ATTACHMENT 13

Process Control Program Manual, Revision 3

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NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION

UNIT 2 RADWASTE PROCESS CONTROL PROGRAM

REVISION 03

Approved By:
K. A. Dahlberg

K.A. Dahlberg
Plant Manager - Unit 2

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CONTROLLED

THIS IS A FULL REVISION

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1.0 PURPOSE

1.0.1 To describe the methods for processing, packaging and transportation of low-level radioactive waste and provide assurance of complete stabilization of various radioactive "wet wastes" in accordance with applicable NRC regulations and guidelines.

1.0.2 To satisfy the Nuclear Regulatory Commission's Low-Level Waste and Uranium Recovery Projects Branch (WMLU) requirement and establish process parameters within which the Chem-Nuclear Rapid Dewatering System (RDS-1000) must be operated to meet current disposal criteria at low-level waste disposal facilities.

NOTE: Conformance with WMLU requirements provides assurance that the requirements identified in 10CFR61, Sub Part D, Technical Requirements for Land Disposal Facilities and Final Waste Classification are satisfied.

2.0 RESPONSIBILITIES

2.1 The Plant Manager is responsible for:

2.1.1 Ensuring the Unit 2 Radwaste Process Control Program provides for the health and safety of the general public as it applies to Radwaste Management.

2.1.2 Reviewing and approving changes to the Unit 2 Radwaste Process Control Program in accordance with Unit 2 Technical Specification, Section 6.5.2.11, Review and Audit, Technical Review and Control Activities.

2.2 The Manager Radiation Protection is responsible for the content and maintenance of this procedure.

2.3 The General Supervisor Radwaste is responsible for overall implementation of the Radwaste Process Control Program.

3.0 PROGRAM

3.1 System Description

3.1.1 General

a. The Solid Waste Management System (SWMS), implemented by the procedures identified in the Unit 2 Radwaste Process Control Program Implementing Procedures (Attachment 1) collects, reduces the volume, dewaters or solidifies and packages wet and dry types of radioactive waste in preparation for shipment off-site for further processing or disposal at a licensed burial site. The processing and storage methods used for interim storage are consistent with the present waste form stability requirements.

3.1.1 (Cont)

b. Types of solid waste sources are identified in Solid Waste Sources (Attachment 2).

c. The Solid Waste Management System accepts dry solid trash which is then compacted with a trash compactor (when physically possible) or sent off site for separation and processing.

NOTE: When required, Unit 2 will use the services of a vendor to solidify, dewater, separate, recover, or incinerate waste.

d. Bead resins, powdered resins and charcoal are dewatered using RDS-1000 in:

1. Vendor Certified Polyethylene containers, or

2. Carbon steel liners, or

3. High Integrity Container (HIC)

e. Bead resins, powdered resins and charcoal are solidified by cement solidification using an approved vendor.

f. Concentrated wastes are processed offsite to dryness by an approved vendor.

3.1.2 Evaporator Bottoms Tank

a. The evaporator bottoms tank and lines are electrically heat traced to prevent crystallization of waste salts.

b. Contents of the tank are transferred to a liner in the Radwaste Truckbay, via the concentrated waste transfer pump/for offsite processing.

3.1.3 Waste Sludge Tank

a. The waste sludge tank is supplied with waste from the following sources:

1. Radwaste filters,

2. The Thermex System, and

3. The spent resin tank

b. The waste sludge tank has the ability for decantation. A decant pump takes a suction off the sludge tank and discharges to the spent resin tank.

c. Contents of the waste sludge tank are fed by one of two redundant waste sludge pumps, to the Radwaste Truckbay for dewatering by the RDS 1000 or cement solidification by an approved vendor.

3.1.4 Ventilation System

The Radwaste Building Ventilation System (HVW) provides filtered, conditioned outside air to various areas of the Radwaste Building and exhaust the air to the atmosphere through the Reactor Building Vent. The HVW system maintains the building at a pressure below atmospheric to help prevent any unmonitored air leakage to the environment.

3.1.5 Liners

a. The RDS-1000 system is compatible with Chem-Nuclear System Incorporated (CNSI) dewatering waste containers.

b. These containers and their dewatering internals are designed to ensure uniform dewatering of waste slurries. They are fabricated and inspected in accordance with CNSI Quality Assurance Program.

c. Waste classification requirements will enter into selection of liner type.

d. Liners used to transport concentrated waste are fabricated and inspected in accordance with CNSI Quality Assurance Program and are compatible with Liquid Waste.

3.1.6 Crane

a. All liners movements are completed using a radio controlled/operated crane.

b. Liners are moved if required by crane to the Radwaste Building storage area using a ceiling grid coordinated system for placement of the liner.

c. When liners stored in the Radwaste Building storage area are to be shipped, the liners scheduled for shipment are moved capped just before shipment, and then loaded for transportation to the burial location.

3.2 Radioactive Waste Dewatering System (RDS 1000)

3.2.1 Rapid Dewatering System (RDS-1000)

a. The rapid dewatering system is a self-contained, free-standing portable system for dewatering radioactive spent resins and filter sludges in a variety of liners to meet current disposal criteria at low-level waste disposal facilities. The system is comprised of:

1. A dewatering skid

2. A plant connection skid

3. A control console

3.2.1 (Cont)

4. A container fillhead

5. A waste container complete with interconnecting hoses and cables

b. The radioactive waste slurry is transferred by waste transfer pumps to the RDS 1000, which includes a waste inlet automatic control valve.

c. The water removed from the radioactive waste is pumped from the waste liner by a dewatering pump through a media-specific filtering device and returned to the plant through a floor drain.

d. Fill operation is controlled remotely and viewed with a video monitor on the control panel. A remote level-control system detects and monitors waste level in the liner. Overfill protection is provided through this system and an independent level control in the fillhead, either of which will automatically close the waste inlet valve.

e. Upon completion of dewatering, warm air between 160-180 deg. F is recirculated through the liner and moisture separator until water content of the waste is within the low-level burial site Acceptance Criteria.

NOTE: The limiting factor on air temperature recirculated through the liner is based on maximum allowable temperature of a HIC. The maximum measured acceptable temperature is 200 deg F.

f. The type of media which can be dewatered by the RDS-1000 is divided into two categories:

1. Granular media which includes bead resin, charcoal, and zeolites

2. Filter precoat media which includes ecodex, powdex, ecosorb, ecocoat, and diatomateous earth.

g. All discharge air is passed through HEPA filtration units contained within the RDS-1000 Skid before passing to permanent plant vent.

3.2.2 Acceptance Criteria

Acceptance Criteria for process completion is established by a minimum dewatering time and a maximum water collection rate. The resultant waste form meets the requirements of 10 CFR 61 "Licensing Requirements for Land Disposal of Radioactive Waste" and NRC Branch Technical Position on Waste Form (May, 1983 Rev 0).

3.2.2 (Cont)

a. Bead Resin

1. The dewatering pump has run for one hour after the final waste transfer.

2. The RDS-1000 has been run for a minimum of four hours.

3. The moisture separator sight glass does not increase more than 1/2 inch during a thirty minute period.

b. Precoat Media

1. The dewatering pump has run, after the final waste transfer for a minimum of one hour and dewatering pump suction is equal to or less than 16" of mercury with all lateral suction valves opened

2. The RDS-1000 has been run for a minimum of eleven hours.

3. The moisture separator sight glass does not increase more than 1 inch during a thirty minute period.

3.2.3 Plant Connection Stand

The plant connection stand, consists of the following:

a. A remotely operated waste inlet valve to control influent to the processing liner. This valve is interlocked to close on High Level, High High Level (mechanical float inside fillhead), and decreasing air pressure or loss of electrical power.

b. A diaphragm pump with connections to the fillhead for gross initial dewatering.

c. Manifold for air and water supplies to control elements and flush components.

3.2.4 Fillhead

a. Camera and light provides remote visual observation of the container level during the resin transfer and dewatering.

b. Connections on the underside of the fillhead can connect to break away fittings in order to facilitate remote removal from the container for ALARA.

c. The external connections on the fillhead are camlock except the waste inlet.

d. A float switch inside the fillhead is a high high level backup to the level detection system (FAVA) installed inside the liner for automatic closure of the waste isolation valve.

3.2.5 RDS Dewatering Skid

The RDS Skid consists of a vacuum pump, moisture separator, air conditioning unit, and piping interface to the plant connection stand. Pressures and temperatures are monitored at various points on this component to safeguard mechanical operations. A HEPA filter is installed downstream of the safety relief valve and manual valve bypass

3.2.6 Control Panel

The control panel contains electrical and pneumatic controls to allow remote operation of all components and monitoring of individual parameters. A video monitor of the liner is provided as well as temperature and pressure indications of primary components.Audible and visual alarms to indicate off-normal conditions are also found on the control panel.

3.2.7 Level Detection System (FAVA)

The term FAVA is the manufacturers designation for a level detection system which is installed in the liner with a remote readout display on the control console. There are four probes inserted to different levels in the liner. The level detection system works on the conduction principle. It is used in the process to indicate the level of the liquid in the container.

3.2.8 Radwaste Operators

Radwaste Operators shall ensure proper equipment is available before beginning radwaste processing. Radwaste Operators may process wastes when the following equipment is operable:

a. Closed circuit television system stations

b. Radwaste Building Ventilation

c. Radwaste Building Floor Drain System

d. Radwaste Building CNS System

e. Service Air System

3.2.9 Vendor Operators

All operations of RDS-1000 shall be performed by technicians that have successfully completed the CNSI technicians training program. Initial indoctrination training includes approximately 30 days of general knowledge examinations, health physics instructions, and equipment operation. The operator shall have practical experience, certification on the RDS-1000 system and is subjected to bi-annual recertification. Each phase of the training is monitored by the use of qualification cards, on the job training reports, written tests and certificates of completion.

3.2.10 Quality Assurance

Chem-Nuclear's Quality Assurance Program, CNSI Procedure, QA-AD-001, shall be employed to control the design, fabrication, inspection, testing, operation, and record keeping for the RDS-1000.

3.2.11 Records

CNSI maintains records of the design, fabrication and testing of each RDS-1000 system. The setup and operation of the system is maintained in accordance with CNSI Procedures, FO-OP-032, Setup and Operating Procedure for RDS-1000 unit and FO-OP-035, Setup and Operating Procedure for Dewatering Precoat Media in a 21-300 Liner Using the RDS-1000.

3.2.12 Waste Containers

The General Supervisor Radwaste shall ensure:

a. Waste Containers are used for dewatering to satisfy the stability requirements.

   1. Polyethylene container may be used as the disposal package for NRC Class "A" waste.

   2. Polyethylene container may also be used for NRC CLASS "B" and "C" waste, but enhanced structural stability is required for burial at the Barnwell site.

      NOTE: This structural stability to meet requirements of 10CFR61.56 and the State of South Carolina is accomplished by the use of DHEC approved concrete overpack structures at the Barnwell burial site.

b. Each Waste Container is accompanied by a certificate of compliance.

c. Dewatering procedures based on an NRC approved vendor process control program or "Topical Report" are part of FO-OP-032, RDS-1000 Dewatering Procedure.

d. Documentation of adherence to procedures are maintained as records.

e. No Polyethlene container is stored in direct sunlight for a period greater than one year.

f. Waste containers used to transport concentrated waste are compatible with this type of waste.

3.3 Disposition of other Radioactive Material

3.3.1 Contaminated Oils

The General Supervisor Radwaste shall ensure:

a. Contaminated oils are stored in containers at designated areas within the plant.

b. A vendor with an approved process control program acceptable at the selected burial site is used to solidify the oil.

c. A vendor may also be used to incinerate the oils.

3.3.2 Temporary Radwaste Processing

The General Supervisor Radwaste shall ensure:

a. The vendor is NRC approved and has demonstrated a commitment to 10CFR61, Sub Part D, Technical Requirements for Land Disposal Facilities and Final Waste Classification and Waste Form Technical Position Papers stability requirements.

b. The vendor has completed Class B and C waste testing or has provided a schedule of completion.

c. The vendor has an approved procedure to process Class A waste (Dewatering, Evaporation Solidification).

d. Vendor procedures are acceptable as follows:

   1. Vendor procedures are reviewed and approved in accordance with NIP-PRO-03, Preparation and Review of Technical Procedures.

   2. A production sample level process control procedure is implemented.

   3. The vendor provides samples in accordance with N2-WHP-4, Waste Transfer Procedure, for N2-CSP-WSS-@406, Dewatered Waste surveillance at Unit 2.

3.3.3 Dry Active Waste (DAW)

The General Supervisor Radwaste shall ensure:

a. The proper and safe steps are performed to collect and prepare low specific activity (LSA) DAW in accordance with N2-WHP-12, Solid Dry Waste Collection and Compaction.

b. DAW is examined for liquids or items that would compromise the integrity of the package or violate the burial site license and/or criteria before compacting. These items are removed or separated.

3.3.3 (Cont)

c. DAW is shipped in containers meeting the transport requirements of 49CFR173.427, Transport Requirements for Low Specific Activity (LSA) Radioactive Materials.

d. Waste precluded from disposal in LSA boxes or drums due to radiation limits is disposed of in liners in accordance with N2-WHP-4, Waste Transfer Procedure.

e. DAW shipped off-site for vendor processing meets 49CFR173.427, Transport Requirements for LSA, and any additional vendor requirements, if specified.

3.4 Sampling

Radwaste Operators or the Chemistry Branch shall ensure:

a. The evaporator bottoms tank (TK10), the waste sludge tank (TK8), or the Spent Resin Tank (TK7) are isolated from further input when preparing to process waste and a batch number is assigned.

b. The evaporator bottoms tank (Tk10) is recirculated to ensure a homogeneous mixture.

c. The waste sludge tank (TK8) is agitated and the Spent Resin Tank (TK7) is recirculated to ensure a homogeneous mixture.

d. A sample is obtained from the tank(s) to be processed in accordance with N2-WHP-4, Waste Transfer Procedure, for N2-CSP-WSS-@406, Dewatered Waste Surveillance at Unit 2.

e. The sample from the tank(s) to be processed is analyzed and the sample data sheet form in N2-CSP-WSS-@406, Dewatered Waste Surveillance at Unit 2, is completed.

f. The Chemistry Branch shall determine the chemical and radionuclide content of each sample.

3.5 Waste Classification

a. The Unit 2 Radwaste Process Control Program, procedure assures that wastes determined acceptable for near surface disposal are properly classified.

b. Waste classification is performed consistent with the guidance provided in the Branch Technical Position pertaining to Waste Classification and is based upon the concentration of certain radionuclides in the waste form as given in 10CFR61.55, Waste Classification, and 10CFR61.56, Waste Characteristics.

3.5 (Cont)

NOTE: The methods used and the frequency for determining the radionuclide concentration of the final waste form are conducted in accordance with N2-CSP-WSS-@406, Dewatered Waste Surveillance at Unit 2.

c. The General Supervisor Radwaste shall ensure:

1. The minimum waste characteristic requirements identified in 10CFR61.56, Waste Characteristics, are satisfied by implementation of applicable S-RPIPs for the packaging and transportation of radioactive material.

2. The radionuclide concentration determination methods and frequency are conducted in accordance with N2-CSP-WSS-@406, Dewatered Waste Surveillance at Unit 2 and N2-CSP-WSS-@403.

d. The Manager Radiation Protection shall ensure classification of waste is performed in accordance with S-RPIP-7.3, Determination of Shipment Type.

3.6 Administrative Controls

NOTE: The Manager, Nuclear QA, Operations has the authority to stop work when significant conditions adverse to quality exist and require corrective action.

3.6.1 Quality Assurance (QA) procedures and the Nuclear QA Program require:

a. Ongoing review, monitoring, and audit functions.

b. Performance of audits, under the cognizance of the SRAB, of the Process Control Program and implementing procedures for processing and packaging of radioactive waste at least once every 24 months as required by Unit 2 Technical Specification 6.5.3.8.i, Review and Audit, Safety Review and Audit Board.

c. Compliance with the waste classification and characterization requirements of 10CFR61.55, Waste Classification and 10CFR61.56, Waste Characteristics.

d. Quality Assurance Inspectors performing radwaste inspections have documented training in Department of Transportation and NRC radwaste regulatory requirements.

e. Quality Assurance review of vendor programs to ensure compliance with 10CFR71, Packaging and Transportation of Radioactive Materials, Quality Assurance requirements.

3.6.2 Training Procedures and Training Programs require:

a. Radwaste Operator qualification by completion of the Radwaste Operations Unit 2 Plant Training Program with:

1. An average grade of 80 percent or above.

2. On-the-job training in conjunction with classroom instruction to ensure each radwaste operator maintains an acceptable level of skill and familiarity associated with radwaste controls and operational procedures.

3. Training in accordance with approved training procedures.

b. Training of Radwaste Operators to include, but NOT be limited to, familiarity with the following radwaste components or related systems:

1. Liquid-drains, collection tanks with subsystems, waste and regeneration evaporators, and seal water

2. Solid Waste and associated support systems

3. LWS-Computer operation and interfaces

4. Waste handling procedures for packaging and shipping of radioactive materials

5. Condensate demineralizer system

6. Spent fuel and phase separators subsystem

7. Steam supplies

8. The Thermex System

9. Rapid Dewatering System (RDS-1000)

c. Chemistry Technician and Radiation Protection Technician training in accordance with approved training procedures.

d. A formal classroom Radwaste Training Program schedule based on the needs of Radwaste Operations personnel.

NOTE: This training may be covered in a continuous cycle or as part of the normal rotating shift schedule.

e. Retraining of Radwaste Operator personnel on an annual basis to identify individual needs for retraining.

1. Personnel demonstrating a significant deficiency in a given area of knowledge and proficiency are placed in a remedial training program as directed by the General Supervisor Radwaste.

3.6.2.e (Cont)

2. Successful completion of the accelerated training program is evaluated by a written and/or oral examination as directed by the General Supervisor Radwaste.

   NOTE: The Requalification Training Program covers a fundamental review of system modifications, revisions or changes to procedures, and changes or experiences in the nuclear industry.

f. Training records to:

   1. Be maintained for audit and inspection purposes.

   2. Be considered permanent records.

   3. Meet the applicable requirements of QATR-1, Quality Assurance Program Topical Report for Nine Mile Point Nuclear Station Operations, Section 17.0, Quality Assurance Records, NIP-TQS-01, Qualification and Certification, and NIP-RMG-01, Identification, Maintenance, Storage and Transfer of Nuclear Division Records

3.6.3 Documentation Control and Record Retention

a. Station management shall evaluate QA program audits of waste classification records to satisfy the requirements of 10CFR20.2006.d, Transfer for Disposal and Manifests.

b. Personnel shall forward changes affecting operating procedures to Nuclear-QA for review in parallel with the NMPC Operations review as required.

c. Site Records Management shall maintain waste management records in accordance with the appropriate administrative procedures.

3.6.4 Licensee-initiated changes to the Unit 2 Radwaste Process Control Program:

a. Are submitted to the Commission in the Semiannual Radioactive Effluent Release Report for the period in which the change(s) was made, and contain the information required by Technical Specification 6.13, Process Control Program.

b. Become effective upon review and acceptance by the SORC.

3.6.5 The General Supervisor Radwaste shall ensure:

a. Shipping manifests are completed and tracked to satisfy the requirements of 10CFR20.2006.d. Transfer for Disposal and Manifests, in accordance with Waste Handling Procedures.

b. Radwaste Management monitors the status of the manifests in accordance with N2-WHP-7, Cask/Van/Flatbed/Seavan Departure Shipment.

c. Temporary storage of solid radioactive material awaiting shipment in an area other than a designated area is done in accordance with GAP-INV-02, Control of Material Storage Areas.

4.0 DEFINITIONS

4.1 Class "A" Waste

Waste usually segregated from other waste classes at the disposal site. The physical form and characteristics shall meet the minimum requirements of 10CFR61.56, Waste Characteristics.

4.2 Class "B" Waste

Waste meeting more rigorous waste form requirements to ensure stability after disposal. Class B waste form shall meet both the minimum and stability requirements of 10CFR61.56, Waste Characteristics.

4.3 Class "C" Waste

Waste meeting Class B standards and requiring additional measures at the disposal facility to prevent inadvertent intrusion.

4.4 Homogeneous

Of the same kind or nature; essentially alike. Most waste streams are considered homogeneous for purposes of waste classification.

4.5 Batch

An isolated quantity of feed waste to be processed having essentially constant physical and chemical characteristics.

4.6 Dewatered Waste

Refers to waste that has been processed by means other than solidification, encapsulation, or absorption to meet the free standing liquid requirements of 10 CFR 61.56 (a)(3) and (b)(2).

4.7 Concentrated Waste

Liquid waste that has a high level of dissolved and/or particulate solid content.

4.8 Dried Waste

Solid waste that has been processed by evaporation to dryness.

5.0 REFERENCES

5.1 Licensee Documentation

5.1.1 QATR-1, Quality Assurance Program Topical Report for Nine Mile Point Nuclear Station Operations, Section 17.0, Quality Assurance Records

5.1.2 Unit 2 Technical Specifications:

a. Section 3.11.3-Action a, Solid Radioactive Wastes

b. Section 3.11.3-Action b, Solid Radioactive Wastes

c. Section 4.11.3.a, Solid Radioactive Wastes

d. Section 4.11.3.b, Solid Radioactive Wastes

e. Section 6.5.2.11, Review and Audit, Technical Review and Control Activities

f. Section 6.5.3.8.i, Review and Audit, Safety Review and Audit Board

g. Section 6.9.1.8, Semi-Annual Radioactive Effluent Release Report

h. Section 6.13, Process Control Program

5.2 Standards, Regulations, and Codes

5.2.1 ANSI/ANS 55.1, 1979, American National Standard for Solid Radioactive Waste Processing System for Light Water Cooled Reactor Plants

5.2.2 10CFR20.2006.d, Transfer for Disposal and Manifest

5.2.3 10CFR20 App F, Requirements for Low Level Waste Transfer for Disposal at Land Disposal Facilities and Manifests

5.2.4 10CFR61, Sub Part D, Technical Requirements for Land Disposal Facilities and Final Waste Classification and Waste Form Technical Position Papers

5.2.5 10CFR61.55, Waste Classification

5.2.6 10CFR61.56, Waste Characteristics

5.2.7 10CFR71, Packaging and Transportation of Radioactive Material

5.2.8 49CFR173.1.b, Transportation

5.2.9 49CFR173.427, Transport Requirements for Low Specific Activity (LSA) Radioactive Materials

5.2.10 NUREG-0123, Standard Radiological Effluent Technical Specifications for Boiling Water Reactors

5.2.11 NUREG-0800,

a. Section 11.2, Standard Review Plan for Liquid Waste Management Systems

b. Section 11.4, Standard Review Plan for Solid Waste Management Systems

5.2.12 Resource Conservation and Recovery Act (RCRA) of 1976 (Ref. Corporate Guide to Hazardous Waste Disposal and Spill Reporting)

5.2.13 Regulatory Guide 1.143, Rev. 0, Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light Water Cooled Nuclear Power Plants

5.3 Supplemental References

5.3.1 South Carolina Department of Health and Environmental Control, Radioactive Material License 097, as amended

5.3.2 State of Washington Radioactive Material License No. WN-I019-2, as amended

5.3.3 NRC Special Nuclear Material License No. 12-13536-02, as amended, for Barnwell, SC

5.3.4 NRC Special Nuclear Material License No. 16-19204-01, as amended, for Richland, WA

5.3.5 Nuclear Regulatory Commission Branch Technical Position on Waste Classification and Waste Form, May 1983

5.3.6 CNSI Proprietary Topical Report
No. RDS-25506-01-NP-A, Rev. 1- March 1988.
Appendix A,B,C,D and Material Safety Data Sheets

5.3.7 SE 92-049, Interim On-Site Storage of Low Level Radioactive Waste (LLRW) in the Radwaste Solidification and Storage Building (RSSB) at Unit 1.

5.3.8 SE 92-061, Upgrade Radwaste 245' Elevation Storage, at Unit 2.

5.3.9 N2-WHP-25, Thermex Operating Procedure

5.3.10 Safety Evaluation 94-074, Installation of the Thermex System

ATTACHMENT 1: UNIT 2 RADWASTE PROCESS CONTROL PROGRAM REFERENCE AND IMPLEMENTING PROCEDURES

Waste Handling Procedures (WHPs)

Radiation Protection Procedures (S-RPIPs)

Chemistry Procedures (CSPs)

Quality Assurance Procedures (QAPs)

Operating Procedures (Ops)

Generation Administrative Procedures (GAP/APs)

Nuclear Division Interfacing Procedures (NIPs)

ATTACHMENT 2: SOLID WASTE SOURCES
(Sheet 1 of 3)

1.0 RADWASTE FILTERS

1.1 Mechanical radwaste filters filter resin and crud (backwash material) from the waste collector sub-system.

1.2 When a filter reaches a pre-determined differential pressure, the filter backwashes the material into the backwash tank, which is then pumped to the spent resin tank.

2.0 RADWASTE DEMINERALIZERS

2.1 The radwaste demineralizers are used as an ionic exchange media for processing high quality water from the waste collector tanks.

2.2 When determined the resin can NO longer be used, the depleted resin is pumped to the spent resin tank.

3.0 CONDENSATE DEMINERALIZER

3.1 The condensate demineralizers remove soluble and insoluble impurities from the condensate water to maintain reactor feedwater purity.

3.2 After it is determined these resins can NO longer be used, the depleted resins are pumped to the Radwaste Demineralizer or spent resin tank.

4.0 THERMEX SYSTEM

4.1 Concentrated waste will be pumped to the regen waste tank for further concentration by an evaporator or stored in a liner and eventually pumped to a transport liner in the Radwaste Truckbay for offsite processing.

4.2 Exhausted resin and charcoal are sluiced to the filter sludge tank. This waste is transferred to the Spent Resin tank mixed to a homogenus mixture and then transferred to a liner in the truckbay for dewatering.

4.3 Exhausted reverse osmosis membranes will be processed as DAW.

5.0 SPENT FUEL PHASE SEPARATOR

These tanks receive the exhausted powdered filter media (resins) from the fuel pool cleanup system which is subsequently pumped to the spent resin tank or directly to a liner in the Radwaste Truckbay for processing.

6.0 RWCU PHASE SEPARATOR

These separator tanks receive exhausted powdered filter media (resins) from the water cleanup system which is subsequently pumped to the spent resin tank or directly to a liner in the Radwaste Truckbay for processing.

7.0 CONTAMINATED OIL

Oil from sources within Unit 2 that become contaminated is either stored in containers (to be solidified by a vendor with an approved procedure) or shipped off-site for incineration.

8.0 COMPACTIBLE SOLIDS

8.1 Compactible low level trash is either processed and compacted in a hydraulically operated box compactor, or shipped off-site for vendor separation and processing.

8.2 Shoe covers, trash, contaminated paper from the chemistry lab, and similar materials are included in this category.

9.0 FILTERS AND MISCELLANEOUS ITEMS

Solid items with high dose rates are handled on a case-by-case basis, being disposed of by methods acceptable to the burial site or shipped off-site for vendor recovery or disposal.

10.0 WASTE EVAPORATOR

10.1 The waste evaporator processes low quality waste from the floor drain collector system, Regeneration Waste Tanks and, as an option, waste from the Waste Discharge Tanks.

10.2 The waste evaporator is designed to concentrate waste to a 25% solid concentration which may then be discharged to the evaporator bottoms tank for transfer to the Radwaste Truckbay for vendor processing.

11.0 REGENERANT EVAPORATOR

11.1 The regenerant waste evaporator may receive concentrated waste from the Thermex System, regeneration solutions from the condensate demineralizer system, the radwaste demineralizer resin regeneration system, and the radwaste regeneration sump. It can also process waste from the Floor Drain Collector System and the Waste Discharge Tanks.

11.2 The regenerant waste evaporator is designed to concentrate to a 25% by weight solid concentration of sodium sulfate.

11.3 The concentrates are then discharged to the evaporator bottoms tank for transfer to the Radwaste Truckbay for vendor processing.

12.0 SPENT RESIN STORAGE TANK

12.1 Exhausted resin from the condensate demineralizer, the radwaste demineralizer, RWCU phase separator, the spent fuel pool phase separator, and the radwaste filter backwash tanks are sluiced to the spent resin storage tank.

12.2 The waste from the spent resin storage tank is pumped to the waste sludge tank for processing by the RDS 1000 in the Radwaste Truckbay.