NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Permits, Region 4
1130 North Westcott Road, Schenectady, NY 12306-2014
P: (518) 357-2069 | F: (518) 357-2460
www.dec.ny.gov

September 5, 2024

Martin P. Krentz
Federal Project Director
USDOE – EMCBC-NY
2425 River Road
Niskayuna, New York 12309
Transmitted by email: martin.krentz@emcbc.doe.gov

RE: Part 373 Permit Renewal and Modification
DOE SPRU Field Office
NYSDEC ID# 4-4224-00024/00055
2425 River Road
Niskayuna, Schenectady County

Dear Martin Krentz,

Enclosed please find a Hazardous Waste Management Permit which was issued in accordance with the applicable provisions of the Environmental Conservation Law. Questions regarding the terms of the permit should be directed to the RCRA project manager, Frank Zhang, at frank.zhang@dec.ny.gov or 518-402-8755.

Please note that it is the responsibility of the permittee and the agents to read and comply with all permit conditions. The permit is valid only for the activities expressly authorized in the permit. Failure to comply with the terms and conditions of the permit may be treated as a violation of the Environmental Conservation Law.

Issuance of the enclosed permit does not eliminate the need to obtain all necessary approvals from other local, state or federal agencies.

Please be advised that the Uniform Procedures Regulations (6 NYCRR Part 621) provide that an applicant may request a public hearing if a permit is denied or contains conditions which are unacceptable to them. Any such request must be made in writing within 30 calendar days of the date of permit issuance and must be addressed to the Regional Permit Administrator at the letterhead address. A copy should also be sent to the Chief Administrative Law Judge at NYSDEC, 625 Broadway, 1st Floor, Albany, NY 12233-1550.

The issuance of this permit marks the termination of the Administrative Order on Consent executed on February 5, 2018 in accordance with section XIV of the Order.

Thank you,

K. Malcolm

Kate Malcolm
Regional Permit Administrator

Encls: Part 373 Operating Permit with Storage Authorization and Corrective Action Requirements

Ecc: R. Clarkson, NYSDEC
L. Winterberger, NYSDEC
F. Zhang, NYSDEC,
B. Maglienti, NYSDEC, Region 4
E. Floto, USEPA, Region 2
A. Everett, USEPA, Region 2
A. Park, USEPA, Region 2
C. Ng, USEPA, Region 2

PERMIT
Under the Environmental Conservation Law (ECL)

Permittee and Facility Information

Permit Issued To:
UNITED STATES DEPARTMENT OF ENERGY
ENVIRONMENTAL MANAGEMENT
CONSOLIDATED BUSINESS CENTER
550 MAIN STREET
ROOM 7-010
CINCINNATI, OH 45202
(513) 246-0500

Facility:
USDOE SPRU FIELD OFFICE
2425 RIVER ROAD
NISKAYUNA, NY 12309

Facility Location: in NISKAYUNA in SCHENECTADY COUNTY
Facility Principal Reference Point: NYTM-E: 592.6 NYTM-N: 4742.1
Latitude: 42°49'32"N Longitude: 73°52'0"W

Authorized Activity: Continued operation of a hazardous and mixed waste container storage facility. The total container storage capacity for hazardous and mixed waste is 17,700 gallons.

Permit Authorizations

Resource Conservation and Recovery Act - Under Article 27, Title 9
Permit ID 4-4224-00024/00055 (DER ID# 447011)

Renewal Effective Date: 9/5/2024 Proposed Expiration Date: 9/4/2034

NYSDEC Approval

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, and all conditions included as part of this permit.

Permit Administrator: KATE MALCOLM, Regional Permit Administrator
Address: NYSDEC Region 4
1130 North Wescott Rd
Schenectady, NY 12306

Authorized Signature: K. Malcolm Date: 9 / 5 / 2024

Permit Components

RESOURCE CONSERVATION AND RECOVERY ACT PERMIT CONDITIONS

GENERAL CONDITIONS, APPLY TO ALL AUTHORIZED PERMITS

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

RESOURCE CONSERVATION AND RECOVERY ACT PERMIT CONDITIONS

1. **Permit Assumes that Permit Renewal Application is Complete and Accurate** The permit is based on the information contained in the permit application submitted by USDOE-EMCBC in March 2018 and all subsequent revisions. The permit is based on the assumption that the information submitted by USDOE-EMCBC in the application documents is complete and accurate and the facility will be operated as specified in the application. Any inaccuracies or incompleteness found in the information may be grounds for the termination or modification of this permit and potential enforcement action.

2. **Permittee Shall Comply with Permit** The permittee must comply with all terms and conditions of this permit. This permit consists of the conditions contained herein (including those in any attachments and incorporated documents) and the applicable regulations contained in 6 NYCRR (Parts 370 through 373-2, 376, 621 and 624).

3. **Notify the Department of any Deviations** The Permittee shall immediately notify the Department of any deviation from or changes in the information contained in the application which would affect the Permittee's ability to comply with the regulations or permit conditions.

4. **Potential Conflicts with Permit** In the event of a discrepancy between this Permit and any regulation, order on consent or any other Permit, the more stringent requirement applies.

5. **Modules, Attachments and Incorporated Documents** The Permittee shall operate the facility in strict accordance with the modules, attachments and incorporated documents to this permit as specified below:

Modules:
I General Provisions
II Corrective Action Requirements
III Storage in Containers
XI Scheduled Dates

Attachments:
A RCRA Part A Application
B Facility Description
C Waste Characteristics
D Process Description
E Corrective Action

F Procedures to Prevent Hazards
G Contingency Plan
H Personnel Training
I Closure Plan
J Other Federal and State Laws
K Certification
M Permit Modification Log

7. **QA/QC Procedures** The Permittee is responsible for verifying that the Quality Assurance/Quality Control Program (QA/QC) followed by laboratories used by the Permittee to carry out analysis of the waste streams, conform to the QA/QC procedures approved in the permit and thus ensure the validity of the analytical data provided by the laboratories.

8. **Laboratories Shall be ELAP Certified** As required by ECL 03-0119, any laboratory (Permittee or contract), used by the Permittee to perform analysis pursuant to this Permit shall be certified by the New York State Department of Health Environmental Laboratory Approval Program (ELAP) in the appropriate categories of analysis, if ELAP issues certifications in such categories. If the Permittee uses an ELAP approved contract laboratory to perform the analysis required by this Permit, then the Permittee shall inform the laboratory in writing that it must operate under the waste analysis and quality assurance provisions of this Permit.

GENERAL CONDITIONS - Apply to ALL Authorized Permits:

1. **Facility Inspection by The Department** The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71- 0301 and SAPA 401(3).

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

2. **Relationship of this Permit to Other Department Orders and Determinations** Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

3. **Applications For Permit Renewals, Modifications or Transfers** The permittee must submit a separate written application to the Department for permit renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing. Submission of applications for permit renewal, modification or transfer are to be submitted to:

Regional Permit Administrator
NYSDEC Region 4
1130 North Wescott Rd
Schenectady, NY 12306

4. Submission of Renewal Application The permittee must submit a renewal application at least 180 days before permit expiration for the following permit authorizations: Resource Conservation and Recovery Act.

5. Permit Modifications, Suspensions and Revocations by the Department The Department reserves the right to exercise all available authority to modify, suspend or revoke this permit. The grounds for modification, suspension or revocation include:

a. materially false or inaccurate statements in the permit application or supporting papers;

b. failure by the permittee to comply with any terms or conditions of the permit;

c. exceeding the scope of the project as described in the permit application;

d. newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;

e. noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

6. Permit Transfer Permits are transferrable unless specifically prohibited by statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification
The permittee, excepting state or federal agencies, expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees, and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the permittee’s undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under Article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit
The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same

sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits
The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights
This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

RCRA PART 373 PERMIT
EXECUTIVE SUMMARY/FACILITY FACT SHEET

US Department of Energy
Environmental Management
Separations Process Research Unit
NYR000096859

Niskayuna, New York
Schenectady County

September 2024

1.0 FACILITY PERMIT AND GENERAL INFORMATION

1.1 Facility Permit Information

Permittee Name:	Department of Energy, Environmental Management
Facility Name:	DOE SPRU Field Office
Facility Location:	2425 River Road, Niskayuna, NY 12309-7100
EPA ID No.:	NYR000096859
DEC Permit No.:	4-4224-00024/00055
DEC DER No.:	447011
Commercial/Non-Commercial TSDF:	Non-Comm
Facility Contact:	Martin P. Krentz martin.krentz@emcbc.doe.gov 518-395-4580
DEC Contact/Responsible Permit Writer:	Frank Zhang frank.zhang@dec.ny.gov 518-402-8755
Initial/Renewal Permit (Permit type):	Renewal - Corrective Action; Initial - Operating (Storage)
Permit Term:	10 years
Estimated Closure Cost:	N/A
Estimated Post-Closure Care Cost:	N/A
Estimated Corrective Action Cost:	N/A
Estimated Financial Assurance Cost:	N/A
On-site Environmental Monitor(s):	N/A

1.2 General Description

The Separations Process Research Unit (SPRU) is operated under contract with the United States Department of Energy (DOE) as administered by DOE-Office of Environmental Management (EM) and is a United States Government owned facility.

The former SPRU facility occupied about 3 acres of the 170-acre United States DOE Knolls Atomic Power Laboratory (KAPL) Site in Niskayuna, New York. The SPRU facility was a small-scale pilot plant operated from 1951 through 1953 to research the chemical process to separate uranium and plutonium from irradiated materials prior to the Naval Nuclear Propulsion Program (NNPP) mission at the KAPL Site. This pilot plant consisted of a processing building (G2), a waste management facility (H2), a tank farm, and pipe tunnels connecting the facilities. The SPRU Disposition Project (SPRU-DP) was established by DOE to disposition the facilities, soil and groundwater contamination at the SPRU facility. The last part of required remediation was completed in 2019, and the former SPRU facility area was transferred to the Office of Naval Reactors for continued NNPP use.

Information regarding all chemicals managed at the site are within the Part A application and manifest data.

1.3 Background Information

In 2015-2016, during decontamination and decommissioning (D&D) activities in G2 and H2, materials were discovered in the G2 and H2 buildings that, upon removal, were determined to have the characteristics of, and are being managed as, mixed transuranic (MTRU) waste. As the MTRU waste managed at the SPRU site was generated from ongoing D&D activities, and the D&D activities are complete, no additional or newly generated hazardous or mixed waste streams are anticipated. The waste at SPRU consists primarily of contaminated sump sediments, floor scrapings, piping and components. While SPRU possesses a corrective action permit (#4-4224-00042/00055) from the New York State Department of Environmental Conservation (NYSDEC), SPRU has no existing permit or agreement with the NYSDEC for storage of MTRU waste. On October 29, 2015, DOE formally notified NYSDEC that, due to temporary and uncontrollable circumstances, it was not able to ship MTRU waste offsite within the required 90-day generator storage limit specified at 6 NYCRR 373-1.1(d)(1)(iii). DOE requested a 30-day extension for storage of the waste which NYSDEC granted on November 17, 2015 (an extension of up to 30 days may be granted on a case-by-case basis in accordance with 6 NYCRR 373-1.1(d)(1)(iii)(e)). DOE continued to request 30-day extensions from NYSDEC. An Administrative Order on Consent (Order) between NYSDEC and DOE was executed on February 5, 2018, authorizing storage of the MTRU wastes in a Temporary Accumulation Area, TAA-003. TAA-003 has since been designated by NYSDEC as Solid Waste Management Unit (SWMU)-085. The MTRU waste in TAA-003 is stored in containers of various sizes which are then stored in four metal Conex boxes

(SeaLand containers) for radiation shielding and weather protection. There are appropriate warning signs at all entrances to TAA-003.

1.4 Site Maps

The following figures are attached to this executive summary/permit:

- Figure ES-1. Site Location Map
- Figure ES-2. Facility Footprint

1.5 Other Facility Permits

The following federal, state and local permits and registrations are applicable to the facility:

- EPA Rad NESHAP App. Construct/Modify: No. KAPLSPRUPVU001

2.0 RCRA PERMITTED UNITS

The following table is a summary of RCRA-permitted Operating Units by unit type (S-Storage; T-Treatment; D-Disposal):

Unit Type[1]	No. of Areas/Units	Activity Type	Waste Type[2]	Quantity
Containers (S01)	1 area 1 unit	Storage	Solid & Liquid Mixed Wastes	24,600 gallons

Footnotes:

1. Unit codes are as described in the Part A Application.
2. Specific waste types and waste codes are presented in Attachment C – Waste Characteristics of this Permit.

3.0 CORRECTIVE ACTION SUMMARY

The following table summarizes the ongoing corrective action activities occurring at the facility:

Location Name / Designation	Activity Description	Estimated Completion Date
Entire Facility	No current corrective action is required as all previously required corrective action has been completed.	N/A

4.0 SITE MANAGEMENT

4.1 Institutional Controls

The site is managed under a Part 373 permit.

4.2 Engineering Controls

The site is enclosed by a chain-link fence to prevent accidental or unauthorized exposure to hazardous wastes.

5.0 ISSUES AND CONCERNS

The following sections describe any potential issues or concerns for the facility related to its hazardous waste permit. Additionally, it includes information on any major changes made between the last issued permit and this renewal permit.

5.1 Environmental Risk Assessment

There are no current concerns for environmental risk from the Facility.

5.2 Climate Leadership and Community Protection Act (CLCPA)

Pursuant to the requirements of Section 7(2) of the CLCPA, during its review of the permit renewal application the DEC has taken into consideration information regarding the facility's consistency with the CLCPA.

5.3 Climate Risk and Resilience Act (CRRA)

The Facility has demonstrated to the DEC that future physical climate risk, not limited to sea-level rise, storm surge and flood, was considered during the permit renewal process. The DEC has made a tentative assessment that the Facility is not at risk of adverse climate change impacts due to extreme weather events, and no additional actions are necessary at this time to improve the resiliency at the Facility.

5.4 Unresolved Issues and Concerns

There are no unresolved issues and concerns with the Facility.

5.5 Compliance Schedule Items

The Permittee has not proposed to incorporate any items into the Permit renewal.

5.6 Public Participation

A public notice comment period was held from 06/18/2024 to 08/05/2024. No comments were received. As such, no Responsiveness Summary will be issued.

5.7 Significant Permit Modifications

The issuance of this permit adds storage of hazardous wastes to the Permittee's authorized activities and terminates of the Administrative Order on Consent dated February 5, 2018.

This permit also reflects completion of corrective action activities and the transition of certain SWMUs to management by DOE-NRLFO under their Part 373 RCRA permit.

5.8 Upcoming Construction/Closure Activities

No construction outside of typical maintenance is expected at the Facility.

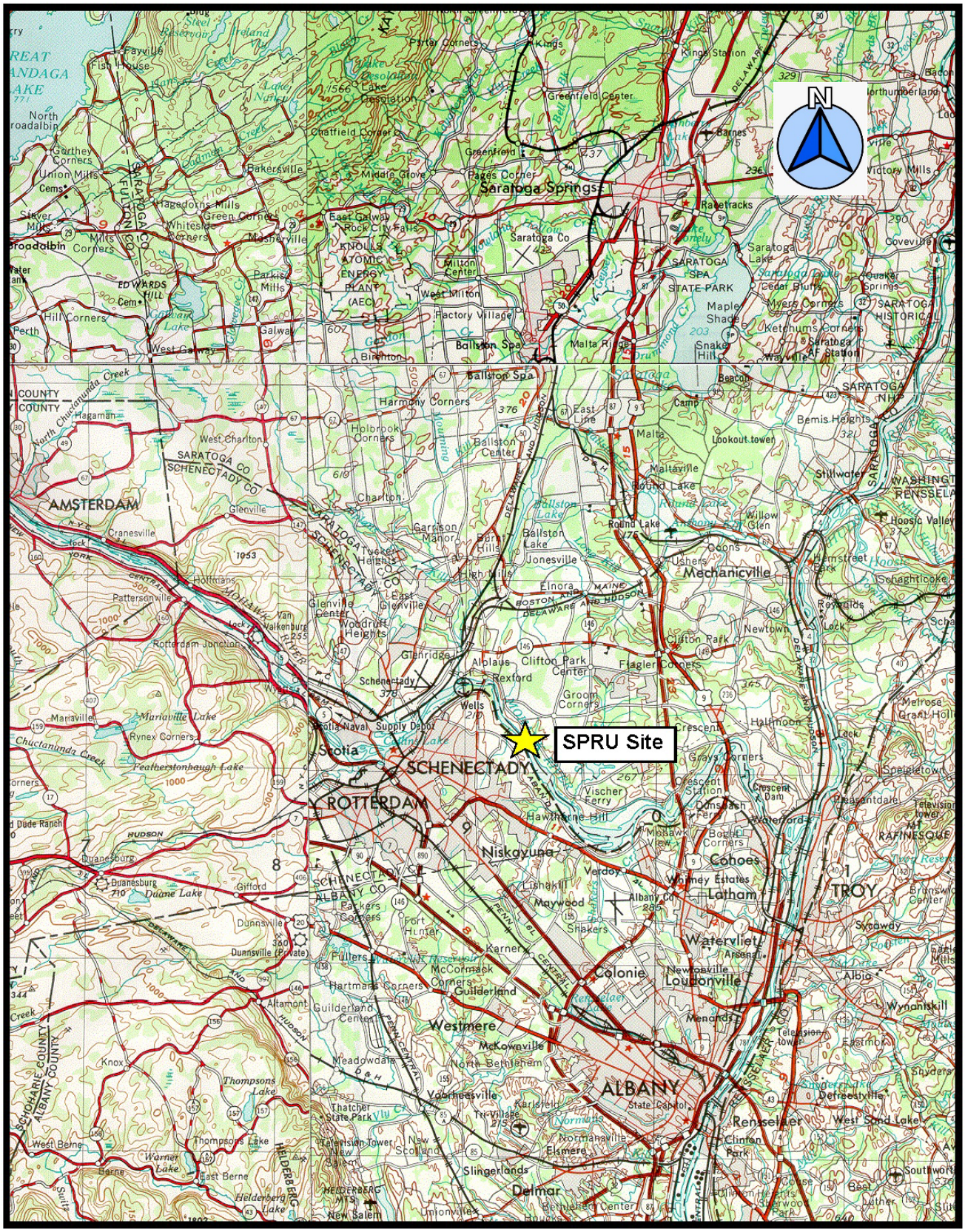


Figure ES-1. Site Location Map

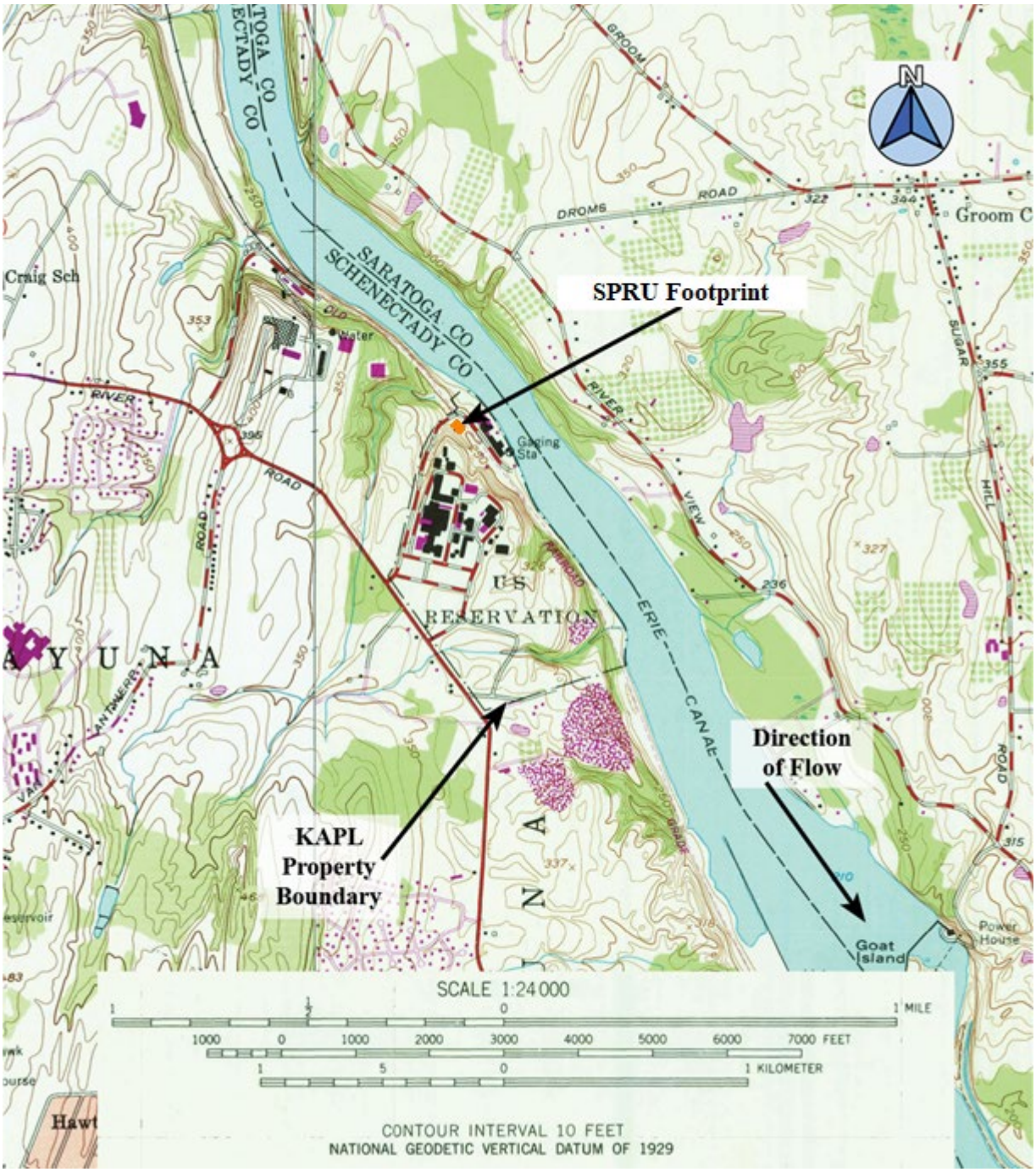


Figure ES-2. Facility Footprint Map (SPRU Property in orange)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PART 373 PERMIT
MODULE I - GENERAL PROVISIONS

US Department of Energy
Environmental Management
Separations Process Research Unit
NYR000096859

Niskayuna, New York
Schenectady County

This Permit authorizes only the hazardous waste units identified in this Permit as permitted units. This Permit does not authorize other units to operate. If this Permit conflicts with regulations which are in effect on the date of final issuance of this Permit, the more stringent requirement applies.

A. EFFECT OF PART 373 PERMIT

The Permittee must comply with all terms and conditions of this Permit. This Permit consists of: the conditions contained herein, the attachments to this Permit, sections of the Permit Application referenced herein, any subsequent Department approved changes to the attachments and referenced sections of that application, and the applicable regulations contained in 6 NYCRR Parts 370 through 374, 376, 621 and 624. The applicable regulations or requirements are those which are in effect on the date of final issuance of this Permit. Compliance with this Permit during its term constitutes compliance, for the purposes of enforcement, with the applicable regulations or requirements, except for those requirements not included in the Permit which:

(1) Become effective by statute, including amendments thereto;
(2) Are promulgated under 6 NYCRR Part 376, as modified (Land Disposal Restrictions);
(3) Are promulgated under 6 NYCRR 373-2.27 (not applicable to the facility at the time of Permit issuance), 373-2.28 (not applicable to the facility at the time of Permit issuance), and 373-2.29, as modified (air emission standards); and
(4) Are other requirements promulgated under 6 NYCRR 373-1.6(e).

The following Guidance Documents and Commissioner Policies are potentially relevant to this Permit. The Permittee shall consider applicable DEC guidance and policies when conducting activities required by this Permit.

DER-10 - Technical Guidance for Site Investigation and Remediation

DER-31 - Green Remediation

DER-33 - Institutional Controls: A Guide to Drafting and Recording Institutional Controls

CP-29 - Environmental Justice and Permitting

CP-39 - Use of Enforcement Discretion for Discarded Mercury-containing Equipment

CP-43 - Groundwater Monitoring Well Decommissioning

CP-44 - Natural Resource Damages

CP-51- Soil Cleanup Guidance

The Permittee is authorized to store hazardous waste and mixed waste in containers, and, if necessary, is required to conduct corrective action in accordance with the conditions of this Permit. Any storage, treatment, or disposal of hazardous waste and/or mixed waste not authorized in this Permit is prohibited unless exempt from 6 NYCRR Part 373. Issuance of this Permit does not authorize any injury to persons or property, any invasion of other private rights, or any infringement of federal, State or local laws or regulations.

The hazardous waste and mixed waste management units, activities and types and quantities of hazardous and mixed wastes to be managed which are authorized by this Permit are listed in Module III of this Permit, and summarized below:

UNIT	WASTE TYPE (1)	TYPICAL CONTAINER VOLUME (2)	TOTAL VOLUME CAPACITY OF WASTE MANAGEMENT UNIT
TAA-003 (MTRU)	D007, D008, D009 and D011	(3)	24,600 gallons

Notes:

(1) All wastes managed are mixed transuranic wastes (MTRU).
(2) Larger containers than those listed below may also be placed in the units, provided that the requirements of 6NYCRR Part 373-2.9(f)(1)(iii) are met.
(3) Typical container volumes for wastes in this unit include < 1 gallon to 30- and 55-gallon drums, to 85-gallon overpack/salvage drums, to 673-gallon waste boxes (46 in x 72 in x 47 in). All containers will be placed in 4 Conex boxes (see Attachment D, Figure D1 for layout).

The Permittee is authorized to store only the hazardous wastes/mixed wastes identified in Attachment C of the approved Part 373 Permit Application which are generated at the

Permittee's facility.

All plans, specifications and schedules required by the terms of this Permit and all subsequent amendments to those documents are incorporated by reference into this Permit, upon approval, when required, or acceptance by the Department, unless the Department specifies otherwise in writing. Upon incorporation, the provisions of each such document will be binding upon the Permittee and have the same legal force and effect as the requirements of this Permit.

All regulatory requirements under NYSDEC Permit # 4-4224-00024/00055 related to the Separations Process Research Unit (SPRU) Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) are now primarily the responsibility of the Department of Energy - Environmental Management (DOE-EM).

The Department of Energy - Naval Reactors Laboratory Field Office (DOE-NRLFO) will retain liability in the event of default by DOE-EM and will be responsible under this Permit to satisfy all of DOE-EM's Permit requirements at the time at which DOE-EM defaulted. The Department will inform DOE-NRLFO in writing of the default and of DOE-NRLFO's obligations to continue the corrective action activities previously required of DOE-EM.

B. PERMIT DOCUMENTS

The Permittee's Hazardous Waste Part A Permit Application is attached to and incorporated by reference into this Permit. The Permit Application documents listed below are also incorporated by reference into this Permit. These documents are made part of this Permit, are binding upon the Permittee and have the same legal force and effect as the requirements of this Permit.

Modules

I	General Provisions
II	Corrective Action Requirements
III	Storage in Containers
IV	RESERVED
V	RESERVED
VI	RESERVED
VII	RESERVED
VIII	RESERVED
IX	RESERVED
X	RESERVED
XI	RESERVED
XII	RESERVED
XIII	Scheduled Dates

DOCUMENTS ATTACHED TO THIS PERMIT:

PERMIT APPLICATION ATTACHMENT	APPLICATION DOCUMENT[1]
A	RCRA Part A Application
B	Facility Description
C	Waste Characteristics
D	Process Description
E	Corrective Action
F	Procedures to Prevent Hazards
G	Contingency Plan
H	Personnel Training
I	Closure Plan
J	Other Federal and State Laws
K	Certification
M	Permit Modification Log

1. All application documents are attached as revised through 12/2023 and will include any modifications approved during the life of the Permit.

Future modifications to this Permit, including modifications to the Permit Application documents attached to this Permit, shall be addressed according to 6 NYCRR 373-1.7. The Permittee must submit copies to the Regional Permit Administrator and as required in Section H of this Module, of the replacement: pages, sections, and/or attachments to the permit application along with the application request for a permit modification. The Permittee shall place a revision date on all pages submitted as part of the proposed permit modification application.

The Permittee must provide and maintain a log of all modifications made to this Permit, including modifications made to the Permit Application documents that are made part of this Permit. The log shall contain at a minimum the following information regarding an approved modification: (1) the name of the specific documents being modified (e.g., contingency plan, security requirements, hazardous waste unit operations, etc.); (2) the pertinent page, section, and/or attachment of this Permit and Permit Application documents subject to modification; (3) the revision date of the modifications; (4) a brief statement regarding the nature of the modifications; and (5) the effective date of the modification to this Permit. The Permittee shall incorporate the log as Attachment M of the Permit Application.

Upon receipt of a permit modification issued by the Department, the Permittee must update the log and replace the pages, sections, and/or attachments in the Permit and Permit Application with the modified pages, sections, and/or attachments in the permit copy maintained by the Permittee.

C. GENERAL REQUIREMENTS FOR THIS PART 373 PERMIT

The Permittee must comply with 6 NYCRR Subpart 373-1 as follows:

1. General 6 NYCRR 373-1.1

a) 6 NYCRR 373-1.1(b) - Applicability;
b) 6 NYCRR 373-1.1(c) - Safeguarding Information: The Permittee may claim confidential any information required to be submitted by this Permit in accordance with 6 NYCRR 370.1(b). All documentation which the Permittee believes justifies its claims of confidentiality must be submitted in accordance with 6 NYCRR Part 616 with any such claim of confidentiality. Access to restricted data, national security information or other sensitive military information protected under federal law or regulation shall be in accordance with applicable DOE information security requirements. Notwithstanding the foregoing, all information, whether restricted by information security requirements or not, that is necessary to fulfill the requirements of this Permit, or in regards to this Permit, shall be released to the Department. The Permittee shall have the ability to justify its claims of confidentiality under all applicable state and federal laws and regulations, including but not limited to 6 NYCRR 370.1(b), 6 NYCRR 616, 42 USC 2077 and 10 CFR 810, but shall not withhold from disclosure to the Department information necessary to fulfill the requirements of this Permit;
c) 6 NYCRR 373-1.1(d) – Exemptions;
d) 6 NYCRR 373-1.1(f) - Uniform Procedures;
e) 6 NYCRR 373-1.1(g) - Enforcement;
f) 6 NYCRR 373-1.1(h) - Severability; and
g) 6 NYCRR 373-1.1(i) - Terms Used.

2. Requirement for Permit 6 NYCRR 373-1.2

6 NYCRR 373-1.2(d) requires owners and operators of hazardous waste management facilities to have a Part 373 permit during the active life of a unit(s), including the closure period and during the post-closure care period, with few exceptions. See section D.7. of this Permit below.

3. Signatories to Permit Applications and Reports 6 NYCRR 373-1.4(a)(5)

a) 6 NYCRR 373-1.4(a)(5)(i) - Applications;
b) 6 NYCRR 373-1.4(a)(5)(ii) - Reports;
c) 6 NYCRR 373-1.4(a)(5)(iii) - Changes to authorization; and
d) 6 NYCRR 373-1.4(a)(5)(iv) - Certification.

4. Recordkeeping 6 NYCRR 373-1.4(g)

5. Permit Conditions 6 NYCRR 373-1.6

a) 6 NYCRR 373-1.6(a) - Conditions applicable to all permits;
b) 6 NYCRR 373-1.6(a)(1) - Duty to comply;
c) 6 NYCRR 373-1.6(a)(2) - Duty to reapply;
d) 6 NYCRR 373-1.6(a)(3) - Need to halt or reduce activity not a defense;
e) 6 NYCRR 373-1.6(a)(4) - Duty to mitigate;
f) 6 NYCRR 373-1.6(a)(5) - Proper operation and maintenance;
g) 6 NYCRR 373-1.6(a)(6) - Permit actions;
h) 6 NYCRR 373-1.6(a)(7) - Property rights;
i) 6 NYCRR 373-1.6(a)(8) - Duty to provide information;
j) 6 NYCRR 373-1.6(a)(9)(i) through (iv) - Inspection and entry: Access to the Knolls site shall be conducted in accordance with established DOE security clearances and in compliance with all posted notices and warning signs. However, in extraordinary circumstances where the Department deems that site access is necessary to protect human health and the environment, the Permittee shall grant access, where necessary, to uncleared Department personnel possessing United States citizenship;
k) 6 NYCRR 373-1.6(a)(10)(i) through (iii) - Monitoring and records;
l) 6 NYCRR 373-1.6(a)(11) - Signatory Requirements;
m) 6 NYCRR 373-1.6(a)(12)(i) through (xi) - Reporting requirements: Non-compliance events which are minor in nature (loose cap, labeling deficiencies, etc.) are not intended to be reported under this Module Condition;
n) 6 NYCRR 373-1.6(a)(13) - Information repository (also see section C.9.a)(3)) of this Permit below);
o) 6 NYCRR 373-1.6(c) - Establishing Permit conditions;
p) 6 NYCRR 373-1.6(d)(1)(i) through (iii) - Schedules of compliance;
The Permittee must comply with the compliance schedules listed in Module II - Corrective Action Requirements, Module XIII - Scheduled Dates/Schedule Date Requirements, and all previously established compliance schedules as revised through

03/2024

q) 6 NYCRR 373-1.6(d)(2)(i) through (iv) - Alternative schedules of compliance.

6. Requirements For Recording and Reporting of Monitoring Results 6 NYCRR 373-1.6(b)

The Permittee must comply with the recording, reporting and monitoring requirements listed in this Permit.

The Permittee must use, maintain and install monitoring equipment and methods and report monitoring results as specified in this Permit (including the permit application) and 6 NYCRR Subpart 373-2. The Permittee must conduct required monitoring with the type, intervals and frequency sufficient to yield data which are representative of the monitoring activity including, when appropriate, continuous monitoring.

7. Permit Modifications 6 NYCRR 373-1.7

a) 6 NYCRR 373-1.7(a) - Transfer of Permits;
b) 6 NYCRR 373-1.7(b) - Modification of permits;
c) 6 NYCRR 373-1.7(c) - Minor modification of RCRA delegated permits;
d) 6 NYCRR 373-1.7(d) - Major Modifications;
e) 6 NYCRR 373-1.7(e) - Announcement of Determinations;
f) 6 NYCRR 373-1.7(f) - Temporary Authorizations; and
g) 6 NYCRR 373-1.7(g) - Newly Regulated Wastes and Units.

8. Expiration and Continuation of Permits 6 NYCRR 373-1.8

This Permit shall be in effect for a fixed term not to exceed ten years.

Complete applications for permit renewal must be submitted at least 180 days before the expiration date of this Permit pursuant to 6 NYCRR 373-1.8(b) to the addresses in Section H of this Permit module below. Renewal applications with a significant change (as defined in paragraph 373-1.10(a)(1) of this Subpart) are subject to the requirements of section 373-1.10 of this Subpart, (also see section C.9., Public Participation, of this Permit Module below).

Prior to processing the renewal application, the Department will determine whether the application is complete. In order for the renewal application to be complete the Permittee must:

a) Satisfy the general requirements for complete application contained in 6 NYCRR Part

621 (Uniform Procedure Regulations)

b) Include all information required, both general and specific to the type of the facility in accordance with the laws, regulations and analytical requirements in effect at the time.

At any time during the review of the renewal application, the Department may request in writing any additional information which is necessary for determining the completeness of the application. Failure to provide such information by the date specified in the request may be grounds for denial of the application and the extension allowed pursuant to Section 401.2**.** of the State Administrative Procedures Act.

Should the Permittee cease the hazardous/mixed waste management activities allowed by this Permit prior to the expiration of this Permit, then, the Permittee must continue to comply with the applicable corrective action conditions and requirements stipulated in this Permit (refer to Module II, Corrective Action). In addition, the Permittee shall submit a renewal application pursuant to 6 NYCRR Subpart 373-1.8(b) prior to this Permit's expiration unless and until all the Permittee's corrective action obligations have been completed. In the alternative, the Permittee may execute an order on consent for corrective action pursuant to Environmental Conservation Law (ECL) Section 71-2727(3) with the Commissioner at least 180 days prior to the expiration date of this Permit.

9. Public Participation (including 6 NYCRR 373-1.10)

a) Expanded Public Participation (6 NYCRR 373-1.10)

(1) 6 NYCRR 373-1.10(a) Pre-application Public Meeting and Notice

For a new unit or for a permit renewal application which proposes a significant change in operations, the Permittee is required to hold a pre-application public meeting and a Public Notice for the Part 373 Permit application is required.

(2) 6 NYCRR 373-1.10(b) Public Notice Requirements at the Application Stage

(3) 6 NYCRR 373-1.10(c) Information Repository.

The Permittee shall establish and maintain an Information Repository at the Schenectady County Library, Niskayuna Branch, 2400 Nott Street East, Niskayuna New York, (518) 386-2249. The Permittee shall provide the Department with thirty (30) days' notice of any change to the

location of the repository. The Permittee will continue to maintain the information repository for the life of the Permit or until otherwise notified by the Department. No sooner than six months after the effective date of the Permit, the Permittee may request the Department to consider closure of the information repository.

The repository shall contain a copy of the final approved Part 373 Permit application, approved documents such as plans, reports, risk assessments, etc., the Part 373 Permit Fact Sheet, public notices pertaining to the Part 373 Permit, copies of correspondence including enclosures and attachments from the effective date of the Permit between the Department and the Permittee pertaining to the Permit or to compliance. Certain portions of the permit, and other information within the repository, may be redacted as necessary to protect national security or due to public sensitivity. Those redacted portions may be made available based upon request and subsequent Department of Energy evaluation of a need to know.

The Permittee shall provide a written notice of the availability of the information repository to all individuals on the facility mailing list within one month from the effective date of this Permit (except to those previously notified within 1 year prior to the effective date of the Permit) and to all individuals on the facility mailing list one year before the expiration date of this Permit.

b) Other public participation activities to consider to maintain good community relations:

(1) Public Meetings

(2) Citizens Advisory Group Meetings

D. FINAL STATUS STANDARDS FOR THIS PART 373 PERMIT

The Permittee must comply with 6 NYCRR Subpart 373-2, and the referenced sections of the Permit Application, as follows:

1. General 6 NYCRR 373-2.1

a) 6 NYCRR 373-2.1(a) - Purpose, Scope and Applicability; and
b) 6 NYCRR 373-2.1(c) - Imminent Hazard Action.

2. General Facility Standards 6 NYCRR 373-2.2

a) 6 NYCRR 373-2.2(a) - Applicability;

b) 6 NYCRR 373-2.2(b) - Facility ownership transfer;
c) 6 NYCRR 373-2.2(d) - Required Notices;
d) 6 NYCRR 373-2.2(e) - General Waste Analysis (Attachment C of the Permit Application);
e) 6 NYCRR 373-2.2(f) - Security (Attachment F of the Permit Application);
f) 6 NYCRR 373-2.2(g) - General inspection requirements (As specified in Attachment F of the Permit Application and Module III of this Permit);
g) 6 NYCRR 373-2.2(h) - Personnel training (Attachment H of the Permit Application);
h) 6 NYCRR 373-2.2(i) - General requirements for ignitable, reactive, or incompatible wastes (Attachment F of the Permit Application);
i) 6 NYCRR 373-2.2(j) - Location standards (not applicable to the SPRU site at the time of Permit issuance); and
j) 6 NYCRR 373-2.2(k) - Construction quality assurance program.

3. Preparedness and Prevention 6 NYCRR 373-2.3

The Permittee must comply with Attachment F of the Permit Application and 6 NYCRR 373-2.3 as follows:

a) 6 NYCRR 373-2.3(a) - Applicability;
b) 6 NYCRR 373-2.3(b) - Design and operation of facility;
c) 6 NYCRR 373-2.3(c) - Required equipment;
d) 6 NYCRR 373-2.3(d) - Testing and maintenance of equipment;
e) 6 NYCRR 373-2.3(e) - Access to communications or alarm system;
f) 6 NYCRR 373-2.3(f) - Required aisle space; and
g) 6 NYCRR 373-2.3(g) - Arrangements with local authorities.

4. Contingency Plan and Emergency Procedures 6 NYCRR 373-2.4

The Permittee must comply with Attachment G of the Permit Application and 6 NYCRR 373-2.4 as follows:

a) 6 NYCRR 373-2.4(a) - Applicability;
b) 6 NYCRR 373-2.4(b) - Purpose and implementation of contingency plan;
c) 6 NYCRR 373-2.4(c) - Content of contingency plan;
d) 6 NYCRR 373-2.4(d) - Copies of contingency plan;
e) 6 NYCRR 373-2.4(e) - Amendment of contingency plan;
f) 6 NYCRR 373-2.4(f) - Emergency coordinator; and

g) 6 NYCRR 373-2.4(g) - Emergency Procedures.

5. Manifest System, Recordkeeping and Reporting 6 NYCRR 373-2.5

a) 6 NYCRR 373-2.5(a) - Applicability;
b) 6 NYCRR 373-2.5(b) - Manifest requirements;
c) 6 NYCRR 373-2.5(c) - Operating record;
d) 6 NYCRR 373-2.5(d) - Availability, retention, and disposition of records;
e) 6 NYCRR 373-2.5(e) - Annual report;
f) 6 NYCRR 373-2.5(f) - Unmanifested waste report; and
g) 6 NYCRR 373-2.5(g) - Additional reports.

The Permittee must retain for inspection by the Department the permit modification log required by Section B, the operating record, the referenced sections of the Permit Application that are made part of this Permit, and any subsequent Department approved changes to the contents of that Application.

These documents include, but are not limited to, the most recent Department approved: waste analysis plan; contingency plan; closure plan(s); groundwater monitoring plan(s); security, inspection, and personnel training requirements; and final engineering documents for all hazardous waste treatment, storage, and disposal units subject to this Permit and for all ongoing corrective action remedies pertinent to solid waste management units and areas of concern either remediated or being remediated pursuant to this Permit.

6. Releases from Solid Waste Management Units 6 NYCRR 373-2.6

The Permittee must comply with all the applicable provisions stipulated in 6 NYCRR 373-2.6(a) through (k) for regulated units and with 6 NYCRR 373-2.6(l) for corrective action at solid waste management units and comply with the conditions stipulated in Module II - Corrective Action Requirements for Solid Waste Management Units and Areas of Concern.

7. Closure and Post-Closure 6 NYCRR 373-2.7

The Permittee must comply with Attachment I of the Permit Application and 6 NYCRR 373-2.7 for the closure and post-closure care of the TAA-003 hazardous/mixed waste management unit.

a) 6 NYCRR 373-2.7(a) - Applicability;
b) 6 NYCRR 373-2.7(b) - Closure performance standard;

c) 6 NYCRR 373-2.7(c) - Closure plan; amendment to plan;
d) 6 NYCRR 373-2.7(d) - Closure; time allowed for closure: The Permittee shall manage mixed waste in compliance with the provisions outlined in the Federal Facility Compliance Act (FFCA). Under the terms of the FFCA and as approved by the Department, closure of the mixed waste portions of the facility shall begin within ninety (90) days after the final shipment of mixed waste for treatment and/or disposal at an offsite facility permitted to receive such wastes;
e) 6 NYCRR 373-2.7(e) - Disposal or decontamination of equipment, structures and soils;
f) 6 NYCRR 373-2.7(f) - Certification of closure and survey plat;
g) 6 NYCRR 373-2.7(g) - Post-closure care and use of property;
h) 6 NYCRR 373-2.7(h) - Post-closure plan; amendment of plan;
i) 6 NYCRR 373-2.7(i) - Post-closure notices; and
j) 6 NYCRR 373-2.7(j) - Certification of completion of post-closure care.

The final and specific choice of sampling points, number of samples, type of sampling to be performed and analysis for verification of the effectiveness of decontamination will be determined at the time of closure by the Department. These determinations will be based upon the past history of operating practices and types of wastes handled at the facility. The operating record, the record of spills, the types of waste released, location of spills in the facility and the condition of secondary containment systems will also provide data to be used in these determinations. This approach will allow compliance with closure regulations and requirements that will be in effect at the time of closure. Sampling procedures and the locations and the total number of samples required will be determined based on the information gathered at the time of closure. The verification of decontamination will be based on the Department's regulatory cleanup standards at the time of closure.

8. Financial Requirements 6 NYCRR 373-2.8

Not applicable. This is a federal facility.

9. Air Emission Standards 6 NYCRR 373-2.27, 373-2.28 and 373-2.29

The Permittee must comply with Attachment C of the Permit Application and all applicable requirements of 6 NYCRR 373-2.27, 373-2.28 and 373-2.29 as follows:

a) 6 NYCRR 373-2.27 Air Emission Standards for Process Vents (not applicable to the facility at time of Permit issuance);
b) 6 NYCRR 373-2.28 Air Emission Standards for Equipment Leaks (not applicable to the facility at time of Permit issuance);

c) 6 NYCRR 373-2.29 Air Emission Standards for Tanks, Surface Impoundments, and Containers.

The Permittee may not manage hazardous/mixed waste in a manner that would subject the facility to 6 NYCRR 373-2.27, and/or 373-2.28.ss

E. LAND DISPOSAL RESTRICTIONS

The Permittee must comply with all applicable provisions, as qualified below, in the current 6 NYCRR Part 376 for the land disposal of hazardous/mixed waste except for hazardous/mixed waste generated by remediation or corrective action activities for placement in an on-site corrective action management unit (CAMU) approved by the Commissioner.

The Permittee will not be subject to fines and penalties for land disposal storage restriction violations for mixed waste as long as it submits, in lieu of a Site Treatment Plan pursuant to the Federal Facilities Compliance Act of 1992 (FFCA), an annual report on the actions being taken by the Permittee to prepare shipments of MTRU waste for disposal and a copy of inspection records. The regulations regarding the storage of mixed waste are set forth in 6 NYCRR Part 376. 6 NYCRR Part 376.5 sets forth prohibitions on the storage of waste restricted from land disposal. In order to facilitate proper recovery, treatment or disposal, the Permittee expects to accumulate and store mixed waste for a period of greater than one year in accordance with 6 NYCRR Part 376.5(a)(3).

F. WASTE ANALYSIS AND QUALITY ASSURANCE

The Permittee must obtain representative samples of wastes and other materials to be analyzed pursuant to this Permit. The Permittee must perform the sampling and analysis required by this Permit in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846 (Third Edition (November 1986), as amended by Updates: I (July 1992), II (September 1994), IIA (August 1993), IIB (January 1995), III (December 1996), and IIIA (April 1998), and later approved revisions), hereinafter referred to as SW-846; Appendix 19 of 6 NYCRR Part 371; or an equivalent method approved by the Department.

The Permittee shall conduct a quality assurance program to ensure that the sampling, analysis and monitoring data are technically accurate and statistically valid. The quality assurance program must be in accordance with Chapter One and the requirements of applicable method(s) of SW-846, or an equivalent method approved by the Department.

As required by ECL 03-0119, any laboratory (Permittee or contract) used by the Permittee to perform analysis pursuant to this Permit must be certified by the New York State Department of Health Environmental Laboratory Approval Program (ELAP) in the appropriate categories of analysis, if ELAP issues certifications in such categories. If the Permittee uses a contract laboratory to perform analysis required by this Permit, then the Permittee shall inform the laboratory in writing that it must operate under the waste analysis and quality assurance provisions of this Permit.

G. ORAL REPORTS

The oral reports required by 6 NYCRR 373-1.6(a)(12)(vi) and 373-2.4(g)(4)(ii) must be made to both the Department using the New York State 24-hour oil and hazardous material spill notification number (800) 457-7362 and the National Response Center using its 24-hour number (800) 424-8802, or any designated telephone numbers which may subsequently replace those listed above.

Note: Any spill that contains the Reportable Quantity, (RQ) for any of the hazardous substance listed in 6 NYCRR Part 597.3, must be reported to the Department within 24 hours of discovery per 6 NYCRR Part 597.4. If a release has been reported pursuant to 6 NYCRR Part 597.4, that would satisfy the above requirement for an oral report to the Department.

H. PLANS, REPORTS, SPECIFICATIONS, IMPLEMENTATION, RENEWAL AND MODIFICATION APPLICATIONS, AND OTHER SUBMITTALS

1. All submittals required by the Permit must be submitted to the addresses listed below, in the quantities and form(s) specified (i.e. either hard copy or electronic copy). All electronic submittals shall be made according to Department requirements for the submittal of electronic documents.

    a) One (1) electronic copy and, if requested, one (1) hard copy of all submittals pertaining to the permitted hazardous/mixed waste management units & corrective action documents and groundwater monitoring plans to:

    Project Manager, HW Corrective Action and Post Closure
    Bureau Hazardous Waste & Radiation Management
    Division of Materials Management
    New York State Department of Environmental Conservation
    625 Broadway
    Albany, New York 12233-7256

c/o Frank.Zhang@dec.ny.gov

with one (1) electronic copy to:

Regional Materials Management Engineer
New York State Department of Environmental Conservation
Region 4 Office
1130 North Westcott Road
Schenectady, New York 12306
c/o Brian.Maglienti@dec.ny.gov

and one (1) electronic copy, transmitted via e-mail, to:

Chief, RCRA Programs Branch
U.S. EPA Region II
c/o everett.adolph@epa.gov

b) One (1) hard copy and one (1) electronic copy of all submittals specific to the waste reduction requirements of Section I, below, to:

Director, Bureau of Waste Reduction and Recycling
Division of Materials Management
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7253
c/o HW.ReductionPlanning@dec.ny.gov

with one (1) electronic copy to:

Project Manager, HW Corrective Action and Post Closure
Bureau of Hazardous Waste and Radiation Management
Division of Materials Management
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7256
c/o Frank.Zhang@dec.ny.gov

and one (1) electronic copy, transmitted via e-mail, to:

Chief, RCRA Programs Branch
U.S. EPA Region II
c/o everett.adolph@epa.gov

c) One (1) electronic copy and, if requested, one (1) hard copy of Applications to renew or modify this Permit must be submitted to the following to both:

Regional Permit Administrator
NYS Department of Environmental Conservation
Region 4 Office
1130 North Westcott Road
Schenectady, New York 12306
c/o Brian.Maglienti@dec.ny.gov

with one (1) electronic copy to:

Supervisor, HW Corrective Action and Post Closure
Bureau Hazardous Waste & Radiation Management
Division of Materials Management
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7256
c/o Lynn.Winterberger@dec.ny.gov

and one (1) electronic copy, transmitted via e-mail, to:

Chief, RCRA Programs Branch
U.S. EPA Region II
c/o everett.adolph@epa.gov

d) One (1) electronic copy of all other submittals to both:

Project Manager, HW Corrective Action and Post Closure
Bureau of Hazardous Waste and Radiation Management
Division of Materials Management
New York State Department of Environmental Conservation
625 Broadway

Albany, New York 12233-7017
c/o Frank.Zhang@dec.ny.gov

Regional Materials Management Engineer
New York State Department of Environmental Conservation
Region 4 Office
1130 North Westcott Road
Schenectady, New York 12306
c/o Brian.Maglienti@dec.ny.gov

and one (1) electronic copy, transmitted via e-mail, to:

Chief, RCRA Programs Branch
U.S. EPA Region II
c/o everett.adolph@epa.gov

e) Where additional Department staff are copied on the above submittals, the Permittee shall submit these copies electronically. In addition, the Permittee shall provide hard copies of any of the above submittal(s) when specifically requested by the Department.

2. The Permittee shall submit plans, reports, specifications, implementation schedules and any subsequent amendments required by this Permit to the Department for review and comment. If the Department determines that any plan, report, specification, schedule or respective amendment required by this Permit is deficient either in whole or in part, the Permittee shall either promptly respond to the comments or make revisions to the submission consistent with the Department's comments. Within a reasonable time frame specified by the Department, a final plan, report, specification, schedule or respective amendment shall be submitted to the Department for approval. An extension of the due date for any submittal may be granted by the Department based on the Permittee's documentation that sufficient justification for the extension exists.

I. WASTE REDUCTION REQUIREMENTS

The Permittee shall comply with the requirements of Article 27, Title 9, Section 27-0908 of the New York State Environmental Conservation Law and 6 NYCRR 373-2.5(c)(2)(ix). All reports and submittals required by Section 27-0908 to be submitted to the Commissioner shall be sent to the addresses specified in Section H above.

J. DEFINITIONS

For the purpose of this Permit, terms used herein shall have the same meaning as those in 6 NYCRR 370 through 374 and 376 and the terms defined in this Permit, unless this Permit specifically states otherwise. Where terms are not otherwise defined, the meaning associated with such terms shall be as defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

1. Action Levels. For purposes of this Permit, action levels are hazardous constituent concentrations for a specific environmental medium which if exceeded indicate a potential threat to human health or the environment. The exceedance of action levels may trigger further investigations, studies, and corrective measures. Where available, action levels are based on appropriate promulgated standards established for a specific environmental medium. When promulgated standards are not available, action levels can be media-specific hazardous constituent concentrations derived from non-promulgated human health risk data or environmental risk data with the latter levels being protective of aquatic life or wildlife. An action level may be set at the background level for a hazardous constituent for which data are inadequate to set a human health or environmental health-based level.

2. Areas of Concern (AOC). Pursuant to the authority granted by 6 NYCRR 373-1.6(c)(2), an area of concern has been defined for purposes of this Permit to mean an area at the facility, or an off-site area, which is not at this time known to be a solid waste management unit (SWMU), where hazardous and/or mixed waste and/or hazardous constituents are present, or are suspected to be present, as a result of a release from the facility. The term shall include areas of potential or suspected contamination as well as actual contamination. Such area(s) may require study and a determination of what, if any, corrective action may be necessary. All permit references to and conditions for SWMUs shall apply to areas of concern.

3. Commissioner. For purposes of this Permit, "Commissioner" shall mean the Commissioner of the New York State Department of Environmental Conservation (Department), their designee or authorized representative.

4. Corrective Action. For the purposes of this Permit, corrective action is a process that includes all activities related to the investigation, characterization and cleanup of a release of hazardous wastes or hazardous constituents from a solid waste management unit

(SWMU) at a permitted or interim status treatment, storage and disposal facility (TSDF) to any environmental medium (including groundwater). See Module II for a more in-depth discussion of the corrective action process.

5. Department. For the purposes of this Permit, "Department" shall mean the New York State Department of Environmental Conservation.

6. Environment. Pursuant to ECL Article 27, Title 9, Section 27-0901, "environment" means any water, water vapor, any land including land surface or subsurface, air, fish, wildlife, biota and all other natural resources.

7. Facility. All contiguous land, structures, other appurtenances, and improvements on the land used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operation units (e.g., one or more landfills, surface impoundments or combination of them). For the purpose of implementing corrective action, "facility" means all contiguous property under the control of the owner or operator seeking a 6 NYCRR Part 373 permit.

8. Federal Facility Compliance Act of 1992 (FFCA). The FFCA, which became effective October 6, 1992, subjects federal facilities to administrative enforcement actions in the same manner and under the same circumstances as an action would be initiated against another person. In addition, the FFCA required the Department of Energy (DOE) to prepare plans for developing treatment capacity and technologies for any site at which the DOE generates or stores mixed waste. The plans were needed because DOE does not currently have adequate capacity for treating all of its mixed waste to standards required by the Land Disposal Restriction regulations of the Resource Conservation and Recovery Act. (See Site Treatment Plan)

9. Hazardous Constituents. Those constituents listed in Appendix 23 to 6 NYCRR Part 371 or any constituent listed in Appendix 33 to 6 NYCRR Subpart 373-2.

10. Hazardous Waste. Pursuant to ECL Article 27, Title 9, Section 27.0901, hazardous waste means a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may: cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

11. Mixed waste. Mixed waste is waste that contains both hazardous waste and radioactive material (source, special nuclear, or by-product material regulated by the Atomic Energy Act of 1954 [42 U.S.C. 2011 et seq.])[1].

12. Release. For purposes of this Permit, release includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment of any hazardous waste, including hazardous constituents, unless expressly authorized under the terms of this Permit or otherwise permitted under law (e.g., SPDES permitted discharges).

13. Site Treatment Plan (STP). Prepared pursuant to the FFCA to describe the treatment capacities and technologies for treating mixed waste. The STP identifies specific treatment facilities for treating each of the Permittee's mixed waste streams and identifies schedules for treatment.

14. Solid Waste Management Unit (SWMU). For purposes of this Permit, SWMU includes any discernible waste management unit at which solid wastes have been placed and/or released at any time, irrespective of whether the unit was intended for the management of hazardous or solid wastes as those terms are defined in 6 NYCRR Part 371 and Subpart 373-2. These units include, but are not limited to: landfills, surface impoundments, waste piles, land treatment units, tanks, elementary neutralization units, transfer stations, container storage areas, incinerators, injection wells, recycling units, and closed and abandoned units. Certain areas associated with production processes which have become contaminated as a result of routine and systematic releases of wastes or hazardous constituents from wastes are also considered SWMUs.

15. Transuranic Waste (TRU). Waste which has been contaminated with alpha emitting transuranic radionuclides (elements with atomic numbers higher than uranium) possessing half-lives greater than 20 years and in concentrations greater than 100 nCi/.

[1] The Department of Energy's Office of Environment Management (EM) has regulatory authority for radioactivity (including that in mixed waste) at all EM facilities. This authority is granted pursuant to the Atomic Energy Act of 1954, as amended.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PART 373 PERMIT
MODULE II - CORRECTIVE ACTION REQUIREMENTS FOR SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN

US Department of Energy
Environmental Management
Separations Process Research Unit
NYR000096859

Niskayuna, New York
Schenectady County

A. APPLICABILITY

1. Statute and Regulations. Article 27, Title 9, Section 27-0913, and 6 NYCRR 373-2.6(l) requires corrective action, including Corrective Action beyond the facility boundary where necessary to protect human health and the environment, for all releases of hazardous and/or mixed wastes, including hazardous constituents, from any solid waste management unit ("SWMU") at a storage, treatment or disposal facility seeking a 6 NYCRR Part 373 permit, regardless of the time at which waste was placed in such unit. Pursuant to 6 NYCRR 373-1.6(c)(2) the Commissioner may impose permit conditions as the Commissioner determines necessary to protect human health and the environment (e.g., Areas of Concern (AOC(s)).

2. Summary of Corrective Action Process. Corrective action implementation authorized by 6 NYCRR 373-2.6 includes: (a) the RCRA Facility Assessment ("RFA"); (b) the RCRA Facility Investigation ("RFI"); and (c) Corrective Measures ("CM"). The RFA is a three-phase process that includes: a Preliminary Review ("PR"); a Visual Site Inspection ("VSI"); and a Sampling Visit ("SV"). The PR is a review of all available information on the individual SWMU(s) and AOC(s). During the PR, and in subsequent phases of the RFA, all of the media (i.e., soil, groundwater, surface water/sediment, air and subsurface gas) that could potentially be impacted by release(s) of hazardous and/or mixed waste, including hazardous constituents, are evaluated. Based on this evaluation, the SWMU(s)/AOC(s) will be characterized as to release potentials.

   Following the PR, a VSI is conducted during which all of the SWMU(s)/AOC(s) either previously or newly discovered, are observed. While performing this reconnaissance, any signs of spills or leakage, stained soil, stressed vegetation, unit deterioration, or any other conditions that may be indicative of a release are assessed. By means of these observations and the findings of the PR, the Commissioner may require the facility to conduct a Sampling Visit (SV) at the unit(s)/area(s) where the release(s) would be suspected.

The SV can involve any or all of the previously described media at any given SWMU and or Area of Concern (AOC). For those units/areas where releases are clearly demonstrated in the PR and/or VSI, the SV can be avoided leaving the unit(s)/area(s) to be addressed in the RFI.

The RFA includes preparing the RFA report. This report includes the findings of the various RFA activities and recommendations for further action at those units and areas with demonstrated releases of hazardous and/or mixed wastes, including hazardous constituents. In some cases, where an immediate threat to human health or the environment exists, interim corrective measures (ICMs) may be required. When there is no immediate threat, ICMs may also be used to expedite the Corrective Action process.

If the RFA concludes that there is a need for further investigative work, the Permittee shall be required to pursue phase two of corrective action, an RFI. The RFI may address a single SWMU/AOC or combination thereof. The purpose of the RFI is to determine the nature, extent, direction and rate of migration of hazardous and/or mixed wastes, including hazardous constituents, in soils, groundwater, surface water/sediment, subsurface gas and/or air. From these multimedia analyses, the types and concentrations of contaminants present, the boundaries of any contamination (e.g., plumes), and the rate and direction of contaminant movement shall be determined in each of the impacted media. Sufficient data shall be generated during the RFI to allow proper assessment of corrective measure alternatives, including implementation of ICMs. This may require bench and/or pilot studies to be implemented as part of the RFI. Once all analyses are reviewed, an RFI report is prepared that provides a summation of the data and recommendations for any needed corrective measures.

The culmination of the Corrective Action Program is Corrective Measures ("CM"). The initial stage of the corrective measures phase is the preparation of a Corrective Measures Study ("CMS"). A CMS may be required if concentrations of hazardous constituents in an aquifer, in surface water/sediment, in soils, or in air exceed their corresponding action levels. Such a study may also be required if individual concentrations of hazardous constituents are at or below their action levels, but they still may pose a threat to human health or the environment due to site-specific exposure conditions. The CMS may address a single SWMU/AOC or a combination thereof. The CMS will address alternative corrective measure strategies that are technologically feasible and reliable, and which effectively mitigate and minimize damage to, and provides adequate protection of human health and the environment. The Permittee will develop the site-specific CMS using target clean-up levels chosen by the Commissioner to be protective of human health and the environment. Where available, promulgated standards must be used. Where promulgated standards are not available, the Commissioner may use health-based levels, based on Risk-Specific Doses ("RSD") for carcinogens and Reference Doses ("RFD") for systemic toxicants, or concentration levels protective of the environment, that have undergone scientific review. The CMS report shall discuss

the alternative corrective measure strategies studied, addressing technical, institutional, public health, and environmental issues, and develop the conceptual engineering for the alternative action proposed by the facility. The CMS may not require extensive evaluation of a number of remedial alternatives where a solution is straightforward or only a few solutions exist. Such situations could require the Permittee to submit a highly focused CMS.

Following completion of the CMS, the Commissioner will select the corrective measure(s) from the corrective measure alternatives evaluated in the CMS. The Commissioner will then initiate a permit modification for the selected corrective measure(s).

Permit modification for the approved corrective measure(s) will initiate the final stage of corrective measures, Corrective Measures Implementation ("CMI"). The CMI will address the final design, construction, operation, maintenance, and monitoring of the corrective measure or measures selected.

3. Solid Waste Management Units and Areas of Concern. The conditions of this Module apply to:

   (a) All the SWMU(s) and AOC(s) listed in this Module individually or in combinations;
   (b) Any additional SWMU(s) and AOC(s) identified during the course of groundwater monitoring, field investigations, environmental audits or other means as described in Module II Condition C. below;
   (c) The following known SWMU(s) and AOC(s) located on-site and/or off-site:

Table II-1[1]

U.S. Department of Energy - Environmental Management (DOE-EM)

Solid Waste Management Units (SWMUs)

I. Container Storage Areas

   1. SPRU Mixed Waste Storage Area (SWMU-085)

B. STANDARD CONDITIONS FOR CORRECTIVE ACTION

1. Work Plans. All work plans submitted pursuant to this Module shall include:

[1] SWMUs and AOCs previously managed by DOE-EM that are no longer listed herein have had corrective action obligations completed, been deemed no further action, and transferred to DOE-NRLFO responsibility for management under DEC Permit # 4-4224-00024/00001

(a) Quality Assurance/Quality Control protocols to ensure that data generated is valid and supported by documented procedures;
(b) Other plans, specifications and protocols, as applicable;
(c) A schedule for starting specific tasks, completing the work and submitting progress and final reports; and
(d) Plans for the treatment, storage, discharge or disposal of wastes to be generated by activities described therein.

2. Quality Assurance/Quality Control.

(a) Any laboratory to be used pursuant to such work plans required by this Module must be approved by the Commissioner prior to work plan implementation. Certification by the New York State Department of Health Environmental Laboratory Approval Program in the relevant analytical services is required.
(b) The minimum Quality Assurance/Quality Control data and information, that shall be delivered with all sample analyses required by this Module, are described in Appendix II-A of this Permit Module.

3. Health/Safety Plans. The Permittee shall develop, according to applicable Federal, State and local requirements, and submit to the Commissioner health and safety plans that will be implemented to ensure that the health and safety of project personnel, plant personnel and the general public are protected. These plans are not subject to approval by the Commissioner. For non-intrusive work and sampling/monitoring activities for which there is no exposure concern, the Permittee may request that the Department suspend the requirement to submit a Health and Safety Plan for that specific activity. If the Department concurs with the request, the Permittee shall include any necessary health and safety measures within a separate section of the activity's work plan. Department approval of the work plan in no way constitutes approval of any health and safety elements therein.

4. Guidance Documents. When preparing the submissions described in this Permit Module, the Permittee shall take account of applicable guidance documents issued by the U.S. Environmental Protection Agency and the New York State Department of Environmental Conservation in a manner reflecting reasonable technical considerations.

5. Prior Submissions. The Permittee may have already submitted portions of information, plans, or reports required by this Permit Module and its Appendices to the Commissioner pursuant to the terms of previous applications, consent orders, or plans. For those items the Permittee contends were submitted to the Commissioner, the Permittee may cite the specific document(s) it believes adequately addresses each of the individual items requested by this Permit Module and its Appendices. The references, by document(s), shall be placed in the appropriate sections of the submissions that require the referenced information and data. If the Commissioner determines that the Department does not possess any of the referenced information,

plans, or reports that the Permittee claims were previously submitted, the Commissioner will notify the Permittee and the Permittee shall submit the referenced documents within the time frame specified within the notification.

6. Determination of No Further Action.

(a) Based on the results of an RFI for a particular SWMU, an AOC, or combination of SWMUs, and/or AOCs, and other relevant information, the Permittee may submit an application to the Commissioner for a major permit modification in accordance with 6 NYCRR Part 373 permit modification regulations identified in Module I of this Permit to terminate the subsequent corrective action requirements of this Module. This permit modification application must contain information demonstrating no release(s) of hazardous and/or mixed wastes, including hazardous constituents, from the SWMU(s) and/or AOC(s) pose a threat to human health or the environment.

(b) If, based upon review of the Permittee's request for a permit modification, the results of the RFI, and other information, including comments received during the forty-five (45) calendar day public comment period required for permit modifications, the Commissioner determines that the release(s) or the suspected release(s) investigated either are non-existent or do not pose a threat to human health or the environment, the Commissioner may grant the requested modification.

(c) A determination of no further action shall not preclude the Commissioner from implementing the following actions:

(i) Modifying this Permit at a later date to require the Permittee to perform such investigations as necessary to comply with the requirements of this Permit Module and its Appendices if new information or subsequent analysis indicates that there are, or are likely to be, releases from SWMUs/AOCs that may pose a threat to human health or the environment; and/or

(ii) Requiring continual or periodic monitoring of air, soil, groundwater, surface water, sediment or subsurface gas, if necessary, to protect human health and the environment, when site-specific circumstances indicate the release(s) of hazardous and/or mixed waste, including hazardous constituents, are likely to occur from any SWMU(s) and/or AOC(s).

7. Compliance Schedule for Reporting and Submissions.

(a) The Permittee shall submit, to the Commissioner, signed progress reports, as specified in approved work plans pursuant to this Permit, of all activities (i.e., SWMU Assessment, Interim Measures, RCRA Facility Investigation, Corrective Measures Study) conducted pursuant to the provisions of the Corrective Action Compliance Schedules of this Permit Module, beginning

no later than thirty (30) calendar days after the Permittee is first required to begin implementation of any requirement herein. These reports shall contain:

(i) A description of the work completed during the reporting periods;
(ii) Summaries of all findings made during the reporting period;
(iii) Summaries of all changes made during the reporting period;
(iv) Summaries of all contacts made with representatives of the local community and public interest groups during the reporting period;
(v) Summaries of all problems or potential problems encountered during the reporting period and actions taken to rectify problems;
(vi) Changes in personnel conducting or managing the corrective action activities during the reporting period;
(vii) Projected work for the next reporting period; and
(viii) Copies of daily reports, inspection reports, laboratory/monitoring data, etc., generated during the reporting period.

(b) Upon request, copies of other relevant reports and data not identified in Module II Condition B.7.(a) shall be made available to the Commissioner.

(c) The Commissioner may require the Permittee to conduct new or more extensive assessments, investigations, or studies, based upon information provided in the progress reports referred to in Module II Condition B.7.(a) above, or upon other supporting information.

(d) All work plans, reports, studies, designs and schedules required by the conditions of this Permit Module and its Appendices are upon approval of the Commissioner, incorporated into this Permit by reference and become an enforceable part of this Permit. Any noncompliance with such approved work plans, reports, studies, designs and schedules shall constitute noncompliance with this Permit. Extensions of the specified final compliance dates for submissions may be granted by the Commissioner in accordance with the major permit modification procedures stipulated in Module I of this Permit.

8. Compliance with Governmental Requirements. During investigative activities, interim corrective measures, and final corrective measures, (including, but not limited to, equipment decommissioning, excavation and unit demolition) required under this Module, the Permittee shall ensure that the transportation, treatment, storage, discharge, and disposal of all contaminated materials generated as a result of such activities (including, but not limited to, soils, sediments, liquids, tanks, pipes, pumps, rubble, debris, and structural materials) are performed in an environmentally sound manner pursuant to all applicable Federal, State and local requirements and that is protective of public health and the environment. Nothing in this Module shall be construed to require the Permittee to proceed in a manner which is in violation of any such requirements.

9. Notifications.

(a) Notification of groundwater contamination. If at any time the Permittee discovers that hazardous constituents in groundwater that may have been released from a SWMU or AOC at the facility have migrated beyond the facility boundary in concentrations that exceed action levels, the Permittee shall, within fifteen (15) calendar days of discovery, provide written notice to the Commissioner and any person who owns or resides on the land which overlies the contaminated groundwater.

(b) Notification of air contamination. If at any time the Permittee discovers that hazardous constituents in air that may have been released from a SWMU or AOC at the facility have or are migrating to areas beyond the facility boundary in concentrations that pose a threat to human health, and that residences or other places at which continuous, long-term exposure to such constituents might occur are located within such areas, the Permittee shall:

(i) Immediately initiate any actions that may be necessary to provide notice to all individuals who have been, may have been or may become subject to such exposure; and
(ii) Within fifteen (15) calendar days of such discovery, provide written notification to the Commissioner.

(c) Notification of residual contamination. If hazardous and/or mixed wastes or hazardous constituents in solid waste management units or areas of concern, or which have been released from a SWMU or AOC, will remain in or on the land, including groundwater, after the term of the permit has expired, the Commissioner may require the Permittee to record a notation in the deed to the facility property or in some other instrument which is normally examined during title search that will, in perpetuity, notify any potential purchaser of the property of the types, concentrations, and locations of such hazardous wastes or hazardous constituents. The Commissioner may require such notice as part of the corrective measures selection process.

10. SWMU/AOC Current Conditions Report. The Permittee shall, upon Department request, submit a SWMU/AOC Current Conditions Report providing current information regarding the status of investigations or remedial work for all SWMUs and AOCs. The report must include, at a minimum, information regarding physical and operational description, waste types/characteristics, any known or suspected releases, and current status of corrective action, including beginning and completion dates of each applicable phase.

C. COMPLIANCE SCHEDULE FOR ASSESSMENT OF NEWLY IDENTIFIED SWMUS AND AOCS.

1. Notification of Assessment. The Permittee shall notify the Commissioner, in

writing, of any additional SWMU(s) and/or AOC(s) not listed in this Module, which are identified during the course of groundwater monitoring, field investigations, environmental audits, or other means (e.g. newly installed Solid Waste Management Unit) within fifteen (15) calendar days after identification. For new units managing solid waste only, or for other new unit(s), the Permittee may seek clarification from the Department as to whether the unit constitutes a SWMU requiring notification under this permit condition. Should the Department determine that such notification is required, the Permittee will provide notification to the Department within fifteen (15) calendar days after the Department's determination. Once such notification has been made, a newly installed Solid Waste Management Unit (SWMU), i.e. new use with no history of release, will receive a determination of no further action and will be processed by the Department as a notification. Should a subsequent release occur at such a unit, then the full notification, assessment and reporting procedures of this Module Condition will apply.

As described above, the Permittee is required to notify the Department and perform the required assessment of Module II Condition C.2. for any newly identified SWMUs/AOCs within the footprint of the Separations Process Research Unit (SPRU) as defined in the Facility Map included in Attachment B. Any change to this footprint must be placed in the Permittee's operating record. If the Permittee (DOE-EM) determines, based on the Permittee's assessment, that the newly identified SWMU/AOC is not SPRU-related and the Department concurs, DOE-NRLFO will be notified in writing by the Department of their obligations regarding the newly identified SWMU/AOC. Conversely, if DOE-NRLFO determines that any newly identified SWMU/AOC assessed by DOE-NRLFO is SPRU-related, and the Department concurs, then the Permittee (DOE-EM) will be notified in writing by the Department of their obligations for the newly identified SWMU/AOC assessed by DOE-NRLFO.

2. SWMU/AOC Assessment Report. Within forty-five (45) calendar days after notifying the Commissioner, the Permittee shall submit a SWMU/AOC Assessment Report. This Report must provide, at a minimum, the following information for each newly identified SWMU/AOC:

   (a) Type and function of unit/area;
   (b) Location of each unit/area on a topographic map of appropriate scale;
   (c) Dimensions, capacities, and structural descriptions of the unit/area (supply available engineering drawings);
   (d) Dates that the unit/area was operated;
   (e) Description of the wastes that were placed or spilled at the unit/area;
   (f) Description of any known releases from the unit/area (to include groundwater data, soil analyses, air monitoring data, and/or surface water/sediment data);
   (g) The results of any sampling and analysis required for the purpose of determining whether releases of hazardous and/or mixed wastes, including hazardous constituents, have occurred, are occurring, or are likely to occur from the unit/area; and

(h) Whether this unit/area, individually or in combination with other units/areas described in Module II Condition A.3. is a significant source of contaminant release.

3. SWMU/AOC Sampling and Analysis Plan. Within thirty (30) calendar days after submittal of the SWMU/AOC Assessment Report required in Module II Condition C.2., the Permittee shall submit to the Commissioner for approval a schedule for the preparation of SWMU/AOC Sampling and Analysis Plan in accordance with the most recent version of EPA SW-846 and the "Uniform Federal Policy for Quality Assurance Project Plans - Evaluating, Assessing and Documenting Environmental Data Collection and Use Programs," (UFP QAPP) for any sampling and analysis of groundwater, land surface and subsurface strata, surface water/sediment or air, as necessary to determine whether a release of hazardous waste, including hazardous constituents, from such unit(s) and/or area(s) has occurred, is likely to have occurred, or is likely to occur. The Permittee may submit the elements required by the UFP QAPP in a modified format deemed acceptable by the Department. As deemed appropriate, the Department's DER-10 and other applicable guidance and policy may also be used in the development of the Plan. All such work shall proceed in accordance with the approved schedule. The SWMU/AOC Sampling and Analysis Plan shall include an Implementation Schedule. If, however, the Commissioner determines that the submitted schedule for the preparation of the Sampling and Analysis Plan and the Implementation Schedule are not acceptable, the Permittee shall be required to make modifications consistent with specific deficiencies to be identified in a notice, within a time period to be determined by the Commissioner. The Commissioner shall have final approval of the SWMU/AOC Sampling and Analysis Plan preparation schedule and the Implementation Schedule.

   The SWMU/AOC Sampling and Analysis Plan must demonstrate that the sampling and analyses program, if applicable, is capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous and/or mixed waste, including hazardous constituents, from the newly-discovered SWMU(s) and/or AOC(s) to the environment.

4. Subsequent Assessment Actions. Following submission of the SWMU/AOC Assessment Sampling and Analysis Plan set forth in Module II Condition C.3., subsequent activities for the Plan shall proceed in accordance with the following schedule:

   (a) Meeting between the Permittee and the New York State Department of Environmental Conservation (Department) to discuss Plan comments, as appropriate; and
   (b) Submission of a revised Plan to the Commissioner for approval within thirty

(30) calendar days of the above-described meeting or in accordance with the approved Sampling and Analysis Plan Schedule of Module II Condition C.3. (If the above referenced meeting is determined not to be necessary, the Permittee shall submit a revised Plan to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Plan comments from the Commissioner, or in accordance with the approved Sampling and Analysis Plan Schedule of Module II Condition C.3.); and

(c) Begin implementation of the SWMU/AOC Sampling and Analysis Plan in accordance with the time period provided in the approved Implementation Schedule of Module II Condition C.3.

5. SWMU/AOC Sampling and Analysis Report. In accordance with the time period provided in the approved Implementation Schedule of Module II Condition C.3., the Permittee shall follow reporting requirements in the approved Plan and submit a SWMU/AOC Sampling and Analysis Report to the Commissioner. The Report shall describe all results obtained from the implementation of the approved Plan.

6. Assessment Conclusions. Based on the results of the SWMU/AOC Sampling and Analysis Report, the Commissioner shall determine the need for further investigations at the specific unit(s) covered in the SWMU/AOC Assessment Report. If the Commissioner determines that such investigations are needed, the Commissioner shall, by written notification, require the Permittee to prepare and submit for approval a RCRA Facility Investigation Work Plan, including an Implementation Schedule, in accordance with Module II Condition E.5., et seq. Following the implementation of the RFI Work Plan the Permittee shall submit for approval the RFI Report. If the Commissioner, after reviewing the RFI Report determines that a Corrective Measures Study (CMS) or an Interim Corrective Measures (ICM) is required, the Commissioner shall by written notification require the Permittee to prepare and submit for approval the CMS and/or ICM, including Implementation Schedules. All approved submissions submitted pursuant to this Permit condition shall be made part of this Permit.

D. COMPLIANCE SCHEDULE AND NOTIFICATION REQUIREMENTS FOR NEWLY DISCOVERED RELEASES AT SWMUS AND AOCS.

The Permittee shall notify the Commissioner, in writing, of any release(s) of hazardous and/or mixed wastes, including hazardous constituents, discovered during the course of groundwater monitoring, field investigation, environmental auditing, or other activities no later than fifteen (15) calendar days after discovery. Such newly discovered release(s) may be from the newly identified unit(s)/area(s), from the unit(s)/area(s) for which, based on the findings of the RFA, the Commissioner had previously determined that no further investigation was necessary, or from the unit(s)/area(s) investigated as part of an RFI. Based on the information provided in the notification, the Commissioner shall determine the need for further investigation of the release(s). If the Commissioner determines that such investigations are needed, the Commissioner shall, by written notification, require

the Permittee to prepare a RCRA Facility Investigation Work Plan, including an Implementation Schedule, in accordance with Module II Condition E.5., et seq. Following the implementation of the RFI Work Plan, the Permittee shall submit for approval the RFI Report. If the Commissioner after reviewing the RFI Report determines that a Corrective Measures Study (CMS) or an Interim Corrective Measures (ICM) is required the Commissioner shall, by written notification, require the Permittee to prepare and submit for approval the CMS and/or ICM, including implementation schedules. All approved documents submitted pursuant to this Permit condition shall be made part of this Permit.

The Permittee is required to notify the Department and perform the required assessment for any newly discovered release(s) at SWMUs/AOCs within the footprint of the Separations Process Research Unit (SPRU) SWMUs/AOCs as defined in the Facility Map included in Attachment B. Any change to this footprint must be placed in the Permittee's operating record. If the Permittee (DOE-EM) determines, based on the Permittee's assessment, that the newly discovered release(s) at the SWMU/AOC is not SPRU-related and the Department concurs, DOE-NRLFO will be notified in writing by the Department of their obligations regarding the newly discovered release(s) at the SWMU/AOC. Conversely, if DOE-NRLFO determines that any newly discovered release(s) at the SWMU/AOC assessed by DOE-NRLFO is SPRU-related, and the Department concurs, then the Permittee (DOE-EM) will be notified in writing by the Department of their obligations for the newly discovered release(s) at the SWMU/AOC assessed by DOE-NRLFO.

E. CORRECTIVE ACTION REQUIREMENTS.

1. No Action Requirement.

   (a) On the basis of the revised RCRA Facility Assessment Preliminary Review - Visual Site Inspection Report, dated July 20, 1998, information and data presented and evaluated under the associated Knolls Atomic Power Laboratory RCRA Permit #4-4224-00024/00001, dated July 20, 1998 and the RFA - Sampling Visit dated February 2002, and other information/reports submitted as required under this Module, the Commissioner has determined that there is either: 1) no evidence at this time of the release(s) of hazardous and/or mixed waste(s) and/or constituent(s) that threaten human health or the environment, or: 2) documentation that remediation in accordance with Department-approved work plans and objectives has been performed, from/at the following SWMU(s) and/or AOC(s) identified in Module II Condition A.3.:

      1. SPRU Mixed Waste Storage Area (SWMU-085)

   (b) The Permittee need not undertake corrective action at any aforementioned SWMU(s) and/or AOC(s) identified in Module II Condition E.1.(a) as long as there is no evidence of the release(s) of hazardous waste(s) and/or mixed waste(s) or constituent(s) from the SWMU(s) and/or AOC(s) threatening

human health or the environment. This permit condition does not apply to any other stipulation specified in other Modules or Conditions of this Permit.

(c) A determination of no further action shall not preclude the Commissioner from modifying this Permit at a later date to require further investigations, studies, monitoring, or corrective measures, if new information or subsequent analysis indicates the release(s) or likelihood of release(s) from SWMU(s) and/or AOC(s) identified in Module II Condition E.1.(a) that could pose a threat to human health or the environment.

(d) Prior Interim Corrective Measures ("ICMs") which have been performed at SWMU(s)/AOC(s) listed in Module II Condition E.1.(a) will be subject to evaluation, in terms of final corrective measures for the facility, per the criteria and provisions of Module II Conditions E.11. and E.12.

2. Compliance Schedule for RCRA Facility Assessment ("RFA") Sampling Visit Work Plan

(a) On the basis of the revised RCRA Facility Assessment Preliminary Review - Visual Site Inspection Report dated July 20, 1998, information and data presented and evaluated under the associated Knolls Atomic Power Laboratory RCRA Permit #4-4224-00024/00001, dated July 20, 1998 and the RFA - Sampling Visit dated February 2002, the Commissioner has determined that there is the potential for the release(s) of hazardous and/or mixed waste(s) and/or constituents to have occurred from the following SWMU(s) and/or AOC(s) identified in Module II Condition A.3. that requires implementation of a RFA Sampling Visit:

Not applicable at this time.

(b) The Permittee shall adhere to the Permit Corrective Action Work Plan Compliance Schedule, with most recent amendments as approved by the Department on June 23, 2008, for the preparation of a RCRA Facility Assessment - Sampling Visit ("RFA-SV") Work Plan for the SWMU(s)/AOC(s) identified in Module II Condition E.2.(a) as requiring performance of a RCRA Facility Assessment ("RFA"). All such work shall proceed in accordance with the approved schedule, and/or in accordance with revisions to the schedule as approved by the Department. The RCRA Facility Assessment Sampling Visit ("RFA-SV") Work Plan shall include an Implementation Schedule. If, however, the Commissioner determines that the submitted schedule for the preparation of the RFA-SV and the Implementation Schedule are not acceptable, the Permittee shall be required to make modifications consistent with specific deficiencies to be identified in a notice, within a time period to be determined by the Commissioner. The Commissioner shall have final approval of the RCRA Facility Assessment - Sampling Visit Work Plan preparation schedule and the Implementation Schedule.

The Permittee shall develop the RFA-SV Work Plan in accordance with the most recent version of EPA SW-846 and the "Uniform Federal Policy for Quality Assurance Project Plans - Evaluating, Assessing and Documenting Environmental Data Collection and Use Programs" (UFP QAPP) with supplementation, as deemed appropriate, by applicable Department guidance and policy. The Permittee may submit the elements required by the UFP QAPP in a modified format deemed acceptable by the Department.

(c) Following submission of the RFA-SV Work Plan set forth in Module II Condition E.2.(b) for the SWMU(s) and/or AOC(s) identified in Module II Condition E.2.(a), subsequent activities for the Plan shall proceed in accordance with the following schedule:

(i) Meeting between the Permittee and the Department to discuss Plan comments, as appropriate; and

(ii) Submission of a revised Plan to the Commissioner for approval within forty-five (45) calendar days of the above-described meeting, or in accordance with the approved RFA-SV Work Plan Schedule of Module II Condition E.2.(b). (If the above-referenced meeting is determined not to be necessary, the Permittee shall submit a revised Plan to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Plan comments from the Commissioner, or in accordance with the approved RFA-SV Work Plan Schedule of Module II Condition E.2.(b).)

(d) On the basis of the revised RCRA Facility Assessment Preliminary Review - Visual Site Inspection Report dated July 20, 1998, information and data presented and evaluated under the associated Knolls Atomic Power Laboratory RCRA Permit #4-4224-00024/00001, dated July 20, 1998 and the RFA - Sampling Visit dated February 2002, the Commissioner has determined that there is a potential for release of hazardous waste and/or constituents from the following inaccessible SWMU(s) and/or AOC(s) identified in Module II Condition A.3.:

Not applicable at this time.

For the areas so designated, the Permittee shall submit to the Commissioner for approval a schedule for the preparation of a RCRA Facility Assessment-Sampling Visit ("RFA-SV") Work Plan, no later than one-hundred and eighty (180) calendar days prior to the date when the SWMU(s) and/or AOC(s) becomes accessible for such an investigation. Accessibility to the SWMU(s)/AOC(s) shall be considered achievable when the impediment to the SV (e.g. buildings, utilities) is demolished, abandoned, or is altered in a manner that would allow access to the SWMU(s)/AOC(s). All such work

shall proceed in accordance with the approved schedule. The RCRA Facility Assessment-Sampling Visit Work Plan shall include an Implementation Schedule. If, however, the Commissioner determines that the submitted schedule for the preparation of the RFA-SV and Implementation Schedule are not acceptable, the Permittee shall be required to make modifications consistent with specific deficiencies to be identified in a notice, within a time period to be determined by the Commissioner. The Commissioner shall have final approval of the RCRA Facility Assessment-Sampling Visit Work Plan preparation schedule and the Implementation Schedule.

The Permittee shall develop the RFA-SV Work Plan in accordance with the most recent version of EPA SW-846 and the "Uniform Federal Policy for Quality Assurance Project Plans - Evaluating, Assessing and Documenting Environmental Data Collection and Use Programs" (UFA QAPP) with supplementation, as deemed appropriate, by applicable Department guidance and policy. The Permittee may submit the elements required by the UFP QAPP in a modified format deemed acceptable by the Department.

Following submission of the RFA-SV Work Plan set forth in this Module Condition, subsequent activities for the Plan shall proceed in accordance with the following schedule:

(i) Meeting between the Permittee and the Department to discuss Plan comments, as appropriate; and

(ii) Submission of a revised Plan to the Commissioner for approval within forty-five (45) calendar days of the above-described meeting, or in accordance with the approved RFA-SV Work Plan Schedule. (If the above-referenced meeting is determined not to be necessary, the Permittee shall submit a revised Plan to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Plan comments from the Commissioner, or in accordance with the approved RFA-SV Work Plan Schedule.)

3. Compliance Schedule For RFA-SV Work Plan Implementation.

Begin implementation of the RFA-SV Work Plan for the SWMU(s) and/or AOC(s) identified in Module II Conditions E.2.(a) and E.2.(d) in accordance with the time period provided in the approved Implementation Schedules of Module II Conditions E.2.(b) and E.2.(d), respectively.

4. Compliance Schedule For RFA-Sampling Visit Report.

(a) In accordance with the time period provided in the approved Implementation Schedule of Module II Conditions E.2.(b) and E.2.(d), the Permittee shall submit a final report to the Commissioner on the SV for the SWMU(s)

and/or AOC(s) identified in Module II Conditions E.2.(a) and E.2.(d), respectively. The report shall follow reporting requirements in the approved work plan and describe all results, of validated analytical data generated under the approved RFA-SV Plan, obtained from the implementation of the approved Plan.

(b) Based on the results of the RCRA Facility Assessment-Sampling Visit Report submitted pursuant to Module II Condition E.4.(a), the Commissioner shall determine the need for further investigations at specific unit(s) and/or area(s) covered in the RFA-SV Report. If the Commissioner determines that such investigations are needed, the Commissioner shall, by written notification, require the Permittee to prepare and submit for approval a RCRA Facility Investigation Work Plan in accordance with Module II Condition E.5. et seq.

5. Compliance Schedule For RCRA Facility Investigation ("RFI") Work Plan at Accessible SWMUs and AOCs.

(a) On the basis of the revised RCRA Facility Assessment Preliminary Review - Visual Site Inspection Report dated July 20, 1998, information and data presented and evaluated under the associated Knolls Atomic Power Laboratory RCRA Permit #4-4224-00024/00001, dated July 20, 1998 and the RFA - Sampling Visit dated February 2002, the Commissioner has determined that there has been a release of hazardous and/or mixed waste and/or constituents from the following SWMU(s), or combination of SWMU(s), and/or AOC(s) identified in Module II Condition A.3.:

Not applicable at this time.

(b) Within sixty (60) calendar days after the effective date of this Permit for the SWMU(s) and/or AOC(s) identified in Module II Condition E.5.(a), the Permittee shall submit to the Commissioner for approval a schedule for the preparation of a RCRA Facility Investigation Task I Report on Current Conditions required by the RFI Scope of Work included in Appendix II-B of this Permit Module, and all such work shall proceed in accordance with the approved schedule. A schedule for the preparation of a Task I Report shall be submitted for approval within sixty (60) calendar days after the written notification by the Commissioner that an RFI is required pursuant to Module II Conditions C.6., D. and/or E.4.(b), and all such work shall proceed in accordance with the approved schedule. If, however, the Commissioner determines that the submitted schedule for the preparation of a RCRA Facility Investigation Task I Report is not acceptable, the Permittee shall be required to make modifications consistent with specific deficiencies to be identified in a notice, within a time period to be determined by the Commissioner. The Commissioner shall have final approval of the RCRA Facility Investigation Task I Report Schedule.

(c) Within sixty (60) calendar days of the effective date of this Permit for the SWMU(s) and/or AOC(s) identified in Module II Condition E.5.(a), the Permittee shall submit to the Commissioner for approval a schedule for the preparation of a RCRA Facility Investigation Task II Report on the Pre-Investigation Evaluation of Corrective Measures Technologies required by the RFI Scope of Work included in Appendix II-B of this Permit Module, and all such work shall proceed in accordance with the approved schedule. A schedule for the preparation of a Task II Report shall be submitted for approval within ninety (90) calendar days after the written notification by the Commissioner that an RFI is required pursuant to Module II Conditions C.6., D. and/or E.4.(b), and all such work shall proceed in accordance with the approved schedule. If, however, the Commissioner determines that the submitted schedule for the preparation of a RCRA Facility Investigation Task II Report is not acceptable, the Permittee shall be required to make modifications consistent with specific deficiencies to be identified in a notice, within a time period to be determined by the Commissioner. The Commissioner shall have final approval of the RCRA Facility Investigation Task II Report Schedule.

(d) Within one-hundred and twenty (120) calendar days of the effective date of this Permit for the SWMU(s) and/or AOC(s) identified in Module II Condition E.5.(a), the Permittee shall submit to the Commissioner for approval a schedule for the preparation of a RCRA Facility Investigation Work Plan, inclusive of an Implementation Schedule. All such work will proceed in accordance with the approved schedule. A schedule for the preparation of a RCRA Facility Investigation Work Plan, inclusive of an Implementation Schedule, will be submitted for approval within sixty (60) calendar days after written notification by the Commissioner that an RFI is required pursuant to Module II Conditions C.6., D. and/or E.4.(b)., and all such work shall proceed in accordance with the approved schedule. If, however, the Commissioner determines that the submitted schedule for the preparation of a RCRA Facility Investigation Work Plan is not acceptable, the Permittee shall be required to make modifications consistent with specific deficiencies to be identified in a notice, within a time period to be determined by the Commissioner. The Commissioner shall have final approval of the Work Plan preparation schedule and the Implementation Schedule.

The Work Plan must address all necessary activities or include descriptions to meet the requirements of the Scope of Work for a RCRA Facility Investigation included in Appendix II-B of this Permit Module, including Tasks III through V. In addition, the Permittee must follow the most recent version of EPA SW-846 and the "Uniform Federal Policy for Quality Assurance Project Plans - Evaluating, Assessing and Documenting Environmental Data Collection and Use Programs" (UFA QAPP), with supplementation, as deemed appropriate, by applicable Department guidance and policy. The Permittee may submit the elements required by the UFP

QAPP in a modified format deemed acceptable by the Department.

The Permittee may determine that any of the items required by Tasks III through V of the Scope of Work in Appendix II-B of this Permit Module have already been submitted or completed and, therefore, the resubmittal of those items is not necessary for completing the RFI. The Permittee shall request, within sixty (60) calendar days of any notification by the Commissioner that an RFI is required, that the Commissioner review for approval the Permittee's determination. At the time of the request, the Permittee must provide the following information: (1) description of the items and/or summary of findings; (2) description of investigations addressing the items, documents/reports of the investigations with dates, and summary of the findings; and (3) copies of the documents/reports. Upon the Commissioner's approval of any previously performed items, the Permittee may delete these from the RFI Work Plan. However, upon the Commissioner's disapproval of items submitted by the Permittee, all activities necessary for the items must be included in the RFI Work Plan.

(e) Following submission of the RFI Work Plan, subsequent activities for the Plan shall proceed in accordance with the following schedule:

(i) Meeting between the Permittee and the Department to discuss Plan comments, as appropriate; and

(ii) Submission of a revised Plan to the Commissioner for approval within forty-five (45) calendar days of the above-described meeting. (If the above-referenced meeting is determined not to be necessary, the Permittee shall submit a revised Plan to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Plan comments from the Commissioner, or in accordance with the approved RFI Work Plan Schedule of Module II Condition E.5.(d).)

(f) The Commissioner shall review for approval, as part of the RFI Work Plan, any plans developed pursuant to Module II Condition C.6., addressing further investigations of newly identified SWMUs and/or AOCs, or Module II Condition D., addressing newly discovered releases from units and/or areas. The Commissioner shall modify the Compliance Schedule of this Permit Module according to the permit modification procedures stipulated in Module II Condition E.13. of this Permit Module to incorporate these units and areas and releases into the RFI Work Plan.

6. Compliance Schedule for RCRA Facility Investigation ("RFI") Work Plan Implementation, RFI Report and Summary Report Submissions.

(a) In accordance with the time period provided in the approved schedule of Module II Condition E.5.(d), the Permittee shall begin implementation of the Plan according to the Implementation Schedule(s) made part of the approved

RFI Work Plan. The RFI shall be conducted in accordance with the approved RFI Work Plan.

(b) In accordance with the time period provided in the approved Implementation Schedule of Module II Condition E.5.(d), the Permittee shall submit to the Commissioner for approval the RFI Final Report and Summary Reports. The RFI Final Report must contain adequate information to support further corrective action decisions at the facility and/or off-site, should such actions be necessary. The RFI Final Report shall describe the procedures, methods, and results of all facility investigations of SWMUs and AOCs and their releases, including information on the type and extent of contamination at the facility and/or off-site, sources and migration pathways, and actual or potential receptors. It shall present all information gathered under the approved RFI Work Plan. The Summary Report shall describe more briefly the procedures, methods, and results of the RFI.

(c) Following submission of the RFI Report and Summary Report set forth in Module II Condition E.6.(b), subsequent activities for the Reports shall proceed in accordance with the following schedule:

(i) Meeting between the Permittee and the Department to discuss Report comments, as appropriate; and
(ii) Submission of a revised RFI Final Report to the Commissioner for approval within forty-five (45) calendar days of the above-described meeting, or in accordance with the approved RFI Implementation Schedule of Module II Condition E.5.(d). (If the above-referenced meeting is determined not to be necessary, the Permittee shall submit revised Reports to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Report comments from the Commissioner, or in accordance with the approved RFI Implementation Schedule of Module II Condition E.5.(d).)

(d) After the Commissioner approves the RFI Final Report and Summary Report, the Permittee shall mail the approved Summary Report to all individuals on the facility mailing list established by the Permittee, within thirty (30) calendar days of receipt of approval.

7. Compliance Schedule for RCRA Facility Investigation ("RFI") Work Plan at Inaccessible SWMUs and AOCs.

(a) On the basis of the revised RCRA Facility Assessment Preliminary Review - Visual Site Inspection Report dated July 20, 1998, and subsequent documentation, the Commissioner has determined that there has been a release of hazardous and/or mixed waste and/or constituents from the following inaccessible SWMU(s) and/or AOC(s) identified in Module II Condition A.3.:

Not applicable at this time.

(b) For the applicable SWMU(s)/AOC(s) identified in Module II Condition E.7.(a), the Permittee shall submit to the Commissioner, for approval, a schedule for the preparation of RFI Task I and II Reports and a RFI Work Plan, no later than one-hundred and eighty (180) calendar days prior to the date when the SWMU(s) and/or AOC(s) become accessible for investigation. Accessibility to the SWMU(s) and/or AOC(s) shall be considered achievable when the impediment to further investigation (e.g. building, utilities) is demolished, abandoned, or is altered in a manner that would allow access to the SWMU(s)/AOC(s). The Commissioner may, at any point prior to that time, require additional investigations and/or monitoring should it become apparent that residual contamination at the SWMU(s)/AOC(s) may impact human health and/or the environment. All such work shall proceed in accordance with the approved Permit Corrective Action Work Plan Compliance Schedule, and/or subsequent amendments deemed necessary and/or acceptable by the Commissioner. The RFI Work Plan shall include an Implementation Schedule. If, however, the Commissioner determines that the submitted schedule for the preparation of the RFI Work Plan and Implementation Schedule are not acceptable, the Permittee shall be required to make modifications consistent with specific deficiencies to be identified in a notice, within a time period to be determined by the Commissioner. The Commissioner shall have final approval of the RFI Work Plan preparation schedule and the Implementation Schedule. The Permittee shall develop the RFI Work Plan in accordance with Module II Condition E.5.

(c) For the applicable SWMU(s)/AOC(s) identified in Module II Condition E.7.(a), the Permittee shall submit to the Commissioner, for approval, a schedule for the preparation of a Report which evaluates previous Corrective Measures, in terms of the final remedial goals specified in Module II Condition A.2., sixth paragraph, and others as provided by the Commissioner, no later than one-hundred and eighty (180) calendar days prior to the date when the SWMU(s) and/or AOC(s) become accessible for investigation. Accessibility to the SWMU(s) and/or AOC(s) shall be considered achievable when the impediment to further investigation (e.g. building, utilities) is demolished, abandoned, or is altered in a manner that would allow access to the SWMU(s)/AOC(s). The Commissioner may, at any point prior to that time, require additional investigations and/or monitoring should it become apparent that residual contamination at the SWMU(s)/AOC(s) may impact human health and/or the environment. As a result of the above-referenced Evaluation Report, the Commissioner may require performance of a Corrective Measures Study (CMS) for the AOC, as per Module II Condition E.9. and according to the schedules therein, and according to the protocols detailed in Appendix II-C of this Permit Module.

(d) Inaccessible SWMU(s) and/or AOCs deemed by the Commissioner to be subject to RFI which are either discovered during the course of, and/or are incidental to, Permit Corrective Action will, after having been subject to the notification procedures under Conditions C. or D. of this Permit Module, as appropriate, will become subject to Module II Conditions E.5. and E.6. no later than one-hundred and eighty (180) calendar days prior to the date when the SWMU(s) and/or AOC(s) becomes accessible for such an investigation. Accessibility to the SWMU(s)/AOC(s) shall be considered achievable when the impediment to the SV (e.g. buildings, utilities) is demolished, abandoned, or is altered in a manner that would allow access to the SWMU(s)/AOC(s). All such work shall proceed in accordance with the approved Permit Corrective Action Work Plan Compliance Schedule, and/or subsequent amendments deemed necessary and/or acceptable by the Commissioner. The RFI Work Plan shall include an Implementation Schedule. If, however, the Commissioner determines that the submitted schedule for the preparation of the RFI Work Plan and Implementation Schedule are not acceptable, the Permittee shall be required to make modifications consistent with specific deficiencies to be identified in a notice, within a time period to be determined by the Commissioner. The Commissioner shall have final approval of the RFI Work Plan preparation schedule and the Implementation Schedule. The Permittee shall develop the RFI Work Plan in accordance with Module II Condition E.5.

(e) Following submission of the RFI Work Plan set forth in this Module Condition, subsequent activities for the Plan shall proceed in accordance with the following schedule:

(i) Meeting between the Permittee and the Department to discuss Plan comments, as appropriate; and

(ii) Submission of a revised Plan to the Commissioner for approval within forty-five (45) calendar days of the above-described meeting, or in accordance with the approved RFI Work Plan Schedule. (If the above-referenced meeting is determined not to be necessary, the Permittee shall submit a revised Plan to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of Plan comments from the Commissioner, or in accordance with the approved RFI Work Plan Schedule.)

8. Compliance Schedule for Interim Corrective Measures ("ICMs").

(a) For the following SWMU(s)/AOC(s) identified in Module II Condition A.3., the Commissioner has determined that ICM(s) are to be implemented by the Permittee:

Not applicable at this time

(b) The Permittee shall submit a schedule for the implementation of the Interim Corrective Measures for approval. All such work shall proceed in accordance with the approved schedule. The Implementation Schedule shall include the submittal of a report documenting confirmatory sampling results. If, however, the Commissioner determines that the submitted schedule for the implementation of the Interim Corrective Measures is not acceptable, the Permittee shall be required to make modifications consistent with specific deficiencies to be identified in a notice, within a time period to be determined by the Commissioner. The Commissioner shall have final approval of the Interim Corrective Measures Implementation Schedule. A separate schedule need not be provided for those SWMUs and AOCs where an interim corrective measures work plan has been submitted to the Commissioner which contains such a schedule. Implementation of the Current Interim Corrective Measures listed above shall proceed in accordance with the Permit Corrective Action Work Plan Compliance Schedule, with most recent amendments as approved by the Department on June 23, 2008. The Permittee shall develop the ICM Work Plan in accordance with applicable Department guidance and policy.

(c) If at any time it is determined by the Commissioner that a release or, based on site-specific circumstances, a threatened release of hazardous and/or mixed wastes, including hazardous constituents from a SWMU, an AOC or a combination of SWMUs and/or AOCs poses a threat to human health or the environment, or that such condition jeopardizes the Permittee's ability to comply with any governmental permit, a focused interim corrective measures study shall be submitted to the Commissioner for approval within thirty (30) calendar days of notice of such a determination. This study shall consider, among other relevant factors, the character, the extent, direction, the rate of release, the proximity to population, the exposure pathways, the effects of delayed action, and the evaluations of appropriate ICM(s) or the selection of a pragmatic and presumptive ICM. Upon approval of the study by the Commissioner, the Permittee shall implement the required ICM as specified by the Commissioner. Should a selected ICM involve an engineered action (e.g., pump and treat), then its design, implementation schedule and subsequent construction completion certification shall require approvals by the Commissioner. Nothing herein precludes the Permittee from taking immediate action to address the conditions described herein and promptly notifying the Commissioner.

(d) In the event the Permittee discovers a release or, based on site-specific circumstances, a threatened release of hazardous and/or mixed waste, including hazardous constituents, from a SWMU, an AOC, or a combination of SWMUs and/or AOCs, that poses a threat to human health or the environment, the Permittee shall identify interim corrective measures to mitigate this threat. The Permittee shall immediately summarize the nature and magnitude of the actual or potential threat and nature of the ICM being considered and notify the Commissioner. Within thirty (30) calendar days of

notifying the Commissioner, the Permittee shall submit to the Commissioner, for approval, a focused interim corrective measures study and follow the progression of events identified in Module II Condition E.8.(c).

(e) The following factors may be considered by the Commissioner or the Permittee in determining the need for interim corrective measures:

(i) Time required to develop and implement a final corrective measure;
(ii) Actual and potential exposure of human and environmental receptors;
(iii) Actual and potential contamination of groundwater and sensitive ecosystems;
(iv) Concentration of hazardous constituents, in soils that have the potential to migrate to the air, groundwater or surface water; and
(v) Other situations that may pose threats to human health and the environment.

(f) The Permittee may propose Interim Corrective Measures for releases from SWMUs/AOCs, which do not pose an immediate threat, based upon the results of a RCRA Facility Assessment (RFA)-Sampling Visit or RCRA Facility Investigation. The RFA-Sampling Visit Report (Module II Condition E.4.) or the RCRA Facility Investigation Report (Module II Condition E.6.) may contain Interim Corrective Measure recommendations. Within thirty (30) calendar days of the Commissioner's approval of the Interim Corrective Measure recommendation, the Permittee shall submit for the Commissioner's approval a schedule for the preparation and implementation of an Interim Corrective Measures Work Plan.

9. Requirements For Corrective Measures Study ("CMS").

(a) Should a CMS that evaluates alternative remedies be required, the Commissioner shall notify the Permittee in writing as to when the CMS will be submitted. The submission time will take into consideration the extent of the remediation that needs to be implemented. The notice shall identify the hazardous constituent(s) which have exceeded target cleanup level(s) that are considered a threat to human health and the environment, given site specific exposure conditions or due to additive exposure risk. The notification shall specify the target cleanup levels for hazardous constituents detected in each medium of concern, and may also specify corrective measure alternatives to be evaluated by the Permittee during the CMS. The CMS must address the items required by the CMS Scope of Work included in Appendix II-C of this Permit Module.

(b) The Permittee will not need to prepare and submit for approval a CMS that evaluates remedial alternatives when the Department and the Permittee agree to impose a presumptive remedy. The Permittee shall instead submit a schedule for the preparation of a focused CMS, that includes a conceptual

design for this presumptive remedy and explain how it meets the pertinent requirements of Module II Condition E.11., within sixty (60) calendar days following notification by the Commissioner. The focused CMS shall contain and Implementation Schedule which will be subject to approval by the Commissioner.

10. Compliance Schedule For Corrective Measures Study ("CMS").

(a) The CMS will be considered complete upon completion of Tasks I through IV required by the CMS Scope of Work included in Appendix II-C of this Permit Module. Within forty-five (45) calendar days after a notification required by Module II Condition E.9.(a), the Permittee shall submit a schedule for the preparation of Task I to the Commissioner for approval, and all such work shall proceed in accordance with the approved schedule. If, however, the Commissioner determines that the schedule for the preparation of the Task I Report is not acceptable, the Permittee shall be required to make modifications consistent with specific deficiencies to be identified in a notice, within a time period to be determined by the Commissioner. The Commissioner shall have final approval of the Task I Report Schedule. The Permittee shall submit to the Commissioner a Task I report and documents, if any, relevant to the subsequent Tasks required by the CMS Scope of Work included in Appendix II-C of this Permit Module.

(b) The Permittee shall submit for approval a schedule for the preparation of a CMS Plan to the Commissioner within forty-five (45) calendar days after a notification required by Module II Condition E.9.(a), and all such work shall proceed in accordance with the approved schedule. If, however, the Commissioner determines that the schedule for the preparation of the CMS Plan is not acceptable, the Permittee shall be required to make modifications consistent with specific deficiencies to be identified in a notice, within a time period to be determined by the Commissioner. The Commissioner shall have final approval of the CMS Plan Schedule.

(i) The CMS Plan shall provide:

(1) A description of the general approach to investigating and evaluating potential corrective measure;
(2) A definition of the overall objectives of the study;
(3) The specific plans for evaluating corrective measure to ensure compliance with corrective measure standards;
(4) The schedules for conducting the study; and
(5) The proposed format for the presentation of information.

(ii) The CMS Plan must address, at a minimum, all necessary activities to complete Tasks II and III required by the CMS Scope of Work included in Appendix II-C of this Permit Module.

(c) Following submission of the CMS Plan set forth in Module II Condition E.10.(b), subsequent activities for the Plan shall proceed in accordance with the following schedule:

(i) Meeting between the Permittee and the Department to discuss Plan comments, as appropriate; and
(ii) Submission of a revised Plan to the Commissioner for approval within thirty (30) calendar days of the above-described meeting, or in accordance with the approved CMS Plan Schedule of Module II Condition E.10.(b). (If the above-referenced meeting is determined not to be necessary, the Permittee shall submit a revised Plan to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after the Permittee's receipt of Plan comments from the Commissioner, or in accordance with the approved CMS Plan Schedule of Module II Condition E.10.(b).)

(d) No later than thirty (30) calendar days after the Permittee has received written approval from the Commissioner for the CMS Plan, the Permittee shall begin to implement the CMS according to the schedule specified in the CMS Plan. The CMS shall be conducted in accordance with the approved Plan submitted pursuant to Module II Condition E.10.(b).

(e) In accordance with the approved CMS Implementation Schedule of Module II Condition E.10.(d), the Permittee shall submit for approval a CMS Final Report (Task IV) to the Commissioner. The CMS Final Report shall:

(i) Summarize the results of the investigations and, if applicable, of any bench-scale or pilot tests conducted;
(ii) Provide a detailed description of the corrective measures evaluated and include an evaluation of how each corrective measure alternative meets the standards set forth in Module II Condition E.11.;
(iii) Contain any additional information to support the Commissioner in the corrective measure selection decision-making process described under Module II Condition E.11.;
(iv) Address, at a minimum, all items necessary to demonstrate completion of Tasks II and III required by the CMS Scope of Work included in Appendix II-C of this Permit Module.

(f) Following submission of the CMS Final Report, subsequent activities for the CMS shall proceed in accordance with the following schedule:

(i) Meeting between the Permittee and the Department to discuss the CMS comments, as appropriate; and
(ii) Submission of a revised CMS Report to the Commissioner for approval within forty-five (45) calendar days of the above-described meeting, or in accordance with the approved CMS Plan Schedule of

Module II Condition E.10.(b). (If the above referenced meeting is determined not to be necessary the Permittee shall submit a revised CMS Report to the Commissioner, according to a schedule specified by the Department, not to exceed forty-five (45) calendar days after Permittee's receipt of CMS comments from the Commissioner, or accordance with the approved CMS Implementation Schedule of Module II Condition E.10.(d).)

11. Corrective Measure(s) Selection.

(a) Based on the information presented in the CMS Report, and any further evaluations of additional corrective measures under this study, the Commissioner shall select the corrective measure(s) that at a minimum will meet the following standards:

(i) Be protective of human health and the environment;
(ii) Attain media target cleanup levels selected by the Commissioner during the corrective measures selection process;
(iii) Control the source(s) of release(s) so as to reduce or eliminate, to the maximum extent practicable, further releases of hazardous waste, including hazardous constituents, that might pose a threat to human health and the environment; and
(iv) Meet all applicable waste management requirements.

(b) In selecting the corrective measure(s) which meets the standards for corrective measures established under Module II Condition E.11.(a), the Commissioner shall consider the following evaluation factors, as appropriate:

(i) Long-term reliability and effectiveness. Any potential corrective measure(s) may be assessed for the long-term reliability and effectiveness it affords, along with the degree of certainty that the corrective measure(s) will prove successful. Factors that shall be considered in this evaluation include:

(1) Magnitude of residual risks in terms of amounts and concentrations of hazardous waste, including hazardous constituents, remaining following implementation of the corrective measure(s), considering the persistence, toxicity, mobility and propensity to bioaccumulate of such hazardous wastes, including hazardous constituents:
(2) The type and degree of long-term management required, including monitoring and operation and maintenance;
(3) Potential for exposure of humans and environmental receptors to remaining hazardous wastes, including hazardous constituents, considering the potential threat to human health and the environment associated with excavation, transportation,

re-disposal or containment;

(4) Long-term reliability of the engineering and institutional controls, including uncertainties associated with land disposal of untreated hazardous wastes, including hazardous constituents, and their residuals; and

(5) Potential need for replacement of the corrective measure(s).

(ii) Reduction of toxicity, mobility or volume. A potential corrective measure(s) may be assessed as to the degree to which it employs treatment that reduces toxicity, mobility or volume of hazardous and/or mixed wastes, including hazardous constituents. Factors that shall be considered in such assessments include:

(1) The treatment processes the corrective measure(s) employs and materials it would treat;

(2) The amount of hazardous and/or mixed wastes, including hazardous constituents, that would be destroyed or treated;

(3) The degree to which the treatment is irreversible;

(4) The residuals that will remain following treatment, considering the persistence, toxicity, mobility and propensity to bioaccumulate of such hazardous and/or mixed wastes, including hazardous constituents; and

(5) All concentration levels of hazardous and/or mixed waste, including hazardous constituents, in each medium that the corrective measure(s) must achieve to be protective of human health and the environment.

(iii) The short-term effectiveness of a potential corrective measure(s) may be assessed considering the following:

(1) Magnitude of reduction of existing risks;

(2) Short-term risks that might be posed to the community, workers, or the environment during implementation of such a corrective measure(s), including potential threats to human health and the environment associated with excavation, transportation, and redisposal or containment; and

(3) Time until full protection is achieved.

(iv) Implementability. The ease or difficulty of implementing a potential corrective measure(s) may be assessed by considering the following types of factors:

(1) Degree of difficulty associated with constructing the technology;

(2) Expected operational reliability of the technologies;

(3) Need to coordinate with and obtain necessary approvals and permits from other agencies;

(4) Availability of necessary equipment and specialists;
(5) Available capacity and location of needed treatment, storage and disposal services; and
(6) Requirements for removal, decontamination, closure, or post-closure of units, equipment, devices or structures that will be used to implement the corrective measure(s).

(v) Cost. The types of costs that may be assessed include the following:

(1) Capital costs;
(2) Operation and maintenance costs;
(3) Net present value of capital and operation and maintenance costs; and
(4) Potential future corrective measure costs.

12. Permit Modification for Corrective Measure(s).

Based on information the Permittee submits in the RFI Report, the CMS Report and other information, the Commissioner will propose the final corrective measure(s) and public notice a major permit modification in accordance with 6 NYCRR Part 373 permit modification regulations identified in Module I of this Permit. The major permit modification and a Statement of Basis (SB) discussing the proposed final corrective measure(s) will be issued for public notice together. The modification shall include a schedule for initiating and completing all major technical features and milestones of the corrective measure(s).

13. Modification of the Compliance Schedules.

(a) If at any time the Permittee determines that modification of any Compliance Schedule of this Permit Module is necessary because such schedules cannot be met, the Permittee must:

(i) Notify the Commissioner in writing within fifteen (15) calendar days of such determination; and
(ii) Provide an explanation why the current schedule cannot be met.

(b) The Commissioner shall notify the Permittee in writing of the final decision regarding the Permittee's proposed modification to the Compliance Schedule.

(c) Modifications to the Compliance Schedule for non-specific final compliance dates pursuant to this procedure do not constitute a re-issuance of this Permit. However, any modification to extend a specific final compliance date will be considered a major permit modification and will be processed in accordance with 6 NYCRR Part 373 permit modification regulations identified in Module I of this Permit.

(d) All other modifications to this Permit Module must be made in accordance with Module I of this Permit.

14. Corrective Action Through Post-Closure.

Not applicable at this time.

15. Corrective Action Through Closure.

Not applicable at this time.

16. Corrective Action Through Orders-on-Consent.

Not applicable at this time.

Appendix II-A

Components Required for RCRA Analytical Data Submitted to New York State Department of Environmental Conservation

U.S. Department of Energy
Environmental Management
Separations Process Research Unit
NYR000096859

Niskayuna, New York
Schenectady County

A data deliverables package is to be supplied with all analytical data, as specified in the approved Quality Assurance Project Plan (QAPP) or work plan. Category B or CLP data deliverables, as specified in the latest version of the NYSDEC Analytical Services Protocol (ASP), are required unless otherwise specified in an approved QAPP or work plan. The Category B and CLP data deliverables packages are specified in Exhibit B of the NYSDEC ASP. Copies of the ASP, on CD, are available from the Standards and Analytical Support Section in the Bureau of Water Assessment and Management in the Division of Water. The data package shall be provided to the Department on a CD in ASP format as a PDF or other read only document. In addition, the laboratory must be certified by NYSDOH ELAP for the category and parameters of interest as per 6 NYCRR 370.1(f).

Category B or CLP data deliverables are generally expected for corrective action sampling, characterization groundwater monitoring and closures. For long term groundwater monitoring conducted via a Department-approved plan pursuant to this Module, an abbreviated data package (e.g. Category A or other Department-approved data package) may suffice, with prior Department quality assurance approval, since the variability of the data with time can be used as a quality control check. A facility may request a change to the data deliverables package and may propose modifications to the QAPP accordingly. Modifications to the data deliverables criteria must be approved by the Department prior to implementation.

For Category B and CLP data deliverables, a Data Usability Summary Report (DUSR) must be prepared and submitted per the most recent version of Appendix 2B, Section 2.0 of the Division of Environmental Remediation Guidance document DER-10, "Technical Guidance for Site Investigation and Remediation." Where all applicable elements of the DUSR guidance are addressed by an independent data validation report, the latter may be submitted in lieu of a DUSR. Data evaluation/validation requirements will be defined in individual work plans/QAPPs subject to Department approval. Per DER-10, a data applicability report must be prepared for a Category A (or equivalent) package, in lieu of a DUSR.

In addition to the above, the Permittee shall provide all analytical data generated pursuant to this Permit in the Department-approved Electronic Data Deliverable (EDD) format. The schedule for submittal of EDDs shall be included in plans subject to Department approval. Formatting of EDDs shall be in conformance with Department requirements.

373 Appendix II-B

Scope of Work for a
RCRA Facility Investigation

U.S. Department of Energy
Environmental Management
Separations Process Research Unit
NYR000096859

Niskayuna, New York
Schenectady County

I. INTRODUCTION

The Permittee shall undertake a RCRA Facility Investigation ("RFI") that should include the development of several component plans and supporting reports relevant to the specific investigations to be undertaken pursuant to this Permit. Component plans and reports must be prepared and submitted in accordance with the Compliance Schedules in Module Condition II.E of this Permit Module.

The purpose of this RFI is to characterize the nature, extent, direction, rate, movement, and concentration of releases of hazardous waste and/or constituents from Solid Waste Management Units and Areas of Concern at the facility including areas off-site impacted by the release(s) from the facility and to gather all necessary data to support the Corrective Measures Study. This Appendix is to serve as guidance for conducting an RFI. Therefore, all of the material addressed in this Appendix may not apply to the units or areas to be investigated by the Permittee. The Permittee should consult with Department representatives before beginning the RFI process regarding which Appendix items need to be addressed during the investigations. The Permittee shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RCRA Facility Investigation.

The RFI Scope of Work includes several tasks:

Task I: A report on the Description of Current Conditions.

Task II: A report on the Pre-Investigation Evaluation of Corrective Measures.

Task III: RFI Management Plans including:

A. The Project Management Plan;
B. The Data Management Plan;
C. The Quality Assurance Project Plan;
D. The Health and Safety Plan; and

E. The Community Relations Plan.

Task IV: The Facility Investigation.

Task V: Investigative Analysis.

Task VI: Laboratory, Bench Scale, and Pilot Studies.

Task VII: Reports.

The report on Description of Current Conditions should comprise all available and relevant information and data on the facility's background, SWMU(s) and AOC(s) characterization, nature and extent of contamination, potential receptors, and prevailing corrective action implementation. Data and information gathered during any previous investigations, remediations, or inspections and other relevant data should be included in the submittal. That information and data may then be used to focus subsequent field investigations and development of the respective work plans for the SWMU(s) and AOC(s) to be investigated as part of this Permit. If the Permittee maintains that relevant information and data has been submitted, the Permittee should cite such submittal(s). The Permittee shall refer to Module Condition II.B.5. on addressing prior submittals.

The report on Pre-Investigation Evaluation of Corrective Measures will identify potential technologies that may be considered by the Permittee for subsequent implementation. These alternative technologies will focus the RFI to collect the necessary data for their proper evaluation.

The RFI Management Plans shall provide the necessary information that will assure that the following objectives are met:

- Proper management of all aspects of the RFI project including tracking of project milestones. Schedules and tracking methods shall be established for RFI tasks and report submittals (Project Management Plan);

- Satisfactory presentation of data and results developed by the RFI. Data management procedures shall be established to effectively process data such that relevant data descriptions are readily accessible and accurately maintained (Data Management Plan);

- Generation of valid data during the RFI investigation. QA/QC procedures shall be established to describe and document data quality (Quality Assurance Project Plan);

- Implementation of appropriate health and safety measures during the RFI. Health and safety procedures shall be established to ensure the health and safety of the investigative team(s) and the general public during the RFI (Health and Safety Plan); and

- Provision for informing the community of the results of the RFI (Community Relations Plan).

The Facility Investigation shall focus on procedures and techniques that will be utilized during field investigations to characterize the environmental setting and the contaminant release(s) from the SWMU(s) and AOC(s). Characterization of the environmental setting will be necessary to determine monitoring locations and to aid in defining the boundaries of the contaminated unit(s) and area(s). The Permittee shall characterize each environmental medium, as deemed necessary by the Department, to provide information that can be used to determine the rate and extent of the contaminant release(s). Characterization of the contaminant release(s) from the SWMU(s) and AOC(s) will be necessary to determine the nature, extent, direction, rate, movement and concentration of the contaminant plume(s).

Since a potentially broad spectrum of situations involving information on a specific release(s) may exist at the beginning of the RFI, a flexible, phased approach for the release investigation may be necessary. The Permittee may begin with an evaluation of existing data and propose the collection of additional data as necessary to characterize the release. The Permittee may consider incorporating appropriate screening techniques, i.e., soil gas, geophysical methods, as the initial phase of field investigation for the RFI.

Based on existing data and/or data collected by appropriate screening techniques, the Permittee may develop a conceptual model of the release. This model may then be used to plan and develop subsequent investigations. The Permittee shall then develop work plans for the subsequent investigative program(s), as deemed necessary by the Department, utilizing conventional monitoring techniques capable of release(s) verification and/or characterization.

An Investigative Analysis shall be carried out on the data generated by the Facility Investigation. The analysis shall focus on the quality of data generated and on establishing the nature, extent, direction, rate, movement, and concentration of contamination.

Laboratory and/or Bench Scale Studies shall be performed to assess corrective measure technologies that may be applicable for remediating the SWMU(s), the AOC(s), and the environmental contamination investigated by the Permittee. The information gathered from such studies will assist the Permittee in selecting the alternative technologies for evaluation during the Corrective Measures Study.

Progress reports on the Facility Investigation and Laboratory Bench Scale Studies shall be submitted quarterly in addition to a final RFI Report and Summary Report.

II. TASK I: DESCRIPTION OF CURRENT CONDITIONS

The Permittee shall submit a report for Task I containing available and relevant information and data on the facility's background, SWMU(s), AOC(s), contamination,

receptors, and remediation undertaken pertinent to the specific SWMU(s) and AOC(s) to be investigated as part of this Permit.

A. Facility Background

The Permittee shall summarize the regional location, pertinent boundary features, general facility physiography, geology, hydrogeology, and historical use of the facility for the treatment, storage or disposal of solid and hazardous waste. The information shall include:

1. Map(s) depicting the following:

   (a) General geographic location;

   (b) Property lines, with the owners of all adjacent property clearly indicated;

   (c) Topography and surface drainage depicting all waterways, wetlands, floodplains, water features, drainage patterns, and surface-water containment areas;

   (d) All above and underground tanks, buildings, utilities, paved areas, easements, rights-of-way, and other features;

   (e) All known past and present solid or hazardous waste treatment, storage or disposal areas;

   (f) All process sewers;

   (g) Surrounding land uses (residential, commercial, agricultural, recreational); and

   (h) The locations of all production, withdrawal, and groundwater monitoring wells at the facility and within the vicinity of the facility. These wells shall be clearly labeled and ground and top of casing elevations and construction details included (these elevations and details may be included as an attachment).

All maps shall be consistent with the requirements set forth in 6NYCRR Subpart 373-1.5(a)(2)(xix) and be of sufficient detail and accuracy to locate and report all current and future work performed at the site.

2. A history and description of ownership and operation, solid and hazardous waste generation, treatment, storage and disposal activities at the facility.

3. Approximate dates or periods and description of past product, raw material,

and waste spills; identification of the materials spilled; the amount spilled; the location where spilled; and a description of the response actions conducted (local, state, or federal response units or private parties), including any inspection reports or technical reports generated as a result of the response.

B. SWMU and AOC Characterization

The Permittee shall submit available and relevant information that will characterize the wastes, the SWMU(s) and the AOC(s) where wastes have been placed, collected or removed including: type; quantity; physical state; disposition (containment or nature of deposits); and facility characteristics affecting the release(s) (e.g., facility security, and engineered barriers). The information should include:

1. SWMU and AOC Characteristics:

(a) Location of unit/area (located on facility map);
(b) Type of unit/area;
(c) Design features;
(d) Operating practices (past and present);
(e) Period of operation;
(f) Age of unit/area; and
(g) General physical conditions.

2. Waste Characteristics:

(a) Type of waste placed in the unit/area:

(i) Hazardous classification (e.g., flammable, reactive, corrosive, oxidizing or reducing agent);

(ii) Quantity; and

(iii) Chemical composition (e.g., Resource Conservation and Recovery Act (RCRA) Appendix VIII hazardous constituents).

(b) Physical and chemical characteristics of waste and its constituents:

(i) Physical state (solid, liquid, gas);

(ii) Physical description (e.g., powder, oily sludge);

(iii) Temperature;

(iv) pH;

(v) General chemical class (e.g., acid, base, solvent);

(vi) Molecular weight;

(vii) Density;

(viii) Boiling point;

(ix) Viscosity;

(x) Solubility in water;

(xi) Cohesiveness of the waste;

(xii) Vapor pressure;

(xiii) Flash point; and

(xiv) Other relevant properties.

(c) Migration and dispersal characteristics of the waste constituents and procedures used in making the determination:

(i) Sorption;

(ii) Biodegradability, bioconcentration, biotransformation;

(iii) Photodegradation rates;

(iv) Hydrolysis rates;

(v) Chemical transformations; and

(vi) Volatilization rates.

C. Nature, Extent, Direction, Rate, Movement, and Concentration of Contamination

The Permittee shall submit available and relevant information on the nature, extent, direction, rate, movement, and concentration of the release(s) from the SWMU(s) and the AOC(s). This information and data should include:

1. Summary of available monitoring data and qualitative information on locations and levels of contamination at the facility and within the vicinity of the facility if contamination has migrated off-site.

2. Summary of all potential contaminant migration pathways including available

information on geology, hydrogeology, physiography, hydrology, water quality, meteorology, and air quality.

D. Potential Receptors

The Permittee shall submit available and relevant information describing the human populations and environmental systems that are susceptible to exposure by the contaminant release(s) from the SWMU(s) and the AOC(s). Data on observable effects or bioassays for ecosystems should accompany this submittal if available. The information shall include:

1. Local uses and possible future uses of groundwater:

   (a) Type of use (e.g., drinking water source: municipal or residential, agricultural, domestic/non-potable, and industrial);

   (b) Location of groundwater users including wells and discharge areas (identify on a map); and

   (c) The well(s) pump rate(s) and the well(s) depth(s).

2. Local uses and possible future uses of surface waters draining from the facility:

   (a) Domestic and municipal (e.g. potable and lawn/gardening watering);

   (b) Recreational (e.g. swimming, fishing);

   (c) Agricultural;

   (d) Industrial; and

   (e) Environmental (e.g. fish and wildlife propagation).

3. Human use of or access to the facility and adjacent lands, including, but not limited to:

   (a) Recreation;

   (b) Hunting;

   (c) Residential;

   (d) Commercial;

(e) Zoning; and

(f) Relationship between population locations and prevailing wind direction.

4. A description of the biota in surface water bodies on, adjacent to, or affected by the facility.

5. A description of the ecology overlying and adjacent to the facility.

6. A demographic profile of the people who use or have access to the facility and adjacent land, including, but not limited to, age, sex, and sensitive subgroups.

7. A description of any endangered or threatened species near the facility.

E. Corrective Action Implementation

The Permittee shall submit documentation on corrective measures (remedial measures) undertaken on-site or off-site at the facility. Remedial actions should include any interim corrective measures, RCRA closures, State or Federal Superfund activities. This documentation shall include:

1. Objectives of the remediation and how it is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long-term solution at the facility;

2. Design, construction, operation, and maintenance requirements;

3. Schedules for design, construction, and monitoring; and

4. Schedule for progress reports.

III. TASK II: PRE-INVESTIGATION EVALUATION OF CORRECTIVE MEASURES

The Permittee shall submit a report for Task II that identifies the potential corrective measure technologies that may be used on-site or off-site for the containment, treatment, remediation, and/or disposal of contamination. This report shall also identify any field data that needs to be collected in the facility investigation to facilitate the evaluation and selection of the final corrective measure or measures (e.g., compatibility of waste and construction materials, information to evaluate effectiveness, treatability of wastes, etc.).

IV. TASK III: RFI MANAGEMENT PLANS

The Permittee shall submit RFI Management Plans as part of the RFI Work Plan. The Plans shall address the methods and procedures necessary to manage the RFI, to describe data developed by the RFI, to gather and ensure valid RFI data, to protect the health and

safety of investigators and the general public, and to keep the community informed about the RFI.

A. Project Management Plan

The Permittee shall prepare a Project Management Plan that shall include a discussion of the management approach, schedules, and personnel utilized during the RFI. That Plan shall include a description of qualifications of personnel performing or directing the RFI, including contractor personnel. This Plan shall also document the overall management approach to the RCRA Facility Investigation that will assure adherence to tasks and reporting schedules. The schedule for completing the RFI should reflect the schedules set forth in Module Condition II.E. The schedule shall reflect dates for submittal of various RFI Work Plan components, dates for starting and accomplishing specific tasks associated with the RFI, and dates for reporting information from specific tasks to the Department.

B. Data Management Plan

The Permittee shall prepare a Data Management Plan to document and track investigation data and results. This Plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The Plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

1. Data Record

The data record shall include, but not be limited to the following:

(a) Unique sample or field measurement code;

(b) Sampling or field measurement location and sample or measurement type;

(c) Sampling or field measurement raw data;

(d) Laboratory analysis ID number;

(e) Property or component measured; and

(f) Result of analysis (e.g., concentration).

2. Tabular Displays

The following data shall be presented in tabular displays:

(a) Unsorted (raw) data;

(b) Results for each medium, or for each constituent monitored;

(c) Data reduction for statistical analysis;

(d) Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and

(e) Summary data.

3. Graphical Displays

The following data shall be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.):

(a) Display sampling location and sampling grid;

(b) Indicated boundaries of sampling area, and areas where more data are required;

(c) Display levels of contamination at each sampling location;

(d) Display geographical extent of contamination;

(e) Display contamination levels, averages, and maxima;

(f) Illustrate changes in concentration in relation to distance from the source, time, depth or other parameters; and

(g) Indicate features affecting intramedia transport and show potential receptors.

C. Quality Assurance Project Plan (QAPP)

The Permittee shall prepare a QAPP to document each phase of investigative work and all sampling and monitoring procedures to be implemented during the RFI. The following activities shall be covered in the QAPP: sampling, field measurements and sample analysis performed during the investigations. This Plan shall ensure that all information, data, and resulting decisions are technically sound, statistically valid, and properly documented. The QAPP(s) shall be developed in accordance with the most recent version of EPA SW-846 and the "Uniform Federal Policy for Quality Assurance Project Plans - Evaluating, Assessing and Documenting Environmental Data Collection and Use Programs" (UFP-QAPP). The Permittee may submit the elements required by the UFP QAPP in a modified plan format deemed acceptable by the Department. In addition, preparation of the QAPPs may be supplemented, as

appropriate, by the federal "Technical Enforcement Guidance Document." A summary of the QA/QC elements that shall be in the Plan is found in the subsequent paragraphs.

1. Data Quality Objectives

   The QAPP shall include, but not be limited to the following:

   (a) Description of the intended uses for the data, and the necessary level of precision and accuracy for these intended uses;

   (b) Description of methods and procedures to be used to assess the precision, accuracy and completeness of the measurement data;

   (c) Description of the rationale used to assure that the data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition or an environmental condition; and

   (d) Description of the measures to be taken to assure that data sets can be compared to each other.

2. Sampling and Field Measurements

   The QAPP shall include, but not be limited to the following:

   (a) Sampling and field measurement locations, depths, etc.;

   (b) Collecting all necessary ancillary data;

   (c) Conditions under which sampling and field measurements should be conducted;

   (d) Media to be sampled and addressed by field measurements (e.g., groundwater, air, soil, sediment, etc.);

   (e) Parameters to be measured and where;

   (f) The frequency of sampling and field measurements and length of sampling period;

   (g) The types of samples (e.g., composites vs. grabs) and number of samples to be collected;

   (h) Measures to be taken to prevent contamination of the sampling equipment and cross contamination between sampling points;

(i) Documenting field sampling and measurement operations and procedures, including;

(i) Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters, and adsorbing reagents);

(ii) Procedures and forms for recording raw data and the exact location, time, and specific considerations associated with sample and data acquisition;

(iii) Documentation of specific sample preservation method;

(iv) Calibration of field devices;

(v) Collection of replicate samples and measurements;

(vi) Submission of field-biased blanks, where appropriate;

(vii) Potential interferences present at the facility;

(viii) Construction materials and techniques, associated with monitoring wells and piezometers;

(ix) Field equipment listing and sample containers;

(x) Sampling and field measurement order; and

(xi) Decontamination procedures.

(j) Selecting appropriate sample containers;

(k) Sample preservation; and

(l) Chain-of-Custody, including:

(i) Standardized field tracking reporting forms to establish sample custody in the field prior to and during shipment; and

(ii) Pre-prepared sample labels containing all information necessary for effective sample tracking.

3. Sample Analysis

The QAPP shall include, but not be limited to the following:

(a) Chain-of-custody procedures, including:

(i) Identification of a responsible party to act as sample custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;

(ii) Provision for a laboratory sample custody log consisting of serially numbered standard lab-tracking report sheets; and

(iii) Specification of laboratory sample custody procedures for sample handling, storage, and disbursement for analysis.

(b) Sample storage procedures and storage times;

(c) Sample preparation methods;

(d) Analytical procedures, including:

(i) Scope and application of the procedure;

(ii) Sample matrix;

(iii) Potential interferences;

(iv) Precision and accuracy of the methodology; and

(v) Quantitation limits.

(e) Calibration procedures and frequency;

(f) Data reduction, validation, and reporting;

(g) Internal quality control checks, laboratory performance and systems audits and frequency, including:

(i) Method blank(s);

(ii) Laboratory control sample(s);

(iii) Calibration check sample(s);

(iv) Replicate sample(s);

(v) Matrix-spikes sample(s);

(vi) "Blind" quality control sample(s);

(vii) Control charts;

(viii) Surrogate samples;

(ix) Zero and span gases; and

(x) Reagent quality control checks.

(h) Preventive maintenance procedures and schedules;

(i) Corrective action (for laboratory problems); and

(j) Turnaround time.

D. Health and Safety Plan

The Permittee shall prepare a Health and Safety Plan for the protection of the investigative team(s), workers, and general public which may be exposed to hazards. For non-intrusive work and sampling/monitoring activities for which there is no exposure concern, the Permittee may request that the Department suspend the requirement to submit a Health and Safety Plan for that specific activity. If the Department concurs with the request, the Permittee shall include any necessary health and safety measures within a separate section of the activity's work plan. Department approval of the work plan in no way constitutes approval of any health and safety elements therein.

1. The Health and Safety Plan shall include, but not be limited to the following:

(a) Facility description including availability of resources such as roads, water supply, electricity, and telephone service;

(b) Describe the known hazards and evaluate the risks associated with the incident and with each activity conducted;

(c) List key personnel and alternates responsible for site safety, response operations, and for protection of public health;

(d) Delineate work areas;

(e) Describe levels of protection to be worn by personnel in work areas;

(f) Establish procedures to control site access;

(g) Describe decontamination procedures for personnel and equipment;

(h) Establish site emergency procedures;

(i) Address emergency medical care for injuries and toxicological problems;

(j) Describe requirements for an environmental surveillance program;

(k) Specify any routine and special training required for responders; and

(l) Establish procedures for protecting workers from weather-related problems.

2. The Facility Health and Safety Plan shall be consistent with:

(a) NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985);

(b) EPA Order 1440.1 - Respiratory Protection;

(c) EPA Order 1440.3 - Health and Safety Requirements for Employees engaged in Field Activities;

(d) Facility Contingency Plan;

(e) EPA Standard Operating Safety Guide (1984);

(f) OSHA regulations, particularly in 29 CFR 1910 and 1926;

(g) State, local, and other federal agency (e.g., DOD, DOE) regulations; and

(h) Other EPA guidance as provided.

E. Community Relations Plan

The Permittee shall prepare a plan on disseminating information to the public regarding investigation activities and results. The plan should identify who will be notified and who will receive summary RFI reports.

V. TASK IV: THE FACILITY INVESTIGATION

The Permittee shall submit a work plan that shall address the techniques and procedures necessary to characterize the environmental setting at and within the vicinity of the facility and the media-specific contamination resulting from the release(s) by the SWMU(s) and the AOC(s). The part of the work plan that addresses field sampling and measurement activities shall meet the sampling plan requirements stipulated in the "Uniform Federal Policy for Quality Assurance Project Plans - Evaluating, Assessing and Documenting Environmental Data Collection and Use Programs," with supplementation, as deemed appropriate, by the federal "Technical Enforcement Guidance Document." The Permittee may submit the elements required by the UFP QAPP in a modified plan format deemed acceptable by the Department.

A. Environmental Setting

The Permittee shall submit an appropriate plan for collecting information to supplement existing information on the environmental setting at the facility and in the vicinity of the facility. Sufficient information shall be collected by the Permittee to characterize only those environmental media impacted by the release(s) from the SWMU(s) and the AOC(s):

1. Hydrogeology

The Permittee shall conduct a program to characterize the hydrogeologic conditions at the facility and the off-site areas where contamination has migrated. The program shall provide relevant information on geology and hydrogeology that should include, but not be limited to the following facts:

(a) A description of the regional and facility specific geologic and hydrogeologic characteristics which affect groundwater flow both beneath and within the vicinity of the facility, including:

(i) Regional and facility specific geomorphology and stratigraphy: description of strata including strike and dip, identification of stratigraphic contacts;

(ii) Structural geology: description of local and regional structural features (e.g., folds, faults, joints, and fractures);

(iii) Identification and characterization of areas and amounts of recharge and discharge;

(iv) Regional and facility specific groundwater flow patterns; and

(v) Characterize seasonal variations in the groundwater flow regime.

(b) An analysis of any topographic features that might influence the groundwater flow system.

(c) Based on field data, tests, and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways (i.e., the aquifers and any intervening saturated and unsaturated units), including:

(i) Hydraulic conductivity and porosity (total and effective);

(ii) Lithology, grain size, sorting, degree of cementation;

(iii) An interpretation of hydraulic interconnections between saturated zones; and

(iv) The attenuation capacity and mechanisms of the natural earth materials (e.g., ion exchange capacity, organic carbon content, mineral content etc.).

(d) Based on field studies and cores, structural geology and hydrogeologic cross sections, a description of the extent (depth, thickness, lateral extent) of hydrogeologic units which may be part of the migration pathways, including:

(i) Sand and gravel deposits in unconsolidated deposits;

(ii) Zones of fracturing or channeling in consolidated or unconsolidated deposits;

(iii) Zones of higher permeability or low permeability that might direct and restrict the flow of contaminants;

(iv) The uppermost aquifer: geologic formation, group of formations, or part of a formation capable of yielding a significant amount of groundwater to wells or springs; and

(v) Water-bearing zones above the first confining layer that may serve as a pathway for contaminant migration including perched zones of saturation.

(e) Based on data obtained from groundwater monitoring wells and piezometers installed upgradient and downgradient of the potential

contaminant source, a representative description of water level or fluid pressure monitoring including:

(i) Water-level contour and/or potentiometric maps;

(ii) Hydrologic cross sections showing vertical gradients;

(iii) The flow system, including the vertical and horizontal components of flow; and

(iv) Any temporal changes in hydraulic gradients, for example, due to tidal or seasonal influences.

(f) A description of man-made influences that may affect the hydrogeology, identifying:

(i) Active and inactive local water-supply and production wells with an approximate schedule of pumping; and

(ii) Man-made hydraulic structures (sewers, pipelines, French drains, ditches, unlined ponds, septic tanks, outfalls, retention areas, etc.).

2. Soils

The Permittee shall conduct a program to characterize the soil and rock units above the water table in the vicinity of the contaminant release(s). The program shall provide relevant information on soil characterization that should include, but not be limited to the following facts:

(a) USCS soil classification;
(b) Surface soil distribution;
(c) Soil profile, including ASTM classification of soils;
(d) Transects of soil stratigraphy;
(e) Hydraulic conductivity (saturated and unsaturated);
(f) Relative permeability;
(g) Bulk density;
(h) Porosity;
(i) Soil sorptive capacity;
(j) Cation exchange capacity (CEC);
(k) Soil organic content;
(l) Soil pH;
(m) Particle size distribution;
(n) Depth of water table;
(o) Moisture content;
(p) Effect of stratification on unsaturated flow;

(q) Infiltration;
(r) Evapotranspiration;
(s) Storage capacity; and
(t) Mineral content.

3. Surface Water and Sediment

The Permittee shall conduct a program to characterize the surface-water bodies in the vicinity of the contaminant release(s). The program shall provide relevant information on surface water and sediment characterization that should include, but not be limited to the following facts:

(a) Description of the temporal and permanent surface-water bodies including:

(i) For lakes and estuaries: location, elevation, surface area, inflow-outflow characteristics, depth, temperature stratification, and volume;

(ii) For impoundments: location, elevation, surface area, depth, volume, inflow-outflow characteristics, freeboard, and purpose of impoundment;

(iii) For rivers, streams, ditches, drains, swamps, and channels: location, elevation, flow, velocity, depth, width, inflow-outflow characteristics, seasonal fluctuations, and flooding tendencies (i.e., 100-year event);

(iv) Drainage patterns; and

(v) Evapotranspiration.

(b) Description of the chemistry of surface water. This includes determining the pH, total dissolved solids, total suspended solids, biological oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients (NH_3, NO_3^-/NO_2, PO_4^{-3}), chemical oxygen demand, total organic carbon, and specific contaminant concentrations.

(c) Description of sediment characteristics including:

(i) Deposition area;

(ii) Thickness profile; and

(iii) Physical and chemical parameters (e.g., grain size, density, organic carbon content, ion exchange capacity, and pH).

4. Air

The Permittee shall conduct a program to characterize the climate at the facility and in the vicinity of the facility when contamination migrates off-site. The program shall provide relevant information on climatic conditions that should include, but not be limited to the following facts:

(a) A description of the following parameters:

(i) Annual and monthly rainfall averages;

(ii) Monthly temperature averages and extremes;

(iii) Wind speed and direction;

(iv) Relative humidity/dew point;

(v) Atmospheric pressure;

(vi) Evaporation data;

(vii) Development of inversions; and

(viii) Climate extremes that have been known to occur in the vicinity of the facility, including frequency of occurrence.

(b) A description of topographic and man-made features which affect air flow and emission patterns, including:

(i) Ridges, hills, or mountain areas;

(ii) Canyons or valleys;

(iii) Surface-water bodies (e.g., rivers, lakes, bays, etc.);

(iv) Wind breaks and forests;

(v) Buildings; and

(vi) Existing man-made air emission sources (e.g., industrial processes, residences, etc.).

B. Contamination Characterization Plan

The Permittee shall submit a work plan on collecting analytical data to supplement existing data on groundwater, soils, surface water, sediment, air, and subsurface gas contamination. This data shall be sufficient to define the nature, extent, origin, direction, and rate of movement of contaminant plume(s) in the environmental medium impacted by the release(s) from the SWMU(s) and AOC(s).

1. Groundwater Contamination

The Permittee shall conduct a program to characterize any plume(s) of contamination at the facility and any plume(s) that have migrated off-site. The program shall provide relevant information on groundwater contamination that should include, but not be limited to the following facts:

(a) A description of the horizontal and vertical extent of any immiscible or dissolved plume(s);

(b) The horizontal and vertical direction of contamination movement;

(c) The velocity of contaminant movement;

(d) The horizontal and vertical concentration profiles of contaminant constituents in the plume(s);

(e) An evaluation of factors influencing the plume movement, specific contaminant movement, and specific contaminant transformation (e.g., physical, chemical, biological, etc.); and

(f) An extrapolation of future contaminant movement.

2. Soil Contamination

The Permittee shall conduct a program to characterize the contamination of the soil and rock units above the water table in the vicinity of the contaminant release(s). The program shall provide relevant information on soil contamination that should include, but not be limited to the following facts:

(a) A description of the vertical and horizontal extent of contamination.

(b) A description of relevant contaminant chemical properties within the contaminant source area and plume. This includes contaminant solubility, speciation, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation, and other factors that might affect contaminant migration and transformation.

(c) Specific contaminant concentrations.

(d) The velocity and direction of contaminant movement.

(e) An extrapolation of future contaminant movement.

3. Surface-Water and Sediment Contamination

The Permittee shall conduct a program to characterize the contamination in surface-water bodies resulting from the contaminant release(s) at the facility. The program shall provide relevant information on surface water and sediment contamination that shall include, but not be limited to the following facts:

(a) A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the facility, and the extent of contamination in underlying sediments;

(b) The horizontal and vertical direction of contaminant movement;

(c) The contaminant velocity;

(d) An evaluation of the physical, biological, and chemical factors influencing contaminant movement;

(e) An extrapolation of future contaminant movement; and

(f) The toxicity of the sediment and adjacent water column to aquatic life.

4. Air Contamination

The Permittee shall conduct a program to characterize the particulate and gaseous contaminants released into the atmosphere. The program shall provide relevant information on air emissions that should include, but not be limited to the following facts:

(a) A description of the horizontal and vertical direction and velocity of contaminant movement;

(b) The rate and amount of the release; and

(c) The chemical and physical composition of the contaminant(s) released, including horizontal and vertical concentration profiles.

5. Subsurface Gas Contamination

The Permittee shall conduct a program to characterize subsurface gas contamination in the soil. The program shall provide relevant information on subsurface gas contamination that should include, but not be limited to the following facts:

(a) A description of the horizontal and vertical extent of subsurface gas migration;

(b) The chemical composition of the gases being emitted;

(c) The rate, amount, and density of the gases being emitted; and

(d) Horizontal and vertical concentration profiles of the subsurface gases emitted.

(e) Effect on indoor air quality, if any, is anticipated.

VI. TASK V: INVESTIGATION ANALYSIS

The Permittee shall prepare an analysis and summary of all facility investigations and their results. The objective of this task shall be to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature, rate, and extent of contamination, potential threat to human health and/or the environment, and to support the Corrective Measures Study.

A. Data Analysis

The Permittee shall analyze all facility investigation data outlined in Task IV and prepare a report on the nature, rate, and extent of contamination at the facility including sources and migration pathways. The report shall describe the nature and extent of contamination (qualitative/ quantitative) in relation to background levels indicative for the area.

B. Protection Standards

The Permittee shall identify all relevant and applicable standards and action levels (e.g., health-based guidance values) for the protection of human health and the environment.

VII. TASK VI: LABORATORY AND BENCH SCALE STUDIES

The Permittee shall conduct laboratory and/or bench scale studies to determine the applicability of a corrective measure technology or technologies to facility conditions. The Permittee shall analyze the technologies, based on literature review, vendor

contracts, and past experience to determine the testing requirements.

The Permittee shall develop a testing plan identifying the type(s) and goal(s) of the study(s), the level of effort needed, and the procedures to be used for data management and interpretation.

Upon completion of the testing, the Permittee shall evaluate the testing results to assess the technology or technologies with respect to the site-specific questions identified in the test plan.

The Permittee shall prepare a report summarizing the testing program and its results, both positive and negative.

VIII. TASK VII: REPORTS

A. Progress Reports

The Permittee shall provide signed progress reports as required by Condition B.7.(a) of Module II of this Permit.

B. Draft and Final Reports

The Permittee shall prepare a RCRA Facility Investigation ("RFI") Report as required by Condition E.6. of Module II of this Permit. The RFI Report shall present all information gathered under the approved RFI Work Plan.

373 Appendix II-C

Scope of Work for a Corrective Measure Study

U.S. Department of Energy
Environmental Management
Separations Process Research Unit
NYR000096859

Niskayuna, New York
Schenectady County

I. PURPOSE

The purpose of the Corrective Measure Study (CMS) is to develop and evaluate the corrective action alternative or alternatives and to recommend the corrective measure or measures to be taken. This Appendix serves as guidance for developing a CMS and much of its content may not be applicable, especially when developing a focused CMS addressing a presumptive remedy. Permittee should consult with Department representatives before beginning the CMS process regarding which items need to be addressed during the study. The Permittee will furnish the personnel, materials, and services necessary to prepare the corrective measure study, except as otherwise specified.

II. SCOPE

The Corrective Measure Study consists of four tasks:

Task I: Identification and Development of the Corrective Measure Alternative or Alternatives

A. Description of Current Situation
B. Establishment of Corrective Action Objectives
C. Screening of Corrective Measures Technologies
D. Identification of the Corrective Measure Alternative or Alternatives

Task II: Evaluation of the Corrective Measure Alternative or Alternatives

A. Technical/Environmental/Human Health/Institutional
B. Cost Estimate

Task III: Justification and Recommendation of the Corrective Measure or Measures

A. Technical
B. Human Health
C. Environmental

Task IV: Reports

A. Progress
B. Final

III. TASK I: IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE ACTION ALTERNATIVE OR ALTERNATIVES

Based on the results of the RCRA Facility Investigation and consideration of the identified Preliminary Corrective Measure Technologies (Task II of Appendix II-B), the Permittee shall identify, screen, and develop the alternative or alternatives for removal, containment, treatment and/or other remediation of the contamination based on the objectives established for the corrective action.

A. Description of Current Situation

The Permittee shall submit an update to the information describing the current situation at the facility and the known nature and extent of the contamination as documented by the RCRA Facility Investigation Report. The Permittee shall provide an update to information presented in Task I of the RFI to the Commissioner regarding previous response activities and any interim measures which have or are being implemented at the facility. The Permittee shall also make a facility-specific statement of the purpose for the response, based on the results of the RCRA Facility Investigation ("RFI"). The statement of purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.

B. Establishment of Corrective Action Objectives

The Permittee, in conjunction with the Department, shall establish site specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RFI, EPA and New York State guidance, and the requirements of any applicable federal and state statutes. At a minimum, all corrective actions concerning groundwater releases from regulated units must be consistent with, and as stringent as, those required under 6 NYCRR 373-2.6.

C. Screening of Corrective Measure Technologies

The Permittee shall review the results of the RFI and reassess the technologies specified in Task II and identify additional technologies which are applicable at the facility. The Permittee shall screen the preliminary corrective measure technologies identified in Task II of the RFI and any supplemental technologies to eliminate those that may prove infeasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the corrective measure objective within a reasonable time period. This screening process focuses on eliminating those technologies which have severe limitations for a given set of waste and site-specific conditions. The screening step may also eliminate technologies based on inherent technology limitations. Site, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

1. Site Characteristics

   Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by site characteristics should be eliminated from further consideration;

2. Waste Characteristics

   Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by these waste characteristics should be eliminated from consideration. Waste characteristics particularly affect the feasibility of in-situ methods, direct treatment methods, and land disposal (on/off-site); and

3. Technology Limitations

   During the screening process, the level of technology development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to a point where they can be implemented in the field without extensive technology transfer or development.

D. <u>Identification of the Corrective Measure Alternative or Alternatives</u>

The Permittee shall develop the corrective measure alternative or alternatives based on the corrective action objectives and analysis of the Preliminary Corrective Measure Technologies, as presented in Task II of the RFI and as supplemented following the preparation of the RFI Final Report. The Permittee shall rely on

engineering practice to determine which of the previously identified technologies appear most suitable. Technologies can be combined to form the overall corrective action alternative or alternatives. The alternative or alternatives developed should represent a workable number of option(s) that each appears to adequately address all problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. The Permittee shall document the reasons for excluding technologies, identified in Task II, as supplemented in the development of the alternative or alternatives.

IV. TASK II: EVALUATION OF THE CORRECTIVE MEASURE ALTERNATIVE OR ALTERNATIVES

The Permittee shall describe each corrective measure alternative that passes through the Initial Screening in Task I of Appendix II-C and evaluate each corrective measure alternative and its components. The evaluation shall be based on technical, environmental, human health and institutional concerns. The Permittee shall also develop cost estimates for each corrective measure.

A. Technical/Environmental/Human Health/Institutional

The Permittee shall provide a description of each corrective measure alternative which includes, but is not limited to, the following: preliminary process flow sheets; preliminary sizing and type of construction for buildings and structures; and rough quantities of utilities required. The Permittee shall evaluate each alternative in the four following areas:

1. Technical

The Permittee shall evaluate each corrective measure alternative based on performance, reliability, implementability and safety.

(a) The Permittee shall evaluate performance based on the effectiveness and useful life of the corrective measure:

(i) Effectiveness shall be evaluated in terms of the ability to perform intended functions, such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics which could potentially impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and

(ii) Useful life is defined as the length of time the level of effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. Resource availability in the future life of the technology, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.

(b) The Permittee shall provide information on the reliability of each corrective measure including their operation and maintenance requirements and their demonstrated reliability:

(i) Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straight forward operation and maintenance. The availability of labor and materials to meet these requirements shall also be considered; and

(ii) Demonstrated and expected reliability is a way of measuring the risk and effect of failure. The Permittee should evaluate whether the technologies have been used effectively under analogous conditions; whether the combination of technologies have been used together effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes.

(c) The Permittee shall describe the implementability of each corrective measure including the relative ease of installation (constructability) and the time required to achieve a given level of response:

(i) Constructability is determined by conditions both internal and external to the facility conditions and includes such items as location of underground utilities, depth of water table, heterogeneity of subsurface materials, and location of

the facility (i.e., remote location vs. a congested urban area). The Permittee shall evaluate what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities; and

(ii) Time has two components that shall be addressed: (1) the time it takes to implement a corrective measure; and (2) the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.

(d) The Permittee shall evaluate each corrective measure alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well as those to workers during implementation. Among the factors to consider are fire, explosion, and exposure to hazardous substances.

2. Environmental

The Permittee shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on the facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include, at a minimum, an evaluation of the short and long term beneficial and adverse effects of the response alternative; any adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse effects.

3. Human Health

The Permittee shall assess each alternative in terms of the extent to which it mitigates short- and long-term potential exposure to any residual contamination and protects human health both during and after implementation of the corrective measure. The assessment will describe the levels and characterizations of contaminants on-site, potential exposure routes, and potentially affected populations. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines.

4. Institutional

The Permittee shall assess relevant institutional needs for each alternative. Specifically, the effects of Federal, State, and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative.

B. Cost Estimate

The Permittee shall develop an estimate of the cost of each corrective measure alternative (and for each phase or segment of the alternative). The cost estimate shall include capital, operation, and maintenance costs.

1. Capital costs consist of direct (construction) and indirect (non-construction and overhead) costs.

(a) Direct capital costs include:

(i) Construction costs: Costs of materials, labor (including fringe benefits and worker's compensation), and equipment required to install the corrective measure;

(ii) Equipment costs: Costs of treatment, containment, disposal and/or service equipment necessary to implement the action; these materials remain until the corrective action is complete;

(iii) Land and site-development costs: Expenses associated with purchase of land and development of existing property; and

(iv) Buildings and services costs: Costs of process and non-process buildings, utility connections, purchased services, and disposal costs.

(b) Indirect capital costs include:

(i) Engineering expenses: Costs of administration, design, construction supervision, drafting, and testing of corrective measure alternatives;

(ii) Legal fees and license or permit costs: Administrative and technical costs necessary to obtain licenses and permits for installation and operation;

(iii) Startup and shakedown costs: Costs incurred during corrective measure startup; and

(iv) Contingency allowances: Funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strikes, and inadequate facility characterization.

2. Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure. The Permittee shall consider the following operation and maintenance cost components;

(a) Operating labor costs: Wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operations;

(b) Maintenance materials and labor costs: Costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;

(c) Auxiliary materials and energy: Costs of such items as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;

(d) Purchased services: Sampling costs, laboratory fees, and professional fees for which the need can be predicted;

(e) Disposal and treatment costs: Costs of transporting, treating, and disposing of waste materials, such as treatment plant residues generated during operations;

(f) Administrative costs: Costs associated with administration of corrective measure operation and maintenance not included under other categories;

(g) Insurance, taxes, and licensing costs: Costs of such items as liability and sudden accidental insurance; real estate taxes on purchased land or rights-of-way; licensing fees for certain technologies; and permit renewal and reporting costs;

(h) Maintenance reserve and contingency funds: Annual payments into escrow funds to cover (1) costs of anticipated replacement or rebuilding of equipment and (2) any large unanticipated operation and maintenance costs; and

(i) Other costs: Items that do not fit any of the above categories.

V. TASK III: JUSTIFICATION AND RECOMMENDATION OF THE CORRECTIVE MEASURE OR MEASURES

The Permittee shall justify and recommend a corrective measure alternative using technical, human health, and environmental criteria. This recommendation shall include summary tables which allow the alternative or alternatives to be understood easily. Tradeoffs among health risks, environmental effects, and other pertinent factors shall be highlighted. The Commissioner will select the corrective measure alternative or alternatives to be implemented based on the results of Tasks II and III of Appendix II-C. At a minimum, the following criteria will be used to justify the final corrective measure or measures.

A. Technical

1. Performance - corrective measure or measures which are most effective at performing their intended functions and maintaining the performance over extended periods of time will be given preference;

2. Reliability - corrective measure or measures which do not require frequent or complex operation and maintenance activities and that have proven effective under waste and facility conditions similar to those anticipated will be given preference;

3. Implementability - corrective measure or measures which can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and

4. Safety - corrective measure or measures which pose the least threat to the safety of nearby residents and environments as well as workers during implementation will be preferred.

B. Human Health

The corrective measure or measures must comply with existing EPA and/or State criteria, standards, or guidelines for the protection of human health. Corrective measures which provide the minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.

C. Environmental

The corrective measure or measures posing the least adverse impact (or greatest improvement) over the shortest period of time on the environment will be favored.

VI. TASK IV: REPORTS

A. Progress Reports

The Permittee shall provide the Commissioner with signed progress reports as required by Condition B.7.(a) of Module II of this Permit.

B. Corrective Measures Study ("CMS") Final Report

The Permittee shall prepare a CMS Final Report as required by Condition E.10. of Module II of this Permit. The CMS Final Report shall include all information gathered under the approved CMS Work Plan. The CMS Final Report shall at a minimum include:

1. A description of the facility;

    (a) Site topographic map and preliminary layouts.

2. A summary of the corrective measure or measures;

    (a) Description of the corrective measure or measures and rationale for selection;

    (b) Performance expectations;

    (c) Preliminary design criteria and rationale;

    (d) General operation and maintenance requirements; and

    (e) Long-term monitoring requirements.

3. A summary of the RCRA Facility Investigation and impact on the selected corrective measure or measures;

    (a) Field studies (groundwater, surface-water, soil, air); and

    (b) Laboratory studies (bench scale, pilot scale).

4. Design and Implementation Precautions;

(a) Special technical problems;

(b) Additional engineering data required;

(c) Permits and regulatory requirements;

(d) Access, easements, right-of-way;

(e) Health and safety requirements; and

(f) Community relations activities.

5. Cost Estimates and Schedules;

(a) Capital cost estimate;

(b) Operation and maintenance cost estimate; and

(c) Project schedule (design, construction, operation).

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PART 373 PERMIT
MODULE III - STORAGE IN CONTAINERS

US Department of Energy
Environmental Management
Separations Process Research Unit
NYR000096859

Niskayuna, New York
Schenectady County

A. AUTHORIZED STORAGE AREA, WASTE TYPES AND STORAGE VOLUME.

The Permittee may operate the following container storage areas at the facility and store the following wastes in containers in these areas up to the volumes listed, subject to the terms of this Permit:

UNIT	WASTE TYPE	TYPICAL CONTAINER VOLUME (1)	TOTAL VOLUME CAPACITY OF WASTE MANAGEMENT UNIT
TAA-003 (MTRU)	D007, D008, D009 and D011	(2)	24,600 gallons

Notes:

(1) All wastes managed are mixed transuranic wastes (MTRU).
(2) Larger containers than those listed below may also be placed in the units, provided that the requirements of 6 NYCRR Part 373-2.9(f)(1)(iii) are met.
(3) Typical container volumes for wastes in this unit include < 1 gallon to 30- and 55-gallon drums, to 85-gallon overpack/salvage drums, to 673-gallon waste boxes (46 in x 72 in x 47 in). All containers will be placed in 4 Conex boxes (see Attachment D, Figure D1 for layout).

The total container storage capacity for hazardous and mixed waste is 24,600 gallons. The hazardous and mixed waste storage location is TAA-003 (MTRU).

The Permittee must comply with 6NYCRR 373-2.9 as cited below and with the portions of the Permit Application incorporated by reference into this Permit. The Permittee is authorized to store only the hazardous wastes/mixed wastes identified in Attachment C of the Approved Part 373 Permit Application which are generated at the Permittee's facility.

B. CONDITION OF CONTAINERS – 6 NYCRR 373-2.9(b)

If a container holding hazardous/mixed waste is not in good condition (e.g., severe rusting, apparent structural defects, deterioration of liner) or if it begins to leak, the Permittee shall transfer the hazardous/mixed waste from such container to a container that is in good condition or otherwise manage the waste in compliance with the conditions of this Permit. Each such occurrence shall be recorded in the inspection log and maintained as part of the operating record required by Module I, Condition D.5.(c) and Subpart 373-2.5(c). If any leaking container threatens human health or the environment, the Permittee must immediately report the situation as specified in Module I, Condition G., (i.e., Oral Reports).

C. COMPATIBILITY OF WASTE WITH CONTAINERS – 6 NYCRR 373-2.9(c)

The Permittee must use a container made of or lined with materials which will not react with, and is otherwise compatible with, the hazardous/mixed waste to be stored, so that the ability of the container to contain the waste is not impaired and in accordance with the Permit Application.

D. MANAGEMENT OF CONTAINERS – 6 NYCRR 373-2.9(d)

(1) A container holding hazardous/mixed waste must always be closed during storage, except when it is necessary to add or remove waste.

(2) A container holding hazardous/mixed waste must not be opened, handled, or stored in a manner which may rupture the container or cause it to leak.

(3) Containers holding hazardous/mixed waste must be marked with the words "Hazardous Waste" and with other words identifying their contents. Such containers must be stored in a clearly designated area separate from nonhazardous wastes and other materials. All material stored in an area designated for Hazardous Waste will be subject to all the terms and conditions of this permit. These terms and conditions include all the applicable container management attributes found in the permit (e.g. storage volume, condition of containers, compatibility of waste with containers, management of containers, special requirements for incompatible waste, inspections).

E. INSPECTIONS – 6 NYCRR 373-2.9(e)

The Permittee must comply with the Inspection Plan outlined in Permit Application Attachment F which requires that TAA-003 is inspected quarterly, or as otherwise required in Table F-1 of said plan, for spills, leaks, and general facility conditions. Loading and unloading areas must be inspected daily when in use (373-2.2(g)(2)(iv)). The Permittee must maintain adequate aisle space in accordance with Attachment F of the Approved Part 373 Permit Application, to allow trained personnel to inspect and/or label any stored container as required by 6 NYCRR 373-2.9(e), and, in emergency situations, to allow for unobstructed access to deploy fire protection, spill control, and decontamination equipment as required by 6 NYCRR 373-2.3(f).

F. CONTAINMENT – 6 NYCRR 373-2.9(f)

The Permittee shall construct and maintain the containment systems in accordance with the requirements of 6 NYCRR 373-2.9(f), as specified in Attachment D of the Permit Application.

In addition to the inspections required by Condition E. of this Module, the Permittee shall, upon request by the Department, have all container secondary containment systems inspected by an independent, qualified, professional engineer registered in New York State, or alternatively, by an independent, qualified inspector working under a registered New York State professional engineer in accordance with 6 NYCRR 373-1.4(a)(5). After inspection, the engineer/inspector shall prepare a detailed report which specifies the nature and content of the inspection, observations made, details of any defects found, and any repairs made. The assessment and report shall be completed and submitted within 30 and 60 days, respectively, of Department request, unless otherwise approved by the Department.

G. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE – 6 NYCRR 373-2.9(g)

The Permittee shall not locate containers holding ignitable or reactive waste within fifteen (15) meters (50 feet) of the facility's property line.

H. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTE - 6 NYCRR 373-2.9(h)

(1) The Permittee shall not place incompatible wastes or incompatible wastes and materials in the same container.

(2) The Permittee shall not place hazardous/mixed waste in an unwashed container that previously held an incompatible waste or material.

(3) A container holding a hazardous/mixed waste that is incompatible with any waste or other material stored nearby in other containers, piles, open tanks, or surface impoundments must be separated from those other materials or protected from them by means of a dike, berm, wall, or other device.

I. CLOSURE – 6 NYCRR 373-2.9(i)

At closure, all hazardous/mixed waste and hazardous/mixed waste residues must be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous/mixed waste or hazardous/mixed waste residues must be decontaminated or removed. The Permittee must comply with the Closure Plan, described in Attachment I, incorporated into this Permit pursuant to Module I.

J. AIR EMISSION STANDARDS – 6 NYCRR 373-2.9(j)

The owner or operator shall manage all hazardous/mixed waste placed in a container in accordance with the applicable requirements of sections 373-2.27, 373-2.28 and 373-2.29 of this Subpart, with special attention to paragraphs: (a); (c); (d) and (g) through (k) of 373-2.29 of this Subpart.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PART 373 PERMIT
MODULE XIII – SCHEDULED DATES/SCHEDULE DATE REQUIREMENTS

US Department of Energy
Environmental Management
Separations Process Research Unit
NYR000096859

Niskayuna, New York
Schenectady County

A. COMPLIANCE SCHEDULE

The Permittee must complete the following activities within the scheduled timeframes indicated in the following table in accordance with 6 NYCRR 373-1.6(d):

Item No.	Item	Requirement	Compliance Date[1]
1.	N/A	N/A	N/A

Footnotes:
1. The Permittee must comply with the reporting requirements of 6 NYCRR 373-1.6(d)(1)(iii) for each interim date and the final compliance date.

B. SCHEDULE OF DELIVERABLES

The Permittee must complete the activities indicated in the following table within the scheduled timeframes from the effective date of the Permit:

Item No.	Item	Requirement	Due Date[1]
1.	N/A	N/A	N/A

Footnotes:
1. Deliverable Date changes may be made with written approval from the Department.

C. ROUTINE REPORTING

The Permittee must submit the following routine reports to the Department by the indicated due date in accordance with the requirements of this Permit (Note: the table below is intended to serve as a guide for certain routine reporting required by this Permit. However, the Permittee is still obligated to comply with all applicable regulations cited in this Permit and all conditions and requirements contained in the Modules, Attachments and documents incorporated by reference into this Permit, regardless of whether they are or are not listed in the table below.):

Item No.	Item	Frequency	Due Date[1]	Requirement
1.	Hazardous Waste Manifest Reporting	On-going	10 days of receipt	6 NYCRR 373-2.5(b)(1)(i)
2.	Unmanifested Waste Report	On-going	Within 10 days of waste receipt	6 NYCRR 373-2.5(b)(2) and (3), and 373-2.5(f)
3.	Annual Report	Annually	March 1	6 NYCRR 373-2.5(e)
4.	Annual Update (in lieu of STP)	Annually	March 1	Module I, Condition E
5.	Hazardous Waste Reduction Plan Update	Annually	July 1	ECL 27-0908 and Module I, Condition I
6.	SWMU/AOC Current Conditions Report	As requested	Submit report within 30 days of request	Module II, Condition B.10.
7.	Containers Secondary Containment Assessment Report	As requested	Complete all assessments within 30 days of request; submit report within 60 days of request	Module III, Condition F

Footnotes:
1. Reporting Date changes may be made with written approval from the Department.

ATTACHMENT A – RCRA PART A APPLICATION

In accordance with the regulatory requirements set forth by the Resource Conservation and Recovery Act (RCRA), Attachment A encompasses Part A Permit Application (EPA form 8700-12, 8700-13 A/B, 8700-23), consisting of both the RCRA Subtitle C Site Identification Form and the RCRA Hazardous Waste Part A Permit Application, along with maps, drawings, and photographs, as required by 40 CFR 270.13.

United States Environmental Protection Agency
RCRA SUBTITLE C SITE IDENTIFICATION FORM

1. Reason for Submittal (Select only one.)

☐	Obtaining or updating an EPA ID number for on-going regulated activities (Items 10-17 below) that will continue for a period of time.
☐	Submitting as a component of the Hazardous Waste Report for _____ (Reporting Year)
	☐ Site was a TSD facility, a reverse distributor, and/or generator of ≥ 1,000 kg of non-acute hazardous waste, > 1 kg of acute hazardous waste, or > 100 kg of acute hazardous waste spill cleanup in **one or more months of the reporting year** (or State equivalent LQG regulations)
☐	Notifying that regulated activity is no longer occurring at this Site
☐	Obtaining or updating an EPA ID number for conducting Electronic Manifest Broker activities
☑	Submitting a new or revised Part A (permit) Form

2. Site EPA ID Number

N	Y	R	0	0	0	0	9	6	8	5	9

3. Site Name

DOE SPRU Field Office

4. Site Location Address

Street Address	**2425 River Road**				
City, Town, or Village	**Niskayuna**			County	**Schenectady**
State	**New York**	Country	**USA**	Zip Code	**12309-7100**
Latitude	**42° 49' 32" North**	Longitude	**73° 52' 0" West**	☐ Use Lat/Long as Primary Address	

5. Site Mailing Address ☑ Same as Location Street Address

Street Address		
City, Town, or Village		
State	Country	Zip Code

6. Site Land Type

☐ Private ☐ County ☐ District ☑ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

7. North American Industry Classification System (NAICS) Code(s) for the Site (at least 5-digit codes)

A. (Primary) **562910**	C.
B.	D.

8. Site Contact Information

☑ Same as Location Address

First Name **Martin**	MI **P**	Last Name **Krentz**
Title **Federal Project Director**		
Street Address **2425 River Road**		
City, Town, or Village **Niskayuna**		
State **New York**	Country **Schenectady**	Zip Code **12309-7100**
Email **martin.krentz@emcbc.doe.gov**		
Phone **518-395-4580**	Ext	Fax **518-395-7403**

9. Legal Owner and Operator of the Site

A. Name of Site's Legal Owner

☐ Same as Location Address

Full Name **USDOE as administered by DOE-EM**	Date Became Owner (mm/dd/yyyy) **5/10/1949**

Owner Type

☐ Private ☐ County ☐ District ☑ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

Street Address **Department of Energy EMCBC, 550 Main Street, Room 7-010**		
City, Town, or Village **Cincinnati**		
State **Ohio**	Country **USA**	Zip Code **45202**
Email **jack.zimmerman@emcbc.doe.gov**		
Phone **513-246-0500**	Ext	Fax **513-246-0526**
Comments **Date became Owner: USDOE, 05/10/1949** **Date became Owner: USDOE-EM, 05/01/2004**		

B. Name of Site's Legal Operator

☐ Same as Location Address

Full Name **North Wind Solutions, LLC**	Date Became Operator (mm/dd/yyyy)

Operator Type

☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

Street Address **1425 Higham Street**		
City, Town, or Village **Idaho Falls**		
State **Idaho**	Country **USA**	Zip Code **83402-1513**
Email **jbukowski@northwindgrp.com**		
Phone **208-521-9143**	Ext	Fax **208-557-7905**
Comments		

10. Type of Regulated Waste Activity (at your site)

Mark "Yes" or "No" for all current activities (as of the date submitting the form); complete any additional boxes as instructed.

A. Hazardous Waste Activities

☑ Y ☐ N	1. Generator of Hazardous Waste—If "Yes", mark only one of the following—a, b, c	
☐	a. LQG	-Generates, in any calendar month, 1,000 kg/mo (2,200 lb/mo) or more of non-acute hazardous waste (includes quantities imported by importer site); or - Generates, in any calendar month, or accumulates at any time, more than 1 kg/mo (2.2 lb/mo) of acute hazardous waste; or - Generates, in any calendar month or accumulates at any time, more than 100 kg/mo (220 lb/mo) of acute hazardous spill cleanup material.
☑	b. SQG	100 to 1,000 kg/mo (220-2,200 lb/mo) of non-acute hazardous waste and no more than 1 kg (2.2 lb) of acute hazardous waste and no more than 100 kg (220 lb) of any acute hazardous spill cleanup material.
☐	c. VSQG	Less than or equal to 100 kg/mo (220 lb/mo) of non-acute hazardous waste.
☑ Y ☐ N	2. Short-Term Generator (generates from a short-term or one-time event and not from on-going processes). If "Yes", provide an explanation in the Comments section. *Note: If "Yes", you MUST indicate that you are a Generator of Hazardous Waste in Item 10.A.1 above.*	
☑ Y ☐ N	3. Treater, Storer or Disposer of Hazardous Waste—Note: Part B of a hazardous waste permit is required for these activities.	
☐ Y ☑ N	4. Receives Hazardous Waste from Off-site	
☐ Y ☑ N	5 Recycler of Hazardous Waste	
☐	a. Recycler who stores prior to recycling	
☐	b. Recycler who does not store prior to recycling	
☐ Y ☑ N	6. Exempt Boiler and/or Industrial Furnace—If "Yes", mark all that apply.	
☐	a. Small Quantity On-site Burner Exemption	
☐	b. Smelting, Melting, and Refining Furnace Exemption	

B. Waste Codes for Federally Regulated Hazardous Wastes. Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g. D001, D003, F007, U112). Use an additional page if more spaces are needed.

D007						
D008						
D009						
D011						

C. Waste Codes for State Regulated (non-Federal) Hazardous Wastes. Please list the waste codes of the State hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed.

B001	**B003**	**B005**	**B007**			
B002	**B004**	**B006**				

11. Additional Regulated Waste Activities (NOTE: Refer to your State regulations to determine if a separate permit is required.)

A. Other Waste Activities

☐ Y ☑ N	1. Transporter of Hazardous Waste—If "Yes", mark all that apply.
☐	a. Transporter
☐	b. Transfer Facility (at your site)
☐ Y ☑ N	2. Underground Injection Control
☐ Y ☑ N	3. United States Importer of Hazardous Waste
☐ Y ☑ N	4. Recognized Trader—If "Yes", mark all that apply.
☐	a. Importer
☐	b. Exporter
☐ Y ☑ N	5. Importer/Exporter of Spent Lead-Acid Batteries (SLABs) under 40 CFR 266 Subpart G—If "Yes", mark all that apply.
☐	a. Importer
☐	b. Exporter

B. Universal Waste Activities

☐ Y ☑ N	1. Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more) - If "Yes" mark all that apply. Note: Refer to your State regulations to determine what is regulated.
☐	a. Batteries
☐	b. Pesticides
☐	c. Mercury containing equipment
☐	d. Lamps
☐	e. Aerosol Cans
☐	f. Other (specify) _____
☐	g. Other (specify) _____
☐ Y ☑ N	2. Destination Facility for Universal Waste Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities

☐ Y ☑ N	1. Used Oil Transporter—If "Yes", mark all that apply.
☐	a. Transporter
☐	b. Transfer Facility (at your site)
☐ Y ☑ N	2. Used Oil Processor and/or Re-refiner—If "Yes", mark all that apply.
☐	a. Processor
☐	b. Re-refiner
☐ Y ☑ N	3. Off-Specification Used Oil Burner
☐ Y ☑ N	4. Used Oil Fuel Marketer—If "Yes", mark all that apply.
☐	a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner
☐	b. Marketer Who First Claims the Used Oil Meets the Specifications

D. Pharmaceutical Activities

☐ Y ☑ N	1. Operating under 40 CFR Part 266, Subpart P for the management of hazardous waste pharmaceuticals—if "Yes", mark only one. Note: See the item-by-item instructions for definitions of healthcare facility and reverse distributor.
☐	a. Healthcare Facility
☐	b. Reverse Distributor
☐ Y ☑ N	2. Withdrawing from operating under 40 CFR Part 266, Subpart P for the management of hazardous waste pharmaceuticals. Note: You may only withdraw if you are a healthcare facility that is a VSQG for all of your hazardous waste, including hazardous waste pharmaceuticals.

12. Eligible Academic Entities with Laboratories—Notification for opting into or withdrawing from managing laboratory hazardous wastes pursuant to 40 CFR Part 262, Subpart K.

☐ Y ☑ N	A. Opting into or currently operating under 40 CFR Part 262, Subpart K for the management of hazardous wastes in laboratories— If "Yes", mark all that apply. Note: See the item-by-item instructions for definitions of types of eligible academic entities.
☐	1. College or University
☐	2. Teaching Hospital that is owned by or has a formal written affiliation with a college or university
☐	3. Non-profit Institute that is owned by or has a formal written affiliation with a college or university
☐ Y ☑ N	B. Withdrawing from 40 CFR Part 262, Subpart K for the management of hazardous wastes in laboratories.

13. Episodic Generation

☐ Y ☑ N	Are you an SQG or VSQG generating hazardous waste from a planned or unplanned episodic event, lasting no more than 60 days, that moves you to a higher generator category. If "Yes", you must fill out the Addendum for Episodic Generator.

14. LQG Consolidation of VSQG Hazardous Waste

☐ Y ☑ N	Are you an LQG notifying of consolidating VSQG Hazardous Waste Under the Control of the Same Person pursuant to 40 CFR 262.17(f)? If "Yes", you must fill out the Addendum for LQG Consolidation of VSQG hazardous waste.

15. Notification of LQG Site Closure for a Central Accumulation Area (CAA) (optional) OR Entire Facility (required)

☐ Y ☑ N	LQG Site Closure of a Central Accumulation Area (CAA) or Entire Facility.
	A. ☐ Central Accumulation Area (CAA) or ☐ Entire Facility
	B. Expected closure date: _____ mm/dd/yyyy
	C. Requesting new closure date: _____ mm/dd/yyyy
	D. Date closed : _____ mm/dd/yyyy ☐ 1. In compliance with the closure performance standards 40 CFR 262.17(a)(8) ☐ 2. Not in compliance with the closure performance standards 40 CFR 262.17(a)(8)

United States Environmental Protection Agency

HAZARDOUS WASTE PERMIT PART A FORM

1. Facility Permit Contact

First Name	**Martin**	MI	**P**	Last Name	**Krentz**
Title	**Federal Project Director**				
Email	**martin.krentz@emcbc.doe.gov**				
Phone	**518-395-4580**	Ext		Fax	**518-395-7403**

2. Facility Permit Contact Mailing Address

Street Address	**2425 River Road**	
City, Town, or Village	**Niskayuna**	
State **New York**	Country **USA**	Zip Code **12309-7100**

3. Facility Existence Date (mm/dd/yyyy)

5/1/2004

4. Other Environmental Permits

A. Permit Type	B. Permit Number													C. Description
E	**K**	**A**	**P**	**L**	**S**	**P**	**R**	**U**	**P**	**V**	**U**	**0**	**0**	**EPA Rad NESHAP App. Construct/Modify**
														Complete number is KAPLSPRUPVU001

5. Nature of Business

Storage of mixed transuranic waste previously generated by the decommissioning and remediation of a DOE research facility. Twenty-two containers of mixed transuranic waste were generated in 2015 and 2017 and are currently stored in the SPRU lower level. These containers will remain in storage until DOE-EM ships the wastes offsite for intermediate storage, treatment or disposal.

DOE-SPRU intermittantly conducts building decommissioning, demolition and remediation activities at the Knolls Atomic Power Laboratory (KAPL). These activities could generate presently unknown quantities of hazardous waste primarily from equipment, piping, paints and coatings which may include lead, mercury, chromium and PCBs. These wastes will be generated during one-time cleanup operations, which may last several years. Any hazardous waste generated from this activity from non-KAPL SWMU or AOC areas will use the DOE-SPRU EPA ID# associated with this Part A

6. Process Codes and Design Capacities

Line Number		A. Process Code			B. Process Design Capacity		C. Process Total Number of Units	D. Unit Name
					(1) Amount	(2) Unit of Measure		
0	1	S	0	1	24,600	G	1	TAA-003 (TRU)

7. Description of Hazardous Wastes (Enter codes for Items 7.A, 7.C and 7.D(1))

Line No.		A. EPA Hazardous Waste No.				B. Estimated Annual Qty of Waste	C. Unit of Measure	D. Processes								
								(1) Process Codes								(2) Process Description (if code is not entered in 7.D1))
0	1	D	0	0	7	2670	G	S	0	1						
0	2	D	0	0	8											included with above
0	3	D	0	0	9											included with above
0	4	D	0	1	1											included with above

8. Map

Attach to this application a topographical map, or other equivalent map, of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all spring, rivers, and other surface water bodies in this map area. See instructions for precise requirements.

9. Facility Drawing

All existing facilities must include a scale drawing of the facility. See instructions for more detail.

10. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, and disposal areas; and sites of future storage, treatment, or disposal areas. See instructions for more detail.

11. Comments

DOE-SPRU will not be treating or disposing of hazardous waste on-site.

16. Notification of Hazardous Secondary Material (HSM) Activity

☐ Y ☑ N	Are you notifying under 40 CFR 260.42 that you will begin managing, are managing, or will stop managing hazardous secondary material under 40 CFR 260.30, 40 CFR 261.4(a)(23), (24), (25), or (27)? If "Yes", you must fill out the Addendum to the Site Identification Form for Managing Hazardous Secondary Material.

17. Electronic Manifest Broker

☐ Y ☑ N	Are you notifying as a person, as defined in 40 CFR 260.10, electing to use the EPA electronic manifest system to obtain, complete, and transmit an electronic manifest under a contractual relationship with a hazardous waste generator?

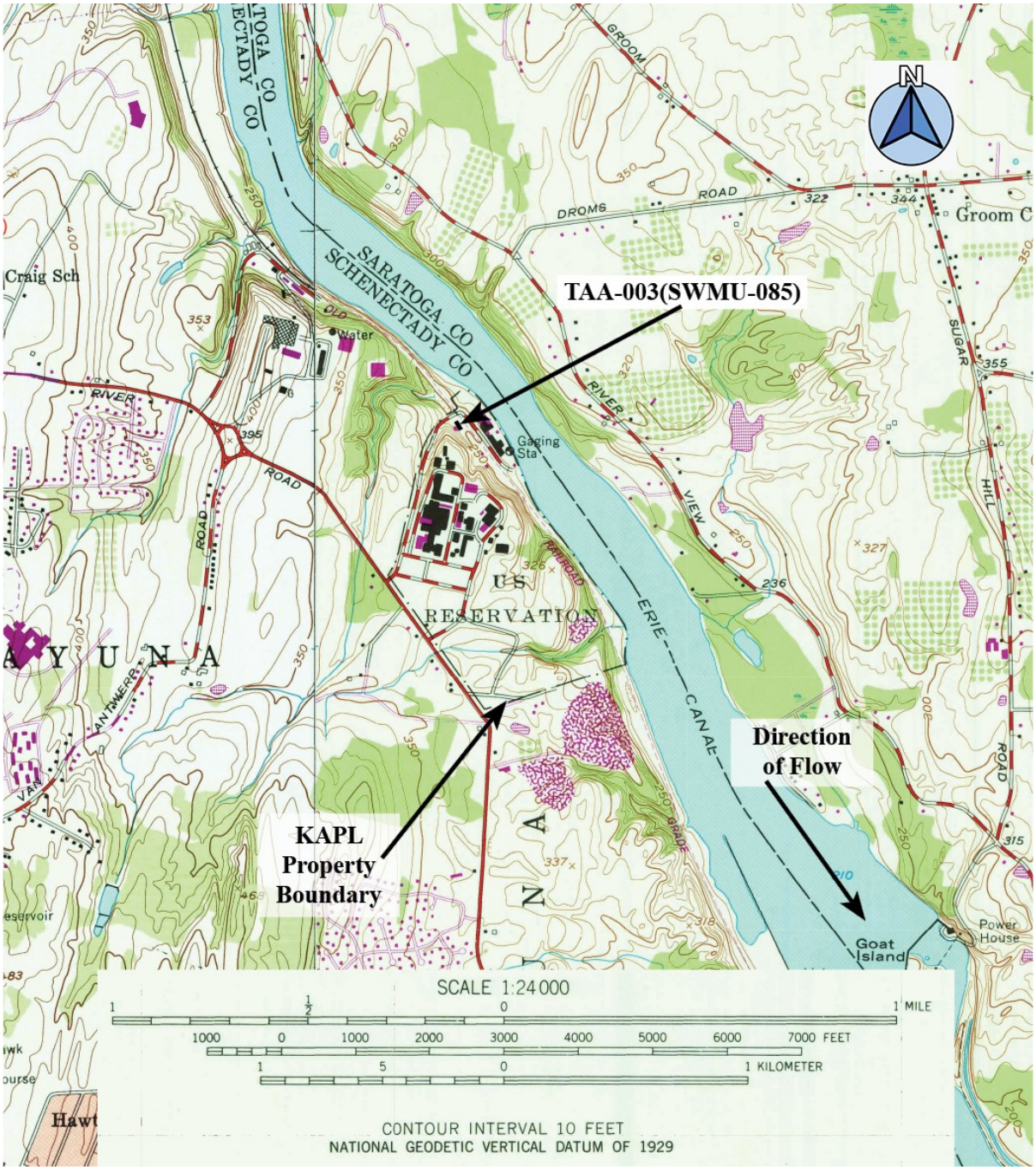
18. Comments (include item number for each comment)

Q10(A). DOE-SPRU manages waste containers, free of liquids, via the use of absorbents and solidification in accordance with the exemptions in 6 NYCRR 373-1.1(d)(1)(ix) and (xvii).
Q10(A)(2). DOE-SPRU intermittantly conducts building decontamination and demolition at the Knolls Atomic Power Laboratory (KAPL). Any hazardous waste generated from this activity (e.g., lead paint waste, mercury switches, PCB-containing materials) from non-KAPL SWMU or AOC areas will use the DOE-SPRU EPA ID# associated with this Part A. The anticipated waste codes from such building demolition are included in Q10(B) and (C).
Q10(A)(3). DOE submitted a Part B Permit Application to NYSDEC for storage of the Mixed transuranic (MTRU) waste on March 29, 2018. In 2024, DOE and NYSDEC are working to finalize the Permit. MTRU is subject to management and inspection requirements under DOE/NYSDEC consent order signed on February 5, 2018.

19. Certification I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. **Note: For the RCRA Hazardous Waste Part A permit Application, all owners and operators must sign (see 40 CFR 270.10(b) and 270.11)**.

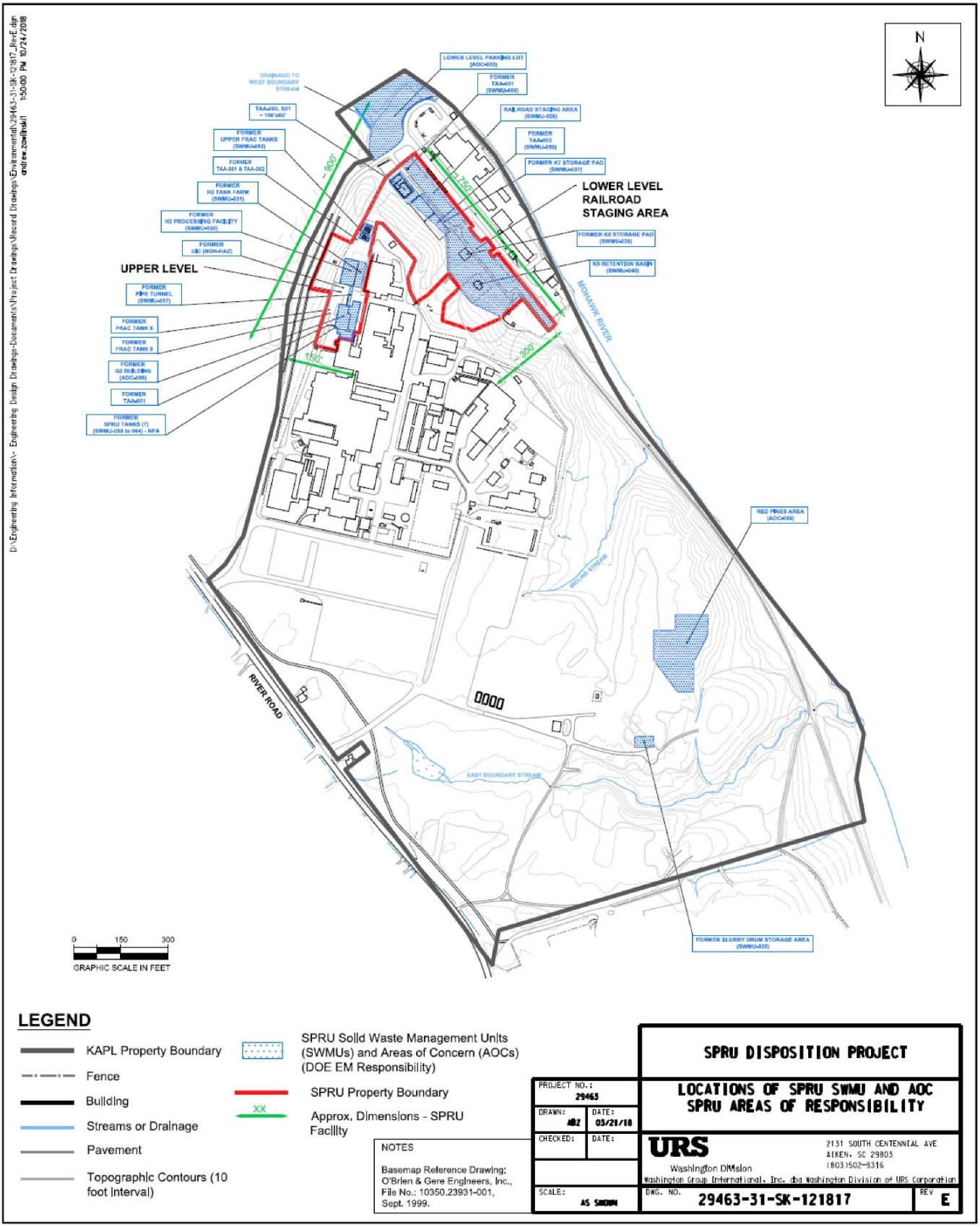
Signature of legal owner, operator or authorized representative	Date (mm/dd/yyyy)
Printed Name (First, Middle Initial Last) **John Zimmerman**	Title **Director, EM Consolidated Business Cent**
Email **Jack.Zimmerman@emcbc.doe.gov**	

Signature of legal owner, operator or authorized representative	Date (mm/dd/yyyy)
Printed Name (First, Middle Initial Last) **John M. Bukowski**	Title **President**
Email **jbukowski@northwindgrp.com**	



Separations Process Research Unit
on
Knolls Atomic Power Laboratory/ Knolls Laboratory

Latitude 42° 49’ 32” North
Longitude 73° 52’ 0” West


N
LOWER LEVEL PARKING LOT (AOC-003)
DRAINAGE TO WEST BOUNDARY STREAM
FORMER TAA-001 (SWMU-006)
RAILROAD STAGING AREA (SWMU-038)
TAA-003, 501 ~ 150'x60'
FORMER UPPER FRAC TANKS (SWMU-002)
FORMER TAA-003 (SWMU-005)
FORMER TAA-001 & TAA-002
FORMER K7 STORAGE PAD (SWMU-037)
FORMER H2 TANK FARM (SWMU-031)
LOWER LEVEL RAILROAD STAGING AREA
FORMER H2 PROCESSING FACILITY (SWMU-030)
FORMER K6 STORAGE PAD (SWMU-039)
FORMER UIC (NON-HAZ)
K5 RETENTION BASIN (SWMU-040)
UPPER LEVEL
FORMER PIPE TUNNEL (SWMU-057)
MOHAWK RIVER
FORMER FRAC TANK 6
FORMER FRAC TANK 9
FORMER G2 BUILDING (AOC-008)
RED PINES AREA (AOC-009)
FORMER TAA-001
FORMER SPRU TANKS (7) (SWMU-058 to 064) - NFA
~ 900'
~ 750'
~ 700'
~ 300'
150'
MIDLAND STREAM
RIVER ROAD
EAST BOUNDARY STREAM
FORMER SLURRY DRUM STORAGE AREA (SWMU-035)
0 150 300
GRAPHIC SCALE IN FEET
LEGEND
KAPL Property Boundary
Fence
Building
Streams or Drainage
Pavement
Topographic Contours (10 foot Interval)
SPRU Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) (DOE EM Responsibility)
SPRU Property Boundary
XX
Approx. Dimensions - SPRU Facility
NOTES
Basemap Reference Drawing: O'Brien & Gere Engineers, Inc., File No.: 10350.23931-001, Sept. 1999.
SPRU DISPOSITION PROJECT
LOCATIONS OF SPRU SWMU AND AOC SPRU AREAS OF RESPONSIBILITY
PROJECT NO.: 29463
DRAWN: ABZ
DATE: 05/21/18
CHECKED:
DATE:
SCALE: AS SHOWN
URS
Washington Division
Washington Group International, Inc. dba Washington Division of URS Corporation
2131 SOUTH CENTENNIAL AVE
AIKEN, SC 29803
(803)502-9316
DWG. NO. 29463-31-SK-121817
REV E

SWMU-085 SPRU Mixed Waste Storage Area (TAA-003), view looking East

Process Code: S01

SWMU-085 SPRU Mixed Waste Storage Area (TAA-003), view looking South

Process Code S01

ATTACHMENT B – FACILITY DESCRIPTION

B-1 GENERAL DESCRIPTION

In accordance with the regulatory requirements set forth in 6 NYCRR 373-1.5 (a)(2)(i), (x), (xi), (xix), and 2.2(j), a general facility description is provided for the Separations Process Research Unit (SPRU) Site located in Niskayuna, New York.

Business Description

SPRU is operated under contract with the United States Department of Energy (DOE) as administered by DOE-Office of Environmental Management (EM) and is a United States Government owned facility.

The facility owner name and mailing address are:

United States Department of Energy
Assistant Secretary for Environmental Management, EM-1
1000 Independence Ave., SW
Washington, District of Columbia 20585

The facility operator name and location are:

North Wind Site Services
1425 Higham Street
Idaho Falls, ID 83402

The facility contact is:

Martin Krentz
United States Department of Energy
SPRU Field Office
2425 River Road, SP-26
Niskayuna, New York 12309-7100
(518) 395-4580

A location map for the SPRU Site is shown in Figure B-1. The former SPRU facility occupies about 3 acres of the 170-acre United States DOE Knolls Atomic Power Laboratory (KAPL) site in Niskayuna, New York. The KAPL site and former SPRU facilities are located on a bluff overlooking the southern bank of the Mohawk River. The land use south of the site is medium- to high-density residential in the Town of Niskayuna. To the east, the Town of Niskayuna recreational land consists of hiking trails and a bike path located over a former municipal landfill. Niskayuna High School is located approximately two miles to the south. To the northwest, directly adjacent to the site, the land use is industrial research and development. Across the Mohawk River are low-density residences of the Town of Clifton Park.

The SPRU facility was a small-scale pilot plant operated from 1951 through 1953 to research the chemical process to separate uranium and plutonium from irradiated materials prior to the Naval Nuclear Propulsion Program (NNPP) mission at the KAPL site. This pilot plant consisted of a processing building (G2), a waste management facility (H2), a tank farm, and pipe tunnels connecting the facilities. The SPRU Disposition Project (SPRU-DP) was established by DOE to disposition the facilities, soil, and groundwater contamination at the SPRU facility. The remediation was completed in 2019 and the SPRU areas were transferred to the Office of Naval Reactors for continued NNPP use.

Operations Description

In 2015-2016, during decontamination and decommissioning activities in the G2 and H2 buildings, materials were discovered in the G2 and H2 buildings that, upon removal, were determined to have the characteristics of, and are being managed as, transuranic (TRU) waste. TRU waste is defined as waste which has been contaminated with alpha emitting transuranic radionuclides (elements with atomic numbers higher than uranium) possessing half-lives greater than 20 years and in concentrations greater than 100 nCi/g. The waste at SPRU consists primarily of contaminated sump sediments, floor scrapings, piping, and components. Most of these wastes exhibit the RCRA toxicity characteristic for D008 (lead). Certain containers exhibit the characteristic for D007 (chromium) and D011 (silver), and one container exhibits the characteristic for D009 (elemental mercury). These wastes are being managed as mixed TRU (MTRU) waste. While SPRU possesses a corrective action permit (#4-4224-00042/00055) from the New York State Department of Environmental Conservation (NYSDEC), SPRU has no existing permit with the NYSDEC for storage of MTRU waste. On October 29, 2015, DOE formally notified NYSDEC that, due to temporary and uncontrollable circumstances, it was not able to ship MTRU waste offsite within the required 90-day generator storage limit specified at 6 NYCRR 373-1.1(d)(1)(iii). DOE requested a 30-day extension for storage of the waste which NYSDEC granted on November 17, 2015 (an extension of up to 30 days may be granted on a case-by-case basis in accordance with 6 NYCRR 373-1.1(d)(1)(iii)(e)). DOE continued to request 30-day extensions from NYSDEC until an Administrative Order on Consent (Order) between NYSDEC and DOE was executed on February 5, 2018, authorizing storage of the MTRU wastes in a Temporary Accumulation Area, TAA-003. TAA-003 has since been designated by NYSDEC as Solid Waste Management Unit (SWMU)-085. The MTRU waste in TAA-003 is stored in four metal Conex boxes (SeaLand containers) for radiation shielding and weather protection. There are appropriate warning signs at all entrances to TAA-003. The location of TAA-003 is shown on the facility topographic map, Figure B-2, and facility layout map, Figure B-3.

B-2, & -3 CAPACITY AUTHORIZED (EXISTING) CAPACITY APPLIED FOR

The MTRU waste is currently stored in TAA-003, located on the SPRU Lower Level Railbed Area, as authorized by the Order. The containerized MTRU waste is stored in four metal conex boxes (SeaLand containers), with a total unit capacity of 24,600 gallons. There is no treatment or disposal of hazardous or mixed waste at the SPRU facility. No additional MTRU waste will be generated at the SPRU facility, and no additional storage capacity is needed.

B-4 TOPOGRAPHIC MAP: GENERAL REQUIREMENTS

Figures B-2 through B-6 are provided in accordance with 6 NYCRR 373-1.5(a)(2)(xix). Maps and drawings are also provided in Attachment A – RCRA Part A Application and in Attachment D – Process Description. Figure B-4 shows the layout of the SPRU Site storm lines. Figure B-4 also shows the access control points and typical transportation routes. A north arrow is provided for orientation on all maps.

Figure B-2 is a United States Geological Survey (USGS) based map, produced by the United States Department of Interior. This map is a portion of the Niskayuna, NY Quadrangle, dated 1980, and includes the entire facility and an extended area beyond the Site's boundary to illustrate surface waters. The map includes contour intervals of 10 feet, sufficient to show surface water flow around the KAPL site. Figure B-3, the facility layout map, also shows topographic contours for the KAPL site at 10-foot intervals.

Land Use

Figure B-5 shows the KAPL Site and land use in surrounding areas. The land use is a mixture of open land, parks, municipal facilities, research and development/light industry, and low density suburban residential housing.

Wind Rose

Figure B-6 presents the wind rose for the KAPL Site (including the SPRU site). The wind rose shown was prepared utilizing data obtained from monitoring equipment (mounted about 20 meters off the ground) on a meteorological tower located at the KAPL Site. The wind rose represented is the composite data from 1989 updated through 2022.

Access Control

The SPRU facility is located within the KAPL Site. The developed portion of the KAPL Site is surrounded by a fence to prevent accidental or unauthorized access to all active portions of the facility. Personnel and vehicle gates for routine entry on the KAPL Site are controlled by security personnel.

TAA-003 is equipped with the proper warning/identification signs to prevent unauthorized entry. Access control to the storage area is controlled by a locked gate to the lower level Railbed area.

Buildings

Figure B-3 shows the location of all former buildings and solid waste management units at the SPRU Site (Building G-2 and H-2 have since been removed).

Runoff Control Systems

Each of the four mixed waste conex boxes that comprise TAA-003 is completely enclosed and designed to prevent precipitation from contacting the containers while in storage. There are no drains in the conex boxes.

Figure B-4 illustrates the site's stormwater drainage system. The main storm water system drains most of the KAPL Site to a SPDES permitted discharge point maintained by KAPL. There are auxiliary storm water systems to drain the remaining portions of the facility not covered by the main system. The auxiliary systems drain to hillsides that slope toward the Midline Stream, which eventually flows into the Mohawk River, and to the West boundary stream as well.

Injection and Withdrawal Wells

The SPRU facility formerly had one Class V underground injection well used for near-surface percolation of uncontaminated storm water. This well consisted of a distribution header (injection point) for a French drain system that is located near the former SPRU G2 and H2 buildings. The well was closed May, 2019. The location of the former distribution header is shown on Figure B-4.

Truck Loading Areas

The truck loading area for wastes being removed from TAA-003 for off-site disposition is located adjacent to TAA-003 in the Railroad Staging Area, SWMU-038, shown in Figure B-3. Waste will be loaded or unloaded on an asphalt road immediately adjacent to TAA-003. Only trained personnel remove containerized waste from the unit and load waste for transport.

Access and Internal Roads

All access and internal roads within the facility perimeter are shown on Figure B-4. The normal routes over which SPRU hazardous/mixed wastes are transported off-site from TAA-003 are designated in the same figure.

Storm, Sanitary and Process Sewerage System

SPRU does not collect and dispose of wastewater from the former SPRU facility. Stormwater run-off from the TAA-003 flows down a gentle slope and either percolates or is captured by the KAPL storm drain system. The storm drain system is comprised of drainage piping, drain manways, and catch basins. A diagram of the storm sewer drainage system is provided in Figure B-4. Most of the effluent from this gravity flow underground system is discharged to the Mohawk River. All discharges to the Mohawk River are monitored in accordance with the conditions of the KAPL State Pollutant Discharge Elimination System (SPDES) permit (SPDES # NY-000 5851). Any water from the SPRU storage area that enters the KAPL storm drain system would discharge at permitted Outfall 002.

Fire Control Facilities

TAA-003 is equipped with a fire extinguisher for use by personnel in an initial response to an incipient fire. The SPRU facility is also equipped with fire hydrants to supply water for firefighting. Fire protection is provided by the KAPL Site Emergency Services & Systems (ESS) organization, which is trained and equipped to handle first response to on-site fires and emergencies associated with hazardous/mixed waste. In the event that off-site assistance is necessary, the Niskayuna Fire Department would be notified. The emergency response capabilities at the SPRU facility are discussed in Attachment G.

Flood Control/Drainage Barriers

As described in the location information section, TAA-003 is located above the 100-year flood plain and does not require any flood control barriers (see Figure B-7). Drainage of stormwater and/or snow melt at the SPRU facility is handled by a combination of drainage ditches, subsurface drainage pipe, and surface grading to conduct water away from all structures. TAA-003 is located in an area sloped and designed to drain and remove surface water.

B-5 LOCATION INFORMATION: FLOODPLAIN STANDARD

According to the Flood Insurance Rate Map (FIRM), as prepared by the Federal Emergency Management Agency (FEMA), the SPRU facility is not located within a 100-year floodplain (see Figure B-7). Therefore, it is not required to demonstrate compliance with 6 NYCRR §373-2.2(j).

Seismic Standard

The SPRU facility is located in the town of Niskayuna, Schenectady County, New York. As such, this facility is not located in a seismically sensitive area listed in Appendix VI of 40 CFR Part 264. Since the facility is not located in political jurisdictions listed in §264, Appendix VI, it is not required to demonstrate compliance with 40 CFR §264.18(a).

B-6 TRAFFIC INFORMATION

The gate through which hazardous/mixed waste transport vehicles normally enter the KAPL facility and the routes over which they travel to and from the Lower Level Railbed waste management area are shown in Figure B-4. Normally, all vehicles arriving for waste shipments enter the site via the East entrance on River Road as illustrated in Figure B-4. Vehicles leaving the site with waste exit the West entrance on River Road. Traffic control along the designated routes consists of signs depicting speed limits and clearance heights, where appropriate. The roads over which waste transport vehicles drive are constructed of asphalt/concrete and have a load bearing capacity in accordance with the American Association of State Highway and Transportation Officials (AASHTO) Standard H20-44. They have been subjected to fully loaded trucks (box tractor-trailer vehicles) for several years and have exhibited no major deterioration. The road accessing the Lower Level Railbed loading and unloading area is not constructed in accordance with AASHTO standards but has sufficient load bearing capacity for intermittent truck use associated with TAA-003 operations. It is estimated that five to ten individual truck shipments will be needed for transport of the SPRU MTRU wastes for final disposal. Before a truck leaves the site, it will be inspected to ensure proper packaging, labeling, marking, loading, and placarding and to ensure that the hazardous waste manifest and other appropriate paperwork has been accurately completed and accompanies the waste shipment.

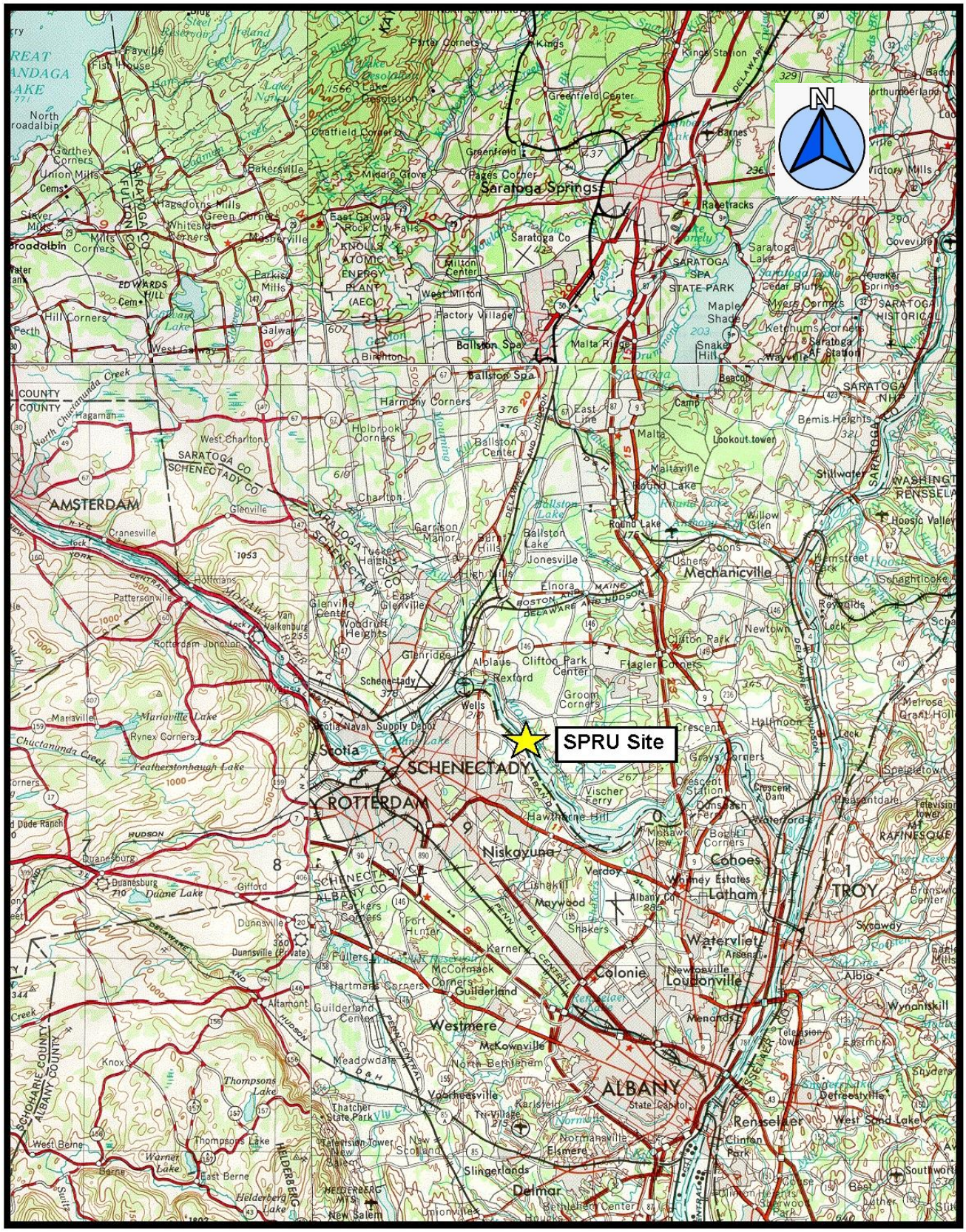
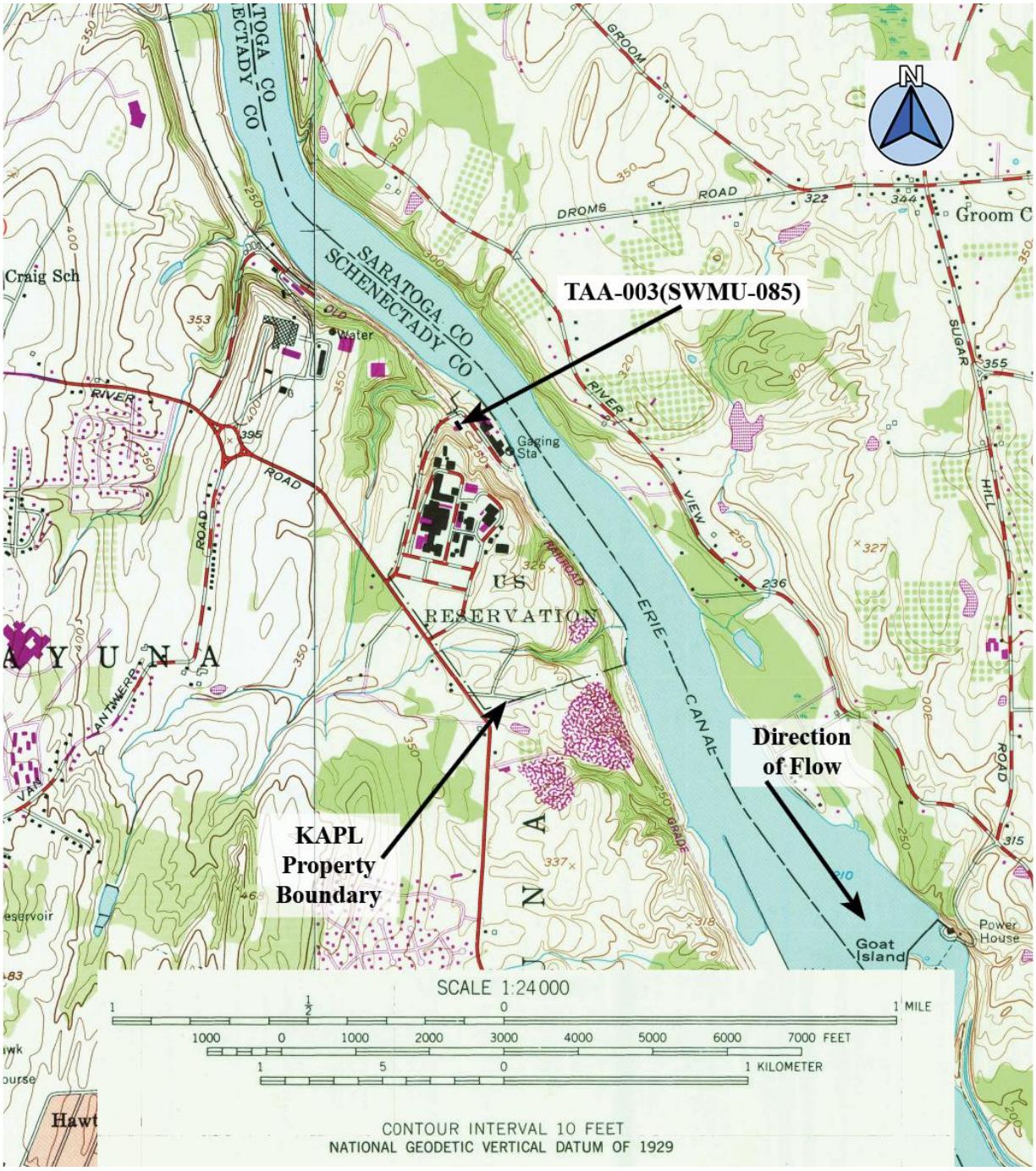


Figure B-1. SPRU Site Location Map



Separations Process Research Unit
on
Knolls Atomic Power Laboratory / Knolls Laboratory

Latitude 42° 49’ 32” North
Longitude 73° 52’ 0” West

Figure B-2. SPRU Facility Topographic Map

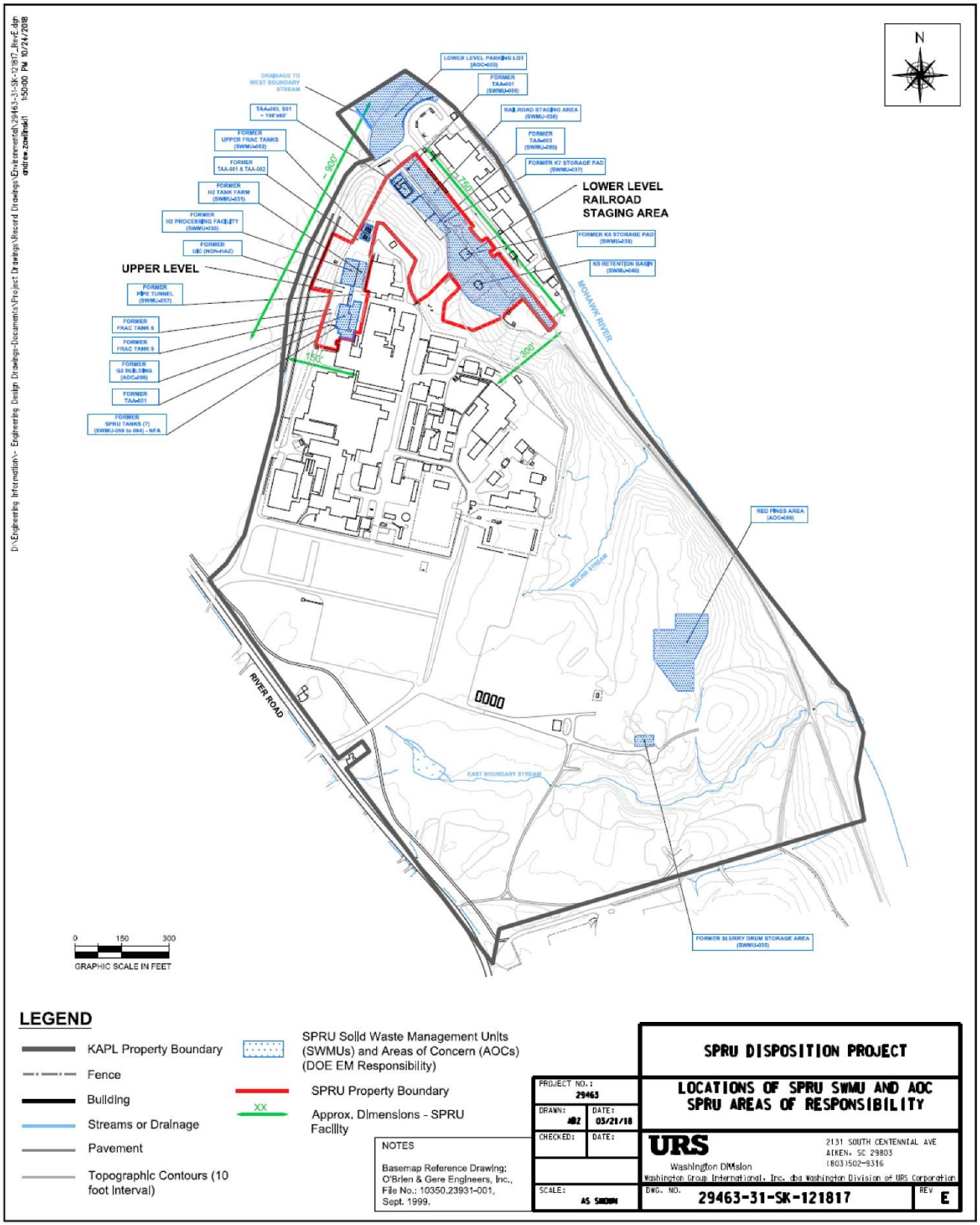


Figure B-3. SPRU Facility Layout Map

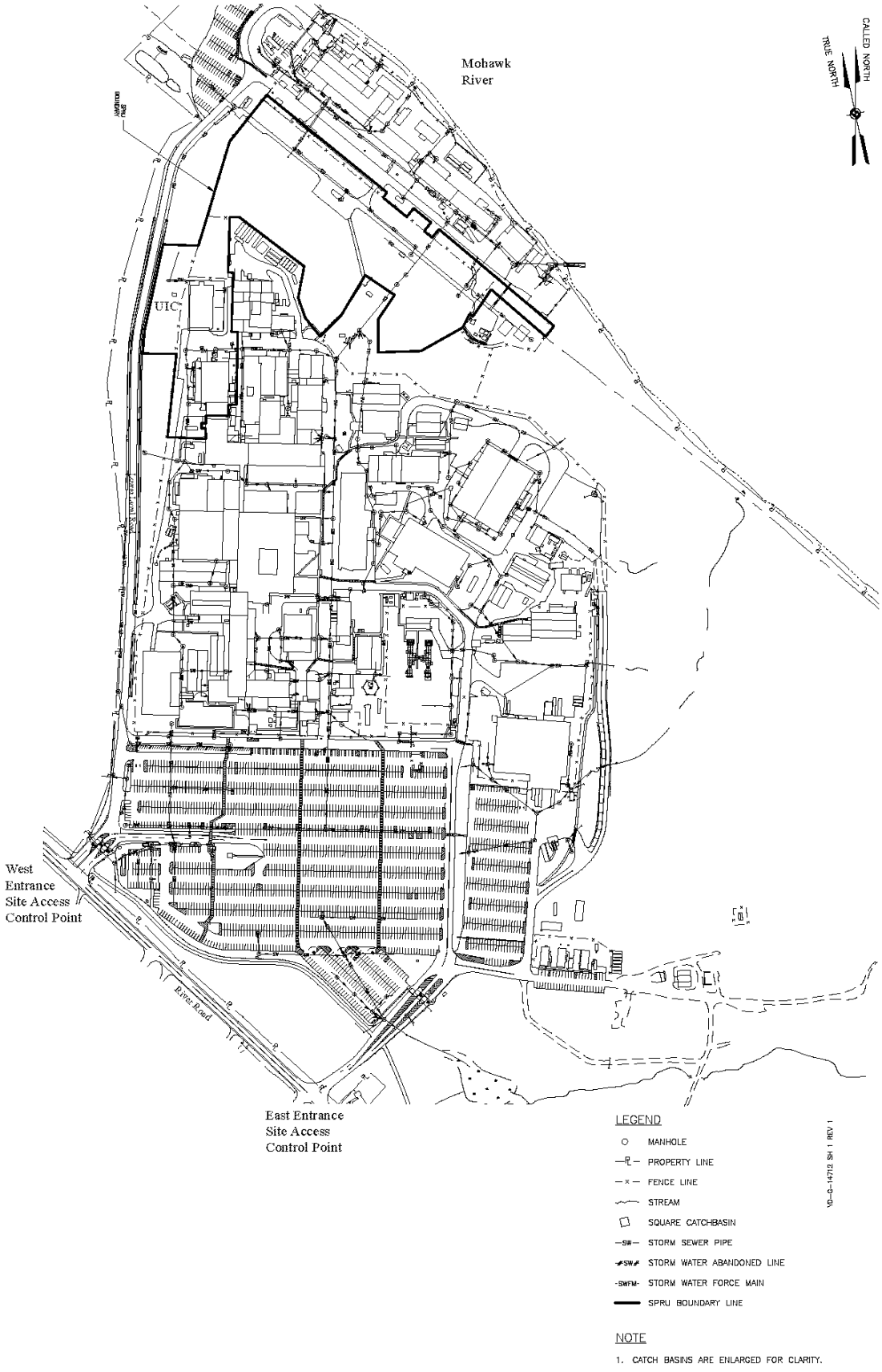


Figure B-4. Facility Stormwater System

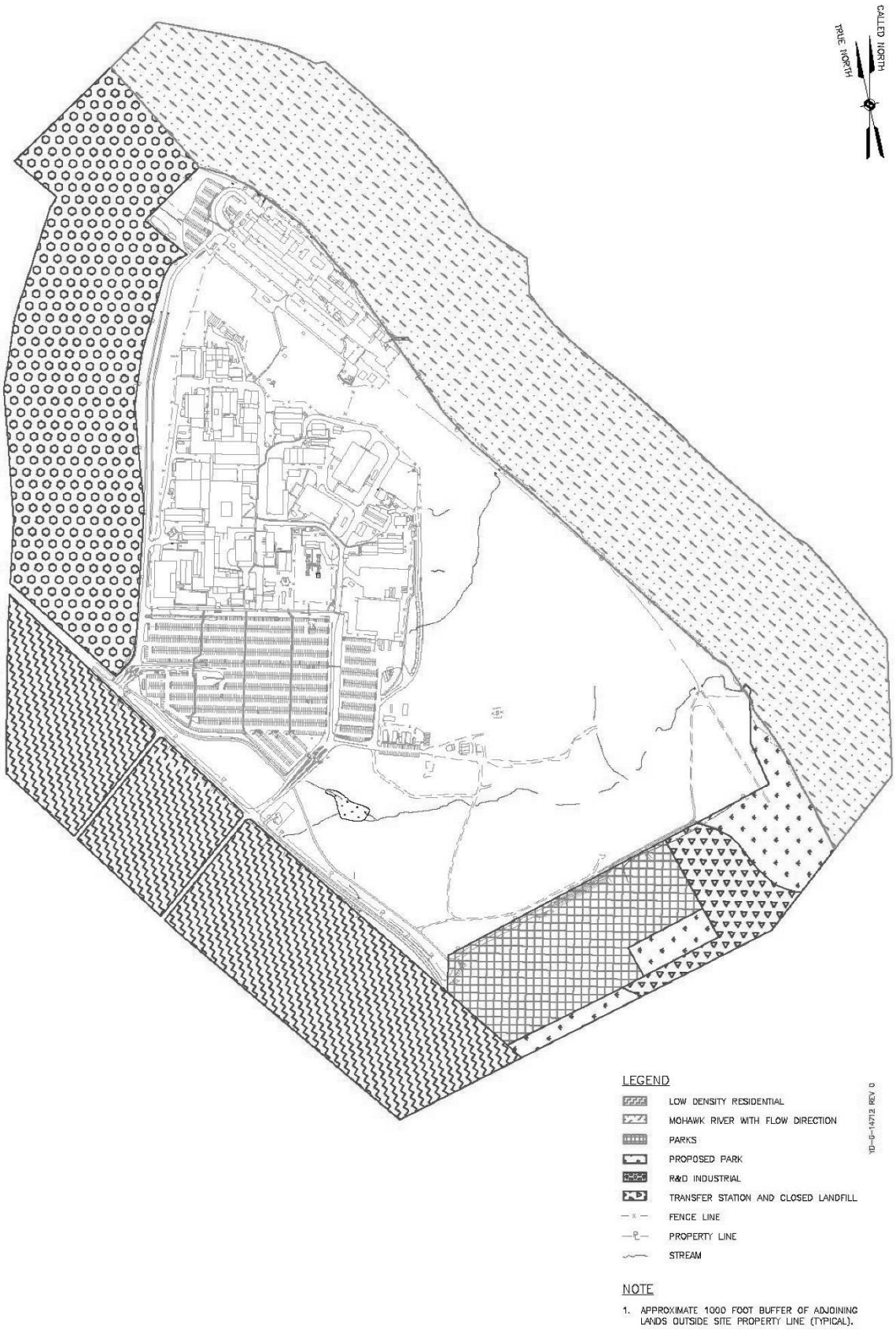
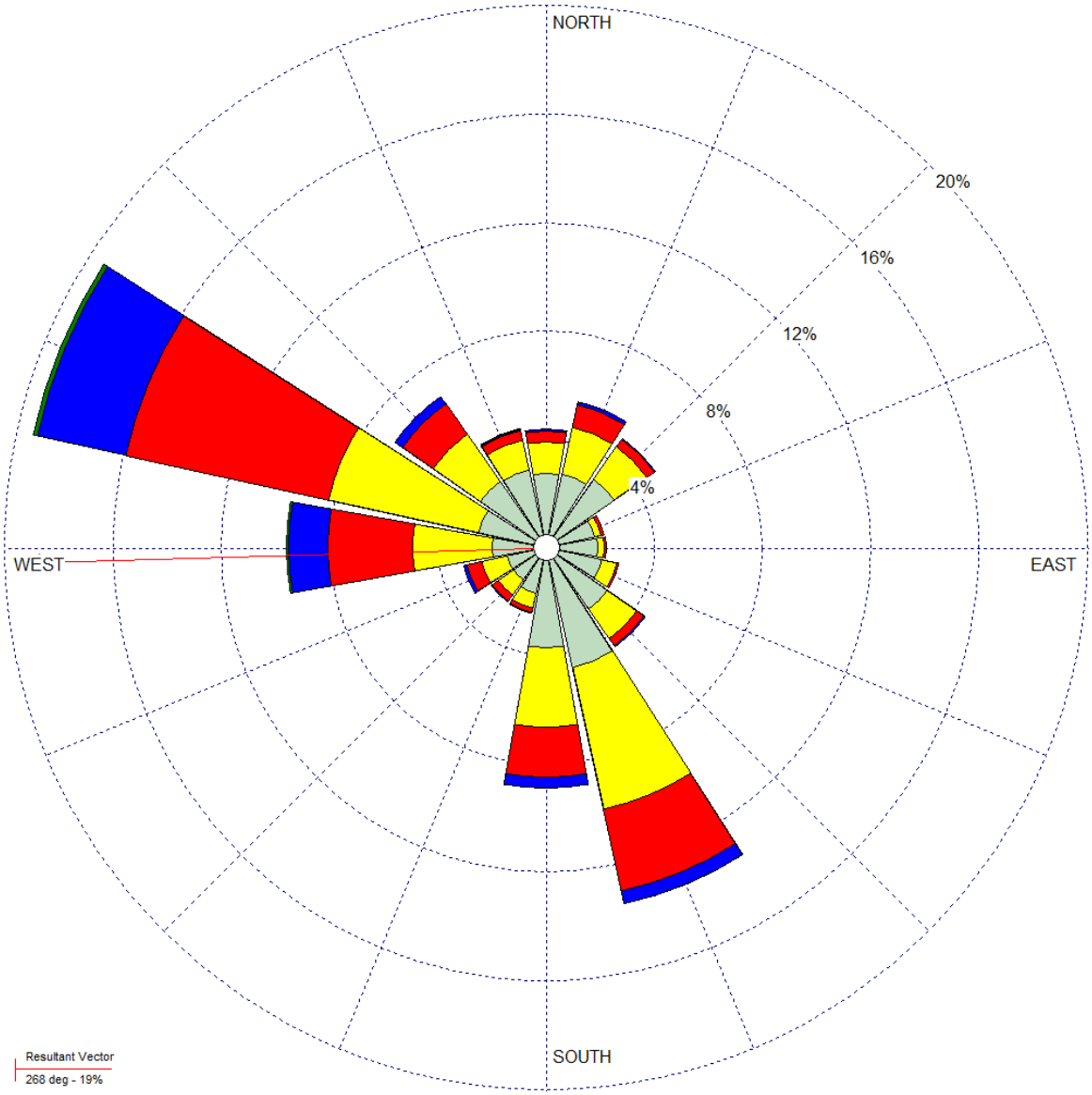


Figure B-5. Surrounding Land Use Map

KAPL 1989-2022 Wind Rose Diagram



	Wind Speeds (m/s)	
	Greater than or equal to:	and less than:
	0.3	2.0
	2.0	3.5
	3.5	5.5
	5.5	8.5
	8.5	11.0
	11.0	

Wind Speed Frequency Distribution

Figure B-6. KAPL (Including SPRU Site) Wind Rose

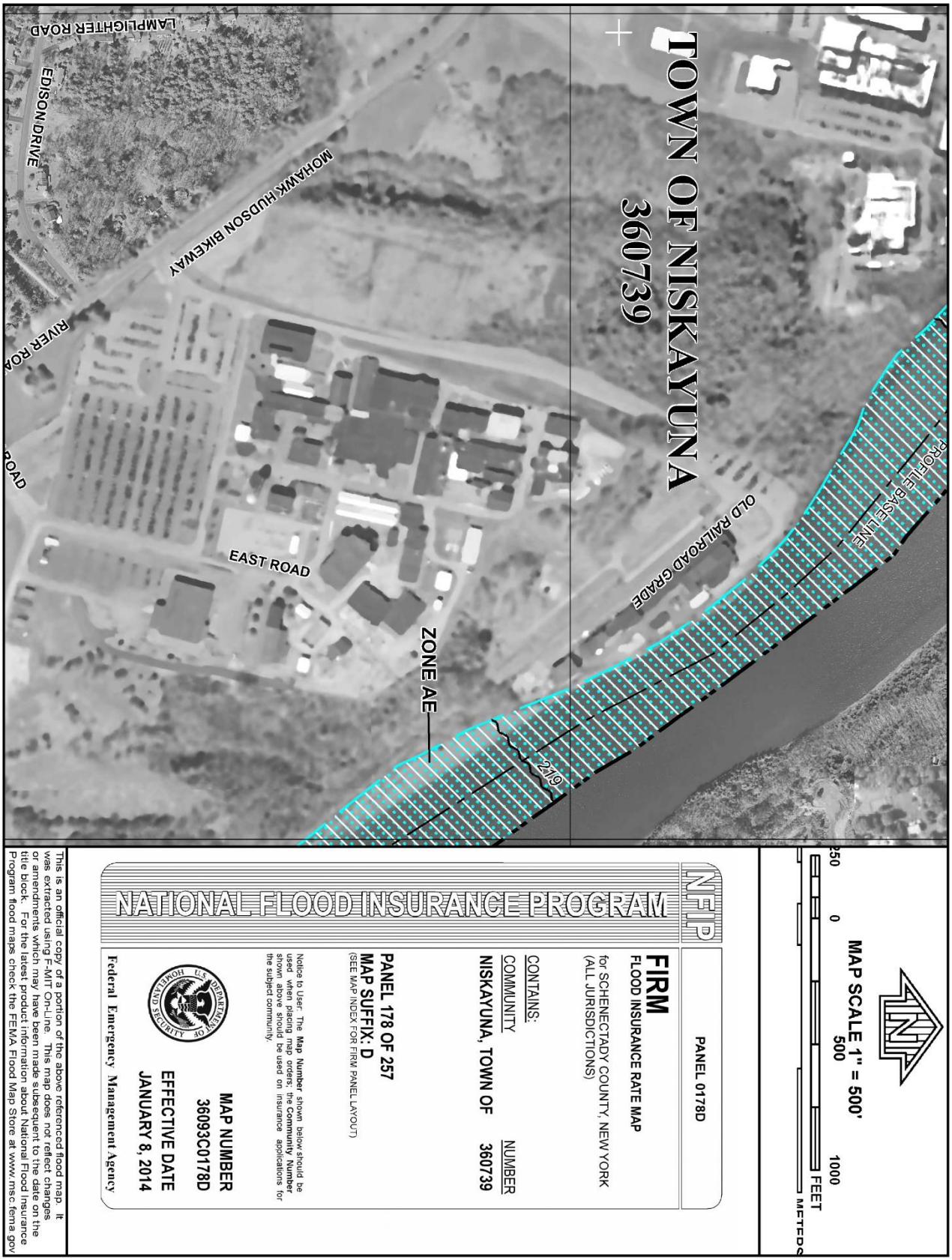


Figure B-7. Niskayuna Flood Insurance Rate Map

ATTACHMENT C – WASTE CHARACTERISTICS

In accordance with the regulatory requirements set forth in 6 NYCRR 373-1.5(a)(2)(ii) and (iii), this attachment describes the waste characteristics including the chemical and physical nature of the mixed transuranic (MTRU) waste stored in TAA-003 at the Separations Process Research Unit (SPRU) site located in Niskayuna, New York. It also contains the waste analysis plan that was followed for sampling, testing, and evaluating these wastes to ensure that sufficient information is available for their safe handling and to identify proper disposal means to protect human health and the environment.

C-1 CHEMICAL AND PHYSICAL ANALYSES

The SPRU Project has historically generated hazardous wastes identified and listed in 6 NYCRR 371 as a result of site cleanup under a Resource Conservation and Recovery Act (RCRA) Corrective Action Program and from decontamination and decommissioning activities as listed in the Part A portion of this document. In 2015-2016, during decontamination and decommissioning (D&D) activities, materials were removed that have been classified as MTRU waste. SPRU has managed the majority of these wastes as a Large Quantity Generator, storing the wastes for less than 90 days. A national backlog for shipment and disposal of all TRU wastes has resulted in the need to store this waste for greater than 90 days. Table C-1 provides more detailed information on the MTRU wastes including the corresponding hazardous waste code numbers which apply to each category, the processes generating the waste, sources of waste data, sampling methods, typical test parameters, major constituents (by %), management type and locations where permitted wastes are managed, compatibility groupings, typical treatment/disposal options, and estimated amount of each category in storage. Table C-2 summarizes the laboratory methods and the rationale for analyzing hazardous wastes under RCRA.

As the MTRU waste managed at the SPRU site was generated from ongoing D&D activities, and the D&D activities are complete, no additional or newly generated hazardous or mixed waste streams are anticipated.

C-2 CONTAINERS

TAA-003 is used for container storage of MTRU wastes prior to disposition at off-site facilities. Additional information regarding TAA-003 can be found in Attachment B – Facility Description and Attachment D – Process Description. Containerized wastes stored in TAA-003 include one containing free liquid (elemental mercury in flasks), with the remaining containers without free liquids. TAA-003 is equipped to manage containerized waste liquid and non-liquid alike by ensuring adequate secondary containment for any type of spill or leak. Containers stored in TAA-003 are fully enclosed and are protected from the weather.

All hazardous/mixed wastes managed at the SPRU site are handled and stored in containers meeting the definitions in 6 NYCRR 370.2(b)(33). Where practical, United Nations (UN) standard packaging is used per United States Department of Transportation (USDOT) regulations. Information regarding the types and sizes of containers employed can be found in Attachment D. Waste characterization results are reviewed to ensure proper identification and compatibility between waste(s) and container materials.

C-3 AIR EMISSION STANDARDS FOR TANKS, SURFACE IMPOUNDMENTS AND CONTAINERS

Specific waste management unit (including containers) exemptions are provided in 6 NYCRR 373-2.29(a)(2)(v) and (vi). At the Separations Process Research Unit (SPRU) site, the mixed transuranic (MTRU) wastes stored in containers in TAA-003 are exempted from testing, evaluation, recordkeeping, and air emissions control management because the wastes are managed in a waste management unit that is used solely for on-site treatment or storage of hazardous waste that is placed in the unit as a result of implementing remedial activities required under the corrective action authorities of RCRA sections 3004(u), 3004(v), or 3008(h); Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) authorities, or similar Federal or State authorities including, but not limited to, 6 NYCRR Parts 373 and 375, Environmental Conservation Law, Section 71-2727(3), and Environmental Conservation Law, Article 27, Titles 9 and 13; and because the wastes are managed in a waste management unit which is used solely for the management of radioactive mixed waste under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act (NWPA).

C-3a Inspections and Monitoring

In accordance with the regulatory requirements set forth under 6 NYCRR 373-1.5 (a)(2)(v) and 373-2.2(g), the inspection plan has been developed to provide information concerning facility inspections at the SPRU site located in Niskayuna, New York. Specific information related to the inspection plan has been provided in Attachment F.

C-4 WASTE ANALYSIS PLAN

A requisite step in the proper management of waste is the characterization and identification of hazardous/mixed wastes in accordance with regulatory and permit requirements. The SPRU site evaluates solid wastes to determine if the wastes are hazardous in accordance with RCRA hazardous waste characteristics and listings set forth in 6 NYCRR 371.3 and 371.4. These evaluations are performed through the application of acceptable knowledge and/or testing.

Acceptable Knowledge

"Acceptable knowledge" can be broadly defined to include one or more of the following:

- "Process knowledge" whereby detailed information on the waste is obtained from existing published or documented sources, including but not limited to: Safety Data Sheets (SDS), information supplied with purchased materials, information on materials obtained from standard references such as the Hawley's Condensed Chemical Dictionary (Van Nostrand/Reinhold), the Merck Index (Royal Society of Chemistry), Sax's Dangerous Properties of Industrial Materials (Sax), or equivalent sources. Analysis data or characterization studies conducted by other sites, may also be used to develop knowledge of the waste.

- Appropriately documented sample and analysis data.

Testing

The SPRU site also ensures compliance by conducting several methods as necessary, including analytical test methods, to identify hazardous constituents or characteristics. Testing is conducted on any unknown waste prior to managing the waste. Acceptable standard methods for conducting these tests are discussed below. Full-scale analysis of a waste (e.g., Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, USEPA Office of Solid Waste, Washington, DC 20460, SW-846 methods or equivalent (USEPA SW-846)) may be necessary when:

- A new waste is generated at the facility for the first time;
- An off-site treatment, storage, and/or disposal facility requires additional chemical and physical information for a waste;
- USEPA/NYSDEC changes RCRA waste identification/classification rules.

Waste Evaluation

Acceptable knowledge may be used alone or in conjunction with sampling and laboratory analysis (testing). Although the exclusive use of acceptable knowledge does not relieve the SPRU site of its responsibility to obtain accurate waste analysis data, there are situations where it may be appropriate to apply "acceptable knowledge" previously defined, including:

- Hazardous waste characteristics and constituents from specific routine processes which are adequately determined and properly documented.

In other circumstances, a combination of "acceptable knowledge" and some level of sampling and analysis of the waste is necessary to properly characterize a waste. These include the following:

- The physical nature of the waste does not lend itself to obtaining a representative sample. For example, to perform a characterization of surface contaminated construction debris, such as painted steel girders, piping, and other structural materials, it may be necessary to use a combination of laboratory analysis and process knowledge. Process knowledge could be applied to identifying the composition of base construction materials (e.g., steel, brass, gypsum). Then surface samples (e.g., paint or surface wipe) can be collected and laboratory analysis conducted to determine the type and concentrations of any contaminants present. Porous base materials, such as gypsum or concrete, could be evaluated by conducting analysis on the extracts obtained from a solvent wash.

- Health and safety risks to personnel would not justify sampling and analysis, e.g., minimizing exposure to radioactivity and handling of radioactive material, if mixed waste is involved.

A written operating record is kept at the facility in accordance with 6 NYCRR 373-2.5(c)(1). The results of all analytical testing performed, and evaluations conducted on wastes managed in TAA-003 are maintained in the facility operating record in accordance with 6 NYCRR 373-2.5(c)(2)(iii). Appendix C-A provides Waste Analysis Report Examples.

C-5 PARAMETERS AND RATIONALE

Where practical, waste is identified from knowledge of material type, quality, and composition, which will be obtained from Safety Data Sheets (SDS), information supplied with purchased materials, or information on materials obtained from standard references such as the Hawley's Condensed Chemical Dictionary (Van Nostrand/Reinhold), the Merck Index (Royal Society of Chemistry), Sax's Dangerous Properties of Industrial Materials (Sax), or equivalent sources.

In the event sufficient information is not available, and analyses are deemed necessary, Table C-2 outlines the waste parameters which may be tested and the rationale for selecting each parameter. The parameters chosen represent those which can best determine whether the waste is hazardous. The measurement of these parameters provides information from which a decision on how to properly store, safely handle, and accurately label each waste is made. It is also part of the waste identification process to determine whether the waste is restricted from land disposal in accordance with 6 NYCRR 376. If the waste is restricted, the disposal or treatment facility is notified in writing of applicable treatment standards.

An accurate representation of a waste's physical and chemical properties is critical in determining viable waste management options. Table C-2 provides:

- A listing of analysis parameters utilized at the SPRU site when waste testing is to be performed. These analysis parameters are selected to represent those characteristics necessary for safe and effective waste management.

- A rationale column corresponding to each analysis parameter category. Each rationale describes the basis for selection of the particular waste analysis parameter and how it will measure the necessary physical and chemical waste properties to afford effective waste management within regulatory, permit, process, and design conditions.

C-6 TEST METHODS

The SPRU site requires that all test methods used by the laboratory, including both internal and external laboratories performing analyses, are approved by USEPA, and are referenced in USEPA SW-846 and other appropriate standard references. Recommended methods for selected parameters are presented in Table C-2. Appropriate digestion and sample preparation methods, as described in USEPA SW-846 (most recent revision), are to be used for these parameters prior to analysis. In addition, all outside laboratories contracted by SPRU, which perform all necessary analyses stipulated in this attachment, must maintain current New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certification for those waste parameters where certification exists.

C-7 SAMPLING METHODS

Appendix C-B contains information on the equipment, accepted standard procedures, and guidance to be used to sample the various hazardous/mixed wastes. Recommended sample methods are indicated in Table C-1 corresponding to each of the general waste categories listed.

C-8 FREQUENCY OF ANALYSIS

As the MTRU waste managed at the SPRU site was generated from ongoing D&D activities, and the D&D activities are nearly complete, no additional or newly generated hazardous or mixed waste streams is anticipated. Should any additional hazardous/mixed wastes be generated in the future, a full-scale evaluation will be performed.

SPRU MTRU wastes are required to undergo formal waste certification at a Department of Energy (DOE) site with qualified personnel and equipment. After waste certification, the SPRU MTRU wastes may have to be returned to SPRU for continued storage until final disposition. Should any MTRU waste be returned to SPRU for storage, SPRU will verify that the container labeling and manifest information are in agreement prior to placing in TAA-003 for continued storage under the terms of the permit.

C-9 ADDITIONAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTES AND IN THE CONTEXT OF AIR EMISSION REQUIREMENTS AND INCINERATION

There are no ignitable, reactive, or incompatible wastes in storage in TAA-003. No additional or newly generated ignitable, reactive, or incompatible wastes are anticipated.

C-10 QUALITY ASSURANCE/QUALITY CONTROL PLAN

Appendix C-C provides the SPRU site Quality Assurance/Quality Control Plan in accordance with the requirements outlined in 6 NYCRR 373-1.6(a)(5).

C-11 RECORDING OF ANALYSIS RESULTS

The results of all analyses conducted to evaluate SPRU site hazardous/mixed waste streams as part of this permit will be maintained in the facility operating record until closure of the facility as required by 6 NYCRR 373-2.5(c)(2)(iii).

C-12 TESTING FOR PERMITS

The SPRU site does not perform any testing as part of this permit to satisfy other permits (e.g., State Pollutant Discharge Elimination System (SPDES)). When testing is performed to support or satisfy any applicable treatment and disposal requirements (e.g., land disposal restrictions), the results are maintained within the facility operating record.

C-13 ADDITIONAL INFORMATION

Evaluations performed on spill residues associated with TAA-003 will be maintained in the facility operating record.

Table C-1. SPRU MTRU Wastes

General Waste Category	EPA/NYSDEC Hazardous Waste Codes	Process Source Generating Waste[1]	Source of Waste Data[2]	Sampling Methods[3]	Evaluation Parameters[4]	Major Components	Storage		Compatibility Group	Amount (lbs)	Disposal Path
							Type	Location			
Debris, Equipment, and Solids	D007, D008, D009, D011	Decontamination & Decommissioning	Process Knowledge Laboratory Analysis of Representative Sample	Grab Sample Composite	Toxicity Characteristic (TC)-Metals TC-Organics Free Liquids[5] PCBs	Hazardous Constituents	S01	TAA-003	Group E—inorganic compounds	5743	Waste Isolation Pilot Plant

Notes for Table:

(1) One or any combination of sources.

(2) Based on acceptable knowledge, laboratory analyses, or a combination of the two.

(3) See Appendix C-B for representative sampling method references.

(4) Evaluations of a waste stream may entail acceptable knowledge (i.e., process knowledge, waste analysis data from other sources or surrogate samples) or laboratory analysis of a representative sample to provide the applicable parameter information consistent with this portion of the table. Where laboratory analysis is used, test parameters are selected based on knowledge of waste matrices and the waste generating process. See Table C-2 for recommended methods and rationale for analysis (other approved methods in USEPA's latest approved edition of USEPA SW-846 may also be used).

(5) DOE anticipates that free liquids will not be present. Due to radioactivity in the waste, visual observation rather than the paint filter test would be used to make the determination.

Table C-2. Recommended Methods and Rationale for Analyzing Hazardous Wastes[1]

TEST PARAMETER	MEDIA	METHOD	REFERENCE[2],[3]	RATIONALE
pH	Liquid Sludge	Electrometric Measurement pH Paper Method	USEPA SW-846; Methods: - Electrometric Measurement 9040C - pH Paper Method 9041A	- Identify wastes that may compromise container structural integrity. - Identify wastes that may require pretreatment to ensure optimum effectiveness of treatment processes (e.g., stabilization).
Flash Point	Liquid	Pensky-Martens Closed Cup Tester Setaflash Closed-cup Apparatus	USEPA SW-846; Methods: - Pensky-Martens 1010A - Setaflash 1020B American Society for Testing and Materials (ASTM) Standard D-93	- Identify appropriate storage conditions (e.g., out of direct sunlight, away from heat sources). - Determine applicable requirements to treat, deactivate or separately manage ignitable wastes to ensure compliance with applicable regulations.
Free Liquids	Solid Sludge	Paint Filter	USEPA SW-846; Method 9095B	- Identify presence/absence of free liquids to ensure compliance with applicable land disposal standards and containment system requirements.
Metals	Liquid Solid Sludge	Atomic Absorption (AAS) Inductively Coupled Plasma (ICP) ---------- Manual Cold Vapor Technique (Mercury)	USEPA SW-846; Methods: - ICP 6010C 6020A - AAS 7000 series ---------- USEPA SW-846; Method: Mercury 7470A 7471B	- Identify constituent(s) for compliance with regulatory limits and for safe handling of the waste. - Determine applicable requirements to treat, deactivate or separately manage characteristic wastes to ensure compliance with applicable regulations.

Table C-2. Recommended Methods and Rationale for Analyzing Hazardous Wastes[1]

TEST PARAMETER	MEDIA	METHOD	REFERENCE[2],[3]	RATIONALE
Volatile Organics	Liquid Solid Sludge	Gas Chromatographic and/or Mass Spectroscopic	USEPA SW-846; Methods: - Volatiles 8260B 8260 - Semivolatiles 8270D 8270	- Identify constituent(s) for compliance with regulatory limits and for safe handling of the waste. - Determine applicable requirements to treat, deactivate or separately manage characteristic wastes to ensure compliance with applicable regulations.
Halogenated/Non-Halogenated Aromatic Organics	Liquid Solid Sludge	Gas Chromatographic	USEPA SW-846; Methods: - Halogenated 8021B - Nonhalogenated 8015C - Aromatic and Halogenated 8021B	
Organochlorine Pesticides/ Chlorinated Herbicides	Liquid Solid Sludge	Gas Chromatographic	USEPA SW-846; Methods: - Organochlorine Pesticides 8081B - Chlorinated Herbicides 8151A	
Total Organic Halides (TOX)	Liquid Solid Sludge	Carbon adsorption w/ microcoulometric - titration detector/Neutron Activation	USEPA SW-846; Methods: - TOX 9020B - TOX by Neutron Activation 9022	- Identify constituent(s) for compliance with regulatory limits and for safe handling of the waste. - Determine applicable requirements to treat, deactivate or separately manage characteristic wastes to ensure compliance with applicable regulations.

Table C-2. Recommended Methods and Rationale for Analyzing Hazardous Wastes(1)

TEST PARAMETER	MEDIA	METHOD	REFERENCE(2),(3)	RATIONALE
Polychlorinated Biphenyls (PCBs)	Liquid Solid Sludge	Gas Chromatographic	USEPA SW-846; Methods: PCBs 8082A	

(1) Other methods referenced in 6 NYCRR 371, other equivalent references and/or guidance documents, or equivalent methods approved by the NYSDEC may be utilized as necessary.
(2) USEPA SW-846, latest edition approved by the USEPA. Other applicable USEPA SW-846, other equivalent references and/or guidance documents, or equivalent methods approved by the NYSDEC may also be used.
(3) ASTM Standards, latest editions.

APPENDIX C-A

WASTE ANALYSIS REPORT EXAMPLES

This appendix is provided in accordance with 6 NYCRR 373-1.5(a)(2)(ii). The laboratory reports in this appendix are examples of waste analysis results corresponding to the SPRU MTRU wastes.

010009

Client: AECOM
SDG: 611639
SwRI Project Number: 22719.01.00X
SwRI Task Order Number: 170227-1

TOTAL MERCURY ANALYSIS

The sample was prepared and analyzed for mercury according to SW-846 Method 7471A. The sample is reported on a dry weight basis. The holding time was met. Please note that the preliminary mercury results were reported on an "as received" or wet weight basis.

All instrument QC criteria were met. The percent recoveries were within 90-110% for the initial and continuing calibration verifications. Mercury was not detected above SwRI's limit of detection (LOD) in the initial and continuing calibration blanks. The low level check standard (CRA) recovery was within 80-120% for Hg.

Description of qualifiers: "U" indicates that an analyte was not detected above SwRI's LOD. "D" indicates that the reported result was obtained from a dilution of the digestate. "*" indicates that the duplicate relative percent difference (RPD) was greater than 20%.

Two preparation blanks (PBs) were prepared. One (ID: PB17B27KE1) was generated without solid matrix; it contained acids/reagents only. The other (ID: PB17B27KE2) was generated by digesting a solid matrix blank. Mercury was not detected the preparation blanks above SwRI's LODs.

The concentration found in the solid laboratory control sample (LCS) was within the QC performance acceptance limits provided by the supplier, Environmental Resource Associates.

SwRI system id 611639 was QC'd. The Hg MS recovery was not within 75-125%. For Hg, the parent sample result was greater than 4 times the spike amount added. Therefore, no limits were applied to MS analysis for Hg, and the results were not flagged. The results are "*" flagged for Hg due to the duplicate RPD being greater than 20% at 20.9%.

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the laboratory manager or his/her designee, as verified by the following signature. This report shall not be reproduced except in full without the written approval of SwRI."

Manager

4/5/17
Date

SOUTHWEST RESEARCH INSTITUTE
Metals Report - Form I
Certificate of Analysis

010011 **Client Sample ID**
A525ASEDCMP1
Type: Unknown

Client: AECOM
Task Order: 170227-1
Lab ID: 611639
Result Units: mg/Kg

SDG: 611639
SRR: 59176
Matrix: Solid
% Solids: 56.6

Case: SPRU DP
Project: 22719.01.00X
Receipt Date: 02/22/2017
Collection Date: 02/20/2017

CAS No.	Analyte	Result	Qual	M	LOD	LOQ	DF	Prep Batch	Analysis Date/Time
7439-97-6	Mercury	9,080	*D	CV2	158	317	5000	20170227-P001	02/27/2017 18:52

Data Reporting Qualifiers (Qual)	*Columns*	*Instruments/Methods (M)*
J - Result is greater than or equal to the Limit of Detection (LOD) and less than the Limit of Quantitation (LOQ)	LOD - Limit of Detection	CV2 - CVAA PE FIMS 400 A/SW846 Method 7471A
U - Result is less than the Limit of Detection (LOD)	LOQ - Limit of Quantitation	NA - Not Applicable
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

Package Name: 611639_Metals_20170301 [Generated on 03/01/2017 14:31:53]

Program version(8/11/2011)

010038

Client: AECOM
SDG: 611639
SwRI Project Number: 22719.01.00X
SwRI Task Order Number: 170227-1

TCLP METALS ANALYSIS

The sample was extracted by SW-846 Method 1311. It is reported from Method 1311 "modified" since a reduced sample mass was extracted due to the limited sample mass received and its elevated sample activity. A sample weight of 6.5 grams was extracted instead of the method required 100 grams. The ratio of extraction fluid volume to sample weight remained the same as required in the method. The sample was 100% solid, and was extracted with extraction fluid#1. Particle size reduction was not required. The extracts were prepared and analyzed for mercury by SW-846 Method 7470A. The extracts were digested according to SW-846 Method 3010A for the remaining metals. These digestates were analyzed by ICP SW-846 Method 6010D. All holding times were met.

All instrument QC criteria were met. The percent recoveries were within 90-110% for the initial and continuing calibration verifications. No analytes were detected above SwRI's limits of detection (LOD) in the initial and continuing calibration blanks. The low level check standard recoveries were within 80-120%. The percent recoveries for the ICP-AES ICSAB interference check sample were within 80-120%. The limits were met for the ICP-AES ICSA interference check sample. The ICSA limits, provided on Form IVA, are the ICSA true value ± 2 times the LOD. There are no internal standard criteria defined in ICP Method 6010D. However, the ICP internal standard recoveries are reported on Form 14.

Description of qualifiers: "U" indicates that an analyte was not detected above SwRI's LOD. "J" indicates that an analyte was detected at the instrument at or above SwRI's LOD, but less than SwRI's limit of quantitation (LOQ). "D" indicates that the reported result was reported from a dilution of the sample digestate.

No analytes were detected in the preparation blanks and extraction fluid blank above SwRI's LODs. All analytes were within 80-120% recovery for the aqueous laboratory control samples. SwRI system id 611639 was QC'd. The QC criteria were met for the matrix spike, duplicate, and serial dilution analyses. The MS recoveries were within 75-125% for all analytes except mercury. For Hg, the parent sample result was greater than 4 times the spike amount added. Therefore, no limits were applied to MS analysis, and the Hg results were not flagged. The duplicate RPDs were less than 20%. For the ICP serial dilution, no limits are applied unless a parent sample result is greater than 50 times the LOD. The limit is then 10% difference.

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the laboratory manager or his/her designee, as verified by the following signature. This report shall not be reproduced except in full without the written approval of SwRI."

Manager

4/5/17
Date

SOUTHWEST RESEARCH INSTITUTE
Metals Report - Form I
Certificate of Analysis

Client Sample ID
010040 **A525ASEDCMP1**
Type: Unknown

Client: AECOM
Task Order: 170227-1
Lab ID: 611639
Result Units: mg/L

SDG: 611639
SRR: 59176
Matrix: Solid
% Solids: NA

Case: SPRU DP
Project: 22719.01.00X
Receipt Date: 02/22/2017
Collection Date: 02/20/2017

CAS No.	Analyte	Result	Qual	M	LOD	LOQ	DF	Prep Batch	Analysis Date/Time
7440-38-2	Arsenic	0.150	U	P1	0.150	0.300	1	20170228-P002	02/28/2017 23:20
7440-39-3	Barium	0.342		P1	0.0500	0.100	1	20170228-P002	02/28/2017 23:20
7440-43-9	Cadmium	0.436		P1	0.0500	0.100	1	20170228-P002	02/28/2017 23:20
7440-47-3	Chromium	0.0500	U	P1	0.0500	0.100	1	20170228-P002	02/28/2017 23:20
7439-92-1	Lead	0.0500	U	P1	0.0500	0.100	1	20170228-P002	02/28/2017 23:20
7439-97-6	Mercury	0.239	D	CV2	0.00200	0.00800	2	20170228-P003	02/28/2017 20:27
7782-49-2	Selenium	0.200	U	P1	0.200	0.400	1	20170228-P002	02/28/2017 23:20
7440-22-4	Silver	0.100	U	P1	0.100	0.200	1	20170228-P002	02/28/2017 23:20

Data Reporting Qualifiers (Qual)	*Columns*	*Instruments/Methods (M)*
J - Result is greater than or equal to the Limit of Detection (LOD) and less than the Limit of Quantitation (LOQ)	LOD - Limit of Detection	CV2 - CVAA PE FIMS 400 A/SW846 Method 7470A
U - Result is less than the Limit of Detection (LOD)	LOQ - Limit of Quantitation	P1 - ICP TJA Trace 1/SW846 Method 6010D
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	NA - Not Applicable
X - Analytical spike criteria was not met	M - Instrument	
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

Package Name: 611639_Metals_20170301_1 [Generated on 03/01/2017 15:19:28]

Program version(8/11/2011)

SOUTHWEST RESEARCH INSTITUTE
CLIENT: AECOM
SwRI PROJECT#: 22719.01.00X 010010
SwRI TASK ORDER: 170901-4
SwRI SRR: 60320
SDG: 620340
VTSR: 08.31.2017

TCLP METALS RESULTS

SOUTHWEST RESEARCH INSTITUTE **010012** **Client Sample ID**
Metals Report - Form I **CMP002A**
Certificate of Analysis **Type: Unknown**

Client: AECOM
Task Order: 170901-4
Lab ID: 620340
Result Units: mg/L

SDG: 620340
SRR: 60320
Matrix: ML
% Solids: NA

Case: SPRU DP
Project: 22719.01.00X
Receipt Date: 08/31/2017
Collection Date: 10/10/2015

CAS No.	Analyte	Result	Qual	M	RL	DF	Prep Batch	Analysis Date/Time
7440-38-2	Arsenic	0.750	U	P1	0.750	1	20170914-P003	09/19/2017 18:43
7440-39-3	Barium	0.250	U	P1	0.250	1	20170914-P003	09/19/2017 18:43
7440-43-9	Cadmium	0.250	U	P1	0.250	1	20170914-P003	09/19/2017 18:43
7440-47-3	Chromium	0.250	U	P1	0.250	1	20170914-P003	09/19/2017 18:43
7439-92-1	Lead	6.56		P1	0.250	1	20170914-P003	09/19/2017 18:43
7439-97-6	Mercury	0.0200	U	CV1	0.0200	1	20170914-P004	09/14/2017 19:23
7782-49-2	Selenium	1.00	U	P1	1.00	1	20170914-P003	09/19/2017 18:43
7440-22-4	Silver	0.500	U	P1	0.500	1	20170914-P003	09/19/2017 18:43

Note: SW-846 Method 1311 Modified

Data Reporting Qualifiers (Qual)	*Columns*	*Instruments/Methods (M)*
U - Result is less than the SwRI Reporting Limit (RL)	RL - SwRI Reporting Limit	P1 - ICP TJA Trace 1/SW846 Method 6010D
N - Matrix spike and/or matrix spike duplicate criteria was not met	DF - Dilution Factor	CV1 - CVAA PE FIMS 400/SW846 Method 7470A
X - Analytical spike criteria was not met	M - Instrument	NA - Not Applicable
E - Result is estimated due to interferences		
D - Result is reported from a dilution		
* - Duplicate criteria was not met		

Form I-IN

Package Name: 620340_Metals_20171003 [Generated on 10/03/2017 17:31:52] Program version(8/11/2011)

010021

SOUTHWEST RESEARCH INSTITUTE
CLIENT: AECOM
SwRI PROJECT#: 22719.01.00X
SwRI TASK ORDER: 170901-4
SwRI SRR: 60320
SDG: 620340
VTSR: 08.31.2017

SVOA BY TCLP METHOD 8270D
Sample Results

010022

SOUTHWEST RESEARCH INSTITUTE

Semi-volatile TCLP Constituents by Method 8270D Data Reporting Form

Client: AECOM
Case: SPRU DP
SDG: 620340
Matrix: ML
Sample vol. (mL): 66
Level: LOW
GPC Cleanup: N

Client Sample ID: CMP002A
System ID: 620340
Filename: P100517005
pH: 7.0
Conc. Ext. Vol. (uL): 1000
% Moisture: 100
Decanted: N

Project Number: 22719.01.00X
Instrument: PHOENIX
Date Received: Aug 31, 2017
Date Extracted: Sep 15, 2017
Date Analyzed: Oct 5 2017 6:01PM
Dilution Factor: 1.00
Injection Volume (uL): 1.0

CAS No.	Compound	mg/L
106-46-7	p-Dichlorobenzene	0.076 U
67-72-1	Hexachloroethane	0.076 U
98-95-3	Nitrobenzene	0.076 U
87-68-3	Hexachlorobutadiene	0.076 U
88-06-2	2,4,6-Trichlorophenol	0.076 U
95-95-4	2,4,5-Trichlorophenol	0.076 U
121-14-2	2,4-Dinitrotoluene	0.076 U
118-74-1	Hexachlorobenzene	0.076 U
87-86-5	Pentachlorophenol	0.076 U
110-86-1	Pyridine	0.076 U
95-48-7	o-Cresol	0.076 U
108-39-4/106-44-	m & p-Cresol	0.076 U

DATA REPORTING QUALIFIERS

- B This flag is used when the analyte is found in the blank as well as the sample.
- D Concentration value is from dilution analysis.
- E This flag indicates compounds whose concentrations exceed the calibration range.
- J Indicates an estimated value.
- U Indicates compound was analyzed for, but not detected. Report the minimum detection limit for the sample with U (e.g. 10U) based on necessary concentration dilution action (This is not necessarily the instrument detection limit).

Page 1 of 1 FORM I ver (04/10/2017)

APPENDIX C-B

REPRESENTATIVE SAMPLING METHODS

The methods and equipment used for sampling waste materials will vary with the form and consistency of the waste materials to be sampled. Samples are collected with local procedures incorporating the sampling protocols listed below, for wastes with properties similar to the indicated materials, and will be considered to be representative of the waste. These methods are referenced in 6 NYCRR 371.

- Extremely viscous liquid - ASTM Standard D140-70
- Crushed or powdered material - ASTM Standard D346-75
- Soil or rock-like material - ASTM Standard D420-69
- Soil-like material - ASTM Standard D1452-65
- Containerized liquid waste - "COLIWASA" described in USEPA SW-846 (latest revision).

Where waste materials do not conform to one of the above or have a recognized standard sampling method, local procedures are developed to perform sampling. These procedures are developed using guidance contained in USEPA SW-846 (latest revision), and other equivalent or appropriate references.

APPENDIX C-C

SPRU QUALITY ASSURANCE/QUALITY CONTROL PLAN

I. INTRODUCTION

The basic purpose of the Quality Assurance/Quality Control (QA/QC) program is to ensure data generated in the implementation of the SPRU program's hazardous/mixed waste management program is technically sound, statistically valid, properly documented, and satisfactory for its intended use.

The following QA/QC plan is based on applicable guidance outlined in the QA/QC chapter of the latest USEPA approved edition of EPA Publication SW-846. This chapter of Publication SW-846 states that a proper QA/QC program should address the necessary level of precision and accuracy to reflect the intended use for the data.

The hazardous/mixed transuranic (MTRU) waste was generated during the one-time SPRU decontamination activities between 2015 and 2017. The waste has well documented sources and properly documented characteristics. Additional MTRU waste was not generated by the SPRU project after 2017.

II. QUALITY ASSURANCE/QUALITY CONTROL ACTIVITIES

Waste in each of the twenty-two MTRU waste containers was evaluated to determine its proper identification and characterization. Waste evaluations were performed using acceptable knowledge (i.e., process knowledge, waste analysis data from other sources or surrogate samples), laboratory analysis, or a combination of the two. Where laboratory analysis was utilized, the SPRU project maintained a QA/QC program to ensure the accuracy and reliability of the analyses performed on solid waste samples.

The QA/QC program includes the following elements:

1. Sample and Analytical Protocols

   Where they are necessary, waste sampling and analysis must, as a minimum, be performed in accordance with 6 NYCRR 371 Appendix 19, the latest approved methods in USEPA Publication SW-846, other equivalent references and/or guidance documents, or equivalent methods approved by the NYSDEC. Vendors are required to have a QA/QC program that incorporates all applicable requirements in the latest USEPA approved edition of EPA Publication SW-846 and all other QA/QC requirements of the New York State Department of Environmental Conservation and the New York State Department of Health. Vendors shall maintain their QA/QC programs current and have copies available for DOE review during the term of the contract.

2. Sample Containers

   Sample containers for chemical wastes are new, appropriately cleaned using accepted practices (such as ASTM Standards or Standard Methods) and, if necessary, furnished with all materials required for sample preservation.

3. Sample Accountability

   Appropriate chain-of-custody protocols are utilized for all samples destined for laboratory analysis in accordance with the applicable Sampling Plan section in the latest USEPA approved edition of EPA Publication SW-846. The protocols utilized for each sample include labels, seals, analysis request and chain of custody sheets. Samples are typically transported to the vendor laboratory via the laboratory's courier or common carrier (ground/air transport). Signed chain-of-custody forms accompany the sample or shipping container to the off-site laboratory for analysis. Laboratory records document activities needed in sample receipt, processing, analysis, and data reporting.

4. Sample Storage

   Sample container types, handling, preservation techniques, and hold times shall, where applicable, conform to guidelines cited in the latest USEPA approved edition of EPA Publication SW-846 and other appropriate references. If the sample is to be subjected to multiple analyses, storage conditions (e.g., refrigeration) shall address all requirements cited as needed to ensure valid results.

5. Vendor Certification

   Off-site laboratories are required to maintain Certification by the New York State Department of Health Environmental Laboratory Accreditation Program (NYSDOH ELAP), as required by 6 NYCRR 370.1(f). This certification shall cover all parameters listed in the contract for those waste parameters where certification exists. Copies of the current certification shall be maintained by the vendor and available to DOE during the term of the contract. The off-site laboratory will have the appropriate level of qualified personnel, appropriate instrumentation, an approved QAP, approved analytical methods, and appropriate internal procedures to perform the required analyses.

6. Vendor QA/QC

   Off-site laboratories are required to have a QA/QC program that incorporates all applicable requirements in the latest USEPA approved edition of EPA Publication SW-846 and all other QA/QC requirements of the New York State Department of Environmental Conservation and the New York State Department of Health. Vendors shall maintain their QA/QC programs current and have copies available for DOE review during the term of the contract.

7. Vendor Subcontracting

   Off-site laboratories shall not subcontract analysis without prior approval by DOE.

8. Vendor Inspections

   At any reasonable time during the contract period, a DOE representative may visit the vendor laboratory to review data, procedures, equipment, and analytical techniques.

9. Audits

Laboratories used will be required to maintain NYSDOH ELAP certification, which ensures that appropriate laboratory audits have been conducted to meet certification requirements.

APPENDIX C-D

CHEMICAL COMPATIBILITY GUIDE

WASTE PACKAGING DESCRIPTION

Laboratory chemicals and residues individually packaged in labeled containers may be shipped for disposal when properly packed into UN standard packaging per USDOT regulations, identified, and labeled. These chemicals must be sorted into specific compatibility groups and packaged in accordance with USDOT regulations (49 CFR 100-199). In cases where a chemical would fit into two (2) or more groups, it would be placed in the group most appropriate for the highest hazard concern.

COMPATIBILITY GROUPS

Packaged laboratory chemicals and residue groupings described below are generally considered to be compatible within that group in the event of an incident which would cause commingling of the materials within a drum. Examples illustrating each type of material are in parentheses:

Group A - Acid Generating Compounds

1. Inorganic acids (e.g., hydrochloric or sulfuric).
2. Inorganic chemicals, excluding heavy metals that do not liberate gaseous products when acidified (e.g., sodium chloride, potassium sulfate).

Group B - Acid Sensitive Compounds

1. Inorganic alkaline chemicals (e.g., sodium hydroxide, ammonium hydroxide).
2. Non-flammable organic bases which have a flash point greater than 140 °F (e.g., triethanolamine).
3. Elements and inorganic chemicals that liberate gaseous products when acidified (e.g., potassium cyanide, sodium sulfide).

Group C - Organic Compounds

Organic compounds, including organic acids, but excluding organic bases which have a flash point greater than or equal to 140 °F (e.g., mineral oil, glucose, cured phenolic resins, chloroform).

Group D - Organic Compounds

Combustible organic compounds, including organic bases but excluding organic acids, which have a flash point less than 140 °F (e.g., acetone, mineral spirits, pyridine).

Group E - Inorganic Compounds

1. Inorganic oxidizing agents (e.g., potassium nitrate, potassium permanganate).
2. Heavy metal compounds and elements (e.g., $CuSO_4$, $ZnCl_2$, Hg, Fe, Mn, Co, Cd).

Note: Use non-oxidizing packing material such as vermiculite with these materials.

Group F - Highly Toxic Organics

1. Solid pesticides, insecticides, fungicides, etc.
2. Known and suspected carcinogenic materials.
3. Organics with toxicities of special concern.

Group G - Alkaline Sensitive

Alkaline sensitive compounds, pseudo-metal compounds and elements (e.g., As_2O_3, Se, Be, Bi, Te).

Note: In cases where a waste might fit into two or more groups, place in group of higher hazard concern (e.g., NaCl in acetone would go into Group D; lead acetate would go into Group E).

Group H - Other

Any waste (e.g., pressurized containers such as, aerosol paint cans and small gas or propane cylinders) that does not fit into Categories A through G will be properly segregated and managed in accordance with the general safe handling and segregation procedures in Attachment F (Procedures to Prevent Hazards). Packaging and disposal of such wastes shall be in accordance with lab-pack disposal vendor requirements and guidance.

ATTACHMENT D – PROCESS DESCRIPTION

In accordance with the regulatory requirements set forth in 6 NYCRR 373-1.5, 2.2, and 2.9, process information is provided for the Separations Process Research Unit (SPRU) facility located in Niskayuna, New York.

Hazardous/mixed wastes that were generated at the SPRU facility during decontamination and decommissioning (D&D) activities have been transported to TAA-003 for storage prior to shipment off site. The containers used, the design and operation of TAA-003, and mixed transuranic (MTRU) waste management practices are described herein.

D-1 CONTAINERS WITH FREE LIQUIDS – DESCRIPTION OF SYSTEM

A small amount of liquid mercury (approximately one liter) is present in one waste container. The liquid mercury is contained within jars that are packaged within a 30-gallon metal drum that is overpacked in a 55-gallon metal drum. The 55-gallon drum sits on an individual containment ("spill") pallet that has sufficient capacity to contain the entire volume of the 55-gallon container. The remaining containerized wastes stored in TAA-003 do not contain free liquids. TAA-003 is designed and/or managed to handle storage of all containers whether or not they contain free liquids, thereby ensuring adequate secondary containment and container protection in the event of a spill or leak.

D-2 BASIC DESIGN PARAMETERS, DIMENSIONS, AND MATERIALS OF CONSTRUCTION

TAA-003 is located within the SPRU-controlled area in the Lower Level Railbed area of the Knolls Atomic Power Laboratory (KAPL) Site (see Figure B-3, Attachment B – Facility Description). The containerized MTRU waste is stored in four metal conex boxes (SeaLand containers) for radioactivity shielding and weather protection. The conex boxes contain B-25 boxes, 85-gallon drums and 55-gallon drums. Many of the drums have smaller inner containers, e.g., there are several 55-gallon drums that have smaller 1- to 15-gallon cans inside that contain the waste material. The 85-gallon drums are overpacks for 30- and 55-gallon drums containing waste. Many of the drums have radiation shielding either between the inner and outer container and/or wrapped or draped over the outside of the container. Each conex box has a total capacity of 52,910 pounds and has the capability to store, as necessary, liquid or non-liquid wastes. The approximate floor dimensions of each conex box are 20 feet by 8 feet. The container with the liquid mercury waste is placed on an individual containment pallet to contain spills or leaks.

The conex boxes in TAA-003 are weather-tight and provide additional protection against the elements and are designed and operated to preclude the infiltration of liquid resulting from precipitation. The conex boxes do not have heating or lighting.

Figure D1 shows the location of specific waste containers stored within the conex boxes and provides conex box specifications. The general locations of the wastes are based on segregation, compatibility, and inspection requirements. In all cases, requirements for the proper management of containers are met. These requirements include aisle space inspection, segregation of incompatible waste streams if present, and spill control needs.

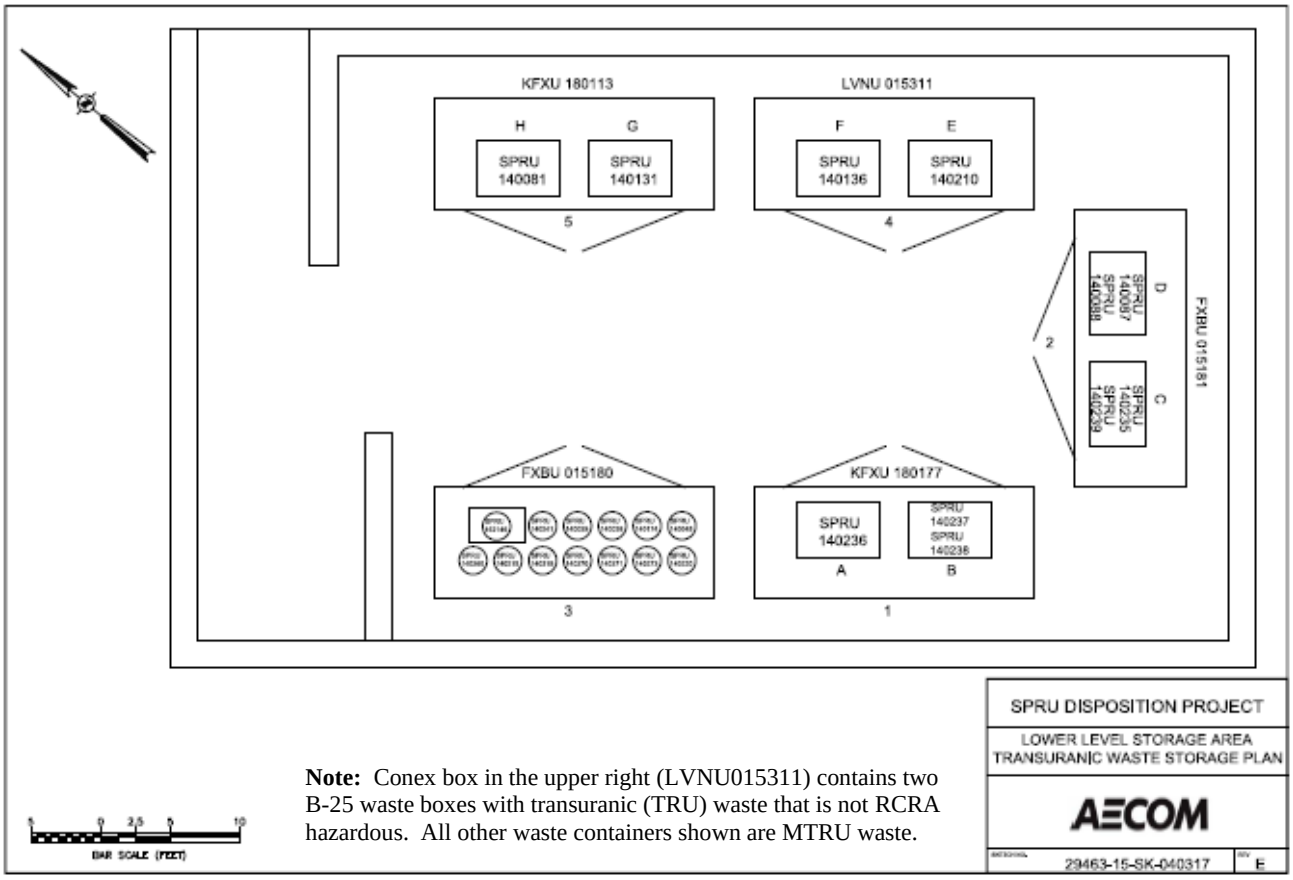


Figure D1. SPRU MTRU Waste Storage Layout

D-3 DESCRIPTION OF HOW DESIGN PROMOTES DRAINAGE OR HOW CONTAINERS ARE KEPT FROM CONTACT WITH STANDING LIQUIDS IN CONTAINMENT SYSTEM

The conex boxes in TAA-003 are fully enclosed and are designed to eliminate precipitation and run-on from entering the storage areas contained within. Waste may be stored in any of the areas based on compatibility and overall inventory. The one container containing liquid mercury waste is placed on an individual spill containment pallet for secondary containment.

D-4 CAPACITY OF THE CONTAINMENT SYSTEM COMPARED WITH THE NUMBER AND VOLUME OF CONTAINERS TO BE STORED

The individual spill containment pallet on which the one 55-gallon container that contains approximately one liter of liquid mercury waste has sufficient capacity to contain the entire volume of the 55-gallon container.

D-5 PROVISIONS FOR PREVENTING OR MANAGING RUN-ON

Run-on prevention is provided mainly by the design/construction of the waste management unit area and the conex boxes. The conex boxes are designed and constructed to be weather-tight and are fully enclosed. In addition, the conex boxes are placed in an area that is sloped and designed and operated to drain and remove run-on from precipitation. Drainage from precipitation events flows to storm water catch basins located in proximity to TAA-003 as shown in Figure B-4, Attachment B.

D-6 HOW ACCUMULATED LIQUIDS CAN BE ANALYZED AND REMOVED TO PREVENT OVERFLOW

If a spill or container leak is detected in the conex boxes located in TAA-003, the affected container will be placed in an overpack drum or repackaged, and the spilled material absorbed. After the material is completely absorbed, it will be swept, or otherwise cleaned up, and placed in a container for storage and disposal. Proper decontamination of all surfaces following spill cleanup will be performed as necessary. Analysis of such spills is not necessary since the container labels characterize the waste adequately.

D-7 CONTAINERS WITHOUT FREE LIQUIDS

The description provided in this Attachment applies to all containerized wastes, whether or not they contain free liquids.

D-7a Test for Free Liquids

Due to radioactivity in the waste, containers were evaluated by visual means, rather than the paint filter test, to determine whether or not they contained free liquids.

D-7b Description of Storage Area Design and Operation

The conex boxes are placed in an area that is sloped and designed and operated to drain and remove run-on from precipitation. Drainage from precipitation events flows to storm water catch basins located in proximity to TAA-003 as shown in Figure B-4, Attachment B.

D-8 REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES AND INCOMPATIBLE WASTES

There are no ignitable or reactive wastes stored in TAA-003. No ignitable or reactive wastes are stored within 50 feet of the property boundary at the SPRU site, in compliance with 6 NYCRR 373-2.9. The location of TAA-003 in relation to the site property line is illustrated in Figure B-3, Attachment B.

D-9 CONTAINER MANAGEMENT PRACTICES

Description of Containers

MTRU wastes managed at TAA-003 are stored in readily available prefabricated containers that conform to applicable UN standard packaging per USDOT regulations. Containers used to store the MTRU wastes in TAA-003 include metal B-25 boxes, 85-gallon drums and 55-gallon drums. Many of the drums have smaller inner containers, e.g., there are several 55-gallon drums that have smaller 1- to 15-gallon cans inside that contain the waste material. The 85-gallon drums are overpacks for 30- and 55-gallon drums containing waste. Many of the drums have radiation shielding either between the inner and outer container and/or wrapped or draped over the outside of the container.

Container Handling Practices

The SPRU MTRU wastes are stored in compliance with 6 NYCRR Part 373-2.9(b) through (d). Containers storing MTRU wastes are maintained in good condition and are compatible with the waste being stored. The configuration of the waste containers in the storage unit will remain static and containers will not be moved, opened, or otherwise handled while in storage unless necessary to respond to changing conditions as may be discovered during the quarterly inspection. Containers are marked with the words "Hazardous Waste" and with other words identifying their contents. Radiation shielding that is draped over containers is labeled in addition to the container labels. The one container that contains wastes with free liquids is stored on an individual containment pallet.

Aisle space between rows allows personnel to inspect any stored container and, in emergency situations, to allow for unobstructed access to any area within the unit to deploy fire protection, spill control, and decontamination equipment.

When the MTRU wastes are to be removed from TAA-003 for off-site disposition, trained waste professionals will remove the wastes from the unit and a licensed hazardous waste hauler will transport the wastes from the SPRU site facility to a permitted treatment, storage, and/or disposal facility. Should MTRU waste be returned to SPRU after treatment, repackaging, or certification, trained waste professionals will return the wastes to the unit for continued storage upon receipt.

Inspections

TAA-003 is inspected in accordance with the plan outlined in Attachment F – Procedures to Prevent Hazards. These inspections are performed to ensure the containers are free from hazards due to corrosion, leaks, ruptures, or spills and that the structural integrity of the conex boxes is intact. TAA-003 is inspected quarterly for spills, leaks, and general facility conditions.

ATTACHMENT E – CORRECTIVE ACTION

Separations Process Research Unit (SPRU), Niskayuna, New York
SWMU/AOC Information Package

Solid Waste Management Units/Areas of Concern (SWMUs)

I. Container Storage Areas

1. SPRU Mixed Waste Storage Area (SWMU-085) – Active

Solid Waste Management Unit/Areas of Concern Descriptions and Recommended Actions

II. Container Storage Areas

SWMU-085:	SPRU Mixed Waste Storage Area
Unit Description:	This unit is currently used to store mixed (radioactive and hazardous) transuranic waste (MTRU) and has stored mixed low level radioactive waste. This unit is designated as Temporary Accumulation Area 003 (TAA-003). Since 2015, DOE has received approvals for 30-day storage extensions for the MTRU waste in this area. An Administrative Order on Consent (Order) between NYSDEC and DOE was executed on February 5, 2018, authorizing storage of the MTRU waste in TAA-003 until a Part 373 Operating Permit is issued by NYSDEC. In 2018, the unit was moved to a new location in the Lower-Level area with an asphalt pad. The unit is demarcated by a thick concrete block wall. Five metal conex boxes exist within TAA-003. Four conex boxes are used for storage of MTRU. Each conex box has dimensions of 8 feet wide, 20 feet long and 8 feet tall. Outdoor transient storage of mixed waste containers may occur. The load capacity of each conex box is 52,910 pounds.
Status:	Active, No Further Action
Approximate Period of Operation:	2015 to Present
Types of Waste:	Containerized MTRU and mixed waste including solidified sludges from building sumps, out-of-service process vessels, contaminated lead shielding, mercury-contaminated debris, and less than a liter of containerized contaminated liquid mercury.
Constituents:	RCRA characteristic metals
Method of Containment:	Weather tight conex boxes
Media of Concern:	Soil, groundwater

Site Investigation Plan with Sampling and Next Step(s) Toward Corrective Action:

A 45-Day Assessment Report for Hazardous Waste Storage Area SWMUs was submitted dated April 28, 2017. There was no evidence of release to environmental media. On May 16, 2017, a determination was made by NYSDEC that no further corrective action activities are required.

ATTACHMENT F – PROCEDURES TO PREVENT HAZARDS

F-1 DESIGN AND OPERATION OF FACILITY

In accordance with the regulatory requirements set forth in 6 NYCRR 373-1.5, 1.6, 2.3, and 2.9, this Attachment has been developed to provide information concerning the equipment, structures, and procedures utilized to minimize hazards at the Separations Process Research Unit (SPRU) site located in Niskayuna, New York.

F-1a Waiver of Preparedness and Prevention Requirements

The SPRU site does not request a waiver of the preparedness and prevention requirements of 6 NYCRR 373-2.3.

F-2 EQUIPMENT REQUIREMENTS

F-2a/b Internal/External Communications and Alarms

Communications are provided to the SPRU facility by a public address system, use of cell phones, and (in some cases) a 2-way radio communication system. Personnel are informed of a particular emergency by the site public address (PA) system.

Centrally located telephones and the public address system are additional tools used for internal communication. A telephone is located in the guard house in close proximity to TAA-003. The public address system is tested periodically to ensure proper working order. The telephone system, aside from internal communication, is also used to summon emergency assistance from local police or fire departments in the unlikely event that site personnel could not handle a hazardous waste emergency. Instructions for contacting internal and external assistance are discussed under the Attachment G – Contingency Plan.

Quarterly inspections of internal communications related to the SPRU Mixed Waste Storage Area only entail verification that they are in working order.

F-2c Emergency Equipment

TAA-003 has appropriate emergency equipment (dependent upon the waste types stored/accumulated) for the purposes of addressing minor (incipient stage) fires, addressing minor spills, and performing minor decontamination activities. If needed, supplemental equipment and supplies will be obtained from outside sources. Attachment G – Contingency Plan, 6.6 Appendix F, identifies the emergency equipment staged/available at TAA-003. The emergency equipment list will be updated as necessary to reflect any changes in the types of equipment available. Routine inspections of the emergency equipment staged at/within TAA-003 will entail cursory verification of availability and quantity. A more detailed inspection of the equipment is performed on a quarterly basis or after the equipment is used for real events or drill scenarios. Additional emergency

equipment is available via the Knolls Atomic Power Laboratory (KAPL) Site Emergency Services and Systems (ES&S) organization. ES&S has both emergency equipment and the training/ability to handle most incidents that may occur at the SPRU facility during normal work hours. ES&S's emergency equipment is available to respond to all site emergencies. The ES&S organization's equipment is not dedicated solely for the mitigation of RCRA-type incidents. As such, ES&S's equipment is not inspected as part of this permit's inspection plan.

F-2d Water for Fire Control

Water for KAPL firefighting is supplied by the Town of Niskayuna and feeds hydrants at various locations throughout the site. There is a water tower located on the KAPL Site which stores 225,000 gallons of water to be used mainly for firefighting. This tank supplements the fire main water via a pump once pressure in the main drops to preset values.

F-3 TESTING AND MAINTENANCE OF EQUIPMENT

All SPRU communications, fire protection equipment, spill control equipment, and decontamination equipment are periodically inspected, tested, or maintained as necessary to assure its proper operation in time of emergency.

F-4 & -5 ACCESS TO COMMUNICATIONS OR ALARM SYSTEM

If there is ever just one employee on the premises while the facility is operating, that employee will have immediate access to a device, such as a cell phone (immediately available at the scene of operation) capable of summoning external emergency assistance.

F-6 AISLE SPACE REQUIREMENT

Containers in each of the waste management units are arranged to allow trained personnel to inspect and/or label any stored container and, in emergency situations, to allow for unobstructed access to deploy fire protection, spill control, and decontamination equipment. Any placement or relocation of containers in each of the waste management units is overseen by the cognizant waste management unit operator/supervisor or designee.

There may be occasions when containers with low exposure rates may be used to provide radiation shielding for containers with higher exposure rates (this is known by the term 'dense packing'. Dense packing may be used so long as there is a means of detecting, locating the source of, and responding to a release within 24 hours of detection to mitigate any significant release.

Quarterly inspections cover aisle space requirements and focus on waste container location in relation to:

- Entryways and emergency egress routes
- Staged emergency equipment (e.g., fire extinguishers, spill control equipment)
- Other containers (i.e., allow inspection, movement, compatibility separation)

F-7 ARRANGEMENT WITH LOCAL AUTHORITIES

Please see Attachment G – Contingency Plan.

F-8 PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT

F-8a Unloading Operations

A description of waste transport operations is included in Attachment D – Process Description. This includes discussion of communication and participation in the loading and unloading of wastes and a description of the duties for the various participants. Large waste containers will be transported for off-site shipment/disposal by either a forklift truck or other suitable equipment. Small containers may be hand carried.

Normal loading and unloading operations at TAA-003 occur in the lower level railbed area of the facility illustrated in Figure B-3 (Attachment B – Facility Description). The access to the lower level railbed area provides ease of entry into and out of TAA-003.

All SPRU site personnel directly involved in loading/unloading operations have been trained in emergency response procedures in accordance with the training plan outlined in Attachment H – Personnel Training, of the permit application.

F-8b Run-Off

Run-on/run-off prevention for the contents within TAA-003 is achieved by the conex boxes and secondary containment as described in more detail in Attachment D – Process Description, of this application.

The conex boxes in TAA-003 are fully enclosed to prevent any container stored within the unit from being exposed to precipitation. There are no drains within any of the conex boxes. In the unlikely event that water did enter and collect within the conex boxes, the liquid could, if necessary, be treated or cleaned up and properly disposed.

The closest catch basins in proximity to the waste management units are designated on Figure B-4 (Attachment B – Facility Description). This figure also shows the catch basins along the primary transport routes for waste leaving the site.

F-8c Water Supplies

As noted above, containerized wastes in TAA-003 are stored within totally

enclosed conex boxes. Any waste released within the units would be contained and precluded from affecting the environment or ground water supplies in the vicinity of the release.

Also noted above, storm water from the vicinity of TAA-003 drains via the KAPL Site main storm drain management system directly to the Mohawk River. Discharge points are monitored via the KAPL Site State Pollutant Discharge Elimination System (SPDES) permit.

F-8d Equipment and Power Failure

TAA-003 is not equipped with power (with the exception of lighting attached to the outer block wall). If there has been an equipment failure or power outage which has resulted in a fire, explosion, spill, or release of hazardous waste, or produces conditions which could result in such events, the procedures described for each type of event in the Attachment G – Contingency Plan will be implemented.

F-8e Personnel Protective Equipment

Protective clothing is provided by SPRU for the specific purpose of protecting employees from physical injury, chemical exposure, and heat exposure. Required protective equipment (e.g., gloves, boot covers, aprons, etc.) that is appropriate for the work activities performed in TAA-003 is staged in or near the unit. An outline of all emergency equipment, including personal protective gear and its location, is provided in Attachment G – Contingency Plan, 6.6 Appendix F.

F-9 PREVENTION OF REACTION OF IGNITABLE, REACTIVE AND INCOMPATIBLE WASTES

F-9a Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste

There are no ignitable, reactive, or incompatible wastes stored in TAA-003. As discussed in Attachment C – Waste Characteristics all wastes have been fully characterized prior to placing in storage in the SPRU Mixed Waste Management Area to ensure proper segregation and handling.

Operating and waste handling practices are strictly enforced to prevent the ignition of wastes from sources such as open flames, smoking, cutting, welding, hot surfaces, and frictional sparks (static, electrical, or mechanical). Specifically:

a) All waste handlers are trained in safe waste handling practices as discussed in Attachment H – Personnel Training.
b) There are no open flames, cutting or welding permitted in the waste management unit.
c) No smoking is permitted in or near the waste management units. No Smoking signs are posted in accordance with 6 NYCRR § 373-2.2(i)(1).

F-9b General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste

Operating practices are strictly enforced to prevent accidental, uncontrolled reactions of the wastes, which might result in the generation of extreme pressure within the container, causing a fire, explosion, or violent reaction; or production of uncontrolled toxic mists, fumes, dusts, or gases which may impact human health or the environment.

F-9c Management of Ignitable or Reactive Wastes in Containers

There are no ignitable or reactive wastes in storage in TAA-003. As previously mentioned, in accordance with the Waste Analysis Plan noted in Attachment C – Waste Characteristics, Section C-4, all wastes have been characterized to avoid the placement of incompatible wastes in the same container. Should a spill of an individual or several containers occur, their contents would be absorbed by absorbent material thus reducing the likeliness of wastes mixing.

No ignitable or reactive wastes are stored within 50 feet of the property boundary, in compliance with 6 NYCRR § 373-2.9(g). The location of TAA-003 in relation to the property line are illustrated on Figure B-4 (Attachment B – Facility Description).

F-9d Management of Incompatible Wastes in Containers

The SPRU site has instituted operating procedures similar to those outlined above that reduce the risk of mixing incompatible wastes. These procedures are detailed in Attachment D – Process Description.

F-10 INSPECTION PLAN

F-10a Inspection Schedule

The procedures set forth in this inspection plan ensure that facility compliance with these regulations is maintained. A copy of this plan is available at the SPRU site at all times. This inspection plan is intended to provide a mechanism to prevent and detect system malfunctions, equipment and container deterioration, and operator errors which, if allowed to continue without remedial action, may ultimately lead to a release of hazardous/mixed waste constituents to the environment or create a threat to human health. The inspection plan is designed to provide an early warning of the potential for such events in order that corrective and preventive actions may be taken in a timely manner. The inspection schedule proposes conducting inspections of TAA-003 on a quarterly basis. This approach is intended to limit the inspectors' time in proximity to the higher dose rates from the waste containers, to maximize inspectors' distance from the dose area as much as possible, and to provide additional protection with the use of shielding.

F-10b General Site Inspection Requirements

The inspection plan focuses on the temporary on-site storage of mixed transuranic (MTRU) waste at the SPRU site (specifically within Temporary Accumulation Area, TAA-003) in accordance with this Part 373 operating permit. TAA-003 is regularly inspected for structural integrity, container condition and signs of deterioration, equipment availability and condition, and other factors relevant to preventing, detecting, or responding to situations that might have the potential to create a hazard or endanger human health and/or the environment. The types of potential problems and hazards uniquely associated with the SPRU site waste management unit were considered in establishing the parameters and frequency of inspections as presented in Table F-1.

F-10c Types of Problems

A list of the equipment that will be inspected and potential problems that may be encountered are provided in Table F-1, to serve as a reminder to the inspector and to ensure a thorough inspection. The inspector is required to check the status of each pertinent item or piece of equipment and indicate whether its condition is satisfactory or unsatisfactory. If corrective actions are necessary, these items will be noted on the log sheet until the repairs and/or corrective actions are completed.

F-10d Frequency of Inspection

Inspections at TAA-003 are conducted in accordance with the inspection schedule identified in Table F-1. The results of each inspection are recorded on an inspection log sheet, which has been developed to address the applicable information requirements from Table F-1. Information entered on the log sheet includes the inspector's name and title, date and time of inspection, items inspected, status of each item, observations and comments, including the nature of repairs and remedial action required if any.

F-10e Specific Process Inspection Requirements

F-10e1 *Container Inspection*

At a minimum, inspections of TAA-003 will be conducted on a quarterly basis and recorded on an inspection log sheet, which has been developed to address the applicable information requirements outlined on Table F-1. More frequent inspections may be performed as warranted by site conditions, such as following extreme weather events. When deemed necessary to control radiological exposure associated with the physical inspections, alternative methods (i.e., other than 'walk-through' inspections) capable of detecting leakage and/or deterioration such as remote monitoring devices or television monitors may be used to satisfy the inspection requirements. If this is deemed necessary, the New York State Department of Environmental Conservation (NYSDEC) will be contacted and provided with a description and appropriate supplemental

information concerning the alternative inspection method.

F-10e2 *Tank and Container Air Emissions*

Specific waste management unit (including containers) exemptions are provided in 6 NYCRR 373-2.29(a)(2). At the SPRU site, the MTRU wastes stored in TAA-003 are exempted from testing, evaluation, recordkeeping, and air emissions control management because the wastes are managed in a waste management unit that is used solely for on-site treatment or storage of hazardous waste that is placed in the unit as a result of implementing remedial activities required under the corrective action authorities of RCRA sections 3004(u), 3004(v), or 3008(h); CERCLA authorities, or similar Federal or State authorities including, but not limited to, 6 NYCRR Parts 373 and 375, Environmental Conservation Law, section 71-2727(3), and Environmental Conservation Law, article 27, titles 9 and 13; and because the wastes are managed in a waste management unit which is used solely for the management of radioactive mixed waste under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act.

F-10f Remedial Action

The cognizant waste management unit operator/supervisor or designee, at a minimum, performs regular inspections of the waste management unit(s) in accordance with the frequency specified in Table F-1. An inspection log sheet will be completed during each inspection and filed as part of the operating record. Inspections of loading and unloading areas are performed daily when activities involving shipping or receiving waste into or out of a permitted unit. Any comments relative to operational safety/environmental controls are noted on the inspection log and any necessary corrective actions or equipment repairs/replacements are initiated in compliance with 6 NYCRR §373-2.2(g)(3). Records of the inspections are kept on file for at least three years.

Any deterioration, malfunction, leaking container or spill residue, or other unsatisfactory condition detected during an inspection shall be remedied on a schedule which ensures that the problem does not lead to an environmental or human health hazard. If a situation occurs in which a release is found or a hazard is imminent, appropriate remedial actions will be conducted immediately.

F-10g Inspection Log

Inspection log sheets are developed specifically for TAA-003. The inspection log sheet includes dates and times of inspections, name(s) of inspector(s), observations made, and the date and nature of repairs or remedial actions taken, if any.

Table F-1. General Inspection Schedule TAA-003

Equipment	Inspection Element/Problem	Inspection Frequency
Area Lighting	Verify Functioning	Quarterly
Container Management – Conex Box Area Conditions	Inspect for evidence of spills, condition of surface water run-on and run-off controls, barriers, and conditions; standing water near conex boxes; appropriate signs posted and visible.	Quarterly, or as may be necessary following a storm event.
Conex Boxes (Exterior - General)	Inspect exterior of conex boxes for evidence of deterioration, leaking, corrosion, or damage; appropriate signs posted.	Quarterly
Conex Boxes (Interior – General)	Inspect interior for evidence of leaking or damaged containers, and adequate aisle spacing.	Quarterly
Container Management – Conex Box Interior Inspection	Inspect containers for any indications of leaking/corrosion/damaged conditions, labeling, containers closed, proper storage and containment.	Quarterly
Protective Gear	Inspect accessibility, supply, and for deterioration/damage	Quarterly
Spill Kits	Verify spill kit seal is intact and that spill kit is accessible. Open spill kit and verify adequate supply of absorbents and other materials.	Quarterly Yearly
Fire Extinguishers	Check inspection tag to ensure inspection complete and up to	Quarterly

Table F-1. General Inspection Schedule TAA-003

Equipment	Inspection Element/Problem	Inspection Frequency
	date. Check seal to ensure no one has used extinguisher. Check to ensure access to extinguisher is not blocked.	
Personnel Radio or other Communication Equipment	Verify Functioning	Quarterly

F-11 SECURITY ARRANGEMENTS

F-11a Security Procedures and Equipment

The Separations Process Research Unit (SPRU) site is located entirely within the Knoll Atomic Power Laboratory (KAPL) Site. The following describes the security procedures and equipment in place at the KAPL Site.

F-11b 24-Hour Surveillance System

KAPL Site security surveillance includes continuous 24-hour guard patrol and site access control. Entrance to the site is controlled by security personnel who are stationed at the main access gate. The main gate is the only gate which provides routine access to the site for vehicles, facility and non-facility personnel.

F-1c Barriers and Means to Control Entry

KAPL Site has 24-hour security surveillance and control at the main access gates. TAA-003 is located in the lower level area, which is enclosed with chain link fencing to prevent accidental or unauthorized access of persons or livestock. Gate access to the fenced area is locked after normal business hours. In addition to the fence and gate, access to conex box GVTU219605 (see Figure D1, Attachment D – Process Description), High Radiation Area, is controlled by means of locked doors (when not in use).

F-11d Warning Signs

Warning signs bearing the legend "DANGER - Unauthorized Personnel Keep Out" are posted at the entrance to TAA-003. These warning signs are clearly legible from a distance of 25 feet and can be seen from any access approach to the area.

ATTACHMENT G – CONTINGENCY PLAN

In accordance with the regulatory requirements set forth in 6 NYCRR 373-2.4 and 2.11(e), this Attachment has been developed to provide information concerning the contingency plan at the Separations Process Research Unit (SPRU) site located in Niskayuna, New York.

DEPARTMENT OF ENERGY (DOE)
ENVIRONMENTAL MANAGEMENT CONSOLIDATED BUSINESS CENTER NEW YORK PROJECT SUPPORT OFFICE (EMCBC-NY)

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Revision Number	7 Draft
Revision Date	

EMERGENCY PREPAREDNESS PLAN

Approved By: _____

Martin Krentz
Federal Project Director

EMCBC-NY
2425 River Road
Niskayuna, New York 12309

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I. ACRONYMS & ABBREVIATIONS

CPR	Cardiopulmonary Resuscitation
D&D	Demolition & Decontamination
DOE	U.S. Department of Energy
EC	Emergency Coordinator
ECC	Emergency Control Center
EM	Environmental Management
EMCBC	Environmental Management Consolidated Business Center
EMCBC-NY	Environmental Management Consolidated Business Center-New York Project Support Office
EMS	Emergency Medical Services
EOS	Emergency Operations Systems
EPA	Environmental Protection Agency
EPHA	Emergency Planning Hazards Assessment
EPP	Emergency Preparedness Plan
ERAP	Emergency Readiness Assurance Plan
ERC	Emergency Response Center
ERO	Emergency Response Organization
ES&H	Environmental Safety and Health
ESS	Emergency Services and Systems
FAR	Functions, Assignments, and Responsibilities
FEMA	Federal Emergency Management Agency
GE	General Emergency
HAZMAT	Hazardous Materials
HAZWOPER	Hazardous Waste Operations
HQ	Headquarters
ICM	Incident Command System
IH	Industrial Hygiene
IS	Industrial Safety
KAPL	Knolls Atomic Power Laboratory
LLRB	Lower Level Railbed
NIMS	National Incident Management System
NRLFO	Naval Reactors Laboratory Field Office
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
OE	Operational Emergency
PA	Public Address
PAC	Protective Action Criteria
PPE	Personal Protective Equipment
POC	Point of Contact
RAP	Radiological Assistance Program
REAC/TS	Radiation Emergency Assistance Center/Training Site

RQ	Reportable Quantity
SAE	Site Area Emergency
SPRU	Separations Process Research Unit
SWIMS	Stop, Warn, Isolate, Minimize Exposure, Secure
TAA	Temporary Accumulation Area
UE	Unusual Event

1.0 INTRODUCTION

This Emergency Preparedness Plan (EPP) implements the provisions for EMCBC-NY response to Operational Emergencies (OEs), and activities for maintaining the site emergency management program. DOE Order 151.1D, *Comprehensive Emergency Management System*, specifies that each DOE location must establish and maintain an emergency management program that complies with the Emergency Management Core Program requirements.

2.0 SCOPE

This EPP describes EMCBC-NY implementation of the emergency management program core requirements specified in DOE O 151.1D. These include an OE core program that provides the framework for response to serious events or conditions that involve the health and safety of workers and the public, the environment, and safeguards and security.

This document also serves as the EMCBC-NY site hazardous waste contingency plan and has been prepared to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water. This plan addresses the contingency plan and emergency requirements of 6 New York Codes, Rules & Regulations (NYCRR) 373-2.4, as appropriate, for the hazardous wastes present at the site. This plan and successor revisions will be maintained at the site. Provisions of the plan will be carried out immediately by the EMCBC-NY Emergency Coordinator (EC) whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents that could threaten human health or the environment.

3.0 SITE DESCRIPTION AND HISTORY

The EMCBC-NY site encompasses the remaining lands and areas from the demolition and decontamination (D&D) of the DOE-SPRU (Separation Process Research Unit) site on the Knolls Atomic Power Laboratory (KAPL) site, and the administrative trailer area.

4.0 CORE PROGRAM REQUIREMENTS

4.1 Program Administration and Management

The following paragraphs describe the responsibilities of the responsible management authorities:

- The EMCBC-NY Field Office Manager is responsible for oversight of all site personnel, the administration and enforcement of this EPP and for establishing coordination with KAPL emergency response. The Field Office Manager will:

    - Document a review of this EPP annually, and update, if appropriate.
    - Review and approve site, facility, and activity All-Hazards Surveys.
    - Review and approve site, facility, and activity Emergency Planning Hazards Assessments.
    - Ensure appropriate performance measures of the effectiveness of contractor site, facility, and activity emergency management programs are incorporated in contractual arrangements.

- The EC has overall responsibility during an emergency and ensures that the Field Office Manager is informed of ongoing field operations, directs field recovery efforts and ensures the continued operation of Mission Critical Systems, and assists in the development of recovery plan. Administrative responsibilities of the EC include:

  - Development and maintenance of emergency preparedness procedures;
  - Development of the Emergency Readiness Assurance Plan (ERAP);
  - Development and conduct of emergency training, drills, and exercise programs;
  - Coordination of self-assessment activities; and
  - Development of related facility documentation, and coordination of facility emergency resources.

4.2 All-Hazards Planning Basis

The All-Hazards Survey establishes the scope of the OE Core Program required at a facility and/or site by identifying potential hazards and associated emergencies, possible impacts, and the applicable emergency planning and preparedness requirements. The All-Hazards Survey also documents the hazardous materials screening process for use in determining the applicability of the OE Hazardous Material Program.

DOE-EM-004, *All-Hazards Survey*, documents that the only remaining hazardous materials of concern for the site are the TRU wastes staged in Temporary Accumulation Area (TAA)-003 located at the Lower Level Railbed (LLRB). The Survey found that hazardous materials (including the TRU waste) are not present in sufficient quantities to produce classifiable OEs. As a result, further analysis in an Emergency Planning Hazards Assessment (EPHA) is not required and the facility does not require the development of an OE Hazardous Material (HAZMAT) Program.

The results of the Survey were used to develop the emergency response conditions and response activity tables documented in Appendix A. These tables list the required response actions for the first responder and EMCBC-NY personnel who comprise the facility Emergency Response Organization (ERO).

4.3 Emergency Response Organization

For EMCBC-NY site related events, EMCBC-NY provides first response capability and follow-on response and reporting. For events requiring additional assistance, EMCBC-NY will establish command consistent with the principles of the National Incident Management System (NIMS). The KAPL Emergency Services and Systems (ESS) Captain or KAPL Emergency Response Team Lead will function as part of the EMCBC-NY Incident Command and will direct KAPL response forces. The EMCBC-NY EC will maintain incident scene command, control and coordinate the response with the KAPL ESS Captain.

The general structure of the EMCBC-NY ERO is comprised of the following positions:

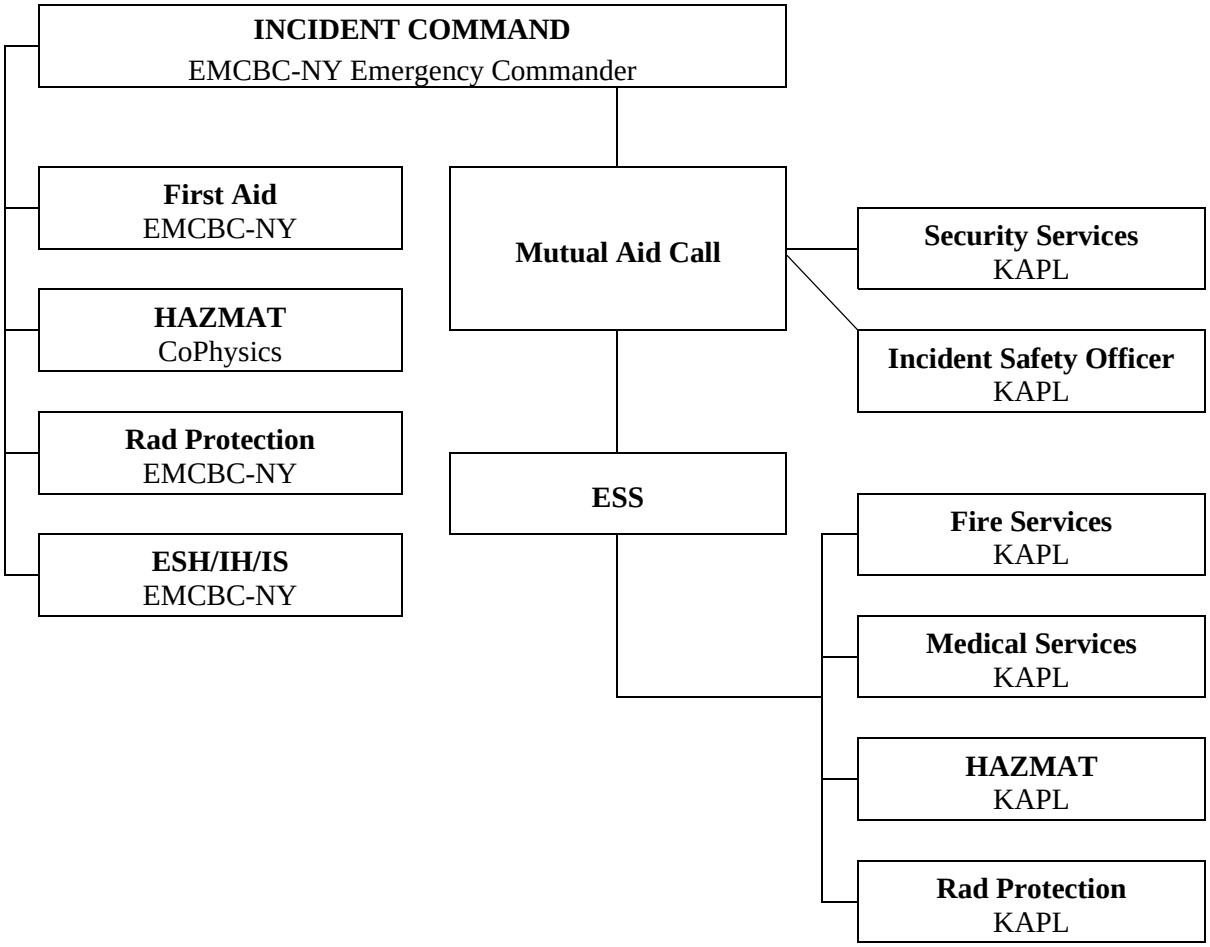
- On scene first responder/supervisor (until relieved by the EC)
- EC (or Backup EC)
- EMCBC-NY Field Office Manager

- KAPL Response Teams (Fire, Medical)
- EMCBC-NY Response Team (HAZMAT Contractor – CoPhysics)

EMCBC-NY personnel receive Radiation Worker and Hazardous Waste Operations (HAZWOPER) training, which facilitates their ability to enter areas in which operational emergencies may occur. EMCBC-NY staff are normally available during regular business hours and are on-call during off-hours.

Appendix A of this EPP identifies the EMCBC-NY individuals involved in emergency response, their contact numbers, and their actions to take in the event of an emergency. For events requiring KAPL support, the EC will coordinate the EMCBC-NY response with KAPL ESS, as appropriate (Exhibit 1). In the absence of both the Primary and Backup EC, the EMCBC-NY on-duty Facility Representative will fulfill the role of Alternate EC.

Exhibit 1. Field ERO for Events Requiring KAPL Support



4.4 Emergency Operations System

The Emergency Operations System (EOS) provides centralized collection, validation, analysis and coordination of information related to an emergency. The EOS supports on-scene response during an escalating incident by relieving the burden of site-level and

external communication and securing additional resources needed for the response. It does NOT provide tactical direction to the Incident Commander in the field; this is performed through an established Emergency Operations Center (EOC).

The Emergency Operations System will be activated upon (1) any declared EMCBC-NY site OE, or (2) as called for by the senior Emergency Response Organization federal representative present. The EOS must be able to:

- Establish and maintain an overall responsibility for supporting and coordinating the response to an emergency.
- Use the basic NIMS/ICS (National Incident Management System/Incident Command System) concepts of common terminology, management unity and delegation of authority. Both the EMCBC-NY EC and backup EC have received Federal Emergency Management Agency (FEMA) NIMS/ICS training.

4.5 Training and Drills

The following paragraphs describe the EMCBC-NY training, drills, and exercises conducted to support Emergency Preparedness. Additional training, drills, and exercises will be conducted as appropriate based on turnover of EMCBC-NY, contractors, and KAPL ERO personnel.

4.5.1 Worker Training

EMCBC-NY provides project-specific emergency response training to all site workers.

4.5.2 Additional Emergency Response Training

EMCBC-NY will provide additional training in accordance with EMCBC-NY Training Plan to personnel who have required actions (e.g., technical assistance, interface with KAPL ERO) in the event of an EMCBC-NY site-related emergency. In addition, EMCBC-NY and their contractors will be responsible to identify and train (if requested by KAPL) KAPL's HAZMAT team and local off-site responders on the hazards that may be encountered in EMCBC-NY controlled areas, in accordance with the EMCBC-NY Functions, Assignments, and Responsibilities (FAR) agreement.

4.5.3 Drills and Exercises

EMCBC-NY conducts drills involving the site to demonstrate competency in managing emergencies and as required by DOE Order 151.1D. At a minimum, annual drills are conducted to demonstrate building evacuation and to test communication systems with EMCBC-NY and DOE Headquarters (DOE-HQ). In addition, drills/exercises may be conducted as needed to validate emergency response interface readiness and the coordination with KAPL and local off-site responders. KAPL and Naval Reactors Laboratory Field Office (NRLFO) conduct site-wide and local drills to maintain the readiness of site personnel to potential

emergencies. Site personnel who have required actions or interface with the KAPL ERO will participate in drills, as well as other personnel as requested by KAPL. Coordination of these drills will be through the EMCBC-NY Field Office Manager and KAPL.

4.6 Emergency Medical Support

KAPL has personnel qualified as New York State Emergency Medical Technicians and a New York State Certified ambulance. The KAPL ambulance will also be available for any radiological or non-radiological emergency. In addition, KAPL currently has provisions and procedures for the transportation and receipt of contaminated injured workers at Ellis Hospital, including the use of KAPL radiological technicians to assist in the transport of individuals. These are available to EMCBC-NY and its Contractors. Work is generally performed as a single-shift operation; however, if after-hours care is needed, it will be provided at Ellis Hospital. KAPL maintains a Mass Casualty Incident Plan that utilizes agreements between KAPL and outside agencies. The plan will be used in an emergency if casualties/injuries exceed the resources that KAPL has available.

During a medical emergency, certain essential patient records will be created, maintained, and preserved. Sharing of patient medical information or casualty information between health care providers and the employer during an emergency will be performed in accordance with the Health Insurance Portability and Accountability Act of 1996.

4.7 Offsite Response Interfaces

KAPL emergency response resources will be made available to EMCBC-NY for emergencies, as required. EMCBC-NY and KAPL emergency responders (after their arrival) will determine if emergencies require fire or emergency medical services (EMS). Off-site response is provided in accordance with KAPL's Memorandum of Understanding with the Niskayuna Fire Department. In the event that local police assistance is needed, EMCBC-NY will contact KAPL Security and KAPL Security will contact Niskayuna Police. Additionally, EMCBC-NY has established procedures for medical treatment with Ellis Hospital. Ellis Hospital will provide first aid (that which is beyond the capabilities of project personnel) and treatment for medical emergencies and inhalation events. Off-site resources such as Radiological Assistance Program (RAP) and Radiation Emergency Assistance Center/Training Site (REAC/TS) are available when needed for assistance with incidents involving radiological materials. These resources are requested through the DOE program from the DOE Brookhaven National Laboratory Regional Coordinating Office.

4.8 Emergency Categorization

In accordance with DOE Order 151.1D, all DOE facilities must establish criteria for quickly determining if an event is an OE and must also declare an OE when events occur that represent a significant degradation in the level of safety at a facility and that require time-urgent response efforts from outside the facility. This section of the EPP provides the categorization and classification definitions for use at the EMCBC-NY site, and the appropriate means to determine the categorization/classification of a potential event.

4.8.1 Emergency Categorization/Classification Levels

KAPL is under the jurisdiction of NRLFO, which is not subject to DOE Orders for the categorization and classification of emergency events. As a result, categorization and classification levels for KAPL are different from those required by DOE Environmental Management (EM). Since emergency management services beyond the initial responder level at the EMCBC-NY site are provided by KAPL, categorization/ classification levels for use at the EMCBC-NY site need to 1) be consistent with NRLFO guidelines in order to reduce confusion by the KAPL responders and 2) meet DOE-EM requirements.

To maintain consistency with NRLFO/KAPL response levels and to ensure uniform reporting to local, state, and federal agencies for these co-located facilities, EMCBC-NY has adopted NRLFO/KAPL emergency categorization/classification criteria. (Exemption to DOE Order 151.1D, Chapter 5 requirements are not required as the classification criteria in use by NRLFO/KAPL are more conservative.) Criteria applied in lieu of those specified by the Order are derived from the guidance of NUREG-0654, *Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants*, which is the basis for NRLFO/KAPL event emergency classification levels. These classification levels are outlined in Table 1 below.

Table 1. KAPL Emergency Classification Levels

Protective Action Criteria	Location	Event Classification
< 10 mrem whole body radiation exposure or < 50 mrem thyroid exposures	Facility Boundary	Unusual Event
10 to < 100 mrem whole body radiation exposure or 50 to < 500 mrem thyroid exposures	Facility Boundary	Alert
0.1 to < 1 rem whole body radiation exposure or 0.5 to < 5 rem thyroid exposures	Facility Boundary	Site Area Emergency
≥ 1 rem whole body radiation exposure or ≥ 5 rem thyroid exposures	Facility Boundary	General Emergency

Event classification levels presented in DOE O 151.1D were intended for facilities typically having large buffer areas for members of the off-site public. Classification levels in the Order are provided relative to a "facility boundary" as well as a "site boundary." For EMCBC-NY, the terms "facility boundary" and "site boundary" are considered to be synonymous due to the small size of the site and its close proximity to the public. Thus, the distance of 100 m recommended in DOE G 151.1-2, *Technical Planning Basis*, as the evaluation distance corresponding to "facility boundary" is also considered the "site boundary" for determination of emergency classification levels for the site. This distance is consistent with the distance prescribed in NUREG-0654 for "facility boundary." Comparison of the classification levels presented in Table 1 to those prescribed in DOE O 151.1D with the understanding that "facility boundary" and "site boundary" are both to be interpreted as 100 m reveals that the classification levels of Table 1 are equivalent to, or more conservative than, those imposed by the Order.

The KAPL emergency classification levels do not include chemical thresholds; however, all chemicals and chemical wastes at the site are present in quantities below screening criteria thresholds, as documented in DOE-EM-004, *All-Hazards Survey*.

4.8.2 Emergency Categorization/Classification Determination

DOE Order 151.1D defines OEs as major unplanned or abnormal events or conditions that: involve or affect DOE facilities and activities by causing or having the potential to cause serious health and safety or environmental impacts; require resources from outside the immediate/affected area or local event scene to supplement the initial response; and require time-urgent notifications to initiate response activities at locations beyond the event scene. These events are more severe than the events described in DOE Order 232.2, *Occurrence Reporting and Processing of Operations Information*. Incidents that can be controlled by employees or maintenance personnel in the immediate area are not OEs.

Table 2 shows the various OEs as defined in DOE Order 151.1D, criteria that define the OE, and presents potential indicators for each OE. As implemented in this EPP, events meeting the criteria of an OE as identified in Table 2 shall be considered an "Unusual Event" (UE). The EC will make the initial categorization of an OE as promptly as possible, but no later than 15 minutes after event recognition, identification, or discovery, as required by DOE Order 151.1D. Event classification will be made based on an assessment of the event and radiological data collected by EMCBC-NY, NRLFO, and/or KAPL personnel.

The intent of the EMCBC-NY site EPP is to declare an OE for the Field Office site when any of the OEs listed in Table 2 are identified. For events involving a radiological release, an OE meeting the criterion for a UE as defined in Table 1 will result in the declaration of a UE. Escalation to an Alert, Site Area Emergency (SAE) or General Emergency (GE) will be done under the direction of KAPL in accordance with KAPL emergency procedures.

Table 2. Criteria for Identification and Determination of Operational Emergencies (EMCBC-NY UE)

Event Type	Criteria	Potential Indicators
Hazardous Materials Release	Radiation or radioactive material at site project boundary which would result in a KAPL worker receiving a dose of up to 10 mrem.	An operational event involving loss of radioactive material confinement integrity with detectable levels of radioactive material contamination outside of confinement.
Health and Safety	The discovery of radioactive or other hazardous material contamination (including hazardous waste) from past site operations that may have caused, is causing, or may reasonably be expected to cause uncontrolled personnel exposures exceeding Protective Action Criteria (PAC).	Significant levels of contamination outside of controlled areas as determined by a Radiation Protection Manager, Subject Matter Expert, or designee.

Table 2. Criteria for Identification and Determination of Operational Emergencies (EMCBC-NY UE)

Event Type	Criteria	Potential Indicators
	An off-site hazardous material event not associated with site operations observed to have or is predicted to have an impact on the site, such that protective actions are required for onsite workers.	Notification by KAPL to take protective actions.
	An occurrence (e.g., earthquake, tornado, aircraft crash, fire, explosion) that causes or can reasonably be expected to cause significant structural damage to site facilities, with confirmed or suspected personnel injury or death.	Observation of event or notification by KAPL of the event.
	Any facility evacuation in response to an actual occurrence that requires time-urgent response by specialist personnel, such as hazardous material responders or mutual aid groups not normally assigned to the affected facility.	Any event determined to be beyond site response capability for which KAPL assistance is requested.
	An unplanned nuclear criticality.	N/A – The EMCBC-NY areas do not possess fissile material in a form or quantity to permit an inadvertent criticality.
	Any mass casualty event.	Observation or other indication of the event.
Environment	Any actual or potential release of hazardous material or regulated pollutant to the environment, in a quantity greater than 5 times the Reportable Quantity (RQ) specified for such material in 40 Code of Federal Regulations 302, that could result in significant off-site consequences, such as major wildlife kills, wetland degradation, aquifer contamination, or the need to secure downstream water supply intakes.	N/A – The EMCBC-NY areas do not use, have, or store hazardous material or regulated pollutant in a quantity greater than 5x the RQ specified for such material in 40 CFR 302.
	Any release of greater than 1,000 gallons (24 barrels) of oil to inland waters; greater than 10,000 gallons (238 barrels) of oil to coastal waters; or a quantity of oil that could result in significant off-site consequences (e.g., need to relocate people, major wildlife kills, wet-land degradation, aquifer contamination, need to secure downstream water supply intakes, etc.) [Oil as defined by the Clean Water Act (33 U.S.C. 1321) means any kind of oil and includes petroleum.]	N/A –site does not store quantities of oil in excess of these amounts

Table 2. Criteria for Identification and Determination of Operational Emergencies (EMCBC-NY UE)

Event Type	Criteria	Potential Indicators
Security and Safeguards	Actual unplanned detonation of an explosive device or a credible threat of detonation resulting from the location of a confirmed or suspicious explosive device.	Observation or other indication of the event.
	An actual terrorist attack or sabotage event involving a site facility or operation.	Observation or other indication of the event.
	Kidnapping or taking hostage(s) involving a site employee.	Observation or other indication of the event.
Off-site DOE Transportation Activities	Any accident/incident involving an off-site site shipment containing hazardous materials that causes the initial responders to initiate protective actions at locations beyond the immediate/affected area.	Observation or other indication of the event.
	Failures in safety systems threaten the integrity of a nuclear weapon, component, or test device.	N/A – The site will not be transporting nuclear weapons, components, or test devices.
	A transportation accident results in damage to a nuclear explosive, nuclear explosive-like assembly, or Category I/II quantity of Special Nuclear Materials.	N/A – The site will not be transporting nuclear explosives, nuclear explosive-like assemblies, or Category I/II quantities of Special Nuclear Materials.
Hazardous Biological Agent or Toxins	Any actual or potential release of a hazardous biological agent or toxin outside of the secondary barriers of the biocontainment area.	N/A – The site does not use, have, or store hazardous biological agents or toxins.

4.9 Protective Actions

The primary objective for protective actions with respect to facility workers is to minimize their exposure to radiation and airborne activity. For most emergencies, this will involve sheltering in place, taking cover, avoiding the accident area or evacuation of areas if airborne activity is detected.

During an emergency, the EC must take all reasonable measures necessary to ensure that fires, explosions and releases do not occur, recur, or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers. The EC must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate. Immediately after an emergency, the EC must provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility. The EC must ensure that, in the affected area(s) of the facility:

(i) No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and

(ii) All emergency equipment listed in this plan is cleaned and fit for its intended use before operations are resumed.

Appendix A to this EPP identifies the OEs applicable to the site that would result in a declaration of a UE and activation of the EPP. Appendix A includes site personnel responsibilities for the Operational Emergencies applicable to site operations. OEs that are the result of offsite events or KAPL initiated events are not addressed in Appendix A.

4.9.1 Evacuation

Evacuation or sheltering of EMCBC-NY site employees, accountability after emergency evacuation is completed, and the protection of site workers involved in emergency response and recovery are controlled under the provisions of this EPP. Evacuation of EMCBC-NY site personnel due to natural phenomena events or KAPL initiated events will be at the direction of KAPL. KAPL is responsible for informing EMCBC-NY of KAPL events requiring evacuation of personnel as conditions warrant.

EMCBC-NY directs evacuations to its personnel through cell phone, land line phone, and/or face-to-face. Personnel shall place equipment in a safe condition, all doors and windows shall be shut when exiting the building. All EMCBC-NY personnel shall assemble at one of the assembly areas, as shown on Appendix G.

4.10 Emergency Facilities and Equipment/Systems

The Emergency Response Center (ERC) for the EMCBC-NY project is in trailer SP-26 at the project site. If the conditions exist such that SP-26 or other EMCBC-NY project trailers cannot be utilized, the EC will coordinate with NRLFO to identify a suitable location. When an event occurs that requires activation of the EMCBC-NY ERO, the EC and/or Backup EC will determine what support is necessary to properly respond to the condition. All field response activities and communications will be made through the ERC.

EMCBC-NY provides equipment consistent with its primary emergency response duties of first response and timely communications. This equipment is staged in the EMCBC-NY administrative trailer area and adjacent to the TAA-003 waste storage area. Appendix F provides a comprehensive list of emergency equipment descriptions and locations. For EMCBC-NY site emergencies judged to be beyond the capability of the Field Office capabilities, KAPL provides facilities and equipment adequate for such support, including employee emergency notifications to facilitate site-wide protective actions. KAPL has provisions for an Emergency Control Center (ECC), alternate ECC, and protective equipment and supplies. Communications from the EMCBC-NY ERC to the ECC can be established through a communication bridge in the KAPL ECC (see section 4.11, Notifications and Communications). KAPL has personnel qualified as New York State Emergency Medical Technicians and a New York State Certified ambulance. The KAPL ambulance will also be available for any radiological or non-radiological emergency.

4.11 Notifications and Communications

The EPP contains provisions for the prompt initial notification of workers, emergency response personnel, various organizations who respond to public inquiries, and external communications. If an event requiring site-wide notification occurs at the DOE-NYY site, KAPL will be contacted to make the public address (PA) announcement. KAPL site-wide emergency notifications are made via the PA system (or equivalent). EMCBC-NY employees will respond appropriately to KAPL site-initiated alarms and announcements. In cases where EMCBC-NY workers are onsite but out of range of the PA system, emergency communications will be relayed by cellular phone, land line phone, and/or face-to-face as appropriate.

The EC initiates emergency communications for EMCBC-NY work-related incidents that impact workers or could potentially impact other KAPL site workers. EMCBC-NY will immediately notify KAPL of any OE that has the potential to impact KAPL areas outside the EMCBC-NY work areas or has the potential to impact the general public off-site areas. For OEs that require KAPL assistance, the EC coordinates the emergency response with the KAPL ESS Captain. Communications are maintained per NIMS. If the KAPL ECC is activated, EMCBC-NY will communicate to the KAPL ECC through a reserved bridge number for the EMCBC-NY event.

For any emergency, the EC will coordinate DOE-HQ Operations Center notifications, local field office (EMCBC-NY) notifications and regulatory notifications. The DOE-HQ Operations Center, EMCBC-NY Field Office Manager, and NRLFO/KAPL will be notified as promptly as possible but no more than 30 minutes after an event has been categorized as an OE.

State and local notifications are made by the EC using contact information in Table 3, following consultation with NRLFO and KAPL. If the EC determines that evacuation of local areas may be advisable due to a hazardous waste release, fire or explosion, appropriate local authorities must be notified immediately. The EC will consult with NRLFO and KAPL to decide whether local areas should be evacuated. Notifications related to hazardous waste releases will include the New York State Department of Environmental Conservation (NYSDEC) using the New York State 24-hour oil and hazardous material spill notification number and other state agencies as required. Public communications for EMCBC-NY and KAPL site are managed through EMCBC-NY and NRLFO.

If an event occurs pertaining to off-site transportation of waste or material originating from the site, the transporter will notify the person identified on the shipping papers as the proper point of contact. Notification will be made by that point of contact to the EMCBC-NY site personnel. A sample Emergency Notification Form can be found in Appendix B of this document.

If this plan is implemented due to a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment, notification must be made to the NYSDEC Commissioner and appropriate Federal, State, and local authorities using the contact information listed in Table 3.

Table 3. Emergency Contact Information

Name/Title	Telephone Number
DOE Headquarters Operations Center	Phone: 202-586-8100 Fax: 202-586-8485 e-mail: doehqeoc@oem.doe.gov
EMCBC-NY	Desk: 518-395-4580 Cell: 716-545-8592
EPA – National Response Center	800-424-8802
EPA Region II Emergency Response Team	201-548-8730
NYSDEC Spill Response Hotline	800-457-7362
New York State Watch Center	24 Hour Number: 518-292-2200

A written report on the incident shall be submitted to the NYSDEC commissioner within 15 days after such an incident. The written report must include:

- Name, address, and telephone number of the facility owner
- Name, address, and telephone number of the facility
- Date, time, and type of incident (e.g. fire, explosion)
- Name and quantity of material(s) involved
- The extent of injuries (if any)
- An assessment of actual or potential hazards to human health or the environment, where applicable
- Estimated quantity and disposition of recovered material that resulted from the incident

Notification shall be made to document that the EMCBC-NY site is in compliance with the following criteria before operations are resumed in the affected area(s) of the facility:

(i) No waste that may be incompatible with the released material is treated, stored or disposed of until cleanup procedures are completed; and
(ii) All emergency equipment listed in this plan is cleaned and fit for its intended use before operations are resumed.

4.12 Emergency Public Information

In the event that emergency public information needs to be provided, EMCBC-NY will provide the information. EMCBC-NY will coordinate with NRLFO in any such event. SPRU-EM-004, *All-Hazards Survey,* determined that the EMCBC-NY site does not have the potential to generate a classifiable OE (using the combined emergency classification levels defined in Section 4.8.1); therefore, no involvement in emergency public information is expected.

4.13 Termination and Recovery

Termination is the declared conclusion of an OE. Formal termination of emergency response is to be considered when conditions at the incident scene and other impacted areas are sufficiently well defined and stable that the capabilities of the entire ERO are no

longer needed to manage the situation. The decision to terminate emergency response and the subsequent notification of all involved Federal, Tribal, State, and local organizations mark the beginning of recovery. Examples of possible termination criteria include:

- The affected facility, site, or incident scene is in a stable condition, and there is a high probability that it can be maintained in that condition.
- Fire, flood, earthquake, or similar emergency conditions and/or security considerations no longer constitute a hazard to critical systems/equipment or to personnel.
- Existing conditions no longer meet the established emergency categorization criteria, and it appears unlikely that conditions will deteriorate.
- All contaminated and/or injured personnel have been treated and/or transported to medical facilities.
- All initial emergency notifications have been completed.
- Accountability of personnel is complete.
- Radiation / hazardous material exposure levels at the scene are stable or decreasing.
- Releases of radioactive or hazardous materials to the environment have ceased or are controlled within permissible regulatory limits listed below:
    - The total estimated additional release of hazardous material is less than allowable limits or reportable quantities, and
    - The total estimated additional site boundary dose is less than the allowable limits for normal operations.
- Incident scene can be preserved until cognizant investigative authority concurs that recovery or normal operations may be resumed.
- Discussions with regulatory authorities, NRFLO / KAPL and other members of the ERO do not identify any valid reason to continue in an emergency classification.
- Security declaration is terminated or downgraded as directed by NRFLO / KAPL.

Termination will be determined by the EMCBC-NY EC for events where KAPL is not called upon for support. EMCBC-NY is responsible for any necessary recovery planning and recovery actions for OEs occurring at EMCBC-NY, regardless of KAPL involvement. For emergencies requiring KAPL response, termination criteria will be determined by EMCBC-NY EC after consulting the KAPL ESS Captain or other KAPL Emergency Response Team Leader. While recovery planning may start prior to the termination of the event, EMCBC-NY retains management of the emergency and does not commence recovery actions until after termination has been declared and the appropriate termination notifications have been performed.

Before an OE is terminated, any recovery actions necessary to restore the facility and site to normal operations will be identified, and a recovery plan to accomplish those actions will be developed by the EC approved by the EMCBC-NY Field Office Manager. For an OE, the need for a formal Recovery Plan will depend on the complexity and expected duration of any actions to deal with after-effects of the event. An OE that will require follow-up actions extending well beyond the time period when the full capabilities of the ERO are needed to manage the event requires development of a Recovery Plan prior to termination of the event.

A sample recovery plan format can be found in Appendix D of this document. Appendix E, *Sample Recovery Plan Checklist*, may be used to assist in the development of the recovery plan. Not all items in the recovery plan will be applicable to all events;

therefore, the plan should be expanded or reduced to contain pertinent information with a reasonable level of detail based on the specific event.

The following are typical components of a recovery plan, as applicable to the event:

- Define operational and environmental impact
- Establish re-entry/entry requirements for all evacuated facilities / areas
- Define overall strategy
- Notifications associated with termination of incident
- Event assessment and investigation
- Criteria for the resumption of normal operations
- Identify recovery organization and facility to be used (e.g., SP-26)
- Recovery planning and scheduling to include identifying:
  - Near term / long term Safeguards and Security requirements
  - Identify near term / long term Environmental Safety & Health (ES&H) requirements
  - Identify near term / long term Rad Con requirements
  - Environmental monitoring and compliance
  - Waste Management activities
  - Decontamination activities
  - Development and approval of recovery procedures
  - Access control prints established
  - Repair and restoration
- Interface with off-site authorities
- Communication and notifications
- Reporting Requirements
- Replenish, repair or replace emergency equipment or consumables

If a recovery plan is necessary, prior to terminating the emergency, the ERO will establish the recovery organization and determine that resources are available to begin recovery operations. The composition of the recovery organization will vary depending on the severity of the event and the anticipated complexity of recovery actions. Functional elements in the recovery organization may include the following, as applicable:

- A Recovery Manager having the responsibility and authority to coordinate onsite recovery planning; authorize recovery activities; protect the health and safety of workers and the public; and initiate, change, or recommend protective actions.
- Personnel with technical expertise to direct post-accident assessment activities, to analyze the results and to identify/conduct repair and restoration activities.

Information regarding specific personnel responsibilities throughout an emergency, up to and including recovery efforts can be found in Section 4.1.
Recovery must also include investigation of the root cause(s) of the emergency and corrective action(s) to prevent recurrence in accordance with DOE requirements (e.g., see DOE O 225.1B, *Accident Investigations*, DOE O 231.1B Change 1, *Environment, Safety, and Health Reporting*, and DOE O 422.1, Change 2, *Conduct of Operations)*.

Following termination of emergency response, and in conjunction with the Final Occurrence Report (see DOE O 232.2), each activated Emergency Management Team

must submit a final emergency report on the emergency response to the Emergency Manager for submission to the Director, Office of Emergency Operations. The EC is responsible for the development of the final emergency report.

4.14 Readiness Assurance

The Readiness Assurance Program provides the framework and associated mechanisms for assuring that (1) emergency plans and procedures are adequate and maintained, and (2) appropriate and timely improvements are made when identified. The Readiness Assurance Program serves to ensure the readiness and effectiveness of the Emergency Management Program and promotes a culture of continuous improvement. The Readiness Assurance Program consists of (1) Evaluations, (2) Improvements, and (3) the ERAP.

4.14.1 Evaluations

- Assessments: Self-assessments that address all program elements are conducted annually; however, the scope of each program element assessment does not have to include all aspects of the associated programmatic or response tasks each year. The determination of scope will ensure that all program elements are assessed and/or validated through exercise over a five-year period.
- Exercises:
  - A table-top exercise was conducted with CoPhysics Corporation to ensure adequacy of their *Emergency Planning and Response Procedure for the SPRU Waste Storage Area*. Participants included personnel from CoPhysics, DOE, NR, and KAPL.
  - EMCBC-NY participates in the annual KAPL emergency exercise on an "as requested" basis.
- Performance Indicators: EMCBC-NY has historically tracked a Performance Indicator of "The number of identified deficiencies related to Emergency Management." This was tracked and reported through the contractor assurance program. This performance indicator will continue to be tracked and reported as part of the *Emergency Readiness Assurance Plan*, DOE-EM-001.

4.14.2 Improvements

- Corrective Actions:
  - Corrective actions are developed and implemented for findings identified during evaluations, assessments, drills exercises, and actual emergencies.
  - Corrective actions are tracked through the EMCBC-NY corrective action tracking system.
  - Responsible personnel are assigned for each corrective action.
  - Corrective actions are to be implemented as soon as reasonably possible, but within 45 days.
- Lessons Learned:
  - Lessons learned will be gleaned from drills, actual responses, and the EMCBC-NY Lessons Learned Program.

- Lessons learned will be reviewed from emergency management program activities under DOE Order 210.2A, *DOE Corporate Operating Experience Program.*
- Lessons learned and best practices from the Office of Enterprise Assessment annual lessons learned report will be reviewed for continuous improvement opportunities.

4.14.3 Emergency Readiness Assurance Plan

- EMCBC-NY will develop an ERAP that:
  - Highlights program status, including significant changes in the emergency management program (e.g., all hazards planning basis, organizations, and exemptions);
  - Includes a summary of the Threat and Hazards Identification and Risk Assessment;
  - Documents evaluation results and the status (e.g., open/unresolved or closed) of associated corrective actions;
  - Identifies emergency management goals for the fiscal year that ended and the degree to which those goals were accomplished;
  - Identifies emergency management goals for the next fiscal year; and
  - Is submitted to the Field Element Manager or appropriate Federal Manager for approval.
- A consolidated ERAP covering the sites/facilities/activities under the supervision of the Field Office Manager will be prepared and submitted to the Program Secretarial Officer and Associate Administrator, Office of Emergency Operations by November 30 each year.
  - Each site/facility/activity will prepare and submit their ERAP by October 15th to the Field Office Manager.

5.0 REFERENCES

1. DOE Order 151.1D, *Comprehensive Emergency Management System*
2. DOE-EM-004, *Hazards Survey*
3. *Functions, Assignments and Responsibilities (FAR) at the Knolls Atomic Power Laboratory, KNOLLS Site*
4. KAPL Mass Casualty Incident Plan
5. Public Law 104-191, *Health Insurance Portability and Accountability Act (HIPAA) of 1996*
6. NUREG-0654, *Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants*
7. DOE Guide 151.1-2, *Technical Planning Basis*, July 11, 2007
8. DOE Order 232.2, *Occurrence Reporting and Processing of Operations Information*
9. 40 CFR, Part 302, *Designation, Reportable Quantities, and Notification*
10. Clean Water Act, 33 U.S.C. 1321, Oil and Hazardous Substance Liability
11. DOE Order 225.1B, *Accident Investigations*
12. DOE Order 231.1B, Change 1, *Environment, Safety, and Health Reporting*
13. DOE Order 422.1, Change 2, *Conduct of Operations*
14. *Emergency Planning & Response Procedure for the SPRU Waste Storage Area*
15. DOE-EM-001 *Emergency Readiness Assurance Plan (ERAP)*
16. DOE Order 210.2A, *DOE Corporate Operating Experience Program*

6.0 APPENDICES

6.1 APPENDIX A, EMCBC-NY Site Operational Emergencies and Response Actions

6.2 APPENDIX B, Example Emergency Notification Form

6.3 APPENDIX C, Re-Entry Assessment Guidelines

6.5 APPENDIX D, Sample Recovery Plan Format

6.6 APPENDIX E, Sample Recovery Plan Checklist

6.7 APPENDIX F, Emergency Equipment Descriptions and Locations

6.8 APPENDIX G, EMCBC-NY Emergency Assembly Areas

6.9 APPENDIX H, EMCBC-NY Quick Reference Guide

6.1 APPENDIX A
EMCBC-NY Site Operational Emergencies and Response Actions

Table A-1. Criteria for Declaration of an Operational Emergency and Activation of the EMCBC-NY Site EPP

Event Type	Entry Criteria	Protective Actions	Exit Criteria
Hazardous Materials Release	Radiation or radioactive material at facility boundary (100 meters) that would result in a whole-body dose of up to 10 mrem. (**UE**) Distance to PAC (10 mrem) per hazard survey is 100 meters	**Onsite**: Relocate or shelter personnel **Offsite**: None	Release is stopped and the source of the event is under control.
	Chemical release greater than protective action criteria	(No chemical release met DOE criteria for an Operational Emergency.)	Release is stopped and the source of the event is under control.
Health and Safety	The discovery of radioactive or other hazardous material contamination (including hazardous waste) from past site operations that may have caused, is causing, or may reasonably be expected to cause uncontrolled personnel exposures exceeding PAC.	Relocate or shelter personnel.	Material is under control and no longer a threat to personnel.
	An off-site hazardous material event not associated with site operations that is observed to have or is predicted to have an impact on the site, such that protective actions are required for onsite workers.	Relocate or shelter personnel.	Material is under control and no longer a threat to personnel.
	An occurrence (e.g., earthquake, tornado, aircraft crash, fire, explosion) that causes or can reasonably be expected to cause significant structural damage to site facilities, with confirmed or suspected personnel injury or death.	Relocate or shelter personnel.	Event scene is stabilized.
	Any facility evacuation in response to an actual occurrence that requires time-urgent response by specialist personnel, such as hazardous material responders or mutual aid groups not normally assigned to the affected facility.	Relocate or shelter personnel.	Material is under control and no longer a threat to personnel.
	Any mass casualty event.	Minimize employee entry to casualty scene.	Casualty initiator is terminated.

Table A-1. Criteria for Declaration of an Operational Emergency and Activation of the EMCBC-NY Site EPP

Event Type	Entry Criteria	Protective Actions	Exit Criteria
Security and Safeguards	Actual unplanned detonation of an explosive device or a credible threat of detonation resulting from the location of a confirmed or suspicious explosive device.	Using face-to-face communications, instruct employees not to touch anything. Evacuate site personnel.	Fire or explosion completed, and facilities stabilized
	An actual terrorist attack or sabotage event involving a site facility or operation.	Relocate employees as needed.	Threat is neutralized.
	Kidnapping or taking hostage(s) involving a site employee.	Relocate employees as needed. Instruct employees to take cover, leave immediate area if possible, and report to Security with any information of value to identify hostage-taker, equipment, etc.	Threat is neutralized.
Off-site DOE Transportation Activities	Any accident/incident involving an off-site site shipment containing hazardous materials that causes the initial responders to initiate protective actions at locations beyond the immediate/affected area.	N/A	Release is stopped and the source of the event is under control.

Table A-2. Emergency Response Organization Contact List

ERO Position	Assigned Position	Assigned Person	Office Number	Cell Number
Emergency Coordinator	Primary: EMCBC-NY Federal Project Director	Martin Krentz	518-395-4580	716-545-8592
	Backup: EMCBC-NY Facility Representative	Erik Pakosz	518-612-5684	518-603-9316
	Backup: Radiological Program Lead	Dean Powell	518-395-6554	518-880-7241
Primary Emergency Coordinator Address: 9 Anyhow Lane, Wilton, NY 12831 Backup Emergency Coordinator Address: 27 Westbury Court, Clifton Park, NY 12065 Backup Emergency Coordinator Address: 108 Fonda Road, Waterford, NY 12188				
EMCBC-NY Address: SP-26 2425 River Road Niskayuna, NY 12309				
KAPL Emergency Response	KAPL Emergency Response	KAPL Security – 24 Hour	518-612-5599	Not applicable
DOE Headquarters Operations Center (HQ-OC)	DOE Headquarters Operations Center (HQ-OC)	doehqeoc@oem.doe.gov	202-586-8100	Not applicable

Table A-3a. Emergency Condition: Hazardous Material Release

EMERGENCY RESPONSE ACTIONS

Initiating Events:
Radiation or radioactive material at EMCBC-NY site project boundary which would result in a KAPL worker receiving a dose of up to10 mrem.

- An operational event involving loss of radioactive material confinement integrity with detectable levels of radioactive material contamination outside of confinement.

Responder Actions

EMCBC-NY Site First Responder	Emergency Coordinator (EC) (or designee)	EMCBC-NY Field Office Manager (or designee)	KAPL
*On-scene personnel in charge until relieved by the Field Office Emergency Coordinator (EC) 1. SWIMS (*stop, warn, isolate, minimize exposure, and secure unfiltered ventilation*, if appropriate). 2. If trained, stop the release and warn others if possible. 3. Cover storm drains in the vicinity using covers in the jobsite HAZMAT spill response kit. 4. Notify EC or next on call list. 5. If release is beyond Field Office capability, dial 518-612-5599 and provide location/nature of emergency. 6. Standby at safe distance until relieved. 7. Provide access to KAPL.	1. Reports to emergency scene and directs on-scene response as EC. If KAPL called for support, coordinates response with KAPL Emergency Response Captain. 2. Maintains communication with ERC and provides overall direction for the EMCBC-NY site emergency. 3. Notifies Security. 4. Determines if event is an Emergency within 15 min., in accordance with EPP. If an event is an Emergency, notifies DOE-HQ within 30 minutes after event classification. 5. Provides for additional technical, survey, or support staff to assist KAPL, as requested. 6. Provides for outside emergency response contractor to undertake cleanup response if needed. 7. Evaluates event in accordance with this EPP and Event Investigation and Occurrence Reporting procedure. 8. Develops re-entry plan, if applicable. 9. Determines if termination criteria are met, if applicable. 10. Establishes corrective actions and recovery plan, if appropriate.	1. Goes to ERC to provide technical assistance. 2. Provides assistance in establishing safe conditions. 3. Provide overall support for emergencies. 4. Authorize re-entry activities and perform notifications of planned actions. 5. Assists KAPL / NRLFO / EMCBC-NY Field Office in preparing public communications, if required. 6. Approve recovery plan, if applicable.	1. If requested, KAPL Radiological Controls and HAZMAT respond and perform actions in accordance with the KAPL emergency procedures.

Table A-3b. Emergency Condition: Health and Safety (Not Natural Phenomena Related)

EMERGENCY RESPONSE ACTIONS

Initiating Events:

1) The discovery of radioactive or other hazardous material contamination (including hazardous waste) from past site operations that may have caused, is causing, or may reasonably be expected to cause uncontrolled personnel exposures exceeding PAC.
2) Whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.
3) Any facility evacuation in response to an actual occurrence that requires time-urgent response by specialist personnel, such as hazardous material responders or mutual aid groups not normally assigned to the affected facility.

Responder Actions

EMCBC-NY Site First Responder	Emergency Coordinator (EC) (or designee)	EMCBC-NY Field Office Manager (or designee)	KAPL
*On-scene personnel in charge until relieved by the Field Office Emergency Coordinator (EC) 1. If First Aid and CPR qualified, render assistance. 2. If the injury is beyond site capability, dial 518-612-5599 and provide location/nature of emergency. 3. Call EC or next on call list. 4. Ensure the jobsite is placed in a safe and secure state. 5. Standby at scene until relieved. 6. Provide access to KAPL response personnel as necessary.	1. Reports to emergency scene and directs on-scene response as EC. If KAPL called for support, coordinates response with KAPL Emergency Response Captain. 2. Immediately identifies the character, exact source, amount, and areal extent of released materials. This may be done by observation or review of facility records or manifests and, if necessary, by chemical analysis. 3. Assesses possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment must consider both direct and indirect effects of the release, fire or explosion (e.g. the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water runoff from water or chemical agents used to control fire and heat-induced explosions). 4. Maintains communication with ERC and provides overall direction for the site emergency. 5. Provides for outside emergency response contractor to undertake cleanup response if needed. 6. Evaluates event in accordance with this EPP and Event Investigation and Reporting Manual. 7. Determines if event is an Emergency within 15 min., in accordance with EPP. If event is an Emergency, notifies DOE HQ within 15 minutes after event classification.	1. Goes to ERC to provide assistance. 2. Provide overall support for emergency. 3. Assist KAPL/ NRLFO/ EMCBC-NY Field Office in preparing public communications, if required.	1. ESS responds as requested. 2. ESS provides transport to clinic/ hospital as needed in accordance with the KAPL emergency procedures.

Table A-3c. Emergency Condition: Health and Safety Continued (Natural Phenomena Related)

EMERGENCY RESPONSE ACTIONS			
Initiating Events: Natural phenomena (e.g., earthquake, tornado, high winds, flooding, and lightning strike) that cause or can reasonably be expected to cause significant structural damage to facilities, with confirmed or possible personnel injury or death.			
Responder Actions			
EMCBC-NY Site First Responder	**Emergency Coordinator (EC) (or designee)**	**EMCBC-NY Field Office Manager (or designee)**	**KAPL**
*On-scene personnel in charge until relieved by the Field Office Emergency Coordinator (EC) 1. If First Aid and CPR qualified, render assistance. 2. If the injury is beyond site capability, dial 518-612-5599 and provide location/nature of emergency. 3. Call EC or next on call list. 4. Ensure the jobsite is placed in a safe and secure state. 5. Standby at scene until relieved. 6. Provide access to KAPL response personnel as necessary.	1. Reports to emergency scene and directs on-scene response as EC. If KAPL called for support, coordinates response with KAPL Emergency Response Captain. 2. Maintains communication with ERC and provides overall direction for the site emergency. 3. Evaluates event in accordance with this EPP. 4. Determines if event is an Emergency within 15 min., in accordance with EPP. If an event is an Emergency, notifies DOE-HQ within 30 minutes after event classification. 5. Provides for outside emergency response contractor to undertake cleanup response if needed. 6. Develops re-entry plan, if applicable.	1. Goes to ERC to provide assistance. 2. Provide overall support for emergency. 3. Assist KAPL/ NRLFO/ EMCBC-NY Field Office in preparing public communications, if required.	1. Provide site PA announcements or other means of notifications to site and EMCBC-NY site personnel. 2. Directs emergency evacuation of personnel as conditions warrant. 3. ESS provides transport to clinic/ hospital as needed in accordance with the KAPL emergency procedures.

Table A-3d. Emergency Condition: Security and Safeguards Event

EMERGENCY RESPONSE ACTIONS

Initiating Events:
Actual unplanned detonation of an explosive device or a credible threat of detonation resulting from the location of a confirmed or suspicious explosive device.

Responder Actions

EMCBC-NY Site First Responder	Emergency Coordinator (EC) (or designee)	EMCBC-NY Field Office Manager (or designee)	KAPL
*On-scene personnel in charge until relieved by the Field Office Emergency Coordinator (EC) 1. If trained, the first responder uses portable fire extinguishers. ***Note:*** *The decision to fight a fire using a portable fire extinguisher is up to the individuals present.* 2. Personnel who judge their ability and / equipment to be inadequate shall immediately retreat and Dial 518-612-5599 to report situation. 3. Call EC or next on call list. 4. Standby at safe distance until relieved. 5. Provide access to KAPL.	1. Goes to the ERC and provides overall direction for emergency. 2. Reports to emergency scene and directs on-scene response. Contacts the FBI and NYS Police, notifies KAPL Security for support, reports to KAPL Emergency Response Captain. 3. Reports status to KAPL Security. 4. Determines if event is OE within 15 min., in accordance with EPP. If event is an OE, notifies DOE-HQ within 30 minutes after event classification. 5. Provides additional technical, survey, or support staff to assist KAPL, as requested. 6. Provides for outside emergency response contractor to undertake cleanup response if needed. 7. Evaluates event in accordance with this EPP and Event Investigation and Reporting Manual. 8. Develops re-entry plan, if applicable. 9. Determines if termination criteria are met, if applicable. 10. Establishes corrective actions and recovery plan, if appropriate.	1. Goes to ERC to provide technical assistance. 2. Provides assistance in establishing safe conditions. 3. Provide overall support for emergency. 4. Authorize re-entry activities and perform notifications of planned actions. 5. Assists KAPL / NRLFO / DOE Field Office in preparing public communications, if required. 6. Approve recovery plan, if applicable.	1. KAPL Security and ESS responds.

6.2 APPENDIX B
Example Emergency Notification Form

All notifications are to be performed in accordance with DOE Orders 151.D and 232.2

☐ **INITIAL NOTIFICATION** ☐ **STATUS UPDATE** ☐ **TERMINATION**

As of: Date: ___/___/___ Time: ___:_____ (include time zone)

Received by (to be filled in upon receipt):

Name: _____Date: ___/___/___ Time: ___:____(include time zone)

1. SENT BY

Name: _____ Position: _____

Organization: _____

Telephone Number: _____ Site/Location: _____

Fax Number: _____ Address: _____

2. SENT TO (confirm that notifications have not already been performed by KAPL)

☐ DOE Headquarters Name: _____ Telephone: _____

☐ EPA (if applicable) Name: _____ Telephone: _____

☐ Ellis Hospital (if applicable) Name: _____ Telephone: _____

☐ Other – Organization: _____ Name: _____ Telephone: _____

☐ Other – Organization: _____ Name: _____ Telephone: _____

3. INCIDENT LOCATION/PHYSICAL ADDRESS:

4. EMERGENCY CATEGORY/CLASSIFICATION: Operational Emergency

Event Type:

☐ General Health and Safety ☐ Environmental ☐ Off-site DOE Transportation

☐ Safeguards and Security ☐ Biological ☐ Hazardous Materials Release

5. DESCRIPTION OF INCIDENT (include dates/times/time zone)

6. CASUALTIES (if any)

Identify if DOE employee, contractor, or member of the general public. Include number of personnel, nature of injuries, treatment status, and next-of-kin information and/or notifications.

7. STATUS OF AFFECTED FACILITY/SITE OR ACTIVITY

All notifications are to be performed in accordance with DOE Orders 151.D and 232.2.

8. STATUS OF OTHER FACILITIES/OPERATIONS/ACTIVITIES ON THE SITE

9. RELEASE INFORMATION (if any) Use additional forms for any additional materials released

A. Release in progress? ☐ Yes ☐ No

B. Material: ☐ Radiological ☐ Chemical ☐ Biological

C. Nature of release: ☐ Airborne ☐ Waterborne ☐ Ground

Status: ☐ Continuing ☐ Intermittent ☐ Terminated

Source: _____ Quantity: _____ Rate: _____

Material Name: _____ Concentration: _____

Other release information:

10. PROTECTIVE ACTIONS AND HEALTH EFFECTS

Protective Actions:

Health/Environmental Effects/Hazards Outside Facility:

11. FIELD NOTIFICATIONS MADE - Notifications complete? ☐ Yes ☐ No

Organization POC/Date/Time

A. _____ / __/__/__/__ : __

B. _____ / __/__/__/__ : __

C. _____ / __/__/__/__ : __

D. _____ / __/__/__/__ : __

12. METEOROLOGICAL CONDITIONS

Wind Speed _____ mph Wind direction from _____ to _____ Stability Class _____

Temperature _____ Precipitation? ☐ Yes ☐ No

Conditions/Forecast: _____

13. MEDIA INTEREST

Level of media interest at the emergency scene or at the facility/site:

14. DOE POINT OF CONTACT

6.3 APPENDIX C
Re-Entry Assessment Guidelines

All re-entry actions are coordinated by the EC with KAPL based on the incident. The following are re-entry assessment guidelines:

Restrictions

No person shall enter the following unsafe areas without required planning and approval of the EC:

- Unknown radiation fields,
- Potential exposure to hazardous materials,
- Potential oxygen-deficient atmospheres,
- Potential fire flare-ups or explosions,
- Potential structural collapse,
- Areas of hostile activity prior to confirmation by KAPL that the areas are safe, and
- Areas which contain potential hazardous energy sources, e.g., downed power lines, damaged steam lines, etc.

Planning Requirements

The following items shall be determined prior to re-entry into unsafe areas for recovery purposes:

- Mission purpose
- Protective clothing required (chemical suit, overalls, etc.),
- Tools/equipment needed,
- Estimated exposure (limited to normal occupation guidelines),
- Communication required,
- Criteria for aborting re-entry or turn back points,
- Estimated duration of re-entry,
- Areas of hostile activity have been cleared for re-entry, and
- Access control points established.

Exceptions

The following emergency actions are exempt from the above restrictions and planning requirements (except in areas of hostile activity):

- Re-entry by firefighters,
- Rescue of injured or unconscious persons.

Structural Components	**Status / Impact**
• Exterior Wall	
• Interior Wall / Floors	
• Ceilings / Roof	
• Other (use attached sheets if needed)	
Utility / Vital Services	
• Electricity	
• Water	
• Gas/Oil/Steam	
• Telephone	
• Sewage / Storm Drains	
• Other (use attached sheets if needed)	
Critical Systems	
• Safety Systems (fire alarm / detection, etc.)	
Building / Area Occupation	
• Can be occupied as is	
• Can be occupied after minor recovery effort	
• Cannot be occupied	

6.4 APPENDIX D
Sample Recovery Plan Format

***Note**: Appendix F, Recovery Plan Checklist, may be used to aid in the development of the Recovery Plan*

I. Incident Summary

A. Accident Assessment and Investigation

1. Facilities/area involved
2. Institutional issues
3. Safety issues
4. Security issues
5. Financial issues
6. Programmatic issues

B. Hazard Identification

C. Path Forward

II. Notifications

List notifications that have been performed regarding termination of the event and commencement of recovery activities, including notifications to and coordination with off-site agencies and applicable regulatory notifications (e.g., the U.S. Environmental Protection Agency (EPA)). Note that for events that require KAPL response, KAPL is in charge of termination decisions for the event, but EMCBC-NY will have to make notifications of termination to anyone that KAPL does not notify (i.e., DOE-HQ, EPA, etc.).

III. Recovery Planning and Scheduling

A. Authorities and Requirements

B. Identification of Critical Activities

C. Recovery Objectives and Schedule (will be refined as work progresses)

The following recovery elements should be considered, as applicable to the event, when determining recovery objectives:

- Repair and restoration
  - Planning for decontamination
  - Environmental compliance
  - Waste management
  - Communication and notifications
  - Development and approval of recovery procedures
  - Replenish, repair or replace emergency equipment or consumables
  - Health and safety
  - Reporting requirements

D. Procedures and Documentation (UCD, etc.)

E. Team Organization and Member Responsibilities

F. Resources

IV. Safety Plan

V. Security Plan

A. Personnel Staffing (officers and support agencies)

B. Access/Control Systems

C. Physical Security Systems

VI. Restoration

A. Decontamination Methods and Equipment

B Hazard Mitigation Actions Needed for Cleanup Activities

C Establishment of Restricted and Unrestricted Areas and Controls

VII. Criteria for the Resumption of Normal Operations

6.5 APPENDIX E
Sample Recovery Plan Checklist

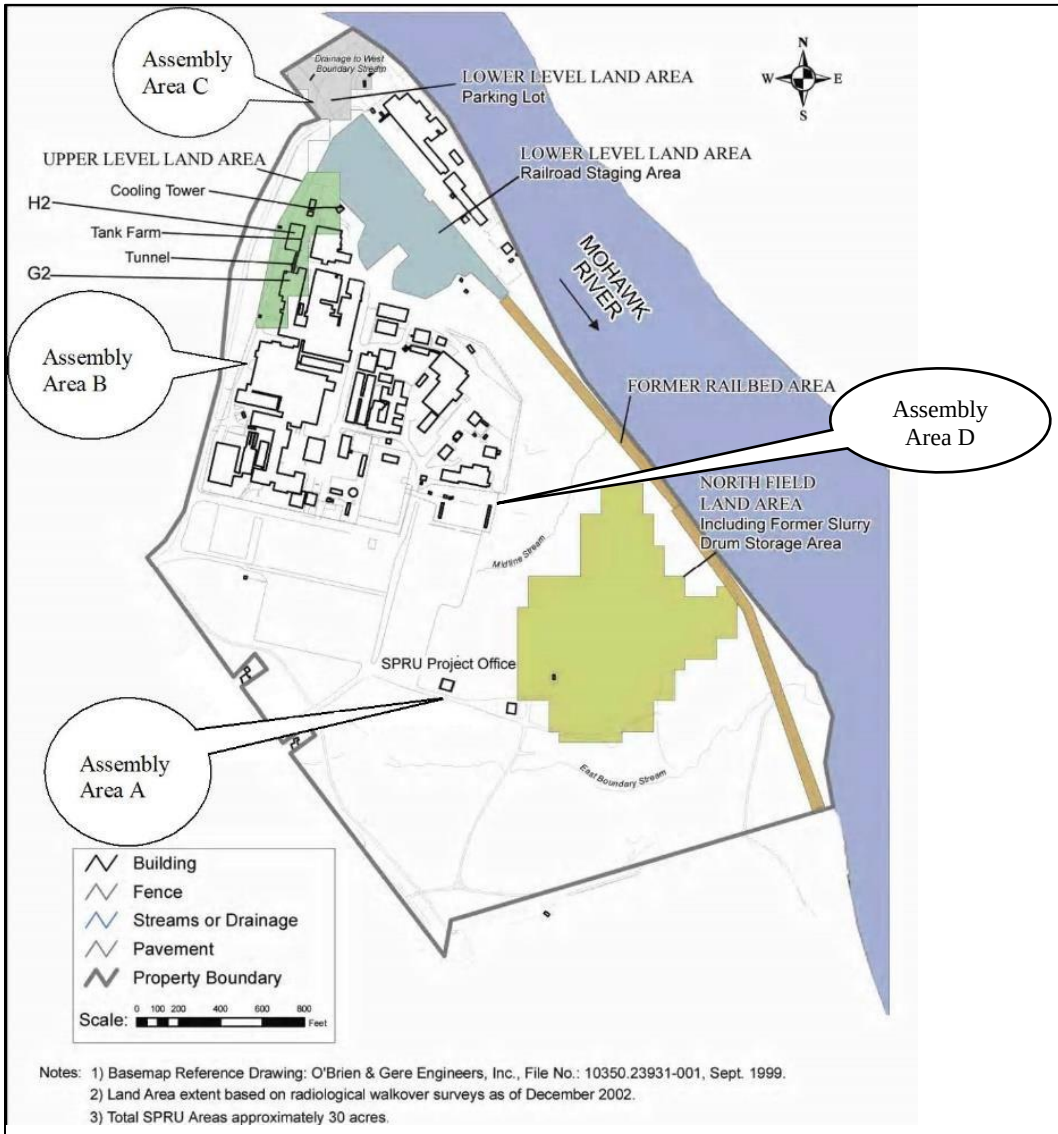
Action Plan	Responsible Party
ES&H	
Safety Monitoring (ES&H)	
Exposure Guidelines / Limit & Controls	
Heat Stress / Working Environment	
Facility protective actions	
Operations	
Command and Control structure & reporting	
Isolation of Release Point	
Impacts to other areas / KAPL • Protective actions • Utilities • Operational impacts	
Spill control materials (sandbags, absorbents, etc.)	
Huts/ confinement	
Re-entry to areas/facilities	
Staging areas	
Support equipment (cranes, forklifts, generators, etc.)	
Communications (radios, phones, etc.)	
Supplies (fuel, etc.)	
Tools / equipment needed	
ERO • Continued staffing level • Shift turnover	

Action Plan	Responsible Party
RadCon / IH	
Controls	
Monitoring	
Laboratory support	
Access control and postings	
Decontamination	
PPE / protective clothing required (chemical suit, overalls, etc.)	
Respirator protection requirements	
Engineering	
Structural integrity	
Design	
Environmental / Hazardous Waste Cleanup	
Monitoring and detection • Onsite monitoring and sampling plan • Offsite monitoring and sampling plan • Analysis	
Outflows • Hillside Drain • Storm Drains • Mohawk River	
Reporting	
Waste Management	
Hazardous material cleanup	
Hazardous material disposal	
Waste disposal	

6.6 APPENDIX F
Emergency Equipment Descriptions and Locations

TYPE OF EQUIPMENT	LOCATION(S)	DESCRIPTION
Fire Extinguishers	• EMCBC-NY project trailers • TRU waste storage area	Dry chemical fire extinguishers for Class ABC fires
First Aid Kits	• SP-23 • SP-25	• Bandages • Absorbent compresses • Antibiotic treatments • Burn treatments • Adhesive tape • Exam gloves • First aid guide
AEDs	• SP-25	Phillips HeartStart Automatic External Defibrillators
Spill Kits	• EMCBC-NY project trailer area • TRU waste storage area	Spill Kits contain: • 15” x 19” absorbent pads • 3” x 12’ absorbent socks • 18” x 18” absorbent pillows • Nitrile and/or chemical gloves • Goggles • Disposal bags • Instructions • Emergency handbook
Internal communication	• EMCBC-NY project trailer area	• KAPL PA system
Portable communication devices	• Carried by personnel	Cell phones and/or hand-held radios
General Emergency Management supplies	• EMCBC-NY project trailer area	• Safety vests and glasses • Gloves • Flashlights • Caution tape • Hard hats

6.7 APPENDIX G
EMCBC-NY Emergency Assembly Areas



Assembly Area A - South of the Parking Lot at the entrance to the EMCBC-NY Administrative Area
Assembly Area B - South End of the G2-H2 Access Road
Assembly Area C - South End of the Lower Level Railbed Area Parking Lot
Assembly Area D - South of Q-Complex Access Sliding Gate

6.8 APPENDIX H
U.S. Department of Energy (DOE) Environmental Management Consolidated Business Center New York Project Support Office (EMCBC-NY) Quick Reference Guide – Emergency Contingency Plan

Types/Names of Hazardous Wastes Present at the EMCBC-NY Site

Hazardous wastes present at the EMCBC-NY Site consist primarily of radiologically contaminated sump sediments, floor scrapings, piping and components removed during demolition of the former Separations Process Research Unit (SPRU) facility buildings. Most of these wastes also exhibit the RCRA toxicity characteristic for D008 (lead). Certain containers exhibit the RCRA toxicity characteristic for D007 (chromium) and D011 (silver), and one container exhibits the RCRA toxicity characteristic for D009 (elemental mercury).

Location of Water Supply

The EMCBC-NY water supply is provided by the Knolls Laboratory. The Knolls Laboratory has a private fire service main with fire hydrants located throughout the laboratory. Water for the private fire service main is supplied from the Town of Niskayuna water supply: with and supplemented by an on-site water tower. The entire fire service main and its appurtenances are inspected, tested, and maintained in accordance with current New York State fire codes.

Estimated Maximum Amount of Each Hazardous Waste Present at the EMCBC-NY Site

An inventory list of the Mixed Transuranic (MTRU) waste accumulated in the EMCBC-NY waste Temporary Accumulation Area TAA-003 is shown below. This inventory is the maximum waste inventory that will be present at the EMCBC-NY Site.

Identification of On-Site Notification Systems

EMCBC-NY utilizes the Knolls Laboratory on-site notification system. The Knolls Laboratory maintains a fire alarm system, communications system and emergency response equipment. Fire alarms ring at the Knolls Laboratory on-site Emergency Services and Systems (ESS) Organization for immediate response. No alarms ring off site to alert outside fire departments. The EMCBC-NY Emergency Coordinator listed below will request assistance from the Knolls Laboratory during an emergency if required. In addition, all ESS personnel are NYS Emergency Medical Technician (EMT) qualified.

EMCBC-NY has both emergency equipment and the training/ability to handle most incidents that may occur at the site. A telephone is located in the guard house in close proximity to TAA-003. TAA-003 contains appropriate emergency equipment for addressing minor spills and addressing minor (incipient stage) fires. If needed, supplemental equipment and supplies will be obtained from outside sources.

EMCBC-NY Waste Inventory List

Container ID		Container Type	Radiologically Contaminated with Hazard Characteristic	Response Notes	Special Notes to Hospital and Treatment Personnel
SPRU	140038	55-Gallon Drum	D007, D008, D011	For all wastes listed, minimize exposure cover storm drains notify Emergency Coordinator	For all wastes listed, no unique or special treatment required - follow EMCBC-NY established procedures for medical treatment with Ellis Hospital as needed for medical emergencies and inhalation events
SPRU	140039	55-Gallon Drum	D007, D008, D011		
SPRU	140048	85-Gallon Drum	D007, D008, D011		
SPRU	140081	B-25 Box	D008		
SPRU	140087	55-Gallon Drum	D007, D008, D011		
SPRU	140088	55-Gallon Drum	D007, D008, D011		
SPRU	140131	B-25 Box	D007, D008		
SPRU	140174	85-Gallon Drum	D007, D008		
SPRU	140215	55-Gallon Drum	D007, D008		
SPRU	140219	55-Gallon Drum	D007, D008		
SPRU	140220	55-Gallon Drum	D007, D008, D011		
SPRU	140235	55-Gallon Drum in B-25 Box	D007, D008, D011		
SPRU	140236	55-Gallon Drum in B-25 Box	D007, D008, D011		
SPRU	140237	55-Gallon Drum in B-25 Box	D007, D008, D011		
SPRU	140238	55-Gallon Drum in B-25 Box	D007, D008, D011		
SPRU	140239	55-Gallon Drum in B-25 Box	D007, D008, D011		
SPRU	140241	85-Gallon Drum	D007, D008, D011		
SPRU	140260	55-Gallon Drum	D007, D008, D011		
SPRU	140270	55-Gallon Drum	D007, D008, D011		
SPRU	140271	55-Gallon Drum	D007, D008, D011		
SPRU	140273	55-Gallon Drum	D007, D008, D011		
SPRU	162146	55-Gallon Drum	D009		

Emergency Coordinator Contact Information

ERO Position	**Assigned Position**	**Assigned Person**	**Office Number**	**Cell Number**
Emergency Coordinator	Primary: EMCBC-NY Federal Project Director	Martin Krentz	518-395-4580	716-545-8592
	Backup: EMCBC-NY Facility Representative	Erik Pakosz	518-612-5684	518-603-9316
	Backup: Radiological Program Lead	Dean Powell	518-395-6554	518-880-7241
KAPL Emergency Response	KAPL Emergency Response	KAPL Security – 24 Hour	518-612-5599	Not applicable

Maps

Figure 1 provides a map of the facility showing where hazardous wastes are stored, and the route for accessing the wastes; Figure 2 provides an aerial street map view of the KAPL/EMCBC-NY Site in relation to the surrounding area.

Figure 1. Hazardous Waste Storage Location and Transport Route

Figure 2. KAPL/EMCBC-NY Aerial View

RECORD OF REVISION

Rev No.	Description of Changes	Affected Pages	Issue Date
0	Original Issue	All	December 2018
1	Corrected Table of Contents, Corrected New York State Watch Center name and telephone number	1, 12	01/25/19
2	Updated Plan to reflect current work scope, changed DOE designation from DOE-SPRU to DOE-NNY, corrected references to include all documents found in plan, minor edits for clarity throughout, incorporated core requirements from DOE O 151.1D, attachment 3.	All	03/03/20
3	Updated Exhibit 1	7	06/18/20
4	Updated Emergency Contact/Response Information in Table 3 and Table A-2, added a Quick Reference Guide as Appendix H.	14, 22, 38-42	08/24/20
5	Changed DOE designation from DOE-NNY to EMCBC-NY throughout, Updated Emergency Response Contact List (Table A-2 and Appendix H)	All	09/23/21
6	Updated Emergency Response Contact List (Table 3, Table A-2, and Appendix H), Updated Appendix G to include Assembly Area D and change DOE-NNY Field Office to EMCBC-NY Administrative Area	14, 22, 37, 40	01/18/22
7	Updated Emergency Response Center (ERP) noted in Section 4.10 Emergency Facilities and Equipment/Systems from SP-23 to SP-26. Changed Backup EMCBC-NY Facility Representative from Thomas Cochran to Erik Pakosz. Updated EMCBC-NY address from trailer SP-23 to SP-26		Xx/xx/23

ATTACHMENT H – PERSONNEL TRAINING

The waste management information included in this plan is presented in accordance with the requirements of 6 NYCRR 373-1.5(a)(2)(xii) and 373-2.2(h). The following sections of this attachment describe the training plan to ensure safe and compliant storage of the Separations Process Research Unit (SPRU) mixed transuranic (MTRU) waste.

H-1 OUTLINE OF TRAINING PROGRAM

Training is essential to ensure safe and compliant storage of the SPRU MTRU waste and to ensure rapid and effective responses to emergency conditions. SPRU employees are trained in a manner that emphasizes accident prevention to safeguard human health and the environment. Appendix H-A provides an outline of the introductory and continuing waste management training program, which includes regulatory compliance and emergency response. The program outlined below discusses the training pertaining to waste inspectors and supervisors regarding operation of the Department of Energy (DOE)-SPRU MTRU waste storage unit TAA-003.

Each new employee involved in inspection of the SPRU MTRU waste, or involved in a MTRU waste management support role, is instructed in the emergency procedures that are to be followed in the event of an incident. No employee is permitted to work unsupervised until his/her supervisor has certified that he/she has successfully completed all elements of the training program applicable to their position. A certification of training completion will occur within six months of the new employee's entry into a specific job or after being assigned to a new position in the case of an existing employee. In addition, every employee will participate in annual refresher training to maintain proficiency.

H-1a Job Titles and Duties

Training is tailored to prepare the employee to perform the functions of the assigned position safely and effectively. A list of the job positions and summary of the position responsibilities associated with the SPRU MTRU storage program is provided in Table H-1.

Position descriptions, including job functions and responsibilities regarding management and inspection of the MTRU waste, are kept on file as part of the facility's operating record.

Table H-1. Employee Positions/Responsibilities

EMPLOYEE POSITION	POSITION RESPONSIBILITY
Supervisor	Supervises operations personnel working within the waste management unit. Provides administrative and technical support for the mixed waste management program. Provides training for personnel. Maintains records. Coordinates with site emergency responders or contractors in the event of an emergency condition or a release.
Waste Inspector	Conducts inspection of MTRU waste storage containers and storage area to ensure compliance with storage requirements and to determine if any corrective actions are needed to maintain safe and compliant waste storage. Maintains records and logbooks associated with storage and inspection of MTRU waste. Supports contractor shipping of SPRU MTRU waste off-site, and support for waste receipt in the case of SPRU MTRU waste returning to SPRU storage area after off-site shipment and processing.

H-1b Training Content, Frequency and Techniques

Personnel currently employed in the hazardous and/or mixed waste management positions listed in Table H-1 have been trained and are fully certified. Certification is attained through completion of training in accordance with this attachment. Furthermore, these personnel will undergo annual refresher training pursuant to this plan. All new hazardous and/or mixed waste management employees will be required to complete this same training and certification process.

H-1b.1 Training Formats and Techniques

Training is conducted in classroom meetings, and at an employee's workstation (i.e., "on-the-job" training). For some training, courses and teaching materials developed by vendors may be used (e.g., 40-hour hazardous waste operations and emergency response (HAZWOPER)).

The employee's supervisor is the individual responsible for assuring that the new employee learns the correct procedures; can perform them accurately, reliably, and efficiently; and that safety awareness is incorporated into each task. It is the supervisors' responsibility to assist with the instruction and observation of their assigned employees and to evaluate their performance.

H-1b.2 Training Categories

The lesson plan followed in training an employee involved with the SPRU MTRU waste storage unit is broken into three categories: storage protocols for MTRU waste; types of chemicals and hazards; and emergency response. The Training Outline is shown in Appendix H-A. The main objective stressed throughout the training program is to prepare the employee to perform his/her job both safely and efficiently.

(A) Storage Protocols for MTRU Waste

This lesson plan pertains to appropriate storage protocols for the MTRU waste stored in the waste management unit. These include proper packaging, labeling, and secondary containment for the waste containers, and requirements for the storage units and general storage area.

(B) Types of Chemicals and Hazards

The training addresses the chemical nature and hazards of MTRU waste and the precautions that should be taken associated with the wastes. This training includes the health concerns in the event of a spill and any personal protective equipment (e.g., gloves, safety glasses, etc.) that should be used for an inspection or in the event of a spill.

(C) Emergency Response Training

The training provided under this category will be conducted by the supervisor and will include the following aspects from the SPRU contingency plan:

- Site Communications and Alarm Systems;
- Response to spills, fires, or other sudden releases; and
- Contingency Plan Implementation.

H-1b.3 Frequency of Training

Training is designed to maintain proficiency in job skills, increase safety and quality consciousness, and teach new skills. The annual "refresher" training provides an opportunity for teaching new operating procedures and new skills to the employee.

H-1c Training Director

This section describes the selection of qualified instructors, the use of effective training formats and techniques, and establishment/use of meaningful methods for evaluating an employee's learning.

H-1c.1 Training Personnel Qualifications

The Supervisor is responsible for the training program for personnel directly involved in the inspection and storage of the MTRU waste. The supervisor may designate specific qualified individuals to carry out portions of the training program.

The job qualifications for the supervisor are as follows:

(A) Have an appropriate degree or a number of years of experience, and associated knowledge. Specific experience in environment, safety, and health training is preferred.

(B) Be knowledgeable in hazardous and/or mixed waste management related subjects, such as:

(1) Chemical and physical agent hazard characteristics;

(2) Hazardous and/or mixed waste sampling, characterization, storage, processing, and disposal;

(3) Environment, safety, and health related regulations and standards; and

(4) Emergency response actions including hazard recognition, accident prevention techniques, and contingency planning.

H-1c.2 Waste Inspector Qualifications

The Waste Inspector conducts inspections of the MTRU waste and the waste storage area and supports shipping of waste off-site and receipt of any SPRU MTRU waste containers that are received back on-site after processing. Training content for waste inspectors will include topics in each of the following three categories: storage protocols and procedures for MTRU waste; types of chemicals and hazards; and emergency response.

The job qualifications for the waste inspector are as follows:

(A) Have an appropriate degree or a number of years of experience, and associated knowledge. Specific experience in waste management, shipping, and disposal.

(B) Be knowledgeable in hazardous and/or mixed waste management related subjects, including:

(1) Resource Conservation and Recovery Act (RCRA) hazard characteristics; and

(2) RCRA generator, packaging, storage, and shipping regulations.

H-1d Relevance of Training to Job Position

Training goals are measured by performance of specific tasks, and a demonstration of employee proficiency in actual hands-on situations. The trainer must certify that the employee has successfully completed the training program and file such certification as part of the operating record.

H-1d.1 Certification of Employees

No employee may perform unsupervised work at the facility until certified as fully trained by the supervisor. Certification is earned through completion of the training program. The record of certification will be on forms developed to address the training categories. The information entered on the forms will include the employee's name, position, management unit qualified to work in, date assigned to position, and date qualified. The trainer(s) will certify satisfactory completion for each topic applicable to that employee position.

H-1d.2 Employee Feedback

Trainee (employee) comments and constructive criticism of the training programs are encouraged throughout the training process. These comments are used by the trainers to modify and improve the training program scope, content, and format.

H-1e Training for Emergency Response

DOE-SPRU personnel and supporting contractors shall receive initial 40-hour training and annual 8-hour refresher training in accordance with 29 CFR 1910.120.

H-2 IMPLEMENTATION OF TRAINING PROGRAM

Each new employee involved in management of the SPRU MTRU waste will undergo job specific training relevant to the position to properly prepare for the assigned work. Training for new employees, and/or those employees who have changed job positions, will be completed within six months of their employment or transfer to a new position. These employees will not be allowed to work with the waste management unit unsupervised until they have successfully completed training.

Training is conducted in classroom meetings, and at an employee's workstation (i.e., "on-the-job" training). For some training, courses and teaching materials developed by vendors may be used (e.g., 40-hour hazardous waste operations and emergency response (HAZWOPER)).

The employee's supervisor is the individual responsible for assuring that the new employee learns the correct procedures; can perform them accurately, reliably, and efficiently; and that safety awareness is incorporated into each task. It is the supervisors' responsibility to assist with the instruction and observation of their assigned employees and to evaluate their performance.

(A) Documentation of Training

All training records are maintained on site. A file is maintained for all employees identified in Table H-1 who manage or inspect the SPRU MTRU waste or storage area. The files contain each employee's job description as it pertains to SPRU MTRU waste, a list of initial and annual refresher training requirements, and appropriate certification that the requisite training has been satisfactorily completed.

Copies of all training documentation for current employees will be maintained in the facility's file until closure, or for three years following the date the employee last worked at the facility. In addition, the personnel training records will be maintained the facility operating record for at least three years after facility closure.

Individual names and job titles will be listed on training records to comply with the requirements of 6 NYCRR 373-2.2(h)(4)(i).

APPENDIX H-A

TRAINING OUTLINE

1. Discuss control and storage of SPRU MTRU wastes, including:
   a) container labeling requirements
   b) proper storage of waste within the waste management unit
   c) aisle space requirements
   d) inspection and recordkeeping requirements

2. Discuss types of chemicals and hazards of SPRU MTRU wastes, including:
   a) specific hazards/concerns associated with these wastes
   b) waste label information
   c) health concerns during a spill and personal safety measures to be taken when addressing spills (e.g., protective clothing)

3. Discuss site emergency response actions including:
   a) site communications and alarm systems
   b) response to spills and fires
   c) contingency plan implementation
   d) emergency equipment location, operation, and maintenance

4. Receive on-the-job training in the SPRU MTRU storage area including:
   a) tour of the waste management area
   b) emergency equipment location and operation
   c) spill response

5. Discuss shipping of MTRU wastes, and container receipt after waste is returned for storage, including:
   a) proper handling for loading and shipping of containers and on-site transportation routes
   b) recordkeeping requirements

ATTACHMENT I – CLOSURE PLAN

In accordance with the regulatory requirements set forth in 6 NYCRR 373-1.5, 2.7 and 2.9(i), this general Closure Plan has been developed for TAA-003 at the Separations Process Research Unit (SPRU) site located in Niskayuna, New York. This plan identifies all the steps that will be required to close the unit at any point during its operating life. Pursuant to 6 NYCRR 373-2.7(a)(2), a survey plat and post-closure plan is not required because the SPRU site does not operate a disposal facility, waste piles, surface impoundments, tank systems or containment buildings under the terms of this permit. All wastes will be removed at closure under the provisions set forth in this plan.

A specific closure plan will be submitted to the New York State Department of Environmental Conservation (NYSDEC) for approval prior to initiation of closure of the unit. The specific closure plan will address current conditions, specific past history, location specific decontamination procedures, changes in closure procedures from those general procedures outlined in this Attachment, and any other pertinent location specific information relevant to closure. A copy of the approved plan and all revisions to the plan will be maintained at the SPRU site until the certification of closure completeness has been submitted and accepted by the NYSDEC Commissioner.

The NYSDEC Commissioner will be notified at least 45 days prior to the date when final closure is expected to be initiated. Upon completion of closure, a certification prepared by an independent, qualified Professional Engineer registered in New York, stating the facility was closed in accordance with the specifications in the approved closure plan, will be submitted to the Commissioner.

I-1 CLOSURE PLAN

This closure plan outlines the procedures required to completely close. It contains the closure performance standards, a description of closure activities, an estimate of the maximum waste inventory for removal, decontamination procedures specific to the unit, and a generic closure schedule.

The SPRU facility was a small-scale pilot plant operated from 1951 through 1953 to research the chemical process to separate uranium and plutonium from irradiated materials prior to the Naval Nuclear Propulsion Program (NNPP) mission at the Knolls Atomic Power Laboratory (KAPL) site. This pilot plant consisted of a processing building (G2), a waste management facility (H2), a tank farm and pipe tunnels connecting the facilities. The SPRU Disposition Project (SPRU-DP) was established by DOE to disposition the facilities, soil, and groundwater contamination at the SPRU facility. The remediation was completed in 2019 and the SPRU areas were transferred to the Office of Naval Reactors for continued NNPP use.

In 2015-2016, during decontamination and decommissioning activities in G2 and H2, materials were identified in the G2 and H2 Buildings that, upon removal, were determined to have the characteristics of, and are being managed as, mixed transuranic (MTRU) waste. Transuranic waste is defined as waste which has been contaminated with alpha emitting transuranic radionuclides (elements with atomic numbers higher than uranium) possessing half-lives greater than 20 years and in concentrations greater than 100 nCi/g. The MTRU waste that was generated is being stored in a temporary accumulation area (TAA-003), in accordance with an Administrative Order on Consent (entered into with NYSDEC on February 5, 2018) and a Part 373 Operating Permit (being applied for via this permit application), until the wastes can be

shipped off-site for treatment, certification, repackaging (after which some MTRU waste may be returned to SPRU for continued storage) and/or disposal. Wastes being stored in TAA-003 consist primarily of contaminated sump sediments, floor scrapings, piping, and components. Most of these wastes exhibit the RCRA toxicity characteristic for D008 (lead). Certain containers exhibit the characteristics for D007 (chromium) and D011 (silver), and one container exhibits the characteristic for D009 (elemental mercury). These wastes are being managed as MTRU waste.

The mixed waste being managed at TAA-003 is stored in four, fully enclosed steel conex boxes that measure approximately 20 feet long by 8 feet wide by 8 ½ feet high. The conex boxes are located on an asphalt pad, with the edges of three of the conex boxes extending over crusher-run material. The conex boxes are equipped with end-open or side-open doors, timber flooring, and are designed to be wind tight and watertight. Access doors are kept closed unless required inspections are being conducted. The MTRU waste containers are closed and arranged within the conex boxes to reduce the radiation dose to the lowest level achievable. Radiation postings designate TAA-003 as a radiation area.

I-1a Closure Performance Standard

In accordance with 6 NYCRR 373-2.7(b), the Closure Plan is designed to ensure that the permitted unit will not require further maintenance and will control, minimize, or eliminate, to the extent necessary to protect human health and the environment, post-closure escape of hazardous/mixed wastes, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere after closure. After removal of the final waste inventory from the unit, closure will consist of efforts to clean and decontaminate the remaining building and equipment so that the facility can be used without restriction for other non-hazardous waste management activities.

The SPRU site will achieve this closure performance standard for the permitted unit by the removal of hazardous waste residues (if any exist following removal of the waste containers), and by removing all contaminated materials and associated equipment except salvageable equipment which will be decontaminated and reused or recycled. The following sections discuss in detail the procedures and actions that will be taken to satisfy the closure performance standard.

I-1b Content of Plan

The procedures outlined below represent the general plan which will be implemented for final closure of TAA-003.

Maximum Waste Inventory

An inventory list of the MTRU waste accumulated in TAA-003 is presented in Table I1. This inventory also represents the maximum MTRU waste inventory that has been managed in this area. (See Attachment D – Process Description for more information on TAA-003.)

Inventory Removal

The steps required to close TAA-003 include the removal of all stored wastes in the conex boxes, decontamination of the conex boxes and associated equipment, and an environmental survey.

Waste Removal from TAA-003

All containerized MTRU wastes within each conex box will be removed using a forklift truck or other appropriate means and transported for final disposition by shipment off-site to an appropriate RCRA-permitted hazardous waste Treatment, Storage and Disposal Facility for processing and/or certification for ultimate disposal at the Waste Isolation Pilot Plant in Carlsbad, New Mexico.

Facility Decontamination, Sample Collection, and Analysis

Following removal of the MTRU wastes and any remaining equipment, an inspection of each of the conex boxes will be conducted to evaluate whether there is any indication of past spills or leaks of previously stored materials and the general condition of the floor and wall structures. Any remaining dust, dirt, or accumulated debris will be removed through physical methods such as sweeping, scraping, and vacuuming. If applicable, a scaled grid map will be prepared to document the location of any noted spills, stains, cracks, or other anomalies. If needed due to indication of past spills or leaks, each of the conex boxes will be cleaned and decontaminated to remove external contamination and hazardous waste constituents to achieve clean closure in accordance with 6 NYCRR 373-2.7(e), adhering to the following sequence of steps:

- Wash/scrub all potentially contaminated surfaces with appropriate industrial cleaners, high-powered pressure washer, or steam cleaning machine, then follow with a clean water rinse. Collect all solutions, rinses, or condensate (if steam is employed) for analysis and proper disposal. Repeat procedure in areas where stains remain. (Note repeated cleaning areas on grid map.)
- Wipe or otherwise dry all areas and re-inspect for any remaining stains. (Note on grid map.)
- Collect a surface wipe sample of the gridded area for analysis in accordance with the Sample Collection and Analysis section below.
- Repeat until analytical sample results indicate that the area is clean.

No additional cleanup activities will need to be performed outside or beneath the conex boxes unless there is evidence of releases of MTRU waste to the environment from operations in TAA-003. If a breach of a conex box is suspected during closure activities based on the results of nondestructive field measurements or other means, NYSDEC will be notified, and the closure plan will be modified to include an evaluation of the potential for migration of hazardous waste constituents to the environment and any associated cleanup activities.

Sample Collection and Analysis

Sample collection and analysis (including collection, storage, handling, and chain-of-custody) will be accomplished utilizing the methods found in the latest update to the EPA publication "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (known as SW-846) as guidance. This reference, or the Visual Sample Plan software tool, may be utilized as guidance for defining the appropriate number of samples to be taken to adequately evaluate the material sampled (such as walls or floors). Utilization of a grid map indicating the type and location of sampling will provide the basic documentation necessary to ensure complete closure. Initial sampling will focus on flat areas where leakage or staining is evident. Sample analysis parameters will include those hazardous constituents from potential spills based on the inventory of waste accumulated in that particular conex box. For determination of closure criteria and proper disposal, analytical results will be compared with the regulatory levels for pertinent RCRA toxicity characteristic (TC) constituents.

All personnel designated to perform closure efforts will be properly trained and equipped with appropriate personal protective equipment.

I-1c Time Allowed for Closure

The NYSDEC Commissioner will be notified in writing at least 45 days prior to the initiation of closure activities. Closure activities at TAA-003 will be initiated once the SPRU MTRU wastes are scheduled for shipment to the Waste Isolation Pilot Plant (WIPP) for final disposition. For the purpose of this closure plan, the anticipated life of TAA-003 at the SPRU site is expected to be five years. Closure is expected to be completed within 180 days of initiating closure.

A schedule of the specific closure activities and their anticipated time frame is given in Table I-2. This schedule starts after the TAA-003 closure plan is approved by NYSDEC, and issuance of a notice to proceed to perform closure activities. Table I-1 illustrates the relationship of these activities during the closure process. Upon closure of the unit, all equipment that has been in contact with hazardous/mixed wastes will be chemically decontaminated, or removed and transported for reuse, recycling, or disposal in accordance with all applicable federal and state regulations. Removal of wastes and decontamination of TAA-003 at the time of closure eliminates the need for post-closure care. The closure schedule presented in Table I-1 is for planning purposes, and intermediate time frames at completion dates may vary from those given in the schedule.

I-1c(1) Extensions for Closure Time

Disposition of the MTRU wastes has extended the duration of closure activities past the time allotted by 6 NYCRR §373-2.7(d)(2) (i.e., 180 days after receiving the final volume of hazardous wastes). This is unavoidable because of the time necessary for certification, packaging, scheduling, and shipping the MTRU wastes for disposal at WIPP. Due to two incidents at WIPP in 2014, disposition of TRU waste across the DOE complex has been

delayed, and there is a significant backlog of TRU waste across the complex. Because of this delay in shipments to WIPP, initiation of closure of TAA-003 is not anticipated to occur until after 2020. DOE expects to remove all hazardous/mixed wastes from TAA-003 for disposal at WIPP within 90 days after the initiation of closure, but due to the complex nature of shipping MTRU wastes, some delays may be unavoidable.

I-1d Closure of Containers

See Section I-1b above for a description of how, at closure, all hazardous waste residues will be removed from the containment system, and how remaining containers, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues will be decontaminated or removed.

I-1e Certification of Closure

After closure is complete, an independent, qualified Professional Engineer registered in New York will certify that the closure was conducted according to this plan. The certification will be submitted by the owner or operator within 60 days to the NYSDEC.

EXEMPTIONS

The SPRU site is not a disposal facility. Therefore, the facility is not required to comply with the following closure requirements:

	Federal	State
Survey Plat	264.116	373-2.7(f)(2)
Post closure care and use of property	264.117	373-2.7(g)
Post closure plan; amendment of plan	264.118	372-2.7(h)
Post closure notices	264.119	373-2.7(i)
Certification of completion of post-closure care	264.120	373-2.7(j)

Under 40 CFR 264.140 Subpart H "Financial Requirements – Applicability," facilities owned by the federal government are exempt from the following requirements:

	Federal	State
Cost estimate for closure	264.142	373-2.8(c)
Financial assurance for closure	264.143	373-2.8(d)
Cost estimate for post-closure care	264.144	373-2.8(e)
Final assurance for post-closure care	264.145	373-2.8(f)
Use of a mechanism for financial assurance of both closure and post-closure care	264.146	373-2.8(g)
Liability requirements	264.147	373-2.8(h)

Table I-1. SPRU MTRU Waste Inventory

Container ID		Container Type
SPRU	140038	55-Gallon Drum
SPRU	140039	55-Gallon Drum
SPRU	140048	85-Gallon Drum
SPRU	140081	B-25 Box
SPRU	140087	55-Gallon Drum
SPRU	140088	55-Gallon Drum
SPRU	140131	B-25 Box
SPRU	140174	85-Gallon Drum
SPRU	140215	55-Gallon Drum
SPRU	140219	55-Gallon Drum
SPRU	140220	55-Gallon Drum
SPRU	140235	55-Gallon Drum in B-25 Box
SPRU	140236	55-Gallon Drum in B-25 Box
SPRU	140237	55-Gallon Drum in B-25 Box
SPRU	140238	55-Gallon Drum in B-25 Box
SPRU	140239	55-Gallon Drum in B-25 Box
SPRU	140241	85-Gallon Drum
SPRU	140260	55-Gallon Drum
SPRU	140270	55-Gallon Drum
SPRU	140271	55-Gallon Drum
SPRU	140273	55-Gallon Drum
SPRU	162146	55-Gallon Drum

Table I-2. Anticipated Closure Schedule for the TAA-003 [1,2]

Activity	Days													
	Pre	0	20	40	60	90	100	120	140	160	180	200	220	240
1. Submittal of closure plan to NYSDEC for approval.[3]														
2. Notification of Initiation of Closure to NYSDEC.	-45													
3. Public Notice publication initiating 30-day comment period.	-30													
4. Receipt of NYSDEC approval, comment, etc.[4]		0												
5. Remove MTRU waste and equipment from TAA-003 for final disposition.			1……90											
6. Determine if extension of MTRU waste removal period is necessary. If necessary, submit extension request to NYSDEC.[4]			1…….60											
7. MTRU waste and equipment removal complete.[5]						90								
8. Decontamination and sampling of Conex Boxes.[5]						90……..120								
9. Determine if additional area sampling is necessary and perform.[5]								121……..160						
10. Determine if extension of closure period is necessary to complete closure. If necessary submit extension request to NYSDEC.[5]			1……..150											
11. Complete analysis and decontamination documentation.									121……....180					
12. Complete closure activities.[6]												180		
13. Certification of closure submitted to NYSDEC.[7]												181…….240		

Notes for Table I-2:

1. The mixed TRU waste may need to return to SPRU after repackaging and certification activities have been conducted at an offsite location. DOE plans to initiate closure activities once the SPRU MTRU wastes are scheduled for shipment to the Waste Isolation Pilot Plant (WIPP) for final disposition.
2. This closure schedule will be adhered to as necessary to ensure compliance with 6 NYCRR 373-2.7(d). It is assumed that these actions may be initiated prior to the date indicated and be complete by those dates indicated.
3. A more specific closure plan will be submitted to NYSDEC for approval which will address current conditions, specific past history, location specific decontamination procedures, and other pertinent location specific information relevant to closure.
4. Actual start date of closure is dependent upon receipt of NYSDEC approval of specific closure plan, issuance of "Notice to Proceed" to perform closure activities.
5. If a longer period of time is needed after initiation of closure activities (i.e., for removal of all hazardous and/or mixed waste or completion of all closure activities) a permit modification request must be prepared and submitted within 30 days prior to expiration of the 90-day or 180-day period, respectively, that provides demonstrations in accordance with 373-2.7(d)(1) and (3).
6. If closure activities will take longer than 180 days, demonstration and request for approval must be prepared and submitted 30 days before the end of the 180-day period pursuant to 6 NYCRR 373-2.7(d)(2) and (3).
7. Pursuant to 6 NYCRR 373-2.7(f)(1), a certification, signed by the owner or operator and an independent, qualified Professional Engineer registered in New York, must be submitted to the regulator within 60 days following completion of final closure activities.

ATTACHMENT J – OTHER FEDERAL AND STATE LAWS

J-1 GENERAL INFORMATION

DOE-EM regulatory permits are identified in the Attachment A-Part A application, Section 4- Other Environmental Permits.

Other laws applicable or potentially applicable to DOE-EM operations include the Atomic Energy Act, the Federal Insecticide, Fungicide, Rodenticide Act, the Comprehensive Environmental Response, Compensation, and Liability Act, and the Superfund Amendments and Reauthorization Act of 1986. DOE-EM is currently in compliance with applicable provisions of these statutes.

ATTACHMENT K – CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

OWNER CERTIFICATION:

Name: Jack Zimmerman

Official Title: Director, United States Department of Energy - Environmental Management Consolidated Business Center

Signature and Date Signed: Signature on File

OPERATOR CERTIFICATION:

Name: Britt Quinby

Official Title: Project Manager, North Wind Site Services

Signature and Date Signed: Signature on File