ATTACHMENT V TO IPN-99-079

PROPOSED CHANGES TO PROCESS CONTROL PROGRAM (PCP) MANUAL

RESULTING FROM

PROPOSED CHANGES TO ENVIRONMENTAL TECHNICAL SPECIFICATIONS

INCORPORATING RECOMMENDATIONS OF GENERIC LETTER 89-01

AND THE REVISED 10 CFR PART 20 AND 10 CFR 50.36a

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64

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SOLID RADIOACTIVE WASTE PROCESS CONTROL PROGRAM

1.0 PURPOSE

The purpose of this document is to provide a description of the solid radioactive waste Process Control Program (PCP) at the Indian Point No. 3 Nuclear Plant (Plant). The PCP describes the methods used for processing, classification and packaging low-level wet radioactive waste into a form acceptable for disposal, in accordance with 10 CFR Part 61 and current disposal site criteria.

To ensure the safe operation of the solid radwaste system, the solid radwaste system will be used in accordance with this Process Control Program to process wet radioactive wastes to meet shipping and burial ground requirements.

This document addresses the process control program in the context of disposal criteria, and includes those of the Barnwell, South Carolina Low Level Radioactive Waste (LLRW) disposal facility.

2.0 SCOPE

This document describes current and planned practices for sampling, classification, processing and packaging of wet radioactive waste to current regulations and burial site criteria regardless of whether or not we are storing on site. This document does not address irradiated hardware which will be managed on a case-by-case basis under the direction of the Waste Management General Supervisor.

2.1 Waste Stream Identification

The Plant has identified different categories of waste streams and treats each separately for classification purposes. The following list isn't intended to specifically name every possible waste stream but to list general categories of existing waste streams. Examples of current active waste streams are as follows:

a) Dry Active Waste (DAW)
b) Primary Resin
c) Cartridge Filters
d) Liquid Waste Processing Media
e) Contaminated oil
f) Contaminated soil

2.2 Disposition of Radioactive Material
Sent to a Vendor for Intermediate Processing

Current and planned practices include sending radioactive material generated by the Plant to offsite vendors for volume reduction (VR) processing instead of directly to a disposal site.

2.2.1 This document addresses the requirements for 10CFR Part 61.55 (waste classification) for radioactive material sent to vendor facilities.

2.2.2 This document does NOT address the requirements for 10CFR Part 61.56 (waste characteristics) for material sent to intermediate processors, because the final treatment and packaging is performed at the vendor facilities.

2.2.3 The types of radioactive material sent to intermediate processors could include, but is not limited to, the following:

DAW

Steam Generator Blowdown Resin

Steam Generator Blowdown Filters

Contaminated Oil

Contaminated Soil

Filter media

2.3 Disposition of Radioactive Material Sent
Directly to a Disposal Site

This document addresses both the 10CFR Part 61.55 and Part 61.56 requirements for the waste streams listed in Section 2.1.

3.0 REFERENCES

3.1 Federal Regulations

Code of Federal Regulations, Title 10, Part 20.

Code of Federal Regulations, Title 10, Part 61.

Code of Federal Regulations, Title 10, Part 71.

3.2 Disposal Site Requirements

Barnwell Waste Management Facility site disposal criteria.

Barnwell (South Carolina) disposal site license.

3.3 NRC Information Notices

NRC Information and Enforcement Bulletin
79-19: Packaging of Low-Level Radioactive Waste for Transport and Burial

NRC Information Notice 80-24: Low-Level Radioactive Waste Burial Criteria

NRC Information Notice 80-32: Clarification of Certain Requirements for Exclusive-Use Shipments of Radioactive Materials

NRC Information Notice 80-32, Rev. 1: Clarification of Certain Requirements for Exclusive-Use Shipments of Radioactive Materials

NRC Information Notice 83-05: Obtaining Approval for Disposing of Very-Low-Level Radioactive Waste - 10CFR Section 20.302

NRC Information Notice 83-10: Clarification of Several Aspects Relating to Use of NRC-Certified Transport Packages

NRC Information Notice 83-33: Non-Representative Sampling of Contaminated Oil

NRC Information Notice 84-50: Clarification of Scope of Quality Assurance Programs for Transport Packages Pursuant to 10CFR 50 Appendix B

NRC Information Notice 84-72: Clarification of Conditions for Waste Shipments Subject to Hydrogen Gas Generation

NRC Information Notice 85-92: Surveys of Wastes Before Disposal from Nuclear Reactor Facilities

NRC Information Notice 86-20: Low-Level Radioactive Waste Scaling Factors, 10CFR 61

NRC Information Notice 86-90: Requests to Dispose of Very Low-Level Radioactive Waste Pursuant 10CFR 20.302

NRC Information Notice 87-03: Segregation of Hazardous and Low-Level Radioactive Wastes

NRC Information Notice 87-07: Quality Control of On-Site Dewatering/Solidification Operations by Outside Contractors

NRC Information Notice 89-27: Limitations on the Use of Waste Forms and High Integrity Containers for the Disposal of Low-Level Radioactive Waste

NRC Information Notice 92-62: Emergency Response Information Requirements for Radioactive Material Shipments

NRC Information Notice 92-72: Employee Training and Shipper Registration Requirements for Transporting Radioactive Materials

4.0 RESPONSIBILITIES

The Waste Management General Supervisor has the overall responsibility for implementing the PCP. The Waste Management Supervisor responsible for Processing and Transportation is tasked with the day-to-day responsibilities for the following:

a) Implementing the requirements of this document.

b) Ensuring that radioactive waste is characterized and classified in accordance with 10CFR Part 61.55 and Part 61.56.

c) Ensuring that radioactive waste is characterized and classified in accordance with volume reduction facility and disposal site licenses and other requirements.

d) Designating other approved procedures (if required) to be implemented in the packaging of any specific batch of waste.

e) Providing a designated regulatory point of contact between the Plant and the NRC, or volume reduction facility or disposal site.

f) Maintaining records of on-site and off-site waste stream sample analysis and Plant evaluations.

5.0 DEFINITIONS

5.1 Definitions

5.1.1 Batch - An isolated quantity of feed waste to be processed having essentially constant physical and chemical characteristics. (The addition or removal of water will not be considered to create a new batch).

5.1.2 Certificate of Compliance - Document issued by the USNRC regulating use of a NRC licensed cask or issued by DHEC regulating a High Integrity Container.

5.1.3 Chelating Agents - EDTA, DTPA, hydroxy-carboxylic acids, citric acid, carbolic acid and glucinic acid.

5.1.4 Confirmatory Analysis - The practice of verifying that gross radioactivity measurements using MCA are reasonably consistent with independent laboratory sample data.

5.1.5 Density Correction - The factor which converts sample data reported in uCi/g to Uci/cc prior to characterization using the RADMAN core sample mode.

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

5.1.7 Dilution Factor - The RADMAN computer code factor to account for the non-radioactive binder added to the waste stream in the final product when waste is solidified.

5.1.8 Encapsulation - Encapsulation is a means of providing stability for certain types of waste by surrounding the waste by an appropriate encapsulation media.

5.1.9 Gamma-Spectral-Analysis - Also known as IG, MCA, Ge/Li and gamma spectroscopy.

5.1.10 Gross Radioactivity Measurements - More commonly known as dose to curie conversion for packaged waste characterization and classification.

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

5.1.12 Low-Level Radioactive Waste (LLW) - Those wastes containing source, special nuclear, or by-product material that are acceptable for disposal in a land disposal facility. For the purposes of this definition, low-level radioactive waste has the same meaning as in the Low-Level Waste Policy Act, that is, radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclear fuel, or by-product material as defined in section 11e.(2) of the Atomic Energy Act (uranium or thorium tailings and waste).

5.1.13 Measurement of Specific Radionuclides - More commonly known as direct sample or container sample using MCA data for packaged waste characterization and classification.

5.1.14 Operable - A system, subsystem, train, component or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified functions(s), and when all necessary attendant instrumentation, controls, electrical power, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its function(s) are also capable of performing their related support function(s).

5.1.15 Prequalification Program - The testing program implemented to demonstrate that the proposed method of wet waste processing will result in a waste form acceptable to the land disposal facility and the NRC.

5.1.16 Processing - Changing, modifying, and/or packaging wet radioactive waste into a form that is acceptable to a disposal facility.

5.1.17 Quality Assurance/Quality Control - As used in this document, "quality assurance" comprises all those planned and systematic actions necessary to provide adequate confidence that a structure, system, or component will perform satisfactorily in service. Quality assurance includes quality control, which comprises those quality assurance actions related to the physical characteristics of a material structure, component, or system to predetermined requirements.

5.1.18 Reportable Quantity Radionuclides (RQ) - any radionuclide listed in column (1) of Table 2 of 49CFR Part 172.101 which is present in quantities as listed in column (3) of Table 2 of 49CFR Part 172.101.

5.1.19 Sampling Plan - A program to ensure that representative samples from the feed waste and the final waste form are obtained and tested for conformance with parameters stated in the PCP and waste form acceptance criteria.

5.1.20 Scaling Factor - A dimensionless number which relates the concentration of an easy to measure radionuclide (gamma emitter) to one which is difficult to measure (beta and/or alpha emitters).

5.1.21 Significant Quantity - For purposes of waste classification all the following radionuclide values shall be considered significant and must be reported on the disposal manifest.

Any value (real or LLD) for radionuclides listed in Appendix F to 10CFR20

Greater than or equal to 1 percent of the class A concentration limits as determined by 10CFR Part 61.55 Table 1 for class A waste.

Greater than or equal to 1 percent of the class C concentration limits as determined by 10CFR Part 61.55 Table 1 for class C waste.

Greater than or equal to 1 percent of the Class A concentration limits listed in 10CFR Part 61.55 Table 2.

Greater than or equal to 1 percent of the total activity.

Greater than or equal to 1 percent of the Reportable Quantity limits listed in 49CFR Part 172.101 Table 2.

5.1.22 Solidfication – Shall be the conversion of wet wastes into a form that meets shipping and burial ground requirements

5.1.23 Special Radionuclides - The RADMAN computer code term for radionuclides listed in Appendix F to 10CFR20.

5.1.24 Stability - As used in this document, "stability" means structural stability. Stability requires that the waste form maintain its structural integrity under the expected disposal conditions.

5.1.25 Training - A systematic program that ensures a person has knowledge of hazardous materials and hazardous materials regulations.

5.1.26 Type A Package - Is the packaging together with its radioactive contents limited to A_1 or A_2 as appropriate that meets the requirements of 49CFR Part 173.410 and Part 173.412, and is designed to retain the integrity of containment and shielding under normal conditions of transport as demonstrated by the tests set forth in 49CFR Part 173.465 or Part 173.466 as appropriate.

5.1.27 Type B Package - Is the packaging together with its radioactive contents that is designed to retain the integrity of containment and shielding when subjected to the normal conditions of transport and hypothetical accident test conditions set forth in 10CFR Part 71.

5.1.28 Waste Container - A vessel of any shape, size, and composition used to contain the final processed waste.

5.1.29 Waste Form - Waste in a waste container acceptable for disposal at a licensed disposal facility.

5.1.30 Waste Stream - A Plant specific and constant source of waste with a distinct radionuclide content and distribution.

5.1.31 Waste Type - A single packaging configuration and waste form tied to a specific waste stream.

6.0 PREREQUISITES

6.1 Maintenance of Regulatory Material

Ensure that a current set of DOT, NRC, EPA, New York State, Volume Reduction facility and disposal site regulations and requirements are maintained at the Plant and are readily available for reference.

6.2 Representative Radionuclide Sample Data

Ensure that representative radionuclide sample data is on file for each active waste stream. Unless operation conditions or changes in processing methods require increased sample frequency, data is considered to be current if it meets the following:

a) NRC Class "A" waste streams must be sampled at least every two years.

b) NRC Class "B" or "C" waste streams and waste streams that have the potential to be NRC Class "B" or "C" must be sampled at least every year.

6.3 Initial and Cyclic Training

A training program shall be developed, implemented and maintained for all personnel involved in processing, packaging, handling and transportation of radioactive waste to ensure radwaste operations are performed within the requirements of NRC Information Bulletin
79-19 and 49CFR Part 172.700 through Part 172.704.

Specific employee training is required for each person who performs the following job functions [172.702(b)].

a) Classifies hazardous materials.

b) Packages hazardous materials.

c) Marks and labels packages containing hazardous materials.

d) Prepares shipping papers for hazardous materials.

e) Offers or accepts hazardous materials for transportation.

f) Handles hazardous materials.

g) Marks or placards transport vehicles.

h) Operates or crews transport vehicles.

i) Works in a transportation facility and performs functions in proximity to hazardous materials which are to be transported.

j) Inspects or tests packages.

Cyclic training is defined as within three years.

Copies of training records are required for as long as a person is employed and 90 days thereafter. The records should include, as a minimum, the following:

a) Trainee's name and signature.

b) Training dates.

c) Training material or source reference.

d) Trainer's name and signature.

6.4 Requirements for Contracted Processing Vendors

Plant management shall review vendor(s) topical reports and test procedures.

NOTE
The PCP does not have to include the vendor's Topical Report if it has NRC approval, or has been previously submitted to the NRC.

Plant management review will assure that the vendor's operations and requirements are compatible with the responsibilities and operation of the Plant.

Training requirements and records listed in Section 6.3 also apply to contracted vendors.

7.0 PRECAUTIONS/LIMITATIONS

7.1 Precautions

a) Radioactive materials shall be handled in accordance with applicable radiation protection procedures.

b) All radioactive waste must be processed or packaged to meet the minimum requirements listed in 10CFR Part 61.56 (1) through (8).

7.2 Limitations

a) Only qualified personnel will characterize or package radioactive waste or radioactive materials for transportation or disposal.

b) All Plant personnel that have any involvement with radioactive waste management computer software shall be familiar with its functions, operation and maintenance.

c) With the provisions of this Process Control Program not satisfied, suspend shipments of defectively processed or defectively packaged solid radioactive wastes from the site.

8.0 SPECIAL TOOLS AND EQUIPMENT

8.1 Frequency of Use and Descriptions

Required tools and equipment will vary depending on the specific process and waste container that is used. The various tools and equipment which may be required are detailed in specific procedures developed to govern activities described in this document.

9.0 PROCEDURE

9.1 Waste Management Practices

9.1.1 Solidification/encapsulation methods include the following:

a) Present and planned practice is NOT to solidify or encapsulate any waste streams.

b) Wet waste being shipped directly for burial in a HIC is dewatered to less than 1 percent by volume prior to shipment.

c) Wet waste being shipped directly for burial in a container other than a HIC is dewatered to less than .5 percent by volume prior to shipment.

d) If solidification is required in the future, then at least one representative test specimen from at least every tenth batch of each type of wet radioactive waste will be checked to verify solidification. If any specimen fails to verify solidification, the solidification of the batch under test shall be suspended until such time as additional test specimens can be obtained, alternative solidification parameters can be determined, and a subsequent test verifies solidification. If the initial test specimen from a batch of waste fails to verify solidification, then provide for the collection and testing of representative test specimens from each consecutive batch of the same type of wet waste until at least 3 consecutive initial test specimens demonstrates solidification. The process shall be modified as required to assure solidification of subsequent batches of water.

9.1.2 Operation and maintenance of dewatering systems and equipment include the following:

a) Present and planned practice is to utilize Plant personnel, supplemented by contracted vendor personnel, on a demand basis to operate and maintain dewatering systems and equipment using Plant procedures.

b) All disposal liners are manufactured by and purchased from QA approved vendors.

9.1.3 When using HICs as a disposal package at the Barnwell disposal site, a DHEC approved concrete overpack structure is used to provide the enhanced structural stability that meets the requirements of 10CFR Part 61.56 and the State of South Carolina.

9.1.4 ALARA considerations are addressed in all phases of the processes involving handling, packaging and transfer of any type or form of radioactive waste (dewatered or dry). Spent resins, spent filter cartridges and sludges are typically processed within shields (normally the shipping cask). Sluiceable demineralizers are shielded when in service. Radiation exposure and other health physics requirements are controlled by the issuance of a Radiation Work Permit (RWP) for each task.

9.2 Waste Stream Sampling Methods and Frequency

9.2.1 The following general requirements apply to Plant waste stream sampling:

(a) Treat each waste stream separately for classification purposes.

(b) Meet the minimum sample frequency requirements as stated in Section 6.2.

(c) Ensure samples are representative of or can be correlated to the final waste form.

(d) Determine the density for each waste stream (not applicable for DAW and filters).

(e) Perform an in-house analysis for gamma emitting radionuclides for each sample sent to an independent laboratory.

(f) Periodically perform in-house analysis for gamma emitting radionuclides for comparison to the current data base values for gamma emitters. (The current data base is usually based on the most recent independent laboratory results.)

(g) Resolve any discrepancies between in-house results and the independent laboratory results for the same or replicate sample as soon as possible.

(g) Maintain records of on-site and off-site waste stream sample analysis and evaluations.

9.2.2 The following conditions may require increased sampling frequencies relative to the requirements in Section 6.2:

a) When reactor coolant Dose Equivalent Iodine approaches 25 percent of the Plant technical specification limit.

b) When there is a significant increase of the reactor coolant I-131/I-133 ratio at steady state power.

c) When Np-239 activity is greater than .01 uCi/cc in the reactor coolant.

d) Sustained, unexplained, changes in the routinely monitored Alpha\Beta ratios, as determined by Radiological engineering.

e) When there is an extended reactor shutdown (> 90 days).

f) When there are changes to liquid waste processing, such as bypassing filters, utilizing filters or a change in ion exchange media.

9.2.3 The following requirements apply to infrequent or abnormal waste types:

a) Infrequent or abnormal waste types that may be generated must be evaluated on a case-by-case basis.

b) The Waste Management Supervisor responsible for processing and shipping will determine if the waste can be correlated to an existing waste stream.

c) If the radioactive waste cannot be correlated to an existing waste stream, the Waste Management Supervisor responsible for processing and shipping shall determine specific off-site sampling and analysis requirements necessary to properly classify the material.

9.2.4 Specific sampling methods and data evaluation criteria are detailed in approved plant procedures for each active waste stream.

9.3 Waste Classification

Specific classification steps for each active waste type are detailed in approved plant procedures.

9.3.1 General requirements for scaling factors include the following:

a) The Plant has established an inferential measurement program whereby concentrations of radionuclides which cannot be readily measured are estimated through ratioing with radionuclides which can be readily measured.

b) Scaling factor relationships are developed on a waste stream specific basis. These relationships are periodically revised to reflect current independent lab data from direct measurement of samples. The scaling factor relationships currently used by the Plant are as follows:

Hard to detect ACTIVATION product radionuclides and C-14 are estimated by using scaling factors with measured Co-60 activities.

Hard to detect FISSION product radionuclides and H-3, Tc-99 and I-129 are estimated by using scaling factors with measured Cs-137 activities.

Hard to detect TRANSURANIC radionuclides are estimated by using scaling factors with measured Ce-144 activities. Where Ce-144 cannot be readily measured, transuranics are estimated by using scaling factors with measured Cs-137 activities.

9.3.2 General requirements for the determination of total activity and radionuclide concentrations include the following:

a) The activity for the waste streams defined in Section 2.1 is estimated by using either Gross Radioactivity Measurement or Direct Measurement of Radionuclides. Current specific practices are as follows:

DAW - Gross radioactivity measurement in conjunction with the RADMAN and TRASHP computer codes, other approved computer codes or hand calculation.

Filters - Gross radioactivity measurement in conjunction with the FILTRK computer code, other approved computer codes or hand calculation.

All Other Waste Streams - Direct measurement of radionuclides in conjunction with the RADMAN and TRASHP computer codes, other approved computer codes or hand calculation.

b) Determination of the NRC waste classification is performed by comparing the measured or calculated concentrations of significant radionuclides in the final waste form to those listed in 10CFR Part 61.55.

9.4 Quality Control for Sampling and Classification

9.4.1 The RADMAN computer code provides a mechanism to assist the Plant in conducting a quality control program in accordance with the waste classification requirements listed in 10CFR Part 61.55. All waste stream sample data changes are written to a computer data file for future review and reference.

9.4.2 Audits and Management Review includes the following:

a) Appendix F to 10CFR20 requires conduct of a QC program which must include management review of audits.

b) Management audits of the Plant Sampling and Classification Program shall be periodically performed to verify the adequacy of maintenance sampling and analysis.

c) Audits and assessments are performed and documented by any of the following:

Radiation Protection Department.

Quality Assurance Department.

Qualified Vendors.

d) The Plant audit program is detailed in the Plant Quality Assurance Procedure 18.1.

9.5 Dewatering Operations

9.5.1 Processing requirements during dewatering operations include the following:

a) All dewatering operations are performed per approved Plant or vendor operating procedures and instructions.

b) Dewatering limitations and capabilities are verified by vendor Topical Reports or Operating and Testing Procedures.

9.5.2 Dewatered resin activity limitations include the following:

a) Dewatered resins will not be shipped off-site that have activities which will produce greater than 1.0E+8 rads total accumulated dose over 300 years. This is usually verified by comparing the container specific activity at the time of shipment to the following concentration limits for radionuclides with a half-life greater than five years:

10 Ci (0.37 TBq) per cubic foot.

350 uCi (8.75E-3Bq) per cubic centimeter.

9.6 Additional Barnwell Waste Management Facility Requirements

NRC Class A waste which exceeds 1 uCi/cc (for radionuclides with a half-life greater than five years) must meet the DHEC/CNSI stability requirement defined in the Barnwell Site Criteria.

Each container of waste must be clearly labeled to identify whether it is Class "A stable" waste, Class "B" waste, or Class "C" waste, in accordance with 10CFR Part 61.55. (Class A waste not exceeding 1 uCi/cc shall be marked "Class A unstable").

Arrange for all waste received at the Barnwell facility in polyethylene HICs, to be disposed within approved disposal overpacks.

Void spaces within the waste and between the waste and its packaging shall be reduced to the extent practicable.

Only personnel designated in writing by the RES Manager as representatives of the New York Power Authority can sign Radioactive Shipment Manifest Form certification statements.

9.7 Waste Packaging

9.7.1 Waste in it's final form will be packaged in accordance with Title 10 and Title 49 of the Code of federal regulations and in accordance with current burial site criteria as detailed in plant procedures.

9.8 Reporting

9.8.1 Releases
In accordance with Technical Specification Appendix B 4.3.2.1 and the REC section 5.1, ensure that the Annual Radioactive Effluent Release Report includes a summary of the quantities of solid radioactive waste released from the unit

9.8.2 Major changes to the Process Control Program
Licensee initiated major changes to the radioactive waste systems shall be reported to the Commission in the Annual Radioactive Effluent Release Report for the year in which the change evaluation was received by the PORC. The discussion of each change shall contain those items noted in the REC section 5.1.

ATTACHMENT VI TO IPN-99-079

MARKUP COPY OF DOCUMENTS CHANGED TO REFLECT PROPOSED CHANGES TO ENVIRONMENTAL TECHNICAL SPECIFICATIONS INCORPORATING RECOMMENDATIONS OF GENERIC LETTER 89-01 AND THE REVISED 10 CFR PART 20 AND 10 CFR PART 50.36a

BOLD text indicates text that was added
~~LINED OUT~~ text indicates text that was deleted

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64

1.24 SITE BOUNDARY

The SITE BOUNDARY (see Figure ~~5.8-1~~ 1-1) ~~shall be~~ means that line beyond which the land or property is ~~neither~~ not owned, ~~nor~~ leased, ~~nor~~ or otherwise controlled by either site licensee.

1.25 UNRESTRICTED AREA

An UNRESTRICTED AREA (see Figure ~~5.8-1~~ 1-1) ~~shall be any area at or beyond the SITE BOUNDARY access to which is not controlled by either site licensee for purposes of protection of individuals from exposure to radiation and radioactive materials, or any area within the SITE BOUNDARY used for residential quarters or for industrial, commercial, institutional, and/or recreational purposes. The UNRESTRICTED AREA boundary may coincide with the exclusion (fenced) are boundary, as defined in 10 CFR 100.3(a)~~ means an area, access to which is neither limited, nor controlled by either site licensee, but the UNRESTRICTED AREA does not include areas over water bodies. The concept of UNRESTRICTED AREAS, established at or beyond the SITE BOUNDARY, is utilized in the ~~LIMITING CONDITIONS FOR OPERATION~~ radioactive effluent controls to keep levels of radioactive materials in liquid and gaseous effluents as low as is reasonably achievable, pursuant to 10 CFR 50.36a.

h. Post-accident sampling and analysis and maintenance of required equipment.

i. Collection and analysis or measurement of post-accident radioactive iodine and particulates in plant gaseous effluents and maintenance of required equipment.

j. Fire Protection Program Plan implementation.

k. Radioactive Effluent Control Program implementation.

l. Radiological Environmental Monitoring Program implementation.

6.8.2 Each procedure of 6.8.1 above, and changes thereto, shall be approved prior to implementation by the appropriate responsible member(s) of management, as specified in Technical Specification 6.5.0. They shall also be reviewed periodically as set forth in administrative procedures.

6.8.3 Temporary changes to procedures above may be made provided:

a. The intent of the original procedure is not altered.

b. The change is approved by two members of the plant staff, at least one of whom holds a Senior Reactor Operator's License.

c. The change is documented, and reviewed and approved by the appropriate member(s) of plant management, as specified by Technical Specification 6.5.0 within 14 days of implementation.

6.8.4 The following programs shall be established, implemented, and maintained:

a. <u>Radioactive Effluent Controls Program</u>

A program shall be provided conforming with 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to MEMBERS OF THE PUBLIC from radioactive effluents as low as reasonable achievable. The program (1) shall be contained in the ODCM, (2) shall be implemented by site procedures and (3) shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

1. Limitations on the operability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM.

2. Limitations on the concentrations of radioactive material released in liquid effluents to UNRESTRICTED AREAS conforming to 10 times the concentration values in Appendix B, Table 2, Column 2 to 10 CFR 20.

b. Records of new and irradiated fuel inventory, fuel transfers and assembly burnup histories.

c. Records of facility radiation and contamination surveys.

d. Records of radiation exposure ~~for all individuals entering radiation control areas~~ **as required by 10 CFR 20.**

e. Records of gaseous and liquid radioactive material released to the environs.

f. Records of transient or operational cycles for those facility components designed for a limited number of transient cycles.

g. Records of training and qualifications for current members of the plant staff.

h. Records of in-service inspections performed pursuant to these Technical Specifications.

i. Records of Quality Assurance activities required by the QA manual.

j. Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments pursuant to 10 CFR 50.59.

k. Records of meetings of the PORC and the SRC.

l. Records for Environmental Qualification which are covered under the provisions of paragraph 6.13.

m. Records of secondary water sampling and water quality.

n. Records of analyses required by the radiological environmental monitoring program that would permit evaluation of the accuracy of the analysis at a later date. This should include procedures effective at specified times and records showing that these procedures were followed.

o. Records of service lives of all safety-related hydraulic snubbers including the date at which the service life commences and associated installation and maintenance records.

p. Records of reviews performed for changes made to the OFFSITE DOSE CALCULATION MANUAL and the PROCESS CONTROL PROGRAM.

6.11 RADIATION AND RESPIRATORY PROTECTION PROGRAM

6.11.1 Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR ~~Part~~ 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure so as to maintain exposures as far below the limits specified in 10 CFR ~~Part~~ 20 as reasonably achievable. Pursuant to 10 CFR 20.~~103~~**1703**, allowance ~~shall~~ **may** be made for the use of respiratory ~~protective~~ **protection** equipment in conjunction with activities authorized by the operating license for this plant in determining whether individuals in restricted areas are exposed to concentrations in excess of the limits specified in Appendix B, Table ~~I~~ **1**, Column ~~1~~ **3** of 10 CFR 20.

6.12 HIGH RADIATION AREA

6.12.1 In lieu of the "control device" or "alarm signal" required by paragraph 20.~~203~~**1601** of 10 CFR 20, each high radiation area in which the ~~intensity of~~ radiation **level** is ~~1000 mrem/hr or less and 100 mrem/hr or greater~~ **greater than 100 mrem/hr** but less than 1000 mrem/hr**** shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit **(RWP)***. Any individual or group of individuals permitted to enter such areas shall be provided or accompanied by one or more of the following:

a. A radiation monitoring device which continuously indicates the radiation dose rate in the area.

b. A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made knowledgeable of them.

c. An individual qualified in radiation protection procedures who is equipped with a radiation dose rate monitoring device. This individual shall be responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the facility Health Physicist in the Radiation Work Permit.

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* Health Physics Personnel shall be exempt from the RWP issuance requirements for entries into high radiation areas during the performances of their assigned radiation protection duties, provided they comply with approved radiation protection procedures for entry into high radiation areas.

**** Measured at 30 centimeters (12 inches) from radiation sources external to the body or 30 centimeters (12 inches) from any surface that the radiation penetrates.**

6.12.2 ~~*The requirements of 6.12.1 above, shall also apply to each high radiation area in which the intensity of radiation is greater than 1000 mrem/hr. In addition, locked doors~~ **In addition to the requirements of 6.12.1 above, areas accessible to individuals with radiation levels such that an individual could receive in 1 hour a dose greater than 1000 mrem**,** shall be provided **with locked doors** to prevent unauthorized entry ~~into such areas~~, and the keys shall be maintained under the administrative control of the Shift Supervisor on duty and/or the plant Radiological and Environmental Services Manager or his designee.

6.13 ENVIRONMENTAL QUALIFICATION

6.13.1 Environmental qualification of electric equipment important to safety shall be in accordance with the provisions of 10 CFR 50.49. Pursuant to 10 CFR 50.49, Section 50.49 (d), the EQ Master List identifies electrical equipment requiring environmental qualification.

6.13.2 Complete and auditable records which describe the environmental qualification method used, for all electrical equipment identified in the EQ Master List, in sufficient detail to document the degree of compliance with the appropriate requirements of 10 CFR 50.49 shall be available and maintained at a central location. Such records shall be updated and maintained current as equipment is replaced, further tested, or otherwise further qualified.

6.14 CONTAINMENT LEAKAGE RATE TESTING PROGRAM

A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak Test Program, Dated September 1995" as modified by the following exception:

a. ANS 56.8 - 1994, Section 3.3.1: WCCPPS isolation valves are not Type C tested.

The peak calculated primary containment internal pressure for the design basis loss of coolant accident, P_a, is 42.39 psig. The minimum test pressure is 42.42 psig.

The maximum allowable primary containment leakage rate, L_a, at P_a, shall be 0.1% of primary containment air weight per day.

Leakage acceptance criteria are:

a. Containment leakage rate acceptance criterion is $\leq 1.0\ L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $\leq 0.60\ L_a$ for the Type B and C tests and $\leq 0.75\ L_a$ for Type A tests;

b. Air lock acceptance criteria are:

   1) Overall the air lock leakage rate is $\leq 0.05\ L_a$ when tested at $\geq P_a$,

   2) For each door, leakage rate is $\leq 0.01\ L_a$ when pressurized to $\geq P_a$.

c. Isolation valves sealed with the service water system leakage rate into containment acceptance criterion is ≤0.36 gpm per fan cooler unit

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* **Health Physics Personnel shall be exempt from the RWP issuance requirements for entries into high radiation areas during the performances of their assigned radiation protection duties, provided they comply with approved radiation protection procedures for entry into high radiation areas.**

** **Measured at 30 centimeters (12 inches) ~~the source of radioactivity~~ from radiation sources external to the body or 3o centimeters (12 inches) from any surface that the radiation penetrates.**

1.13 PROCESS CONTROL PROGRAM (PCP)

The PROCESS CONTROL PROGRAM shall contain the current formulas, sampling, analyses, tests, and determinations to be made to ensure that the processing and packaging of solid radioactive wastes based on demonstrated processing of actual or simulated wet solid wastes will be accomplished in such a way as to assure compliance with 10 CFR Parts 20, **61,** ~~10 CFR Part~~ 71, and Federal and State regulations and other requirements governing the disposal of **solid** radioactive waste.

1.14 PURGE - PURGING

PURGE or PURGING is the controlled process of discharging air or gas from a confinement in such a manner that replacement air or gas is required to purify the confinement.

1.15 RATED THERMAL POWER (RTP)

RTP shall be a total reactor core heat transfer rate to the reactor coolant of 3025 MWt. ("Rated Power" and "Rated Thermal Power" are used interchangeably throughout the Technical Specifications).

1.16 SITE BOUNDARY

The SITE BOUNDARY (see Figure **1-1** ~~5.8-1~~) **means** ~~shall be~~ that line beyond which the land **or property** is **not** ~~neither~~ owned, ~~nor~~ leased, **or** ~~nor~~ otherwise controlled by either site licensee.

1.17 SOURCE CHECK

A SOURCE CHECK shall be the qualitative assessment of channel response when the channel sensor is exposed to a source of increased radioactivity.

1.18 **THERMAL POWER**

THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

1.19 UNRESTRICTED AREA

An UNRESTRICTED AREA (see Figure **1-1** ~~5.8-1~~) ~~shall be any area at or beyond the SITE BOUNDARY access to which is not controlled by either site licensee for purposes of protection of individuals from exposure to radiation and radioactive materials, or any area within the SITE BOUNDARY used for residential quarters or for industrial, commercial, institutional, and/or recreational purposes. The UNRESTRICTED AREA boundary may coincide with the exclusion (fenced) area boundary, as defined in 10 CFR 100.3(a)~~ **means an area, access to which is neither limited, nor controlled by the licensee**, but the UNRESTRICTED AREA does not include areas over water bodies. The concept of UNRESTRICTED AREAS, established at or beyond the SITE BOUNDARY, is utilized in the ~~LIMITING CONDITIONS FOR OPERATION~~ **radioactive effluent controls** to keep levels of radioactive materials in liquid and gaseous effluents as low as is reasonably achievable, pursuant to 10 CFR 50.36.

2.3 RADIOACTIVE LIQUID EFFLUENTS

2.3.1 LIQUID EFFLUENT CONCENTRATION

CONTROL:

In accordance with Appendix A Technical Specifications 6.8.4.a.2 and 6.8.4.a.3, the ~~The~~ concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS shall be limited to **10 times the EFFLUENT CONCENTRATION values specified in Appendix B, Table 2, Column 2 to 10 CFR 20 for radionuclides other than dissolved or entrained noble gases** ~~the concentrations specified in 10 CFR 20.106(a) for radionuclides other than dissolved or entrained noble gases as calculated under 10 CFR 20.106(a).~~ For dissolved or entrained noble gases, the concentration shall be limited to 2×10^{-4} microcuries/ml.

APPLICABILITY: ~~Applies at~~ **At all times** ~~to the concentration of radioactive material released in liquid effluents~~.

~~SPECIFICATION~~ **ACTION**:

With the concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS exceeding **the above limits** ~~exceeding these limits~~, **immediately** ~~without delay~~ restore the concentration to within these limits.

3.3.1 SURVEILLANCE REQUIREMENTS:

A. Radioactive liquid wastes shall be sampled and analyzed according to the sampling and analysis program of Table **3.3.1-1** ~~3.3-1~~.

B. The results of the radioactivity analyses shall be used in accordance with the methodology and parameters in the ODCM to assure that the concentrations at the point of release are maintained within the limits of **Control** ~~Specification~~ 2.3.1.

2.1.14 Liquid effluent concentrations **must be within the limitations of 2.3.1 of the RECS.** ~~are limited to 10CFR20 limits, as calculated under 10CFR20.106a, which permits averaging of effluent concentrationover one year. This method is appropriate for batch liquid waste tanks since doses from this liquid pathway are the result of total curies released and are not greatly influenced by instantaneous concentrations~~. The total dose per quarter and per year must be within the limitations of 2.3.2 of the **RECS** ~~RETS~~ (Ref: NUREG 0472, REV. 3, DRAFT 6, TABLE 3.11.1.1).

2.1.15 There are no drinking water intakes within 3 miles of the site on the Hudson River (see Section 2.4.1 for further details) (Ref: NUREG 0472, REV. 3, DRAFT 6, TABLE 3.11.1.2).

2.1.16 A turbine hall drain system which would collect leakage of contaminated secondary plant waters during operation does not exist at IP3. The sumps which are present in the turbine hall five foot elevation receive drains from areas containing secondary plant components at sub-atmospheric pressures. These sumps would not meet the intent of the NUREG 0472.

The activity released to the environment via this pathway is negligible when steam generator blowdown activity is less than 3E-5 uCi/ml. Activity released via this pathway when steam generator activity exceeds 3E-5 uCi/ml is determined by the following method:

Turbine Hall Drain Effluent Activity	=	Feedwater Specific Activity	* {	Steam Plant Makeup Rate	-	S/G Blowdown rate to the River	}

(Ref: NUREG 0472, REV. 3, DRAFT 6, TABLE 3.3-12)

2.1.17 Carbon 14 is released at a rate of .07 curies per GW(e).yr with an average make up rate of 0.5 gal/min based upon studies performed by the New York State Department of Health. The estimate of Carbon 14 releases are included in the Radiological Impact on Man section of the Semi-annual Radioactive Effluent Release Report. These estimates are not included in dose calculations for routine releases.

2.1.18 The condensate polisher regenerant waste is routinely analyzed for radioactivity and is normally a non-radioactive release point. The monitoring program for this release point is consistent with the direction set forth in NRC IE Bulletin 80-10 "Contamination of Non-radioactive Systems and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to Environment". Should the system become radioactive, releases from this system will be in accordance with the requirements for batch waste release tanks listed in the **RECS** ~~RETS~~.

For non-direct reading monitors, the following calculation is used.

$$C = CF * CR$$

C = Concentration of liquid effluent (uCi/ml) prior to dilution.

CF = Conversion factor of monitor $\frac{(uCi/ml)}{ncpm}$

CR = Count rate of monitor (ncpm)

2.2.5 The final diluted concentration in the discharge canal is determined by the following:

$$CD = (C) * (f) / (F)$$

Where: CD = Diluted concentration in the discharge canal in uCi/ml

C = Concentration in the liquid to be released prior to dilution in uCi/ml

F = Dilution flow in the discharge canal in gal/min

f = Release rate of liquid effluent in gal/min

NOTE: This equation is not used for calculating allowable release rates.

2.2.6 Calculation of Maximum Permissible Concentration in liquid effluents

a. This section describes the methodology used to ensure the requirements of section 2.3.1 of the **RECS** ~~RETS~~ are satisfied. The total discharge canal concentration of radionuclides must be maintained less than **those identified by section 2.3.1 of the RECS.** ~~the effective maximum permissible concentration for the radionuclide mixture, as per when averaged per 10CFR20.106a~~. The noble gases will be included using the limit 2E-4 uCi/ml as specified in section 2.3.1 of the **RECS** ~~RETS~~. This will normally be ensured by using an Allowed Dilution Concentration on each discrete release. This differs from the ADC calculated in 10CFR20 appendix B in that for radioisotopes that do not have gammas greater than 60 kev emitted during decay, default values are included to estimate their contribution. The Allowed Diluted Concentration is calculated as follows:

$$ADC = \frac{MPCW}{1+\frac{CB}{CG}}$$

INSTRUCTIONS FOR

ATTACHMENT VI TO IPN-99-079

MARKUP COPY OF DOCUMENTS CHANGED TO REFLECT

PROPOSED CHANGES TO ENVIRONMENTAL TECHNICAL SPECIFICATIONS

INCORPORATING RECOMMENDATIONS OF GENERIC LETTER 89-01

AND THE REVISED 10 CFR PART 20 AND 10 CFR PART 50.36a

The attached pges should be used in lieu of those from Reference 1.
All other pages submitted with Reference 1 should be used as submitted.

Page submitted with Reference 1	Replace with attached page
AMENDMENTS:	
1-7	1-7
6-14	6-14
6-20	6-20
6-21	6-21
6-22	6-22
ODCM:	
1-3	1-3
2/3-12	2/3-12
2-4	2-4
2-6	2-6