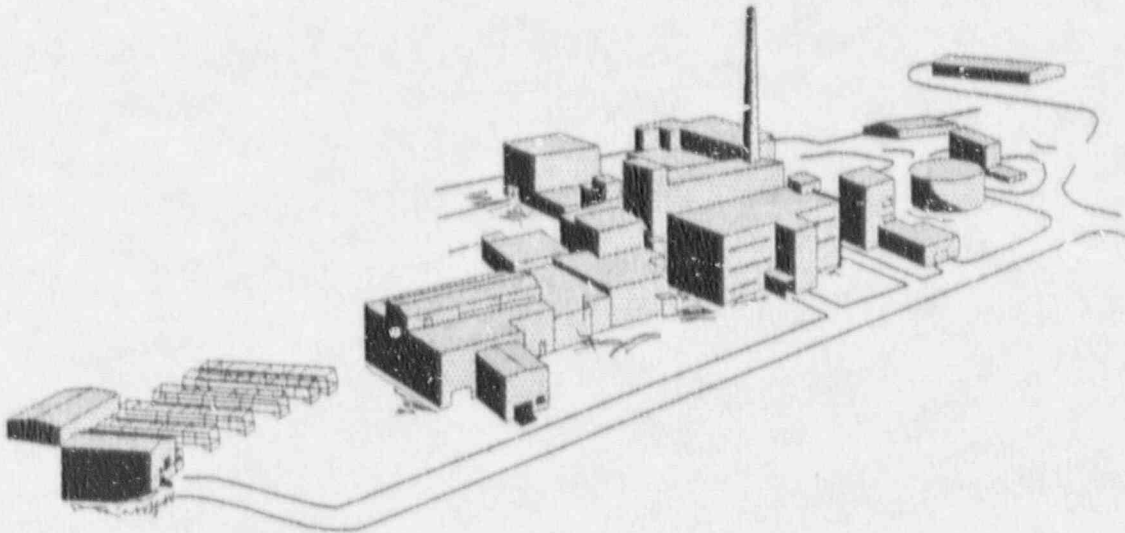


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WVDP - 007

NUCLEAR MATERIAL CONTROL AND ACCOUNTABILITY PLAN



West Valley Demonstration Project



West Valley, New York



From Records Management
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Letter # HF:91:0029

Date January 4, 1991

Subject Controlled Distribution of the Nuclear Material Control and
Accountability Plan, WVDP-007, Rev. 5

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Replace revision (4) of the plan with the attached.

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I. E. Domes, Records Processor
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C. M. Schiffhauer, Supervisor

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West Valley Demonstration Project

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Revision Date 01-04-91

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NUCLEAR MATERIAL CONTROL AND ACCOUNTABILITY PLAN

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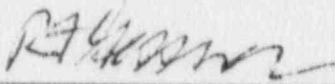
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Rev. 5

WEST VALLEY NUCLEAR SERVICES CO., INC.
WEST VALLEY DEMONSTRATION PROJECT
NUCLEAR MATERIAL CONTROL AND ACCOUNTABILITY PLAN

Approved by:



R. F. Gessner, Manager
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RECORD OF REVISION

PROCEDURE

If there are changes to the procedure, the revision number increases by one. These changes are indicated by placing a heavy vertical black line located in the right-hand margin adjacent to the sentence or paragraph which was revised.

Example:

The vertical line in the margin indicates a change. |

Rev. No.	Description of Changes	Revision On Page(s)	Dated
0	Original Issue	All	11-82
1	Revision to Document	All	06-83
2	Revision to Document	All	07-85
3	Revision to Document	All	07-86
4	Revision to Document	All	06-87
5	General Revision - Complete Rewrite	All	01-91

RECORD OF REVISION (CONTINUATION SHEET)

Rev. No.	Description of Changes	Revision on Page(s)	Dated
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WEST VALLEY NUCLEAR SERVICES CO., INC.
WEST VALLEY DEMONSTRATION PROJECT
NUCLEAR MATERIAL CONTROL AND ACCOUNTABILITY PLAN

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WEST VALLEY NUCLEAR SERVICES CO., INC.

WEST VALLEY DEMONSTRATION PROJECT

NUCLEAR MATERIAL CONTROL AND ACCOUNTABILITY PLAN

1.0 INTRODUCTION

- 1.1 Purpose - The purpose of the West Valley Demonstration Project Nuclear Material Control and Accountability Plan is to establish policy, identify responsibilities, and define requirements for control and accountability of all nuclear materials at the Department of Energy's (DOE) West Valley Demonstration Project.
- 1.2 Scope - The policies, procedures and responsibilities, as delineated in this plan, in conjunction with the West Valley Safeguards and Security Plan, provide for compliance with the Department of Energy's requirements for control and accountability of nuclear materials as specified in the DOE Order 5630 Series for the West Valley Demonstration Project. The provisions of this plan apply to all functions involving nuclear material for the West Valley Demonstration Project.

The Material Control and Accountability Plan (MC&A) is a detailed description of the requirements for inventory, and the records and reports system all quantified as to accuracy and timeliness.

1.3 References

- 1.3.1 ID 5633.2, Control and Accountability of Nuclear Materials.
- 1.3.2 DOE 5633.2, Control and Accountability of Nuclear Materials: Responsibilities and Authorities
- 1.3.3 DOE 5633.3, Control and Accountability of Nuclear Materials.
- 1.3.4 DOE 5633.5, Nuclear Materials Reporting and Data Submission Procedures.
- 1.3.5 DOE 5633.4, Nuclear Materials Transactions: Documentation and Reporting.
- 1.3.6 ID 5660.1, Management of Nuclear Materials.
- 1.3.7 DOE 5660.1, Management of Nuclear Materials.
- 1.3.8 WVDP-006, Security and Safeguards Plan.
- 1.3.9 DOE 5632.2A, Physical Protection of SNM and Vital Equipment.

- 1.3.10 SOP 15-27, Inventorying Nuclear Material in Nuclear Material Control Areas.
- 1.3.11 SOP 15-30, Control, Installation and Removal of WVNS Tamper Indicating Devices for Nuclear Material Accountability.

1.4 Definitions

1.4.1 Category III Quantities of Special Nuclear Material

- A. Uranium 235 (contained in Uranium enriched to 20 percent, or more, in the isotope U-235) when the total is 1 gram to 999 grams.
- B. Plutonium and/or Uranium 233 when the Plutonium and/or Uranium 233 content is 1 gram to 399 grams.
- C. Combinations of Plutonium and/or Uranium 233 with Uranium 235 (contained in Uranium enriched to 20 percent, or more, in the isotope U-235) when the total is less than 1,000 grams and the Plutonium and/or Uranium 233 content is less than 400 grams.
- D. Uranium 235 contained in Uranium enriched to less than 20 percent in the isotope U-235 in all quantities above .99 grams.

1.4.2 Equipment Holdup - is an estimated or measured quantity of nuclear material which adheres so tenaciously to the equipment that it has become part of the equipment or requires special treatment to remove.

1.4.3 Inventory Difference (ID) - is the algebraic difference between the nuclear material book inventory (BI) and a physical inventory (PI), i.e., $ID = BI - PI$.

1.4.4 Material Balance Area (MBA) - is an identifiable physical area wherein the quantity of nuclear material being moved into or out of is represented by a measured value.

The material balance areas are established to provide material control and accounting capabilities which reflect planned operations of West Valley Nuclear Services Co., Inc.

1.4.5 Material Control Alarms - Alarms from loss detection elements (e.g., SNM monitors, material surveillance) which may indicate abnormal situations and/or unauthorized use/removal of nuclear material.

1.4.6 Material Custodian - is an individual assigned responsibility for the control of nuclear material in a localized area of a facility. The localized area should be limited, where practical, to a single material balance area.

- 1.4.7 Nuclear Materials - is a collective term which includes all materials designated from time to time and to which the provisions of this plan apply. Table I contains a listing of materials currently designated as nuclear materials and includes source material.
- 1.4.8 Reporting Identification Symbol (RIS) - consists of a unique combination of three or four letters which are assigned to each reporting facility by the Department of Energy (DOE) and/or the Nuclear Regulatory Commission (NRC) for purposes of identification in the nuclear materials management data base.
- 1.4.9 Source Material - refers to (a) Uranium, Thorium, or any other material determined pursuant to the provisions of Section 61 of the Atomic Energy Act of 1954, as amended, to be source material; or (b) ores containing one, or more, of the foregoing materials, in such concentration as may by regulation be determined from time to time.
- 1.4.10 Special Conditions - the level of protection applied to Special Nuclear Material may be reduced when one, or more, of the following conditions exist:
- A. The Special Nuclear Material is not readily separable from other radioactive material and the combination of the Special Nuclear Material and other radioactive material delivers an external radiation dose of approximately 100 rem per hour, or more, at 1 meter from any accessible surface without intervening shielding material.
 - B. The Special Nuclear Material is contained in material that has been declared as waste.

Table 1

REPORTABLE NUCLEAR MATERIALS

<u>Name of Material</u>	<u>Other Nuclear Materials</u>	<u>SNM</u>	<u>Source</u>	<u>Reportable Quantities</u>
Depleted Uranium			X	Kilogram
Enriched Uranium		X		Gram
Plutonium-242		X		Gram
Americium-241	X			Gram
Americium-243	X			Gram
Curium	X			Gram
Berkelium	X			Microgram
Californium	X			Microgram
Plutonium 239-241		X		Gram
Lithium-6	X			Kilogram
Uranium-233		X		Gram
Normal Uranium			X	Kilogram
Neptunium-237	X			Gram
Plutonium-238		X		Gram/tenth
Deuterium	X			Kilogram/tenth
Tritium	X			Gram/hundredth
Thorium			X	Kilogram

C. The Special Nuclear Material is in a chemical, isotopic, or physical form or is within isolated in-process, or remote inaccessible, containment which provides comparably effective protection against malevolent use or theft.

1.4.11 Special Nuclear Material (SNM) - means (a) Plutonium, Uranium enriched in the isotope 233 or in the isotope 235, and any other material, which, pursuant to the provisions of Section 51 of the Atomic Energy Act of 1954, as amended, has been determined to be Special Nuclear Material, but does not include source material; or (b) any material artificially enriched by any of the foregoing, but does not include source material. Table I contains a listing of Special Nuclear Material.

1.4.12 Tamper-Indicating Devices (TIDs) - are devices which may be used on containers and areas, which, because of their uniqueness in design or structure, reveal violations of their containment integrity. TIDs include seals, mechanisms, containers, and enclosures.

1.4.13 Apparent Loss - is the inability to locate physically or to otherwise account for:

A. Any identifiable or discrete item containing nuclear material.

B. An inventory difference quantity of nuclear material where the book inventory is larger than the physical inventory by an amount which is in excess of the established alarm limit.

1.4.14 Discrepancy Indicator - Occurrences which could potentially indicate a system problem or a discrepancy involving nuclear material.

1.4.15 Material Control Area - an identifiable physical area wherein the activity, personnel/equipment/material, is limited by procedure and/or authorization. The nuclear material control areas are established to provide physical protection of nuclear material.

1.5 Site Description

The Department of Energy, West Valley Demonstration Project is located in Cattaraugus County, New York, approximately 30 miles south of Buffalo. The site includes a shutdown nuclear fuel reprocessing facility, a high-level waste tank farm containing fuel reprocessing wastes stored in underground tanks, a Vitrification Component Test Stand, Supernatant Treatment System, Cement Solidification System, Liquid Waste Treatment System, a fuel storage pool containing spent nuclear reactor fuel assemblies, Analytical Laboratories, an inactive Solid Waste Disposal Area, and Auxiliary Support Facilities.

Accountable nuclear material present on the site is located in the Fuel Storage Pool (Fuel Receiving and Storage Area) and in the shutdown Process Plant.

The Lag Storage System, High-level Waste Tank Farm, RTS Drum Cell, and the Nuclear Regulatory Commission licensed burial area contain material designated as waste. This material is not carried on the active accountability records.

1.6 Site Operation

The West Valley Site is operated by West Valley Nuclear Services Co., Inc. (WVNS) a wholly-owned subsidiary of Westinghouse Electric Corporation under contract to the Department of Energy's Idaho Operations Office for the purpose of carrying out a demonstration project for high-level radioactive waste management, the West Valley Demonstration Project (WVDP).

2.0 ORGANIZATION AND RESPONSIBILITIES

The West Valley Nuclear Services Co., Inc. organizational structure, as shown on Figure 1, and functional responsibilities under the Nuclear Material Control and Accountability Plan are as described below.

2.1 President, WVNS

The President, WVNS, reports to the Westinghouse Government Operations Business Unit (GOBU) General Manager and has full responsibility for all Project activities under the Department of Energy/West Valley Nuclear Services Co., Inc. contract, including nuclear material control and accountability. Functional responsibility for preparation and implementation for the Nuclear Material Control and Accountability Plan is delegated in writing to the MC&A, Cognizant Staff Manager, a staff level manager. The President, WVNS, shall also designate in writing the MC&A Alternate Cognizant Staff Manager, also a staff level manager. The DOE WVPO representative, the Plant Security Manager and the Accountability Representative will be notified in writing of these appointments.

Responsibility for the West Valley Nuclear Services Co., Inc. Safeguards and Security Plan and physical security is delegated to the Plant Security Manager in the West Valley Nuclear Services Co., Inc. Administrative Services activity.

2.2 Material Control and Accountability Plan, Cognizant Staff Manager

The MC&A Cognizant Staff Manager reports to the President, WVNS, and is designated the West Valley Nuclear Services Co., Inc. management official directly responsible for control and accountability of nuclear material in accordance with this plan.

The MC&A Cognizant Staff Manager shall designate the Fuel Receiving and Storage Material Balance Custodian, the Process Plant Material Balance Custodian, and the Accountability Representative in writing. The DOE WVPO representative, the Plant Security Manager and the Accountability Representative will be notified in writing of these appointments.

2.3 Material Control Accountability Plan, Alternate Cognizant Staff Manager

The MC&A Alternate Cognizant Staff Manager is a staff level manager reporting to the President, WVNS. The MC&A Alternate Cognizant Staff Manager assumes the duties outlined in 2.2 in the absence of the MC&A Cognizant Staff Manager.

2.4 Plant Security Manager

The West Valley Nuclear Services Co., Inc. Plant Security Manager reports to the President, WVNS, through the Administrative Services Manager and is responsible for maintaining physical security for nuclear material at West Valley in accordance with DOE Orders as described in the West Valley Safeguards and Security Plan and implementing procedures. The Security Manager, in conformance with ID Order 5633.2, reports violation of laws and losses of security interest when source or special nuclear material is involved.

2.5 Material Balance Custodian

The West Valley Nuclear Services Co. Inc.'s Material Balance Custodian, is responsible for conducting all activities in the Fuel Storage Pool and Process Plant in compliance with the Nuclear Material Control and Accountability Plan and implementing procedures and the West Valley Safeguards and Security Plan. For the purpose of nuclear material accountability, the Material Balance Custodian reports to the MC&A Cognizant Staff Manager. Responsibilities of the Material Balance Custodian for nuclear material activities include the following:

- 2.5.1 Ensure all nuclear materials activities are conducted in accordance with written procedures.
- 2.5.2 Perform physical inventories of nuclear materials at specified frequencies and in accordance with detailed procedures.
- 2.5.3 Ensure only qualified personnel, are assigned responsibility of nuclear material control and accountability activities.
- 2.5.4 Ensure all nuclear material transactions are documented in accordance with the requirements of this plan.
- 2.5.5 Report discrepancies and/or apparent losses of nuclear material immediately to the MC&A Cognizant Staff Manager, the Accountability Representative, and the Plant Security Manager for investigation.

2.6 Accountability Representative

2.6.1 The West Valley Nuclear Services Co., Inc. Accountability Representative is appointed by and reports to the MC&A Cognizant Staff Manager through line management. The Accountability Representative has the responsibility for maintaining the Nuclear Material Control and Accountability Plan and nuclear material control and accountability procedures in compliance with applicable DOE Orders. The Accountability Representative is responsible for the following activities:

- 2.6.1.1 Review the plan at least annually for any necessary revisions.
- 2.6.1.2 Prepare the procedures that are required to implement this Nuclear Material Control and Accountability Plan.
- 2.6.1.3 Maintain accountability and inventory records.
- 2.6.1.4 Prepare nuclear material transaction forms and data for distribution by the MC&A Cognizant Staff Manager.
- 2.6.1.5 Prepare nuclear material control and accountability reports in accordance with Department of Energy requirements.
- 2.6.1.6 Establish and maintain measurement and statistical control programs in accordance with Department of Energy requirements, as required.
- 2.6.1.7 Establish qualification and training requirements for personnel engaged in nuclear material control and accounting activities.
- 2.6.1.8 Report discrepancies and/or apparent losses of nuclear material immediately to the MC&A Cognizant Staff Manager and Security Manager for investigation.
- 2.6.1.9 Perform physical inventories of nuclear material in accordance with SOP 15-27.

3.0 NUCLEAR MATERIAL AREAS

Nuclear material may be received, processed in, stored in, or shipped from designated areas of the West Valley Demonstration Project. The West Valley Demonstration Project activities are limited to the receipt and shipment of nuclear materials, storage of nuclear materials and decontamination and decommissioning operations.

3.1 Fuel Receiving and Storage (FRS) Area

The Fuel Receiving and Storage Area is designated as a Material Control Area and a Material Balance Area. Nuclear material activities in the Fuel Receiving and Storage Area include storage and shipping of spent fuel and receiving and shipping of other nuclear material.

3.1.1 Spent fuel assemblies from various utility reactor plants are stored in the Fuel Receiving and Storage Area (FRS). The spent fuel assemblies are stored in canisters in the Fuel Storage Pool (FSP) under a minimum of 11 feet of water and are protected in accordance with requirements for storage of Category III quantities of Special Nuclear Material (SNM) as identified in DOE Order 5632.2A. The area is bordered on the north, east and most of the south sides by the FRS area walls, which are structural steel beams and two layers of sheet metal paneling. The west wall and 22 feet of the south wall are common with the Process Building and are of concrete block or reinforced concrete construction. The Fuel Receiving and Storage Area boundaries and the inner security fence line are shown in Figure 6.

The spent fuel is self-protective as defined in Section 1.4.13A.

An individual fuel assembly is a substantial piece of hardware 6 to 16 feet in length weighing in excess of 400 pounds. The combination of the intense radiation field and its excessive weight makes diversion of the fuel virtually impossible. Only authorized personnel are allowed access to the FRS. Personnel access and egress is controlled through the use of a Card Access Control System. All other personnel and vehicle access openings to the FRS area are under security alarm protection and under CCTV surveillance by the protective force. Any other access or egress to the FRS perimeter is under the surveillance of a security inspector.

During FRS fuel transportation operations, security measures are taken consistent with the requirements for in-transit Category III quantities of Special Nuclear Material (SNM), as identified in DOE Order 5632.2A. The irradiated fuel cask transport vehicles are given a detailed search prior to loading the shipment to ensure that sabotage devices have not been implanted or initiated. The cask interior is not searched due to high radiation levels inside. However, the container is only opened after it has been secured inside the FRS perimeter. The casks are also sealed with tamper indicating devices (TID's) prior to shipment off-site and all seal numbers are recorded on the shipping paper.

Handling and loading of irradiated fuel assemblies is performed by authorized personnel inside the alarmed security area of the FRS, which is inside the WVNS limited area. When the SNM is outside the FRS security area, it is under security inspector surveillance until being released to the shipper upon leaving the site perimeter. This surveillance maybe performed using CCTV equipment. The shipment is released to the shipper at the gate. At that point, the shipment is under the cognizance of the shipper/carrier and is governed by Department of Transportation regulations.

3.2 Process Plant Area

The Process Plant is designated a Material Control area and a Material Balance area. Nuclear material activities in the Process Plant include:

- o receipt and storage of accountable materials in the form of solutions, standards, sources and material required for analyses of nuclear material.
- o processing for disposal of accountable nuclear materials.
- o handling, storage, and processing of the residual nuclear material that may be removed from the Process Plant vessels, piping and systems as a result of Decontamination and Decommissioning Operations.
- o shipment of accountable nuclear materials.

3.2.1 Process Plant Description

Category III quantities of special nuclear material and trans-uranic scrap are currently stored in the former Ram Equipment Room (RER). This area is encompassed on 4 sides with reinforced concrete walls. Two manway doors allow access and egress to and from the area. Due to infrequent access, the RER is secured with padlocks and tamper indicating devices (TID's). Additionally, the RER is a WVNS security area and is patrolled by the Security force at two hour intervals, in accordance with DOE Order 5632.2A, Protection of Category III Quantities of SNM.

Only authorized personnel are allowed to access the RER. Personnel access is controlled by the accountability representative through the use of a security padlock and tamper indicating devices. The accountability representative also verifies the personnel engaging in nuclear material control and accounting activities are trained and qualified to enter the area.

3.2.2 Process Plant Nuclear Materials Activities

Process Plant nuclear material activities may include the receipt, storage, disposal and shipment of small quantities of nuclear materials in the form of standards, sources, and solutions and the preparation and analysis of nuclear materials. Secured areas of the Process Plant are designated for Category III quantities of material, as defined in DOE 5632.2A.

The material (not on the active accountability ledgers) in the remainder of the Process Plant is designated equipment holdup except that the quantity in the various parts of the plant system cannot be readily measured or estimated. Additional Process Plant nuclear material activities include the storage and processing for disposal of nuclear material that may be removed from the plant vessels, piping, and systems as a result of decontamination and decommissioning operations.

4.0 MATERIAL ACCOUNTING SYSTEM

The Material Accounting System employed at the West Valley Demonstration Project complies with the requirements and conforms to the basic principles for control and accountability of nuclear material as set forth in the Department of Energy's 5630 series of orders. The system serves as an information source capable of locating nuclear material and providing data for material balance calculations around each material balance area and facility as a whole. The system involves the use of documents and forms for source data generation and the technique of double-entry bookkeeping for centralized accounting.

In its current form, the system consists of documents and records in support of accounting entries for irradiated fuel assemblies stored in the Fuel Receiving and Storage Facility, and a small inventory of nuclear material stored in the Process Plant.

The system has the capability to handle and process documentation for the:

- o Shipment of accountable material;
- o Receipt of accountable material;
- o Prepare journal entry adjustments for isotopic decay, rounding, normal-operational-loss approved material discards, and other miscellaneous entries

as may be required at the West Valley Demonstration Project.

A listing of the Accounting Reports and their frequency of submittal is shown in Section 4.2.2, Part C.

4.1 Description of System

The basic accounting system employed at West Valley Nuclear Services Co., Inc. consists of measurement and material flow data generated by operating and/or analytical personnel, calculating special nuclear material flow quantities from this basic data by the Accountability Representative or Engineering personnel, preparation and distribution of reports, maintenance of the double-entry bookkeeping system by the Accountability Representative at the centralized accounting system and submission of all transaction and inventory data to the Nuclear Material Management and Safeguard System.

4.2 Documentation

Nuclear materials transactions, balances and inventories shall be documented and reported in accordance with guidance provided in DOE Order 5633.4 and in DOE Order 5633.5.

Accounting forms and records are the sources of information used to generate and document all nuclear material transactions at the West Valley Demonstration Project Facility.

Detailed instructions for completing documentation are contained in DOE Order 5633.5.

4.2.1 Accounting Forms

The basic accounting forms used to record and transmit accounting data are as follows:

- A. DOE/NRC Form 741, Nuclear Material Transaction Report shows nuclear material transactions (receipts, shipments, transfer of custodianship).
- B. WVNS Form 10 (Fuel Receiving and Storage Record), as shown in Figure 2, is used to transmit operational data on fuel storage. This includes placement into storage, movement within the storage pool and transfer to a shipping container. Assembly identification numbers, storage canister identification numbers and storage positions are recorded.
- C. WVNS ARF Form (Analytical Request Form WV-1113), as shown in Figure 3, the accounting form completed by Analytical personnel to show results of analytical measurements of nuclear material in decontamination solutions or other required samples.

- D. Material Inventory Control sheets, as shown in Figure 5, posted by individual secured areas that contain nuclear material for recording the amount of nuclear material stored in that area. The control sheet is checked whenever a nuclear material transfer is made.

4.2.2 Accounting Records

The following documents are retained as part of the accounting records:

A. Source Documents

- DOE/NRC Form 741
- WVNS Form 10 (Fuel Receiving and Storage Record)
- Figure 2
- ARF Form (Analytical Request Form WV-1113) - Figure 3
- WVNS Internal Memo

B. Accounting Records

- Pool Status Map
- General Ledger Accounts
- Subsidiary Decay Ledger

C. Accounting Reports

- o Accounting reports are found in Section 5, Reporting Requirements.

4.2.3 Record Storage

Storage of nuclear material accounting documents, forms, and reports is the responsibility of the Accountability Representative. The source data forms generated by the Analytical Process Chemistry group for accountable nuclear material are collected and stored by the Accountability Representative. Measurement data is processed and accounting records and reports are generated.

Storage for source documents is in the accountability files in the Accountability Office. Accounting ledgers and reports are maintained in a locked and fireproof file in the Accountability Office. Access to the file is controlled by the Accountability Representative, and shall be designed to prevent and/or detect unauthorized access. Redundancy and/or capabilities for reconstructing lost or destroyed records must also be maintained.

Retention of records is also the responsibility of the Accountability Representative and is provided in accordance with requirements of DOE Order 1324.2.

Records of physical inventory, waste measurements, material balance reports, and materials held under tamper-proof seals are retained for a period of at least five years. Inventory difference and all records relating to the receipt, storage, transfer, or shipment of nuclear materials will be retained until authorization for disposal is obtained from the DOE-WVPO representative or the records are turned over to the New York State Energy Research and Development Authority (NYSERDA).

4.3 Entry

The source data used as the basis for entries to the accounting records are identified in 4.2.

4.3.1 Ledgers

- A. The general ledger is the primary accounting document for accounting records. Active accounts are listed in Figure 2. A double-entry accounting system is used whereby a debit entry to one account is compensated for by an equivalent credit entry(ies) in an offsetting account(s). All material balance areas (MBAs) are represented by accounts in the general ledger.

Debit entries for receipt of fuel into the Fuel Receiving and Storage account are offset by credit entries into the individual utility accounts. All transactions are recorded as they occur and are cross-referenced to their corresponding account.

- B. A Plutonium 241 decay ledger is maintained to account for losses in plutonium inventory due to decay of the Plutonium 241 isotope. Entries into this ledger are made monthly, if required, for a fuel shipment and every September and March to coincide with the semiannual material balance report. The source documents for this ledger are the DOE/NRC-741 Forms, which accompanied the fuel shipments, letters from the utilities providing isotopic distribution and base date calculations, and DOE Order 5633.5. An increase in the Plutonium decay account is offset by decreases in the Fuel Storage and Utility accounts.

4.3.2 Recording Transactions

- 4.3.2.1 The minimum reporting level for maintaining MC&A inventory records and for documenting internal transfers is established as one-half (0.5) of a reporting unit (Table 1). One-half of a reporting unit shall be interpreted as the amount before rounding; e.g., documentation is not required for

quantities of 0.49 reporting units or less. For all quantities greater than the minimum reporting level, whole reporting units shall be used and rounding procedures followed as specified in DOE Order 5633.4, Nuclear Material Transaction: Documentation and Reporting.

4.3.2.2 The minimum reporting level shall be applied to the element weight for accountable nuclear material; where necessary, an asterisk shall be used in the isotope field to indicate less than one-half reporting unit.

4.3.2.3 For external shipment:

When the rounded quantity to be transferred is between 0.05 and 0.49 of the reporting unit, the quantity shall be documented as an asterisk on DOE/NRC Form 741. Addition of this material to the inventory prior to transfer will not be required.

When the rounded quantity to be transferred is less than 0.05 of the reporting unit, accountability documentation is not required.

4.3.2.4 Receipts of nuclear material under minimum ID reporting levels transferred on DOE/NRC Form 741 shall be acknowledged in accordance with current practices; however, it will not be necessary to add these receipts to the inventory records.

4.3.2.5 Transactions are recorded when they occur (or as indicated) providing a chronological listing of all activity except in the case of Plutonium 241 decay, which is recorded monthly and/or semiannually.

4.3.2.6 In no way should the MC&A minimum reporting levels be construed as affecting policies of requirements of other areas such as (but not limited to) safety, radiological control, and transportation. In addition, internal reporting units may be set at levels lower than those discussed above, if deemed necessary to maintain sound control and accountability of nuclear materials in possession.

4.3.3 Normal-Operational-Losses

All Normal-Operational-Losses (NOLs) will be authorized by the DOE-WVPO representative. DOE-ID Safeguards and Security will be informed prior to disposing of any accountable material into the high-level waste tank area.

5.0 REPORTING REQUIREMENTS

The following reporting requirements are established to comply with Department of Energy's requirements for reporting of nuclear materials control and accountability activities.

- 5.1 A Material Control and Accountability Status Report shall be prepared and submitted annually by November 1 to the Director, Safeguards and Security Division, DOE-ID by the MC&A Cognizant Staff Manager in accordance with the requirements of ID 5633.2.
- 5.2 Nuclear Materials Management and Safeguards System (NMMSS) submissions shall be prepared by the Accountability Representative in accordance with DOE Order 5633.4 and DOE Order 5633.5, augmented by ID-5633.2. Basic submission requirements are outlined as follows:
 1. Transaction Data - any transaction that affects the quantity of accountable nuclear material on site, is to be submitted to Nuclear Materials Management and Safeguards System each Thursday. After the last Thursday in a month, transaction data for the month shall be submitted to NMMSS on a daily basis until the deadline on the eighth work day of the subsequent month. The decay of plutonium for fuel assemblies in storage will be documented in accordance with DOE 5630 series and DOE ID 5633.2.
 2. Inventory Data - will be reported in the composition of ending inventory (COEI) format on a quarterly basis covering the quarters ending December 31, March 31, June 30, and September 30, and shall be submitted to Nuclear Materials Management and Safeguards System by the fifteenth (15th) calendar day of the following month.
- 5.3 Inventory Difference Reports shall be prepared by the Accountability Representative and submitted by the MC&A Cognizant Staff Manager semiannually covering the periods October 1 through March 31 and April 1 through September 30. These reports shall be submitted to DOE-WVPO representative by May 10 and November 10, respectively.
- 5.4 The Composition of Ending Inventory (COEI) Report shall be prepared quarterly by the Accountability Representative and submitted by the MC&A Cognizant Staff Manager to the DOE-WVPO representative. The Composition of Ending Inventory Report and the Nuclear Materials Management and Safeguards System Inventory Data Report are identical in data, format, reporting periods, and submittal date. The Composition of Ending Inventory Report will be prepared in accordance with the requirements covered in DOE Order 5633.4.
- 5.5 Semiannually, a Material Balance Report (MBR) covering the periods October 1 through March 31 and April 1 through September 30 shall be prepared by the Accountability Representative, signed by the President/General Manager of the company and submitted to the DOE-WVPO representative by April 15 and October 15, respectively.

Requirements for the Material Balance Report are covered in DOE Order 5633.4 and DOE Order 5633.5 and shall include supporting schedules for special nuclear materials describing categories of inventory differences as specified by ID Order 5633.2.

In addition to the provisions of DOE Order 5630 Series, the following requirements apply to issuance of semiannual facility Material Balance Reports (MBR).

- A. A certification statement shall be signed by the president/general manager of the company, or the official acting in that capacity. A single statement will suffice for each facility, covering the entire set of MBR's generated for the reporting period.
 - B. The certification statement should read: "To the best of my knowledge and belief, the information given in this set of Material Balance Reports and in any attached schedules is true, complete, and correct." The date and signature-title line should be included.
 - C. A separate schedule should be appended to individual MBR's for special nuclear material, listing the categories of inventory difference i.e., reporting codes 88 through 97 defined in DOE Order 5633.5. These supporting schedules should include the code number, category title, and total quantities reported for each category during the semiannual period.
- 5.6 Semiannual Physical Inventory Reports shall be prepared by the Accountability Representative and submitted by the MC&A Cognizant Staff Manager to the DOE-WVPO representative. Physical inventory reports shall be submitted within 30 days of completion of physical inventory.
 - 5.7 Documentation of nuclear material transaction shall be accomplished in accordance with requirements of DOE Order 5633.4 and DOE Order 5633.5. Nuclear materials covered by this requirement, with associated reporting characteristics, are listed in Table 1 of this order. Copies of all source documents, including pertinent backup, will be provided to ID Safeguards and Materials Management (RIS Code "JAA").
 - 5.8 Inventory Status Report. This report shall provide a summary of major SNM inventory components by storage location. Additionally, it shall include material descriptions, physical form of material, quantity, and enrichment and will be submitted on a quarterly basis to ID S&MM.
 - 5.9 Decay Reporting. Radioactive decay shall be reported as described in DOE Order 5633.5 for material in transit. For material maintained on inventory at ID facilities, decay should be entered into the records semiannually, as of March 31 and September 30, prior to issuance of the Material Balance Reports.

5.10 DOE/NRC-741 Distribution Instructions. In addition to distribution requirements outlined in the DOE Order 5630 series:

- A. A copy of transaction documentation should be sent to the appropriate INEL Cost Center.
- B. Copies of transfer documentation involving licensee or international transactions should be forwarded to JAA as part of the primary distribution.
- C. Copies shall be distributed to the facility and cognizant field organizations that have programmatic responsibility for material involved in a transaction, but are not on the standard distribution. For example:
 - 1. Facility reported in "To" and/or "For" account(s) differs from the shipper or receiver.
 - 2. Project number for the reported material indicates programmatic responsibility of a facility other than the shipper or receiver.

5.11 Data Processing. An alternative submission method may be found in DOE Order 5633.4, Section 10.D.

5.12 Additional Reporting Requirements

- A. Prepare annual nuclear material forecast reports for submittal to ID by January 10. Reports shall be submitted on DOE form F 5660.1, "Forecast of Nuclear Material Requirements," or ID approved equivalent. Forecasts shall be prepared for each existing, authorized, and planned research, development, and reactor project having, needing, and/or returning nuclear materials during the ensuing 16 fiscal years. In addition to nuclear materials specified in DOE Order 5660.1, I.3.a.(1), forecasts shall be prepared for Lithium-56 (quantities in kilograms and assay to nearest 1 percent). Narrative statements shall accompany each forecast, describing the material on inventory and covering relevant assumptions upon which entries are based. Forecast reporting shall be prepared for Materials Management E/M projects; however, narrative statements for these projects are required only when entries other than beginning and ending inventories are made.
- B. Perform annual assessments to determine that economic inventory levels are achieved and maintained for nuclear materials utilized by programs under their jurisdiction. Prepare an annual nuclear material inventory assessment report, based on September 30 inventories and including a review of materials located off-site that are under ID Contractor programmatic control, and submit to ID by November 30.

- C. Identify all nuclear materials on inventory by the appropriate project numbers in accordance with DOE Order 5660.1 and supplemental ID directives. Notify ID of the need to assign, delete, change, or reclassify project numbers. ID approval is required prior to changing nuclear material from one project number to another except for transfers of irradiated fuel from storage to headend processes.
- D. Identify all nuclear materials on inventory by an appropriate Composition of Ending Inventory (COEI) code from the Inventory Data Categories and Reporting Format. Advise ID of the need to develop new COEI codes or adjust existing codes.

6.0 INVENTORY

Physical inventory of nuclear materials at the West Valley Demonstration Project shall be conducted semiannually by trained personnel in accordance with SOP 15-27, "Inventorying Nuclear Material in Nuclear Material Control Areas". Nuclear material inventories shall be documented and reported in accordance with the guidance provided in DOE Order 5633.4 and in DOE 5633.5, Nuclear Materials Reporting and Data Submission Procedures.

6.1 Frequency and Schedule

Physical inventory will be conducted semiannually, normally in March and September of each year, and as required by Section 12.8 of this plan.

6.2 Personnel Performing Inventory

Only qualified personnel who have been trained in the requirements of SOP 15-27 shall be authorized to conduct physical inventories.

6.3 Special Performing Inventory

Special inventories shall be conducted as a result of routine disassembly of critical assemblies, changes in custodial responsibilities, missing items, inventory differences exceeding established control limits, abnormal occurrences, or at the request of authorized facility personnel of the cognizant operations office.

6.4 Verification Requirements

Physical inventories of material stored in the nuclear material control areas shall be performed in accordance with SOP 15-27. The material in the high-level waste tank area and the Nuclear Regulatory Commission licensed burial area are not subject to physical inventory.

6.5 Discrepancies

Discrepancies found during the performance of physical inventories shall be reported immediately to the Material Balance Custodian and the MC&A Cognizant Staff Manger for further investigation and reporting to the DOE-WVPO on-site representative and the Chief of the ID Safeguards and Materials Management Branch in accordance with the requirements of ID 5633.2.

6.6 Inventory Techniques

6.6.1 Physical inventory of nuclear material in the Fuel Receiving and Storage Area shall be by piece-count verification of the storage location for each spent fuel assembly stored in the fuel storage pool.

6.6.2 Physical inventory of nuclear material in the Process Plant shall be by piece-count and/or TID verification for sources, standards, and solutions stored or under analysis in the Process Plant.

7.0 ACCOUNTABILITY MEASUREMENT, STATISTICAL ANALYSIS, AND ASSEMBLY VERIFICATION

Current inventories are maintained by piece-count method as noted in Paragraph 6.6. Future decommissioning operations may necessitate development of accountability measurement techniques and supporting statistical analysis methods. This section will be submitted to the DOE-WVPO representative when the techniques and methods are established.

Prior to fuel shipment, the assembly identification number for each canister location shown on the accountability board in the FRS will be verified. This will be done by observing each assembly serial number and comparing it to the identification number for the assembly in that canister location shown on the board. Any discrepancies between the observed identification number and the recorded identification number will be resolved prior to shipment.

The FRS Material Balance Custodian will designate which fuel assemblies are to be shipped. When the fuel assemblies are shipped from the FRS, the FRS Operations Supervisor or Fuel Operations Cognizant Engineer, and a representative of quality assurance (QA) will observe the identification number for the assembly being prepared for shipment. This identification number will then be recorded on the procedure data sheet with a verification sign-off by the FRS Operations Supervisor/Cognizant Engineer and Quality Assurance. The Accountability Representative will verify that the fuel assembly identification number as identified on the procedure data sheet is the one identified on the DOE/NRC 741 form and if required, on the Radioactive Material Shipment Record. The nuclear material transaction reports will show the same material type and description of nuclear material for each assembly as when the assembly was received except for the Pu-241 decay. The amount of decay shown on the transaction reports will reflect the total decay which has occurred since the core in which the assembly was in was shut down. This will be in agreement with what has been reported on the Nuclear Material Transaction data cards.

8.0 REPORTING/INVESTIGATION PROCEDURES

INCORPORATED INTO SECTION 4.3.3 AND SECTION 12.

9.0 EVALUATIONS AND AUDITS

- 9.1 The Accountability Representative shall evaluate the significance of all quantities reported as inventory differences.
- 9.2 DOE Order ID 5633.2 identifies that the contractor shall conduct a periodic assessment of material control and accountability vulnerabilities and identify cost-effective means of correction. On at least an annual basis the WVNS Security Manager shall conduct a review of the nuclear material storage areas to identify any cost affective corrective actions which may be required. This review may be in conjunction with or separate from the requirements of 12.10 of this plan.
- 9.3 Quality Assurance surveillances of nuclear materials control and accountability functions shall be conducted periodically as determined by the Quality Assurance Manager, but at least once during the calendar year.

10.0 REQUIREMENTS FOR TAMPER-PROOF SEALS

Tamperproof seals used in the control of nuclear material shall meet the requirements of DOE 5633.2. Tamperproof seals utilized at West Valley will be paper (fragile, adhesive), cup (Type E) or other DOE approved seal. Tamperproof seals utilized at West Valley shall be controlled and installed in accordance with Standard Operating Procedure (SOP) 15-30, "Procedure for the Control Installation and Removal of WVNS Tamper-Indicating Devices for Nuclear Material Accountability.

11.0 NUCLEAR MATERIAL CONTROL AND ACCOUNTABILITY PROCEDURES

11.1 Nuclear Material Control and Accountability Plan Implementing Procedures

Implementation of the West Valley Nuclear Material Control and Accountability Plan shall be approved by the West Valley Nuclear Services Co., Inc. MC&A Cognizant Staff Manager and the West Valley Nuclear Services Co., Inc. President and submitted to DOE-ID for approval prior to implementation in accordance with DOE-ID 5633.2. In addition, detailed procedures, or changes, to the procedures for performing nuclear material inventories, accountability measurement and statistical analysis, records and reporting, and internal control functions, and associated activities will be submitted for ID Safeguards and Materials Management Branch review prior to their implementation.

11.2 Nuclear Material Work Procedures

Operational-type activities involving the processing, receipt, shipment, storage analysis, physical inventory, or transfer of accountable quantities of nuclear materials at the West Valley Demonstration Project shall be performed in accordance with approved, written procedures. Procedures for the above activities shall be prepared in compliance with this Plan and implementing procedures and be approved prior to use by the West Valley Nuclear Services Co., Inc., MC&A Cognizant Staff Manager.

12.0 NUCLEAR MATERIAL INCIDENT RESPONSE PLAN

12.1 Introduction

Various types of emergencies and occurrences involving nuclear materials at DOE ID facilities require actions to give assurance that nuclear material inventories are as stated and that no diversion has occurred. Types of nuclear incidents that may require assessment actions include:

- 1) Apparent losses;
- 2) Discrepancy indicators;
- 3) Evacuations (planned or unplanned), e.g., tests of safety systems; and,
- 4) Nuclear threats.

Factors impacting the assessment of a given occurrence include incident category and credibility, material type and quantity, and required response time.

12.2 Apparent Losses

12.2.1 Apparent losses means the inability to locate physically or to otherwise account for any identifiable or discrete item containing nuclear material. Such losses also include an inventory difference quantity where the book inventory is larger than the physical inventory by an amount which is in excess of the established control limits; or unexplained significant shipper/receiver differences; or statistically significant differences (lower) in physical measurement attributes, e.g., weight, NDA counts, etc., between current and prior periods. Material or an item is considered missing when it cannot be found in its customary or recorded location and when an immediate search of the area fails to locate it.

12.2.2 Verbal Notification

The apparent loss of nuclear material shall be reported immediately to the MC&A Cognizant Staff Manager and Security Manager by the individual discovering the apparent loss. Inventory differences and associated reporting and investigation activities may be classified. Therefore, activities will be performed in conformance with Department of Energy classification guides.

The apparent loss shall be reported immediately by the MC&A Cognizant Staff Manager and or the Security Manager to the DOE-WVPO on-site representative and the Chief, ID Safeguards and Materials Management Branch during normal working hours. During nonwork hours, notification shall be made to the DOE ID Warning Communications Center. The incident shall be investigated immediately, by the Accountability Representative and WVNS site security.

12.2.3 Unusual Occurrence Report

The initial verbal notification shall be confirmed in an Unusual Occurrence Report to the Director, Safeguards and Security Division. Such reports should contain the requirements found in WV987 and ID 5633.2, Chapter 1, Section 1b.

A final report, describing review actions, conclusions, and steps taken or planned for corrective action, shall be submitted to the DOE-WVPO representative within 10 working days, and the director of the ID Safeguards and Security Division, within fifteen working days.

12.3 Nuclear Materials Missing in Transit

Notification shall be made immediately when a shipment, or any container thereof, of special nuclear material in Categories II or III quantities does not arrive at the intended destination on schedule and its location is unknown. The notification shall be made by telephone to the DOE-WVPO representative and the Chief, ID Safeguards and Materials Management Branch, and shall include the information identified in ID 5633.2, Chapter 1, Section 5 a-h.

12.4 Material Control Alarms

Abnormal situations involving material control alarms shall be reported and investigated immediately as in Section 12.2.

12.5 Accidental Losses

- A. All losses of nuclear material shall be reported as in 12.2 above and investigated immediately.

B. The initial notification shall be confirmed by a formal report to the DOE-ID on-site representative within 10 working days.

12.6 Shipper/Receiver Differences

Shipper/Receiver (S/R) differences should be resolved in accordance with DOE Order 5633.3, Chapter II, Section 4A, and by ID 5633.2, Section 6A.

12.7 Discrepancy Indicators

Discrepancy indicators are occurrences which could potentially indicate a system problem or a discrepancy involving nuclear material. Items in this category include broken seals, unsecured repositories, differences between inventory records and observations, measurement or descriptive differences on transfers, abrupt custodian termination or departure, measurement/quality control (QC) results indicative of an out-of-control situation, inventory difference quantities where the book inventory is smaller than the physical inventory by an amount which is in excess of the established control limits, material surveillance alarms/abnormalities, etc.

Investigation and reporting requirements for discrepancy indicators are specified in ID Order 5633.2, Chapter I, Section 2. Assessment actions are based on a graded concept; i.e., responses to incidents involving Category I and II quantities of SNM are conducted immediately, whereas those involving other materials are subjected to less stringent verification requirements.

Should a situation arise where a discrepancy is indicated WVNS will hold a critique per WV987, and determine a course of action consistent with the requirements of ID 5633.2.

12.8 Evacuations

The same investigation and reporting requirements apply to materials which are left in a non-secure state as a result of an evacuation as for discrepancy indicators.

12.9 Nuclear Threats

These are events where possession of nuclear material which might have been obtained from DOE ID facilities is claimed. The depth of the assessment will be dependent on a number of factors including the actual details of the threat¹, the type and quantity of

¹ Quick check or prompt assessment evaluations can be initiated by the ID Safeguards and Security Director and/or the ID Safeguards and Materials Management Branch Chief on requests for inventory assessments received directly from external sources. Verification and complete assessments require the ID Manager's authorization prior to initiating assessment activities.

material involvrd, the time allowed for response, etc. For example, if the threat involves only uranium or identifies the specific material taken, the response would be quite different from that for a general threat.

In general, the assessment activity will be based on a graded concept with the time and effort expended determined by the actual threat or specific response time. Assessment levels are determined by DOE ID and described below in response to general threat categories. Response to each alert level should be as rapid as possible and any significant findings or problems should be communicated immediately to the ID Safeguards and Materials Management Branch Chief who coordinates the assessment activities. All alert levels require hourly progress reports to the DOE ID coordinator.

In the event that DOE ID requests an assessment of material holdings due to a nuclear threat WVNS will determine a course of action to comply with the ID Safeguards and Materials Management Branch Chief's request.

12.9.1 Assessment Levels

12.9.1.1 Quick Check

This is the quickest possible verification of nuclear material holdings (generally, within 30 minutes to one hour) and represents a minimum commitment of resources. This assessment level generally involves:

1. A quick determination of possible target MBAs;
2. An item identification/TID check by the corresponding MBA custodians;
3. A status review of in-transit material; and,
4. Reporting of the assessment results.

12.9.1.2 Prompt Assessment

This is a nominal commitment of resources to provide an evaluation of nuclear material inventories. This assessment is completed as soon as possible (generally, within three to four hours) and typically involves:

1. Examination of NM records to determine which inventories/transactions must be verified.
2. A joint item/TID check by Safeguards personnel and the MBA custodians.

3. A status review of material in transit.
4. Review of transaction records, as appropriate.
5. A confirmatory check of NM not tamper-safed
6. Reporting of inventory assessment results.

12.9.1.3 Verification Assessment

This is a major commitment of resources to provide a detailed assessment of nuclear material inventories. The assessment is completed as soon as possible (generally, not more than 24 hours) and typically involves:

1. Conducting steps (1), (2), (3), and (4) under "Prompt Assessment."
2. Performing measurement verification of Category I and II quantities of SNM.
3. Re-examining control indicators for the past twelve months (or the threat time frame, if shorter) for trends and abnormal occurrences.
4. Analyzing in-process material control indicators for anything unusual and deriving an estimated process inventory.
5. Reporting of inventory assessment results.

12.9.1.4 Complete Assessment

This is a total commitment of resources to provide a complete assessment of nuclear material inventories. The inventory is completed as soon as possible (generally, not more than five to seven days) and typically involves:

1. Carrying out Steps (1) through (3) for "Verification Assessment."
2. Shutdown and cleanout of all processes and performing a complete inventory, including determination of Inventory Differences and Limit of Error on Inventory Difference.
3. Performing a review of all accountability and measurement data since the last inventory.

4. Conducting a complete review of the MC and A System, including performing Safeguard and Security systems tests which may assist in resolving the threat.

12.10 Notification

Normally, a nuclear threat requiring an assessment of DOE ID's nuclear material holdings is received by the DOE ID Manager who initiates the response network.² The Manager evaluates the threat, determines the assessment level warranted, and initiates notifications to DOE ID contractor General Managers and to the DOE ID Safeguards and Materials Management Branch Chief (through the ID Assistant Manager for Administration (AMA) and the Safeguard and Security Division Director) who is responsible for implementing the assessment plan.

The ID Safeguards and Materials Management Branch Chief communicates the threat message to the designated contractor Safeguard and Security representatives, coordinates the assessment activity, and reports the assessment results to the ID Safeguard and Securities Director, AMA, and Manager. The initial communication of the threat must be repeated by the contractor representative(s) to confirm the threat message was received accurately.

The notification of a nuclear threat will be given to the MC&A Cognizant Staff Manager. During off shift, notification will be given to the Security Shift Supervisor who will initiate the notification to the MC&A Cognizant Staff Manager.

12.11 Testing

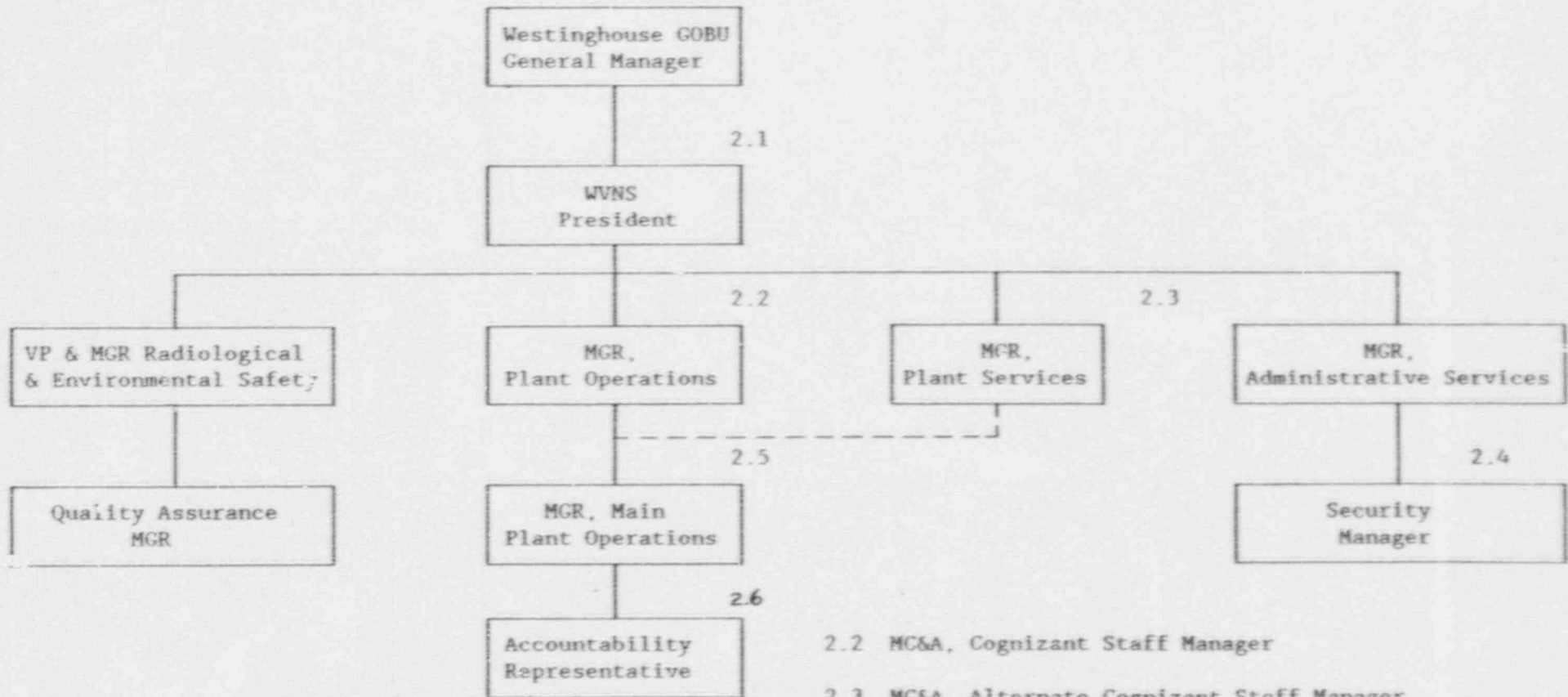
Programs for conducting periodic Material Control and Accountability system tests, including Nuclear Material assessment capabilities are required by ID Order 5633.2. Exercises designed to test the adequacy of Nuclear Material assessment plans must be run at least annually.

At least annually the MC&A Material Balance Custodian will coordinate with appropriate individuals, and hold an evaluation of WVNS's capability to assess nuclear material holdings. This assessment should evaluate how and when notifications are made and the ability of WVNS to locate and identify nuclear material on hand. The drill scenario, the drill report and any follow up actions will be documented and retained in the site drill file. Upon completion of the evaluation of the drill, documentation of the findings will be provided to DOE WVPO.

² Nuclear threat messages received by ID contractors shall be reported immediately to the ID Safeguards and Security Director or the ID Warning Communications Center.

FIGURE 1

WEST VALLEY NUCLEAR SERVICES CO., INC. ORGANIZATIONAL STRUCTURE
IN THE NUCLEAR MATERIAL AND ACCOUNTABILITY PLAN



- 2.2 MC&A, Cognizant Staff Manager
- 2.3 MC&A, Alternate Cognizant Staff Manager
- 2.5 Material Balance Custodian

Figure 2

FUEL TRANSFER RECORD

LDA NO. _____ SHIPMENT NO. _____ DATE SHIPPED _____

West Valley Nuclear Services Co., Inc.
West Valley, New York

FORM 10

DATE	TIME	CANISTER NO.	POOL GRID	ASSEMBLY NO. OR PIECE COUNT & LENGTH	OPERATOR	SHIFT	SPECIALIST	REMARKS
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
12.								
13.								

Within-Pool Transfer: Make all line entries just as is usually done for a fuel shipment, then enter the old pool grid under "REMARKS".

FIGURE 3
ANALYTICAL REQUEST

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Sample Name: _____ Charge No.: _____ Log No.: _____

Results Reported To: _____ Phone: _____

Sampled by: _____ Date: _____ Time: _____ Location: _____

WO#: _____ SOP#: _____ OPDR#: _____ Other: _____

A. Does this sample contain radioactive material? () yes () no

B. Is the gross activity $5E-3$ uCi/mL () yes () no

C. Dose rate for samples with activity greater than 5E-03 uCi/mL at 2 inches:
_____ mR/Hr WC R/S Rep.: _____ Date: _____

D. Specific Hazards (ie. HF, Strong Base, Cd, etc.) () yes () no
If yes, list _____

E. Specific requirements (circle): EPA NRC DOE N/A SPDES Other _____
Process Control EPTOX Waste Classification

F. Discard after two (2) weeks: () yes () no (state reason in comments)

G. Comments: _____

Supervisor or Manager Signature _____ Date: _____

To be filled in when sample delivered to laboratory personnel:

Delivered: _____ Time: _____ Received: _____ Time: _____ Date: _____

a.) WVNS NYSDOH Certification: 10474 b.) NYSPDES Sample Type: _____

**SEE ACP 5.1
FOR LATEST REVISION**

SAMPLE IDENTIFICATION

Analysis Requested	Units				

Data Approved: _____ Date: _____ Time: _____

FIGURE 4
 WEST VALLEY NUCLEAR SERVICES CO.
 WEST VALLEY, NEW YORK

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NUCLEAR MATERIAL SEMI-ANNUAL REPORT OF MATERIAL DISCARDS (MD) AND
 INVENTORY DIFFERENCE (ID)

REPORTING PERIOD _____

Category	Material Type ¹⁾	Element Weight ²⁾	Isotope Weight ²⁾
"MD" - Liquid Waste	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
- Other (Specify)	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
"MD" Total -By Material Type	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
"ID" -Book/Phys Inv. Diff.	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
- Other (Specify)	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
"ID" Total -By Material Type	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

- 1) Enter material type code as follows: Depleted Uranium -10; Enriched Uranium -20; Plutonium -50; Uranium 233 -70.
- 2) Reporting units: Depleted Uranium -Kg; Enriched Uranium, Plutonium and Uranium 233 -grams.

COMMENTS: _____

MC&A Cognizant Staff Manager _____ DATE _____

FIGURE 5
MATERIAL INVENTORY CONTROL

Control Area: _____ Page _____ of _____

Container ID.	Contents	Date	W/O#
---------------	----------	------	------

Total Uranium	U-235 Total PU PU Fissile		Fissile Total
---------------	---------------------------	--	---------------

Container ID.	Contents	Date	W/O#
---------------	----------	------	------

Total Uranium	U-235 Total PU PU Fissile		Fissile Total
---------------	---------------------------	--	---------------

Container ID.	Contents	Date	W/O#
---------------	----------	------	------

Total Uranium	U-235 Total PU PU Fissile		Fissile Total
---------------	---------------------------	--	---------------

Container ID.	Contents	Date	W/O#
---------------	----------	------	------

Total Uranium	U-235 Total PU PU Fissile		Fissile Total
---------------	---------------------------	--	---------------

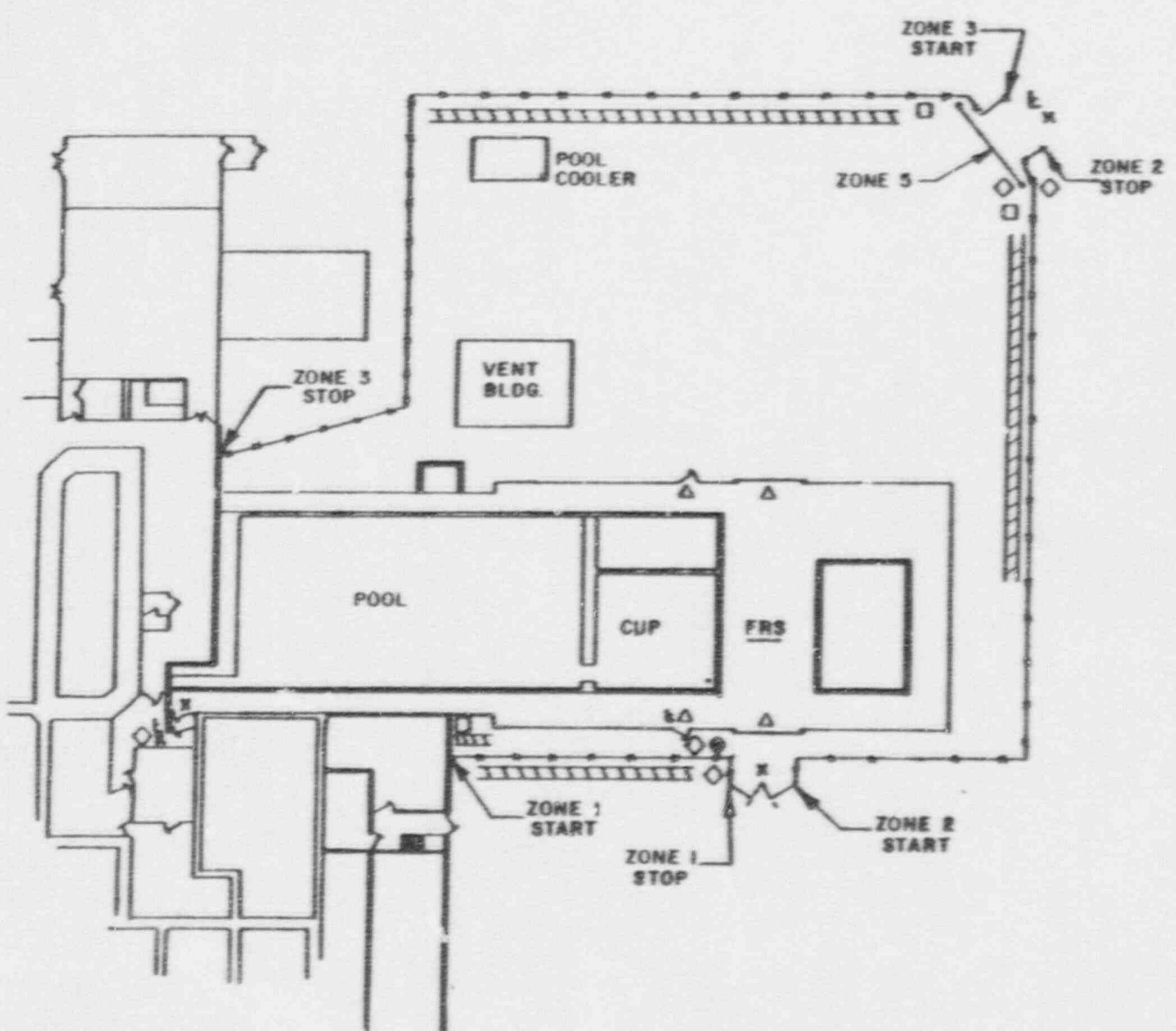
Container ID.	Contents	Date	W/O#
---------------	----------	------	------

Tot#	U-235 Total PU PU Fissile		Fissile Total
------	---------------------------	--	---------------

Maximum Contents Per Container is 200g Fissile (U-235+PU Fissile)

Maximum Room Total is _____ TOTAL THIS PAGE _____

33



- LEGEND**
- Ⓛ INTERCOM SPEAKER WITH CALLBACK
 - △ MAGNETIC SWITCH ONLY
 - ⊕ EMERGENCY EGRESS
 - VIBRATION DETECTORS
 - × ELECTRICAL STRIKE, MAGNETIC SWITCH
 - FENCE PROTECTION SYSTEM
 - XXXX WALL PROTECTED AREA
 - ◇ CARD READER

FIGURE 6
FUEL RECEIVING AND STORAGE

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FIGURE 7
MATERIAL BALANCE AREAS

MBA	SNM
Fuel Receiving and Storage	85 spent BWR fuel assemblies 40 spent PWR fuel assemblies.
RAM Equipment Room (Process Plant)	Six drums containing: <ol style="list-style-type: none">1. Bottle with $\text{Pu}(\text{NO}_3)_4$ solution of combined QC lab samples and nine pyramid bottles with $\text{Pu}(\text{NO}_3)_4$ residue.2. HC_4 Pu Drum #3 containing samples "D" and 350 m^l of "High-Low Burn-up Dilution" and PuO_2 powder.3. $\text{Pu}(\text{NO}_3)_4$ "Sale" samples in: 5 pipe containers, 1 quart can.4. HC_4 Pu Drum #1 containing samples "B" and "E".5. HC_4 Pu Drum #2 containing samples "A" and "F".6. UNH "Sale" sample in sealed gallon can, and HC_4 Pu Drum #4 containing sample bottles "C" and "Sefore". <p>NOTE: THESE DRUMS CONTAIN LESS THAN 0.320 Kg OF Pu/U-233 AND LESS THAN 0.002 Kg OF TOTAL URANIUM.</p>