documents, Attachment C, *Process Safety Requirement Criteria*.)

UNACCEPTABLE EVENTS: Inadvertent criticality during handling and storage of spent fuel assemblies.

Failure to include in an approved IMPLEMENTING PROCEDURE actions required to comply with Nuclear Regulatory Commission spent fuel shipping cask Certificates of Compliance.

Failure to perform, witness, or verify actions required to comply with Nuclear Regulatory Commission spent fuel shipping cask Certificates of Compliance.

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Process Safety Requirement - 4

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PROCESS SAFETY REQUIREMENT  
SPENT FUEL CASK STAGING AND HANDLING REQUIREMENTS

APPLICABILITY

This Process Safety Requirement (PSR) applies to fuel assembly storage and handling in the Cask Unloading Pool (CUP) section of the Fuel Receiving and Storage (FRS) facility and fuel assemblies staged for shipment in Nuclear Regulatory Commission (NRC)-licensed shipping casks anywhere on the WVDP site.

In addition, this PSR applies to actions required to comply with the NRC spent fuel shipping cask Certificates of Compliance.

OBJECTIVES

The objectives of this PSR are to ensure that fuel assemblies are maintained in a subcritical configuration and to ensure that actions required to comply with Nuclear Regulatory Commission spent fuel shipping cask Certificates of Compliance are conducted per the requirements of an approved IMPLEMENTING PROCEDURE and, upon execution, are witnessed and verified.

SPECIFICATIONS

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1. Deleted
2. Deleted
3. Deleted
4. Deleted

5. LIMITING CONDITION FOR OPERATION

At least four bolts shall be installed to secure a cask lid before handling (moving or raising or lowering) of a shipping cask containing one or more fuel assemblies. This condition applies only to handling the cask while it is suspended from the FRS 100-ton crane for emplacement or removal from the CUP.

ACTION

If it is determined that a loaded cask is being handled (moved or raised or lowered) into or out of the CUP without the lid being secured with at least four bolts, the cask shall IMMEDIATELY be placed in a safe resting position and the condition shall be reported IMMEDIATELY to the Spent Fuel Project Manager and the Radiation and Safety Committee Chairman. Written permission from the Radiation and Safety Committee shall be obtained to resume cask-handling (cask-moving or -raising or -lowering) operations.

SURVEILLANCE REQUIREMENT

PRIOR to any handling (moving or raising or lowering) activities involving a shipping cask into or out of the CUP in which at least one fuel assembly has been placed, verification shall be made per the requirements of an approved IMPLEMENTING PROCEDURE that at least four bolts have been properly installed to secure the cask lid.

6. Deleted

7. LIMITING CONDITION FOR OPERATION

Operational steps that are required to satisfy the NRC Certificate of Compliance for the TN-REG shipping cask and underlined procedural steps in the latest revision of the NRC-approved TN-REG SAR, Chapter Seven, *Operating Procedures*, shall be conducted and, upon execution, witnessed and verified by the Quality Assurance Department per the requirements of an approved IMPLEMENTING PROCEDURE.

ACTION

- a. If operational steps that are required to satisfy the NRC Certificate of Compliance for the TN-REG shipping cask or underlined procedural steps in the latest revision of the NRC-approved TN-REG SAR, Chapter Seven, *Operating Procedures*, are being conducted without the requirements being stated in an approved IMPLEMENTING PROCEDURE, all further operational steps shall be stopped IMMEDIATELY. The Spent Fuel Project Manager and the Radiation and Safety Committee Chairman shall be notified IMMEDIATELY. Resumption of operations shall be in accordance with a written plan that is approved by OH/WVDP.

- b. If operational steps that are required to satisfy the NRC Certificate of Compliance for the TN-REG shipping cask or underlined procedural steps in the latest revision of the NRC-approved TN-REG SAR, Chapter Seven, *Operating Procedures*, are being conducted per the requirements of an approved IMPLEMENTING PROCEDURE but, upon execution, are not witnessed and verified by the Quality Assurance Department, all further operational steps shall be stopped IMMEDIATELY. The Spent Fuel Project Manager and the Radiation and Safety Committee Chairman shall be notified IMMEDIATELY. Resumption of operations shall be in accordance with a written plan that is approved by OH/WVDP.

SURVEILLANCE REQUIREMENT

- a. Before obtaining gas samples from the TN-REG shipping cask, performing helium leak testing, or changing out primary boundary seals, operational steps that are required to satisfy the NRC Certificate of Compliance for the TN-REG shipping cask and applicable underlined procedural steps in the latest revision of the NRC-approved TN-REG SAR, Chapter Seven, *Operating Procedures*, it shall be determined and documented that requirements contained in the NRC Certificate of Compliance for the TN-REG shipping cask and underlined procedural steps in the latest revision of the NRC-approved TN-REG SAR, Chapter Seven, *Operating Procedures* are contained in approved IMPLEMENTING PROCEDURES. This determination and documentation shall be performed per the requirements of an approved IMPLEMENTING PROCEDURE.
- b. Before obtaining gas samples from the TN-REG shipping cask, performing helium leak testing, or changing out primary boundary seals on the TN-REG shipping cask by conducting operational steps that are required to satisfy the NRC Certificate of Compliance for the TN-REG shipping cask and underlined procedural steps in the latest revision of the NRC-approved TN-REG SAR, Chapter Seven, *Operating Procedures*, it shall be determined and documented that the approved IMPLEMENTING PROCEDURES require witnessing and verification by the Quality Assurance Department upon completion of each of the designated procedural steps. This determination and documentation shall be performed per the requirements of an approved IMPLEMENTING PROCEDURE.

- c. Upon completion of operational steps that are required to satisfy the NRC Certificate of Compliance for the TN-REG shipping cask and underlined procedural steps in the latest revision of the NRC-approved TN-REG SAR, Chapter Seven, *Operating Procedures*, it shall be determined and documented that the operational steps have been completed. This determination and documentation shall be performed per the requirements of an approved IMPLEMENTING PROCEDURE.

8. LIMITING CONDITION FOR OPERATION

Operational steps that are required to satisfy the NRC Certificate of Compliance for the TN-BRP shipping cask and underlined procedural steps in the latest revision of the NRC-approved TN-BRP SAR, Chapter Seven, *Operating Procedures*, shall be conducted and, upon execution, witnessed and verified by the Quality Assurance Department per the requirements of an approved IMPLEMENTING PROCEDURE.

ACTION

- a. If operational steps that are required to satisfy the NRC Certificate of Compliance for the TN-BRP shipping cask or underlined procedural steps in the latest revision of the NRC-approved TN-BRP SAR, Chapter Seven, *Operating Procedures*, are being conducted without the requirements being stated in an approved IMPLEMENTING PROCEDURE, all further operational steps shall be stopped IMMEDIATELY. The Spent Fuel Project Manager and the Radiation and Safety Committee Chairman shall be notified IMMEDIATELY. Resumption of operations shall be in accordance with a written plan that is approved by OH/WVDP.
- b. If operational steps that are required to satisfy the NRC Certificate of Compliance for the TN-BRP shipping cask or underlined procedural steps in the latest revision of the NRC-approved TN-BRP SAR, Chapter Seven, *Operating Procedures*, are being conducted per the requirements of an approved IMPLEMENTING PROCEDURE but, upon execution, are not witnessed and verified by the Quality Assurance Department, all further operational steps shall be stopped IMMEDIATELY. The Spent Fuel Project Manager and the Radiation and Safety Committee Chairman shall be notified IMMEDIATELY. Resumption of operations shall be in accordance with a written plan that is approved by OH/WVDP.

SURVEILLANCE REQUIREMENT

- a. Before obtaining gas samples from the TN-BRP shipping cask, performing helium leak testing, or changing out primary boundary seals, operational steps that are required to satisfy the NRC Certificate of Compliance for the TN-BRP shipping cask and applicable underlined procedural steps in the latest revision of the NRC-approved TN-BRP SAR, Chapter Seven, *Operating Procedures*, it shall be determined and documented that requirements contained in the NRC Certificate of Compliance for the TN-BRP shipping cask and underlined procedural steps in the latest revision of the NRC-approved TN-BRP SAR, Chapter Seven, *Operating Procedures* are contained in approved IMPLEMENTING PROCEDURES. This determination and documentation shall be performed per the requirements of an approved IMPLEMENTING PROCEDURE.
  
- b. Before obtaining gas samples from the TN-BRP shipping cask, performing helium leak testing, or changing out primary boundary seals on the TN-BRP shipping cask by conducting operational steps that are required to satisfy the NRC Certificate of Compliance for the TN-BRP shipping cask and underlined procedural steps in the latest revision of the NRC-approved TN-BRP SAR, Chapter Seven, *Operating Procedures*, it shall be determined and documented that the approved IMPLEMENTING PROCEDURES require witnessing and verification by the Quality Assurance Department upon completion of each of the designated procedural steps. This determination and documentation shall be performed per the requirements of an approved IMPLEMENTING PROCEDURE.
  
- c. Upon completion of operational steps that are required to satisfy the NRC Certificate of Compliance for the TN-BRP shipping cask and underlined procedural steps in the latest revision of the NRC-approved TN-BRP SAR, Chapter Seven, *Operating Procedures*, it shall be determined and documented that the operational steps have been completed. This determination and documentation shall be performed per the requirements of an approved IMPLEMENTING PROCEDURE.

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BASIS

PWR and BWR fuel assemblies are designed to sustain nuclear criticality when placed in a suitable configuration with other fuel assemblies. Consequently, engineered and administrative controls are required to protect against an inadvertent criticality. The NRC-licensed shipping casks are designed to reduce the neutronic interaction between fuel assemblies to an acceptable level.

Handling of a loaded spent fuel shipping cask represents the only activity in which more than one fuel assembly is handled outside of a storage canister. Dropping of a full shipping cask in which the lid has not been secured could result in the release of one or more fuel assemblies from the shipping cask, resulting in an unanalyzed condition and possibly an inadvertent criticality. Consequently, it is required that the lid be secured with at least four lid bolts PRIOR to cask handling activities into or out of the CUP using a crane to mitigate the potential for an inadvertent criticality. A cask would be lowered into the CUP if the lid O-ring seals required replacement. The lid will be secured with 48 bolts during all other movements.

Nuclear Regulatory Commission (NRC) spent fuel shipping cask Certificates of Compliance specify or reference actions that must be carried out in order to ensure the validity of the latest revision of the NRC-approved TN-REG SAR and TN-BRP SAR. These actions must be conducted per the requirements of an approved IMPLEMENTING PROCEDURE. Further, upon execution of these actions, witnessing and verification must be performed. A final verification must be performed to establish that the actions have been completed.

The operational steps required to maintain the validity of TN-REG and TN-BRP shipping cask transport safety analysis conclusions are specifically identified by underlined procedural steps in the latest revision of the NRC-approved TN-REG SAR and TN-BRP SAR, Chapter Seven, *Operating Procedures* and the NRC Certificates of Compliance for the TN-REG and TN-BRP shipping casks. These designated operational steps must be conducted per the requirements of an approved IMPLEMENTING PROCEDURE. Further, upon execution of underlined procedural steps, witnessing and verification must be performed. A final verification must be performed to establish that underlined procedural steps have been completed.

The latest revision of the NRC-approved TN-REG SAR and TN-BRP SAR, Chapter 8.0, *Acceptance and Maintenance Programs*, state that Chapter 8.0 describes activities that ensure that the cask conforms to the requirements of the respective SAR and remains in conformance following fuel loading. The requirements of Chapter 8.0 of latest revision of each SAR were reviewed and were found either to have been previously completed or to be carried out as a subset of the requirements of underlined procedural steps in Chapter 7.0 of the latest revision of each SAR. Thus, no additional PSR SPECIFICATIONS are needed to fulfill the requirements of the latest revision of the NRC-approved TN-REG SAR and TN-BRP SAR, Chapter 8.0, *Acceptance and Maintenance Programs*.

ATTACHMENT

None

REFERENCES

TN-BRP SAR.            *TN-BRP Spent Fuel Package Safety Analysis Report for Transport.*  
TN-REG SAR.            *TN-REG Spent Fuel Package Safety Analysis Report for Transport.*  
WVNS-SAR-012<sup>1</sup>.        *Safety Analysis Report for Fuel Receiving and Storage Facility.*

NOTE 1: WVNS-SAR-012 IS IN THE PROCESS OF BEING CONSOLIDATED IN WVNS-SAR-002.

WVNS RECORD OF REVISION

<u>Rev. No.</u>	<u>Description of Changes</u>	<u>Revision On Page (s)</u>	<u>Dated</u>
3	General Revision REVISED cover sheet with approval signatures	All 1	05/30/02
	Changed PSR title to reflect current requirements	1,2,3	
	MODIFIED the section on APPLICABILITY	3	
	DELETED Specifications 1, 2, 3, and 4	3	
	These four specifications, which applied to the fuel canisters, racks and lift racks, are now obsolete as the fuel assemblies are no longer handled or stored in the Fuel Storage Pool or CUP.		
	The fuel assemblies have been removed from the Fuel Storage Pool and are now staged in two NRC-licensed shipping casks.		
	CLARIFIED Specification 5	3	
	This LCO applies only to handling the cask while it is suspended from the FRS 100-ton crane for emplacement or removal from the CUP.		
	DELETED Specification 6	4	
	This specification, which required maintaining the conductivity of the water in the Fuel Storage Pool below 4 $\mu$ mho/cm to minimize corrosion of the canisters and racks, is no longer required. The purpose of this specification was to prevent reduction in the spacing between fuel assemblies due to failure of the racks or canisters caused by corrosion. The fuel assemblies have been removed from the Fuel Storage Pool and are staged dry in two NRC-Licensed shipping casks.		
	CLARIFIED Specifications 7 and 8	4 and 6	
	This specification was changed to address only activities to maintain the casks since all other actions have been completed loading the casks. Certain SAR Chapter 7 underlined steps must be repeated while performing the listed maintenance actions.		
	CHANGED references the Spent Fuel Shipping Manager to the Spent Fuel Project Manager throughout.		
	CHANGED the BASIS to reflect the above changes.		

WVNS RECORD OF REVISION CONTINUATION FORM

Rev. No.	Description of Changes	Revision On Page(s)	Dated
3 cont.	ADDED a footnote to the REFERENCES that WVNS SAR-012 is in the process of being consolidated into WVNS SAR-002.  DOE approval obtained in letter DW:2002:0177 dated, 04/11/02.	9	