



State of Michigan
Department of Natural Resources and Environment
HAZARDOUS WASTE MANAGEMENT FACILITY OPERATING LICENSE

NAME OF LICENSEE: The Regents of the University of Michigan

NAME OF FACILITY OWNER: The Regents of the University of Michigan

NAME OF FACILITY OPERATOR: The Regents of the University of Michigan

NAME OF TITLEHOLDER OF LAND: The Regents of the University of Michigan

FACILITY NAME: The University of Michigan Beck Road Facility

FACILITY LOCATION: 8501 Beck Road, Belleville, Michigan 48111

SITE IDENTIFICATION (ID) NUMBER: MIR 000 001 834

EFFECTIVE DATE: March 2, 2010

REAPPLICATION DATE: September 2, 2019

EXPIRATION DATE: March 2, 2020

AUTHORIZED ACTIVITIES

Pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), being §§324.11101 to 324.11153 of the Michigan Compiled Laws, and the hazardous waste management administrative rules (hereafter called the "rules") promulgated thereunder, being R 299.9101 *et. seq.* of the Michigan Administrative Code, by the Michigan Department of Natural Resources and Environment (DNRE), an operating license (hereafter called the "license") is issued to The Regents of the University of Michigan (hereafter called the "licensee") to operate a hazardous waste management facility (hereafter called the "facility") located at latitude 42°14'30" and longitude 83°30'00". The licensee is authorized to conduct the following hazardous waste management activities:

- | | | | |
|---|--|--|--|
| <input checked="" type="checkbox"/> STORAGE | <input type="checkbox"/> TREATMENT | <input type="checkbox"/> DISPOSAL | <input type="checkbox"/> POSTCLOSURE |
| <input checked="" type="checkbox"/> Container | <input type="checkbox"/> Container | <input type="checkbox"/> Landfill | <input type="checkbox"/> Tank |
| <input type="checkbox"/> Tank | <input type="checkbox"/> Tank | <input type="checkbox"/> Land Application | <input type="checkbox"/> Surface Impoundment |
| <input type="checkbox"/> Waste Pile | <input type="checkbox"/> Surface Impoundment | <input type="checkbox"/> Surface Impoundment | <input type="checkbox"/> Landfill |
| <input type="checkbox"/> Surface Impoundment | <input type="checkbox"/> Incinerator | | <input type="checkbox"/> Waste Pile |
| <input type="checkbox"/> Drip Pad | <input type="checkbox"/> Other: | | |

APPLICABLE REGULATIONS AND LICENSE APPROVAL

The conditions of this license were developed in accordance with the applicable provisions of the rules, effective March 17, 2008. The licensee shall comply with all terms and conditions of this license. This license consists of the 11 pages of conditions attached hereto (including those in any Attachments 1 through 10) and the applicable regulations contained in R 299.9101 through R 299.11008, as specified in the license. For purposes of compliance with this license, applicable rules are those that are in effect on the date of issuance of this license in accordance with R 299.9521(3)(a).

This license is based on the information in the license application submitted on January 15, 2009, and any subsequent amendments (hereafter referred to as "the application"). Pursuant to R 299.9519(11)(c), the license may be revoked if the licensee fails, in the application or during the license issuance process, to disclose fully all relevant facts or, at any time, misrepresents any relevant facts. As specified in R 299.9519(1), the facility shall be constructed, operated, and maintained in accordance with Part 111 of Act 451, the rules, and this license.

This license is effective on the date of issuance and shall remain in effect for 10 years from the date of issuance, unless revoked pursuant to R 299.9519 or continued in effect as provided by the Michigan Administrative Procedures Act, 1969 PA 306, as amended (Act 306).

Issued this 2nd day of March, 2010

by


George W. Bruchmann, Chief
Waste and Hazardous Materials Division

**HAZARDOUS WASTE MANAGEMENT FACILITY OPERATING LICENSE
FOR
THE UNIVERSITY OF MICHIGAN BECK ROAD FACILITY
MIR 000 001 834**

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LIST OF ATTACHMENTS

- Attachment 1 Waste Analysis Plan
- Attachment 2 Inspection Schedule
- Attachment 3 Personnel Training Program
- Attachment 4 Preparedness and Prevention
- Attachment 5 Contingency Plan
- Attachment 6 Closure Plan
- Attachment 7 Engineering Plans and Specifications
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- Attachment 9 Acceptable Waste Types for Container Storage
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Pursuant to Executive Order 2009-45, the Department of Natural Resources and the Department of Environmental Quality (DEQ) were combined into a single entity, the Department of Natural Resources and Environment (DNRE), effective January 17, 2010. Therefore, any reference in the license attachments to the DEQ (which were submitted prior to January 17, 2010) shall be equivalent to referencing the DNRE.

PART I STANDARD CONDITIONS

A. TERMINOLOGY AND REFERENCES

Throughout this license, the term "Division" means the Waste and Hazardous Materials Division within the DNRE responsible for administering Part 111 of Act 451 and the rules. Throughout this license, "Director" means the Director of the DNRE or the Director's duly authorized designee such as the Division Chief. All of the provisions of Title 40 of the Code of Federal Regulations (CFR) referenced in this license are adopted by reference in R 299.11003.

B. EFFECT OF LICENSE

Except as otherwise provided by law, any treatment, storage, or disposal of hazardous waste not specifically authorized in this license, is prohibited. Issuance of this license does not authorize any injury to persons or property, any invasion of other private rights, or any infringement of federal, state, or local law or regulations {R 299.9516(8)}; nor does it obviate the necessity of obtaining such permits or approvals from other units of government as may be required by law. Compliance with the terms of this license does not constitute a warranty or representation of any kind by the DNRE, nor does the DNRE intend that compliance with this license constitutes a defense to any order issued or any action brought under Act 451 or any other applicable state statute or Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) {42 USC 9606(a)}, the Resource Conservation and Recovery Act of 1976, as amended (RCRA), and its rules, or any other applicable federal statute. The licensee, however, does not represent that it will not argue that compliance with the terms of this license may be a defense to such future regulatory actions. Each attachment to this license is a part of, and is incorporated into, this license and is deemed an enforceable part of the license.

C. SEVERABILITY

The provisions of this license are severable, and if any provision of this license, or the application of any provision of this license to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this license shall not be affected thereby.

D. RESPONSIBILITIES

1. The licensee shall comply with Part 111 of Act 451, the rules, and all conditions of this license, except to the extent authorized by the DNRE pursuant to the terms of an emergency operating license. Any license noncompliance, except to the extent authorized by the DNRE pursuant to the terms of an emergency operating license, constitutes a violation of Part 111 of Act 451 and is grounds for enforcement action, license revocation, license modification, or denial of a license renewal application. {R 299.9521(1)(a) and (c) and (3)(a) and (b) and 40 CFR Section 270.30(a)}
2. If the licensee wishes to continue an activity regulated by this license after the expiration date of this license, the licensee shall submit a complete application for a new license to the Division Chief at least 180 days before this license expires, March 2, 2020, unless an extension is granted pursuant to R 299.9510(5). To the extent the licensee makes a timely and sufficient application for renewal of this license, this license and all conditions herein will remain in effect beyond the license expiration date and shall not expire until a decision on the application is finally made by the DNRE, and if the application is denied or the terms of the new license are limited, until the last day for applying for judicial review of the new license or a

later date fixed by order of the reviewing court consistent with Section 91(2) of Act 306.
{R 299.9521(1)(a) and (c) and (3)(a) and 40 CFR §270.30(b)}

3. The licensee shall comply with the conditions specified in R 299.9521(1)(b)(i) to (iii) and 40 CFR Section 270.30(c) through (k), (l)(2), (3), (5), (7), and (11), and (m).
{Sections 11123(3), 11146(1) and (2), and 11148(1) of Act 451 and R 299.9501(1), R 299.9516, R 299.9519, R 299.9521(1)(a) and (b) and (3)(a) and (b), R 299.9522, and R 299.9525}
4. The licensee shall give notice to the Division Chief as soon as possible prior to any planned physical alterations or additions to the licensed facility.

E. SUBMITTAL DEADLINES

When the deadline for submittals required under this license falls on a weekend or legal state holiday, the deadline shall be extended to the next regular business day. This extension does not apply to the deadline for financial mechanisms and associated renewals, replacements, and extensions of financial mechanisms required under this license. The licensee may request extension of the deadlines for submittals required under this license. The licensee shall submit such requests at least five business days prior to the existing deadline for review and approval by the Division Chief. Written extension requests shall include justification for each extension {R 299.9521(3)(a)}.

**PART II
GENERAL OPERATING CONDITIONS**

A. GENERAL WASTE ANALYSIS

The licensee shall ensure that any waste managed at the facility has been properly characterized, pursuant to R 299.9302, and comply with the procedures described in the attached Waste Analysis Plan, Attachment 1, of this license {R 299.9605(1) and 40 CFR Section 264.13}.

B. SECURITY

The licensee shall comply with the barrier, surveillance, and signage requirements of R 299.9605(1) and 40 CFR Section 264.14.

C. GENERAL INSPECTION REQUIREMENTS

The licensee shall inspect the facility in accordance with the Inspection Schedule, Attachment 2, of this license and comply with the inspection requirements of R 299.9605(1) and 40 CFR Section 264.15.

D. PERSONNEL TRAINING

The licensee shall comply with the personnel training requirements of R 299.9605 and 40 CFR Section 264.16. The Personnel Training Program, Attachment 3, of this license shall, at a minimum, cover all items in R 299.9605 and 40 CFR Section 264.16.

E. PREPAREDNESS AND PREVENTION

The licensee shall comply with the Preparedness and Prevention requirements of Attachment 4 of this license and the requirements of R 299.9606 and 40 CFR Part 264, Subpart C.

F. CONTINGENCY PLAN

The licensee shall comply with the contingency plan requirements of R 299.9607 and 40 CFR Part 264, Subpart D. The Contingency Plan, Attachment 5, of this license, and the prescribed emergency procedures shall be immediately implemented by the licensee whenever there is a fire, explosion, or other release of hazardous waste or hazardous waste constituents that threatens or could threaten human health or the environment, or if the licensee has knowledge that a spill has reached surface water or groundwater.

G. DUTY TO MITIGATE

Upon notification from the Division Chief or his or her designee that an activity at the facility may present an imminent and substantial endangerment to human health or the environment, the licensee shall immediately comply with an order issued by the Division Chief pursuant to Section 11148(1) of Act 451 to halt such activity and conduct other activities as required by the Division Chief to eliminate the said endangerment. The licensee shall not resume the halted activity without the prior written approval from the Division Chief {Section 11148 of Act 451 and R 299.9521(3)(b)}.

H. MANIFEST SYSTEM

The licensee shall comply with the manifest requirements of R 299.9304, R 299.9305, and R 299.9608.

I. RECORD KEEPING AND REPORTING

1. The licensee shall comply with the written operating record requirements of R 299.9609 and 40 CFR Section 264.73 and Part 264, Appendix I.
2. The licensee shall comply with the biennial report requirements of R 299.9610 {R 299.9521(1)(a) and 40 CFR Section 270.30(l)(9)}.
3. The licensee shall submit the results of all environmental monitoring required by this license and any additional environmental sampling or analysis conducted beyond that required by this license, in the form of an Environmental Monitoring Report, to the Division Chief within 60 days after any sample collection. Such increased frequency shall be indicated in the Environmental Monitoring Report {R 299.9521(1)(a) and R 299.9521(3)(b) and 40 CFR Section 270.30(l)(4)}.
4. The licensee shall provide environmental monitoring information or data that is required pursuant to this license, to an authorized representative of an environmental or emergency response department of the city of Belleville or county of Wayne, who requests such information or data and that has jurisdiction over the facility. Such information or data shall be made available on the same day the licensee forwards this information to the Division Chief {R 299.9521(3)(b)}.
5. The licensee shall immediately report to the Division Chief any noncompliance with the license that may endanger human health or the environment by doing both of the following:
 - (a) The licensee shall immediately notify the Division Chief at 517-335-2690, if the noncompliance occurs Monday through Friday during the period of 8:00 a.m. to 5:00 p.m., except state holidays, or by calling the DNRE Pollution Emergency Alerting System (PEAS) at 1-800-292-4706 during all other times. This notice shall include the following:
 - (i) Information concerning the fire, explosion, release, or discharge of any hazardous waste or hazardous waste constituent that could threaten human health or the environment, that has reached surface water or groundwater, or that may endanger public drinking water supplies or the environment; and
 - (ii) A description of the occurrence and its cause, including all of the information outlined in R 299.9607(2)(a)-(i).
 - (b) The licensee shall also follow up the verbal notice by providing a written report to the Division Chief within five days of the time the licensee becomes aware of the circumstances. The written report shall contain all of the information in Condition II.1.5.(a)(i)-(ii) of this license along with a description of the noncompliance and its cause; the periods of noncompliance (including exact dates and times); whether the noncompliance has been corrected and, if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance and when those activities occurred or will occur. The Division Chief may waive the five day written notice requirement if the licensee submits a written report containing this information within 15 days of the time the licensee becomes aware of the circumstances.

{R 299.9521(1)(a) and R 299.9607 and 40 CFR Section 270.30(l)(6)}

6. The licensee shall report all other instances of noncompliance with this license, Part 111 of Act 451, the rules, and any other applicable environmental laws or rules that apply to the licensed facility at the time monitoring reports required by this license are submitted or within 30 days, whichever is sooner. The reports shall contain the information listed in Condition II.I.5. of this license {R 299.9521(1)(a) and 40 CFR Section 270.30(l)(10)}.
7. The licensee may make minor modifications to the forms contained in the attachments to this license. The modifications may include changing the format, updating existing references and information, adding necessary information, and changing certification and notification information in accordance with Part 111 of Act 451 and its rules and RCRA and its regulations. The licensee shall submit the modifications to the Division Chief prior to implementing the use of the modified form(s). If the Division Chief does not reject or require revision of the modified form(s) within 14 days of receipt, the licensee shall implement use of the modified form(s) and the form(s) shall be incorporated into this license as a replacement for the existing form(s).

J. CLOSURE

The licensee shall comply with the closure requirements of R 299.9613. The licensee shall close the facility in accordance with the Closure Plan, Attachment 6, of this license, all other applicable requirements of this license, and all other applicable laws {R 299.9613 and 40 CFR Part 264, Subpart G, except 40 CFR Sections 264.112(d)(1), 264.115, and 264.120}.

K. WASTE MINIMIZATION

The licensee shall certify, at least annually, that the licensee has a hazardous waste minimization program in place {R 299.9609(1)(a), 40 CFR Section 264.73(b)(9), and Section 3005(h) of RCRA, 42 U.S.C. Section 6925(h)}.

L. LAND DISPOSAL RESTRICTIONS

The licensee shall comply with all of the requirements of 40 CFR Part 268 {R 299.9627 and 40 CFR Part 268}.

M. AIR EMISSION STANDARDS

1. The licensee shall comply with the requirements of 40 CFR Part 264, Subpart CC, regarding air emission standards for tanks, surface impoundments, and containers.
2. The licensee shall notify the Division Chief of any waste management units that become subject to the requirements of 40 CFR Part 264, Subparts AA, BB, and/or CC within 30 days of the start of the regulated activity.

{R 299.9630, R 299.9631, and R 299.9634 and 40 CFR Part 264, Subparts AA, BB, and CC}

N. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

The licensee shall maintain at the facility the following documents and amendments required by this license, until closure/postclosure is completed, certified by an independent registered professional engineer, and the facility is released from financial assurance requirements for closure/postclosure by the Director:

1. Waste Analysis Plan, including Quality Assurance/Quality Control (QA/QC) Plans.

2. Inspection Schedules and records.
3. Personnel Training Program documents and records.
4. Contingency Plan.
5. Closure Plan.
6. Operating record.
7. Site Security Plan.
8. Facility engineering plans and specifications.
9. Record keeping procedures.
10. Environmental monitoring plans, including Sampling and Analysis Plans and QA/QC Plans.
11. Environmental monitoring data and statistical records.
12. Preventative procedures (Personnel Protection Plan).
13. Hazardous waste minimization program certification.

{R 299.9521(3)(a)}

9. ENGINEERING PLANS

The licensee shall construct, operate, and maintain the facility in accordance with the Engineering Plans and Specifications, Attachment 8, of this license, and any modifications to those plans shall be made in accordance with this license.

**PART III
CONTAINER STORAGE CONDITIONS**

A. COVERAGE OF LICENSE

The hazardous waste container storage areas at the facility, denoted as Rooms 109A, 109B, 111, 113, 116, and 117, as shown in Drawings 8-1 and 8-2 are covered by this license. Any expansion or enlargement beyond the facility boundary shown in Drawings 8-1 and 8-2 or beyond the 13,200-gallon storage design capacity requires a construction permit from the Director. Drawings 8-1 and 8-2 are incorporated into this license as part of the Facility Drawings, Attachment 8 {R 299.9521(1)(b)}.

B. WASTE IDENTIFICATION AND QUANTITY

1. The licensee shall store only hazardous wastes that are generated by persons performing work for the licensee at its campuses or at properties that the licensee owns or leases.
2. The licensee may store no more than a total volume of 13,200 gallons of the hazardous wastes listed in Table A2.A.2 in the Acceptable Waste Types for Container Storage, Attachment 9, of this license, in containers at the facility, subject to the terms of this license. The maximum number of containers of hazardous waste that may be stored at the facility is 240 55-gallon containers, or an equivalent volume in other size containers {R 299.9521(2)(d)}.
3. The type of hazardous wastes that may be stored in the individual container storage areas at the facility shall be restricted to those shown in Tables A2.A.2 and A7.A.1 in Attachment 9 of this license {R 299.9521(2)(d)}.
4. The maximum volume and number of 55-gallon containers, or an equivalent volume in other size containers, of hazardous waste that may be stored in the individual container storage areas at the facility shall be restricted as follows: {R 299.9521(2)(d)}

Container Storage Area Room Number	Hazardous Waste Container Storage Design Capacity	Number of 55-Gallon Containers
109A	880 gallons	16
109B	2,530 gallons	46
111	880 gallons	16
113	2,310 gallons	42
116	4,730 gallons	86
117	1,870 gallons	34

5. Tables A2.A.2 and A7.A.1 are incorporated into this license as part of Attachment 9.

C. USE AND MANAGEMENT OF CONTAINERS

1. The licensee shall manage all containers in compliance with R 299.9521(3)(b), R 299.9614, and R 299.9627 and 40 CFR Sections 264.171, 264.172, 264.173, and 268.50(a)(2)(i).
2. The licensee shall only place containers, stacked no greater than two high, into the hazardous waste container storage areas referenced in Condition III.A. of this license in accordance with the configuration shown in Drawing 8-2 in Attachment 8 of this license or an alternate configuration approved by the Division Chief {R 299.9521(3)(b)}.

3. The licensee shall operate and maintain the containment system in accordance with the requirements of R 299.9614, 40 CFR Section 264.175, and the attached plans and specifications in Attachment 7 of this license.

D. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES

1. The licensee shall locate containers holding ignitable or reactive wastes in accordance with R 299.9614 and 40 CFR Section 264.176.
2. The licensee shall take precautions to prevent the accidental ignition or reaction of ignitable or reactive wastes by following the procedures specified in Attachments 1 and 4 of this license. The licensee shall document compliance with this condition and place this documentation in the operating record {R 299.9605 and 40 CFR Section 264.17(a) and (c)}.

E. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES OR MATERIALS

1. The licensee is prohibited from placing incompatible wastes or incompatible wastes and materials in the same container {R 299.9521(2)(d) and (3)(b)}.
2. The licensee shall prevent the placement of hazardous waste in an unwashed container that previously held an incompatible waste or material {R 299.9614 and 40 CFR Section 264.177(b)}.
3. The licensee shall document compliance with Conditions III.E.1. and III.E.2. of this license and place this documentation in the operating record {R 299.9605 and 40 CFR Section 264.17(c)}.
4. The licensee shall separate containers of incompatible wastes as indicated in the procedures contained in Attachments 1 and 4 of this license {R 299.9614 and 40 CFR Section 264.177(c)}.

F. DISPOSITION OF ACCUMULATED LIQUIDS

The licensee shall remove all liquids accumulated in the containment system within 24 hours of detection and manage the liquids in accordance with the requirements of Part 111 of Act 451 and the rules, as specified in Attachments 4 and 5 of this license {R 299.9521(3)(b) and R 299.9614(1)(a) and 40 CFR Section 264.175(b)(5)}.

PART IV
CORRECTIVE ACTION CONDITIONS

A. CORRECTIVE ACTION AT THE FACILITY

1. The licensee shall implement corrective action for all releases of a contaminant from any waste management units (WMUs) at the facility, regardless of when the contaminant may have been placed in or released from the WMU. For the purposes of this license, the term "corrective action" means an action determined by the Division Chief to be necessary to protect the public health, safety, welfare, or the environment, and includes, but is not limited to, investigation, evaluation, cleanup, removal, remediation, monitoring, containment, isolation, treatment, storage, management, temporary relocation of people, and provision of alternative water supplies, or any corrective action allowed under Title II of the federal Solid Waste Disposal Act, or regulations promulgated pursuant to that act. For the purposes of this license, the remedial process associated with the environmental protection standards of Part 201, Environmental Remediation, of Act 451 or a substantially equivalent process approved by the Division Chief shall be used to satisfy the corrective action obligations under this license {Sections 11102, 11115a, 20120a, and 20120b of Act 451 and R 299.9629(1)(a)}.
2. To the extent that a release of a hazardous substance, as defined in Section 20101(t) of Act 451, that is not also a contaminant, as defined in Section 11102(2) of Act 451, is discovered while performing corrective action under this license, the licensee shall take concurrent actions as necessary to address the Part 201 of Act 451 remedial obligations for that release {R 299.9521(3)(b)}.

B. CORRECTIVE ACTION BEYOND THE FACILITY BOUNDARY

The licensee shall implement corrective action beyond the facility in accordance with Section 11115a of Act 451 and R 299.9629(2).

C. IDENTIFICATION OF WASTE MANAGEMENT UNITS

The WMUs at the facility are identified below and shown on the figure in the Operation and Maintenance Plan for Units 3 and 4, Attachment 10, of this license:

- | | |
|-------|---|
| WMU-1 | Beck Road Storage Facility – Building 2201 is a two-story, multiple-room building at the facility that is used to store both low level radioactive waste and mixed waste. |
| WMU-2 | Area of Concern A – Former fuel oil underground storage tank farm consisting of two 9,000-gallon, steel underground storage tanks that were in operation from 1949 to 1960. |
| WMU-3 | Area of Concern B – One 3,000-gallon, steel underground storage tank formerly used to store gasoline from 1949 to 1960. |
| WMU-4 | Area of Concern C – Area near the northeast corner of the automotive maintenance building at the facility that contains low concentrations of polynuclear aromatic hydrocarbons at a depth of approximately four-to-six feet. |

1. The following WMUs do not require corrective action at this time:
 - (a) The following WMU, identified in the application and the Preliminary Assessment/Visual Site Inspection Report for the University of Michigan Beck Road Storage Facility, dated

April 16, 1998 (PA/VS), that is currently operating pursuant to the act and its rules with no evidence of a release of any contaminants. Corrective action may be required when the unit undergoes final closure.

(i) WMU-1 Beck Road Storage Facility

(b) The following WMU, identified in the PA/VS, based on the design of the unit and available information that indicates that no known or suspected releases of contaminants from the unit have occurred.

(i) WMU-2 Area of Concern A

(c) The following WMUs, identified in the application; PA/VS; Corrective Measures Implementation Final Report, dated April 18, 2003 (CMI Final Report); Operation and Maintenance Plan for Waste Management Units 3 and 4 Inspection, Planned Excavation and Maintenance Protocol, dated August 17, 2004 (O&M Plan); and subsequent corrective action related documents approved by the Division Chief on May 16, 2005, because the WMUs have undergone corrective action pursuant to the act and its rules and met the criteria for limited residential cleanups, provided the licensee complies with all of the requirements necessary to maintain this level of cleanup.

(i) WMU-3 Area of Concern B

(ii) WMU-4 Area of Concern C

{Sections 11102 and 11115a of Act 451 and R 299.9521(3)(b) and R 299.9629}

2. Within 30 days of discovery of a new WMU or a release of a contaminant from a new WMU, the licensee shall provide written notification to the Division Chief. The written notification shall include all of the following information:

(a) The location of the unit on the facility topographic map.

(b) The designation of the type of unit.

(c) The general dimensions and structural description, including any available drawings of the unit.

(d) The date the unit was operated.

(e) Specification of all waste(s) that have been managed in the unit.

(f) All available information pertaining to any release of a contaminant from the unit.

3. Based on a review of all of the information provided in Condition IV.C.2 of this license, the Division Chief may require corrective action for the newly-identified WMU. The licensee shall submit a written remedial investigation (RI) work plan to the Division Chief within 60 days of written notification by the Division Chief that corrective action for the unit is required.

{Sections 11102 and 11115a of Act 451 and R 299.9504(1), R 299.9508(1)(b), and R 299.9629 and 40 CFR Section 270.14(d)}

D. OPERATION AND MAINTENANCE PLAN FOR WASTE MANAGEMENT UNITS 3 AND 4

The licensee shall comply with the O&M Plan for Units 3 and 4 that is incorporated into this license as Attachment 10 {Sections 11102 and 11115a of Act 451 and R 299.9521(3)(b) and R 299.9629}.

E. DETERMINATION OF NO FURTHER ACTION

1. The licensee shall continue corrective action measures to the extent necessary to ensure that the applicable environmental protection standards established under Part 201 of Act 451, as adopted in Part 111 of Act 451, are met, if the limits are not less stringent than allowed pursuant to the provisions of RCRA.
2. Based on the results of the RI and other relevant information, the licensee shall submit a written request for a license minor modification to the Division Chief if the licensee wishes to terminate corrective action for a specific WMU identified in Condition IV.C of this license. The licensee must demonstrate that there have been no releases of a contaminant(s) from the WMU and that the WMU does not pose a threat to public health, safety, welfare, or the environment.
3. Based on the results of the RI and other relevant information, the licensee shall submit a written request for a license major modification to the Division Chief if the licensee wishes to terminate facility-wide corrective action. The licensee must conclusively demonstrate that there have been no releases of a contaminant(s) from any of the WMUs at the facility and that none of the WMUs pose a threat to public health, safety, welfare, or the environment.
4. If, based upon a review of the licensee's request for a license modification pursuant to Conditions IV.E.2 or IV.E.3 of this license, the results of the completed RI, and other relevant information, the Division Chief determines that the releases or suspected releases of a contaminant(s) do not exist and that the WMU(s) do not pose a threat to public health, safety, welfare, or the environment, the Division Chief will approve the requested modification.
5. A determination of no further action shall not preclude the Division Chief from requiring continued or periodic monitoring of air, soil, groundwater, or surface water, if necessary to protect public health, safety, welfare, or the environment, when facility-specific circumstances indicate that potential or actual releases of a contaminant(s) may occur.
6. A determination of no further action shall not preclude the Division Chief from requiring further corrective action at a later date, if new information or subsequent analysis indicates that a release or potential release of a contaminant(s) from a WMU at the facility may pose a threat to public health, safety, welfare, or the environment. The Division Chief will initiate the necessary license modifications if further corrective action is required at a later date.

{Sections 11102, 11115a, and 20120a of Act 451 and R 299.9629(2)}

F. CORRECTIVE ACTION DOCUMENTS RETENTION

The licensee shall maintain all corrective action documents required by this license at the facility. The documents shall be maintained for the operating life of the facility or until the facility is released from financial assurance requirements for corrective action by the Director, whichever is longer. The licensee shall offer such documents to the Division Chief prior to discarding those documents {Sections 11102 and 11115a of Act 451 and R 299.9521(3)(b) and R 299.9629}.

Attachment 1
Waste Analysis Plan

FORM EQP 5111 ATTACHMENT TEMPLATE A3 WASTE ANALYSIS PLAN (WAP)

This document is an attachment to the Michigan Department of Environmental Quality's *Instructions for Completing Form EQP 5111, Hazardous Waste Treatment, Storage, and Disposal Facilities Construction Permit and Operating License Application Form*. See Form EQP 5111 for details on how to use this attachment.

The administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), being R 299.9504, R 299.9508, and R 299.9605, and Title 40 of the Code of Federal Regulations (CFR) §§270.14(b)(3) and 264.13(b) and (c), establish requirements for WAPs for hazardous waste management facilities. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for a WAP for the hazardous waste management units and the hazardous waste management facility for the Beck Road Storage Facility. All activities associated with the WAP will be conducted at the Beck Road Storage Facility, 8501 Beck Road, Belleville, Michigan.

Ensure that all samples collected for the purposes of waste characterization are collected, transported, analyzed, stored, and disposed by trained and qualified individuals in accordance with the Quality Assurance/Quality Control (QA/QC) Plan. The QA/QC Plan should, at a minimum, include the written procedures outlined in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," U.S. Environmental Protection Agency (EPA) Publication No. SW-846, Third Edition, Chapter 1 (November 1986), and its updates.

This template is organized as follows:

A3.A COMMERCIAL FACILITY

- A3.A.1 Initial Waste Characterization Requirements for Generators
 - A3.A.1(a) Generator Waste Characterization Discrepancies
 - A3.A.1(b) Subsequent Waste Shipment Procedures
 - A3.A.1(c) Additional Waste Analysis Requirements
- Figure A3.A.1-1 U-M Low Level Radioactive Waste Manifest
- Figure A3.A.1-2 U-M Hazardous/Chemical Waste Manifest
- Figure A3.A.2 Fingerprinting Documentation Sheet
- A3.A.2 Waste Acceptance Procedures
 - A3.A.2(a) Review Paperwork
 - A3.A.2(b) Visual Inspection of Waste
 - A3.A.2(c) Waste Screening/Fingerprinting
- Table A3.A.1 Waste Analysis Procedures
- Table A3.A.2 Sampling Procedures
- A3.A.3 Procedures to Ensure Compliance with Land Disposal Restrictions (LDR) Requirements
 - A3.A.3(a) Spent Solvent and Dioxin Wastes
 - A3.A.3(b) Listed Wastes
 - A3.A.3(c) Characteristic Wastes
 - A3.A.3(d) Radioactive Mixed Waste
 - A3.A.3(e) Leachates
 - A3.A.3(f) Laboratory Packs

	A3.A.3(g)	Contaminated Debris
	A3.A.3(h)	Waste Mixtures and Wastes with Overlapping Requirements
	A3.A.3(i)	Dilution and Aggregation of Wastes
A3.B	CAPTIVE FACILITY	
A3.C	NOTIFICATION, CERTIFICATION, AND RECORD KEEPING REQUIREMENTS	
	A3.C.1	Retention of Generator Notices and Certifications
	A3.C.2	Notification and Certification Requirements for Treatment Facilities
	A3.C.3	Waste Shipped to Subtitle C Facilities
	A3.C.4	Waste Shipped to Subtitle D Facilities
	A3.C.5	Recyclable Materials
	A3.C.6	Record Keeping
	A3.C.7	Required Notice
Attachment A3-1	Precedence of Hazard Table	
Attachment A3-2	Chemical Compatibility Chart	
Attachment A3-3	Chemical Constituent Sheet	
Attachment A3-4	Operation's Log	
Attachment A3-5	LDR Notifications	
Attachment A3-6	Table A2.A.2, Hazardous Wastes Accepted at the Facility	

A3.A COMMERCIAL FACILITY

Beck Road Storage Facility is a commercial facility that receives wastes generated off site. Beck Road Storage Facility has developed a WAP to ensure that its facility at 8501 Beck Road, Belleville, MI will accept only wastes that it is authorized to accept. The hazardous wastes stored at Beck Road Storage Facility will be properly characterized prior to waste acceptance. All generators will be required to provide a complete waste characterization, including chemical analysis when appropriate. Waste screening will be conducted on every shipment of waste to ensure that the waste conforms to the waste profile for the generator and information on incoming manifests and to ensure that the waste is properly managed within the facility.

All analysis performed pursuant to this application will be consistent with the QA/QC Plan included in Section A11, Attachment A11-3. All samples for the purpose of waste characterization will be collected, transported, stored, and disposed by trained and qualified individuals in accordance with the QA/QC Plan.

In accordance with R 299.9609 and 40 CFR §264.73 and Part 264, Appendix I, Beck Road Storage Facility will retain all records and results of waste determinations performed as specified in 40 CFR §§264.13, 264.17, 264.314, 264.1034, 24.1063, 264.1083, 268.4(a), and 268.7 in the facility operating record until closure of the facility.

The University of Michigan does not transship waste.

A3.A.1 Initial Waste Characterization Requirements for Generators [R 299.9605(1) and R 299.9504(1)(c) and 40 CFR §264.13(b)(5)]

Beck Road Storage Facility will require the following waste profile information for initial waste shipments from all off-site generators prior to shipment.

Generators of waste at the U-M must provide all information required by the U-M standard turn-in requirements (described in the following text) before any waste is picked up at the point of

generation. Hazardous and mixed waste is picked up from the generator at the generator's request. At the time of pickup, there is verification that the waste profile forms, U-M Low Level Radioactive Waste (LLRW) Manifest (Figure A3.A.1-1) or the U-M Hazardous/Chemical Waste Manifest (Figure A3.A.1-2), and labels are properly filled out. The information on the labels is compared with the following information on the manifest(s) for verification: the container number, volume of the waste, isotope, activity, chemical constituents as indicated on the back of manifest for specified chemicals, and concentration of the chemical constituents. Each laboratory has a reference document that includes the instructions for proper labeling and internal manifesting of hazardous and mixed waste. The U-M LLRW Manifest or the U-M Hazardous/Chemical Waste Manifest documents the total volume of the waste, the hazardous waste constituents, and the percent concentrations. The EPA Uniform Hazardous Waste Manifest is completed utilizing this information provided by the generator.

The characteristics of the initial hazardous waste constituents used are identified through generator knowledge, or as necessary, by analysis of the waste streams and are recorded on U-M internal manifests. Additional testing, if indicated, and testing of unknowns is conducted through the University of Michigan's OSEH Laboratory located in the North Campus Transfer Facility (NCTF) or at a contract laboratory. Table A2.A.2 lists the hazardous waste codes of the hazardous and mixed waste stored at the Beck Road Storage Facility. Table A2.A.2 is included in this section as Attachment A3-6.

The waste generation and profiling processes yield wastes of known characteristics. From the characteristics of the initial products and the waste production process, the ignitable, corrosive, reactive or toxic characteristics are identified. Waste analyses for these characteristic parameters are usually unnecessary. A pH test may be conducted to verify whether a waste is corrosive. The waste generation and profiling processes also yield wastes which contain known RCRA listed hazardous waste constituents. Waste analyses for these RCRA listed constituents are usually unnecessary.

The U-M has specific manifest requirements for transporting hazardous wastes. The generator of hazardous and mixed waste is required to properly identify the hazardous characteristics (by constituent) of the waste on the waste profile forms so that they are immediately apparent to the receiving personnel. Prior to transport to the Beck Road Storage facility, the hazardous and mixed waste is evaluated for isotope(s) and activity, and as necessary, is sampled and analyzed to verify isotope(s) and activity. The hazardous and mixed waste transported to the storage facility are properly manifested in accordance with state and federal regulations on an EPA Uniform Hazardous Waste Manifest, accompanied by appropriate LDR Notifications (Attachment A3-5).

In addition to the waste profile information submitted by the generator, Beck Road Storage Facility will:

- ☐ Require submittal of a representative waste sample
- ☐ Conduct an audit of the generator facility
- ☐ Review industry literature to identify typical waste streams
- ☒ Other:

A U-M LLRW Manifest or a U-M Hazardous/Chemical Waste Manifest and a U-M Fingerprinting Documentation Sheet (Figure A3.A.2) are completed for every hazardous and mixed waste shipment

to Beck Road Storage Facility. The information on the waste profile forms is verified and evaluated at the time of collection and verified and evaluated at arrival at Beck Road Storage Facility to ensure accuracy and completeness.

A3.A.1(a) Generator Waste Characterization Discrepancies

[R 299.9605(1) and R 299.9504(1)(c) and 40 CFR §§264.13(a)(3) and (4), 264.13(b)(c), and 264.72]

If observed conditions are inconsistent with the waste profile provided by the generator, discrepancy resolution begins with discussions with the generator and may require analytical testing through the U-M Environmental Laboratory, or a contract laboratory. All discrepancies will be resolved before accepting the waste.

A3.A.1(b) Subsequent Waste Shipment Procedures

[R 299.9605(1) and R 299.9504(1)(c) and 40 CFR §§264.13(a)(3) and 264.13(b)(4)]

The initial analysis of waste from each generator will be reviewed or repeated at the time of each collection of waste to ensure that the analysis is accurate and up-to-date.

The profiling process described in Section A3.A.1, Initial Waste Characterization Requirements for Generators, is repeated for each collection of waste. Recharacterization occurs with each collection of waste. A completed waste profile form, either the U-M LLRW Manifest or the U-M Hazardous/Chemical Waste Manifest, will provide complete characterization of the waste prepared for collection. This documentation provides specific waste stream characterization, precluding the need for annual analytical profiling. Additional testing, if indicated, and testing of unknowns is conducted through the U-M Environmental Laboratory, or a contract laboratory.

A3.A.1(c) Additional Waste Analysis Requirements

[R 299.9605(1) and R 299.9504(1)(c) and 40 CFR §§264.13(b)(6) and 264.13(c)(3)]

Beck Road Storage Facility will review the waste profile information to ensure that the facility is authorized to receive the waste, and can manage the waste in compliance with the following:

- ☒ R 299.9605 and 40 CFR §264.17 General requirements for ignitable, reactive, or incompatible wastes
- ☐ R 299.9630 and 40 CFR §264.1034(d) Test methods and procedures (Subpart AA)
- ☐ R 299.9631 and 40 CFR §264.1063(d) Test methods and procedures (Subpart BB)
- ☐ 40 CFR §264.1083 Waste determination procedures (Subpart CC)
- ☒ R 299.9627 and 40 CFR §268.7 Waste analysis and record keeping LDR requirements
- ☐ R 299.9228 Universal waste requirements

Figure A3.A.1-1
U-M Low Level Radioactive Waste Manifest

Figure A3.A.1-1, U-M Low Level Radioactive Waste Manifest

LOW-LEVEL RADIOACTIVE WASTE (LLRW) MANIFEST Radioactive material, LSA, n.e.s. 7, 10Y2912 University of Michigan - Occupational Safety and Environmental Health (OSEH) North Campus Transfer Facility - 1655 Dean Road - Ann Arbor, MI 48109-2139 - (734) 763-4568															MANIFEST # R 26630		
SOLIDS (Amplified Container Label to local inside of yellow plastic drum)																	
S E C A	RQ	Inch Drum	Quantity (Circle)	Isotope	Activity		Isotope	Activity		Isotope	Activity		Isotope	Activity			
					(Bq)	(Ci)		(Bq)	(Ci)		(Bq)	(Ci)		(Bq)	(Ci)		
			7.5 28														
			7.5 28														
LIQUIDS (Place label on each bottle)																	
S E C B	RQ	7	Vol. (L)	Isotope	Activity		Isotope	Activity		If chemically present, enter number code from list & concentration							
					(Bq/L)	(Ci/L)		(Bq/L)	(Ci/L)	Code	Lit. Vol.	Code	Lit. Vol.	Code	Lit. Vol.	Code	Lit. Vol.
SCINTILLATION VIALS (Indicate at the top whether the vials are sealed or unsealed)																	
S E C C	RQ	Box	Isotope	Activity		Isotope	Activity		Isotope	Activity		Plastic or Glass		Activity Scintillation Counter			
				(Bq)	(Ci)		(Bq)	(Ci)		(Bq)	(Ci)	P	G	P	G	P	G
OTHER (Indicate at the top whether the vials are sealed or unsealed)																	
S E C D	RQ	Box	Isotope	Activity		Isotope	Activity		Isotope	Activity		Plastic or Glass		Activity Scintillation Counter			
				(Bq)	(Ci)		(Bq)	(Ci)		(Bq)	(Ci)	P	G	P	G	P	G

Retain photocopy for your files

PLEASE: Authorized User: _____

PRINT: Room #/Building: _____

Completed by: _____

Date (month/year): _____

Signature: _____

*Signature indicates that each container has been wiped for external contamination (except a copy of survey results to manifest).

IN CASE OF EMERGENCY CONTACT
 PUBLIC SAFETY (24 HOURS) AT (734) 763-1431
 Ref 7/99

DO NOT WRITE IN THESE SPACES

OSEH Use Only

LSA-II
 Exclusive Use Shipment

Figure A3.A.1-1, U-M Low Level Radioactive Waste Manifest

INSTRUCTIONS TO IDENTIFY CHEMICALS IN LIQUIDS			
<p>1. If chemical is listed below, please enter corresponding number code and approximate chemical concentration in % by volume in Section B on the front side of manifest.</p> <p>2. If chemical constituents are not listed below, please enter number code 99 and approximate concentration in % by volume in Section B on the front side of manifest, and list chemical name(s) and concentration(s) in Section E below.</p>			
00 • aqueous (water based with no listed chemicals) 01 • acetamide 23 • acetic acid 13 • acetic anhydride 71 • acetone 04 • acrylonitrile 05 • acrylamide 07 • amines and compounds (specify below) 03 • aromatic compounds (specify below) 09 • boron compounds (specify below) 10 • butanes 11 • butyl bromide 05 • butyl 88 • butyric acid 01 • butyrolactam 02 • butyrolactone 17 • butanol 03 • calcium compounds (specify below) 03 • calcium chloride 04 • calcium sulfide 14 • calcium stearate 16 • chloroacetic acid 15 • chloroform 18 • chlorophenol 105 • chlorine chloride 19 • chromium compounds (specify below) 103 • citric acid 107 • crotonic acid 30 • copper compounds (specify below) 90 • copper medium	21 • cyanide compounds (specify below) 12 • cyclohexane 21 • DDMBT 108 • dextrose sulfate 14 • dichloroacetic acid 15 • dimethyl sulfoxide (DMSO) 09 • DMEM media 26 • dextran 27 • ethanol 28 • ether 29 • calcium oxalate (CaOx) 30 • ethyl acetate 31 • ethylbenzene 32 • ethylene diamine 109 • glutamic acid (GTA) 33 • glycine (2-aminoacetic acid) 109 • glutamic acid (GTA) 14 • dimethyl 13 • ethyl alcohol 16 • hexamethylenediamine 17 • formalin 18 • formamide 19 • formic acid 40 • glyoxylic acid 110 • glycine 111 • Hanks #2 media 112 • HEPES buffer 41 • heptane 113 • hexane 43 • hydrochloric acid (HCl) 44 • hydroxybenzene 114 • hydroxyethyl alcohol 40 • isobutanol 47 • isopropanol	48 • lead compounds (specify below) 115 • magnesium chloride 77 • magnesium phosphate 116 • magnesium sulfate 52 • mercaptoethanol 50 • mercury compounds (specify below) 51 • methanol 117 • methyl cellosolve 54 • methyl benzoate 52 • methylphenol 53 • methyl ethyl ketone 58 • methylamine 59 • nitric acid 60 • nitrobenzene 118 • perchloric acid 62 • perfluor 63 • phenol 64 • picric acid 65 • phthalate 01 • potassium chloride 66 • potassium pyrophosphate 119 • potassium phosphate 67 • propionic acid 69 • pyrazole 69 • sodium acetate 69 • sodium citrate 69 • sodium chloride 69 • sodium carbonate 69 • sodium formate 69 • sodium hydroxide 69 • sodium iodide 69 • sodium nitrate 69 • sodium phosphate 69 • sodium sulfate 69 • sodium sulfide 69 • sodium sulfite 69 • sodium tartrate 69 • sodium thiocyanate 69 • sodium zinc	90 • sodium citrate 93 • sodium dodecyl sulfate (SDS) 73 • sodium hydride 74 • sodium hypochlorite 123 • sodium iodide 124 • sodium lauryl sulfate (SLS) 92 • sodium phosphate 125 • sodium thiosulfate 126 • sorbic acid 75 • stearic acid 127 • sulfuric 76 • tetrachloroethene 77 • tetrachloroethylene 128 • tetrahydrofuran 78 • toluene 79 • trichloroacetic acid (TCA) 40 • trichloroethylene 129 • trichloroethylene 67 • TRIS buffer 71 • urea 72 • urea 84 • vinyl chloride 85 • vinylidene 130 • xylene 131 • xylene 132 • xylene 133 • xylene 134 • xylene 135 • xylene 136 • xylene 137 • xylene 138 • xylene 139 • xylene 140 • xylene 141 • xylene 142 • xylene 143 • xylene 144 • xylene 145 • xylene 146 • xylene 147 • xylene 148 • xylene 149 • xylene 150 • xylene 151 • xylene 152 • xylene 153 • xylene 154 • xylene 155 • xylene 156 • xylene 157 • xylene 158 • xylene 159 • xylene 160 • xylene 161 • xylene 162 • xylene 163 • xylene 164 • xylene 165 • xylene 166 • xylene 167 • xylene 168 • xylene 169 • xylene 170 • xylene 171 • xylene 172 • xylene 173 • xylene 174 • xylene 175 • xylene 176 • xylene 177 • xylene 178 • xylene 179 • xylene 180 • xylene 181 • xylene 182 • xylene 183 • xylene 184 • xylene 185 • xylene 186 • xylene 187 • xylene 188 • xylene 189 • xylene 190 • xylene 191 • xylene 192 • xylene 193 • xylene 194 • xylene 195 • xylene 196 • xylene 197 • xylene 198 • xylene 199 • xylene 200 • xylene

Page	CODE 99 CHEMICAL NAME(S), % BY VOL.
1	
2	
3	
4	
5	
6	
7	
8	

Figure A3.A.1-1, U-M Low Level Radioactive Waste Manifest

Figure A3.A.1-2
U-M Hazardous/Chemical Waste Manifest

Figure A3.A.1-2, U-M Hazardous / Chemical Waste Manifest

IN CASE OF EMERGENCY:
 CONTACT PUBLIC SAFETY
 (24 HOURS) (734) 763-1111

WASTE MANIFEST

UNIVERSITY OF MICHIGAN - OCCUPATIONAL SAFETY & ENVIRONMENTAL HEALTH
 1655 DEAN ROAD, ANN ARBOR, MI 48109-2159 (734) 763-4568

No. 31329

EPA ID#

HAZARDOUS / CHEMICAL WASTES										
CHEMICAL DESCRIPTION (DO NOT ABBREVIATE)	Container		Physical Form			Weight or Volume	Units	USE ONLY		
	Qty.	Type	Solid	Liquid	Gas			Waste Code		
1.										
2.										
3.										
4.										
5.										
6.										

Additional Descriptions / Safety Precautions for materials listed above:

UNIVERSAL WASTES (Enter quantity)	
Batteries:	Boxes _____ Pails _____ Drums _____ Auto/Industrial _____
Fertilizers:	Bags _____ Boxes _____ Pails _____ Drums _____
Pesticides:	Bags _____ Boxes _____ Pails _____ Drums _____
Lamp Recycling:	Fluorescent: 4' _____ 8' _____ Compact _____ HID _____ "U" tube _____ "O" tube _____ Mercury Vapor _____
Mercury:	Thermostat(s) _____ Thermometer(s) _____ Switch(es) _____ Devices (describe) _____

MEDICAL / BIOHAZARDOUS WASTES (Enter quantity)		Regulated Medical Waste 6/2 UN3291 PGII
Waste:	Boxes _____ Pails _____ Drums: 5Gal _____ 15Gal _____ 30Gal _____ 55Gal _____	
Sharps:	Boxes _____ Pails _____ Drums: 5Gal _____ 15Gal _____ 30Gal _____ 55Gal _____	

GENERATOR INFORMATION & CERTIFICATION			
NAME	DEPARTMENT		
BUILDING	ROOM	PHONE	
GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by chemical description and are marked, labeled, & are in all respects in proper condition for transport.		TRANSPORTER'S ACKNOWLEDGEMENT OF RECEIPT OF MATERIALS Signature _____ Date _____	
SIGNATURE	DATE		

Figure A3.A.1-2, U-M Hazardous / Chemical Waste Manifest

COMPLETING THE WASTE MANIFEST

1. Enter the EPA Identification Number of the building in which the waste was generated.

HAZARDOUS / CHEMICAL WASTES

CHEMICAL DESCRIPTION:

2. List all of the chemicals in each waste being disposed AND their approximate concentrations (%). Do not abbreviate.

CONTAINER:

3. Enter the total number of containers for each waste described on the manifest.
 4. Enter the appropriate abbreviation (see table #1) for the type of container used for each waste described on the manifest. (If the same waste is shipped in different containers, each type of container must be identified).

PHYSICAL FORM:

5. Mark the appropriate form(s) (Solid, Liquid, Gas) for each manifested waste. Check all that apply.

WEIGHT OR VOLUME:

6. Enter the total numerical weight or volume for each waste manifested.
 7. Enter the appropriate abbreviation (see table #2) for the unit of measure for each waste described on the manifest.

ADDITIONAL DESCRIPTIONS / SAFETY PRECAUTIONS:

8. Enter any additional description / safety precaution, special handling, transportation, treatment, storage, or disposal information or specific properties that may be unique to the waste or pose additional concerns (i.e. acutely toxic, water reactive, etc.) for each waste described on the manifest.

UNIVERSAL WASTE

9. Enter the total number of containers/bulbs/mercury containing articles for each Universal waste category listed.

MEDICAL / BIOHAZARDOUS WASTE

10. Enter the total number of containers for each medical/biohazardous waste category listed.

GENERATOR INFORMATION & CERTIFICATION

11. Enter the name of the waste generator.
 12. Enter the name of the Department where the waste was generated.
 13. Enter the name of the building in which the waste was generated.
 14. Enter the building room number.
 15. Enter the phone number at which the generator, or staff knowledgeable about the waste can be contacted.
 16. The generator must read and sign (by hand), the certification statement, or the waste will not be picked up for disposal.
 17. Enter the date the certification statement was signed.

PLACE THE WASTE MANIFEST(S) WITH THE SHIPMENT

MANIFEST ABBREVIATION TABLES

Table #1

CONTAINER TYPE	
Abbreviation	
DM	Metal drums, barrels, kegs
DP-F	Fiberboard drums, barrels, kegs
DP-P	Plastic drums, barrels, kegs
BOT-G	Glass bottles, jugs, tubes, containers
BOT-P	Plastic bottles, jugs, tubes, containers
CY	Cylinders
CM	Metal boxes, cartons, cases (including roll-offs)
CF	Fiber or plastic boxes, cartons, cases
BA	Burlap, cloth, paper/plastic bags
O	Other (Please specify)

Table #2

UNIT OF MEASURE	
Abbreviation	
G	Gallons
K	Kilograms
L	Liters
P	Pounds
T	Tons
Y	Yards

Figure A3.A.1-2, U-M Hazardous / Chemical Waste Manifest

Figure A3.A.2
U-M Fingerprinting Documentation Sheet

**University of Michigan
 Beck Road Storage Facility
 Fingerprinting Documentation Sheet**

U-M Manifest No. _____

BRSF Area	Cont. No.		Container Type	Color	Phase Observed	Vol. (L)	Waste Codes
	1	Generator					
	1	BRSF					
	2	Generator					
	2	BRSF					
	3	Generator					
	3	BRSF					
	4	Generator					
	4	BRSF					
	5	Generator					
	5	BRSF					
	6	Generator					
	6	BRSF					
	7	Generator					
	7	BRSF					
	8	Generator					
	8	BRSF					

Comments: _____

	Initials	Date
Generator		
BRSF		

A3.A.2 Waste Acceptance Procedures

[R 299.9605(1) and R 299.9504(1)(c), and 40 CFR §§264.13(c), 264.72(a) and (b), and 264.73(b)]

Waste shipments arrive at the facility in the following containers:

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Drums | <input type="checkbox"/> Totes | <input type="checkbox"/> Tanker trucks |
| <input checked="" type="checkbox"/> Carboys | <input type="checkbox"/> Wrangler box | <input type="checkbox"/> Filter bags |
| <input type="checkbox"/> Roll-off boxes | <input type="checkbox"/> Vacuum trucks | <input checked="" type="checkbox"/> Other: labpacks, boxes, bags |

Upon receipt of wastes from an off-site generator, Beck Road Storage Facility will perform all of the following tasks:

- Review paperwork
- Visually inspect the waste
- Perform waste screening/fingerprint analysis of waste

These tasks are discussed below.

A3.A.2(a) Review Paperwork

[R 299.9605(1) and R 299.9504(1)(c), and 40 CFR §§264.13(c), 264.72(a) and (b), and 264.73(b)]

Once the hazardous and mixed waste is received at the Beck Road Storage Facility, a visual inspection is performed, prior to conducting a review of the paperwork, to ensure that the containers have not leaked during transport. Beck Road Storage Facility will review all paperwork, including manifests and LDR notifications, before any wastes are accepted by the facility. Beck Road Storage Facility will review all paperwork for completeness. In addition, the manifest and LDR notifications will be compared for consistency. The manifest will also be compared to the waste profile and analytical information provided by the generator and to the waste shipment to ensure the accuracy of information provided on shipment paperwork. The waste codes listed on both the EPA Uniform Hazardous Waste Manifest and RCRA labels are reviewed to verify that the chemicals and percent concentration of the chemicals listed are consistent with those listed on the U-M waste profile forms. The manifest will also be compared to the number of containers, the volume, and/or the weight of the waste in the shipment. All discrepancies will be resolved before accepting the waste.

U-M Hazmat personnel have extensive involvement with the hazardous and mixed waste destined for the Beck Road Storage Facility. Hazardous and mixed waste is transported from the NCTF or the MSRB-III facility (located on the Medical Campus) to the Beck Road Storage Facility. Hazmat personnel perform specific activities at the site of generation, at the transfer facility and at the storage facility, and act as transporter from facility to facility. Activities are often duplicated at each step in the process to ensure proper and safe handling of the waste. A discussion of the activities performed at the generator site, the transfer facility and the storage facility follows.

At the site of generation, Hazmat personnel provide consultation on collection, labeling, manifesting and packaging of hazardous and mixed waste. The generator labels the waste and completes the U-M

internal manifests. At the time of collection, Hazmat personnel perform visual inspection/fingerprinting, label and manifest reviews and completion of the EPA Uniform Hazardous Waste Manifest and LDR notifications. Hazmat personnel perform all recordkeeping activities. Hazmat personnel act as the transporter from the site of generation to the transfer facility and to the Beck Road Storage Facility. Hazmat personnel review and accept waste transported to the Beck Road Storage Facility. Hazmat personnel verify compatibility and commingle the accepted waste at the Beck Road Storage Facility.

Prior to pick up, the Hazmat personnel obtain a waste profile form, prepared by the generating laboratory, for each container of waste collected. The waste profile form consists of either the U-M LLRW Manifest or the U-M Hazardous/Chemical Waste Manifest, as appropriate.

Re-characterization occurs with each collection of waste. A completed U-M internal manifest will provide complete characterization of the waste prepared for collection. This documentation provides specific waste stream characterization by knowledge of the raw material and the waste generation process. Proper procedures for segregation will be in accordance with the "Precedence of Hazard Table" in 49 CFR §173.2a (Attachment A3-1), and the "Chemical Compatibility Chart, EPA-600/2-80-076 April 1980, A Method for Determining the Compatibility of Chemical Mixtures" (Attachment A3-2).

GENERATOR SITE

- U-M manifest check: Check for EPA ID number, proper shipping name, waste codes, isotope and activity, volume, room location, generator's signature on manifest.
- Discussion with the generator, as necessary, for validation/confirmation of the waste generation process and the waste constituents.
- Label check: Ensure both radioactive label and RCRA/MI Act 451 labels are complete and accurate.
- Review waste code suitability: Verify that the transfer facility (when applicable) and storage facility can accept waste codes generated. Each facility's permit is used as guidance in review.
- Fingerprinting: U-M conducts visual inspection of each container and a visual observation of the waste, each time, at the time of collection. Inspection of the container assesses the condition of the waste container for safe transport to the storage facility. Observation of the waste includes the container type, the color, the presence of phasing, and the volume and the waste code(s) assigned.
- If observed conditions are inconsistent with the waste profile provided by the generator, discrepancy resolution begins with the generator and may require analytical testing through the U-M Environmental Laboratory, or a contract laboratory.
- Complete the generator section of the U-M Fingerprinting Documentation Sheet for each of the containers (jug, box, pail, etc.) referenced on the manifest. For each container of waste, indicate in columns provided, the BRSF storage area designation; the container type; the color of the waste; if a phase is observed in the waste (yes or no); the volume of waste; and the waste code(s) assigned. Initial and date the sheet.
- Completion of the Uniform Hazardous Waste Manifest and LDR notifications.
- Prepare waste for transport.

TRANSFER FACILITY

- Visual inspection of container for integrity.
- Enter waste onto the transfer facility's operation's log.
- Move to appropriate room in transfer facility.
- Manifest activities: Make appropriate copies of U-M internal manifest, EPA Uniform Hazardous

Waste Manifest and LDR notifications for transfer facility and storage facility records. File originals and copies in appropriate locations.

- Perform radiological evaluation, as appropriate.
- Prior to shipping to storage facility, sign waste off transfer facility's operation's log, prepare waste for transport, sign appropriate transporter box on EPA Uniform Hazardous Waste Manifest, make appropriate copy of EPA Uniform Hazardous Waste Manifest transporter sheet, if required. File transporter copy in appropriate location, if required.

STORAGE FACILITY

- Evaluation of U-M internal manifest, EPA Uniform Hazardous Waste Manifest and LDR notifications to ensure accuracy and completeness.
- Evaluation of radioactive label and RCRA/MI Act 451 label to ensure that both are complete and accurate.
- Visual observation of waste, fingerprinting: Complete the BRSF section of the U-M Fingerprinting Documentation Sheet for each of the containers (jug, box, pail, etc.) referenced on the manifest. For each container of waste, indicate in columns provided, the BRSF storage area designation; the container type; the color of the waste; if a phase is observed in the waste (yes or no); the volume of waste; and the waste code(s) assigned. Initial and date the sheet.
- If observed conditions are inconsistent with the waste profile provided by the generator, discrepancy resolution begins with the generator and may require analytical testing through the U-M Environmental Laboratory, or a contract laboratory.
- Accept or deny waste, note discrepancies, sign manifest.
- Sign waste into Operation's Log (Attachment A3-4).
- Move waste to designated waste management unit.
- Evaluation of isotope compatibility: Segregate short-lived and long-lived isotopes, as appropriate.
- Evaluation of compatibility of chemical constituents and waste codes for drum assignment: Each waste drum has a Chemical Constituent Sheet (Attachment A3-3) associated with it that lists the chemicals contained in that drum. This sheet is updated prior to new waste being commingled into a drum. The constituent sheet and the constituents of the new waste are evaluated for compatibility using the "Chemical Compatibility Chart, EPA-600/2-80-076 April 1980, A Method for Determining the Compatibility of Chemical Mixtures". Commingle like waste codes as possible.
- Ensure receiving drum is updated and properly marked and labeled: drum number, isotopes contained in drum, EPA ID number, proper shipping name, waste codes, accumulation start date for specific drum (will be date drum first receives waste).
- Update Operation's Log to indicate receiving drum.
- Update receiving drum worksheet.
- Commingle waste.
- Ensure drum is closed.
- Ensure waste profile form, and all other associated documents, are filed at the storage facility and/or returned to NCTF, as appropriate.
- Return appropriate copies of EPA Uniform Hazardous Waste Manifest to NCTF.

A3.A.2(b) Visual Inspection of Waste

[R 299.9605(1) and R 299.9504(1)(c) and 40 CFR §264.13(c)]

Beck Road Storage Facility will visually inspect a minimum of one container and up to a maximum of 100 percent of the containers from each generator. The contents of the container will be visually inspected for the following:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Color | <input type="checkbox"/> Consistency |
| <input checked="" type="checkbox"/> Physical state | <input checked="" type="checkbox"/> Other: U-M manifest and container ID numbers, container type, physical phase observed, volume, and waste codes |
| <input checked="" type="checkbox"/> pH (pH if generator knowledge identifies acids or bases.) | |

All containers of hazardous and mixed waste arriving at Beck Road Storage Facility will be visually inspected to determine consistency with recorded information. Visual observations will be recorded and compared to the waste profile information. If observed conditions are inconsistent with the waste profile provided by the generator, discrepancy resolution begins with discussions with the generator and may require analytical testing through the U-M Environmental Laboratory, or a contract laboratory. All discrepancies will be resolved before accepting the waste.

A3.A.2(c) Waste Screening/Fingerprinting

[R 299.9605(1) and R 299.9504(1)(c) and 40 CFR §§264.13(b)(14) and 264.13(c)(2)]

Table A3.A.1 lists the waste analysis procedures, including screening parameters for each hazardous waste, the rationale for the selection of these parameters, test methods that will be used to test for these parameters, the appropriate reference, whether the waste is specified in R 299.9216, the frequency of waste screening, and the rationale for the frequency. The sampling methods that will be used to obtain a representative sample of the waste to be analyzed and the sampling equipment and rationale are summarized in Table A3.A.2. The results of the waste screening/fingerprint analysis will be compared to the waste profile information and analytical results provided by the generator during the initial waste characterization process. The outside container of inner laboratory pack containers will be 100 percent visually inspected. Containers of personal protective equipment (PPE) or debris will undergo visual inspection. All discrepancies will be resolved before accepting the waste.

The appropriate waste profiling documents, the U-M Fingerprinting Documentation Sheet, and the EPA Uniform Hazardous Waste Manifest, will be used for fingerprinting. The BRSF section of the U-M Fingerprinting Documentation Sheet will be completed. This will include a comparison of U-M internal manifest and container number, the BRSF area assignment, the container type, the color, if a phase is observed, the volume, and the waste codes assigned to the waste. The U-M Fingerprinting Documentation Sheet will then be initialed and dated.

If observed conditions are inconsistent with the waste profile provided by the generator, discrepancy resolution begins with discussions with the generator and may require analytical testing through the U-M Environmental Laboratory, or a contract laboratory. All discrepancies will be resolved before accepting the waste.

Sampling of waste, as necessary, will be in accordance with Table A3.A.2, Sampling Procedures.

Table A3.A.1 Waste Analysis Procedures

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
<input checked="" type="checkbox"/> Waste Code						
Ignitability EPA HW No. D001	Characteristic Hazardous Waste	Generator Knowledge; SW-846 1020 (liquids); SW- 846 1030 (solids)	40 CFR 261.21	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Corrosivity EPA HW No. D002	Characteristic Hazardous Waste	Generator Knowledge; Hydron Paper; SW-846 1110A	Regulated Level: ≤ 2 or ≥ 12.5	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Reactivity EPA HW No. D003	Characteristic Hazardous Waste	Generator Knowledge; SW-846 9010	40 CFR 261.23	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Arsenic EPA HW No. D004	Characteristic Hazardous Waste	Generator Knowledge; SW-846 6020	Regulated Level: 5.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Barium EPA HW No. D005	Characteristic Hazardous Waste	Generator Knowledge; SW-846 6020	Regulated Level: 100.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Table A3.A.1 Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Toxicity—Cadmium EPA HW No. D006	Characteristic Hazardous Waste	Generator Knowledge; SW-846 6020	Regulated Level: 1.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Chromium EPA HW No. D007	Characteristic Hazardous Waste	Generator Knowledge; SW-846 6020	Regulated Level: 5.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Lead EPA HW No. D008	Characteristic Hazardous Waste	Generator Knowledge; SW-846 6020	Regulated Level: 5.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Mercury EPA HW No. D009	Characteristic Hazardous Waste	Generator Knowledge; SW-846 7471	Regulated Level: 0.2 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Selenium EPA HW No. D010	Characteristic Hazardous Waste	Generator Knowledge; SW-846 6020	Regulated Level: 1.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Silver EPA HW No. D011	Characteristic Hazardous Waste	Generator Knowledge; SW-846 6020	Regulated Level: 5.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Benzene EPA HW No. D018	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 0.5 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Carbon Tetrachloride EPA HW No. D019	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 0.5 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Table A3.A.1 Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Toxicity—Chlorobenzene EPA HW No. D021	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 100.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Chloroform EPA HW No. D022	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 6.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—o-Cresol EPA HW No. D023	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 200.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—m-Cresol EPA HW No. D024	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 200.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—p-Cresol EPA HW No. D025	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 200.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Cresol EPA HW No. D026	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 200.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— 1,4-Dichlorobenzene EPA HW No. D027	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 7.5 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Table A3.A.1 Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Toxicity— 1,2-Dichloroethane EPA HW No. D028	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 0.5 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— 1,1-Dichloroethylene EPA HW No. D029	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 0.7 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— 2,4-Dinitrotoluene EPA HW No. D030	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 0.13 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Hexachlorobenzene EPA HW No. D032	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 0.13 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Hexachlorobutadiene EPA HW No. D033	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 0.5 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Hexachloroethane EPA HW No. D034	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 3.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Methyl Ethyl Ketone EPA HW No. D035	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 200.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Table A3.A.1 Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Toxicity—Nitrobenzene EPA HW No. D036	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 2.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Pyridine EPA HW No. D038	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 5.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Tetrachloroethylene EPA HW No. D039	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 0.7 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Trichloroethylene EPA HW No. D040	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 0.5 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— 2,4,5-Trichlorophenol EPA HW No. D041	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 400.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— 2,4,6-Trichlorophenol EPA HW No. D042	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 2.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Vinyl Chloride EPA HW No. D043	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 0.2 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Table A3.A.1 Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Toxicity—Chlorobenzene EPA HW No. F002 (See D021).	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Methylene Chloride EPA HW No. F002	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Ortho-Dichlorobenzene EPA HW No. F002	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Tetrachloroethylene EPA HW No. F002 (See D039)	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Trichloroethylene EPA HW No. F002 (See D040)	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—1,1,1-Trichloroethane EPA HW No. F002	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Table A3.A.1 Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Toxicity— 1,1,2-Trichloro-1,2,2- Trifluoroethane EPA HW No. F002	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Trichlorofluoromethane EPA HW No. F002	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— 1,1,2-Trichloroethane EPA HW No. F002	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability— Acetone EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability— Cyclohexanone EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability— Ethyl Acetate EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Table A3.A.1 Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Ignitability— Ethyl Benzene EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability— Ethyl Ether EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability— Methanol EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C & 8015C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability— Methyl Isobutyl Ketone EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability— n-Butyl Alcohol EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C & 8015C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability— Xylene EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Table A3.A.1 Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Toxicity— Cresols and Cresylic Acid EPA HW No. F004 (See D026)	Listed Hazardous Waste	Generator Knowledge; SW-846 8270D	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Nitrobenzene EPA HW No. F004 (See D036)	Listed Hazardous Waste	Generator Knowledge; SW-846 8270D	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Benzene EPA HW No. F005 (See D018)	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability, Toxicity— Carbon Disulfide EPA HW No. F005	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability, Toxicity— 2-Ethoxyethanol EPA HW No. F005	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C & 8015C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability, Toxicity— Isobutanol EPA HW No. F005	Listed Hazardous Waste	Generator Knowledge; SW-846 8015D	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Table A3.A.1 Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Ignitability, Toxicity— Methyl Ethyl Ketone EPA HW No. F005 (See D035)	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability, Toxicity— 2-Nitropropane EPA HW No. F005	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability, Toxicity— Pyridine EPA HW No. F005 (See D038)	Listed Hazardous Waste	Generator Knowledge; SW-846 8270D	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability, Toxicity— Toluene EPA HW No. F005	Listed Hazardous Waste	Generator Knowledge; SW-846 8260A	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Methyl Iodide EPA HW No. U138	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Listed per 40 CFR 261.31(f)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Mercury EPA HW No. U151	Listed Hazardous Waste	Generator Knowledge; SW-846 7471	Listed per 40 CFR 261.31(f)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Table A3.A.1 Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
<input checked="" type="checkbox"/> Free Liquids	Determine if Waste Contains Free Liquids	Generator Knowledge; Paint Filter Liquids Test: SW-846 9095B	Liquid or Solid	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
<input checked="" type="checkbox"/> Compatibility	Occupational and Process Safety; Waste and Container Compatibility	EPA Chemical Compatibility Chart	40 CFR 264.17	NA	Verified at Time of Collection	Occupational and Process Safety; Waste and Container Compatibility
<input checked="" type="checkbox"/> Land Disposal Restrictions	40 CFR 268	40 CFR 268	40 CFR 268	NA	Verified at Time of Collection	Required by Regulation
<input type="checkbox"/> Volatile Organic Compound Content ¹				<input type="checkbox"/>		
<input checked="" type="checkbox"/> Radioactivity	Check for Radioactive Materials	Generator Knowledge; Scintillation Counting; Survey Meter	10 CFR 20.1003	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile
<input type="checkbox"/> Other: [describe]				<input type="checkbox"/>		

¹ According to R 299.9630 and 40 CFR §264.1034(d), TSDFs must identify and meet specific technical requirements for all process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air/stream stripping processes that manage wastes with a 1 part per million by weight (ppmw) or greater total organics concentration on a time-weighted annual average basis. Total organic concentrations in the waste can be measured using SW-846 Method 8260B. According to R 299.9631 and 40 CFR §264.1050, TSDFs must also determine if its equipment contains or contacts organic wastes with 10 percent or greater total organic content. The total organic content can be determined using (1) American Society of Testing and Materials Methods D2267-88, E169-87, or E260-85, (2) SW-846 Method 8260B, or (3) knowledge of the nature of the wastes stream or the waste generating process.

Table A3.A.2 Representative Sampling Procedures for Incoming Waste

Container Type or Material	Sampling Method	Sampling Equipment	Rationale
Aqueous	Grab	Coliwasa	Representative Sampling
Oil or Organic Liquid	Grab	Coliwasa	Representative Sampling
Sludge	Grab	Trier	Representative Sampling
Solids	Grab	Auger or scoops and shovels	Representative Sampling

¹ The sampling method should demonstrate equivalence with the sampling methods described in 40 CFR, Part 261, Appendix I.

A3.A.3 Procedures to Ensure Compliance with Land Disposal Restrictions (LDR) Requirements [R 299.9627 and 40 CFR, Part 268]

All shipments of wastes subject to LDR received at the facility will be accompanied by appropriate generator notification and LDR notification in accordance with R 299.9627 and 40 CFR §268.7. The LDR notification accompanying generator wastes will be reviewed, and any discrepancies in the LDR notification and the associated manifest, analytical records, or waste profile forms will require shipment rejection unless additional, satisfactory, clarifying information is provided by the generator. All information obtained to document LDR compliance will be maintained in the facility operating record until closure of the facility.

If the facility receives a shipment of waste without LDR notification, or a notification with incorrect or incomplete information, the following actions will be conducted: LDR discrepancy resolution begins with discussions with the generator. If the LDR discrepancy can be resolved, corrections will be made to the LDR notification and the waste acceptance procedures will continue. If the LDR discrepancy cannot be resolved, the waste in question will be returned to the generator along with a copy of the completed discrepancy section of the EPA Uniform Hazardous Waste Manifest. Appropriate documentation will be made and maintained at the facility.

In accordance with the LDR regulations, all wastes shipped off site will be analyzed, or generator knowledge will be used when appropriate, to determine whether the waste meets the applicable LDR treatment standards specified in R 299.9627 and 40 CFR §§268.41-43. All analytical results will be maintained in the facility operating record until closure of the facility. Wastes that are determined through analysis to meet treatment standards as specified in R 299.9627 and 40 CFR §268.41-43 will be shipped off site.

Beck Road Storage Facility will supply LDR notifications and certification, including appropriate analytical records to support the certification, to the receiving facility with each shipment of waste. The notifications and certifications will contain the information required under R 299.9627 and 40 CFR §268.7. Any additional data obtained from the generators (e.g., waste profile forms, original LDR notifications, analysis provided by generators) will be provided to the licensed TSDF where the waste will be sent.

Waste accepted at the facility is accompanied by completed LDR notifications. No waste is treated on-site. All waste shipped off site will be accompanied by completed LDR notifications.

A3.A.3(a) Spent Solvent and Dioxin Wastes
[R 299.9627 and 40 CFR §§264.13(a)(1), 268.7, 268.30, 268.31, 268.40, 268.41, 268.42, and 268.43]

Spent solvent wastes (F002-F005) are accepted at the facility. Generator process knowledge will be used to determine the presence of spent solvent wastes (F002-F005). Generator process knowledge will be documented on the waste material profile report and LDR notification. The LDR notification will provide additional information regarding the appropriate treatment standards for the waste and whether it has already been treated to the appropriate standards.

A3.A.3(b) Listed Wastes

[R 299.9627, R 299.9213, and R 299.9214 and 40 CFR §§264.13(a)(1), 268.7, 268.33, 268.34, 268.35, 268.36, 268.39, 268.40, 268.41, 268.42, and 268.43]

Generator process knowledge will be used to determine whether listed waste meets the applicable treatment standards or to demonstrate that the waste has been treated by the appropriate specified treatment technology. In accordance with R 299.9627 and 40 CFR §268.41, where treatment standards are based on concentrations in the waste extract, the facility will use toxicity characteristic leaching procedures (TCLP) to determine if wastes meet treatment standards. Generator process knowledge will be documented on the waste material profile report and LDR notification.

A3.A.3(c) Characteristic Wastes

[R 299.9627, R 299.9208, and R 299.9212 and 40 CFR §§261.3(d)(1), 264.13(a)(1), 268.7, 268.9, 268.37, 268.40, 268.41, 268.42, 268.43 and Part 268, Appendix I and Appendix IX]

Generator process knowledge will be used to determine whether characteristic waste meets the applicable treatment standards or to demonstrate that the waste has been treated by the appropriate specified treatment technology. In accordance with R 299.9627 and 40 CFR §268.41, where treatment standards are based on concentrations in the waste extract, generators shipping waste to the facility will determine if their wastes meet treatment standards.

Characteristic D008 lead nonwastewaters and D004 arsenic nonwastewaters will be analyzed using TCLP to determine compliance with treatment standards of 40 CFR §§268.40 and 268.48. If after treatment a hazardous waste displays a characteristic for the first time, the characteristic waste code will be added to the LDR notification and facility records. Wastes will be retreated, as appropriate, to meet the characteristic treatment standards of 40 CFR §§268.40 and 268.48 prior to land disposal. In addition, the Generator process knowledge will be used to identify the underlying hazardous constituents that are expected to be present in the waste. Generator process knowledge will be documented on the waste material profile report and LDR notification.

A3.A.3(d) Radioactive Mixed Waste

[R 299.9627 and 40 CFR §§268.7, 268.35(c), 268.35(d), 268.36, and 268.42(d)]

Generator process knowledge will be used to determine whether a radioactive mixed waste meets the applicable treatment standards or to demonstrate that the waste has been treated by the appropriate specified treatment technology. If necessary, in accordance with R 299.9627 and 40 CFR §268.41, where treatment standards are based on concentrations in the waste extract, the facility will use toxicity characteristic leaching procedures (TCLP) to determine if wastes meet treatment standards. Generator process knowledge will be documented on the waste material profile report and LDR notification.

A3.A.3(e) Leachates

[R 299.9627 and 40 CFR §260.10 and 40 CFR §§268.35(a) and 268.40]

The facility does not accept single-source or multi-source F039 leachates.

A3.A.3(f) Laboratory Packs

[R 299.9627 and 40 CFR §§268.7 and 268.42(c) and Part 268, Appendix IV and Appendix V]

The laboratory packs accepted at the facility are not land disposed.

Generator process knowledge will be used to determine whether laboratory pack waste meets the applicable treatment standards or to demonstrate that the waste has been treated by the appropriate specified treatment technology. If necessary, in accordance with R 299.9627 and 40 CFR §268.41, where treatment standards are based on concentrations in the waste extract, the facility will use toxicity characteristic leaching procedures (TCLP) to determine if wastes meet treatment standards. Generator process knowledge will be documented on the waste material profile report and LDR notification.

If a laboratory pack hazardous waste is combined with nonlaboratory pack hazardous waste prior to or during treatment, the entire mixture will be treated to meet the most stringent treatment standards for each waste constituent before being land disposed.

No waste is treated on-site.

A3.A.3(g) Contaminated Debris

[R 299.9627 and 40 CFR §§268.2(g), 268.7, 268.9, 268.36, 268.45, and 270.13(n)]

Contaminated debris is not accepted at the facility.

A3.A.3(h) Waste Mixtures and Wastes with Overlapping Requirements

[R 299.9627 and 40 CFR §§264.13(a), 268.7, 268.41(b), 268.43(b), and 268.45(a)]

Generator process information and analytical data will be used to demonstrate that those waste mixtures and wastes with multiple codes are properly characterized. Each waste that has more than one characteristic or a listed Reactivity Group Number (RGN) will be identified with a number for each characteristic. Waste identified as meeting a listing and exhibiting a characteristic will be primarily identified with the listed waste code for the purpose of manifesting, etc.

A3.A.3(i) Dilution and Aggregation of Wastes

[R 299.9627 and 40 CFR §268.3]

Listed wastes, if destined for land disposal, may not be diluted from the point of generation to the point of land disposal. Characteristic wastes may only be diluted if, (1) the waste is managed in a Clean Water Act (CWA)/CWA-equivalent surface unit or a Class I Safe Drinking Water Act injection well, (2) the waste has a concentration-based treatment standard or is treated using the DEACT technology-based treatment standard, and (3) the waste is not a D003 reactive waste.

The facility may not dilute or partially treat a listed waste to change its treatability category (i.e., from nonwastewater to wastewater), in order to comply with different treatment standards.

If the wastes are all legitimately amenable to the same type of treatment to be performed, the facility may aggregate wastes for treatment.

A3.B CAPTIVE FACILITY

Beck Road Storage Facility is not a Captive Facility. This section does not apply.

A3.C NOTIFICATION, CERTIFICATION, AND RECORDKEEPING REQUIREMENTS

[R 299.9627 and R 299.9609 and 40 CFR §§264.73, 268.7, and 268.9(d)]

Beck Road Storage Facility will perform the following procedures for preparing and/or maintaining applicable notifications and certifications to comply with LDRs:

All hazardous and mixed waste accepted at the Beck Road Storage Facility will be accompanied by the appropriate LDR notifications. Beck Road Storage Facility personnel will review all paperwork, including waste profile documents, EPA Uniform Hazardous Waste Manifests and LDR notifications, before any hazardous and waste is accepted by the facility. Beck Road Storage Facility personnel will review all paperwork for accuracy and completeness.

A3.C.1 Retention of Generator Notices and Certifications

[R 299.9627 and 40 CFR §268.7(a)(7)]

Beck Road Storage Facility will retain a copy of all notices, certifications, demonstrations, data, and other documentation associated with compliance to LDRs.

The following notices and certifications submitted by the initial generator of the waste will be reviewed and maintained:

- Notices of restricted wastes not meeting treatment standards or exceeding levels specified in RCRA §3004(d), including the information listed in R 299.9627 and 40 CFR §268.7(a)(1).
- Notices of restricted wastes meeting applicable treatment standards and prohibition levels, including the information in R 299.9627 and 40 CFR §268.7(a)(2).

As required in 40 CFR 268.7(a)(1), the LDR notifications include the EPA hazardous waste number, the waste constituents the treater will monitor, whether the waste is a nonwastewater or a wastewater, the subcategory of the waste, the manifest number associated with the waste, whether the waste is a hazardous debris (and appropriate statement), identification of underlying hazardous constituents, and the applicable certification/notification statement. The LDR notifications are contained in Attachment A3-5.

A3.C.2 Notification and Certification Requirements for Treatment Facilities

[R 299.9627 and 40 CFR §268.7(b)]

No waste is treated on-site.

A3.C.3 Waste Shipped to Subtitle C Facilities

[R 299.9627 and 40 CFR §§268.7(a) and 268.7(b)(6)]

For restricted waste or waste treatment residues that will be further managed at a Subtitle C (hazardous waste management) facility, the facility will submit notifications and certifications in compliance with the notice and certification requirements applicable to generators under R 299.9627 and 40 CFR §268.7(a). Each shipment of waste to be transported off site to a RCRA-authorized Subtitle C TSDF will include a written notification and certification that the waste either meets or does not meet applicable treatment standards of prohibition levels.

A3.C.4 Waste Shipped to Subtitle D Facilities
[R 299.9627 and 40 CFR §§268.7(d) and 268.9(d)]

The facility does not ship waste to Subtitle D facilities.

A3.C.5 Recyclable Materials
[R 299.9627 and 40 CFR §268.7(b)(7)]

The facility does not accept recyclable materials used in a manner constituting disposal.

A3.C.6 Record Keeping
[R 299.9608(4), R 299.9609, R 299.9610(3), and R 299.9627 and 40 CFR §§264.72, 264.73, 268.7(a)(5), 268.7(a)(6), 268(a)(7), and 268.7(d)]

Beck Road Storage Facility maintains a facility operating record in accordance with R 299.9609 and 40 CFR §264.73. The operating record will consist of the following:

- A description of each hazardous waste received, to include:
 - Date received and date disposed
 - Quantity received
 - Method of storage
 - Location of storage within the facility
 - A cross reference to manifest document numbers
 - Results of waste determinations and analyses.
- A summary of results and details of incidents that require implementation of the contingency plan.
- Records and results of facility inspections.
- Records and results of required corrective actions.
- Certification that a waste minimization program is in place.
- Appropriate copies of the EPA Uniform Hazardous Waste Manifest, Fingerprinting Documentation Sheets, and LDR notifications.

Copies of all necessary notifications and certifications, as well as relevant inspection forms and monitoring data, are also maintained on file at the facility. Files will be maintained for a minimum of three years (for inspection records and LDR notification), or until facility closure (for inventory records).

If a significant manifest discrepancy is discovered (such as variation in one-piece count or misrepresentation of the type of waste or corrosive rather than flammable) that cannot be resolved with the generator or transporter within 15 days of receipt, facility personnel will submit to the Director and Regional Administrator a letter describing the discrepancy and all attempts

to reconcile the discrepancy. The letter will include a copy of the discrepant manifest or shipping document.

A3.C.7 Required Notice
[R 299.9605(1) and 40 CFR §264.12(a) and (b))]

The facility will notify the Division Chief in writing at least four weeks before the date the facility expects to receive hazardous waste from a foreign source. Notice of subsequent shipments of the same waste from the same foreign source is not required. When receiving such hazardous waste, the facility will comply with applicable treaties or other agreements entered into between the country in which the foreign source is located and the United States.

When the facility is to receive hazardous waste from an off-site source, the facility will inform the generator in writing that the facility has the appropriate license for and will accept the waste the generator is shipping. The facility will keep a copy of this written notice in the operating record.

The BRSF does not receive hazardous or mixed waste from foreign sources.

Attachment A3-1
Precedence of Hazard Table
49 CFR 173.2a

Precedence of Hazard Table

§ 173.2a Classification of a material having more than one hazard.

(a) *Classification of a material having more than one hazard.* Except as provided in paragraph (c) of this section, a material not specifically listed in the §172.101 table that meets the definition of more than one hazard class or division as defined in this part, shall be classed according to the highest applicable hazard class of the following hazard classes, which are listed in descending order of hazard:

- (1) Class 7 (radioactive materials, other than limited quantities).
- (2) Division 2.3 (poisonous gases).
- (3) Division 2.1 (flammable gases).
- (4) Division 2.2 (nonflammable gases).
- (5) Division 6.1 (poisonous liquids), Packing Group I, poisonous-by-inhalation only.
- (6) A material that meets the definition of a pyrophoric material in §173.124(b)(1) of this subchapter (Division 4.2).
- (7) A material that meets the definition of a self-reactive material in §173.124(a)(2) of this subchapter (Division 4.1).
- (8) Class 3 (flammable liquids), Class 8 (corrosive materials), Division 4.1 (flammable solids), Division 4.2 (spontaneously combustible materials), Division 4.3 (dangerous when wet materials), Division 5.1 (oxidizers) or Division 6.1 (poisonous liquids or solids other than Packing Group I, poisonous-by-inhalation). The hazard class and packing group for a material meeting more than one of these hazards shall be determined using the precedence table in paragraph (b) of this section.
- (9) Combustible liquids.
- (10) Class 9 (miscellaneous hazardous materials).

(b) *Precedence of hazard table for Classes 3 and 8 and Divisions 4.1, 4.2, 4.3, 5.1 and 6.1.* The following table ranks those materials that meet the definition of Classes 3 and 8 and Divisions 4.1, 4.2, 4.3, 5.1 and 6.1:

Precedence of Hazard Table

[Hazard class or division and packing group]

	4.2	4.3	5.1 I ¹	5.1 II ¹	5.1 III ¹	6.1, I dermal	6.1, I oral	6.1 II	6.1 III	8, I liquid	8, I solid	8, II liquid	8, II solid	8, III liquid	8, III solid
3 I ²		4.3				3	3	3	3	3	(³)	3	(³)	3	(³)
3 II ²		4.3				3	3	3	3	8	(³)	3	(³)	3	(³)
3 III ²		4.3				6.1	6.1	6.1	3 ⁴	8	(³)	8	(³)	3	(³)
4.1 II ²	4.2	4.3	5.1	4.1	4.1	6.1	6.1	4.1	4.1	(³)	8	(³)	4.1	(³)	4.1
4.1 III ²	4.2	4.3	5.1	4.1	4.1	6.1	6.1	6.1	4.1	(³)	8	(³)	8	(³)	4.1
4.2 II		4.3	5.1	4.2	4.2	6.1	6.1	4.2	4.2	8	8	4.2	4.2	4.2	4.2
4.2 III		4.3	5.1	5.1	4.2	6.1	6.1	6.1	4.2	8	8	8	8	4.2	4.2
4.3 I			5.1	4.3	4.3	6.1	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
4.3 II			5.1	4.3	4.3	6.1	4.3	4.3	4.3	8	8	4.3	4.3	4.3	4.3
4.3 III			5.1	5.1	4.3	6.1	6.1	6.1	4.3	8	8	8	8	4.3	4.3
5.1 I ¹						5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
5.1 II ¹						6.1	5.1	5.1	5.1	8	8	5.1	5.1	5.1	5.1
5.1 III ¹						6.1	6.1	6.1	5.1	8	8	8	8	5.1	5.1
6.1 I, Dermal										8	6.1	6.1	6.1	6.1	6.1
6.1 I, Oral										8	6.1	6.1	6.1	6.1	6.1
6.1 II, Inhalation										8	6.1	6.1	6.1	6.1	6.1
6.1 II, Dermal										8	6.1	8	6.1	6.1	6.1
6.1 II, Oral										8	8	8	6.1	6.1	6.1
6.1 III										8	8	8	8	8	8

¹See §173.127.

²Materials of Division 4.1 other than self-reactive substances and solid desensitized explosives, and materials of Class 3 other than liquid desensitized explosives.

³Denotes an impossible combination.

⁴For pesticides only, where a material has the hazards of Class 3, Packing Group III, and Division 6.1, Packing Group III, the primary hazard is Division 6.1, Packing Group III.

Note 1: The most stringent packing group assigned to a hazard of the material takes precedence over other packing groups; for example, a material meeting Class 3 PG II and Division 6.1 PG I (oral toxicity) is classified as Class 3 PG I.

Note 2: A material which meets the definition of Class 8 and has an inhalation toxicity by dusts and mists which meets criteria for Packing Group I specified in §173.133(a)(1) must be classed as Division 6.1 if the oral or dermal toxicity meets criteria for Packing Group I or II. If the oral or dermal toxicity meets criteria for Packing Group III or less, the material must be classed as Class 8.

(c) The following materials are not subject to the provisions of paragraph (a) of this section because of their unique properties:

(1) A Class 1 (explosive) material that meets any other hazard class or division as defined in this part shall be assigned a division in Class 1. Class 1 materials shall be classed and approved in accordance with §173.56 of this part;

(2) A Division 5.2 (organic peroxide) material that meets the definition of any other hazard class or division as defined in this part, shall be classed as Division 5.2;

(3) A Division 6.2 (infectious substance) material that also meets the definition of another hazard class or division, other than Class 7, or that also is a limited quantity Class 7 material, shall be classed as Division 6.2;

(4) A material that meets the definition of a wetted explosive in §173.124(a)(1) of this subchapter (Division 4.1). Wetted explosives are either specifically listed in the §172.101 table or are approved by the Associate Administrator (see §173.124(a)(1) of this subchapter); and

(5) A limited quantity of a Class 7 (radioactive) material that meets the definition for more than one hazard class or division shall be classed in accordance with §173.423.

[Amdt. 173–224, 55 FR 52606, Dec. 21, 1990, as amended at 56 FR 66264, Dec. 20, 1991; Amdt. 173–241, 59 FR 67490, Dec. 29, 1994; Amdt. 173–247, 60 FR 48787, Sept. 20, 1995; Amdt. 173–244, 60 FR 50307, Sept. 28, 1995; 64 FR 10776, Mar. 5, 1999; 66 FR 33426, June 21, 2001; 66 FR 45182, 45379, Aug. 28, 2001; 68 FR 45032, July 31, 2003]

Attachment A3-2
Chemical Compatibility Chart

Chemical Compatibility Chart

EPA-600/2-80-076 April 1980
A METHOD FOR DETERMINING THE COMPATIBILITY OF CHEMICAL MIXTURES

Municipal Environmental Laboratory
Office of Research and Development
U.S. Environmental Protection Agency
Cincinnati, Ohio 45228

Caution: This Chart is intended as an indication of some of the hazards that can be expected on mixing chemical wastes. Because of the differing activities of the thousands of compounds that may be encountered, it is not possible to make any chart definitive and all inclusive. It cannot be assumed to ensure compatibility of wastes because wastes are not so classified as hazardous on the chart, nor do any blanks necessarily mean that the mixture cannot result in a hazard occurring. Detailed instructions as to hazards involved in handling and disposing of any given waste should be obtained from the originator of the waste.

No.	Reactivity Group Name
1	Acids, Mineral Non-oxidizing
2	Acids, Mineral Oxidizing
3	Acids, Organic
4	Alcohols and Glycols
5	Aldehydes
6	Amides
7	Amines, Aliphatic and Aromatic
8	Azo Compounds, Diazo Compounds and Hydrazines
9	Carbamates
10	Cautious
11	Cyanides
12	Dithiocarbamates
13	Esters
14	Ethers
15	Fluorides, Inorganic
16	Hydrocarbons, Aromatic
17	Halogenerated Organics
18	Isoocyanates
19	Ketones
20	Mercaptans and Other Organic Sulfides
21	Metals, Alkali and Alkaline Earth, Elemental
22	Metals, Other Elemental & Alloys as Powders, Vapors, or Sponges
23	Metals, Other Elemental & Alloys as Sheets, Rods, Drops, etc.
24	Metals and Metal Compounds, Toxic
25	Nitriles
26	Nitrides
27	Nitro Compounds, Organic
28	Hydrocarbons, Aliphatic, Unsaturated
29	Hydrocarbons, Aliphatic, Saturated
30	Peroxides and Hydroperoxides, Organic
31	Phenols and Cresols
32	Organophosphazenes, Phosphothioates, Phosphodithioates
33	Sulfides, Inorganic
34	Epoxides
100	Combustible and Flammable Materials, Miscellaneous
102	Explosives
103	Polymerizable Compounds
104	Oxidizing Agents, Strong
105	Reducing Agents, Strong
106	Water and Mixtures Containing Water
107	Water Reactive Substances

Legend

Code	Consequences
H	Heat Generation
F	Fire
G	Innocuous and non-flammable gas generation
GT	Toxic Gas formation
GF	Flammable Gas formation
E	Explosion
P	Violent Polymerization
S	Solubilization of toxic substance
U	May be hazardous, but Unknown

← EXTREMELY REACTIVE!!! DO NOT MIX WITH ANY CHEMICAL OR WASTE MATERIAL!!! EXTREMELY REACTIVE! →

Attachment A3-3
Chemical Constituent Sheet

Chemical Constituent Sheet
 Mixed Waste Drum Number _____

- | | | | |
|--|---|---|---|
| 01 • acetamide | 23 • DDD/DDT | 97 • magnesium phosphate | 73 • sodium hydroxide |
| 02 • acetic acid | 108 • dextran sulfate | 116 • magnesium sulfate | 74 • sodium hypochlorite |
| 100 • acetic anhydride | 24 • dichlorobenzene | 49 • mercaptoethanol | 123 • sodium iodide |
| 03 • acetone | 25 • dimethylsulfoxide
(DMSO) | 50 • mercury compounds
(specify below) | 124 • sodium lauryl sulfate
(SLS) |
| 04 • acetonitrile | 109 • DMEM media | 51 • methanol | 92 • sodium phosphate |
| 05 • acrylamide | 26 • epinephrine | 117 • methoxyethanol | 125 • sodium thiosulfate |
| 07 • ammonium compounds
(specify below) | 27 • ethanol | 54 • methyl benzene | 126 • sucrose |
| 08 • arsenic compounds
(specify below) | 28 • ether | 52 • methylene chloride | 75 • sulfuric acid |
| 09 • barium compounds
(specify below) | 29 • ethidium bromide
(EtBr) | 53 • methyl ethyl ketone | 127 • taurine |
| 10 • benzene | 30 • ethyl acetate | 58 • naphthalene | 76 • tetrachlorobenzene |
| 11 • benzo(a)pyrene | 31 • ethylbenzene | 59 • nitric acid | 77 • tetrachloroethylene |
| 95 • blood | 32 • ethylene diamine
tetraacetic acid (EDTA) | 60 • nitrobenzene | 128 • tetrahydrofuran |
| 88 • boric acid | 33 • ethylene glycol-bis
(β-amino ethyl ether)-
tetraacetic acid (EGTA) | 62 • perflour | 78 • toluene |
| 101 • bovine albumin | 34 • ethyl ether | 63 • phenol | 79 • trichloroacetic acid
(TCA) |
| 102 • bromophenol blue dye | 35 • ethylphenol | 64 • phosphoric acid | 80 • trichloroethylene |
| 12 • butanol | 36 • formaldehyde | 65 • phthalates | 129 • trifluoroacetic acid |
| 13 • cadmium compounds
(specify below) | 37 • formalin | 91 • potassium chloride | 87 • TRIS buffer |
| 103 • calcium chloride | 38 • formamide | 66 • potassium permanganate | 81 • uranyl acetate |
| 104 • calcium sulfate | 39 • formic acid | 119 • potassium phosphate | 82 • uranyl nitrate |
| 14 • carbon tetrachloride | 40 • glutaraldehyde | 67 • propanoic acid | 83 • urea |
| 16 • chlorobenzene | 110 • glycine | 68 • pyridine | 84 • vinyl chloride |
| 17 • chloroform | 111 • hams F12 media | 94 • saline sodium citrate (SSC) | 85 • xylene |
| 18 • chlorophenol | 112 • HEPES buffer | 69 • scintillation fluid
(specify below) | 130 • xylene cyanol |
| 105 • choline chloride | 41 • heptane | 70 • selenium compounds
(specify below) | 86 • zinc compounds
(specify below) |
| 19 • chromium compounds
(specify below) | 113 • hexane | 71 • silver compounds
(specify below) | 99 • OTHER
(SEE INSTRUCTIONS
ABOVE) |
| 106 • citric acid | 43 • hydrochloric acid (HCl) | 120 • sodium acetate | |
| 107 • coomassie blue dye | 44 • hydroxybenzene | 72 • sodium azide | |
| 20 • copper compounds
(specify below) | 114 • isoamyl alcohol | 121 • sodium bicarbonate | |
| 96 • culture medium | 46 • isobutanol | 122 • sodium carbonate | |
| 21 • cyanide compounds
(specify below) | 47 • isopropanol | 89 • sodium chloride | |
| 22 • cyclohexane | 48 • lead compounds
(specify below) | 90 • sodium citrate | |
| | 115 • magnesium chloride | 93 • sodium dodecyl sulfate
(SDS) | |

Other Chemical Names

Other Chemical Names

Attachment A3-4
Beck Road Storage Facility
Operation's Log

Operation's Log

EPA ID: MIR 000 001 834

University of Michigan

Occupational Safety and Environmental Health

Beck Road Storage Facility

8501 Beck Road

Belleville, Michigan 48111

Month/Year ____/____

Date In	Manifest Number	Generator Name	Number of Containers	Total # of Liters	Waste Codes(s)	Drum MW #	Drum BL #	Off Site Ship. Date	Initials

Attachment A3-5
LDR Notifications

HAZARDOUS DEBRIS

☐

This hazardous debris is subject to the alternative treatment standards of 40 CFR 268.45.
The contaminants subject to treatment are indicated on the attached *Underlying Hazardous Constituent* form.

UNDERLYING HAZARDOUS CONSTITUENTS (UHCs)

For D001 [except High (>10%) TOC Subcategory], D002 - D043, and F039 wastes; UHCs, which can reasonably be expected to be present at the point of generation at a concentration above the constituent-specific Universal Treatment Standard, must be indicated on the Underlying Hazardous Constituents Form. UHCs need not be determined for lab packs managed under the alternative treatment standards for lab packs.

☐ No UHCs

☐ UHCs Identified on attached Underlying Hazardous Constituents Form

CERTIFICATION STATEMENTS

A. RESTRICTED WASTE REQUIRING TREATMENT

I am the initial generator of the restricted waste(s) listed on the reverse side which must be treated to the applicable treatment standard prior to land disposal.

B. RESTRICTED WASTE MEETING TREATMENT STANDARDS AT THE POINT OF GENERATION

I am the initial generator of the EPA hazardous waste number(s) listed on the reverse side. I have determined that the waste meets all applicable treatment standards set forth in 40 CFR Part 268 and therefore, can be land disposed without further treatment.

"I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR part 268 subpart D. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

C. LAB PACKS MANAGED UNDER ALTERNATIVE TREATMENT STANDARDS

The lab packs identified on the reverse side do not contain any of the wastes specified in Appendix IV and are managed under the alternative treatment standards in 40 CFR 268.42(c).

"I certify under penalty of law that I personally have examined and am familiar with the waste and that the lab pack contains only wastes that have not been excluded under appendix IV to 40 CFR part 268 and that this lab pack will be sent to a combustion facility in compliance with the alternative treatment standards for lab packs at 40 CFR 269.42(c). I am aware that there are significant penalties for submitting a false certification, including the possibility of fine or imprisonment."

D. RESTRICTED WASTE CONSISTING OF CONTAMINATED SOIL NOT MEETING TREATMENT STANDARDS

The contaminated soil identified on the reverse side does not meet the soil treatment standard in 40 CFR 268.49(c).

"I certify under penalty of law that I personally have examined this contaminated soil and it [does/does not] contain listed hazardous waste and [does/does not] exhibit a characteristic of hazardous waste and requires treatment to meet the soil treatment standards as provided by 268.49(c)."

E. DECHARACTERIZED WASTE CONTAINING UNDERLYING HAZARDOUS CONSTITUENTS REQUIRING FURTHER TREATMENT

The decharacterized hazardous waste listed on the reverse side contain underlying hazardous constituents requiring further treatment.

"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 to remove the hazardous characteristic. This decharacterized waste contains underlying hazardous constituents that require further treatment to meet universal treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

F. RESTRICTED WASTE SUBJECT TO A VARIANCE OR EXEMPTION

The waste identified on the reverse side is exempt from LDR standards and subject to a nationwide variance which expires on _____.

I hereby certify that all information submitted in this and all associated documents is complete and accurate, to the best of my knowledge and information.

Generator Signature

Date

*Concentration in mg/L TCLP

UNDERLYING HAZARDOUS CONSTITUENTS FORM

Generator Name:

Manifest Number

ORGANIC CONSTITUENTS	WW(mg/l)	NWW(mg/kg)	ORGANIC CONSTITUENTS	WW(mg/l)	NWW(mg/kg)
Acenaphthene	0.059	3.4	m-Cresol	0.77	5.6
Acenaphthylene	0.059	3.4	p-Cresol	0.77	5.6
Acetone	0.28	160	m-Cumenyl methylcarbamate	0.056	1.4
Acetonitrile	5.6	38	Cyclohexanone	0.36	0.75*
Acetophenone	0.010	9.7	o,p'-DDD	0.023	0.087
2-Acetylaminofluorene	0.059	140	p,p'-DDD	0.023	0.087
Acrolein	0.29	NA	o,p'-DDE	0.031	0.087
Acrylamide	19	23	p,p'-DDE	0.031	0.087
Acrylonitrile	0.24	84	o,p'-DDT	0.0039	0.087
Aldicarb sulfone	0.056	0.28	p,p'-DDT	0.0039	0.087
Aldrin	0.021	0.066	Dibenz(a,h)anthracene	0.055	8.2
4-Aminobiphenyl	0.13	NA	Dibenz(a,e)pyrene	0.061	NA
Aniline	0.81	14	1,2-Dibromo-3-chloropropane	0.11	15
Anthracene	0.059	3.4	1,2-Dibromoethane/Ethylene dibromide	0.028	15
Aramite	0.36	NA	Dibromomethane	0.11	15
Barban	0.056	1.4	m-Dichlorobenzene	0.036	6.0
Bendiocarb	0.056	1.4	o-Dichlorobenzene	0.088	6.0
Benomyl	0.056	1.4	p-Dichlorobenzene	0.090	6.0
Benz(a)anthracene	0.059	3.4	Dichlorodifluoromethane	0.23	7.2
Benzal chloride	0.055	6.0	1,1-Dichloroethane	0.059	6.0
Benzene	0.14	10	1,2-Dichloroethane	0.21	6.0
Benzo(b)fluoranthene	0.11	6.8	1,1-Dichloroethylene	0.025	6.0
Benzo(k)fluoranthene	0.11	6.8	trans-1,2-Dichloroethylene	0.054	30
Benzo(g,h,i)perylene	0.0055	1.8	2,4-Dichlorophenol	0.044	14
Benzo(a)pyrene	0.061	3.4	2,6-Dichlorophenol	0.044	14
alpha-BHC	0.00014	0.066	2,4-Dichlorophenoxyacetic acid/2,4-D	0.72	10
beta-BHC	0.00014	0.066	1,2-Dichloropropane	0.85	18
delta-BHC	0.023	0.066	cis-1,3-Dichloropropylene	0.036	18
gamma-BHC	0.0017	0.066	trans-1,3-Dichloropropylene	0.036	18
Bromodichloromethane	0.35	15	Dieldrin	0.017	0.13
Bromomethane/Methyl bromide	0.11	15	Diethyl phthalate	0.20	28
4-Bromophenyl phenyl ether	0.055	15	p-Dimethylaminoazobenzene	0.13	NA
n-Butyl alcohol	5.6	2.6	2,4-Dimethyl phenol	0.036	14
Butyl benzyl phthalate	0.017	28	Dimethyl phthalate	0.047	28
Butylate	0.042	1.4	Di-n-butyl phthalate	0.057	28
2-sec-Butyl-4,6-dinitrophenol/Dinoseb	0.056	2.5	1,4-Dinitrobenzene	0.32	2.3
Carbaryl	0.006	0.14	4,6-Dinitro-o-cresol	0.28	160
Carbenzadim	0.056	1.4	2,4-Dinitrophenol	0.12	160
Carbofuran	0.006	0.14	2,4-Dinitrotoluene	0.32	140
Carbofuran phenol	0.056	1.4	2,6-Dinitrotoluene	0.55	28
Carbon disulfide	3.8	4.8*	Di-n-octyl phthalate	0.017	28
Carbon tetrachloride	0.057	6.0	Di-n-propylnitrosamine	0.40	14
Carbosulfan	0.028	1.4	1,4-Dioxane	12.0	170
Chlordane (alpha and gamma isomers)	0.0033	0.26	Diphenylamine	0.92	13
p-Chloraniline	0.46	16	Diphenylnitrosamine	0.92	13
Chlorobenzene	0.057	6.0	1,2-Diphenylhydrazine	0.087	NA
Chlorobenzilate	0.10	NA	Disulfoton	0.017	6.2
2-Chloro-1,3-butadiene	0.057	0.28	Dithiocarbamates (total)	0.028	28
Chlorodibromomethane	0.057	15	Endosulfan I	0.023	0.066
Chloroethane	0.27	6.0	Endosulfan II	0.029	0.13
bis(2-Chloroethoxy)methane	0.036	7.2	Endosulfan sulfate	0.029	0.13
bis(2-Chloroethyl)ether	0.033	6.0	Endrin	0.0028	0.13
2-Chloroethyl vinyl ether	0.062	NA	Endrin aldehyde	0.025	0.13
Chloroform	0.046	6.0	EPIC	0.042	1.4
bis(2-Chloroisopropyl)ether	0.055	7.2	Ethyl acetate	0.34	33
p-Chloro-m-cresol	0.018	14	Ethyl benzene	0.057	10
Chloromethane/Methyl chloride	0.19	30	Ethyl cyanide/Propanenitrile	0.24	360
2-Chloronaphthalene	0.055	5.6	Ethyl ether	0.12	160
2-Chlorophenol	0.044	5.7	Ethyl methacrylate	0.14	160
3-Chloropropylene	0.036	30	Ethylene oxide	0.12	NA
Chrysene	0.059	3.4	Famphur	0.017	15
o-Cresol	0.11	5.6	Fluoranthene	0.068	3.4

LDR:092805

*Concentration in mg/l TCLP

UNDERLYING HAZARDOUS CONSTITUENTS FORM

ORGANIC CONSTITUENTS	WW(mg/l)	NWW(mg/kg)	ORGANIC CONSTITUENTS	WW(mg/l)	NWW(mg/kg)
Fluorene	0.059	3.4	Pentachlorophenol	0.089	7.4
Formetanate hydrochloride	0.056	1.4	Phenacetin	0.081	16
Heptachlor	0.0012	0.066	Phenanthrene	0.059	5.6
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.000035	0.0025	Phenol	0.039	6.2
1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.000035	0.0025	Phorate	0.021	4.6
1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.000035	0.0025	Phthalic acid	0.055	28
Heptachlor epoxide	0.016	0.066	Phthalic anhydride	0.055	28
Hexachlorobenzene	0.055	10	Physostigmine	0.056	1.4
Hexachlorobutadiene	0.055	5.6	Physostigmine salicylate	0.056	1.4
Hexachlorocyclopentadiene	0.057	2.4	Promecarb	0.056	1.4
Hexachloroethane	0.055	30	Pronamide	0.093	1.5
HxCDDs (All hexachlorodibenzo-p-dioxins)	0.000063	0.001	Propam	0.056	1.4
HxCDFs (All hexachlorodibenzofurans)	0.000063	0.001	Propoxur	0.056	1.4
Indeno (1,2,3-c,d)pyrene	0.0055	3.4	Prosulfocarb	0.042	1.4
Iodomethane	0.19	65	Pyrene	0.067	8.2
Isobutyl alcohol	5.6	170	Pyridine	0.014	16
Isodrin	0.021	0.066	Salrole	0.081	22
Isosafrole	0.081	2.6	Silvex/2,4,5-TP	0.72	7.9
Kepone	0.0011	0.13	1,2,4,5-Tetrachlorobenzene	0.055	14
Methacrylonitrile	0.24	84	TCDDs(All Tetrachlorodibenzo-p-dioxins)	0.000063	0.001
Methanol	5.6	0.75*	TCDFs(All Tetrachlorodibenzofurans)	0.000063	0.001
Methapyrilene	0.081	1.5	1,1,1,2-Tetrachloroethane	0.057	6.0
Methiocarb	0.056	1.4	1,1,2,2-Tetrachloroethane	0.057	6.0
Methomyl	0.028	0.14	Tetrachloroethylene	0.056	6.0
Methoxychlor	0.25	0.18	2,3,4,6-Tetrachlorophenol	0.30	7.4
Methyl ethyl ketone	0.28	36	Thiodicarb	0.019	1.4
Methyl isobutyl ketone	0.14	33	Thiophanate-methyl	0.056	1.4
Methyl methacrylate	0.14	160	Toluene	0.080	10
Methyl methansulfonate	0.018	NA	Toxaphene	0.0095	2.6
Methyl parathion	0.014	4.6	Trallate	0.042	1.4
3-Methylcholanthrene	0.0055	15	Tribromomethane/Bromotom	0.63	15
4,4-Methylene bis(2-chloroaniline)	0.50	30	1,2,4-Trichlorobenzene	0.055	19
Methylene chloride	0.089	30	1,1,1-Trichloroethane	0.054	6.0
Metolcarb	0.056	1.4	1,1,2-Trichloroethane	0.054	6.0
Mexacarbate	0.056	1.4	Trichloroethylene	0.054	6.0
Molinate	0.042	1.4	Trichlorofluoromethane	0.020	30
Naphthalene	0.059	5.6	2,4,5-Trichlorophenol	0.18	7.4
2-Naphthylamine	0.52	NA	2,4,6-Trichlorophenol	0.035	7.4
o-Nitroaniline	0.27	14	2,4,5-Trichlorophenoxyacetic acid/2,4,5-T	0.72	7.9
p-Nitroaniline	0.028	28	1,2,3-Trichloropropane	0.85	30
Nitrobenzene	0.068	14	1,1,2-Trichloro-2,2,2-trifluoroethane	0.057	30
5-Nitro-o-toluidine	0.32	28	Triethylamine	0.081	1.5
o-Nitrophenol	0.028	13	tris(2,3-Dibromopropyl)phosphate	0.11	0.10
p-Nitrophenol	0.12	29	Vernolate	0.042	1.4
N-Nitrosodiethylamine	0.40	28	Vinyl chloride	0.27	6.0
N-Nitrosodimethylamine	0.40	2.3	Xylenes(sum of o-in-and p-xylene concentrations)	0.32	30
N-Nitroso-di-n-butylamine	0.40	17			
N-Nitrosomethylethylamine	0.40	2.3	INORGANIC CONSTITUENTS ²⁻⁴		
N-Nitrosomorpholine	0.40	2.3	Antimony	1.9	1.15*
N-Nitrosopiperidine	0.013	35	Arsenic	1.4	5.0*
N-Nitrosopyrrolidine	0.013	35	Barium	1.2	21*
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	0.000063	0.005	Beryllium	0.82	1.22*
1,2,3,4,6,7,8,9-Octachlorodibenzofuran(OCDF)	0.000063	0.005	Cadmium	0.69	0.11*
Oxamyl	0.056	0.28	Chromium (Total)	2.77	0.60*
Parathion	0.014	4.6	Cyanides (Total)	1.2	590
Total PCB (sum of all PCB isomers, or all Aroclors)	0.10	10	Cyanides (Amenable)	0.86	30
Pebulate	0.042	1.4	Lead	0.69	0.75*
Pentachlorobenzene	0.055	10	Mercury—Nonwastewater from Retort	NA	0.20*
PeCDDs(All Pentachlorodibenzo-p-dioxins)	0.000063	0.001	Mercury—All Others	0.15	0.025*
PeCDFs(All Pentachlorodibenzofurans)	0.000035	0.001	Nickel	3.98	11*
Pentachloroethane	0.055	6.0	Silver	0.43	0.14*
Pentachloronitrobenzene	0.055	4.8	Thallium	1.4	0.20*

LRD:092805

*Concentration in mg/l TCLP

Attachment A3-6.
Table A2.A.2
Hazardous Wastes Accepted at the Facility

**Table A2.A.2
 Hazardous Wastes Accepted at the Facility**

Note: Hazardous wastes with multiple hazardous waste characteristics will be assigned to a waste management unit based on the US DOT Precedence of Hazard Table, 49 CFR 173.2a (Attachment A3-1).

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
F002	Spent solvents generated by teaching, research and supporting operations	Toxicity	Listed waste; toxic waste hazard code	Rooms 109B, 113, or 116
F003	Spent solvents generated by teaching, research and supporting operations	Ignitability	Listed waste; ignitable waste hazard code	Room 117
F004	Spent solvents generated by teaching, research and supporting operations	Toxicity	Listed waste; toxic waste hazard code	Rooms 109B, 113, or 116
F005	Spent solvents generated by teaching, research and supporting operations	Ignitability, toxicity	Listed waste; ignitable and toxic waste hazard codes	Room 117
D001	Ignitables generated by teaching, research and supporting operations	Ignitability	Ignitable waste hazard code	Room 117
D001	Oxidizers generated by teaching, research and supporting operations	Ignitability	Ignitable waste hazard code	Room 113
D002	Corrosive acids generated by teaching, research and supporting operations	Corrosivity	Corrosive waste hazard code	Room 111

Table A2.A.2
Hazardous Wastes Accepted at the Facility (Continued)

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
D002	Corrosive bases generated by teaching, research and supporting operations	Corrosivity	Corrosive waste hazard code	Room 109A
D003	Reactives generated by teaching, research and supporting operations	Reactivity	Reactive waste hazard code	Room 109A
D004	Waste containing arsenic generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D005	Waste containing barium generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D006	Waste containing cadmium generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D007	Waste containing chromium generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D008	Waste containing lead generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D009	Waste containing mercury generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116

Table A2.A.2
Hazardous Wastes Accepted at the Facility (Continued)

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
D010	Waste containing selenium generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D011	Waste containing silver generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D018	Waste containing benzene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D019	Waste containing carbon tetrachloride generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D021	Waste containing chlorobenzene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D022	Waste containing chloroform generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D023	Waste containing o-cresol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D024	Waste containing m-cresol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116

Table A2.A.2
Hazardous Wastes Accepted at the Facility (Continued)

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
D025	Waste containing p-cresol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D026	Waste containing cresol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D027	Waste containing 1,4-dichlorobenzene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D028	Waste containing 1,2-dichloroethane generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D029	Waste containing 1,1-dichloroethylene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D030	Waste containing 2,4-dinitrotoluene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D032	Waste containing hexachlorobenzene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116

Table A2.A.2
Hazardous Wastes Accepted at the Facility (Continued)

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
D033	Waste containing hexachlorobutadiene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D034	Waste containing hexachloroethane generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D035	Waste containing methyl ethyl ketone generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D036	Waste containing nitrobenzene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D038	Waste containing pyridine generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D039	Waste containing tetrachloroethylene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116

Table A2.A.2
Hazardous Wastes Accepted at the Facility (Continued)

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
D040	Waste containing trichloroethylene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D041	Waste containing 2,4,5-trichlorophenol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D042	Waste containing 2,4,6-trichlorophenol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D043	Waste containing vinyl chloride generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
U138	Waste containing methyl iodide generated by teaching, research and supporting operations	Toxicity	Listed waste; hazard code for toxic waste	Rooms 109B, 113, or 116
U151	Waste containing mercury generated by teaching, research and supporting operations	Toxicity	Listed waste; hazard code for toxic waste	Rooms 109B, 113, or 116

Attachment 2
Inspection Schedule

**FORM EQP 5111 ATTACHMENT TEMPLATE A5
INSPECTION REQUIREMENTS**

This document is an attachment to the Michigan Department of Environmental Quality's *Instructions for Completing Form EQP 5111, Hazardous Waste Treatment, Storage, and Disposal Facilities Construction Permit and Operating License Application Form*. See Form EQP 5111 for details on how to use this attachment.

The administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), being R 299.9504, R 299.9508, R 299.9605 and Title 40 of the Code of Federal Regulations (CFR) §§264.15 and 270.14(b)(5), establish requirements for inspections at hazardous waste management facilities. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003

This license application template addresses requirements for inspections at the following hazardous waste management facility: Beck Road Storage Facility in Belleville, Michigan.

(Check as appropriate)

- ☒ Operating License applicant
☐ Construction Permit applicant

This template is organized as follows:

INTRODUCTION

A5.A WRITTEN SCHEDULE

- A5.A.1 Types of Problems
A5.A.2 Frequency of Inspection
Table A5.A.1 Inspection Schedule

A5.B REMEDY SCHEDULE

A5.C INSPECTION LOG OR SUMMARY

- Table A5.C.1 Inspection Log

INTRODUCTION

The storage facility is inspected for malfunctions, deterioration, discharges, operator errors, and other parameters that may cause or indicate a release of hazardous waste constituents. The inspections are conducted according to a regular schedule designed to minimize threats to human health or the environment. Scheduled inspections of the storage facility address areas where a release may occur from equipment malfunction or deterioration of equipment. In addition, equipment used for managing accidental occurrences and for monitoring will be inspected regularly according to an established schedule.

The inspection results are recorded in a logbook maintained at the facility for at least 5 years from the date of inspection. Information recorded in the logbook includes the

date and time of inspection, the name of the inspector, and all relevant observations. The results of all repairs or other remedial actions are systematically recorded in the logbook to respond to any observations made by the inspector. The Inspection Log is shown in Table A5.C.1.

A5.A WRITTEN SCHEDULE

[R 299.9605 and 40 CFR §264.15(b)(1)]

The inspection schedule outlined in Table A5.A.1 identifies the inspection items, the frequency and the types of problems that the inspector routinely investigates. This written inspection schedule will be kept at the storage facility.

A5.A.1 Types of Problems

[R 299.9605 and 40 CFR §264.15(b)(3)]

The inspection schedule outlined in Table A5.A.1 identifies the types of problems that the inspector routinely investigates. Inspections are documented on the Inspection Log (Table A5.C.1).

The areas designated for container storage are inspected weekly for leaks, corrosion, and deterioration. The inspection indicates if there is container failure. In addition to container inspections, the secondary containment system, protective equipment, and loading area are inspected for deterioration as outlined in Table A5.A.1.

A5.A.2 Frequency of Inspection

[R 299.9605 and 40 CFR §§264.15(b)(4), 264.174, 264.193, 264.195, 264.226, 264.254, 264.278, 264.303, 264.347, 264.602, 264.1033, 264.1052, 264.1053, 264.1058, and 264.1083 through 264.1089, where applicable]

The frequencies of inspection shown in Table A5.A.1 follow the requirements of 40 CFR 264.15(b)(4), and are based on the rate of possible deterioration of equipment and on the probability of an environmental or human health incident.

University of Michigan—Beck Road Storage Facility
Site ID No. MIR 000 001 834
Inspection Requirements

Table A5.A.1 INSPECTION SCHEDULE		
Item	Frequency ¹	Types of Problems
Beck Road Storage Facility		
Containers	Weekly	Visually inspect the containers to verify they are closed. Visually inspect for leaking containers, deterioration of containers, rust, corrosion, or trends that indicate possible decline of structural integrity; check container for labels identifying the chemical(s) or chemical class in the drum, the EPA hazardous waste code(s), the date the container was placed in storage, and the generator's name and location.
Containment System	Weekly	Inspect the floor and curbing of the storage area for cracking, flaking, chipping, or gouging, and for excessive wear or deterioration. Inspect secondary containment for liquids, weekly, when waste is brought to the facility.
Communication Devices – Telephone	Weekly	Check for dial tone. Determine if outgoing calls can be made.
General Area: Warning signs "No Smoking" signs Doors Windows Building	Weekly	Check that warning signs are posted; check that doors and windows are secured. Inspect container placement and stacking to determine if the required aisle space for inspection and use of emergency equipment exists. Check labels to determine if the waste indicated is stored in the proper/designated area. Annually inspect roof, walls, and entrances for settling, cracks, and spalling in concrete.
Concrete Slab Loading/Unloading Area	Weekly (Daily when in use)	Visually inspect for cracking, flaking, chipping, gouging, and excessive wear or deterioration. Inspect the loading area for heavy stains.
Safety Equipment: Eye Wash Shower	Monthly	Check for operability.
Fence around the Unit	Bi-Annually	Check for integrity.
Water	Annually	Verify inspection of fire hydrants for pressure, volume, and operability.
Building	Weekly (Daily when in use)	Visually inspect building to insure that it is secure.
Area between Loading/Unloading Dock and Container Storage Area	Weekly	Visually inspect for stains and excessive wear or deterioration.
Radiation Monitoring Equipment	Weekly (Daily when in use)	Check for operability.
SPILL CLEANUP AND PERSONAL PROTECTION EQUIPMENT		
Goggles Rubber Boots Rubber Gloves Coveralls Fabric Disposable Respirators Absorbents Recovery Drums LEL/O ₂ Meter PID	Monthly and after each incident response requiring use of personal protection equipment	Check for sufficient inventory; verify that expiration dates have not lapsed. Check condition of protective equipment and gear. Safety Supply Inventory form shall be used to guide the inventory.
¹ Daily refers to work days when operations involving hazardous waste occur		

A5.B REMEDY SCHEDULE

[R 299.9605 and 40 CFR §264.15(c)]

If inspections reveal that non-emergency maintenance is needed, OSEH will respond in a timely manner to preclude damage and to reduce the need for emergency repairs. If a hazardous waste constituent release is imminent, or has already occurred, remedial action will begin upon discovery. Appropriate authorities will be notified according to the U-M Emergency Response Contingency Plan (Section A7). In the unlikely event of an emergency involving the release of hazardous waste constituents to the environment, efforts will be directed towards containing the hazard, removing it, and subsequently decontaminating the affected area, as discussed in greater detail in the U-M Emergency Response Contingency Plan (Section A7).

A5.C INSPECTION LOG OR SUMMARY

[R 299.9605 and 40 CFR §264.15(d)]

Inspection of the Beck Road Storage Facility will occur weekly and will be documented on the Inspection Log (Table A5.C.1). The Inspection Log inspection parameters and frequency are based on the Inspection Schedule listed in Table A5.A.1. Copies of completed Inspection Logs will be kept at the facility for at least 5 years from the date of inspection.

Table A5.C.1

INSPECTION LOG	
University of Michigan Occupational Safety & Environmental Health Beck Road Storage Facility, EPA ID: MIR000001834 8501 Beck Road Belleville, MI 48111 (734) 487-3259	
Instructions: Perform inspection of facility, if conditions are satisfactory write "SAT" in the conditions observed column. If there are any discrepancies, list them in the conditions observed column also.	
A. General Facility	Conditions Observed on Date:
1. All door entrances and windows properly secured	
2. No signs of unauthorized entry	
3. No signs of vandalism or theft	
4. No signs of flooding or fire	
5. No electrical hazards identified	
6. Fire extinguishers in designated locations, and charged	
7. Ventilation and lighting system operating properly	
8. No evidence of eating, drinking, smoking	
9. Aisle space adequate for emergency equipment	

Table A5.C.1 (Continued)

A. General Facility (Cont.)	Conditions Observed on Date:
10. Emergency supplies, monitoring equipment & PPE available	
11. Emergency supplies storage cabinet inspected (needs noted below)	
12. Fire exits are clear and unobstructed	
13. Storage and work areas organized and uncluttered	
14. Emergency eyewash and shower station tested (1st week of month)	
15. Annual water availability inspection conducted on	
16. Biannual inspection of perimeter fences conducted on	
17. Operations log up to date	
18. Forklift inspected and operational	
19. Verify telephones are operational - check for dial tone	
B. Appropriate Postings Throughout the Facility	Conditions Observed
1. NRC "Notice to Employee"	
2. MDEQ "Notice to Employee" (Form EQC 1627)	
3. MDEQ Radioactive Material Registration (Form EQP 1614)	
4. Radioactive Materials Restricted Area (entrances)	
5. No smoking signs (2+ entrances)	
6. Emergency phone numbers	
7. Radiological Emergency Procedures	
8. MSDS location poster	
RCRA Waste Storage Areas Properly Identified and Segregated	
C. Corrosive Base and Reactive Area 109A	Conditions Observed
1. Waste containers identified and labeled properly	
2. No signs of leakage from waste containers	
3. No signs of deterioration or damaged containers	
4. No evidence of odors	
5. Containment system in good condition	
D. Toxics Area 109B	Conditions Observed
1. Waste containers identified and labeled properly	
2. No signs of leakage from waste containers	
3. No signs of deterioration or damaged containers	
4. No evidence of odors	
5. Containment system in good condition	

Table A5.C.1 (Continued)

E. Corrosive Acid Room 111	Conditions Observed
1. Waste containers identified and labeled properly	
2. No signs of leakage from waste containers	
3. No signs of deterioration or damaged containers	
4. No evidence of odors	
5. Containment system in good condition	
F. Toxic and Oxidizer Area 113	Conditions Observed
1. Waste containers identified and labeled properly	
2. No signs of leakage from waste containers	
3. No signs of deterioration or damaged containers	
4. No evidence of odors	
5. Containment system in good condition	
G. Toxic Room 116	Conditions Observed
1. Waste containers identified and labeled properly	
2. No signs of leakage from waste containers	
3. No signs of deterioration or damaged containers	
4. No evidence of odors	
5. Containment system in good condition	
H. Ignitable and Toxic Room 117	Conditions Observed
1. Waste containers identified and labeled properly	
2. No signs of leakage from waste containers	
3. No signs of deterioration or damaged containers	
4. Ventilation system operating properly	
5. No evidence of odors	
6. Containment system in good condition	
I. Loading / Unloading Area 125	Conditions Observed
Trenches clear of debris	
Containment system in good condition	
Comments: <hr/> <hr/> <hr/>	
Note: For any discrepancies noted in the conditions observed column list the corrective action taken to remedy each discrepancy below.	

Table A5.C.1 (Continued)

Corrective Actions: _____ _____ _____
Corrective Actions performed by: _____
Date corrective actions performed: _____
Supplies needed: _____ _____
Inspection performed by: _____
Date: _____
Time: _____
Reviewed by: _____
Hazardous Materials Manager: _____
Date: _____
Radiation Safety Officer: _____
Date: _____

Attachment 3

Personnel Training Program

**FORM EQP 5111 ATTACHMENT TEMPLATE A10
PERSONNEL TRAINING**

This document is an attachment to the Michigan Department of Environmental Quality's *Instructions for Completing Form EQP 5111, Hazardous Waste Treatment, Storage, and Disposal Facilities Construction Permit and Operating License Application Form*. See Form EQP 5111 for details on how to use this attachment.

The administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of the Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), R 299.9501, R 299.9605 and Title 40 Code of Federal Regulations (CFR) §§264.16 and 270.14(b)(12), establish requirements for personnel training programs at hazardous waste management facilities. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for a personnel training program at the hazardous waste management facility for the Beck Road Storage Facility in Belleville, Michigan. This template includes personnel training requirements for construction permits and operating license applications. The information included in the template demonstrates how the facility meets the personnel training requirements for hazardous waste management facilities.

Operating License Applicant:

Construction Permit Applicant:

☒ R 299.9605 Personnel Training Program

☐ R 299.9605 Personnel Training Program

This template is organized as follows:

- A10.A CONTENT OF INTRODUCTORY AND CONTINUING EDUCATION PROGRAMS
 - A10.A.1 Outline for Introductory Training Program
 - A10.A.2 Outline for Continuing Education
- A10.B PERSONNEL SUBJECT TO TRAINING REQUIREMENTS
 - A10.B.1 Job Titles and Job Descriptions
 - A10.B.2 Description of How Training is Designed to Meet Actual Job Tasks
 - Table A10.B.1 Training Programs for Personnel Involved in Managing and Handling Hazardous and Mixed Waste
- A10.C FREQUENCY OF REQUIRED TRAINING
 - A10.C.1 Initial Training
 - A10.C.2 Continuing Education
- A10.D TRAINING DIRECTOR
- A10.E DOCUMENTATION AND RECORD KEEPING
 - A10.E.1 Documentation
 - A10.E.1(a) Job Titles
 - A10.E.1(b) Written Job Descriptions
 - A10.E.1(c) Written Description of Type and Amount of Training Given to Each Position
 - A10.E.1(d) Documentation That Training Has Been Given to and Completed by Facility Personnel
 - A10.E.2 Record Keeping

Attachment A10-1 Job Titles and Job Descriptions

A10.A CONTENT OF INTRODUCTORY AND CONTINUING EDUCATION TRAINING PROGRAMS

[R 299.9605 and 40 CFR §264.16(a)]

A10.A.1 Outline for Introductory Training Program

[R 299.9605 and 40 CFR §§264.16(a)(1) and 264.16(d)(3)]

The information contained in this section outlines training programs for personnel handling hazardous and mixed waste at the Beck Road Storage Facility.

Personnel who handle hazardous and mixed waste must successfully complete a program of classroom training and on the job training in order to work safely at the facility. The U-M OSEH training program consists of formal classroom and supervised on the job training.

No individual works unsupervised until he or she has completed the formal training courses and on the job training requirements, and demonstrates proficiency. New employees will complete the training requirements within 6 months of their employment or assignment to the facility; or to a new position at the facility, whichever is later.

An outline of the introductory waste management training program is provided below. A detailed description of each training course is provided in Section A10.C.1.

- (a) RCRA Generator
- (b) Commercial Driver's License (CDL)
- (c) Department of Transportation (DOT)
- (d) Emergency Response (HAZWOPER)
- (e) Hazard Communication (HAZCOM)
- (f) Blood Borne Pathogens (BBP)
- (g) Radiation Safety

A10.A.2 Outline for Continuing Education

[R 299.9605 and 40 CFR §§264.16(a)(1) and 264.16(d)(3)]

Continuing education includes refresher courses and the updating of credentials for the introductory training components outlined in Section A10.A.1. Additionally, OSEH staff members are expected to participate in professional development.

A10.B PERSONNEL SUBJECT TO TRAINING REQUIREMENTS

[R 299.9605 and 40 CFR §§264.16(a),(d)]

A10.B.1 Job Titles and Job Descriptions

[R 299.9605 and 40 CFR §§264.16(d)(1),(2)]

The job titles of personnel subject to training requirements are described in Table A10.B.1, along with the training course, the frequency of training, and which staff members are required to receive the training. A detailed description of each training course is provided in Section A10.C.1. Job descriptions are detailed in Attachment A10-1.

Table A10.B.1 Training Programs for Personnel Involved in Managing and Handling of Hazardous and Mixed Waste						
Training Program	Frequency of Training	OSEH Manager	OSEH Coordinator	OSEH Senior Rep.	OSEH Rep. II	OSEH Rep. I
On-the-Job	Continuous	X	X	X	X	X
RCRA Generator	Initial, annual refresher.	X	X	X	X	X
CDL	Every four years if required.	X	X	X	X	X
DOT	Initial, refresher every three years.	X	X	X	X	X
HAZWOPER	Initial, annual refresher.	X	X	X	X	X
HAZCOM	Initial, additional training if new waste stream is added.	X	X	X	X	X
BBP	Initial, annual refresher.	X	X	X	X	X
Radiation Safety	Initial, annual refresher.	X	X	X	X	X

A10.B.2 Description of How Training is Designed to Meet Actual Job Tasks

[R 299.9605 and 40 CFR §§264.16(a)(1) and (d)(3)]

The formal classroom and supervised on-the-job training is designed to ensure that relevant regulatory citations and safety procedures are covered. Completion of formal classroom training is documented by a training record summary to ensure that all required trainings are conducted. On-the-job training is conducted using an outline to ensure that all aspects of the actual job tasks are covered.

A10.C FREQUENCY OF REQUIRED TRAINING

[R 299.9605 and 40 CFR §§264.16(b), (c)]

A10.C.1 Initial Training

[R 299.9605 and 40 CFR §264.16(b)]

Personnel who handle hazardous and mixed waste must successfully complete a program of classroom training and on the job training in order to work safely at the facility. The U-M OSEH training program consists of formal classroom and supervised on-the-job training. The RCRA generator, HAZWOPER, BBP, and radiation safety training courses consist of an initial course with an annual refresher. The HAZCOM training course consists of an initial course with periodic updates. The DOT training is an initial course with an update every 3 years. The CDL with a hazmat endorsement is issued by the State of Michigan, with renewals every 4 years.

No individual works unsupervised until he or she has completed the formal training courses and on the job training requirements, and demonstrates proficiency. New employees will complete the training requirements within 6 months of their employment or assignment to the facility; or to a new position at the facility, whichever is later. OSEH staff members are expected to participate in professional development. A description and outline of the waste management training programs are provided below.

(a) RCRA Generator

The U-M employees who handle hazardous waste are trained in aspects of hazardous waste from the point of generation through disposal. The training complies with standards promulgated under 40 CFR 262 for hazardous waste generators. Training is conducted using in-house resources and commercially available programs. An outline of the training is provided below:

- The Manifest and LDR Notifications
- Accumulation Time
- Container Management
- Characteristic and Listed Wastes
- Transport Requirements
- Storage Facility Requirements
- Contingency Plan

(b) CDL

The CDL with a hazmat endorsement is issued by the state in accordance with the standards issued by the Federal Motor Carrier Safety Administration in 49 CFR Parts 325-399. The CDL authorizes an individual to operate a class of commercial vehicles, including a vehicle of a defined size used to transport hazardous materials. Employees who are involved in the handling and transportation of hazardous materials as defined by the Hazardous Materials Transportation Act receive appropriate training and testing for the CDL. The training includes a knowledge test, a driving test and periodic physical examinations.

(c) DOT

Employees who are involved in the handling and transportation of hazardous materials receive training in accordance with DOT's hazardous materials transportation regulations as set forth in 49 CFR Subpart H. The training is conducted by in-house staff and commercially available programs. An outline of the training is provided below:

- Hazardous Materials Table, 49 CFR 172.101
- Shipping Papers
- Marking
- Labeling
- Placarding
- Emergency Response Information
- Training Requirements
- Security Awareness and Procedures

(d) HAZWOPER

Employees who respond to these emergencies are trained in accordance with the Occupational Safety and Health Administration (OSHA) HAZWOPER standard under 29 CFR 1910.120, and the Michigan standards. Initial training and annual refresher training is conducted by in-house staff and commercially available programs. Emergency response training includes field exercises and training on U-M emergency response plans, activities, equipment, and procedures. An outline of the training is provided below:

- Regulatory Overview
- Hazardous Chemicals/Potential Hazards at Incidents
- Contingency Plan/Emergency Response Plan - U-M Implementation
- Monitoring at Emergency Response Incidents
- Personal Protective Equipment
- Emergency Response Techniques - Spill Control
- Decontamination Procedures
- Termination of the Incident

(e) HAZCOM

HAZCOM training involves the safety precautions necessary to ensure that the hazards of chemicals stored or used by the U-M are evaluated and that information on the hazards associated with these chemicals is transmitted to the employers and employees. This training is conducted by U-M OSEH department in accordance with the OSHA HAZCOM standards set forth in 29 CFR 1910.1200 and the Michigan OSHA (MIOSHA) Act 154 of 1974 as amended. An outline of the training is provided below:

- Written Hazard Communication
- Hazard Identification and Determination
- Labeling, Marking and Other Forms of Warning
- Material Safety Data Sheets
- Physical and Health Hazards
- Work Practices and Emergency Procedures
- Personal Protective Equipment
- Workplace Evaluation and Medical Monitoring
- Recordkeeping

(f) BBP

BBP training involves safety precautions necessary to reduce or eliminate the risk of occupational exposure to infectious agents carried in human and animal blood tissues. The content of the training is conducted by the U-M OSEH department in accordance with the standards set forth in the OSHA BBP Standard, 29 CFR 1910.1030 and Michigan Act 154 of 1974 as amended. An outline of the training is provided below:

- Universal Precautions
- Exposure Determination
- Written Exposure Control Plan
- Hepatitis B Immunization Program
- Post-Exposure Evaluation and Follow-up
- Housekeeping
- Recordkeeping

(g) Radiation Safety

This course is conducted by the U-M OSEH Radiation Safety Service for students, staff, and faculty who handle radioactive materials. It is designed to provide safety precautions and controls necessary to reduce exposure to radioactive materials during handling to meet the As Low As Reasonably Achievable (ALARA) requirements of the Nuclear Regulatory Commission (NRC). Specialized on-the-job training is provided to those individuals that routinely handle radioactive materials. This training covers spill procedures, proper handling, and disposal. An outline of the training is provided below:

- Radioactive Decay
- ALARA Monitoring Equipment
- Contamination and Exposure Control
- Radioactive Spill Clean Up
- Notifications to RSS

A10.C.2 Continuing Education

[R 299.9605 and 40 CFR §264.16(c)]

The U-M OSEH training program consists of formal classroom and supervised on-the-job training. Classroom training varies depending on the course. The RCRA generator, HAZWOPER, BBP, and radiation safety training courses consist of an initial course with an annual refresher. The HAZCOM training course consists of an initial course with periodic updates. The DOT training is an initial course with an update every 3 years. The CDL with a hazmat endorsement is issued by the State of Michigan, with renewals every 4 years. OSEH staff members are expected to participate in professional development.

A10.D TRAINING DIRECTOR

[R 299.9605 and 40 CFR §264.16(a)(2)]

The OSEH Manager will act as training director and is responsible for procuring qualified instructors for training personnel handling hazardous and mixed waste at the Beck Road Storage Facility. Under the direction of the OSEH Manager, an OSEH Coordinator, OSEH

Senior Rep, or OSEH Rep II may assist the OSEH Manager with training. Instructors must be knowledgeable on the subject matter being presented. To be qualified as an instructor, an individual must demonstrate competency or have appropriate academic credentials and instructional experience. Training may be conducted in part by the use of U-M qualified instructors, qualified consultants, or available training programs. The OSEH Manager is responsible for ensuring that employees receive necessary training for safe handling of hazardous and mixed waste.

A10.E DOCUMENTATION AND RECORD KEEPING REQUIREMENTS

[R 299.9605 and 40 CFR §§264.16(d) and (e)]

A10.E.1 Documentation

[R 299.9605 and 40 CFR §264.16(d)]

Training documentation is kept at the U-M OSEH office for all current employees and for employees who have managed hazardous and mixed waste within the past 5 years. Copies of training records will be kept at the Beck Road Storage Facility.

A10.E.1(a) Job Titles and Names of Employees Filling Each Job

[R 299.9605 and 40 CFR §264.16(d)(1)]

Written job titles and job descriptions are listed in Attachment A10-1. The names of employees filling each job are listed below.

Michael Dressler – OSEH Manager
Currently Vacant – OSEH Coordinator
Stuart Berry – OSEH Senior Rep
Mark Nord – OSEH Rep II
Greg Marquis – OSEH Rep II
Ingrid Walstad – OSEH Rep II
Christopher Peters – OSEH Rep I
Pat Bostain – OSEH Secretary Intermediate

A10.E.1(b) Written Job Descriptions

[R 299.9605 and 40 CFR §264.16(d)(2)]

Written job titles and job descriptions are listed in Attachment A10-1.

A10.E.1(c) Written Description of Type and Amount of Training Given to Each Position

[R 299.9605 and 40 CFR §264.16(d)(3)]

The description of the type and the amount of training given to each position are listed in Sections A10.A.1 and A10.A.2.

A10.E.1(d) Documentation That Training Has Been Given to and Completed by Facility Personnel

[R 299.9605 and 40 CFR §264.16(d)(4)]

Training documentation is kept at the U-M OSEH office for all current employees and for employees who have managed hazardous and mixed waste within the past 5 years.

A10.E.2 Record Keeping
[R 299.9605 and 40 CFR §264.16(e)]

Copies of training records will be kept at the Beck Road Storage Facility.

Attachment A10-1
Job Titles and Job Descriptions

OSEH MANAGER

Basic Function and Responsibility

To coordinate and manage the planning, development, implementation and administration of one or more University-wide occupational health, safety, radiological or environmental programs within the Department of Occupational Safety and Environmental Health.

Characteristic Duties and Responsibilities

- Coordinate and manage the planning, development, implementation and administration of one or more University-wide occupational health, safety, radiological, or environmental programs, policies, and procedures. Participate in the development and administration of departmental policies and procedures.
- Plan and manage administrative and operational activities, including budget, for program areas. Supervise, hire, train, and evaluate professional and support staff. Assure compliance with affirmative action programs.
- Represent and negotiate for the Department with University administrators and regulatory officials under direction of the Director. Ensure University compliance with federal, state, and local health, safety, radiological, and environmental rules and regulations, and University policies/procedures. Evaluate the impact of new or proposed regulations and modify existing services or procedures as necessary.
- Supervise the investigation of complaints and grievances and coordinate the development and implementation of effective corrective action. Supervise and conduct comprehensive inspections, studies, and on-site surveys for evaluation and correction of health, safety, radiological, or environmental hazards.
- Develop, coordinate, and conduct occupational health, safety, radiological, and environmental education and training programs. Train and coordinate the work of new staff members.
- Oversee or prepare special and periodic technical papers and reports for use in University planning or for distribution to external regulatory agencies. Prepare special and periodic guidelines, manuals, newsletters, summaries and bulletins.
- Manage the purchase of equipment, and supervise the routine maintenance and calibration of instruments and devices.
- Review plans for construction and renovation of University facilities for occupational health, safety, radiological, and environmental concerns, and evaluate designed effectiveness.
- Coordinate the procurement, review, and project management of contracts and service agreements with outside vendors. Assist Director with budget and re-billing activities.
- Participate in emergency response activities and assume role of on-scene emergency response director during major incidents.
- Comply with all occupational health, safety, and environmental rules and regulations, and University policies and guidelines.
- Manage the department on interim basis in absence of the Director.

- Have authority to authorize shut down of operations representing immediate danger to the University community, following department guidelines/policies.

Supervision Received

Administrative and functional direction is received from the Director. Manager is expected to be self-directed in administrative and functional activities.

Supervision Exercised

Functional and administrative supervision will be exercised over professional, office, technical, and temporary staff.

Qualifications

- A Master's degree in occupational health, safety, radiological, environmental, engineering, chemical sciences, or a related field or equivalent combination of education and experience is necessary.
- Ten years experience in managing occupational health, safety, radiological, or environmental programs, and ten years experience in administering occupational health, safety, radiological, or environmental projects is necessary.
- Considerable knowledge of modern occupational health, safety, environmental, or engineering principles and practices, and rules/regulations is necessary.
- Reasonable knowledge of multiple program area activities is highly desirable.
- Appropriate professional certification such as a Certified Hazardous Materials Manager, Certified Health Physicist, Certified Industrial Hygienist, Certified Safety Professional, Registered Sanitarian or licensing as a Professional Engineer is necessary. Professional affiliations and participation in professional conferences, including presentations and committee work, is necessary.
- Moderate computer experience and familiarity with software programs is necessary.
- Must be able to pass physical examination to allow for emergency response and wearing of personal protective equipment (PPE).
- Must have a valid driver's license

OSEH COORDINATOR

Basic Function and Responsibility

To coordinate and manage the planning, development, implementation and administration of a University-wide occupational health, safety, radiological, or environmental program within the Department of Occupational Safety and Environmental Health.

Characteristic Duties And Responsibilities

- Coordinate and manage the planning, development, implementation and administration of a University-wide occupational health, safety, radiological, or environmental program, policies, and procedures. Participate in the development and administration of departmental policies and procedures.
- Plan and manage administrative and operational activities, including budget, for a specific program area. Supervise, hire, train, and evaluate professional and support staff. Assure compliance with affirmative action programs.
- Represent the Department to University administrators and regulatory officials under direction of the Director. Ensure University compliance with federal, state, and local health, safety, radiological, and environmental rules and regulations, and University policies/procedures. Evaluate the impact of new or proposed regulations and modify existing services or procedures as necessary.
- Supervise the investigation of complaints and grievances and coordinate the development and implementation of effective corrective action. Supervise and conduct comprehensive inspections, studies, and on-site surveys for evaluation and correction of health, safety, radiological, or environmental hazards.
- Develop, coordinate, and conduct occupational health, safety, radiological, and environmental education and training programs. Assist in training and coordination of work of new staff members.
- Oversee or prepare special and periodic technical papers and reports for use in University planning or for distribution to external regulatory agencies. Prepare special and periodic guidelines, manuals, newsletters, summaries and bulletins.
- Manage the purchase of equipment, and supervise the routine maintenance and calibration of instruments and devices.
- Review plans for construction and renovation of University facilities for occupational health, safety, radiological, and environmental concerns, and evaluate designed effectiveness.
- Coordinate the procurement, review, and project management of contracts and service agreements with outside vendors. Assist Director with budget and re-billing activities.
- Participate in emergency response activities.
- Comply with all occupational health, safety, and environmental rules and regulations, and University policies and guidelines.

Supervision Received

Administrative and functional direction is received from the Director. Coordinator is expected to be self directed in functional activities.

Supervision Exercised

Functional and administrative supervision will be exercised over professional, office, technical, and temporary staff.

Qualifications

- A Master's degree in occupational health, safety, radiological, environmental, engineering, chemical sciences, or a related field or equivalent combination of education and experience is necessary.
- Three years experience in managing occupational health, safety, radiological, or environmental programs, and six years experience in administering occupational health, safety, radiological, or environmental projects is necessary.
- Considerable knowledge of modern occupational health, safety, environmental, or engineering principles and practices, and rules/regulations is necessary.
- Appropriate professional certification such as a Certified Hazardous Materials Manager, Certified Health Physicist, Certified Industrial Hygienist, Certified Safety Professional, Registered Sanitarian or licensing as a Professional Engineer is necessary. Professional affiliations and participation in professional conferences, including presentations and committee work, is highly desirable.
- Moderate computer experience and familiarity with software programs is necessary.
- Must be able to pass physical examination to allow for emergency response and wearing of personal protective equipment (PPE).
- Must have a valid driver's license.

OSEH SENIOR REP

Basic Function and Responsibility

Assist the program manager/coordinator or Director in developing, supervising and coordinating OSEH programs to assure compliance with applicable federal, state, and local occupational and environmental laws and regulations. Participate in developing and implementing policies and procedures designed to ensure the health and safety of the University community and environmental compliance.

Characteristic Duties and Responsibilities

- Assist in planning, developing and implementing departmental policies and procedures, and with maintenance of licensing and permitting. Review existing and proposed federal and state legislation, rules, or regulatory interpretations of external agencies, analyze potential impacts on University policies and procedures, and develop and update programs to meet new and existing standards and regulations. Advise OSEH management, faculty and staff on recommended course of action.
- Plan, design, coordinate and maintain procedures and systems to investigate, evaluate, monitor, detect and record occupational health, safety, radiological, and environmental conditions, liabilities, and exposures.
- Respond to inquiries from staff and faculty regarding occupational health, safety, and environmental concerns. Conduct comprehensive studies and on-site surveys for recognition and evaluation of various occupational health, safety, radiological, and environmental conditions, including studies of environmental quality and exposures. Provide quality assurance/quality control of record keeping and oversee projects of special significance or importance.
- Participate in collecting, sampling, transporting, and disposal of biological, hazardous, and radioactive wastes, including manifesting, packaging, transporting and other duties related to waste management.
- Survey, inspect, and evaluate laboratories, shops, food facilities, housing units and other physical properties to identify occupational health, safety, radiological, and environmental concerns.
- Develop, coordinate, and conduct occupational health, safety, radiological, and environmental education and training programs. Assist in training and coordination of work of new staff members.
- Oversee or prepare special and periodic technical papers and reports for use in University planning or for distribution to external regulatory agencies. Prepare special and periodic guidelines, manuals, newsletters, summaries and bulletins.
- Advise on the purchase of equipment, and oversee the routine maintenance and calibration of instruments and devices.
- Review plans for construction and renovation of University facilities for occupational health, safety, radiological, and environmental concerns, and evaluate designed effectiveness.
- Coordinate the procurement, review, and project management of contracts and service agreements with outside vendors. Assist manager/coordinator with budget and re-billing activities.
- Participate in emergency response activities.

- Comply with all occupational health, safety, and environmental rules and regulations, and University policies and guidelines.

Supervision Received

Administrative and functional supervision is received from the program manager/coordinator or Director.

Supervision Exercised

Functional and administrative supervision may be exercised over professional, office, technical, and temporary staff.

Qualifications

- A Bachelor's degree in occupational health, safety, radiological, environmental, engineering, chemical sciences, or a related field or equivalent combination of education and experience is necessary. A Master's degree in occupational health, safety, radiological, environmental, engineering, chemical sciences, or a related field or equivalent combination of education and experience is highly desirable.
- Six years experience in administering occupational health, safety, radiological, or environmental projects, and some experience in managing occupational health, safety, radiological, or environmental programs is necessary.
- Considerable knowledge of modern occupational health, safety, environmental, or engineering principles and practices, and rules/regulations is necessary.
- Appropriate professional certification such as a Certified Hazardous Materials Manager, Certified Health Physicist, Certified Industrial Hygienist, Certified Safety Professional, Registered Sanitarian or licensing as a Professional Engineer is necessary. Professional affiliations and participation in professional conferences, including presentations and committee work, is desirable.
- Moderate computer experience and familiarity with software programs is necessary.
- Must be able to pass physical examination to allow for emergency response and wearing of personal protective equipment (PPE).
- Must have a valid driver's license

OSEH REP II

Basic Function and Responsibility

Develop, implement, promote, and maintain occupational health, safety, radiological, and environmental programs and projects. Identify occupational and environmental health and safety conditions, and recommend corrective measures.

Characteristic Duties and Responsibilities

- Plan, design, coordinate and maintain procedures and systems to investigate, evaluate, monitor, detect and record occupational health, safety, radiological, and environmental conditions, liabilities, and exposures.
- Respond to inquiries from staff and faculty regarding occupational health, safety, and environmental concerns. Conduct comprehensive studies and on-site surveys for recognition and evaluation of various occupational health, safety, radiological, and environmental conditions, including studies of environmental quality and exposures.
- Participate in collecting, sampling, transporting, and disposal of biological, hazardous, and radioactive wastes, including manifesting, packaging, transporting and other duties related to waste management.
- Survey, inspect, and evaluate laboratories, shops, food facilities, housing units and other physical properties to identify occupational health, safety, radiological, and environmental concerns.
- Develop, coordinate, and conduct occupational health, safety, radiological, and environmental education and training programs. Assist in training and coordination of work of new staff members.
- Prepare special and periodic reports, guidelines, manuals, newsletters, summaries and bulletins.
- Advise on the purchase of equipment, and oversee the routine maintenance and calibration of instruments and devices.
- Review plans for construction and renovation of University facilities for occupational health, safety, radiological, and environmental concerns, and evaluate designed effectiveness.
- Assist in the procurement, review, and project management of contracts and service agreements with outside vendors.
- Participate in emergency response activities.
- Comply with all occupational health, safety, and environmental rules and regulations, and University policies and guidelines.

Supervision Received

Administrative and functional supervision is received from the program manager/coordinator or other designee.

Supervision Exercised

Functional supervision may be exercised over professional, office, technical, and temporary staff.

Qualifications

- A Bachelor's degree in occupational health, safety, radiological, environmental, engineering, chemical sciences, or a related field or equivalent combination of education and experience is necessary. A Master's degree in occupational health, safety, radiological, environmental, engineering, chemical sciences, or a related field or equivalent combination of education and experience is desirable.
- Three years experience in administering occupational health, safety, radiological, or environmental projects is necessary. Some experience in program development is desirable.
- Considerable knowledge of modern occupational health, safety, environmental, or engineering principles and practices, and rules/regulations is necessary.
- Appropriate professional certification such as a Certified Hazardous Materials Manager, Certified Health Physicist, Certified Industrial Hygienist, Certified Safety Professional, Registered Sanitarian or licensing as a Professional Engineer is highly desirable. Professional affiliations and participation in professional conferences, including presentations and committee work, is desirable.
- Moderate computer experience and familiarity with software programs is necessary.
- Must be able to pass physical examination to allow for emergency response and wearing of personal protective equipment (PPE).
- Must have a valid driver's license, and ability to obtain a commercial driver's license may be necessary, depending on specific program area within OSEH

OSEH REP I

Basic Function and Responsibility

Review, analyze and evaluate procedures and programs, and perform activities to assure compliance with occupational health, safety, radiological, and environmental standards. Survey, inspect and evaluate health, safety, and environmental issues.

Characteristic Duties and Responsibilities

- Evaluate health, safety, radiological, and environmental procedures, practices, and plans against federal, state and local regulations and established department policies/guidelines, and recommend/assist in modifications or changes.
- Respond to inquiries from staff and faculty regarding occupational health, safety, radiological, and environmental concerns. Investigate grievances and complaints and make recommendations for corrective action. Conduct investigations of occupationally related accidents and diseases.
- Participate in collecting, sampling, transporting, and disposal of biological, hazardous, and radioactive wastes, including manifesting, packaging, transporting and other duties related to waste management.
- Survey, inspect, and evaluate laboratories, shops, food facilities, housing units and other physical properties to identify occupational health, safety, radiological, and environmental concerns.
- Conduct and assist in developing occupational health, safety, radiological, and environmental education and training programs.
- Assist in preparing periodic or special guidelines, manuals, newsletters, summaries and bulletins.
- Assist in the review of plans for construction and renovation of University facilities for occupational health, safety, radiological, and environmental concerns, and evaluate designed effectiveness.
- Assist in procurement, review, and project management of contracts and service agreements with outside vendors.
- Calibrate and maintain equipment.
- Participate in emergency response activities.
- Comply with all occupational health, safety, and environmental rules and regulations, and University policies and guidelines.

Supervision Received

Administrative and functional supervision is received from the program area manager/coordinator or other designee.

Supervision Exercised

Functional supervision may be exercised over office, technical, and temporary staff.

Qualifications

- A Bachelor's degree in occupational health, safety, radiological, environmental, engineering, chemical sciences, or a related field or equivalent combination of education and experience is necessary.
- Reasonable knowledge of modern occupational health, safety, environmental, or engineering principles and practices, and rules/regulations is necessary.
- Some experience in program development and EHS project management is desirable.
- Appropriate professional certification such as a Certified Hazardous Materials Manager, Certified Health Physicist, Certified Industrial Hygienist, Certified Safety Professional, Registered Sanitarian or licensing as a Professional Engineer is desirable.
- Some computer experience and familiarity with software programs is necessary.
- Must be able to pass physical examination to allow for emergency response and wearing of personal protective equipment (PPE).
- Must have a valid driver's license, and ability to obtain a commercial driver's license may be necessary, depending on specific program area within OSEH.

OSEH SECRETARY

Basic Function and Responsibility

Provide secretarial and administrative support to the program managers/coordinators and professional staff, and the Department as a whole.

Characteristic Duties and Responsibilities

- Assist in the resolution of program operating concerns.
- Initiate, compose, and edit correspondence regarding matters of a sensitive or confidential nature. Provide typing, filing, word processing and copying support to departmental staff.
- Compile special and periodic reports, charts, graphs and membership files.
- Respond to inquiries and complaints regarding matters of a sensitive or confidential nature.
- Maintain program manager/coordinator calendars and prioritize effective use of time.
- Receive, route, and respond to incoming departmental phone calls and walk-ins.
- Maintain timekeeping and payroll records. Provide assistance with financial record keeping for the program area. Provide support for scheduling and arranging travel plans for program area staff.
- Provide support for meetings and training programs including scheduling, preparing agendas, and attending to provide support in taking minutes.
- Participate in training programs applicable to the area of responsibility.
- Assist with other program areas and general OSEH office functions on an as needed basis.
- Comply with all occupational health, safety, and environmental rules and regulations, and University policies and guidelines.

Supervision Received

Administrative and functional supervision is received from the program manager/coordinator or other designee. Functional supervision for support of the OSEH department as a whole may be received from Administrative Associate.

Supervision Exercised

No administrative or functional supervision is exercised.

Qualifications

- A high school diploma is required. A bachelor's degree is desirable.
- Two years secretarial experience with demonstrated excellent clerical skills including grammar and proofreading; moderate computer skills and experience with Windows, Word, and Excel is required.
- Excellent organizational and interpersonal skills with demonstrated ability to exercise professional judgment, set priorities and work against deadlines, and to work with extreme accuracy and careful attention to detail are required.
- The ability to work as a member of a team as well as independently is required.
- Reasonable knowledge of U-M policies, procedures and regulations is desirable.

Attachment 4

Preparedness and Prevention

**FORM EQP 5111 ATTACHMENT TEMPLATE A6
PREPAREDNESS AND PREVENTION**

This document is an attachment to the Michigan Department of Environmental Quality's *Instructions for Completing Form EQP 5111, Hazardous Waste Treatment, Storage, and Disposal Facilities Construction Permit and Operating License Application Form*. See Form EQP 5111 for details on how to use this attachment.

The administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), R 299.9504, R 299.9508, and R 299.9606 and Title 40 of the Code of Federal Regulations (CFR) §§264.30 through 264.37 establish requirements for preparedness for and prevention of releases of hazardous wastes or constituents at hazardous waste management facilities. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for preparedness for and prevention of releases of hazardous wastes or constituents at the following hazardous waste management facility for the Beck Road Storage Facility in Belleville, Michigan.

(Check as appropriate)

Operating License applicant:

- ☒ No waiver requested
- ☐ Waiver requested for one or more units for required equipment
- ☐ Waiver requested for one or more units for required aisle space

This template is organized as follows:

INTRODUCTION

A6.A REQUIRED EQUIPMENT

- A6.A.1 Internal Communication System
- A6.A.2 Emergency Response Communication System
- A6.A.3 Fire, Spill, and Decontamination Equipment
- A6.A.4 Adequate Water Volume

A6.B TESTING AND MAINTENANCE OF EQUIPMENT

A6.C ACCESS TO COMMUNICATIONS OR ALARM SYSTEM

- A6.C.1 Multiple Employees Present
- A6.C.2 Single Employee Present

A6.D REQUIRED AISLE SPACE

A6.E STATE OR LOCAL AUTHORITIES

- A6.E.1 Arrangements with State or Local Authorities
- A6.E.2 Refusal of State or Local Authorities to Enter into Emergency Response Agreements

Attachment A6-1 Inspection Schedule
Attachment A6-2 Emergency Equipment Description
Attachment A6-3 Fire Hydrant Locations
Attachment A6-4 Inspection Log

INTRODUCTION

To meet the preparedness and prevention standards, facilities must be operated and maintained in a manner that minimizes the possibility of a fire, explosion, or any unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents. The regulations require maintenance of equipment, alarms, minimum aisle space, and provisions for contacting local authorities (R 299.9606 and 40 CFR §264.31).

A6.A REQUIRED EQUIPMENT

[R 299.9606 and 40 CFR §264.32]

This section outlines the resources available to the BRSF in the event of an emergency, and the conditions required to comply with R 299.9606, 40 CFR 264.32.

The BRSF is equipped for an efficient response to a release of hazardous and mixed waste and to minimize its effect on the environment. The resources used in this process include an internal communication system, an external emergency response communication system, emergency equipment to contain and decontaminate a release, and fire-control procedures.

A6.A.1 Internal Communication System

[R 299.9606 and 40 CFR §264.32(a)]

Immediate emergency instructions will be physically communicated directly to all individuals in the BRSF by voice. This is possible due to the limited number of personnel having access to the BRSF and to the compact footprint of the regulated part of the facility, with all waste management units being contiguous to one another.

A6.A.2 Emergency Response Communication System

[R 299.9606 and 40 CFR §264.32(b)]

U-M Beck Road Storage Facility operators carry hand-held two-way radios which are capable of communication with U-M emergency responders and the U-M Department of Public Safety (DPS). No voice communication is required to trigger a response from DPS. Each radio is equipped with an emergency button (coded directly to the individual assigned to the radio) that alerts DPS when pressed. Telephones are located near the licensed area (Room 115) and in the office (Room 101). Emergency contact telephone numbers are posted at each phone and at each building exit.

A6.A.3 Fire, Spill, and Decontamination Equipment

[R 299.9606 and 40 CFR §264.32(c)]

Fire extinguishers and an emergency eyewash unit and shower are located at the storage facility. The facility is also equipped with decontamination materials for on-site cleanup

operations. The equipment used for decontamination is listed in Table A5.A.1 (Attachment A6-1) under Spill Cleanup and Personal Protection Equipment. Details of the emergency equipment available at the facility are presented in the Safety Supply Inventory (Attachment A6-2), which is Figure 3 of the U-M Emergency Response Contingency Plan.

A6.A.4 Adequate Water Volume
[R 299.9606 and 40 CFR §264.32(d)]

Water for fire control is provided by fire hydrants located near the facility as shown in Attachment A6-3. Fire hydrants are inspected annually by the U-M Plant Department to determine adequate flow rates.

A6.B TESTING AND MAINTENANCE OF EQUIPMENT
[R 299.9606 and 40 CFR §264.33]

The schedule for testing and maintenance of equipment is detailed in Table A5.A.1 (Attachment A6-1) in Section A5.A Written Schedule of this document and is recorded in the facility Inspection Log (Attachment A6-4).

A6.C ACCESS TO COMMUNICATIONS OR ALARM SYSTEM
[R 299.9606 and 40 CFR §264.34]

A6.C.1 Multiple Employees Present
[R 299.9606 and 40 CFR §264.34(a)]

Immediate emergency instructions will be physically communicated directly to all individuals in the facility by voice. This is possible due to the limited number of personnel having access to the storage facility and to the compact footprint of the regulated part of the facility, with all waste management units being contiguous to one another.

A6.C.2 Single Employee Present
[R 299.9606 and 40 CFR §264.34(b)]

U-M Beck Road Storage Facility operators carry hand-held two-way radios which are capable of communication with U-M emergency responders and the U-M Department of Public Safety (DPS). No voice communication is required to trigger a response from DPS. Each radio is equipped with an emergency button (coded directly to the individual assigned to the radio) that alerts when pressed. Telephones are located near the licensed area (Room 115) and in the office (Room 101). Emergency contact telephone numbers are posted at each phone and at each building exit.

A6.D REQUIRED AISLE SPACE
[R 299.9606 and 40 CFR §264.35]

Aisle space will be maintained at the storage facility to allow unobstructed movement of personnel, fire protection equipment, and spill containment equipment throughout the facility. Containers of hazardous and mixed waste at the facility may be stored two tiers high on the floors of Rooms 109A, 109B, 111, 113, 116, and 117. The floors in these rooms are sloped to low areas in the centers of the rooms and have secondary containment.

A6.E STATE AND LOCAL AUTHORITIES

[R 299.9606 and 40 CFR §264.37]

A6.E.1 Arrangements with State and Local Authorities

[R 299.9606 and 40 CFR §264.37(a)(1)]

The Van Buren Township Police and Fire Departments, the Huron Valley Ambulance and St. Joseph Mercy Hospital staff are invited to tour the Beck Road Storage Facility (BRSF) and the surrounding buildings on the property. The tour of the facility will familiarize them with the floor plan of the Beck Road Storage Facility, and the nature and characteristics of the waste stored in the facility. A review of the engineering controls in place at the Beck Road Storage Facility designed to facilitate management of hazardous wastes will also be provided. A record of attendance at the facility tour will be kept on file at the BRSF. Copies of the contingency plan have been submitted to each of the organizations listed above.

A6.E.2 Refusal of State or Local Authorities to Enter into Emergency Response Agreements

[R 299.9606 and 40 CFR §264.37(b)]

No state or local authority has declined to enter into emergency response arrangements.

Attachment A6-1
Inspection Schedule
(Table A5.A.1)

Attachment A6-1 Table A5.A.1 INSPECTION SCHEDULE		
Item	Frequency ¹	Types of Problems
Beck Road Storage Facility		
Containers	Weekly	Visually inspect the containers to verify they are closed. Visually inspect for leaking containers, deterioration of containers, rust, corrosion, or trends that indicate possible decline of structural integrity; check container for labels identifying the chemical(s) or chemical class in the drum, the EPA hazardous waste code(s), the date the container was placed in storage, and the generator's name and location.
Containment System	Weekly	Inspect the floor and curbing of the storage area for cracking, flaking, chipping, or gouging, and for excessive wear or deterioration. Inspect secondary containment for liquids, weekly, when waste is brought to the facility.
Communication Devices – Telephone	Weekly	Check for dial tone. Determine if outgoing calls can be made.
General Area: Warning signs "No Smoking" signs Doors Windows Building	Weekly	Check that warning signs are posted; check that doors and windows are secured. Inspect container placement and stacking to determine if the required aisle space for inspection and use of emergency equipment exists. Check labels to determine if the waste indicated is stored in the proper/designated area. Annually inspect roof, walls, and entrances for settling, cracks, and spalling in concrete.
Concrete Slab Loading/Unloading Area	Weekly (Daily when in use)	Visually inspect for cracking, flaking, chipping, gouging, and excessive wear or deterioration. Inspect the loading area for heavy stains.
Safety Equipment: Eye Wash Shower	Monthly	Check for operability.
Fence around the Unit	Bi-Annually	Check for integrity.
Water	Annually	Verify inspection of fire hydrants for pressure, volume, and operability.
Building	Weekly (Daily when in use)	Visually inspect building to insure that it is secure.
Area between Loading/Unloading Dock and Container Storage Area	Weekly	Visually inspect for stains and excessive wear or deterioration.
Radiation Monitoring Equipment	Weekly (Daily when in use)	Check for operability.
SPILL CLEANUP AND PERSONAL PROTECTION EQUIPMENT		
Goggles Rubber Boots Rubber Gloves Coveralls Fabric Disposable Respirators Absorbents Recovery Drums LEL/O ₂ Meter PID	Monthly and after each incident response requiring use of personal protection equipment	Check for sufficient inventory; verify that expiration dates have not lapsed. Check condition of protective equipment and gear. Safety Supply Inventory form shall be used to guide the inventory.
¹ Daily refers to work days when operations involving hazardous waste occur		

Attachment A6-2
Emergency Equipment Description
(Figure 3 of BRSF Contingency Plan)

Beck Road Storage Facility
 MIR 000 001 834
 Emergency Equipment Description
 Safety Supply Inventory

Date: ___/___/___ By ___
 (Check if items are stocked)

Room 101

Documents	Purpose or Capability	Minimum Quantity	Quantity Needed
Contingency Plan	Response Protocols	1 Copy	
Phone Numbers	Contact Information	1 Copy	
Tools and Equipment	Purpose or Capability	Minimum Quantity	Quantity Needed
Flashlights	Portable Illumination	2 Triple D Cell	
Flashlight—Rechargeable	Portable Illumination	1	

Room 109

PPE	Purpose or Capability	Minimum Quantity	Quantity Needed
Personal Protection Equipment (PPE) Selection Guides	Personal Protection Equipment (PPE) Selection Guides	1 Copy Located in Safety Supply Cabinet	
North Air Purifying Respirator Cartridges	Respiratory Protection—See PPE Selection Guide	4 pair Organic Vapor/HEPA/Acid Gas	
North Air Purifying Respirator—1/2 face	Respiratory Protection—See PPE Selection Guide	2 Large 2 Medium 2 Small	Large _____ Medium _____ Small _____
North Air Purifying Respirator—Full Face	Respiratory Protection—See PPE Selection Guide	2 Med / Large 2 Small	Med / Large _____ Small _____
Nitrile Gloves, Heavy Duty	Hand Protection—See PPE Selection Guide	12 Pairs, Size 10 (13 inches)	
Nitrile Gloves, Single Use	Hand Protection—See PPE Selection Guide	2 Boxes XL 2 Boxes Lg	XL _____ Lg _____
Butyl Gloves	Hand Protection—See PPE Selection Guide	6 Pairs, Size 10 (17 mil)	
Silver Shield / 4H Gloves	Hand Protection—See PPE Selection Guide	6 Pairs, Large	
Leather Palm Gloves	Hand Protection	12 Pairs	
Shoe Covers (Booties)—Saranex	Splash Protection—See PPE Selection Guide	12 Pairs	
Shoe Covers (Booties)—Latex Response Boots	Splash Protection—See PPE Selection Guide	12 Pairs	
Coverall Protective Suits	Splash Protection—See PPE Selection Guide	2 CPF3, XXL 2 CPF3, XL 6 Proshield 2, XXL 6 Proshield 2, XL 6 Proshield 2, Lg	XXL _____ XL _____ XXL _____ XL _____ Lg _____
Safety Goggles	Eye Splash Protection	6 Pairs	
Lab Coats	Splash Protection	6 Coats (sizes: 40 to 46)	
Spill Supplies	Purpose or Capability	Minimum Quantity	Quantity Needed
Plastic Shovel	Debris Collection	1	
Floor Squeegee	Liquid Movement	1	
Vermiculite	Liquid Absorption (5 gal/ft ³)	4 Bags (4 ft ³ each)	
Floor Dri	Oil Absorption (4 gal/bag)	4 Bags (40 pounds each)	
Solvent Adsorbent	Solvent Absorb (Up to 15 gal)	160 Pounds	
Acid Neutralizer	Neutralize Acids (Up to 30 gal)	300 Pounds	
Caustic Neutralizer	Neutralize Bases (Up to 4 gal)	50 Pounds	
Blue Pads	Liquid Absorption	6 Packets	

Beck Road Storage Facility
 MIR 000 001 834
 Emergency Equipment Description
 Safety Supply Inventory (Cont.)

Date: ___/___/___

Room 109 (Cont.)

Spill Supplies	Purpose or Capability	Minimum Quantity	Quantity Needed
Paper Towels	Liquid Absorption	4 Packets	
Heavy Duty Wipes	Liquid Absorption	4 Packets	
Litmus (pH) Paper	pH Testing of Liquids	1 Roll (range 1 to 12)	
Radiation Safety Kit	Radioactive Clean Up	1	
Sorbent Booms P-200	Spill Containment (12 Gallons per Box of 12)	8 (3 inch x 4 feet)	
Sorbent Pillows P-300	Spill Containment (8 Gallons per Box of 16)	8 (7 x 15 inch)	
Tools and Equipment	Purpose or Capability	Minimum Quantity	Quantity Needed
First Aid Kit	Minor Injuries up to 25 People	1 Johnson & Johnson Kit No. 8161	
Rotary Drum Pump	Liquid Transfer	1 (1 inch ID hose)	
Flashlight Batteries	Replacement Batteries	6 D Cell	
9 Volt Batteries	Replacement Batteries	2	
GM Meter	Radiation Detection	1 (uses 2 D cell batteries)	
Ion Chamber	Radiation Exposure Measurement	1 (uses 2 x 9 volt batteries)	
Drum Truck	Drum Movement	1	
Floor Mop with Wringer	Floor Cleaning	1	
Containers	Purpose or Capability	Minimum Quantity	Quantity Needed
Plastic Pails	Material Collection	12 x 5 gal, HDPE	
Plastic Bags	Material Collection	10 (4 mil, 38 x 72") (55 gal)	
Empty Drums	Material Collection	2 x 30 gal Poly Closed Head	
Empty Drums	Material Collection	2 x 55 gal Poly Closed Head	
Empty Drums	Material Collection	1 x 30 gal DM Closed Head	
Empty Drums	Material Collection	1 x 55 gal DM Closed Head	
Empty Drums	Material Collection	2 x 15 gal Poly Closed Head	
Empty Drums	Material Collection	2 x 30 gal Poly Open Head	
Empty Drums	Material Collection	2 x 55 gal Poly Open Head	
Empty Drums	Material Collection	2 x 30 gal DM Open Head	
Empty Drums	Material Collection	2 x 55 gal DM Open Head	
Bung Gaskets	Replacement Gaskets	20 x 2" 20 x 3/4"	2" 3/4"
Drum Lid Gaskets	Replacement Gaskets	8 (55 DM open head)	
4 Gallon Boxes	Material Collection	12 (holds 4 x 1 gallon each)	

Storage and Waste Areas

Tools and Equipment	Purpose or Capability	Minimum Quantity	Quantity Needed
Non-Sparking Bung Wrench	Open/Close Drum Bungs	1 Beryllium Copper	
	Open/Close Drum Bolts	1 With 15/16 Inch Socket	
Speed Wrench			
Organic Vapor Detector	Organic Vapor Detection	1 (From NCTF As Necessary)	

**Beck Road Storage Facility
 MIR 000 001 834
 Emergency Equipment Description
 Fire Extinguisher Monthly Inventory**

Date: ____/____/____

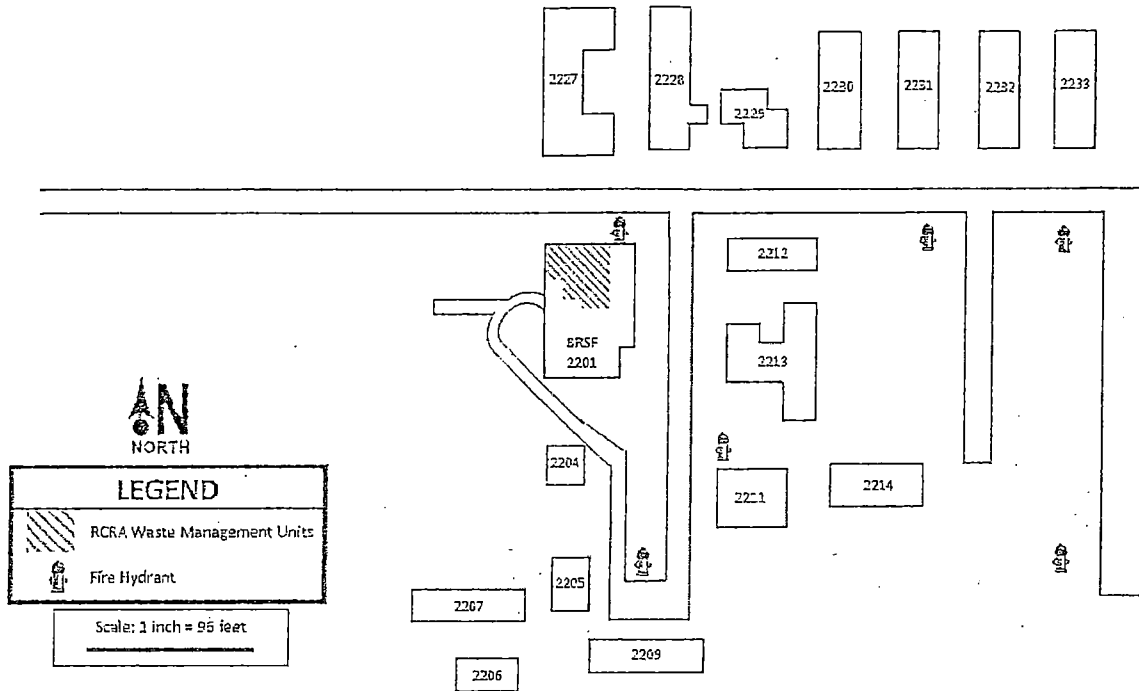
No.	Location	Serial No.	Make	Type	Size	Seal	Gauge	Mount	Visible	Cylinder
1	Outside Room 218	XP-401716	Buckeye	ABC	5 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	2 nd Floor Hall Near Room 200	XJ-962609	Buckeye	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Outside Room 207	XJ-962599	Buckeye	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Outside Room 105	XE-123855	Buckeye	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Room 109 (S.E. Door)	XJ-966426	Buckeye	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Outside Rooms 115/125	L-915144	General	CO ₂	5 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Room 109B	XJ-962601	Buckeye	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Room 113	XJ-966356	Buckeye	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Outside Room 117	SP-371003	Badger	ABC	20 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	1 st Floor North Exit	XJ-962603	Buckeye	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Room 120	L-706745	Badger	CO ₂	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Room 100	WZ-659477	Badger	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Outside Room 101	XJ-966369	Buckeye	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

A check mark (✓) indicates that the conditions observed are satisfactory. Unsatisfactory conditions are noted in the comments.

Attachment A6-3
Fire Hydrant Locations

Beck Road Storage Facility
Fire Hydrant Locations



Attachment A6-4
Inspection Log

INSPECTION LOG	
University of Michigan Occupational Safety & Environmental Health Beck Road Storage Facility, EPA ID: MIR000001834 8501 Beck Road Belleville, MI 48111 (734) 487-3259	
Instructions: Perform inspection of facility; if conditions are satisfactory write "SAT" in the conditions observed column. If there are any discrepancies, list them in the conditions observed column also.	
A. General Facility	Conditions Observed on Date:
1. All door entrances and windows properly secured	
2. No signs of unauthorized entry	
3. No signs of vandalism or theft	
4. No signs of flooding or fire	
5. No electrical hazards identified	
6. Fire extinguishers in designated locations, and charged	
7. Ventilation and lighting system operating properly	
8. No evidence of eating, drinking, smoking	
9. Aisle space adequate for emergency equipment	
10. Emergency supplies, monitoring equipment & PPE available	
11. Emergency supplies storage cabinet inspected (needs noted below)	
12. Fire exits are clear and unobstructed	
13. Storage and work areas organized and uncluttered	
14. Emergency eyewash and shower station tested (1st week of month)	
15. Annual water availability inspection conducted on	
16. Biannual inspection of perimeter fences conducted on	
17. Operation's log up to date	
18. Forklift inspected and operational	
19. Verry telephones are operational - check for dial tone	
B. Appropriate Postings Throughout the Facility	Conditions Observed
1. NRC "Notice to Employee"	
2. MDEQ "Notice to Employee" (Form EQC 1627)	
3. MDEQ Radioactive Material Registration (Form EQP 1614)	
4. Radioactive Materials Restricted Area (entrances)	
5. No smoking signs (2+ entrances)	
6. Emergency phone numbers	
7. Radiological Emergency Procedures	
8. MSDS location poster	

RCRA Waste Storage Areas Properly Identified and Segregated		
C. Corrosive Base and Reactive Area 109A		Conditions Observed
1. Waste containers identified and labeled properly		
2. No signs of leakage from waste containers		
3. No signs of deterioration or damaged containers		
4. No evidence of odors		
5. Containment system in good condition		
D. Toxics Area 109B		Conditions Observed
1. Waste containers identified and labeled properly		
2. No signs of leakage from waste containers		
3. No signs of deterioration or damaged containers		
4. No evidence of odors		
5. Containment system in good condition		

E. Corrosive Acid Room 111		Conditions Observed
1. Waste containers identified and labeled properly		
2. No signs of leakage from waste containers		
3. No signs of deterioration or damaged containers		
4. No evidence of odors		
5. Containment system in good condition		

F. Toxic and Oxidizer Area 113		Conditions Observed
1. Waste containers identified and labeled properly		
2. No signs of leakage from waste containers		
3. No signs of deterioration or damaged containers		
4. No evidence of odors		
5. Containment system in good condition		

G. Toxic Room 116		Conditions Observed
1. Waste containers identified and labeled properly		
2. No signs of leakage from waste containers		
3. No signs of deterioration or damaged containers		
4. No evidence of odors		
5. Containment system in good condition		

H. Ignitable and Toxic Room 117		Conditions Observed
1. Waste containers identified and labeled properly		
2. No signs of leakage from waste containers		
3. No signs of deterioration or damaged containers		
4. Ventilation system operating properly		
5. No evidence of odors		

6. Containment system in good condition	
I. Loading / Unloading Area 125	Conditions Observed
Trenches clear of debris	
Containment system in good condition	
Comments: <hr/> <hr/> <hr/>	
Note: For any discrepancies noted in the conditions observed column list the corrective action taken to remedy each discrepancy below.	
Corrective Actions: <hr/> <hr/> <hr/>	
Corrective Actions performed by: <hr/>	
Date corrective actions performed: <hr/>	
Supplies needed: <hr/> <hr/>	
Inspection performed by: <hr/>	
Date: <hr/>	
Time: <hr/>	
Reviewed by: <hr/>	
Hazardous Materials Manager: <hr/>	
Date: <hr/>	
Radiation Safety Officer: <hr/>	
Date: <hr/>	

Attachment 5
Contingency Plan

**FORM EQP 5111 ATTACHMENT TEMPLATE A7
CONTINGENCY PLAN**

This document is an attachment to the Michigan Department of Environmental Quality's *Instructions for Completing Form EQP 5111, Hazardous Waste Treatment, Storage, and Disposal Facilities Construction Permit and Operating License Application Form*. See Form EQP 5111 for details on how to use this attachment.

The administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), R 299.9501, R 299.9508(1)(b), R 299.9504(1)(c), R 299.9607 and Title 40 of the Code of Federal Regulations (CFR) §§264.50 through 264.56, and 270.14(b)(7), establish requirements for contingency plans at hazardous waste management facilities. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for a contingency plan at the hazardous waste management facility for the Beck Road Storage Facility in Belleville, Michigan.

(Check as appropriate)

- ☒ Operating License Applicant
- ☐ Construction Permit Applicant

This template is organized as follows:

INTRODUCTION

A7.A BACKGROUND INFORMATION

- A7.A.1 Purpose of the Contingency Plan
- A7.A.2 Description of Facility Operations
- A7.A.3 Identification of Potential Situations
- Table A7.A.1 Room Activity at the Beck Road Storage Facility

A7.B EMERGENCY COORDINATORS

- A7.B.1 Identification of Primary and Alternate Emergency Coordinators
- A7.B.2 Qualifications of the Emergency Coordinators
- Table A7.B.1 Identification of Primary and Alternate Emergency Coordinators
- A7.B.3 Authority to Commit Resources

A7.C IMPLEMENTATION OF THE CONTINGENCY PLAN

A7.D EMERGENCY PROCEDURES

- A7.D.1 Immediate Notification Procedures for Facility Personnel and State and Local Agencies with Designated Response Roles
- A7.D.2 Procedures to Be Used for Identification of Releases
- A7.D.3 Procedures to Be Used to Assess Potential Hazards to Human Health and the Environment
- A7.D.4 Procedures to Determine if Evacuation is Necessary and Immediate Notification of Michigan Pollution Emergency Alerting System and National Response Center
- A7.D.5 Procedures to Be Used to Ensure That Fires, Explosions, and Releases Do Not Occur, Reoccur, or Spread During the Emergency
- Table A7.D.1 Federal, State, and Local Response Contacts
- A7.D.6 Procedures to Be Used to Monitor Equipment Should Facility Operations Cease

- A7.D.7 Procedures to Provide Proper Treatment, Storage, and Disposal for Any Released Materials
- A7.D.8 Procedures for Cleanup and Decontamination
- A7.E NOTIFICATION AND RECORD KEEPING REQUIREMENTS
 - A7.E.1 Procedures to Be Used to Notify State and Federal Officials Prior to Commencement of Operations
 - A7.E.2 Record Keeping Requirements
 - A7.E.2(a) Operating Record
 - A7.E.2(b) Written Incident Report
- A7.F PROCEDURES FOR REVIEWING AND AMENDING THE CONTINGENCY PLAN

- Attachment A7-1 Documentation of Arrangements with Local Authorities
- Attachment A7-2 Evacuation Plan and Evacuation Plan Maps
- Attachment A7-3 Emergency Equipment Description
- Attachment A7-4 Building Emergency Response Plan
- Attachment A7-5 Location of Waste Management Units
- Attachment A7-6 Hazardous Wastes Accepted at the Facility
- Attachment A7-7 U.S. DOT Precedence of Hazard Table
- Attachment A7-8 U.S. EPA Chemical Compatibility Chart
- Attachment A7-9 Emergency Response Incident Report

GUIDANCE/REFERENCES

Michigan Department of Environmental Quality, Operational Memo 111-22: "Implementation of a Facility's Hazardous Waste Contingency Plan and Reporting Obligations", May 24, 2000.

INTRODUCTION

A7.A BACKGROUND INFORMATION

A7.A.1 Purpose of the Contingency Plan [R 299.9607 and 40 CFR §§264.51 and 264.53]

This Contingency Plan has been prepared in accordance with the requirements of 40 CFR, Part 264, Subpart D, and R 299.9607. It is designed to establish the necessary planned procedures to be followed in the event of an emergency situation at the Beck Road Storage Facility in Belleville, Michigan, such as a fire, explosion, or any unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents to the air, soil, or water.

The provisions of this plan will be carried out immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents that could threaten human health or the environment.

Copies of this plan have been provided to emergency response agencies in order to familiarize them with the facility layout, the properties of the material handled, locations of the working areas, access routes into and within the facility, possible evacuation routes from the facility, and types of injuries or illness that could result from releases of materials at the facility. This plan is distributed to appropriate personnel both internal at U-M and to agencies external to U-M. The distribution of the Plan is listed below:

- | | | |
|---|--------------------------|----------------|
| 1. U-M OSEH Director | Terrance Alexander | CSSB |
| 2. U-M EPPP Manager | Steve O’Rielly | CSSB |
| 3. U-M HMM Manager | Michael Dressler | NCTF |
| 4. U-M RSS RSO | Mark Driscoll | CSSB |
| 5. U-M DPSS (U-M Police) | Eddie L. Washington, Jr. | CSSB |
| 6. U-M Strategic Space Planning | Jennifer Magoon-Judge | AEC |
| 7. U-M HMM Sr. Hazmat Rep. | Stuart Berry | NCTF |
| 8. U-M BRSF Office | Office Copy | BRSF |
| | | |
| 9. Tim Sonnenberg, Environmental Quality Analyst
MDEQ Office of Waste Management and Radiological Protection | | Jackson, MI |
| | | |
| 10. Ronda Blayer, Environmental Engineering Specialist
MDEQ Office of Waste Management and Radiological Protection | | Lansing, MI |
| | | |
| 11. Larry Bean, Environmental Manager
MDEQ Office of Waste Management and Radiological Protection | | Jackson, MI |
| | | |
| 12. Linda Combs, Township Supervisor
Van Buren Township | | Belleville, MI |
| | | |
| 13. Daniel Besson, Fire Chief
Van Buren Township Fire Department | | Belleville, MI |
| | | |
| 14. Greg Laurain, Director of Public Safety
Van Buren Township Police | | Belleville, MI |
| | | |
| 15. Andy Savage, Vice President of Eastern Operations
Huron Valley Ambulance | | Plymouth, MI |
| | | |
| 16. Denise Bechard, Emergency Management Coordinator
St. Joseph Mercy Hospital | | Ann Arbor, MI |

The documentation acknowledging receipt of the BRSF Contingency Plan is included in Attachment 7-1. These documents are filed at the OSEH NCTF building.

A7.A.2 Description of Facility Operations

Facility Processes

The wastes stored at Beck Road Storage Facility are generated during teaching, research and support operations conducted at the authorized U-M facilities shown in Table A1-1 of Section A1, General Facility Description, of this application. Hazardous and mixed waste shall be stored in the licensed area in compatible containers, which may include 5, 15, 30 and 55 gallon plastic, metal or fiber drums; or metal, and carton fiber boxes. Low level radioactive waste (LLRW) shall be stored in non-licensed areas in compatible containers, which may include 5, 15, 30 and 55 gallon plastic, metal or fiber drums; or metal and carton fiber boxes.

1. U-M OSEH Director	Terrance Alexander	CSSB
2. U-M EPPP Manager	Steve O'Rielly	CSSB
3. U-M HMM Manager	Michael Dressler	NCTF
4. U-M RSS RSO	Mark Driscoll	CSSB
5. U-M DPSS (U-M Police)	Eddie L. Washington, Jr.	CSSB
6. U-M Strategic Space Planning	Jennifer Magoon-Judge	AEC
7. U-M HMM Sr. Hazmat Rep.	Stuart Berry	NCTF
8. U-M BRSF Office	Office Copy	BRSF
9. Tim Sonnenberg, Environmental Quality Analyst MDEQ Office of Waste Management and Radiological Protection		Jackson, MI
10. Ronda Blayer, Environmental Engineering Specialist MDEQ Office of Waste Management and Radiological Protection		Lansing, MI
11. Larry Bean, Environmental Manager MDEQ Office of Waste Management and Radiological Protection		Jackson, MI
12. Linda Combs, Township Supervisor Van Buren Township		Belleville, MI
13. Daniel Besson, Fire Chief Van Buren Township Fire Department		Belleville, MI
14. Greg Laurain, Director of Public Safety Van Buren Township Police		Belleville, MI
15. Paul Hood, Vice President of Eastern Operations Huron Valley Ambulance		Plymouth, MI
16. Pierre Gonyon, Service Delivery Leader, Facilities and Safety Department, St. Joseph Mercy Hospital		Ann Arbor, MI

The documentation acknowledging receipt of the BRSF Contingency Plan is included in Attachment 7-1. These documents are filed at the OSEH NCTF building.

A7.A.2 Description of Facility Operations

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Facility Operations and Waste Management Practices

The hazardous characteristics and the hazardous waste designation for the hazardous and mixed waste generated from the U-M facilities and stored at the BRSF are described in Table A2.A.2, Hazardous Waste Accepted at the Facility (see Attachment A7-6). The location of the waste management units in the facility are include in Attachment A7-5. Hazardous and mixed waste shall be stored in the appropriate licensed area. Low level radioactive wastes shall be stored in non-licensed areas. The location of the various types of waste stored within the facility, or the activity in each room, is described in Table A7.A.1 below.

Table A7A.1 Room Activity at the Beck Road Storage Facility		
Room Number	Waste Material	Hazardous Waste Designation Code ⁽¹⁾
100	Mechanical room (No RCRA waste stored in this room)	NA
100J	Janitor storage (No RCRA waste stored in this room)	NA
101	Office area (No RCRA waste stored in this room)	NA
102, 102A	Departmental files (No RCRA waste stored in these rooms)	NA
104	Supply storage (No RCRA waste stored in this room)	NA
105	Supply storage (No RCRA waste stored in this room)	NA
106	Supply storage (No RCRA waste stored in this room)	NA
107	Departmental files (No RCRA waste stored in this room)	NA
108	LLRW storage (No RCRA waste stored in this room)	NA
109	LLRW storage & emergency response equipment (No RCRA waste stored in this room)	NA
109A	RCRA waste - corrosive (bases) and reactive	D002, D003
109B	RCRA waste - toxic	F002, F004, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D041, D042, D043, U138, U151
110, 110A	Vermiculite storage (No RCRA waste stored in these rooms)	NA
111	RCRA waste - corrosive (acids)	D002
112T	Lavatory (No RCRA waste stored in this room)	NA
113	RCRA waste – toxic and oxidizer	F002, F004, D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D041, D042, D043, U138, U151
113J	Janitor's room (No RCRA waste stored in this room)	NA
115	Telephone controls (No RCRA waste stored in this room)	NA
116	RCRA waste – toxic	F002, F004, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D041, D042, D043, U138, U151
117	RCRA waste – ignitable and toxic	D001, F003, F005
117A	Air handling room (No RCRA waste stored in this room)	NA
120, 120A, 120B, 121	Mechanical rooms (No RCRA waste stored in these rooms)	NA
2 nd Floor	Supply storage or vacant (No RCRA waste stored on this floor)	NA

⁽¹⁾Various mixtures of RCRA waste may be encountered and each code that is applicable will be applied with the greatest hazard being addressed first.

Note: Hazardous wastes with multiple hazardous waste characteristics will be assigned to a waste management unit based on the US DOT Precedence of Hazard Table, 49 CFR 173.2a (see Attachment A7-7).

The following is a description of various operational and facility controls used at the Beck Road Storage Facility to control and minimize spills and leaks from containers in storage. These procedures are in place to meet requirements for storage of hazardous and mixed wastes.

1. The following is a summary of hazardous and mixed waste and LLRW that may be stored at the facility:
 - Liquids and solids containing RCRA and Michigan Act 451 regulated constituents.
 - Aqueous liquids and solids containing short-lived or long-lived radioisotopes which may be mixed with hazardous chemicals in small quantities.
 - Aqueous liquids and solids containing hazardous chemicals that have been deregulated from NRC regulation by the natural decay process of radioisotopes.
 - Aqueous liquids and solids containing naturally occurring uranium and thorium compounds.
 - Solid LLRW and containing short-lived or long-lived radioisotopes.
 - Lead bricks and leaded objects.
 - Miscellaneous waste of short-lived or long-lived radioisotopes in test tubes, scintillation vials, ampoules, and contaminated metal objects.
 - Sealed and plated sources, and stock vials.
 - Air filters containing short-lived or long-lived radioisotopes.
2. Secondary Containment: Secondary containment structures/devices are used at the Beck Road Storage Facility to capture and contain spills or leaks from liquid containers to avoid releases of these materials into the environment. The secondary containment structures presently being used to accomplish the above objectives are maintained in an operational condition at all times and include:
 - a. Floor Seal and Berming: The rooms designed and used for liquid material storage are bermed at the doors to contain leaks and spills. The floors of rooms designed and used for liquid storage are sealed with a chemical resistant finish to prevent seepage through the floor in the event of a spill. The floor of the loading and unloading area is sealed with a chemical resistant finish. Loading and unloading of waste occurs between two containment trenches that are also sealed with a chemical resistant finish.
 - b. Spill Pallets: The bulk liquid drums may be stored on spill pallets designed to contain 110% of the largest container stored on the pallet. These spill pallets serve as supplemental secondary containment.
 - c. Overpacks: The bulk liquid drums may be placed in overpacks. The overpacks serve as supplemental secondary containment.
3. Routine Visual Inspections: An inspection of the facility and containers stored at the facility is performed on a weekly basis by Hazmat personnel. The inspection follows a checklist format and looks at containment structures, housekeeping, security, and checks to determine if leaks are occurring from the containers. The inspection is performed by a member of the Hazmat personnel and is documented on the facility survey form. Completed forms are maintained at the North Campus Transfer Facility (NCTF), with copies on file at the Beck Road Storage Facility.

4. Preventive Maintenance: The weekly inspection also includes a walk-through of the entire facility. The containers are visually checked for their integrity. If found necessary, containers are replaced to avoid potential leaks or spills. Secondary containment is also checked to see if any preventive maintenance is necessary.
5. Housekeeping: The facility is maintained in a clean and orderly condition; the floor is swept and mopped on a regular basis. During routine inspections, hard copies of waste records at the facility are cross checked with the computer records, and hard copies are updated as necessary. Other efforts such as updating the emergency supplies, tools, spill response supplies, also are a part of the housekeeping activities performed by the Hazmat personnel. Efforts are made on a continuous basis to implement innovative methods and controls for effective waste management.
6. Security: The Beck Road Storage Facility is protected from unauthorized entry by locked doors, and entry is provided only to authorized individuals by OSEH staff. The facility is within a compound, bordered by a security fence that is kept locked after business hours (5 pm to 7 am).
7. Monitoring: Periodic air monitoring during routine operations is performed by Hazmat personnel. Surface radioactive contamination on the containers, the floors and other surfaces is checked weekly with swipes during routine facility inspections. The containers are also checked weekly for any obvious signs of vapor pressure buildup inside the headspace of the bulk liquid drums. In addition, exposure monitoring is performed by Hazmat personnel periodically to determine the occupational exposure to the Hazmat personnel handling waste materials. All Hazmat personnel working in the facility are part of a radiation personnel dosimetry program to monitor occupational exposure.
8. Evacuation: The building evacuation plans and emergency response plans for the facility are included in the attachments. Attachment A7-2 includes the Building Evacuation Plan—First Floor (Figure 1) and the Building Evacuation Plan—Second Floor (Figure 2). Attachment A7-4 includes the Building Emergency Response Plan—First Floor (Figure 4) and the Building Emergency Response Plan—Second Floor (Figure 5). The evacuation routes of egress are marked on the Evacuation Plans, and are posted inside the facility. The need for an evacuation will be communicated to other personnel in the facility verbally and over two-way radios. The Beck Road Storage Facility is not normally occupied other than by Hazmat personnel performing routine duties.

Work Areas

Work areas are described in Table A7.A.1, Room Activity at the Beck Road Storage Facility. Table A7.A.1 describes the room activity for each room, the type of waste handled and the waste codes for each room. Waste will be assigned to a waste management unit by its waste code and characteristics. Waste with multiple waste codes will be assigned to a waste management unit based on the US DOT Precedence of Hazard Table, 49 CFR 173.2a (see Attachment A7-7).

A7.A.3 Identification of Potential Situations

Refer to Sections A7.C and D.

A7.B EMERGENCY COORDINATORS

[R 299.9607 and 40 CFR §§264.52 and 264.55]

A7.B.1 Identification of Primary and Alternate Emergency Coordinators

[R 299.9607 and 40 CFR §§264.52 and 264.55]

At all times there is at least one employee, either on the facility premises or on-call and within reasonable travel distance of the facility, with the responsibility for coordinating all emergency response measures. The list of employees designated as emergency coordinators is contained in Table A7.B.1. The coordinators are listed in the order in which they will assume responsibility.

Table A7.B.1 Identification of Primary and Alternate Emergency Coordinators

Priority	Name	Work Phone	Work Address	Home Phone	Home Address
Primary Coordinator	Michael Dressler	734-763-4619	1655 Dean Rd., Ann Arbor, MI	734-434-4959 Cell: 734-678-1494	3401 Merritt Road Ypsilanti, MI
First Alternate Coordinator	Stuart Berry	734-763-9057	1655 Dean Rd., Ann Arbor, MI	734-668-6134 Page: 734-651-0066	2252 S. Circle Dr. Ann Arbor, MI
Second Alternate Coordinator	Mark Driscoll	734-647-2251	1239 Kipke Dr., Ann Arbor, MI	734-834-9333 Cell: 734-834-9333	11403 Mart Whitmore Lake, MI
Third Alternate Coordinator	Terrance Alexander	734-647-2253	1239 Kipke Dr., Ann Arbor, MI	734-316-2394 Cell: 734-604-8217	1611 York Terrace Saline, MI

A7.B.2 Qualifications of the Emergency Coordinators

[R 299.9607 and 40 CFR §264.55]

Each emergency coordinator is trained in the operation of the storage facility. This training includes RCRA Operations (40 CFR 264.16 and 262.34), Emergency Response/Incident Command (29 CFR 1910.120) and U.S. DOT training (49 CFR 172 subpart H), as well as recurrent training for radiation safety, blood borne pathogens and hazard communications. The professional credentials of each emergency coordinator are listed below:

Michael Dressler, CHMM
 Stuart Berry, CHMM
 Mark Driscoll, HP, RSO
 Terrance Alexander, PE, CIH

A7.B.3 Authority to Commit Resources

[R 299.9607 and 40 CFR §264.55]

The emergency coordinator or his designee (on-call staff) will be available to coordinate all emergency response measures. This individual will be familiar with the facility's contingency plan, activities, location and characteristics of waste handled, location of records, and site layout. The emergency coordinator also has the authority to commit the resources needed to complete the response actions in the contingency plan.

A7.B EMERGENCY COORDINATORS

[R 299.9607 and 40 CFR §§264.52 and 264.55]

A7.B.1 Identification of Primary and Alternate Emergency Coordinators

[R 299.9607 and 40 CFR §§264.52 and 264.55]

At all times there is at least one employee, either on the facility premises or on-call and within reasonable travel distance of the facility, with the responsibility for coordinating all emergency response measures. The list of employees designated as emergency coordinators is contained in Table A7.B.1. The coordinators are listed in the order in which they will assume responsibility.

Table A7.B.1 Identification of Primary and Alternate Emergency Coordinators

Priority	Name	Work Phone	Work Address	Home Phone	Home Address
Primary Coordinator	Michael Dressler	734-763-4619 (734-763-4568)	1655 Dean Rd., Ann Arbor, MI	734-434-4959 Cell: 734-678-1494	3401 Merritt Road Ypsilanti, MI
First Alternate Coordinator	Stuart Berry	734-763-9057 (734-763-4568)	1655 Dean Rd., Ann Arbor, MI	734-668-6134 Cell: 734-757-7712	2252 S. Circle Dr. Ann Arbor, MI
Second Alternate Coordinator	Mark Driscoll	734-647-2251 (734-764-6200)	1239 Kipke Dr., Ann Arbor, MI	734-834-9333 Cell: 734-834-9333	11403 Mart Whitmore Lake, MI
Third Alternate Coordinator	Terrance Alexander	734-647-2253 (734-647-1143)	1239 Kipke Dr., Ann Arbor, MI	734-316-2394 Cell: 734-604-8217	1611 York Terrace Saline, MI

A7.B.2 Qualifications of the Emergency Coordinators

[R 299.9607 and 40 CFR §264.55]

Each emergency coordinator is trained in the operation of the storage facility. This training includes RCRA Operations (40 CFR 264.16 and 262.34), Emergency Response/Incident Command (29 CFR 1910.120) and U.S. DOT training (49 CFR 172 subpart H), as well as recurrent training for radiation safety, blood borne pathogens and hazard communications. The professional credentials of each emergency coordinator are listed below:

Michael Dressler, CHMM
 Stuart Berry, CHMM
 Mark Driscoll, HP, RSO
 Terrance Alexander, PE, CIH

A7.B.3 Authority to Commit Resources

[R 299.9607 and 40 CFR §264.55]

The emergency coordinator or his designee (on-call staff) will be available to coordinate all emergency response measures. This individual will be familiar with the facility's contingency plan, activities, location and characteristics of waste handled, location of records, and site layout. The emergency coordinator also has the authority to commit the resources needed to complete the response actions in the contingency plan.

A7.C IMPLEMENTATION OF THE CONTINGENCY PLAN

[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

The emergency coordinator must be contacted immediately in the occurrence of any situation that may result in potential or actual threats to human health or the environment. The emergency coordinator must implement this plan whenever there is a fire, explosion, a high hazard emergency, or release of hazardous waste or hazardous waste constituents that could threaten human health or the environment.

The U-M Ann Arbor Campus Emergency Procedures flip chart guide and site specific emergency numbers are posted by telephones and exits for ready accessibility in the event of an emergency. In addition to posted numbers, contact information for the emergency coordinators and all OSEH staff is provided to each OSEH staff member via a wallet size card. Each member of the OSEH on-call staff, including emergency coordinators, may be reached by pager or cell phone. One staff member is on-call 24 hours per day and can be reached by pager or cell phone and the emergency coordinator may call or page any additional OSEH staff member as necessary. U-M Department of Public Safety and Security may also contact the emergency coordinators or on-call staff in the event of an emergency.

A7.D EMERGENCY PROCEDURES

[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

The following general procedures have been established for implementation by facility personnel and the emergency coordinator in order to efficiently respond to the release of hazardous waste or hazardous waste constituents that could threaten human health or the environment.

The emergency procedures at the Beck Road Storage Facility are written for the following anticipated conditions or circumstances: a high hazard emergency, a fire/explosion or fire-related emergency, an emergency response, an incidental spill, or a personal injury, which are further discussed below, including full descriptions of the actions to be taken for each situation. Each condition or circumstance will be monitored carefully and the response modified as conditions develop.

General guidance is also given, as well as guidance for decontamination procedures and communications.

General Guidance

- The U-M Ann Arbor Campus Emergency Procedures flip chart guide and site-specific emergency numbers shall be posted by telephones and exits, for ready accessibility.
- Never respond to an emergency alone. Always use the buddy system.
- If an incident occurs, the person(s) finding the incident shall notify everyone in the immediate area of the situation. The type of situation (high hazard emergency, fire/explosion or fire-related emergency, emergency response, incidental spill or personal injury) will dictate the next step. Entry into a hazardous situation is contingent upon having the proper training.

Immediately notify the appropriate U-M Department or local response agency, or as defined in the Emergency Procedures:

- Any Medical Emergency or Fire call 911. Request assistance and instruct Van Buren Township Emergency Response to notify DPSS at 734-763-1131.
- Chemical Spill during work hours call OSEH at 734-763-4568. After hours call DPSS at 734-763-1131.

- Radioactive Spill during work hours call RSS at 734-764-6200. After hours call DPSS at 734-763-1131
- Biological Spill during work hours call Biological Safety at 734-763-6973. After hours call DPSS at 734-763-1131.

Describe the emergency, and request appropriate assistance. Provide the following:

- Your name, affiliation, and telephone number.
- The name, address, telephone number, and site identification number of the facility.
- Your exact location and the location of the emergency.
- A detailed description of the type of emergency, injuries to personnel, chemicals involved and quantities, radioactive material involved, and actions taken to contain the situation.
- An assessment of the potential or actual hazards.
- Use of the Emergency Response Incident Report is required.

High Hazard Emergency

A high hazard emergency is an emergency of unknown nature; a situation which may be immediately dangerous to life and health; is a threat to personnel and/or the public; threatens the surrounding area or facility; and/or involves a reactive hazardous material. In the case of a high hazard emergency:

- Evacuate the immediate area and take actions to protect health and safety.
- Call 911 from a phone located out of the immediate area of danger. Request assistance and instruct Van Buren Township Emergency Response to notify DPSS at 734-763-1131.
- For radioactive material spills, contact RSS immediately at 734-764-6200 or (after hours) DPSS at 734-763-1131. Do not spread radioactive contamination beyond the immediate area. If other hazards exist (fire, explosion, chemical exposure, personal injury), move to the nearest area of safety.
- Isolate the area if possible.
- Do not attempt to rescue someone unless you know what caused the situation and you can properly protect yourself from the hazard.
- Do not move an injured person, unless the person is in harm's way.
- Provide first aid only if you are properly trained.
- For chemical splashes to the eyes and skin, immediately flush the exposed areas with water for 15 minutes. Remove all contaminated clothing and jewelry. Seek medical assistance.
- If time and the situation permits, have the MSDS readily available for emergency response personnel.

Fire/Explosion or Fire-Related Emergency

- Call 911 and request assistance. The Van Buren Township Emergency Response should be instructed to notify DPSS at 734-763-1131.
- Evacuate the area.
- Shut off equipment and other fuel sources to the fire only if it can be done without risk to health and safety.
- If the appropriate fire extinguisher is available and personnel have been trained on its usage, attempt to put out the fire only if it can be done without risk to health and safety.
- Isolate the fire, if possible, by closing doors to the area.

Emergency Response

An emergency response is a response effort by employees from outside the immediate release area or by other designated responders to an occurrence of a known nature, which is likely to result in an uncontrolled release of a hazardous material outside the immediate release area. Responses to releases of hazardous waste constituents where there is no potential safety or health hazard (i.e., fire,

explosion, or chemical exposure) are not considered emergency responses). In the case of emergency response:

- Evacuate the immediate area and take action to protect health and safety.
- Call OSEH at 734-763-4568, or (after hours) DPSS at 734-763-1131 from a phone located out of the immediate area of danger.
- For radioactive material spills, if safe to do so, isolate and contain the spill to a localized area. Contact RSS immediately at 734-764-6200, or (after hours) DPSS at 734-763-1131. Do not spread radioactive contamination beyond the immediate area. If other hazards exist (fire, explosion, chemical exposure, personal injury), move to the nearest area of safety.
- Isolate the area if possible.
- Do not attempt to rescue someone unless you know what caused the situation and you can properly protect yourself from the hazard.
- Do not move an injured person, unless the person is in harm's way.
- Provide first aid only if you are properly trained.
- For chemical splashes to the eyes and skin, immediately flush the exposed areas with water for 15 minutes. Remove all contaminated clothing and jewelry. Seek medical assistance.
- If time and the situation permits, have the MSDS readily available for emergency response personnel.

Incidental Spill

An incidental spill is a spill in which there is no fire hazard, of a known nature, in small amounts, which can be absorbed, neutralized, contained or otherwise controlled by employees in the immediate release area. In the case of an incidental spill:

- For chemical spills, isolate and contain the spill to a localized area. Do not spread chemical contamination beyond the immediate area. Follow procedures outlined in the standard operating procedures manual. If personnel do not have the appropriate protective equipment, training, or spill cleanup materials, call OSEH at 734-763-4568, or (after hours) DPSS at 734-763-1131 for assistance.
- For radioactive material spills, isolate and contain the spill to a localized area. Do not spread radioactive contamination beyond the immediate area. Contact RSS immediately at 734-764-6200, or (after hours) U-M DPSS at 734-763-1131.

Personal Injury

- For major injuries, call 911 and request medical assistance. The Van Buren Township Emergency Response should be instructed to notify DPSS at 734-763-1131. Do not move the injured person, unless the person is in harm's way. Begin providing first aid only if you are trained. Persons with life threatening injuries should be transported to the St. Joseph Mercy Hospital Emergency Room.
- For minor injuries, provide first aid if trained. All injuries, even those considered minor, should be checked by a physician. For medical evaluation and treatment employees should report to MWorks.
- If the nature of the illness or injury allows, the supervisor will fax a completed Illness or Injury Report Form to the number on the form. This form may also be sent with the employee as authorization for treatment. If not completed and sent with the employee for treatment, the form will be completed and submitted as required by U-M policy. The Illness or Injury Report Form can be obtained at www.workconnections.umich.edu/forms.html.
- The receiving medical facility will be contacted and briefed on the potential exposure situation.

Decontamination Procedures

- Personnel responding to incidental spills shall decontaminate and/or properly dispose any equipment used in the cleanup process. All supplies and equipment used in the cleanup procedure must be replenished and such replenishment documented in the facility's operating record. All contaminated materials generated from a spill cleanup shall be properly packaged and given to HMM for disposal.
- For emergency response spill response, all suits, boots, and equipment used in the response shall be decontaminated prior to storage for reuse. If cleaning is not possible, the item shall be properly packaged and given to HMM for disposal. All supplies and equipment used in the cleanup procedure must be replenished.
- For high hazard emergency spill response, all suits, boots, and equipment used in the response shall be decontaminated prior to storage for reuse. If cleaning is not possible, the item shall be properly packaged and given to HMM for disposal. All supplies and equipment used in the cleanup procedure must be replenished.
- DPSS or an OSEH representative or their designee shall deem the site safe for re-entry.
- Upon termination of the incident, all barricade tape and posted signs shall be removed.
- All decontamination activities shall be conducted in a manner that protects human health and the environment and prevents the release of decontamination wastewaters and related wastes.

Communication

- Coordinate with the responding teams, as necessary, to provide an update on the situation such as actions taken to contain the problem, injuries, evacuation areas, mitigation, conclusion of response, etc.

A7.D.1 Immediate Notification Procedures for Facility Personnel and State and Local Agencies with Designated Response Roles [R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

The list of emergency contacts in Table A7.D.1 identifies local emergency response agencies, and state and federal authorities that must be notified in the event of an imminent or actual emergency situation requiring response. The emergency coordinator will be responsible for ensuring that all appropriate authorities are notified as necessary.

Table A7.D.1 Federal, State, and Local Response Contacts

Local

Van Buren Twp. Police and Fire Departments	Phone: 734-699-8930
Huron Valley Ambulance	Phone: 734-994-4111
St. Joseph Mercy Hospital ER	Phone: 734-712-3000

State

Michigan State Police—Brighton Post	Phone: 810-227-1051
Michigan State Police—Lansing	Phone: 517-241-8000
MDEQ OWMRP—Lansing	Phone: 517-284-6562
PEAS (MDEQ Pollution Emergency Alerting System)	Phone: 800-292-4706
Wayne County Homeland Security and Emergency Management	Phone: 734-728-3711

Decontamination Procedures

- Personnel responding to incidental spills shall decontaminate and/or properly dispose any equipment used in the cleanup process. All supplies and equipment used in the cleanup procedure must be replenished and such replenishment documented in the facility's operating record. All contaminated materials generated from a spill cleanup shall be properly packaged and given to HMM for disposal.
- For emergency response spill response, all suits, boots, and equipment used in the response shall be decontaminated prior to storage for reuse. If cleaning is not possible, the item shall be properly packaged and given to HMM for disposal. All supplies and equipment used in the cleanup procedure must be replenished.
- For high hazard emergency spill response, all suits, boots, and equipment used in the response shall be decontaminated prior to storage for reuse. If cleaning is not possible, the item shall be properly packaged and given to HMM for disposal. All supplies and equipment used in the cleanup procedure must be replenished.
- DPSS or an OSEH representative or their designee shall deem the site safe for re-entry.
- Upon termination of the incident, all barricade tape and posted signs shall be removed.
- All decontamination activities shall be conducted in a manner that protects human health and the environment and prevents the release of decontamination wastewaters and related wastes.

Communication

- Coordinate with the responding teams, as necessary, to provide an update on the situation such as actions taken to contain the problem, injuries, evacuation areas, mitigation, conclusion of response, etc.

A7.D.1 Immediate Notification Procedures for Facility Personnel and State and Local Agencies with Designated Response Roles [R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

The list of emergency contacts in Table A7.D.1 identifies local emergency response agencies, and state and federal authorities that must be notified in the event of an imminent or actual emergency situation requiring response. The emergency coordinator will be responsible for ensuring that all appropriate authorities are notified as necessary.

Table A7.D.1 Federal, State, and Local Response Contacts

Local

Van Buren Twp. Police and Fire Departments	Phone: 734-699-8930
Huron Valley Ambulance	Phone: 734-971-4420
St. Joseph Mercy Hospital ER	Phone: 734-712-3000

State

Michigan State Police—Brighton Post	Phone: 810-227-1051
Michigan State Police—Lansing	Phone: 517-241-8000
MDEQ OWMRP—Lansing	Phone: 517-284-6562
PEAS (MDEQ Pollution Emergency Alerting System)	Phone: 800-292-4706
Wayne County Homeland Security and Emergency Management	Phone: 734-728-3711

Federal

National Response Center

EPA Region 5—Chicago

Nuclear Regulatory Commission Region III—Lisle, IL

Phone: 800-424-8802

Phone: 312-886-3000

Phone: 800-522-3025

The U-M Ann Arbor Campus Emergency Procedures flip chart guide and site specific emergency numbers are posted by telephones and exits for ready accessibility in the event of an emergency. In addition to posted numbers, contact information for the emergency coordinators and all OSEH staff is provided to each OSEH staff member via a wallet size card. Each member of the OSEH on-call staff, including emergency coordinators, may be reached by pager or cell phone. One staff member is on-call 24 hours per day and can be reached by pager or cell phone and the emergency coordinator may call or page any additional OSEH staff member as necessary. U-M Department of Public Safety and Security may also contact the emergency coordinators or on-call staff in the event of an emergency.

A7.D.2 Procedures to Be Used for Identification of Releases

[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

Maps and room numbers are posted in the contingency plan and throughout the facility and are readily accessible by emergency coordinators to identify waste management unit locations. Hazardous waste accepted at the facility is assigned to specific waste management units based on characteristic and compatibility. While in storage, all containers are labeled with a unique identification number and a hazardous waste label identifying the waste codes. Each container is logged onto the operation's log, a mixed waste drum worksheet and the drum log. This information is stored in the office adjacent to the waste management units, and is remotely available on the U-M OSEH network. In the event of a spill, the emergency coordinator can use this reference information to identify the location, container ID, contents, characteristic, and amount. Each waste management unit is equipped with a sloped floor designed to contain any release and a spill will be readily visible upon inspection.

A7.D.3 Procedures to Be Used to Assess Potential Hazards to Human Health and the Environment

[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

The emergency coordinator will assess possible hazards, both direct and indirect, to human health or the environment that may result from the release, fire, or explosion. The assessment will consider the effects of any gases that may be generated, surface runoff from water or chemical reagents used to control fires, and any chemical or physical reactions with equipment or structures.

Potential hazards to human health and the environment shall be assessed by evaluation of a release based on the hazardous waste characteristics for each waste management unit. Evaluation of the hazardous and mixed waste assigned to a waste management unit shall include potential incompatibilities using the EPA chemical compatibility chart (see Attachment A7-8). Hazardous and mixed waste assigned to a waste management unit shall be compatible with the waste in waste management unit. Each waste management unit is designed as secondary containment to prevent the migration of a release outside of the waste management unit. All waste is stored in closed containers. All waste is stored within the enclosed facility. No surface runoff is expected.

The floors of the licensed area are sealed with the Stonkote HT4 system from Stonhard, a manufacturer of floor systems and high performance lining systems. The Stonkote HT4 system is a two-component, 100% solids, epoxy coating specifically formulated to provide outstanding protection from a wide range of chemicals while increasing abrasion resistance and cleanability.

Federal

National Response Center

Phone: 800-424-8802

EPA Region 5—Chicago

Phone: 312-353-2000

Nuclear Regulatory Commission Region III—Lisle, IL

Phone: 800-522-3025

The U-M Ann Arbor Campus Emergency Procedures flip chart guide and site specific emergency numbers are posted by telephones and exits for ready accessibility in the event of an emergency. In addition to posted numbers, contact information for the emergency coordinators and all OSEH staff is provided to each OSEH staff member via a wallet size card. Each member of the OSEH on-call staff, including emergency coordinators, may be reached by pager or cell phone. One staff member is on-call 24 hours per day and can be reached by pager or cell phone and the emergency coordinator may call or page any additional OSEH staff member as necessary. U-M Department of Public Safety and Security may also contact the emergency coordinators or on-call staff in the event of an emergency.

A7.D.2 Procedures to Be Used for Identification of Releases

[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

Maps and room numbers are posted in the contingency plan and throughout the facility and are readily accessible by emergency coordinators to identify waste management unit locations. Hazardous waste accepted at the facility is assigned to specific waste management units based on characteristic and compatibility. While in storage, all containers are labeled with a unique identification number and a hazardous waste label identifying the waste codes. Each container is logged onto the operation's log, a mixed waste drum worksheet and the drum log. This information is stored in the office adjacent to the waste management units, and is remotely available on the U-M OSEH network. In the event of a spill, the emergency coordinator can use this reference information to identify the location, container ID, contents, characteristic, and amount. Each waste management unit is equipped with a sloped floor designed to contain any release and a spill will be readily visible upon inspection.

A7.D.3 Procedures to Be Used to Assess Potential Hazards to Human Health and the Environment

[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

The emergency coordinator will assess possible hazards, both direct and indirect, to human health or the environment that may result from the release, fire, or explosion. The assessment will consider the effects of any gases that may be generated, surface runoff from water or chemical reagents used to control fires, and any chemical or physical reactions with equipment or structures.

Potential hazards to human health and the environment shall be assessed by evaluation of a release based on the hazardous waste characteristics for each waste management unit. Evaluation of the hazardous and mixed waste assigned to a waste management unit shall include potential incompatibilities using the EPA chemical compatibility chart (see Attachment A7-8). Hazardous and mixed waste assigned to a waste management unit shall be compatible with the waste in waste management unit. Each waste management unit is designed as secondary containment to prevent the migration of a release outside of the waste management unit. All waste is stored in closed containers. All waste is stored within the enclosed facility. No surface runoff is expected.

The floors of the licensed area are sealed with the Stonkote HT4 system from Stonhard, a manufacturer of floor systems and high performance lining systems. The Stonkote HT4 system is a two-component, 100% solids, epoxy coating specifically formulated to provide outstanding protection from a wide range of chemicals while increasing abrasion resistance and cleanability.

Waste management unit Room 117 is designed for storage of ignitable waste. Engineering controls in place include a grounding strip to ground waste containers to an outside earth-ground, intrinsically safe electrical fixtures and the west wall is an explosion relief panel.

A7.D.4 Procedures to Determine if Evacuation Is Necessary and Immediate Notification of Michigan Pollution Emergency Alerting System, and the National Response Center [R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

If the emergency coordinator's assessment indicates that evacuation of facility areas may be advisable, he will implement the evacuation plan for the facility. If the emergency coordinator's assessment indicates that evacuation of the surrounding local areas is also advisable, the appropriate local authorities will be immediately notified (see Table A7.D.1). The National Response Center will also be notified (see Table A7.D.1), and the following information will be provided:

1. Name and telephone number of the reporting individual
2. Name and address of the facility
3. Time and type of incident
4. Type and quantity of materials involved
5. Possible hazards to human health or the environment
6. Extent of injuries, if applicable

The facility's evacuation plan is described in Attachment A7-2. Evacuation routes are posted in the building. Site specific safety training shall include evacuation procedures and evacuation routes. Means of egress shall not be blocked. Two means of egress shall be maintained from each waste management unit.

Procedures for evacuation are based upon the type of hazard:

- For high hazard emergencies immediate evacuation is required. Call 911 from a phone located out of the immediate area of danger. Request assistance and instruct Van Buren Township Emergency Response to notify DPSS at 734-763-1131.
- For fire/explosion or fire-related emergencies, call 911, request additional support, and instruct Van Buren Township Emergency Response to notify DPSS at 734-763-1131; all building occupants shall be notified and shall evacuate the building.
- For emergency response or an incidental spill, personnel in the immediate area need to be notified of the situation and be ready to evacuate if the situation changes from an emergency response or incidental spill to a high hazard emergency or fire/explosion or fire-related emergency. Call OSEH at 734-763-4568, or (after hours) DPSS at 734-763-1131 from a phone located out of the immediate area of danger.

If the emergency coordinator determines that the area surrounding the facility should be evacuated, then the VBTFD will be notified.

When necessary, notification will be made to the National Response Center with the following information:

1. Name and telephone number of the reporting individual
2. Name, address, and site identification number of the facility
3. Time and type of incident
4. Type and quantity of materials involved

5. Possible hazards to human health or the environment
6. Extent of injuries, if applicable

A7.D.5 Procedures to Be Used to Ensure that Fires, Explosions, and Releases Do Not Occur, Reoccur, or Spread During the Emergency
[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56(e), 264.227, and 264.200]

Whenever there is an imminent or actual emergency situation where the potential or actual release of hazardous waste or hazardous waste constituents may threaten human health or the environment, the facility will implement the following procedures:

All hazardous and mixed waste is stored indoors in tightly closed containers. All waste is segregated by characteristic and stored in appropriate waste management units. All waste management units incorporate secondary containment in the design to control the migration of released waste to adjacent waste management units. Ignitable waste is stored in Room 117 which has engineering controls in place to minimize the likelihood of fire or explosion. Containers are opened only when necessary to add or remove waste and air monitoring is conducted during commingling activities.

The procedures outlined in Sections A2, Chemical and Physical Analyses, and A3, Waste Analysis Plan, are designed to ensure that waste is accurately profiled and that the handling of waste from collection to comingling within the facility occurs without incident.

During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions, or releases do not recur or spread to other areas of the facility, or off site. Actions that may be employed include:

Hazardous and mixed waste is stored in closed containers only. There are no processes or operations at the storage facility. The engineering controls in place in the ignitable storage room, Room 117, are designed to prevent the initiation and spread of fire or explosion. Each waste management unit is designed as secondary containment to control the migration of released waste to adjacent waste management units.

Attachment A7-3 is a detailed description of the type, amount, and location of all emergency equipment at the Beck Road Storage Facility.

A7.D.6 Procedures to Be Used to Monitor Equipment Should Facility Operations Cease
[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56(f)]

Hazardous and mixed waste is stored in closed containers. General facility equipment and structures will be monitored during normal operations and inspections. Container integrity will be evaluated during normal operations and inspections. Stoppage of facility operations will not affect the operation of the facility.

A7.D.7 Procedures to Provide Proper Treatment, Storage, and Disposal for Any Released Materials
[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56(g)]

The following is a summary of hazardous and mixed waste and LLRW that may be stored at the facility:

- Liquids and solids containing RCRA and Michigan Act 451 regulated constituents.

- Aqueous liquids and solids containing short-lived or long-lived radioisotopes which may be mixed with hazardous chemicals in small quantities.
- Aqueous liquids and solids containing hazardous chemicals that have been deregulated from NRC regulation by the natural decay process of radioisotopes.
- Aqueous liquids and solids containing naturally occurring uranium and thorium compounds.
- Solid LLRW and containing short-lived or long-lived radioisotopes.
- Lead bricks and leaded objects.
- Miscellaneous waste of short-lived or long-lived radioisotopes in test tubes, scintillation vials, ampoules, and contaminated metal objects.
- Sealed and plated sources, and stock vials.
- Air filters containing short-lived or long-lived radioisotopes.

Maps and room numbers are posted in the Contingency Plan and throughout the facility and are readily accessible by emergency coordinators to identify waste storage locations. Hazardous and mixed waste accepted at the facility is assigned to specific waste management units based on characteristic and compatibility. While in storage, all containers are labeled with a unique identification number and a hazardous waste label identifying the contents. Each container is logged onto the operation's log, a mixed waste drum worksheet and the drum log. This information is posted at each storage location and in the office adjacent to the waste management units. In the event of a spill, the emergency coordinator can use this reference information to identify the location, container ID, contents, characteristic, and amount. Each waste management unit is equipped with a sloped floor designed to contain any release and a spill will be readily visible upon inspection. Disposal of released material will be in accordance with the material's contents and characteristics.

A7.D.8 Procedures for Cleanup and Decontamination [R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56(h)]

The following activities are required following emergency response actions to ensure the capability is maintained and improved, if necessary, to respond to future emergencies. The actions are also necessary to maintain compliance with environmental regulations.

Clean-Up

Upon completion of the response actions, all recovered waste, contaminated soil or surface water (if applicable), debris, or other material resulting from releases, fire, or explosion at the facility will be removed from the site by the OSEH employees as designated by the emergency coordinator. All waste will be evaluated and profiled, as necessary, for proper disposal. Waste analysis will be consistent with the test methods indicated in Table A3.A.1, Waste Analysis Procedures. The waste will then be properly packaged, labeled, and either stored at the site, or collected directly at the site by a contracted waste hauler for disposal. No waste that may be incompatible with the released material will be handled at the facility until clean up is completed.

Upon return to the office, Hazmat personnel responding to the incident are required to fill out an Emergency Response Incident Report (Attachment A7-9) for documentation purposes. This form is maintained in the OSEH files. OSEH management reviews the form to determine if procedural improvements or modifications may be necessary.

Following the completion of the response actions, response equipment will be decontaminated for future use, if appropriate. If the equipment cannot be properly decontaminated, it will be disposed with the waste/debris disposal operation. Equipment that cannot be reused will be replaced before hazardous waste operations at the facility resume.

Personnel Exposure Concerns

For medical evaluation and treatment of minor injuries, employees should report to MWorks. For serious injuries, dial 911 and request medical assistance. Do not move an injured person unless they are in further danger from the situation. Persons with life threatening injuries should be transported to the St. Joseph Mercy Hospital Emergency Room. The receiving medical facility will be contacted and briefed on the potential exposure situation.

If the nature of the illness or injury allows, the supervisor will fax a completed Illness or Injury Report Form to the number on the form. This form may also be sent with the employee as authorization for treatment. If not completed and sent with the employee for treatment, the form will be completed and submitted as required by U-M policy. The Illness or Injury Report Form can be obtained at www.workconnections.umich.edu/forms.html.

Decontamination Procedures

- Personnel responding to incidental spills shall decontaminate and/or properly dispose any equipment used in the cleanup process. All supplies and equipment used in the cleanup procedure must be replenished. All contaminated materials generated from a spill cleanup shall be properly packaged and given to Hazmat personnel for disposal.
- For emergency response spill response, all suits, boots, and equipment used in the response shall be decontaminated prior to storage for reuse. If cleaning is not possible, the item shall be properly packaged and given to Hazmat personnel for disposal. All supplies and equipment used in the cleanup procedure must be replenished.
- For high hazard emergency spill response, all suits, boots, and equipment used in the response shall be decontaminated prior to storage for reuse. If cleaning is not possible, the item shall be properly packaged and given to Hazmat personnel for disposal. All supplies and equipment used in the cleanup procedure must be replenished.
- DPSS or an OSEH representative or their designee shall deem the site safe for re-entry.
- Upon termination of the incident, all barricade tape and posted signs shall be removed.

A7.E NOTIFICATION AND RECORD KEEPING REQUIREMENTS

[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56(l) and (j)]

The following subsections identify procedures that must be followed to meet the notification and record keeping requirements.

A7.E.1 Procedures to Be Used to Notify State and Federal Officials Prior to Commencement of Operations

[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

Before operations are resumed, an inspection of all emergency equipment will be conducted. The emergency coordinator must notify the EPA, MDEQ, and local authorities that post-emergency equipment maintenance has been performed and operations at the facility will be resumed.

Prior to resuming operations, the regional, state, and local authorities will be notified that no waste that may be incompatible with the released materials will be handled until cleanup is complete, and that all emergency equipment has been inspected for re-use.

Within 15 days after the incident, a report will be submitted by the U-M OSEH Director, or his designee,

to the Chief of the Waste and Hazardous Materials Division, as detailed in Section A7.E.2(b).

A7.E.2 Record Keeping Requirements
[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56(j)]

A7.E.2(a) Operating Record

In the event of an emergency situation that requires implementation of the Contingency Plan, the emergency coordinator will record in the facility's operating record the time, date, and description of the event. The operating record is maintained by Beck Road Storage Facility and can be found at the following location: 8501 Beck Road, Belleville, MI.

A7.E.2(b) Written Incident Report

Within 15 days of an incident requiring implementation of the Contingency Plan, the Beck Road Storage Facility will submit a written incident report to the EPA Regional Administrator and the Chief of the Waste and Hazardous Materials Division.

The report will contain the following information:

1. Name, address, site identification number, and telephone number of the facility, and the owner/operator.
2. Date, time, and type of incident.
3. Type and quantity of materials involved.
4. Assessment of actual or potential hazards to human health and the environment.
5. Extent of injuries, if applicable.
6. Estimated quantity and disposition of recovered materials that resulted from the incident.

A7.F PROCEDURES FOR REVIEWING AND AMENDING THE CONTINGENCY PLAN
[R 299.9607 and 40 CFR §264.54]


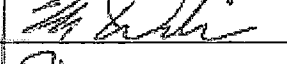
This contingency plan will be periodically reviewed and amended as appropriate. The frequency of the review will be determined as follows:

- A review will be completed on an annual basis to determine if changes to the facility, personnel, or operations require change and amendment of the plan.
- A review will be completed whenever the facility operating license is revised under Part 111 of the Natural Resource and Environmental Protection Act, 1994 PA 451 as amended.
- The Contingency Plan will be reviewed after implementation, and immediately amended if necessary, if the plan fails in an emergency.
- An amendment will be completed if the list of emergency coordinators changes.
- An amendment will be completed if the list of emergency response equipment changes.
- A review will be completed if changes occur to the facilities design, construction, operation, maintenance, or other circumstances - in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency.

Whenever the Contingency Plan is modified, the facility will provide the agencies with a copy of the modified plan.

Attachment A7-1
Documentation of Arrangements with Local Authorities

Acknowledgement of Receipt of
 BRSF Emergency Response Contingency Plan
 Revision Number 10.5

Name	Group	Signature	Date
Terrance Alexander	U-M OSEH		6/28/16
Michael L. Dressler	U-M OSEH		6/29/16
Steve O'Rielly	U-M OSEH	SL m. O'Rielly	6-28-16
Mark Driscoll	U-M RSS	Mark Driscoll	06/28/16
Eddie L. Washington, Jr	U-M DPSS	E. L. Washington	6/28/16
Stuart Berry	U-M OSEH	Stuart Berry	6-29-16
Jennifer Judge	U-M AEC	Stuart Berry	6-30-16
BRSF File	U-M NCTF	Stuart Berry	7-5-16
BRSF Office Copy	U-M BRSF	Stuart Berry	6-30-16

University of Michigan—Beck Road Storage Facility
Site ID No. MIR 000 001 834
Contingency Plan

Tracking Number	Date	Oz	Service	Charge	Name	Address	City	State	Zip Code
<u>1Z4572100350014230</u>	Jun-28-2016	7.5	UPS Ground	\$6.94	MR. LARRY BEAN	301 EAST LOUIS GLICK HIGHWAY MDEQ OWMRP - JACKSON DISTRICT OFFICE ENVIRONMENTAL MANAGER	JACKSON	MI	49201
<u>1Z4572100350014221</u>	Jun-28-2016	2.2	UPS Ground	\$6.94	MS. RONDA BLAYER	525 WEST ALLEGAN STREET HAZARDOUS WASTE - 4TH FL SOUTH MDEQ OWMRP	LANSING	MI	48933
<u>1Z4572100350014212</u>	Jun-28-2016	1.8	UPS Ground	\$6.94	MS. LINDA COMBS	46425 TYLER RD VAN BUREN TOWNSHIP SUPERVISOR	BELLEVILLE	MI	48111
<u>1Z4572100350014203</u>	Jun-28-2016	1.8	UPS Ground	\$6.94	MR. TIM SONNENBERG	301 EAST LOUIS GLICK HIGHWAY MDEQ OWMRP - JACKSON DISTRICT OFFICE ENVIRONMENTAL QUALITY ANALYST	JACKSON	MI	49201
<u>1Z4572100350014196</u>	Jun-28-2016	1.8	UPS Ground	\$6.94	CHIEF DANIEL BESSON	46425 TYLER ROAD VAN BUREN TOWNSHIP FIRE DEPARTMENT FIRE CHIEF	BELLEVILLE	MI	48111
<u>1Z4572100350014187</u>	Jun-28-2016	1.8	UPS Ground	\$6.94	MR. GREG LAURAIN	46425 TYLER ROAD VAN BUREN TOWNSHIP POLICE DEPARTMENT DIRECTOR OF PUBLIC SAFETY	BELLEVILLE	MI	48111
<u>1Z4572100350014178</u>	Jun-28-2016	1.8	UPS Ground	\$6.94	MR. ANDY SAVAGE	1270 GOLDSMITH STREET HURON VALLEY AMBULANCE VP OF EASTERN OPERATIONS	PLYMOUTH	MI	48170
<u>1Z4572100350014169</u>	Jun-28-2016	5.6	UPS Ground	\$6.94	MS. ELLEN TAYLOR	111 NORTH FIFTH AVENUE ANN ARBOR FIRE DEPARTMENT ASSISTANT FIRE CHIEF	ANN ARBOR	MI	48104
<u>1Z4572100350014150</u>	Jun-28-2016	5.6	UPS Ground	\$6.94	MR. ROGER SIMPSON	1200 STATE CIRCLE DRIVE HURON VALLEY AMBULANCE VP OF CENTRAL OPERATIONS	ANN ARBOR	MI	48108
<u>1Z4572100350014141</u>	Jun-28-2016	1.8	UPS Ground	\$6.94	MS. DENISE BECHARD	5301 EAST HURON RIVER DRIVE ST. JOSEPH MERCY HOSPITAL EMERGENCY MANAGEMENT COORDIANTOR	ANN ARBOR	MI	48106



Proof of Delivery

[Close Window](#)

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number:	1Z457Z100950014820
Service:	UPS Ground
Weight:	.50 lb
Shipped/Billed On:	06/20/2016
Delivered On:	06/20/2016 9:25 A.M.
Delivered To:	JACKSON, MI, US
Signed By:	WEAVER
Left At:	Front Desk

LARRY
BEAN

Thank you for giving us the opportunity to serve you.

Sincerely,

UPS

Tracking results provided by UPS: 07/01/2016 1:00 P.M. ET

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Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number: 1Z4673100355014221
Service: UPS Ground
Weight: .10 lb
Shipped/Blind On: 06/28/2016
Delivered On: 06/28/2016 9:18 A.M.
Delivered To: LANSING, MI, US
Signed By: JENN
Left At: Inside Delivery

RONDA
BLAYER

Thank you for giving us this opportunity to serve you.

Sincerely,

UPS

Tracking results provided by UPS: 07/01/2016 1:04 P.M. ET

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Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number:	1Z4572100359014212
Service:	UPS Ground
Weight:	.10 lb
Shipped/Billed On:	05/28/2016
Delivered On:	06/29/2016 2:37 P.M.
Delivered To:	BELLEVILLE, MI, US
Signed By:	SHERE
Left At:	Receiver

LINDA
COMBS

Thank you for giving us this opportunity to serve you.

Sincerely,

UPS

Tracking results provided by UPS: 07/01/2016 1:01 P.M. ET

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Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number:	124572100950014283
Service:	UPS Ground
Weight:	.10 lb
Shipped/Labelled On:	06/20/2016
Delivered On:	06/29/2016 9:25 A.M.
Delivered To:	JACKSON, MI, US
Signed By:	WEAVER
Left At:	Front Desk

TIM
SONNENBERG

Thank you for giving us this opportunity to serve you.

Sincerely,

UPS

Tracking results provided by UPS: 07/01/2016 1:02 P.M. ET

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Proof of Delivery

[Open Window](#)

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number:	124578100350014108
Service:	UPS Ground
Weight:	.10 lb
Shipped/Billed On:	06/26/2016
Delivered On:	06/28/2016 2:34 P.M.
Delivered To:	BELLEVILLE, MI, US
Signed By:	LONG
Left At:	Receiver

DANIEL
BESSON

Thank you for giving us this opportunity to serve you.

Sincerely,

UPS

Tracking results provided by UPS: 07/01/2016 1:02 P.M. ET

[Print This Page](#)

[Open Window](#)



Proof of Delivery

Class Window

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number: 1Z4572100350014167
Service: UPS Ground
Weight: 10 lb
Shipped/Billed On: 08/20/2016
Delivered On: 08/22/2016 2:34 P.M.
Delivered To: BELLEVILLE, MI, US
Signed By: LONG
Left At: Receiver

GREG
LAURAIN

Thank you for giving us the opportunity to serve you.

Sincerely,

UPS

Tracking results provided by UPS: 08/04/2016 1:03 P.M. ET

Edit This Page

Class Window



Proof of Delivery

[Close Window](#)

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number:	1Z4672100350014176
Service:	UPS Ground
Weight:	.10 lb
Shipped/Sorted On:	05/28/2016
Delivered On:	05/29/2016 11:40 A.M.
Delivered To:	PLYMOUTH, MI, US
Signed By:	SIBEL
Left At:	Inside Delivery

ANDY
SAVAGE

Thank you for giving us this opportunity to serve you.

Sincerely,

UPS

Tracking results provided by UPS: 07/01/2016 1:09 P.M. ET

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Proof of Delivery

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Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number:	1Z9572100350014141
Service:	UPS Ground
Weight:	10 lb
Shipped/Billed On:	06/28/2016
Delivered On:	06/29/2016 10:24 A.M.
Delivered To:	ANN ARBOR MI, US
Signed By:	EULIG
Left At:	Mail Room

DENISE
BECHARD

Thank you for giving us the opportunity to serve you.

Sincerely,

UPS

Tracking results provided by UPS: 07/01/2016 1:05 P.M. ET

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Proof of Delivery

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Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number:	1Z4572100300040868
Service:	UPS Ground
Weight:	.20 lb
Shipped/Billed On:	06/05/2015
Delivered On:	06/08/2015 2:11 P.M.
Delivered To:	BELLEVILLE, MI, US
Signed By:	HARRISON
Left At:	Office

GREG
LAURAIN

Thank you for giving us this opportunity to serve you.

Sincerely,

UPS

Tracking results provided by UPS: 06/12/2015 8:38 A.M. ET

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Attachment A7-2
Evacuation Plan and Evacuation Plan Maps

Attachment A7-2
Evacuation Plan and Evacuation Plan Maps

Evacuation Plan

Procedures for evacuation are based upon the type of hazard:

- For high hazard emergencies immediate evacuation is required. Call 911 from a phone located out of the immediate area of danger. Request assistance and instruct Van Buren Township Emergency Response to notify DPSS at 734-763-1131.
- For fire/explosion or fire-related emergencies, call 911, request additional support, and instruct Van Buren Township Emergency Response to notify DPSS at 734-763-1131; all building occupants shall be notified and shall evacuate the building.
- For emergency response or an incidental spill, personnel in the immediate area need to be notified of the situation and be ready to evacuate if the situation changes from an emergency response or incidental spill to a high hazard emergency or fire/explosion or fire-related emergency. Call OSEH at 734-763-4568, or (after hours) DPSS at 734-763-1131 from a phone located out of the immediate area of danger.
- The verbal signal will be *"evacuation required, proceed to the nearest unobstructed exit."*

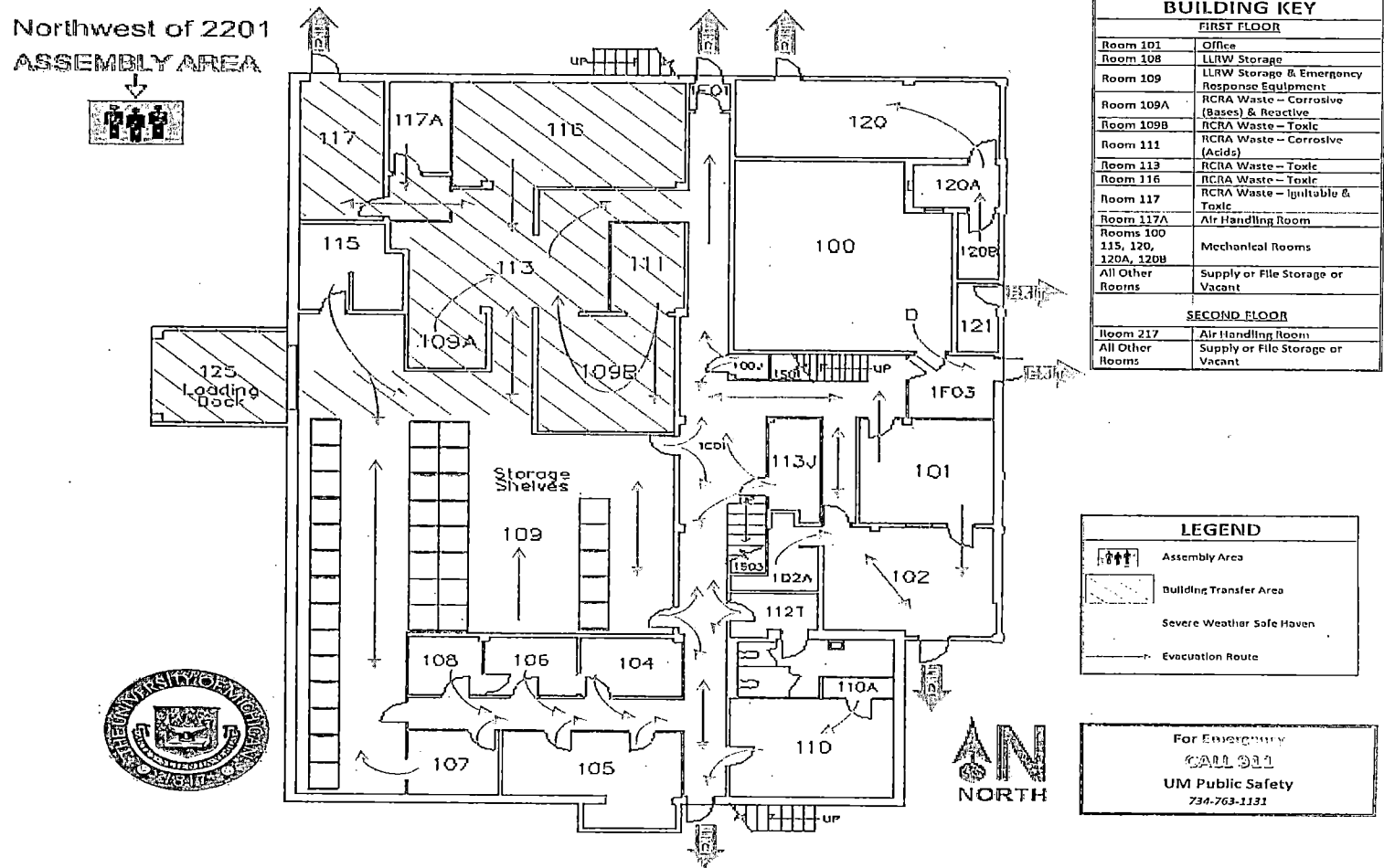
If the emergency coordinator determines that the area surrounding the facility should be evacuated, then the VBTFD will be notified.

When necessary, notification will be made to the National Response Center with the following information:

1. Name and telephone number of the reporting individual
2. Name and address of the facility
3. Time and type of incident
4. Type and quantity of materials involved
5. Possible hazards to human health or the environment
6. Extent of injuries, if applicable

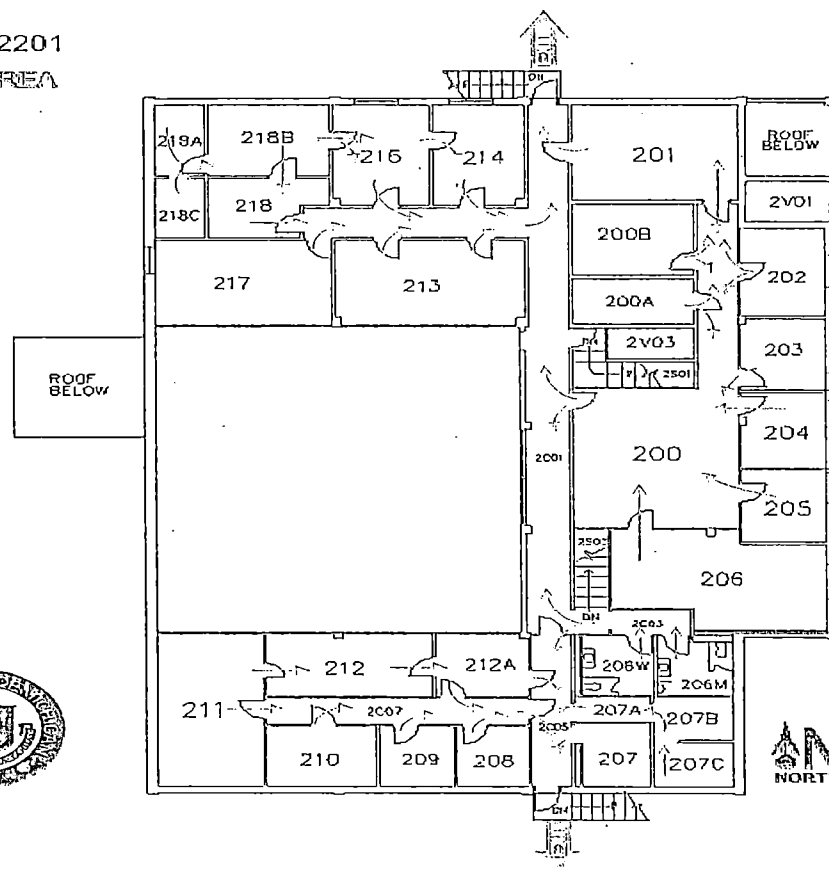
The facility's evacuation maps are included below. These are Figures 1 and 2 of the BRSF Contingency Plan. The evacuation maps are posted in the building. Site specific safety training shall include evacuation procedures and evacuation routes. Means of egress shall not be blocked. Two means of egress shall be maintained from each waste management unit.

**Figure 1 Beck Road Storage Facility
 Building Evacuation Plan - First Floor**
 MIR 000 001 834 - 8501 Beck Rd.
 Belleville, MI 48111
 734-763-4568



**Figure 2 Beck Road Storage Facility
 Building Evacuation Plan - Second Floor**
 MIR 000 001 834 - 8501 Beck Rd.
 Belleville, MI 48111
 734-763-4568

Northwest of 2201
 ASSEMBLY AREA



BUILDING KEY	
FIRST FLOOR	
Room 101	Office
Room 108	LLRW Storage
Room 109	LLRW Storage & Emergency Response Equipment
Room 109A	RCRA Waste - Corrosive (Bases) & Reactive
Room 109B	RCRA Waste - Toxic
Room 111	RCRA Waste - Corrosive (Acids)
Room 113	RCRA Waste - Toxic
Room 116	RCRA Waste - Toxic
Room 117	RCRA Waste - Ignitable & Toxic
Room 117A	Air Handling Room
Rooms 100, 115, 120, 120A, 120B	Mechanical Rooms
All Other Rooms	Supply or File Storage or Vacant
SECOND FLOOR	
Room 217	Air Handling Room
All Other Rooms	Supply or File Storage or Vacant

LEGEND	
	Assembly Area
	Evacuation Route

For Emergency
 CALL 911
 UM Public Safety
 734-763-1131



Attachment A7-3
Emergency Equipment Description



Attachment A7-3
Emergency Equipment Description

Figure 3
Beck Road Storage Facility
MIR 000 001 834
Emergency Equipment Description
Safety Supply Inventory

Date: ____/____/____ By ____

(Check if items are stocked)

Room 101

Documents	Purpose or Capability	Minimum Quantity	Quantity Needed
Contingency Plan	Response Protocols	1 Copy	
Phone Numbers	Contact Information	1 Copy	
Tools and Equipment	Purpose or Capability	Minimum Quantity	Quantity Needed
Flashlights	Portable Illumination	2 Triple D Cell	
Flashlight—Rechargeable	Portable Illumination	1	

Room 109

PPE	Purpose or Capability	Minimum Quantity	Quantity Needed
Personal Protection Equipment (PPE) Selection Guides	Personal Protection Equipment (PPE) Selection Guides	1 Copy Located in Safety Supply Cabinet	
North Air Purifying Respirator Cartridges	Respiratory Protection—See PPE Selection Guide	4 pair Organic Vapor/HEPA/Acid Gas	
North Air Purifying Respirator—1/2 face	Respiratory Protection—See PPE Selection Guide	2 Large 2 Medium 2 Small	Large _____ Medium _____ Small _____
North Air Purifying Respirator—Full Face	Respiratory Protection—See PPE Selection Guide	2 Med / Large 2 Small	Med / Large _____ Small _____
Nitrile Gloves, Heavy Duty	Hand Protection—See PPE Selection Guide	12 Pairs, Size 10 (13 inches)	
Nitrile Gloves, Single Use	Hand Protection—See PPE Selection Guide	2 Boxes XL 2 Boxes Lg	XL _____ Lg _____
Butyl Gloves	Hand Protection—See PPE Selection Guide	6 Pairs, Size 10 (17 mil)	
Silver Shield / 4H Gloves	Hand Protection—See PPE Selection Guide	6 Pairs, Large	
Leather Palm Gloves	Hand Protection	12 Pairs	
Shoe Covers (Booties)—Saranex / Polycoat	Splash Protection—See PPE Selection Guide	12 Pairs	
Shoe Covers (Booties)—Latex Response Boots	Splash Protection—See PPE Selection Guide	12 Pairs	
Coverall Protective Suits	Splash Protection—See PPE Selection Guide	2 CPF3, XXL 2 CPF3, XL 6 Proshield 2/NexGen, XXL 6 Proshield 2/NexGen, XL 6 Proshield 2/NexGen, Lg	XXL _____ XL _____ XXL _____ XL _____ Lg _____
Safety Goggles	Eye Splash Protection	6 Pairs	
Lab Coats	Splash Protection	6 Coats (sizes: 40 to 46)	
Spill Supplies	Purpose or Capability	Minimum Quantity	Quantity Needed
Plastic Shovel	Debris Collection	1	
Floor Squeegee	Liquid Movement	1	
Vermiculite	Liquid Absorption (5 gal/ft ³)	4 Bags (4 ft ³ each)	
Floor Dri	Oil Absorption (4 gal/bag)	4 Bags (40 pounds each)	
Solvent Adsorbent	Solvent Absorb (Up to 15 gal)	160 Pounds	
Acid Neutralizer	Neutralize Acids (Up to 30 gal)	300 Pounds	
Caustic Neutralizer	Neutralize Bases (Up to 4 gal)	50 Pounds	

Figure 3
Beck Road Storage Facility
MIR 000 001 834
Emergency Equipment Description
Safety Supply Inventory (Cont.)

Date: ____/____/____

Room 109 (Cont.)

Spill Supplies	Purpose or Capability	Minimum Quantity	Quantity Needed
Blue Pads	Liquid Absorption	6 Packets	
Paper Towels	Liquid Absorption	4 Packets	
Heavy Duty Wipes	Liquid Absorption	4 Packets	
Litmus (pH) Paper	pH Testing of Liquids	1 Roll (range 1 to 12)	
Radiation Safety Kit	Radioactive Clean Up	1	
Sorbent Booms P-200	Spill Containment (12 Gallons per Box of 12)	8 (3 inch x 4 feet)	
Sorbent Pillows P-300	Spill Containment (8 Gallons per Box of 16)	8 (7 x 15 inch)	
Broom	Debris Collection	1	
Dust Pan	Debris Collection	1	
Tools and Equipment	Purpose or Capability	Minimum Quantity	Quantity Needed
First Aid Kit	Minor Injuries up to 25 People	1 Johnson & Johnson Kit No. 8161	
Rotary Drum Pump	Liquid Transfer	1 (1 inch ID hose)	
Flashlight Batteries	Replacement Batteries	6 D Cell	
9 Volt Batteries	Replacement Batteries	2	
GM Meter	Radiation Detection	1 (uses 2 D cell batteries)	
Ion Chamber	Radiation Exposure Measurement	1 (uses 2 x 9 volt batteries)	
Drum Truck	Drum Movement	1	
Floor Mop with Wringer	Floor Cleaning	1	
Containers	Purpose or Capability	Minimum Quantity	Quantity Needed
Plastic Pails	Material Collection	12 x 5 gal, HDPE	
Plastic Bags	Material Collection	10 (4 mil, 38 x 72") (55 gal)	
Empty Drums	Material Collection	2 x 30 gal Poly Closed Head	
Empty Drums	Material Collection	2 x 55 gal Poly Closed Head	
Empty Drums	Material Collection	1 x 30 gal DM Closed Head	
Empty Drums	Material Collection	1 x 55 gal DM Closed Head	
Empty Drums	Material Collection	2 x 15 gal Poly Closed Head	
Empty Drums	Material Collection	2 x 30 gal Poly Open Head	
Empty Drums	Material Collection	2 x 55 gal Poly Open Head	
Empty Drums	Material Collection	2 x 30 gal DM Open Head	
Empty Drums	Material Collection	2 x 55 gal DM Open Head	
Bung Gaskets	Replacement Gaskets	20 x 2" 20 x 3/4"	2" 3/4"
Drum Lid Gaskets	Replacement Gaskets	8 (55 DM open head)	
4 Gallon Boxes	Material Collection	12 (holds 4 x 1 gallon each)	

Storage and Waste Areas

Tools and Equipment	Purpose or Capability	Minimum Quantity	Quantity Needed
Non-Sparking Bung Wrench	Open/Close Drum Bungs	1 Beryllium Copper	
Speed Wrench	Open/Close Drum Bolts	1 With 15/16 Inch Socket	
Organic Vapor Detector	Organic Vapor Detection	1 (From NCTF As Necessary)	

Figure 3
Beck Road Storage Facility
MIR 000 001 834
Emergency Equipment Description
Fire Extinguisher Monthly Inventory

Date: ____/____/____ By: ____

No.	Location	Type	Size	Seal	Gauge	Mount	Visible	Cylinder
1	Outside Room 218	ABC	5 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	2 nd Floor Hall Near Room 200	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Outside Room 207	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Outside Room 105	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Room 109 (S.E. Door)	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Outside Rooms 115/125	CO2	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Room 109B	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Room 113	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Outside Room 117	ABC	20 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	1 st Floor North Exit	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Room 120	CO2	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	Room 120	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Room 100	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Outside Room 101	ABC	10 Lbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

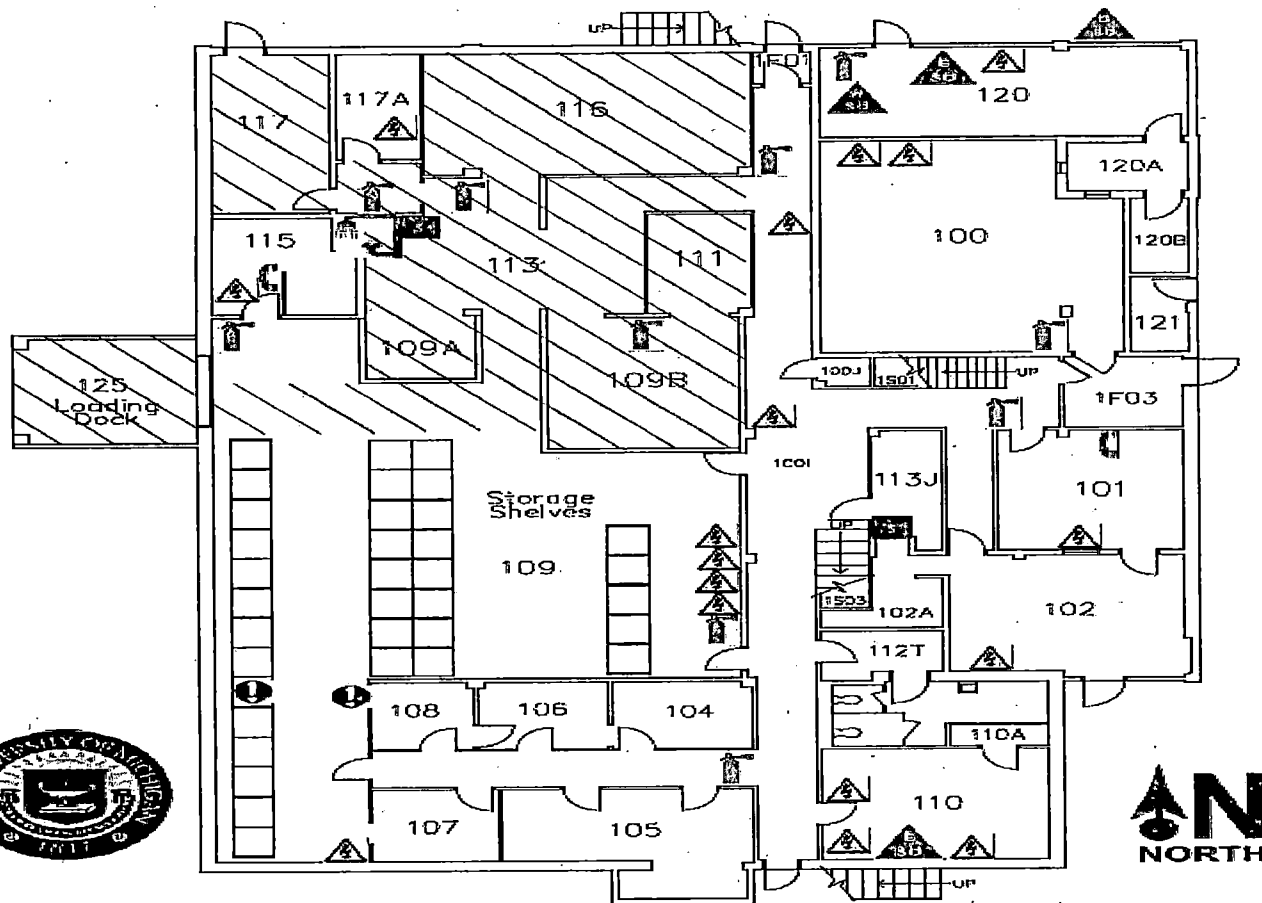
Comments:

A check mark (✓) indicates that the conditions observed are satisfactory. Unsatisfactory conditions are noted in the comments.

Attachment A7-4
Building Emergency Response Plan

**Figure 4 Beck Road Storage Facility
 Emergency Response Plan - First Floor**

**MIR 000 001 834 - 8501 Beck Rd.
 Belleville, MI 48111
 734-763-4568**



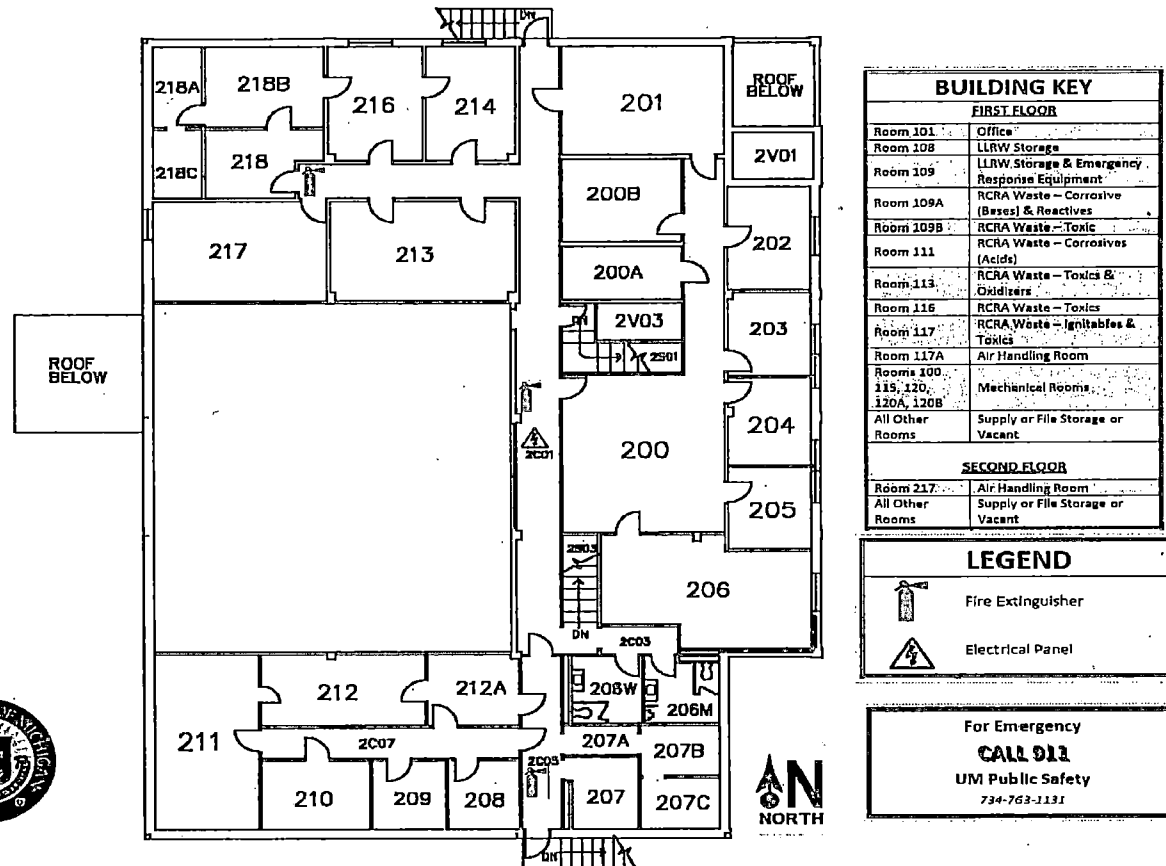
BUILDING KEY	
FIRST FLOOR	
Room 101	Office
Room 102	LRW Storage
Room 103	LRW Storage & Emergency Response Equipment
Room 104	RCRA Waste - Corrosive (Bases) & Reactive
Room 105	RCRA Waste - Toxic
Room 106	RCRA Waste - Corrosive (Acids)
Room 107	RCRA Waste - Toxic
Room 108	RCRA Waste - Toxic
Room 109	RCRA Waste - Ignitable & Toxic
Room 110	Air Handling Room
Room 111	Mechanical Rooms
Room 112	Mechanical Rooms
Room 113	Mechanical Rooms
Room 114	Mechanical Rooms
Room 115	Mechanical Rooms
Room 116	Mechanical Rooms
Room 117	Mechanical Rooms
Room 118	Mechanical Rooms
Room 119	Mechanical Rooms
Room 120	Mechanical Rooms
Room 121	Mechanical Rooms
Room 122	Mechanical Rooms
Room 123	Mechanical Rooms
Room 124	Mechanical Rooms
Room 125	Mechanical Rooms
Room 126	Mechanical Rooms
Room 127	Mechanical Rooms
Room 128	Mechanical Rooms
Room 129	Mechanical Rooms
Room 130	Mechanical Rooms
Room 131	Mechanical Rooms
Room 132	Mechanical Rooms
Room 133	Mechanical Rooms
Room 134	Mechanical Rooms
Room 135	Mechanical Rooms
Room 136	Mechanical Rooms
Room 137	Mechanical Rooms
Room 138	Mechanical Rooms
Room 139	Mechanical Rooms
Room 140	Mechanical Rooms
Room 141	Mechanical Rooms
Room 142	Mechanical Rooms
Room 143	Mechanical Rooms
Room 144	Mechanical Rooms
Room 145	Mechanical Rooms
Room 146	Mechanical Rooms
Room 147	Mechanical Rooms
Room 148	Mechanical Rooms
Room 149	Mechanical Rooms
Room 150	Mechanical Rooms
Room 151	Mechanical Rooms
Room 152	Mechanical Rooms
Room 153	Mechanical Rooms
Room 154	Mechanical Rooms
Room 155	Mechanical Rooms
Room 156	Mechanical Rooms
Room 157	Mechanical Rooms
Room 158	Mechanical Rooms
Room 159	Mechanical Rooms
Room 160	Mechanical Rooms
Room 161	Mechanical Rooms
Room 162	Mechanical Rooms
Room 163	Mechanical Rooms
Room 164	Mechanical Rooms
Room 165	Mechanical Rooms
Room 166	Mechanical Rooms
Room 167	Mechanical Rooms
Room 168	Mechanical Rooms
Room 169	Mechanical Rooms
Room 170	Mechanical Rooms
Room 171	Mechanical Rooms
Room 172	Mechanical Rooms
Room 173	Mechanical Rooms
Room 174	Mechanical Rooms
Room 175	Mechanical Rooms
Room 176	Mechanical Rooms
Room 177	Mechanical Rooms
Room 178	Mechanical Rooms
Room 179	Mechanical Rooms
Room 180	Mechanical Rooms
Room 181	Mechanical Rooms
Room 182	Mechanical Rooms
Room 183	Mechanical Rooms
Room 184	Mechanical Rooms
Room 185	Mechanical Rooms
Room 186	Mechanical Rooms
Room 187	Mechanical Rooms
Room 188	Mechanical Rooms
Room 189	Mechanical Rooms
Room 190	Mechanical Rooms
Room 191	Mechanical Rooms
Room 192	Mechanical Rooms
Room 193	Mechanical Rooms
Room 194	Mechanical Rooms
Room 195	Mechanical Rooms
Room 196	Mechanical Rooms
Room 197	Mechanical Rooms
Room 198	Mechanical Rooms
Room 199	Mechanical Rooms
Room 200	Mechanical Rooms

LEGEND	
	PPE & Spill Response Supplies
	Fire Extinguisher
	Phone
	Emergency Eyewash & Shower
	Sink
	Electrical Panel
	Electrical Shut Off
	Natural Gas Shut Off
	Water Shut Off
	Building Transfer Area

For Emergency
CALL 911
 UM Public Safety
 734-763-1121



**Figure 5 Beck Road Storage Facility
 Emergency Response Plan - Second Floor**
 MIR 000 001 834 - 8501 Beck Rd.
 Belleville, MI 48111
 734-763-4508



Attachment A7-5
Location of Waste Management Units

Attachment A7-6
Hazardous Wastes Accepted at the Facility

Table A2.A.2
Hazardous Wastes Accepted at the Facility

Note: Hazardous wastes with multiple hazardous waste characteristics will be assigned to a waste management unit based on the US DOT Precedence of Hazard Table, 49 CFR 173.2a (Attachment A7-7).

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
F002	Spent solvents generated by teaching, research and supporting operations	Toxicity	Listed waste; toxic waste hazard code	Rooms 109B, 113, or 116
F003	Spent solvents generated by teaching, research and supporting operations	Ignitability	Listed waste; ignitable waste hazard code	Room 117
F004	Spent solvents generated by teaching, research and supporting operations	Toxicity	Listed waste; toxic waste hazard code	Rooms 109B, 113, or 116
F005	Spent solvents generated by teaching, research and supporting operations	Ignitability, toxicity	Listed waste; ignitable and toxic waste hazard codes	Room 117
D001	Ignitables generated by teaching, research and supporting operations	Ignitability	Ignitable waste hazard code	Room 117
D001	Oxidizers generated by teaching, research and supporting operations	Ignitability	Ignitable waste hazard code	Room 113
D002	Corrosive acids generated by teaching, research and supporting operations	Corrosivity	Corrosive waste hazard code	Room 111

Table A2.A.2
Hazardous Wastes Accepted at the Facility (Continued)

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
D002	Corrosive bases generated by teaching, research and supporting operations	Corrosivity	Corrosive waste hazard code	Room 109A
D003	Reactives generated by teaching, research and supporting operations	Reactivity	Reactive waste hazard code	Room 109A
D004	Waste containing arsenic generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D005	Waste containing barium generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D006	Waste containing cadmium generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D007	Waste containing chromium generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D008	Waste containing lead generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D009	Waste containing mercury generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116

Table A2.A.2
Hazardous Wastes Accepted at the Facility (Continued)

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
D010	Waste containing selenium generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D011	Waste containing silver generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D018	Waste containing benzene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D019	Waste containing carbon tetrachloride generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D021	Waste containing chlorobenzene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D022	Waste containing chloroform generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D023	Waste containing o-cresol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D024	Waste containing m-cresol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116

Table A2.A.2
Hazardous Wastes Accepted at the Facility (Continued)

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
D025	Waste containing p-cresol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D026	Waste containing cresol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D027	Waste containing 1,4-dichlorobenzene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D028	Waste containing 1,2-dichloroethane generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D029	Waste containing 1,1-dichloroethylene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D030	Waste containing 2,4-dinitrotoluene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D032	Waste containing hexachlorobenzene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116

Table A2.A.2
Hazardous Wastes Accepted at the Facility (Continued)

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
D033	Waste containing hexachlorobutadiene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D034	Waste containing hexachloroethane generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D035	Waste containing methyl ethyl ketone generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D036	Waste containing nitrobenzene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D038	Waste containing pyridine generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D039	Waste containing tetrachloroethylene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116

**Table A2.A.2
 Hazardous Wastes Accepted at the Facility (Continued)**

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
D040	Waste containing trichloroethylene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D041	Waste containing 2,4,5-trichlorophenol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D042	Waste containing 2,4,6-trichlorophenol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D043	Waste containing vinyl chloride generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
U138	Waste containing methyl iodide generated by teaching, research and supporting operations	Toxicity	Listed waste; hazard code for toxic waste	Rooms 109B, 113, or 116
U151	Waste containing mercury generated by teaching, research and supporting operations	Toxicity	Listed waste; hazard code for toxic waste	Rooms 109B, 113, or 116

Attachment A7-7
U.S. DOT Precedence of Hazard Table
49 CFR 173.2a

Precedence of Hazard Table

§ 173.2a Classification of a material having more than one hazard.

(a) *Classification of a material having more than one hazard.* Except as provided in paragraph (c) of this section, a material not specifically listed in the §172.101 table that meets the definition of more than one hazard class or division as defined in this part, shall be classed according to the highest applicable hazard class of the following hazard classes, which are listed in descending order of hazard:

- (1) Class 7 (radioactive materials, other than limited quantities).
- (2) Division 2.3 (poisonous gases).
- (3) Division 2.1 (flammable gases).
- (4) Division 2.2 (nonflammable gases).
- (5) Division 6.1 (poisonous liquids), Packing Group I, poisonous-by-inhalation only.
- (6) A material that meets the definition of a pyrophoric material in §173.124(b)(1) of this subchapter (Division 4.2).
- (7) A material that meets the definition of a self-reactive material in §173.124(a)(2) of this subchapter (Division 4.1).
- (8) Class 3 (flammable liquids), Class 8 (corrosive materials), Division 4.1 (flammable solids), Division 4.2 (spontaneously combustible materials), Division 4.3 (dangerous when wet materials), Division 5.1 (oxidizers) or Division 6.1 (poisonous liquids or solids other than Packing Group I, poisonous-by-inhalation). The hazard class and packing group for a material meeting more than one of these hazards shall be determined using the precedence table in paragraph (b) of this section.
- (9) Combustible liquids.
- (10) Class 9 (miscellaneous hazardous materials).

(b) *Precedence of hazard table for Classes 3 and 8 and Divisions 4.1, 4.2, 4.3, 5.1 and 6.1.* The following table ranks those materials that meet the definition of Classes 3 and 8 and Divisions 4.1, 4.2, 4.3, 5.1 and 6.1:

Precedence of Hazard Table

[Hazard class or division and packing group]

	4.2	4.3	5.1 I ¹	5.1 II ¹	5.1 III ¹	6.1, I dermal	6.1, I oral	6.1 II	6.1 III	8, I liquid	8, I solid	8, II liquid	8, II solid	8, III liquid	8, III solid
3 I ²		4.3				3	3	3	3	3	(³)	3	(³)	3	(³)
3 II ²		4.3				3	3	3	3	8	(³)	3	(³)	3	(³)
3 III ²		4.3				6.1	6.1	6.1	3 ⁴	8	(³)	8	(³)	3	(³)
4.1 II ²	4.2	4.3	5.1	4.1	4.1	6.1	6.1	4.1	4.1	(³)	8	(³)	4.1	(³)	4.1
4.1 III ²	4.2	4.3	5.1	4.1	4.1	6.1	6.1	6.1	4.1	(³)	8	(³)	8	(³)	4.1
4.2 II		4.3	5.1	4.2	4.2	6.1	6.1	4.2	4.2	8	8	4.2	4.2	4.2	4.2
4.2 III		4.3	5.1	5.1	4.2	6.1	6.1	6.1	4.2	8	8	8	8	4.2	4.2
4.3 I			5.1	4.3	4.3	6.1	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
4.3 II			5.1	4.3	4.3	6.1	4.3	4.3	4.3	8	8	4.3	4.3	4.3	4.3
4.3 III			5.1	5.1	4.3	6.1	6.1	6.1	4.3	8	8	8	8	4.3	4.3
5.1 I ¹						5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
5.1 II ¹						6.1	5.1	5.1	5.1	8	8	5.1	5.1	5.1	5.1
5.1 III ¹						6.1	6.1	6.1	5.1	8	8	8	8	5.1	5.1
6.1 I, Dermal										8	6.1	6.1	6.1	6.1	6.1
6.1 I, Oral										8	6.1	6.1	6.1	6.1	6.1
6.1 II, Inhalation										8	6.1	6.1	6.1	6.1	6.1
6.1 II, Dermal										8	6.1	8	6.1	6.1	6.1
6.1 II, Oral										8	8	8	6.1	6.1	6.1
6.1 III										8	8	8	8	8	8

¹See §173.127.

²Materials of Division 4.1 other than self-reactive substances and solid desensitized explosives, and materials of Class 3 other than liquid desensitized explosives.

³Denotes an impossible combination.

⁴For pesticides only, where a material has the hazards of Class 3, Packing Group III, and Division 6.1, Packing Group III, the primary hazard is Division 6.1, Packing Group III.

Note 1: The most stringent packing group assigned to a hazard of the material takes precedence over other packing groups; for example, a material meeting Class 3 PG II and Division 6.1 PG I (oral toxicity) is classified as Class 3 PG I.

Note 2: A material which meets the definition of Class 8 and has an inhalation toxicity by dusts and mists which meets criteria for Packing Group I specified in §173.133(a)(1) must be classed as Division 6.1 if the oral or dermal toxicity meets criteria for Packing Group I or II. If the oral or dermal toxicity meets criteria for Packing Group III or less, the material must be classed as Class 8.

(c) The following materials are not subject to the provisions of paragraph (a) of this section because of their unique properties:

(1) A Class 1 (explosive) material that meets any other hazard class or division as defined in this part shall be assigned a division in Class 1. Class 1 materials shall be classed and approved in accordance with §173.56 of this part;

(2) A Division 5.2 (organic peroxide) material that meets the definition of any other hazard class or division as defined in this part, shall be classed as Division 5.2;

(3) A Division 6.2 (infectious substance) material that also meets the definition of another hazard class or division, other than Class 7, or that also is a limited quantity Class 7 material, shall be classed as Division 6.2;

(4) A material that meets the definition of a wetted explosive in §173.124(a)(1) of this subchapter (Division 4.1). Wetted explosives are either specifically listed in the §172.101 table or are approved by the Associate Administrator (see §173.124(a)(1) of this subchapter); and

(5) A limited quantity of a Class 7 (radioactive) material that meets the definition for more than one hazard class or division shall be classed in accordance with §173.423.

[Amdt. 173–224, 55 FR 52606, Dec. 21, 1990, as amended at 56 FR 66264, Dec. 20, 1991; Amdt. 173–241, 59 FR 67490, Dec. 29, 1994; Amdt. 173–247, 60 FR 48787, Sept. 20, 1995; Amdt. 173–244, 60 FR 50307, Sept. 28, 1995; 64 FR 10776, Mar. 5, 1999; 66 FR 33426, June 21, 2001; 66 FR 45182, 45379, Aug. 28, 2001; 68 FR 45032, July 31, 2003]

Attachment A7-8
U.S. EPA Chemical Compatibility Chart

Attachment A7-9
Emergency Response Incident Report

University of Michigan
Occupational Safety & Environmental Health
Campus Safety Services Building
1239 Kipke Drive, Ann Arbor, MI 48109-1010
Phone: 734 647-1143 • Fax: 734 763-1185

Terrence G. Alexander, Director

Emergency Response Incident Report for Spill, Odor or Smoke

Include the following in your report of the incident.

Date: _____

Time: _____

Location: _____

Material: _____

Quantity: _____

OSEH Responder: _____

Personal Injuries/Exposures:

Time Complete: _____

Response Actions (provide a detailed account of the response actions taken to the incident): _____

1

Age Group	Total	Male	Female	Male	Female
18-24	18.5%	19.2%	17.8%	18.1%	17.5%
25-34	22.1%	23.5%	20.7%	22.8%	21.4%
35-44	19.8%	20.3%	19.1%	19.6%	18.9%
45-54	15.2%	15.8%	14.6%	15.1%	14.3%
55-64	10.7%	11.2%	10.1%	10.6%	9.9%
65+	5.3%	5.6%	4.9%	5.2%	4.7%

Circumstance	Justified (%)	Not justified (%)
If someone is attacking you	85	15
If someone is threatening you	75	25
If someone is harassing you	65	35
If someone is insulting you	55	45
If someone is annoying you	15	85

Year	Percentage (Solid Line)	Percentage (Dashed Line)
1950	7%	7%
1960	8%	8%
1970	10%	10%
1980	12%	12%
1990	14%	14%
2000	16%	16%
2010	18%	17%
2020	19%	17%
2030	19%	17%
2040	19%	17%
2050	19%	17%

Attachment 6

Closure Plan

**FORM EQP 5111 ATTACHMENT TEMPLATE A11
CLOSURE AND POSTCLOSURE CARE PLANS**

This document is an attachment to the Michigan Department of Environmental Quality's *Instructions for Completing Form EQP 5111, Construction Permit and Operating License Applications, Hazardous Waste Treatment Storage and Disposal Facilities*. See Form EQP 5111 for details on how to use this attachment.

The administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, (Act 451), R 299.9613 and Title 40 of the Code of Federal Regulations (CFR), Part 264, Subpart G, establishes requirements for the closure and, if necessary, postclosure care of hazardous waste management facilities. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003. This license application template addresses requirements for the proper closure and, if necessary, postclosure care of the hazardous waste management units and the hazardous waste management facility for the Beck Road Storage Facility in Belleville, Michigan. The information provided in this template was used to prepare the closure and postclosure care cost estimate provided in Template A12, "Closure and Postclosure Care Cost Estimates."

Ensure that all samples collected for waste characterization and environmental monitoring during closure and postclosure care activities are collected, transported, analyzed, stored, and disposed by trained and qualified individuals in accordance with the QA/QC Plan. The QA/QC Plan should, at a minimum, include the written procedures outlined in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, Third Edition, Chapter 1 (November 1986), and its Updates.

This template is organized as follows:

- A11.A CLOSURE PLAN
 - A11.A.1 Closure Performance Standard
 - A11.A.2 Unit-Specific Information
 - Table A11.A.1 Hazardous Waste Management Unit Information
 - A11.A.3 Schedule of Final Facility Closure
 - Table A11.A.2 Estimated Schedule for Closure Activities
 - A11.A.4 Notification and Time Allowed for Closure
 - A11.A.4(a) Extensions for Closure Time
 - A11.A.5 Unit-Specific Closure Procedures
 - A11.A.5(a) Closure of Container Storage Areas
 - A11.A.6 Certification of Closure

- Attachment A11-1 Location of Waste Management Units
- Attachment A11-2 Waste Analysis Procedures
- Attachment A11-3 Quality Assurance Plan
- Attachment A11-4 Permitted Location of Drums

A11.A CLOSURE PLAN

A11.A.1 Closure Performance Standard [R 299.9613 and 40 CFR §264.111]

This Closure Plan is designed to ensure that the facility will be closed in a manner that achieves the following:

- a. Minimizes the need for further maintenance; and
- b. Controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, postclosure escape of hazardous wastes, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition byproducts to the groundwater, surface water, or atmosphere; and, as applicable
- c. Complies with the unit-specific closure requirements for each of the following units:

(Check as appropriate)

☒ Use and management of containers R 299.9614 and 40 CFR §264.178

A11.A.2 Unit-Specific Information [R 299.9613 and 40 CFR §§264.112(b)(3) and (6)]

Table A11.A.1 Hazardous Waste Management Units Information

The following table identifies each hazardous waste management unit at the Beck Road Storage Facility subject to the closure requirements of this hazardous waste management facility operating license. The table also includes: each unit's maximum licensed hazardous waste inventory, a list of the waste codes managed in the unit, the anticipated date of closure (if known), and the estimated duration of closure activities once closure begins. The permitted location of drums within each waste management unit is shown in Attachment A11-4, Permitted Location of Drums. Unit-specific methods for closure and detailed schedules are discussed in Section 11A.5 of this template.

The Beck Road Storage Facility is not expected to be closed before the permit expires. For the purpose of this closure plan, 2050 is estimated to be the year of closure.

Table A11.A.1 Hazardous Waste Management Units Information

Unit Designation	Maximum Inventory (Include Units)	Waste Codes of Hazardous Wastes Managed	Scheduled Closure Date	Estimated Duration of Closure
Room 109A RCRA Corrosive Base and Reactive	880 gallons	D002, D003	2050 (Estimated Date)	180 Days
Room 109B RCRA Toxic	2530 gallons	D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D041, D042, D043, F002, F004, U138, U151	2050 (Estimated Date)	180 Days
Room 111 RCRA Corrosive Acid	880 gallons	D002	2050 (Estimated Date)	180 Days
Room 113 RCRA Toxic and Oxidizer	2310 gallons	D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D041, D042, D043, F002, F004, U138, U151	2050 (Estimated Date)	180 Days
Room 116 RCRA Toxic	4730 gallons	D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D041, D042, D043, F002, F004, U138, U151	2050 (Estimated Date)	180 Days
Room 117 RCRA Ignitable and Toxic	1870 gallons	D001, F003, F005	2050 (Estimated Date)	180 Days

Note: Hazardous and mixed waste with multiple hazardous waste characteristics will be assigned to a waste management unit based on the US DOT Precedence of Hazard Table, 49 CFR 173.2a (See Attachment A7-7).

A11.A.3 Schedule of Final Facility Closure
 [R 299.9613 and 40 CFR §264.112(b)(6)]

The Beck Road Storage Facility is not expected to be closed before the permit expires. For the purpose of this closure plan, 2050 is estimated to be the year of closure. The estimated schedule for closure activities is described in Table A11.A.2 below.

Table A11.A.2 Estimated Schedule for Closure Activities

Closure Activity	Time Completed
Notification of intent to close facility	-60 days
Receipt of final volume of hazardous and mixed waste	-10 day
Begin closure activities	0 days
Conduct final drum inventory, inspect and repack drums (if needed); prepare waste manifest; prepare drums for shipment	0-15 days
Removal/disposal of final waste inventory	15-45 days
Collect samples	45-50 days
Sample analysis	50-70 days
Steam cleaning and decontamination of drum storage areas (if necessary)	70-80 days
Confirmatory sampling	80-85 days
Sample analysis	85-105 days
Additional steam cleaning (if necessary)	105-115 days
Confirmatory sampling and analysis	115-135 days
Accounting for all waste shipment manifests	170 days
Completion of closure and certification submittal by facility representatives and an independent registered Professional Engineer	180 days

A11.A.4 Notification and Time Allowed for Closure
 [R 299.9613 and 40 CFR §§264.112(d)(2) and 264.113(a) and (b)]

Final closure activities will be initiated within 90 days of receipt of the final volume of hazardous wastes and completed within 180 days of receipt of the final volume of waste. The tasks and estimated time required for closure shall follow the schedule specified in Section A11.A.3. The Director will be notified by Beck Road Storage Facility 60 days before final closure begins. Final closure will be certified by both Beck Road Storage Facility and an independent, qualified, registered professional engineer of the state of Michigan.

A11.A.4(a) Extensions for Closure Time
 [R 299.9613 and 40 CFR §264.113(a) and (b)]

In the event that an extension for closure of the facility or any unit is necessary, the Beck Road Storage Facility will request an extension in accordance with the requirements of 40 CFR §264.113(a).

No extension beyond the 180 days required under the regulations is anticipated for closure of the facility. If however, an extension would be necessary to properly close the facility, a petition would be sent to the MDEQ. The petition would detail requested amendments to the closure schedule listed in Section A11.A.3. This petition must, according to 40 CFR 264.113(a) and (b), demonstrate that the activities required for removal of waste will, of necessity, take longer than 90 days to complete; or

- The hazardous waste management unit or facility has the capacity to receive additional hazardous wastes, or has the capacity to receive non-hazardous wastes if the owner or operator complies with paragraphs 40 CFR 264.113 (d) and (e); and
- There is a reasonable likelihood that he or another person will recommence operation of the hazardous waste management unit or the facility within one year; and
- Closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and
- He has taken and will continue to take all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements.

The Chief of the Waste and Hazardous Materials Division may approve an extension to the closure period if the owner or operator complies with all applicable requirements for requesting a closure plan modification.

Any requests for a change in operating plans, facility design, or the approved closure plan will be submitted in writing to the MDEQ in a closure plan amendment and will be in compliance with state and federal regulations as outlined in this section.

A11.A.5 Unit-Specific Closure Procedures

Unit-specific closure procedures are provided for each unit identified in Section A11.A.2 of this template.

GUIDANCE/REFERENCES

- Part 201, Environmental Remediation, of Act 451. September 1996.
- Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW 846, Update III plus Variations. December 1996. EPA

A11.A.5(a) Closure of Container Storage Areas [R 299.9614 and 40 CFR §264.178]

This section describes the procedures for closure of Beck Road Storage Facility. The general closure requirement and specific closure procedures are discussed below.

A. General Closure Requirement

At closure, all hazardous waste and hazardous waste residues will be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues will be decontaminated or removed.

B. Specific Closure Procedures

Specific procedures for inventory management, unit inspection, decontamination, sampling and analysis, and additional waste management are discussed below.

1. Inventory and Remedial Waste Management Procedures

Upon formal notification to proceed with closure, no additional hazardous and mixed waste will be accepted at the facility. Furthermore, all hazardous and mixed waste remaining in the inventory will be profiled, packaged, manifested and transported, by contractual agreement, to an approved EPA and/or NRC licensed treatment, storage or disposal facility. Remediation wastes will be characterized for disposal and managed in accordance with Parts 111, 115 and 121 of Act 451 and their administrative rules, as appropriate. Sampling of remediation waste, as necessary, will be based on EPA SW-846 guidelines. After the final inventory has been removed, the facility will be inspected for non-waste items. These non-waste items will be removed and properly disposed.

2. Unit Inspection Procedures

A complete historical record of spills and/or releases at the facility will be reviewed to identify spills requiring decontamination and decommissioning and to locate areas where significant releases may have occurred. These historical records, together with the visual inspection of the empty waste management units, will determine whether the sampling plan needs to be modified. If a modification is required, a closure plan amendment will be submitted to MDEQ for review and approval.

3. Decontamination Procedures

The waste management units, including the loading/unloading area, are the structures to be decontaminated. The waste management units are Rooms 109A, 109B, 111, 113, 116 and 117, and the loading/unloading area, all of which are listed on Attachment A11-1, Location of Waste Management Units. All equipment coming into contact with hazardous and mixed waste will be decontaminated at closure or will be characterized, packaged, manifested and transported, by contractual agreement, to an approved EPA and/or NRC licensed treatment, storage or disposal facility.

After all stored hazardous and mixed waste has been removed from the waste management units, a comprehensive radiological survey will be performed. The comprehensive radiological survey will be conducted in each waste management unit, loading/unloading area, and at applicable areas where waste was transported from the loading/unloading area to the waste management units following applicable MDEQ, EPA, and NRC protocols. The survey will include the use of appropriate radiation survey meters, and swipes. Collected swipes will be analyzed using a sensitive and calibrated liquid scintillation counter. All identified radiological contamination will be decontaminated using detergents and water. Following decontamination activities, the former areas of contamination will be resurveyed to verify that the areas are at or below background levels. Decontamination activities will be repeated as necessary to reach background levels. Should the decontamination activities fail to adequately clean any

surface or equipment, the contaminated material will be segregated and removed for proper disposal.

During the radiological decontamination activities appropriate measures (collection, containment, berms, etc.) will be in place to prevent any associated liquids from migrating to subsurface soils or to surface waters. All wash water and rinsate liquids will be collected, characterized, and properly disposed.

Following the radiological survey and any radiological decontamination activities, any solid surfaces exhibiting chemical contamination (e.g., staining, discoloration, chemical odors) will be decontaminated. Trained personnel wearing appropriate personal protective equipment will wash each solid surface requiring decontamination. They will first wash the surface with water containing anionic surfactant, followed by high pressure triple rinsing. Washing will be repeated as necessary until there is no longer visual evidence of chemical contamination. Should the decontamination activities fail to adequately clean any surface or equipment the contaminated material will be segregated and removed for proper disposal.

During the chemical decontamination activities, appropriate measures (e.g., collection, containment, berms, etc.) will be in place to prevent any associated liquids from migrating to subsurface soils or to surface waters. All decontamination liquids will be recovered and collected in drums. Samples will be collected using a composite liquid waste sampler (COLIWASA), and will be analyzed for the chemicals of concern listed in Table A3.A.1, Waste Analysis Procedures (Attachment A11-2). Following characterization, all liquids will be properly disposed.

Expendable items used in the decontamination activities--such as mops, brooms, gloves, coveralls, and boots--will be placed in containers and properly disposed. Hand tools (e.g., shovels) and buckets will be washed and rinsed in containers during and following the procedures used to decontaminate the facility. All wastes generated in conjunction with the closure of BRSF will be characterized for disposal and managed in accordance with Parts 111, 115 and 121 of Act 451 and their administrative rules, as appropriate.

Decontamination procedures and sampling and analytical testing at the facility will be conducted by trained U-M personnel. If necessary, the services of non U-M trained personnel will be obtained at the time of closure notification using contractual procedures established by U-M. The U-M will specify procedures for decommissioning, decontamination, sampling, and testing, and will require the contractor(s) to provide all necessary equipment, training, and protective clothing to safely decontaminate, sample, and test the appropriate areas.

Once the decontamination process for the facility is completed, an independent registered Professional Engineer will visually inspect the Beck Road Storage Facility; review the analytical results; and, if all criteria described above are met, certify the Beck Road Storage Facility as closed.

4. Sampling and Analysis Procedures

If the inspection of the empty waste management units and loading/unloading area reveals no cracks in the floors or evidence of spills, then samples of the low areas on the floor surface will be taken at a frequency prescribed in MDEQ, EPA, and NRC guidance for closure of NRC-licensed facilities to confirm that the surfaces are free of any contamination above background levels. In areas where there are cracks in the floor or evidence of spills, additional swipe samples will be taken at each location to determine if the surface is contaminated. Sampling size will be determined by using a statistical formula as described in *Methods for Evaluating the Attainment of Cleanup Standards*, EPA 230/02-89-042, February 1989, and the *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) (NUREG-1575)* developed by four U.S. federal agencies: EPA, Nuclear Regulatory Commission, Department of Energy and Department of Defense. Prior to sampling, sampling locations will be submitted to MDEQ for approval in the form of a closure plan amendment.

If a spill or release had occurred, and there is a history or visual indication that the floor is in poor condition, tests will be performed on the subsurface. The concrete will be cored at spill areas where cracks or signs of deterioration exist, and subsurface soil samples will be collected using standard drilling techniques. At a minimum, soil samples will be collected directly beneath the concrete floor. Deeper samples may be collected depending on field indicators (e.g., staining, odors, photoionization detector readings). If any contaminated soil or groundwater is found, further sampling and analysis will be conducted to determine the lateral and vertical extent of contamination. Sampling locations and the number of samples will continue until a contamination profile can be constructed. If groundwater is encountered during soil sampling, or if the potential for groundwater contamination exists, it will be sampled and analyzed for chemicals of concern.

If subsurface sampling is required, a closure plan amendment will be submitted to the MDEQ for approval detailing the subsurface sampling plan, including standard field operating procedures, prior to the commencement of field work.

Subsurface investigative activities, including sample collection and preservation techniques, and laboratory requirements, will be conducted using procedures described in the *Quality Assurance Plan* (Attachment A11-3), and in a manner that meets MDEQ Part 201 requirements, including, at the time, current Part 201 guidance documents and operational memoranda.

All soil and groundwater laboratory analytical results will be compared to Part 201 cleanup criteria. Soil determined to be contaminated will be fully evaluated for proper treatment, disposal or implementation of site controls to minimize exposure to human health and the environment. This analysis will be conducted using a comprehensive analysis of future site usage and applicable state, including Part 201, and federal regulations.

As described above, analytical and sampling methods described in SW-846 will be used when available.

Hazardous and mixed waste stored at the facility is segregated by waste characteristic. The waste management units within the facility are separated by concrete walls and secondary containment berms that minimize the potential of cross-contamination from one unit to another as a result of a spill or leakage. Therefore, confirmatory samples collected within each waste management unit will be analyzed only for the hazardous waste constituents waste stored in that unit. Samples from the loading/unloading area will be analyzed for all hazardous waste constituents in Attachment A11-2. Attachment A11-2 indicates the hazardous waste constituents that the samples will be analyzed for in each unit. See Attachment A11-2 for analytical methods and reference levels.

5. Additional Waste Management Procedures

Decontamination wastes and materials will be analyzed by the methods outlined in item Number 4 above, Sampling and Analysis Procedures. All wastes generated in conjunction with the closure of this facility will be characterized, classified, and managed in accordance with Parts 111, 115, and 121 of Act 451 and their administrative rules, as appropriate.

A11.A.6 Certification of Closure [R 299.9613]

Within 60 days of completion of closure Beck Road Storage Facility will submit to the Chief of the Waste and Hazardous Materials Division, by registered mail, a certification that the hazardous waste management unit or facility, as applicable, has been closed in accordance with the specifications in the approved closure plan. The certification will be signed by the Beck Road Storage Facility and signed and sealed by an independent registered professional engineer. Documentation supporting the independent registered engineer's certification will be furnished to the Chief of the Waste and Hazardous Materials Division in accordance with R 299.9613(3), including:

1. The results of all sampling and analysis;
2. Sampling and analysis procedures;
3. A map showing the location where samples were obtained;
4. Any statistical evaluations of sampling data;
5. A summary of waste types and quantities removed from the site and the destination of these wastes; and
6. If soil has been excavated, the final depth and elevation of the excavation and a description of the fill material used.

The certification must be worded as follows:

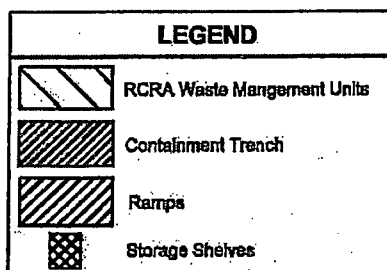
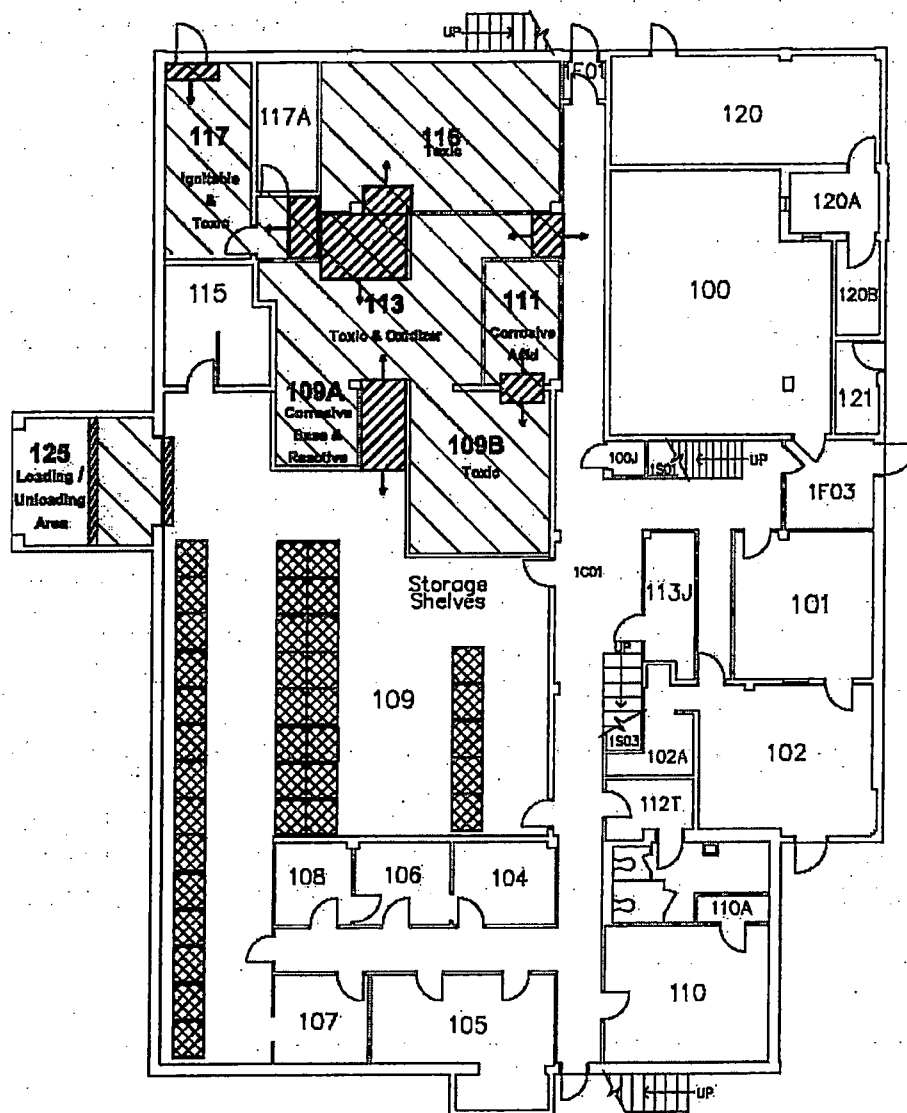
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage 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 fine and imprisonment for knowing violations.

A11.B POSTCLOSURE PLAN
[R 299.9613 and 40 CFR, Section 264.118]

This section does not apply.

Attachment A11-1
Location of Waste Management Units

Beck Road Storage Facility



Scale
 1" = 14'

Attachment A11-2
Waste Analysis Procedures

Waste Analysis Procedures

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
<input checked="" type="checkbox"/> Waste Code						
Ignitability EPA HW No. D001	Characteristic Hazardous Waste	Generator Knowledge; SW-846 1020 (liquids); SW- 846 1030 (solids)	40 CFR 261.21	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Corrosivity EPA HW No. D002	Characteristic Hazardous Waste	Generator Knowledge; Hydron Paper; SW- 846 1110A	Regulated Level: ≤ 2 or ≥ 12.5	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Reactivity EPA HW No. D003	Characteristic Hazardous Waste	Generator Knowledge; SW-846 9010	40 CFR 261.23	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Arsenic EPA HW No. D004	Characteristic Hazardous Waste	Generator Knowledge; SW-846 6020	Regulated Level: 5.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Barium EPA HW No. D005	Characteristic Hazardous Waste	Generator Knowledge; SW-846 6020	Regulated Level: 100.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Toxicity—Cadmium EPA HW No. D006	Characteristic Hazardous Waste	Generator Knowledge; SW-846 6020	Regulated Level: 1.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Chromium EPA HW No. D007	Characteristic Hazardous Waste	Generator Knowledge; SW-846 6020	Regulated Level: 5.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Lead EPA HW No. D008	Characteristic Hazardous Waste	Generator Knowledge; SW-846 6020	Regulated Level: 5.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Mercury EPA HW No. D009	Characteristic Hazardous Waste	Generator Knowledge; SW-846 7471	Regulated Level: 0.2 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Selenium EPA HW No. D010	Characteristic Hazardous Waste	Generator Knowledge; SW-846 6020	Regulated Level: 1.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Silver EPA HW No. D011	Characteristic Hazardous Waste	Generator Knowledge; SW-846 6020	Regulated Level: 5.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Benzene EPA HW No. D018	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 0.5 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Carbon Tetrachloride EPA HW No. D019	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 0.5 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Toxicity—Chlorobenzene EPA HW No. D021	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 100.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Chloroform EPA HW No. D022	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 6.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—o-Cresol EPA HW No. D023	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 200.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—m-Cresol EPA HW No. D024	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 200.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—p-Cresol EPA HW No. D025	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 200.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Cresol EPA HW No. D026	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 200.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— 1,4-Dichlorobenzene EPA HW No. D027	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 7.5 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Toxicity— 1,2-Dichloroethane EPA HW No. D028	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 0.5 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— 1,1-Dichloroethylene EPA HW No. D029	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 0.7 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— 2,4-Dinitrotoluene EPA HW No. D030	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 0.13 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Hexachlorobenzene EPA HW No. D032	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 0.13 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Hexachlorobutadiene EPA HW No. D033	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 0.5 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Hexachloroethane EPA HW No. D034	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 3.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Methyl Ethyl Ketone EPA HW No. D035	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 200.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Toxicity—Nitrobenzene EPA HW No. D036	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 2.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Pyridine EPA HW No. D038	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 5.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Tetrachloroethylene EPA HW No. D039	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 0.7 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Trichloroethylene EPA HW No. D040	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 0.5 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—2,4,5-Trichlorophenol EPA HW No. D041	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 400.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—2,4,6-Trichlorophenol EPA HW No. D042	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8270D	Regulated Level: 2.0 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Vinyl Chloride EPA HW No. D043	Characteristic Hazardous Waste	Generator Knowledge; SW-846 8260C	Regulated Level: 0.2 mg/L	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Toxicity—Chlorobenzene EPA HW No. F002 (See D021)	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Methylene Chloride EPA HW No. F002	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Ortho-Dichlorobenzene EPA HW No. F002	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Tetrachloroethylene EPA HW No. F002 (See D039)	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Trichloroethylene EPA HW No. F002 (See D040)	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— 1,1,1-Trichloroethane EPA HW No. F002	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Toxicity— 1,1,2-Trichloro-1,2,2-Trifluoroethane EPA HW No. F002	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Trichlorofluoromethane EPA HW No. F002	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— 1,1,2-Trichloroethane EPA HW No. F002	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability— Acetone EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability— Cyclohexanone EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability— Ethyl Acetate EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Ignitability— Ethyl Benzene EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability— Ethyl Ether EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability— Methanol EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C & 8015C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability— Methyl Isobutyl Ketone EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability— n-Butyl Alcohol EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C & 8015C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability— Xylene EPA HW No. F003	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Toxicity— Cresols and Cresylic Acid EPA HW No. F004 (See D026)	Listed Hazardous Waste	Generator Knowledge; SW-846 8270D	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity— Nitrobenzene EPA HW No. F004 (See D036)	Listed Hazardous Waste	Generator Knowledge; SW-846 8270D	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Benzene EPA HW No. F005 (See D018)	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability, Toxicity— Carbon Disulfide EPA HW No. F005	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability, Toxicity— 2-Ethoxyethanol EPA HW No. F005	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C & 8015C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability, Toxicity— Isobutanol EPA HW No. F005	Listed Hazardous Waste	Generator Knowledge; SW-846 8015D	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
Ignitability, Toxicity— Methyl Ethyl Ketone EPA HW No. F005 (See D035)	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability, Toxicity— 2-Nitropropane EPA HW No. F005	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability, Toxicity— Pyridine EPA HW No. F005 (See D038)	Listed Hazardous Waste	Generator Knowledge; SW-846 8270D	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Ignitability, Toxicity— Toluene EPA HW No. F005	Listed Hazardous Waste	Generator Knowledge; SW-846 8260A	Spent Solvent per 40 CFR 261.31(a)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Methyl Iodide EPA HW No. U138	Listed Hazardous Waste	Generator Knowledge; SW-846 8260C	Listed per 40 CFR 261.31(f)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
Toxicity—Mercury EPA HW No. U151	Listed Hazardous Waste	Generator Knowledge; SW-846 7471	Listed per 40 CFR 261.31(f)	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination

Waste Analysis Procedures (Continued)

Screening Parameter (Check as appropriate)	Rationale for Parameter	Test Method	Reference	Specified in R 299.9216 (Y/N)	Frequency	Rationale for Frequency
<input checked="" type="checkbox"/> Free Liquids	Determine if Waste Contains Free Liquids	Generator Knowledge; Paint Filter Liquids Test: SW-846 9095B	Liquid or Solid	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile to Comply with Hazardous Waste Determination
<input checked="" type="checkbox"/> Compatibility	Occupational and Process Safety; Waste and Container Compatibility	EPA Chemical Compatibility Chart	40 CFR 264.17	NA	Verified at Time of Collection	Occupational and Process Safety; Waste and Container Compatibility
<input checked="" type="checkbox"/> Land Disposal Restrictions	40 CFR 268	40 CFR 268	40 CFR 268	NA	Verified at Time of Collection	Required by Regulation
<input type="checkbox"/> Volatile Organic Compound Content ¹				<input type="checkbox"/>		
<input checked="" type="checkbox"/> Radioactivity	Check for Radioactive Materials	Generator Knowledge; Scintillation Counting; Survey Meter	10 CFR 20.1003	Yes	Verified at Time of Collection	Generator Knowledge Provided by Waste Profile
<input type="checkbox"/> Other: [describe]				<input type="checkbox"/>		

¹ According to R 299.9630 and 40 CFR §264.1034(d), TSDFs must identify and meet specific technical requirements for all process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air/stream stripping processes that manage wastes with a 1 part per million by weight (ppmw) or greater total organics concentration on a time-weighted annual average basis. Total organic concentrations in the waste can be measured using SW-846 Method 8260B. According to R 299.9631 and 40 CFR §264.1050, TSDFs must also determine if its equipment contains or contacts organic wastes with 10 percent or greater total organic content. The total organic content can be determined using (1) American Society of Testing and Materials Methods D2267-88, E169-87, or E260-85, (2) SW-846 Method 8260B, or (3) knowledge of the nature of the wastes stream or the waste generating process.

Attachment A11-3
Quality Assurance Plan

Section 1 QUALITY ASSURANCE OBJECTIVES

Data Quality Objectives (DQOs) will be established for each major sample collection effort. DQOs are the quantitative and qualitative descriptions of the data required to support an environmental decision or action. As target values for data quality, they are not necessarily criteria for acceptance or rejection of data. The data user develops DQOs for a specific purpose. The DQO development process involves three stages—including (1) defining the question or decision to be made, (2) clarifying and precisely identifying the information required, and (3) designing a data collection program.

The DQOs for sample collection and analysis at the Beck Road Storage Facility are:

1. To document that hazardous waste and hazardous waste constituents have not been released from the storage facility
2. To document that hazardous waste and hazardous waste constituents are not present in quantities of concern in the soil beneath the facility

The following parameters are indicators of data quality: accuracy, precision, completeness, representativeness, and comparability. Quantitative goals for the data quality indicator parameters are discussed in detail in Section 5 (see Table 5-1). These parameters will be determined by quality control measures taken in the field and in the laboratory. Field activities will be assessed by blanks and replicates and laboratory activities will be subject to compliance screening. Frequencies of quality control measures are discussed in detail in Section 8 (see Table 8-1).

ACCURACY AND PRECISION

Accuracy is a measure of the agreement between an experimental result and the true value of the parameter. Analytical accuracy can be determined using known reference materials or matrix spikes. Spiking of reference materials into the actual sample matrix is the preferred technique because it quantifies the effects of the matrix on the analytical accuracy. Accuracy can be expressed as the percent recovery (P) as determined by the following equation:

$$P = \frac{SSR - SR}{SA} \times 100$$

where: SSR = spiked sample result
SR = sample result (native)
SA = spike added

Precision is the measure of the agreement or repeatability of a set of replicate results obtained from repeat determinations made under the same conditions. The precision of a duplicate determination can be expressed as the relative percent difference (RPD), which is determined by the following equation:

$$RPD = \frac{|X_1 - X_2|}{X_1 + X_2} \times 200$$

where: X_1 = first duplicate value
 X_2 = second duplicate value

For a given laboratory analysis, the replicate RPD values are tabulated and the mean and standard deviation of the RPD are calculated. Control limits for precision are usually plus or minus two standard deviations from the mean.

Accuracy and precision will be monitored by using field replicate, matrix spike, and matrix spike duplicate samples. These data alone cannot be used to evaluate accuracy and precision of individual samples but will be used to assess the long-term accuracy and precision of the analytical method.

COMPLETENESS

Completeness is defined as the percentage of analytical measurements made that are judged to be valid with validity being defined by the DQOs. Percent completeness is calculated as the number of valid analyses divided by the total number of analyses performed multiplied by 100. Nationwide, the Contract Laboratory Programs data have been found to be 80 to 85 percent complete.

REPRESENTATIVENESS

Representativeness expresses the degree to which sample data accurately and precisely represent parameter variations at a sampling point. Representativeness is a measure of how closely the measured results reflect the actual distribution and concentration of certain chemical compounds in the medium sampled. Section 2 describes the procedures to be used to collect samples. This process will generate samples that are as representative as possible. Documentation of laboratory and field procedures will be used to establish that protocols have been followed and that sample identification and integrity have been maintained.

COMPARABILITY

Comparability is the term that describes the confidence with which one data set can be compared to another. Comparability refers to such issues as using standard field and analytical techniques and reporting data in the same units. This criterion becomes important if more than one field team is collecting samples or more than one laboratory is analyzing the samples.

Section 2

SAMPLE HANDLING

A required part of any sampling and analytical program is the integrity of the sample, from sample collection to data reporting. This includes the ability to trace the possession and handling of samples from the time of collection, through analysis and final disposition. The essential components of this chain are summarized below.

SAMPLE CUSTODY

The field sampling personnel are responsible for the care and custody of samples until they are delivered (or shipped) to the laboratory custodian.

The sample custody procedures to be used for this program conform to the guidelines established in SW-846, Section 2. The sampling coordinator will be responsible for implementing and maintaining sample custody in the field.

Laboratory sample custody procedures will be implemented and maintained by sample custodians at the receiving laboratories. Copies of all field and laboratory custody records will be returned to the central project file.

FIELD CHAIN OF CUSTODY

Before collecting field samples, the sampling coordinator will issue containers with labels attached to field samplers. Field samplers will label each sample collected, filling in the appropriate information in waterproof ink. The cap of each container will be sealed with a tape bearing the sample number. The field sampler will be responsible for collecting the samples and for logging the samples into assigned field notebooks until they are transferred to the sampling coordinator. The sampling coordinator will acknowledge receipt of the samples from the field sampler in writing and verify that chain-of-custody procedures have been followed. The sampling coordinator will then transcribe the field sample information to the chain-of-custody

record in duplicate. One copy will be retained by the sampling coordinator, and the other will accompany the samples during shipment.

TRANSFER OF SAMPLES

The sample will be clearly labelled with sample identification number, analysis required, media, date and time of sampling, and sampling initials. The person receiving the samples will sign, date, and note the time of sample receipt on the documentation form. Each sample shipment will be accompanied by documentation, which identifies the contents of the shipment.

LABORATORY SAMPLE HANDLING

A custodian at the laboratory will verify that the containers are intact and that the documentation accompanying the samples matches the actual contents. Any anomalies, such as broken bottles, elevated temperatures, and missing labels, will also be documented by the laboratory custodian. The laboratory will retain sample identification tags, data sheets, original instrument output records, and logbooks, as part of the final file.

SAMPLE DISPOSAL

The samples will be disposed of at a licensed hazardous waste facility in accordance with RCRA regulations after the analyses have been completed.

DATA DOCUMENTATION BY THE LABORATORY

All data will be documented to meet the specific requirements for data submitted for analyses as described in Section 3.

FINAL FILE

The final file will contain raw laboratory data in addition to sample transfer documentation summaries of quality control checks and analytical results.

Section 3

ANALYTICAL PROCEDURES

Samples collected during the investigation will be analyzed at the selected laboratory, using analytical methods selected from SW-846, Test Methods for Evaluating Solid Waste, Third Edition, December 1986, as amended.

SAMPLE MATRICES

Soil samples will be analyzed for the parameters stored at the facility. The following analyses will be performed as described below.

VOLATILE ORGANIC COMPOUNDS

Samples will be analyzed for volatile organic compounds by the analytical methods indicated in Table A3.A.1, Waste Analysis Procedures (Attachment A11-1).

SEMI-VOLATILE ORGANIC COMPOUNDS

Samples will be analyzed for semi-volatile organic compounds by the analytical methods indicated in Table A3.A.1, Waste Analysis Procedures, (Attachment A11-1).

METALS

Samples will be analyzed for metals by the analytical methods and extraction procedure indicated in Table A3.A.1, Waste Analysis Procedures, (Attachment A11-1).

METHOD SUBSTITUTION

The analytical plan will be reviewed before closure to assess the continued applicability and appropriateness of the listed methods to satisfy the objectives of the closure plan.

Section 4

DATA REDUCTION, VALIDATION, AND REPORTING

Data reduction, validation, and reporting are steps in the overall management and use of analytical data.

DATA REDUCTION

Data reduction is the review, manipulation, and calculations performed to translate the raw laboratory output to the final reported concentrations. All data reduction will be performed in the laboratory. The laboratory will retain copies of all laboratory worksheets, laboratory notebooks, calculation worksheets, standards records, maintenance records, calibration records, and associated quality control records. These sources will be available for inspection and audit and to assess the quality of the analytical data.

DATA VALIDATION

Data validation is the review of laboratory analytical data to assess the quality of the data and to evaluate if it can be used to meet the project objectives. The data validation will be performed by a qualified reviewer who is not directly involved in laboratory operations nor in performing the analyses.

The reviewer will assess sample-specific analytical data, associated field and laboratory QA/QC data, and the raw laboratory data to evaluate the performance of the laboratory as compared to the requirements of the laboratory analytical method, the laboratory QA/QC procedures, and the QA/QC requirements of this guidelines document.

The reviewer will evaluate instrument calibration and performance, compliance with required holding times, analyte identification and quantitation, and the possible presence of contamination in the samples on the basis of the analysis of field and laboratory blanks. The accuracy of the analysis will be determined by assessing recoveries of surrogate compounds and analyzing spiked samples. The precision of the analysis will be determined by analyzing

duplicate samples. Matrix spike and matrix spike duplicate analyses will also be evaluated to assess whether there are qualities of the sample matrix that may lower the quality of the analytical results.

The actual performance of the laboratory will be compared to the performance criteria of the analytical method and the Quality Assurance Project Plan (QAPP). The reviewer will note any deficiencies and, where possible, assess the effect of the deficiencies on the quality of the data. The reviewed data will then be compared to the DQOs and the project-specific requirements to determine if it is usable to support project decisions. Data may be found to be acceptable for use, acceptable for use with qualifications or unacceptable for use. Where the data is found to be acceptable with qualifications, or unacceptable, it may be necessary to analyze additional samples to obtain sufficient usable data to meet project DQOs.

REPORTING

CONTENTS OF REPORT

The laboratory report shall contain at a minimum, but not be limited to, such information for samples as:

- Date report was prepared
- Sample identification number
- Name and location of sample
- Type of sample (water, soil, etc.)
- Date on which analysis was performed
- Any special circumstances or comments that may be relevant for interpretation of the data
- Name of parameter analyzed, name or number of approved analytical method used, results of analysis, and the units of the reported results

RECORDS

Copies of all records related to field sampling and laboratory analysis of the samples will be retained by the laboratory. These records will include, but not necessarily be limited to, field notebooks, laboratory notebooks, laboratory worksheets, copies of raw laboratory data, copies of QA/QC results associated with each sample, and laboratory instrument performance data associated with the samples. There will be sufficient information in the files to identify the record, the sample it is associated with, and the activity to which it applies.

Section 5
QUALITY CONTROL CHECKS

A number of QA/QC samples will be collected to check the adequacy of sample collection and analysis and to monitor laboratory performance.

Duplicates, blanks, and spiked samples are used to test the sampling technique to determine if the technique affects the analytical results, to measure the internal consistency of the samples, and to estimate any variance or bias in the analytical process. The field and laboratory QA/QC sampling procedures are described below.

FIELD SAMPLING QUALITY CONTROL PROCEDURES

Quality control replicate (split) samples and blanks are used to provide a measure of the internal consistency of the samples and an estimate of variance and bias. Table 5-1 shows the collection frequencies of the field QC samples.

Table 5-1 COLLECTION FREQUENCIES OF FIELD QC SAMPLES				
Analysis	Field Blank	Trip Blank	Replicate	Additional Volume Needed for MS/MSD
Acid/Base Neutral Extractable	1/day	--	1/20 samples	Triple volume per 20 samples
Volatiles	1/day	1/day	1/20 samples	Triple volume per 20 samples
Metals	1/day	--	1/20 samples	Double volume per 20 samples

Blanks provide a measure of cross-contamination sources, decontamination efficiency, and other potential errors that can be introduced from sources other than the sample. Two types of blanks can be generated during sampling activities: trip blanks and field blanks.

One trip blank will be included with each daily shipment of volatile organic samples. The trip blanks will be prepared before each sampling event, shipped or transported to the field with the

sampling bottles, and returned unopened for analysis. Trip blanks will indicate if there is any contamination during shipment to the field, from storage in the field, or from shipment from the field to the analytical laboratory.

One field blank will be included with each daily shipment of samples. The field blanks will indicate if there is any contamination by the sampler or from handling of the sample bottle in the field. The sample container will be filled with distilled, deionized water in the field at the time of sampling. Preservatives will be added as appropriate and the sample container capped, packed, and shipped with the samples.

One field replicate (duplicate) sample will be obtained for every 20 field samples collected. The sampling station from which the duplicate is taken will be randomly selected for each event. Each replicate sample will be split evenly into two sample containers and submitted for analysis as two independent samples.

LABORATORY ANALYTICAL QUALITY CONTROL PROCEDURES

Laboratory quality control procedures will be consistent with those required for SW-846. These procedures will include the use of matrix spikes and matrix spike duplicates in separate aliquots of one sample selected from 20 field samples. These spikes will be used to assess accuracy and precision.

Section 6
PERFORMANCE AND SYSTEMS AUDITS

An audit of field activities will be conducted during sample collection activities. The audit will cover, in general, verification that approved procedures are in place and used, an organization structure is in place, personal responsibilities are clearly defined, a training program for personnel is in place and current, a chain-of-custody program and records retention program are in place, and corrective action of variances taken by laboratory and field personnel is responsive and timely.

LABORATORY PERFORMANCE AND SYSTEMS AUDITS

The analytical laboratory will conduct internal quality control checks. Internal quality control checks will consist of replicates, spikes, and duplicates.

Section 7

PREVENTIVE MAINTENANCE

Maintenance procedures and schedules for all laboratory analytical instruments will be in strict accordance with the recommendations of the equipment manufacturers. Routine maintenance will be performed by laboratory personnel as needed. All records of inspection and maintenance will be dated and documented in laboratory record books.

Section 8
 DATA ASSESSMENT PROCEDURES

The precision and accuracy of data will be routinely assessed to ensure that they meet the requirements of the DQOs presented in Table 8-1. If enough data are generated, the precision, accuracy, and completeness may be assessed using statistical procedures.

Table 8-1 PRECISION, ACCURACY, AND COMPLETENESS OBJECTIVES			
Parameters	Precision (Relative Percent Difference)	Accuracy-- % Spike Recovery	% Completeness
Acid/Base Neutral Extractables	< ±20	80-120	85
Volatiles	< ±20	80-120	85
Metals	< ±20	80-120	85

Precision is commonly determined from duplicate samples; thus precision is usually expressed as RPD or relative standard deviation (RSD). These quantities are defined as follows.

$$RPD = 100 \times 2 \frac{|X_1 - X_2|}{(X_1 + X_2)}$$

$$RSD = (100/\sqrt{2}) \times [2|X_1 - X_2|/(X_1 + X_2)]$$

where X_1 and X_2 are the reported concentrations for each duplicate sample

Accuracy is commonly presented as percent bias or percent recovery. Percent bias is a standardized average error, that is, the average error divided by the actual or spiked

concentration and converted to a percentage. Percent bias is unitless, so it allows the accuracy of analytical procedures to be compared easily.

Percent recovery provides the same information as percent bias. Accuracy is often determined from spiked samples. Percent recovery is defined as:

$$\% \text{ Recovery} = \frac{R}{S} \times 100$$

where S = spiked concentration
R = reported concentration

Given this definition, it can be shown that

$$\% \text{ bias} = \% \text{ recovery} - 100$$

Section 9 CORRECTIVE ACTIONS

Corrective Action plans and procedures will include the corrective actions, maintenance instructions, and calibration procedures for each piece of equipment specified or suggested by the manufacturer. Corrective actions will also include training/retraining of personnel, as necessary and appropriate. Corrective actions may also include revised procedures and validation testing of revised procedures before implementation, as experience may suggest.

As part of routine performance monitoring and system and performance audits, each sampling and analysis method will be monitored for precision, accuracy, and compliance with the QC/performance requirements of the method.

If, during routine performance monitoring or system or performance audits, weaknesses or problems are uncovered, corrective action will be initiated immediately. Corrective action will include, but not necessarily be limited to the following:

- Recalibration of instruments using freshly prepared calibration standards
- Replacement of lots of solvent or other reagents that have given unacceptable blank values
- Additional training of personnel in correct implementation of sample preparation and analysis methods

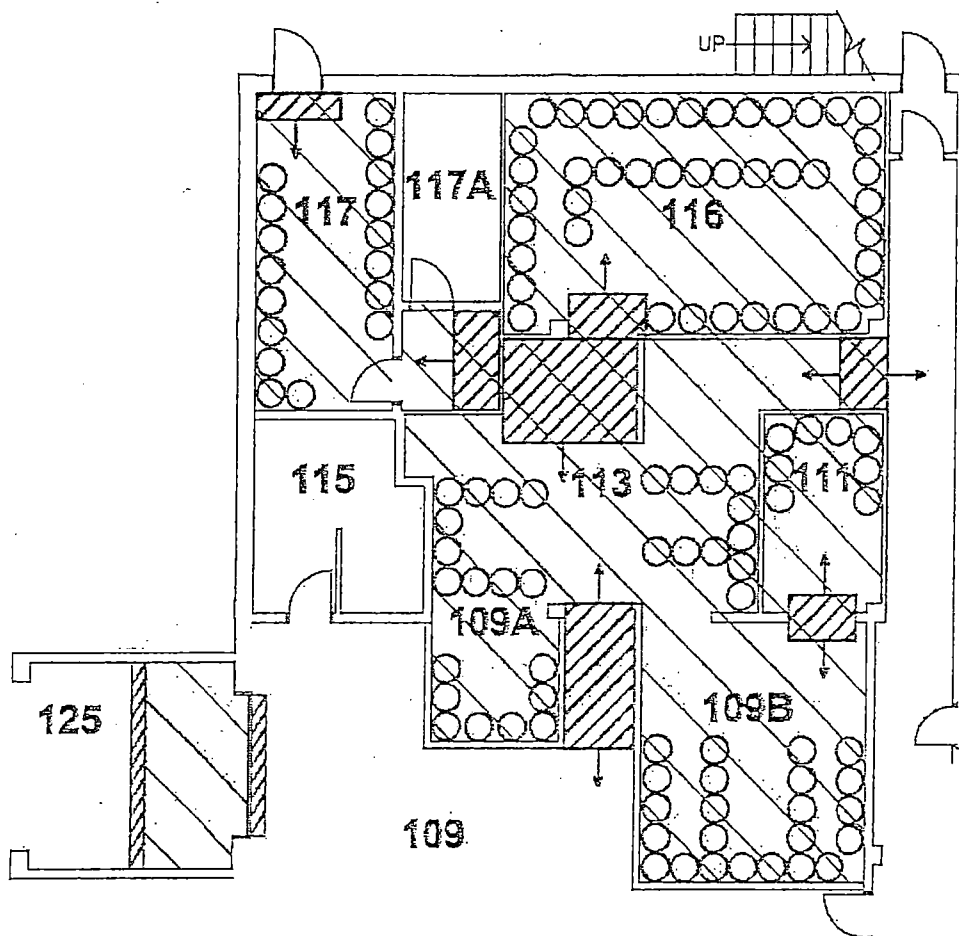
Whenever long-term corrective action is necessary to eliminate the cause of nonconformance, the following closed-loop corrective action system will be used. The appropriate field personnel will ensure that each of these steps is followed:

- The problem will be defined.
- Responsibility for investigating the problem will be assigned.
- The cause of the problem will be investigated and determined.

- Corrective action to eliminate the problem will be determined.
- Responsibility for implementing the corrective action will be assigned and accepted.
- The effectiveness of the corrective action will be established, and the correction will be implemented.
- The fact that the corrective action has eliminated the problem will be verified.

Attachment A11-4
Permitted Location of Drums

Permitted Location of Drums

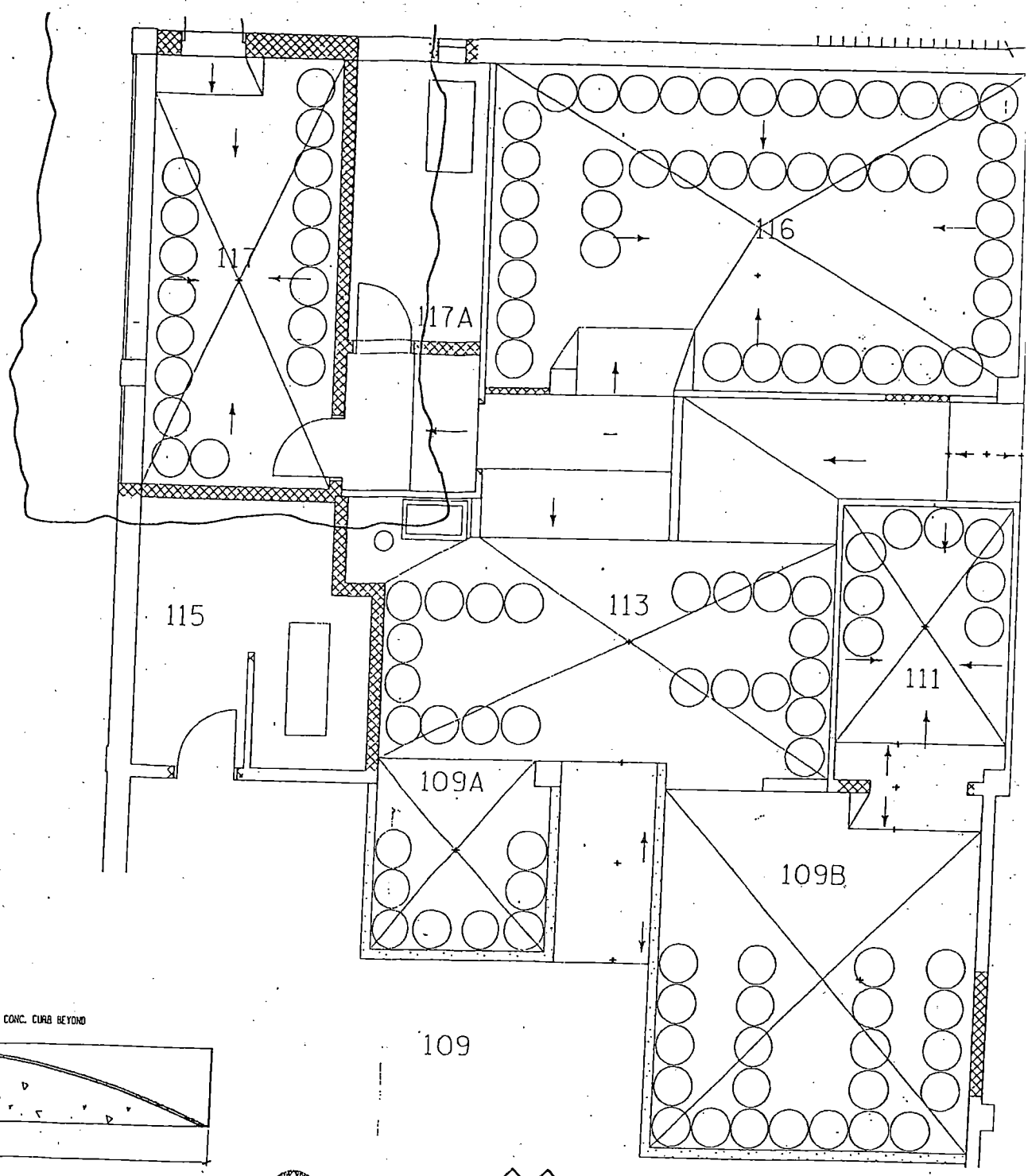
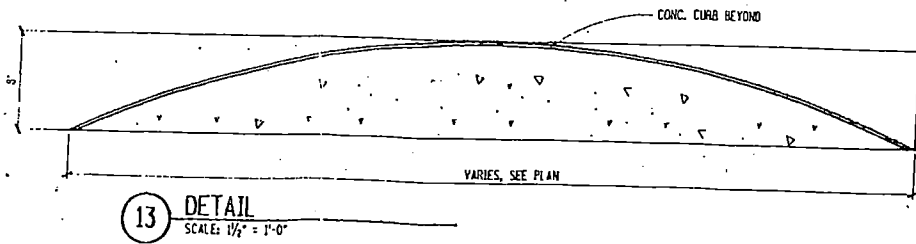
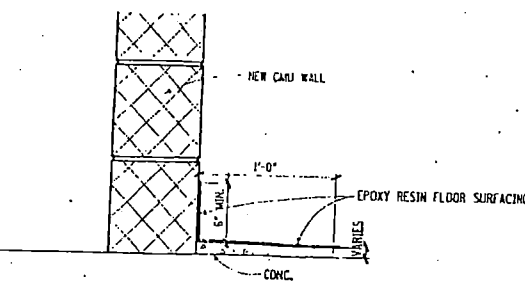
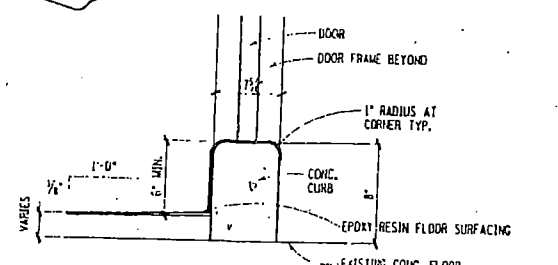
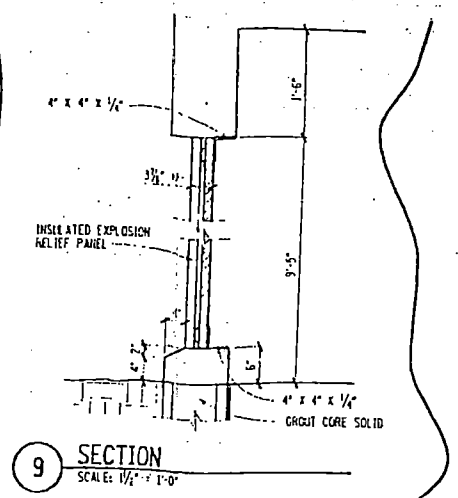
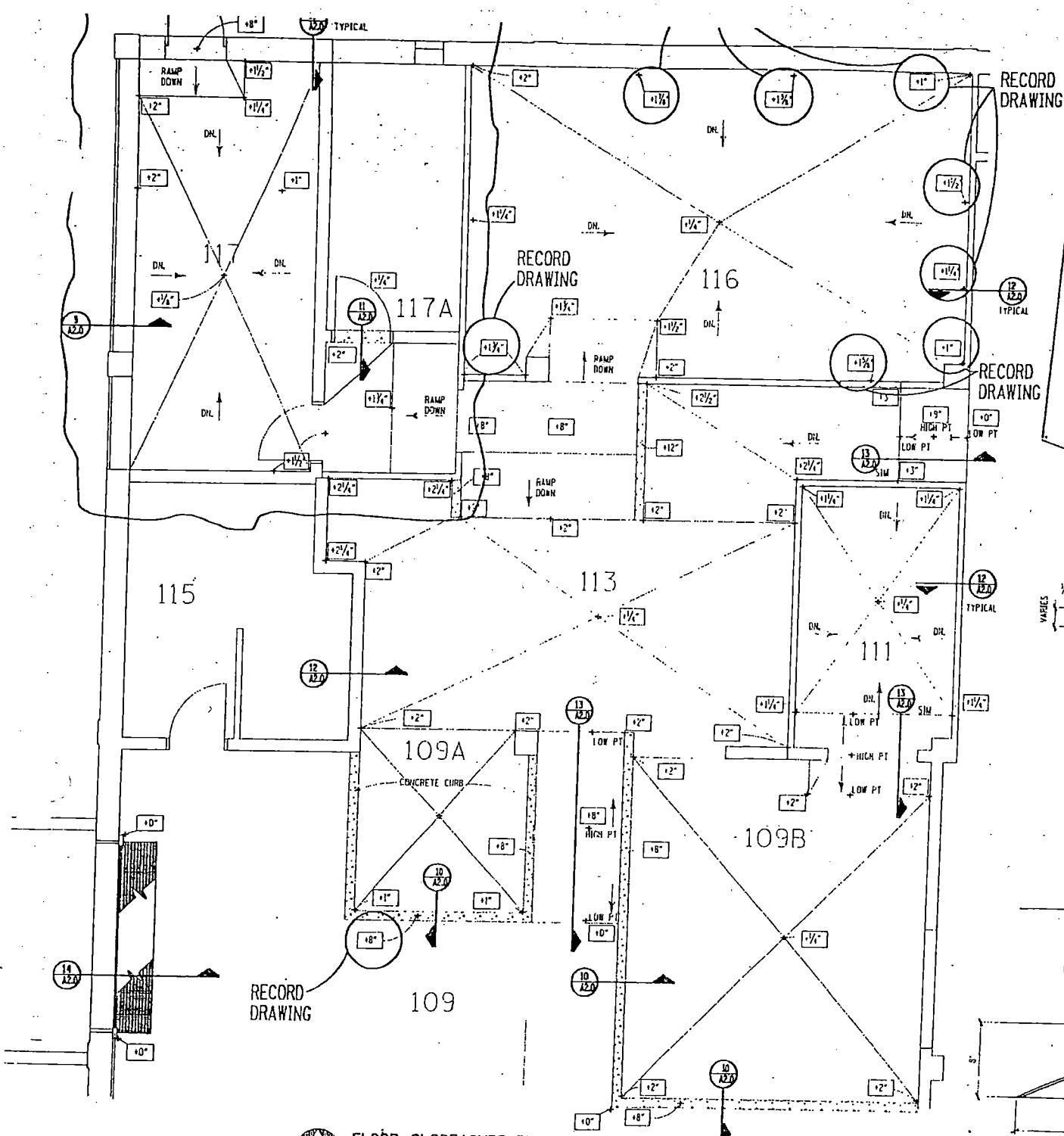


Scale:
 1" = 10.5'

LEGEND	
	RCRA Waste Management Units
	Containment Trench
	Ramps
	Location of Drums

Attachment 7

Engineering Plans and Specifications



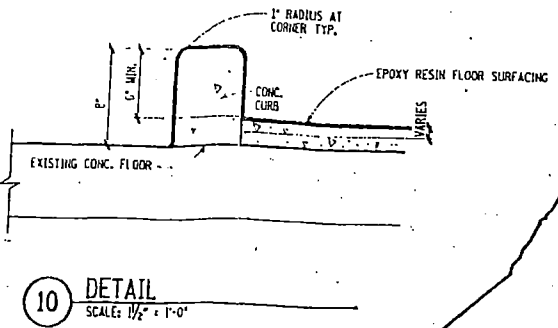
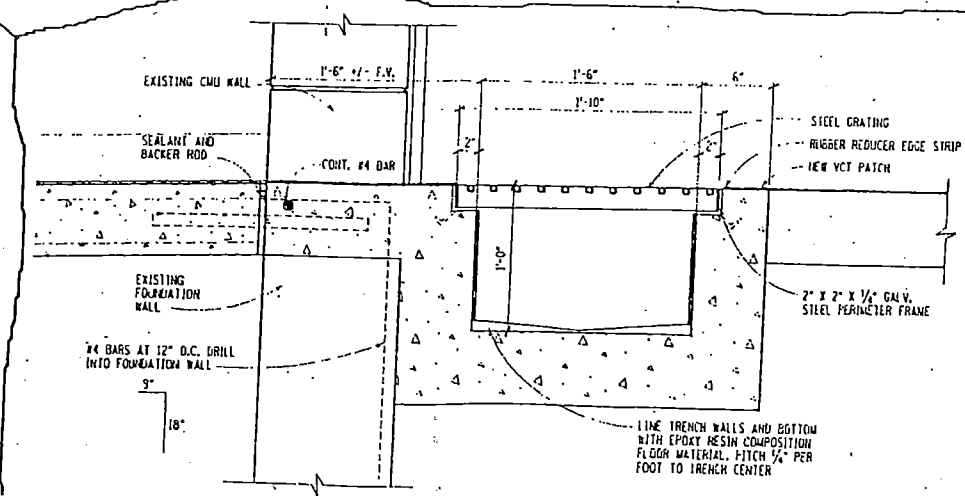
FLOOR SLOPE/CURB PLAN
SCALE: 1/4" = 1'-0"

DRUM LAYOUT PLAN
SCALE: 1/4" = 1'-0"

RECORD DRAWING

OPE/CURB PLAN NOTES & LEGEND

AT ALL SLOPED AREAS TO BE 1/4" VFT. UNLESS NOTED OTHERWISE



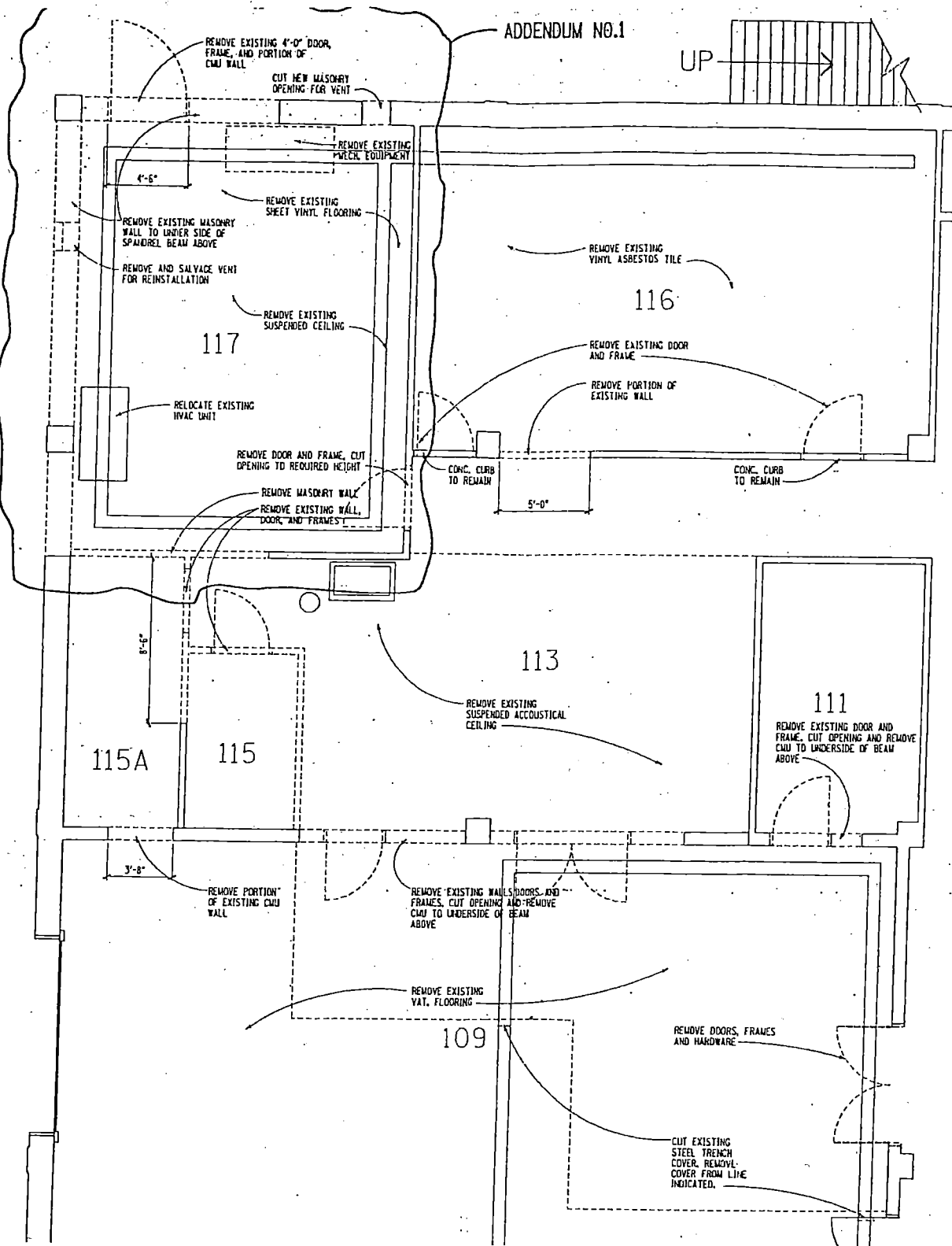
FLOOR CONTAINMENT VOLUME SCHEDULE							
LOCATION	APPROXIMATE FLOOR AREA (SQ. FT.)	NO. OF DRUMS	DRUM FOOT PRINT (SQ. FT.)	CONTAINMENT DEPTH (FEET)	AVAILABLE CONTAINMENT VOLUME (CU. FT.)	STORAGE VOLUME (CU. FT.)	REQUIRED CONTAINMENT VOLUME (CU. FT.)
109A	80.0	8	3.14	0.5	32.4	16	11.77
109B	288.0	23	3.14	0.5	107.3	46	33.83
111	105.6	8	3.14	0.5	40.2	16	11.77
113	375.0	21	3.14	0.5	154.5	42	30.88
116	442.75	43	3.14	0.5	153.9	86	63.24

RECEIVED
DEC 16 1998

REVISION	DESCRIPTION	DATE
1	RECORD DRAWING REVISIONS	11-18-98
2	RECORD DRAWING	5-16-98
3	REVISED DRUM STORAGE	5-10-98
4	ADDENDUM NO. 1	10-6-98
5	REVISED DETAILS 10, 11, 12	8-16-98
6	REVISED DRUM LAYOUT	7-25-98
7	ISSUED TO CLIENT	6-9-98

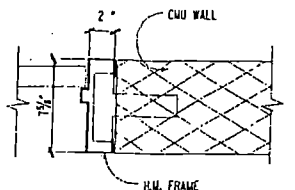
UNIVERSITY OF MICHIGAN
FACILITIES PLANNING AND DESIGN

PLOT DATE: 10-6-95
DESIGNED: WILLow RUN OPERATIONS BLDG.
CUT: 7

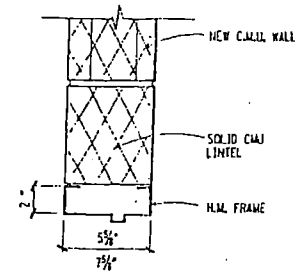


PLAN NOTES & LEGEND

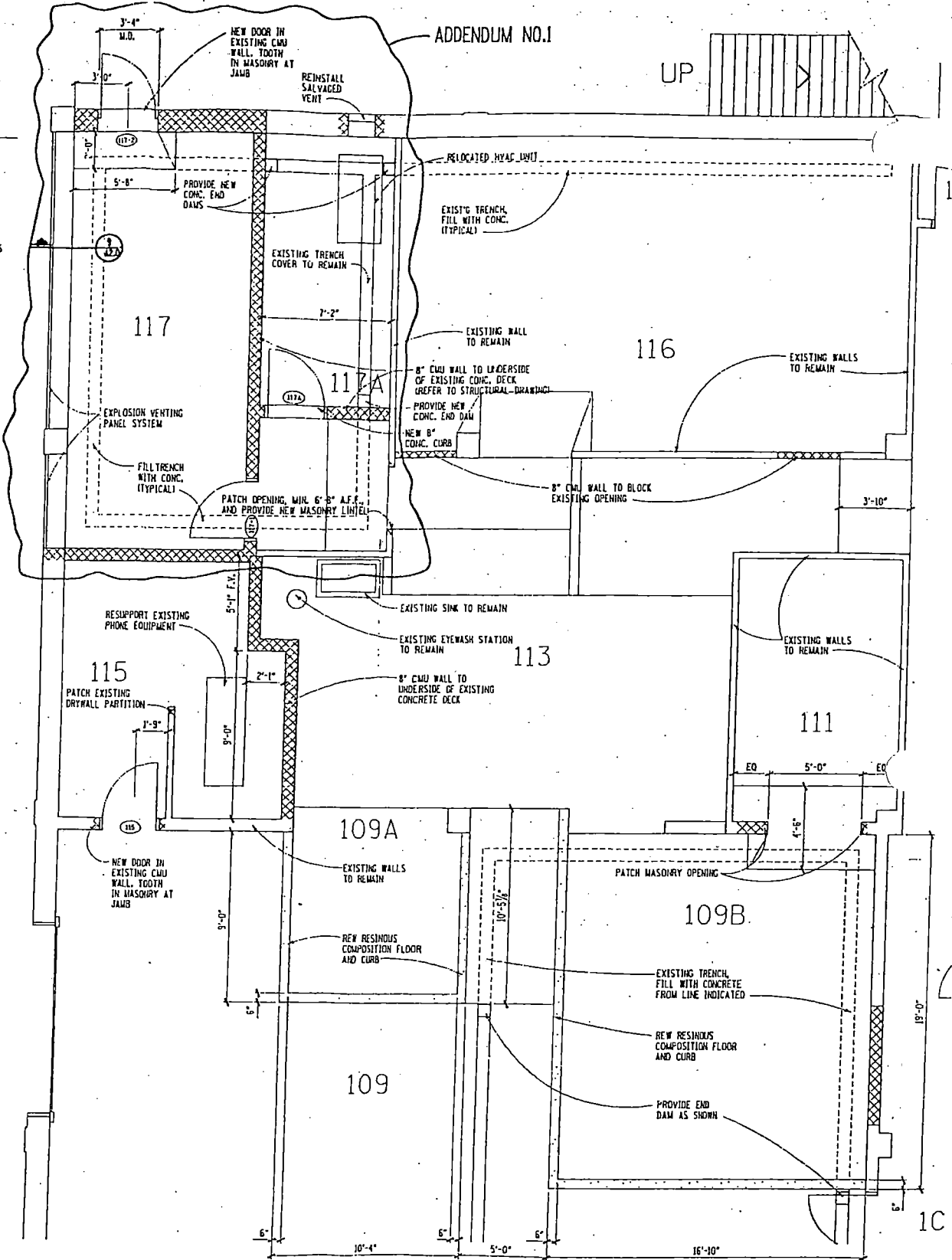
- EXISTING BUILDING ELEMENT TO REMAIN.
- EXISTING BUILDING ELEMENT TO BE REMOVED. REMOVE WALLS FULL HEIGHT UNLESS OTHERWISE NOTED. WHERE A WALL IS INDICATED TO BE REMOVED, REMOVE WALL, MISCELLANEOUS APPURTENANCES AND ALL MECHANICAL AND ELECTRICAL COMPONENTS WITHIN THE WALL. WHERE A DOOR IS INDICATED TO BE REMOVED, REMOVE DOOR, FRAME & DOOR HARDWARE. PATCH REMAINING BUILDING SURFACES READY FOR SUBSEQUENT CONSTRUCTION FINISHING NOTED ON OTHER DRAWING SHEETS.
- NEW 8" CMU WALL TO UNDERSIDE OF EXISTING CONCRETE DECK
- NEW DOOR- SEE DOOR SCHEDULE.
- GENERAL NOTES
- REMOVE EXISTING HVAC AND HOOD EXHAUST TO AREA PERIMETER
- REMOVE VINYL ASBESTOS FLOOR TILE AND SHEET VINYL
- REMOVE EXPOSED SUSPENDED CEILING, GUE-ON TILE TO REMAIN
- FOR INFORMATION REGARDING FLOOR CURBS AND SLOPED AREAS SEE FLOOR SLOPE/CURB PLAN SHEET A2.0



10 8" CMU JAMB DETAIL
SCALE 1/2" = 1'-0"



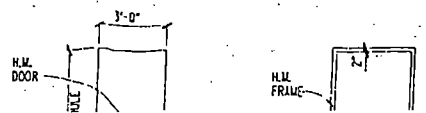
11 CMU HEAD DETAIL
SCALE 1/2" = 1'-0"



CONSTRUCTION PLAN
SCALE 1/4" = 1'-0"

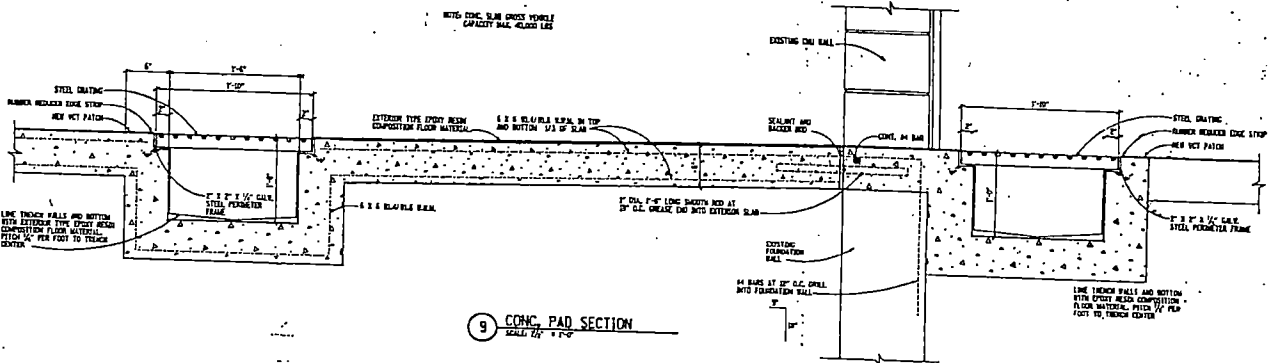
FINISH SCHEDULE											
ROOM NO.	FLOOR		BASE		WALLS		CEILING		HT		REMARKS
	EXISTING CONC.	EPoxy RESIN	EXISTING TO REMAIN	8" EPoxy RESIN	PAINT	MOORE	NO WORK				
111											PATCH WALLS TO UNDERSIDE OF EXISTING CEILING
113											PATCH WALLS TO UNDERSIDE OF EXISTING CEILING
115											
116											PATCH WALLS TO UNDERSIDE OF EXISTING CEILING
117											PATCH WALLS TO UNDERSIDE OF EXISTING CEILING

DOOR SCHEDULE													
DOOR OPENING			DOOR			FRAME			FIRE RATING	HOW SET	REMARKS		
MARK	W	H	TH	MAT	FIN	TYPE	MAT	FIN					
115	3'-0"	7'-0"	1 1/2"	H.M.	PT	I	H.M.	PT	B	10	1/2	11	1/2
117-1	3'-0"	7'-0"	1 1/2"	H.M.	PT	I	H.M.	PT	B	10	1/2	11	1/2
117-2	3'-0"	7'-0"	1 1/2"	H.M.	PT	I	H.M.	PT	B	10	1/2	11	1/2
117A	3'-0"	6'-8"	1 1/2"	H.M.	PT	I	H.M.	PT	B	10	1/2	11	1/2

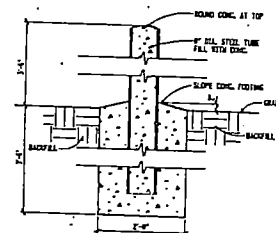


RECORD DRAWING		
REVISED DRUM STORAGE	5-10	
ADDENDUM NO.1	10-6	
REVISED DETAILS 10, 11, 12	8-16	
REVISED DRUM LAYOUT	7-25	
ISSUED TO CLIENT	6-9-1	
DATE	REVISION DESCRIPTION	NO. DATE

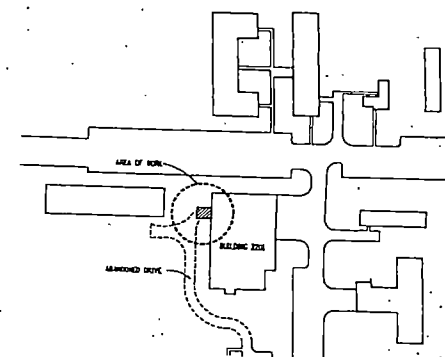
UNIVERSITY OF MICHIGAN
FACILITIES PLANNING AND DESIGN



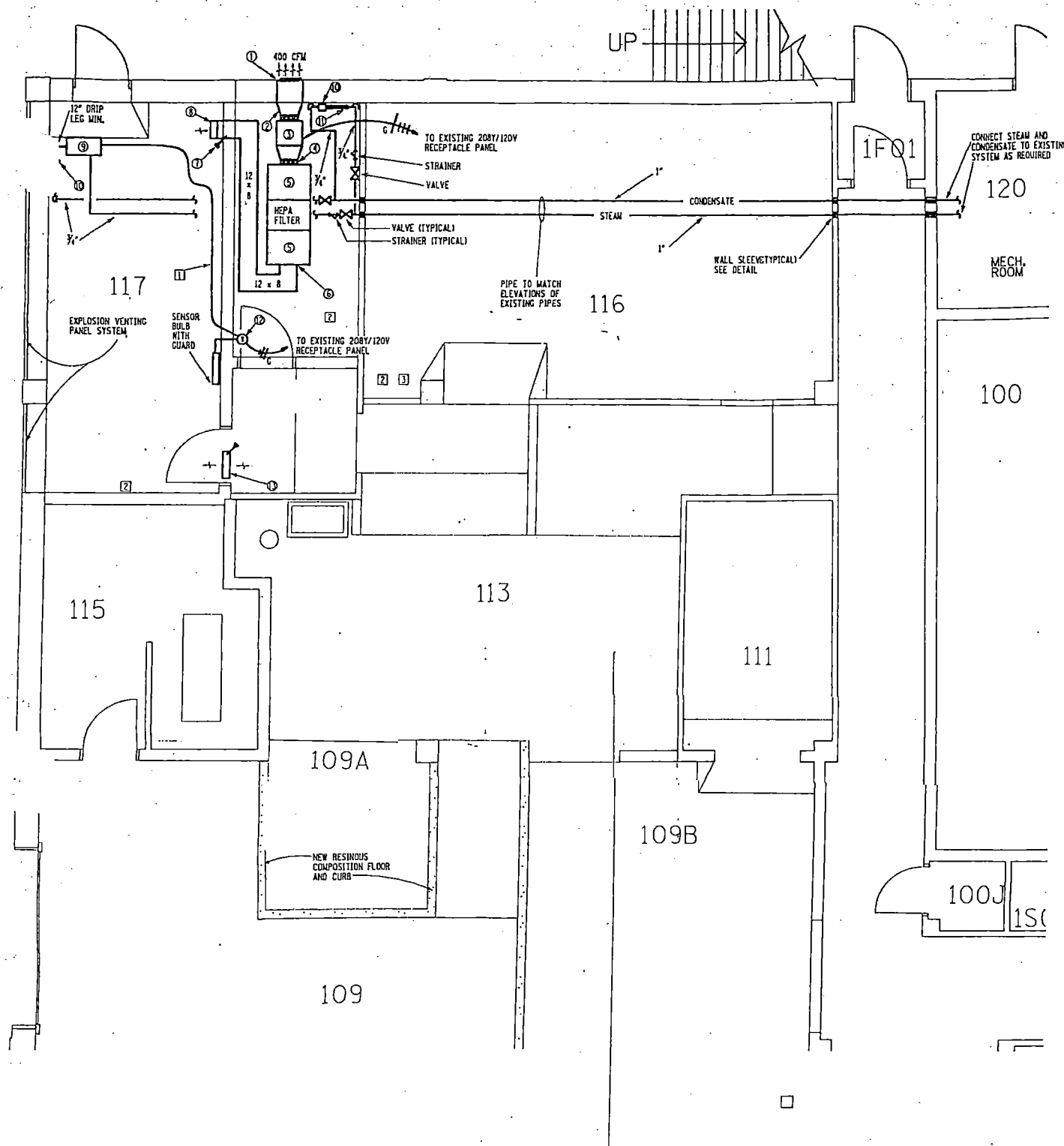
9 CONC. PAD SECTION



10 PIPE BOLLARD DETAIL


SITE PLAN
 NOT TO SCALE

FILE NO.	56-15	WILSON PLAN OPERATIONS BLDG.	FILE NO.	56-15
RECORDS		REMOVED FOR LOANING REEL	RECORDS	
NO.	100		NO.	100
KPD		PLAN, ELEVATIONS, SECTIONS, DETAILS	KPD	
DATE	4-14-77	2201, 36-500	DATE	4-14-77
BY	4447		BY	4447
REMARKS			REMARKS	



CONSTRUCTION PLAN
SCALE: 1/4" = 1'-0"

LEGEND

EXISTING WORK

NEW WORK

A.F.F.

ABOVE FINISHED FLOOR

INSTALLATION NOTES
MECHANICAL:

- ① 18" x 18" EXHAUST LOUVER WITH BIRD SCREEN MANUF. RUSKIN MODEL NO. E1F3T5X.
- ② TRANSITION FROM FAN TO LOUVER, RECTANGLE TO ROUND WITH FLEX CONNECTION.
- ③ EXHAUST FAN MANUF., COOK, MOD. 12CVB, 150"SP, 400 CFM, 1/2HP, 208V, 3PH, 60HZ, EXPLOSION PROOF.
- ④ TRANSITION FROM FAN TO FILTER, RECTANGLE TO ROUND WITH FLEX CONNECTION.
- ⑤ TURN FILTER 180 DEG. TO COORDINATE WITH FLOW DIRECTION. FIELD LOCATE IN ROOM LEAVING SPACE FOR FILTER ACCESS DOOR.
- ⑥ 12" x 8" DUCT CONNECTED TO FILTER.
- ⑦ FIRE DAMPER MANUF., RUSKIN MOD. 18D23 STYLE B CURTAIN TYPE, 3 HOUR RATING.
- ⑧ 12" x 8" DUCT DOWN WITH THREE (3) EXHAUST GRILLS. GRILLS TO BE 8" x 8" EGG-CRATE WITH DAMPERS. SEE DETAIL THIS SHEET.
- ⑨ UNIT HEATER MANUF., TRANE, MOD. "S", 14000 BTU, STEAM COIL, 115V/60Hz/1 EXPLOSION PROOF MOTOR.
- ⑩ TRAP ASSEMBLY, SEE DETAIL THIS SHEET.
- ⑪ FIN TUBE RADIATION, MANUF., TRANE, TUBE SIZE 1-3/4" IPS, FIN SIZE 4-1/4" x 4-1/4", FIN SPACING 40, 4 FT. LONG SINGLE TIER (BARE FIN WITH SELF CONTAINED VALVE MOUNTED THERMOSTATIC CONTROL. CONTROL VALVE TO CLOSE AGAINST MAX. 40 PSI STEAM. SIZE CONTROL VALVE AND TRAP FOR 5 LBS/HR STEAM. MOUNT FIN TUBE RADIATOR 12" A.F.F.
- ⑫ HONEYWELL MODEL NO. T5TS150R ELECTRIC THERMOSTAT WITH REMOTE TEMPERATURE SENSING BULB TO CONTROL ON/OFF CYCLE OF UNIT HEATER FAN. SENSOR BULB SHALL HAVE TAMPER-PROOF GUARD.
- ⑬ TRANSFER GRILL SHALL BE 14" x 8" EGG-CRATE GRILLS ON BOTH SIDES OFF WALL WITH FIRE DAMPER.

INSTALLATION NOTES
ELECTRICAL:

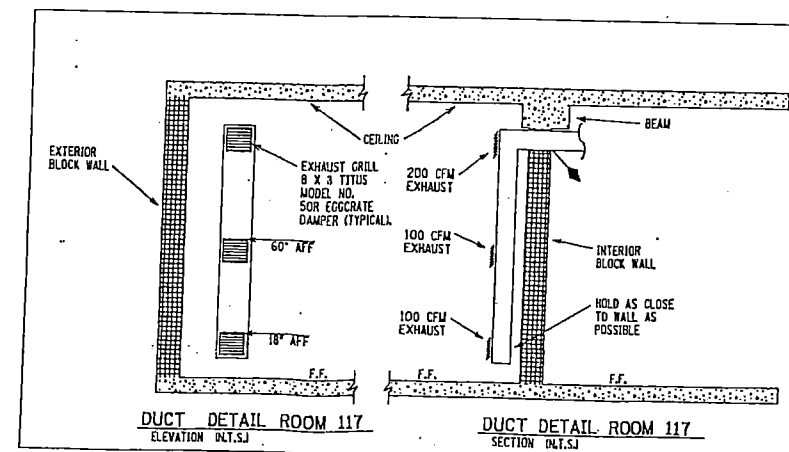
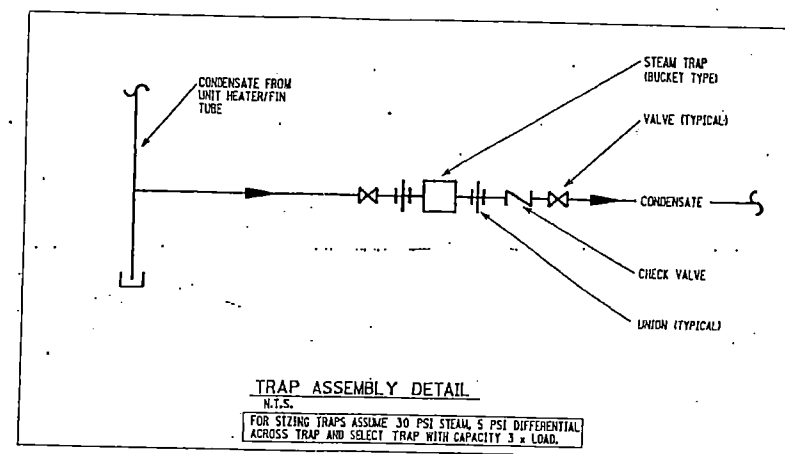
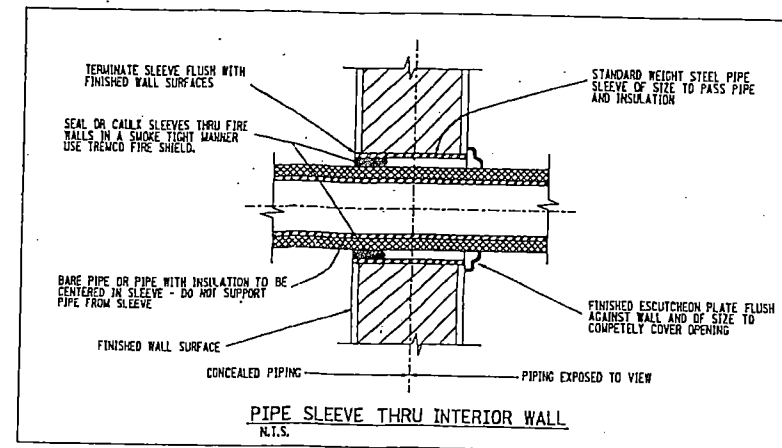
- ① ALL CONDUIT IN ROOM 117 AND CONDUIT FROM ROOM 117 TO EQUIPMENT OUTSIDE OF ROOM 117 SHALL BE GALVANIZED RIGID STEEL WITH THREADED FITTINGS, CAST BOXES AND CONDUIT SEALS FOR CLASS I, DIVISION 1 LOCATIONS.
- ② REMOVE ALL RECEPTACLES FROM ALL LIQUID STORAGE ROOMS. SEAL ALL ABANDONED OUTLET BOXES IN ROOM 117 VAPOR TIGHT. PROVIDE BLANK BOX COVERS FOR ALL ABANDONED OUTLET BOXES IN THE OTHER ROOMS.
- ③ REMOVE THE ABANDONED CONDUIT, WIRING AND JUNCTION BOX FROM ROOM 116.

GENERAL NOTES:

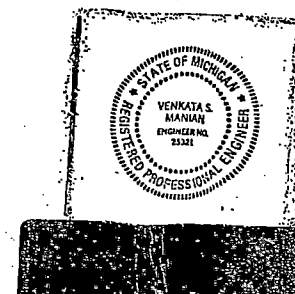
1. FOR EXACT STEAM PRESSURE CONTACT CARETAKER TERRY LEONARD, (313) 482-6327.
2. ALL DUCT SHALL BE 22 GA. GAL. STEEL.
3. TEST FOR ASBESTOS WHERE NEW CONNECTIONS TO EXISTING SYSTEMS ARE REQUIRED. IF TEST IS POSITIVE, REMOVE PER U OF M REQUIREMENTS.
4. STEAM PIPE SHALL BE SCH. 40 BLACK STEEL, CONDENSATE PIPE SHALL BE SCH. 80 BLACK STEEL, FITTING SHALL BE 125 LB. CAST IRON.
5. ASBESTOS: EXISTING PIPE INSULATION CONTAINS ASBESTOS. REMOVE PER U OF M REQUIREMENTS.

OPERATION NOTES:

1. UNIT HEATER: STEAM TO FLOW THRU UNIT CONTINUOUSLY. THERMOSTAT TO CONTROL ON/OFF CYCLE OF UNIT HEATER FAN. STEAM SUPPLY VALVE LEADING TO UNIT HEATER TO BE MANUALLY OPENED AND CLOSED SEASONALLY.

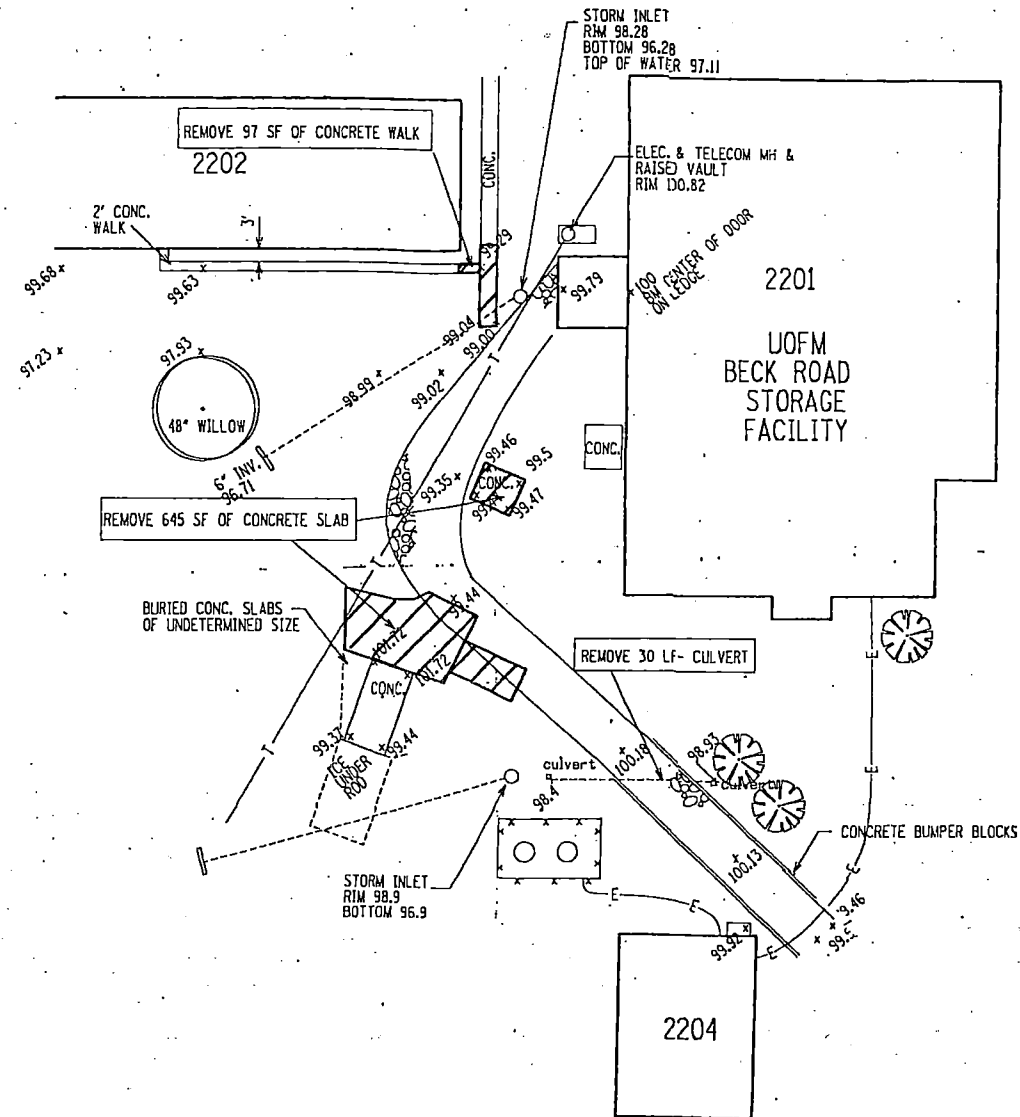


Attachment B6-1
Exhaust Ventilation in Room 117

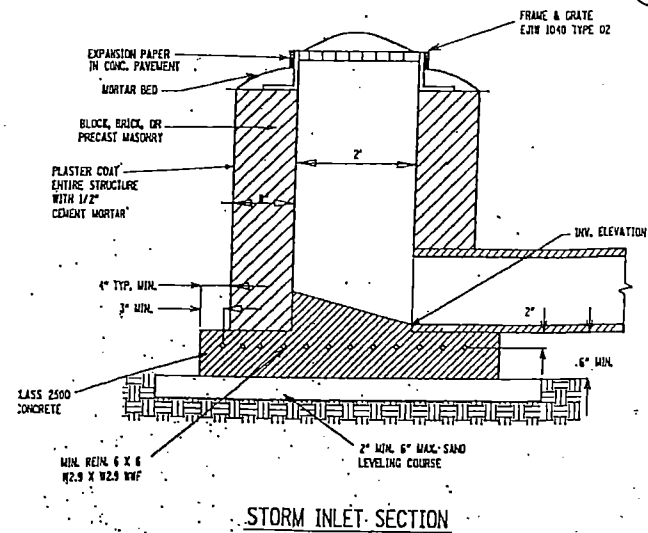


REVISION	DATE	BY
ADDENDUM NO. 1	7-23-91	
REVISED DETAILS 10, 11, 12	8-16-95	
REVISED DRUM LAYOUT	7-25-95	
ISSUED TO CLIENT	6-9-95	
RELEASED FOR BID	3-15-96	
UNIVERSITY OF MICHIGAN FACILITIES PLANNING AND DESIGN		
FILED DATE	2-27-96	WILLOW RUN OPERATIONS BLOC.
DESIGNED	ER	EXHAUST VENTILATION IN ROOM 117
DRAWN	CB	
CHECKED		
DATE ORDER	INQUIRY NO.	PROJECT NO.
PAGE	1 OF 1	
SHEET NO.		ME 1
DATE	8-16-95	

Waste & Hazardous
Materials Division
JAN 15 2009



EXISTING SURVEY/DEMOLITION
SCALE: 1" = 20'

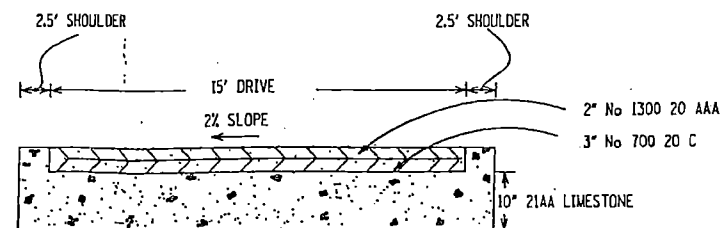


STORM INLET SECTION

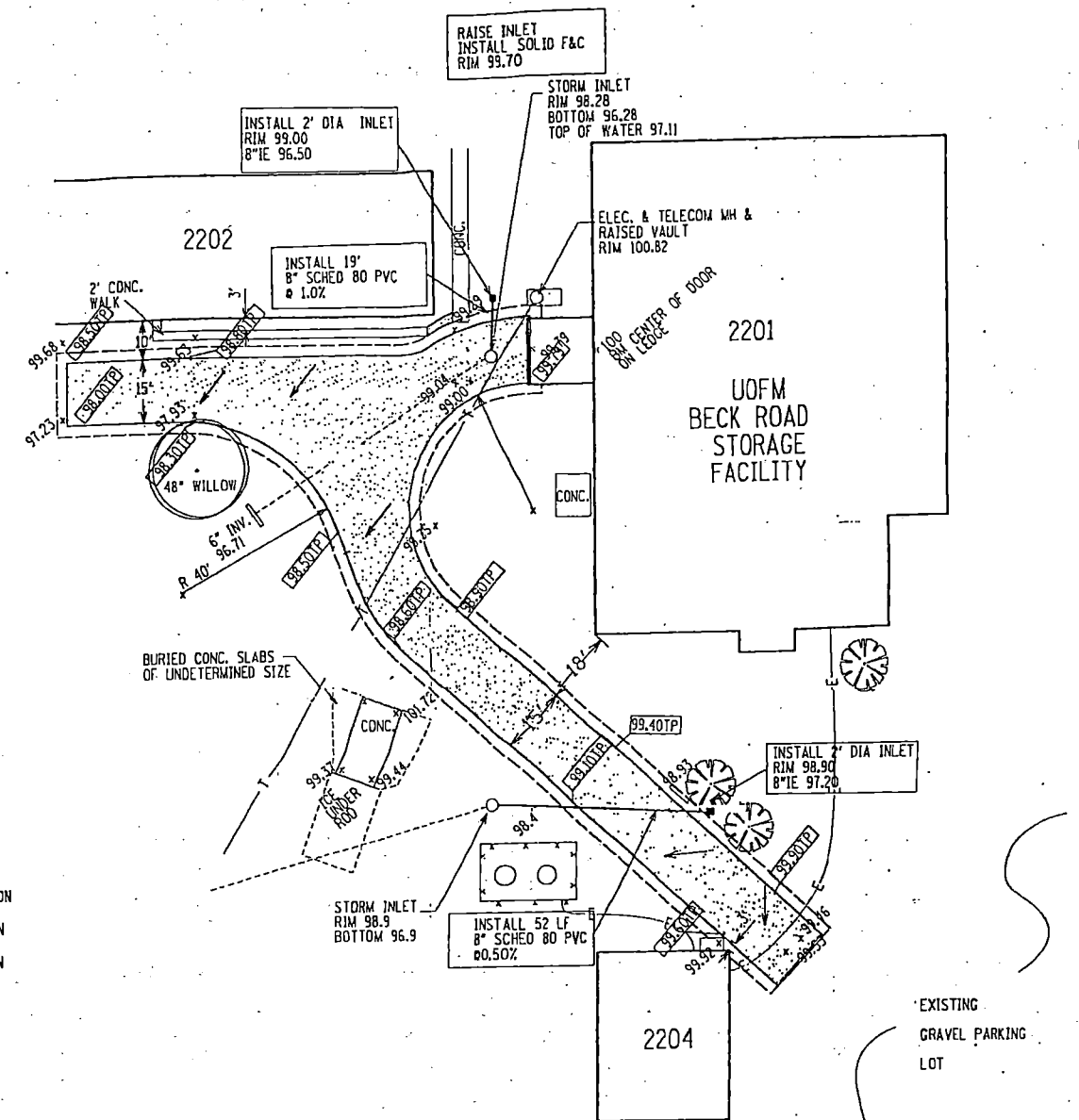
NOTE:
EXISTING UTILITY LOCATIONS ARE APPROXIMATE.

ESTIMATED QUANTITIES

1. REMOVE CULVERT
2. REMOVE CONCRETE SLAB/WALK
3. 8" SCHED. 80 STORM SEWER
4. STORM INLET
5. RAISE INLET
6. INSTALL SOLID FRAME & COVER
7. EXCAVATION TO SUBGRADE
8. 10" 21 AA LESTONE 443 TON
9. 3" No. 700 20 C BASE 76 TON
10. 2" No. 1300 20 AAA WEARING 57 TON



BITUMINOUS DRIVE SECTION



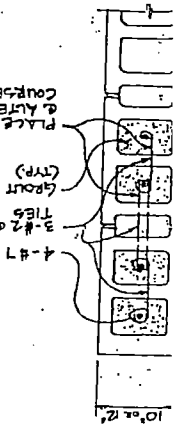
PROPOSED LAYOUT
SCALE: 1" = 20'

Attachment 86-1
Beck Road Storage Facility Service Drive

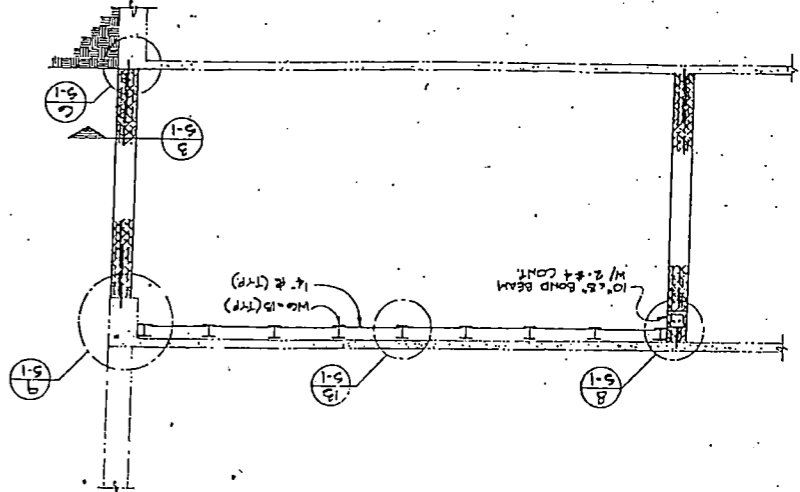
Waste & Hazardous
Materials Division
JAN 15 2009



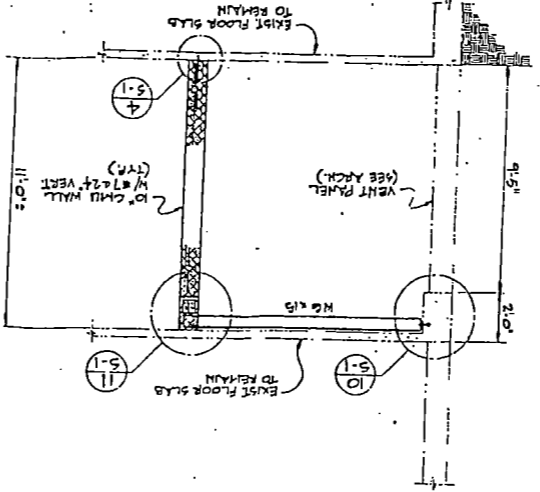
AS-BUILTS - Revised DRAWING		11-5-97
REVISED LAYOUT		9-2-97
NAME	REVISION DESCRIPTION	RELEASE DATE
UNIVERSITY OF MICHIGAN FACILITIES PLANNING AND DESIGN		
PLOT DATE	WILLOW RUN	PAGE 1 OF 1
DESIGNED TAK	BECK ROAD STORAGE FACILITY	SHEET NO. C-1
DRAWN TAH	SERVICE DRIVE	10437 DRAWN
CHECKED JMB	WORK ORDER 1063	PROJECT NO. 9965-97-075
		C-6



SECTION 3
SCALE: 1/4" = 1'-0"

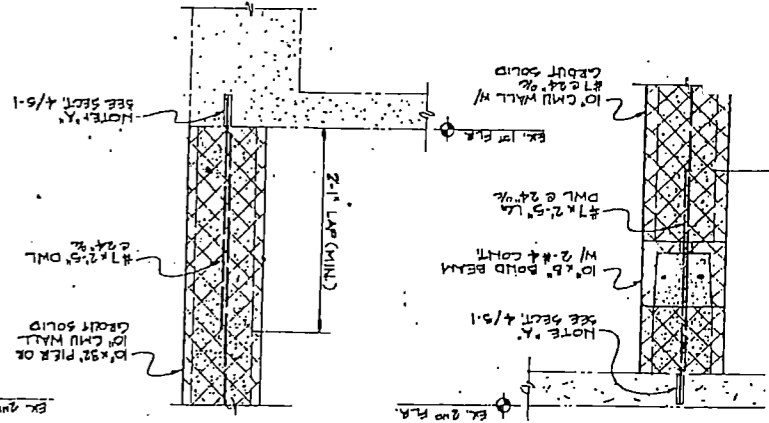


SECTION 2
SCALE: 1/4" = 1'-0"

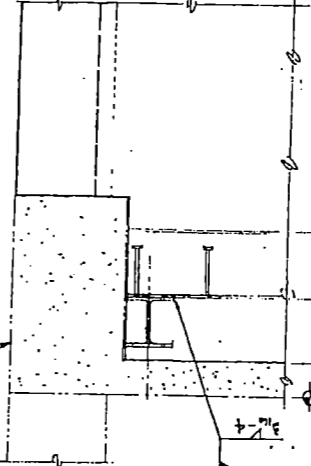


SECTION 1
SCALE: 1/4" = 1'-0"

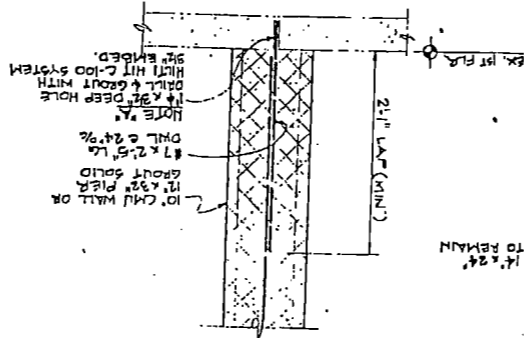
SECTION 7
SCALE: 1/4" = 1'-0"



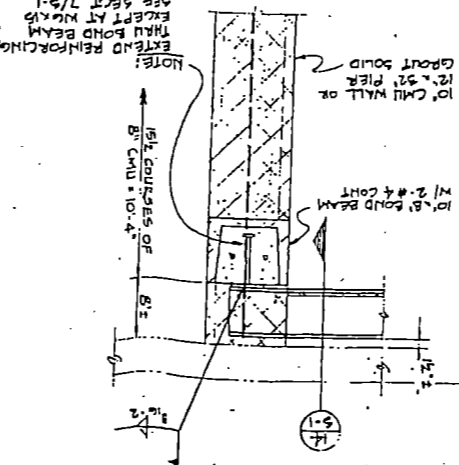
SECTION 8
SCALE: 1/4" = 1'-0"



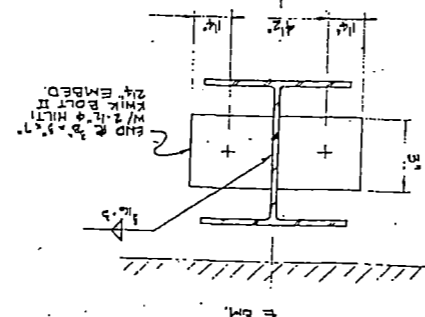
SECTION 10
SCALE: 1/4" = 1'-0"



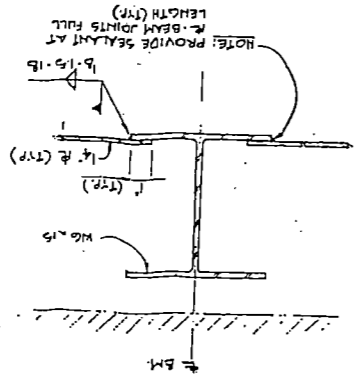
SECTION 11
SCALE: 1/4" = 1'-0"



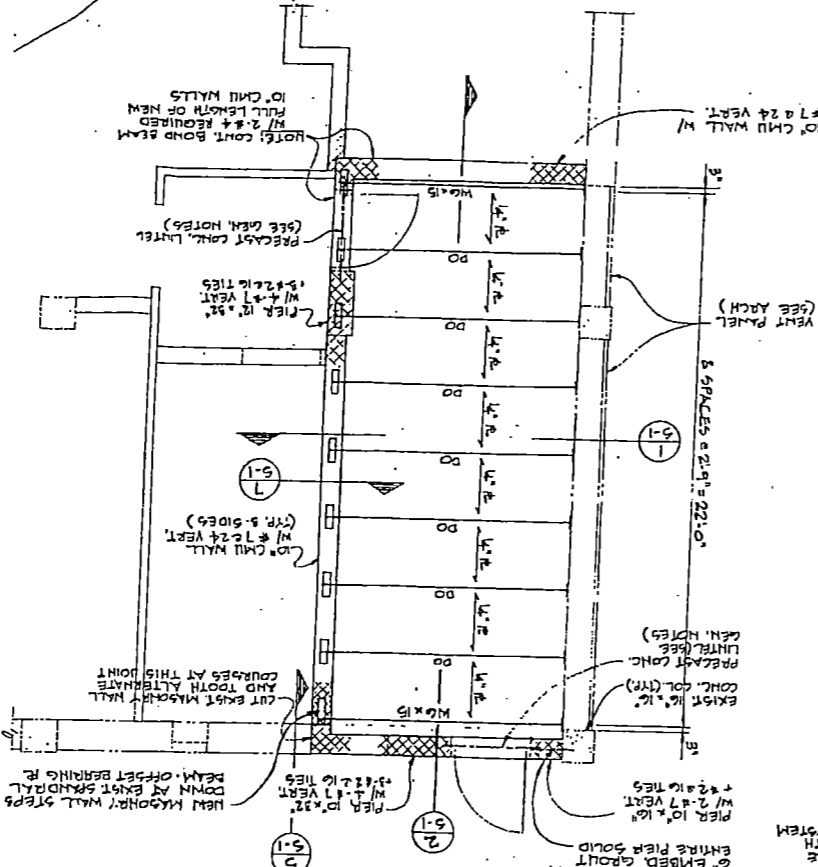
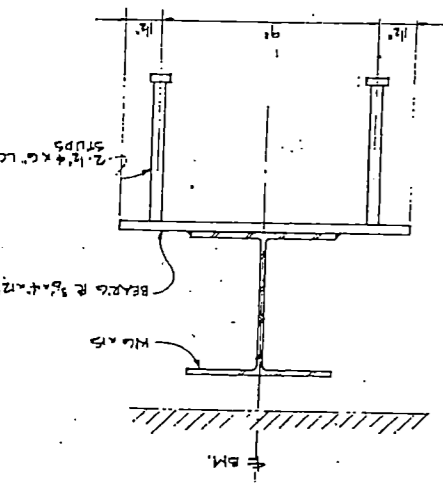
SECTION 12
SCALE: 3/4" = 1'-0"



SECTION 13
SCALE: 3/4" = 1'-0"



SECTION 14
SCALE: 3/4" = 1'-0"



PARIAL CEILING FRAMING
SCALE: 1/4" = 1'-0"

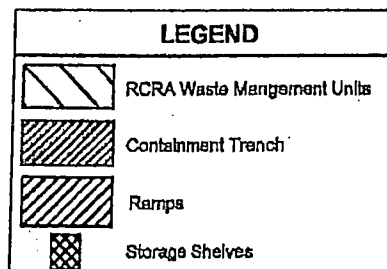
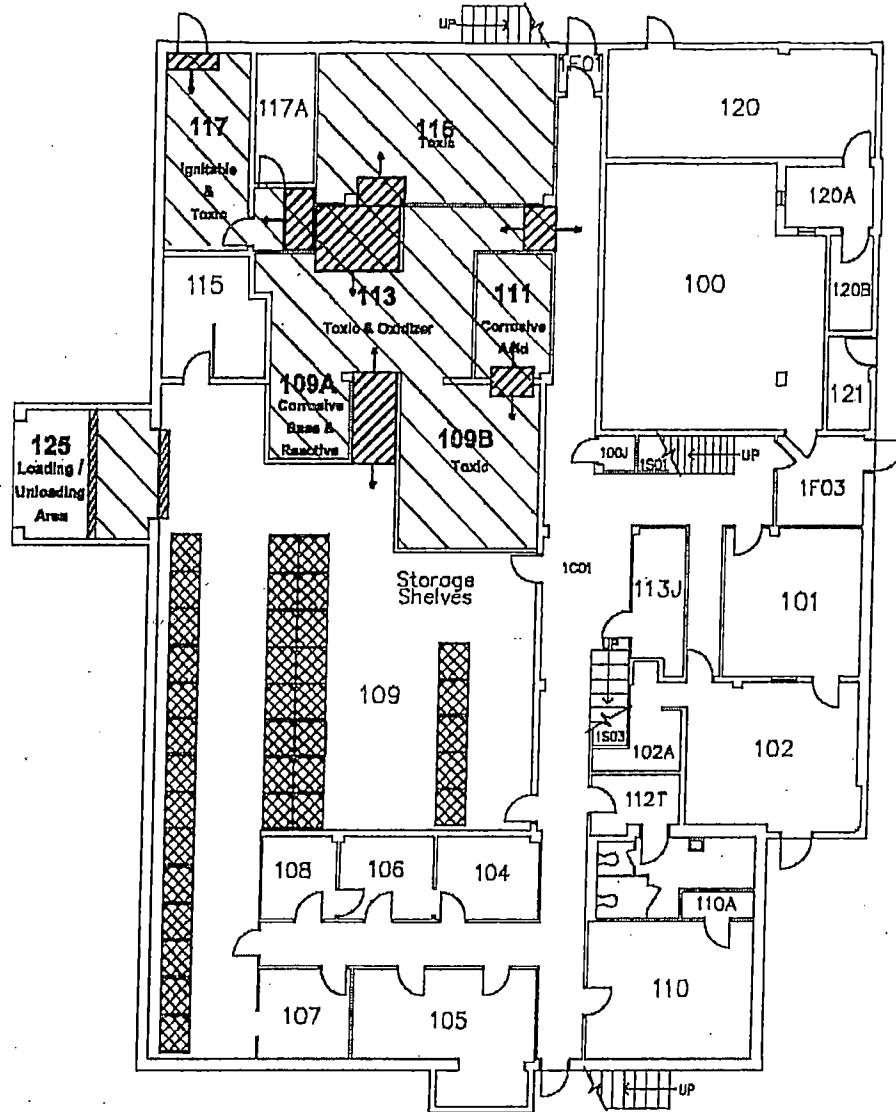
RECORD DRAWING	5-16-76
ADDENDUM NO. 1	10-4-75
RELEASED FOR: MID	11-23-75
UNIVERSITY OF MICHIGAN	
FACILITIES PLANNING AND DESIGN	
WILLOW RUN OPERATIONS BLDG.	7 & 7

GENERAL NOTES:
1. REINFORCING STEEL: ASTM A615-60.
2. STRUCTURAL STEEL: ASTM A36.
3. WELDING: AWS D1.1 OR AWS E70X ELECTRODES.
4. GROUT: 2500 PSI MINIMUM COMPRESSIVE STRENGTH FC-2500 PSI. MEETING ASTM C476.
5. MASONRY: GRADE 1.5" HOLLOW BLOCK, ASTM C90, TYPE M MORTAR.
6. VERIFY ALL DIMENSIONS AND ELEVATIONS IN FIELD PRIOR TO DETAILING.
7. PRECAST LINTELS 10" x 8" W/ 2-#3 TOP & BOT. GROUT ALL PERFS SOLID. GROUT WALL AT BLOCK CELLS WITH REINFORCING.
8. JOINT REINFORCING REQUIRED AT 10% VERT. IN MASONRY WALLS. SEE SPECIFICATIONS.
9. SEE SPECIFICATIONS FOR PAINTING.
10. WHERE REQUIRED TO CUT & 7 VERT. BARS IN CMU FOR RACING, LAP 2'-0" MIN.
11. WHERE REQUIRED TO CUT & 7 VERT. BARS IN

Attachment 8
Facility Drawings

Drawing 8-1

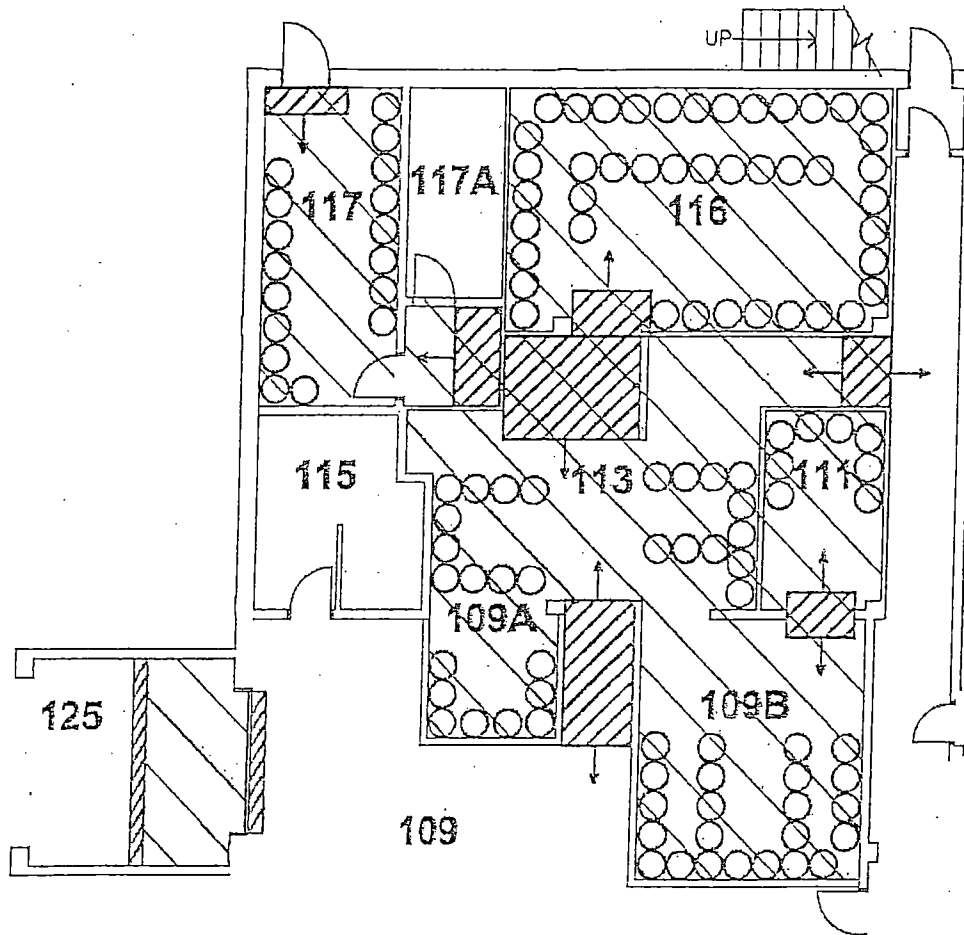
Beck Road Storage Facility



Scale
 1" = 14'

Drawing 8-2

Permitted Location of Drums



N
 NORTH

Scale:
 1" = 10.5'

LEGEND	
	RCRA Waste Management Units
	Containment Trench
	Ramps
	Location of Drums

Attachment 9

Acceptable Waste Types for Container Storage

Table AZA.1 Room Activity at the Beck Road Storage Facility		
Room Number	Waste Material	Hazardous Waste Designation Code ⁽¹⁾
100	Mechanical room (No RCRA waste stored in this room)	NA
100J	Janitor storage (No RCRA waste stored in this room)	NA
101	Office area (No RCRA waste stored in this room)	NA
102, 102A	Departmental files (No RCRA waste stored in these rooms)	NA
104	Supply storage (No RCRA waste stored in this room)	NA
105	Supply storage (No RCRA waste stored in this room)	NA
106	Supply storage (No RCRA waste stored in this room)	NA
107	Departmental files (No RCRA waste stored in this room)	NA
108	LLRW storage (No RCRA waste stored in this room)	NA
109	LLRW storage & emergency response equipment (No RCRA waste stored in this room)	NA
109A	RCRA waste - corrosive (bases) and reactive	D002, D003
109B	RCRA waste - toxic	F002, F004, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D041, D042, D043, U138, U151
110, 110A	Vermiculite storage (No RCRA waste stored in these rooms)	NA
111	RCRA waste - corrosive (acids)	D002
112T	Lavatory (No RCRA waste stored in this room)	NA
113	RCRA waste – toxic and oxidizer	F002, F004, D001, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D041, D042, D043, U138, U151
113J	Janitor's room (No RCRA waste stored in this room)	NA
115	Telephone controls (No RCRA waste stored in this room)	NA
116	RCRA waste – toxic	F002, F004, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D030, D032, D033, D034, D035, D036, D038, D039, D040, D041, D042, D043, U138, U151
117	RCRA waste – ignitable and toxic	D001, F003, F005
117A	Air handling room (No RCRA waste stored in this room)	NA
120, 120A, 120B, 121	Mechanical rooms (No RCRA waste stored in these rooms)	NA
2 nd Floor	Supply storage or vacant (No RCRA waste stored on this floor)	NA

⁽¹⁾Various mixtures of RCRA waste may be encountered and each code that is applicable will be applied with the greatest hazard being addressed first.

**Table A2.A.2
 Hazardous Wastes Accepted at the Facility**

Note: Hazardous wastes with multiple hazardous waste characteristics will be assigned to a waste management unit based on the US DOT Precedence of Hazard Table, 49 CFR 173.2a (Attachment A3-1).

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
F002	Spent solvents generated by teaching, research and supporting operations	Toxicity	Listed waste; toxic waste hazard code	Rooms 109B, 113, or 116
F003	Spent solvents generated by teaching, research and supporting operations	Ignitability	Listed waste; ignitable waste hazard code	Room 117
F004	Spent solvents generated by teaching, research and supporting operations	Toxicity	Listed waste; toxic waste hazard code	Rooms 109B, 113, or 116
F005	Spent solvents generated by teaching, research and supporting operations	Ignitability, toxicity	Listed waste; ignitable and toxic waste hazard codes	Room 117
D001	Ignitables generated by teaching, research and supporting operations	Ignitability	Ignitable waste hazard code	Room 117
D001	Oxidizers generated by teaching, research and supporting operations	Ignitability	Ignitable waste hazard code	Room 113
D002	Corrosive acids generated by teaching, research and supporting operations	Corrosivity	Corrosive waste hazard code	Room 111

Table A2.A.2
Hazardous Wastes Accepted at the Facility (Continued)

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
D002	Corrosive bases generated by teaching, research and supporting operations	Corrosivity	Corrosive waste hazard code	Room 109A
D003	Reactives generated by teaching, research and supporting operations	Reactivity	Reactive waste hazard code	Room 109A
D004	Waste containing arsenic generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D005	Waste containing barium generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D006	Waste containing cadmium generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D007	Waste containing chromium generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D008	Waste containing lead generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D009	Waste containing mercury generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116

Table A2.A.2
Hazardous Wastes Accepted at the Facility (Continued)

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
D010	Waste containing selenium generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D011	Waste containing silver generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D018	Waste containing benzene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D019	Waste containing carbon tetrachloride generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D021	Waste containing chlorobenzene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D022	Waste containing chloroform generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D023	Waste containing o-cresol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D024	Waste containing m-cresol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116

Table A2.A.2
Hazardous Wastes Accepted at the Facility (Continued)

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
D025	Waste containing p-cresol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D026	Waste containing cresol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D027	Waste containing 1,4-dichlorobenzene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D028	Waste containing 1,2-dichloroethane generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D029	Waste containing 1,1-dichloroethylene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D030	Waste containing 2,4-dinitrotoluene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D032	Waste containing hexachlorobenzene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116

Table A2.A.2
Hazardous Wastes Accepted at the Facility (Continued)

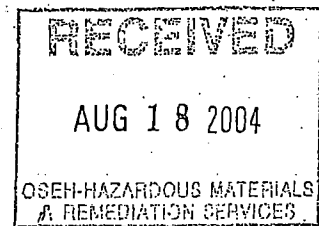
Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
D033	Waste containing hexachlorobutadiene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D034	Waste containing hexachloroethane generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D035	Waste containing methyl ethyl ketone generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D036	Waste containing nitrobenzene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D038	Waste containing pyridine generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D039	Waste containing tetrachloroethylene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116

Table A2.A.2
Hazardous Wastes Accepted at the Facility (Continued)

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
D040	Waste containing trichloroethylene generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D041	Waste containing 2,4,5-trichlorophenol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D042	Waste containing 2,4,6-trichlorophenol generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
D043	Waste containing vinyl chloride generated by teaching, research and supporting operations	Toxicity	Hazard code for toxicity characteristic waste	Rooms 109B, 113, or 116
U138	Waste containing methyl iodide generated by teaching, research and supporting operations	Toxicity	Listed waste; hazard code for toxic waste	Rooms 109B, 113, or 116
U151	Waste containing mercury generated by teaching, research and supporting operations	Toxicity	Listed waste; hazard code for toxic waste	Rooms 109B, 113, or 116

Attachment 10

Operation and Maintenance Plan for Units 3 and 4



**Operation & Maintenance Plan for
Waste Management Units 3 & 4
Inspection, Planned Excavation and
Maintenance Protocol**

**University of Michigan
Beck Road Storage Facility**

MIR 000 001 834

Prepared by
University of Michigan

For Submittal to
**Michigan Department of
Environmental Quality**

August 17, 2004

Waste & Hazardous
Materials Division

AUG 30 2004

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Appendix A

Plate 1 – BRSF Location Map
Plate 2 – Site Location
Plate 3 – Limit of Restricted Areas

Appendix B

Semi-Annual Inspection Form and Map

Operation & Maintenance Plan for Waste Management Units 3 & 4
Inspection, Planned Excavation and Maintenance Protocol
University of Michigan
Beck Road Storage Facility
Belleville, Michigan

1.0 INTRODUCTION

1.1 Status of Corrective Action

The Beck Road Storage Facility (BRSF) is a 134-acre, fenced compound owned by the University of Michigan (U-M), located at 8501 Beck Road in Belleville, Michigan (see Plate 1, BRSF Location Map included in Appendix A). The State of Michigan, Department of Environmental Quality (MDEQ) issued a Resource Conservation and Recovery Act (RCRA) Part B Operating License on July 16, 1999, to allow U-M to manage and store mixed (hazardous and low-level radioactive) waste in Building 2201. The Operating License includes requirements for Corrective Action at two Waste Management Units (WMU-3 and WMU-4) located on the site.

On April 18, 2003, U-M completed a Corrective Measures Implementation Final Report for the BRSF. As described in the report, "The remaining corrective action for the BRSF consists of preventing exposure to groundwater exceeding Residential and Commercial I (R&C I) Drinking Water Criteria at WMU-3 and soils exceeding the R&C I Direct Contact Criteria at WMU-4." Data developed through groundwater modeling completed during the corrective action process indicated that groundwater concentrations of the observed constituents would be attenuated on site.

In a letter dated July 24, 2003, the MDEQ presented results from Slug Testing Wells for Groundwater Velocity Determination conducted by Waste and Hazardous Materials Division (WHMD) staff. Following review of the collected data, Mr. Dale Bridgford, Senior Geologist, MDEQ – WHMD concluded, "Based on the amount of time that has passed since utilization of the tanks ceased at the facility and the time calculated for the plume to attenuate,

it is concluded that groundwater monitoring has been completed for Waste Management Unit 3 and does not need to continue.”

Therefore, to complete requirements of the Corrective Measures Implementation, the following tasks remain:

1. Develop an MDEQ approved Operation and Maintenance (O&M) Plan to prevent exposure to groundwater in the vicinity of WMU-3 and to soils located 4 feet below ground surface (bgs) in the vicinity of WMU-4.
2. File an MDEQ approved Restrictive Covenant, including the installation of permanent marker, with Wayne County Register of Deeds for both WMUs.

This document presents the O&M Plan for both WMUs. A copy of this plan will be available at the BRSF Building 2201. Additionally, the U-M Occupational Safety and Environmental Health Department (OSEH) Hazardous Materials & Remediation Services (HMRS) Program Manager will provide copies upon request.

1.2 Site History

The BRSF Site (the Site), for purposes of the Corrective Measures Investigation, includes WMU-3 and WMU-4 in a 32,000 square-foot (approximately) investigation area, as shown on Plate 2, Site Location, included in Appendix A.

1.2.1 WMU-3

WMU-3 is the former location of a 2,000-gallon gasoline underground storage tank (UST), which was removed in 1996. A gasoline release was noted when the tank was removed and notifications were made to the MDEQ. Plate 3, Limit of Restricted Areas, in Appendix A, depicts the limits of WMU-3. Impacted soils surrounding the tank (130 cubic yards) were excavated and removed to a depth of seven feet bgs. Following removal of contaminated soils, remaining soils in WMU-3 did not exceed applicable criteria. However, concentrations of benzene, ethyl benzene, naphthalene, toluene, and xylenes were detected in groundwater

above the groundwater surface water interface (GSI) and/or R&C I Drinking Water Criteria in the immediate vicinity of the former tank. Subsequent modeling studies and activities conducted for the Corrective Measures Investigation demonstrated that contaminants in groundwater exceeding Drinking Water Criteria (benzene, ethyl benzene, and xylenes) would be attenuated on site, and that the GSI is not a relevant pathway. As noted earlier, the MDEQ conducted hydraulic conductivity tests (slug tests) of the aquifer within WMU-3 (at MW-101) and in downgradient wells VW-1, VW-2, and VW-3 that verified groundwater velocity determinations used in the modeling. Therefore groundwater use within the vicinity of WMU-3 (Restricted Groundwater Use Area) shall be restricted. Plate 3 in Appendix A depicts the limits of the Restricted Groundwater Use Area.

Because the MDEQ has concluded that groundwater monitoring has been completed for WMU-3, select monitoring wells and piezometers at the Site will be abandoned as part of this O&M Plan. The wells/piezometers will be abandoned in accordance with the procedures and requirements outlined in the Part 111 Administrative Rules of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. The verification wells (VW-1, VW-2, VW-3) and MW-101 will not be abandoned. VW-1, VW-2, and VW-3 will remain as Restricted Groundwater Use Area boundary markers, and if needed, used as monitoring wells at a later date. MW-101 serves as the basis for evaluating any results of the verification wells.

1.2.2 WMU-4

WMU-4 is beneath a paved driveway / parking area adjacent to Building 2205 as shown on Plate 3 in Appendix A. The area of WMU-4 has no history of waste management, handling, or storage activities. It was identified as a WMU when a polynuclear aromatic (PNA) benzo(a)pyrene was discovered in soil at concentrations greater than the R&C I Direct Contact criterion. The soil samples containing these elevated PNA concentrations were located at a depth of four to six feet bgs. Groundwater sampling in the area has not found PNA contamination. An exposure barrier consisting of four feet of soil including existing pavement is currently in place across WMU-4. The existing barrier within the vicinity of WMU-4 (Restricted Excavation Area) shall be maintained. The Restricted Excavation Area is

an approximately thirty-foot by thirty-foot area at the northeast corner of Building 2205. As shown in Plate 3 on Appendix A, WMU-4 is within the area designated as the Restricted Excavation Area.

1.3 Corrective Action Requirements

As part of the Corrective Action at the Site, U-M is required to implement institutional controls to prohibit groundwater use within the Restricted Groundwater Use Area and to prevent contact with soils beneath the exposure barrier within the Restricted Excavation Area. These institutional controls shall be left in place until appropriate criteria are met and the MDEQ authorizes the lifting of the restrictions in writing. The Restricted Groundwater Use and Restricted Excavation Areas are depicted on Plate 3 in Appendix A. Institutional controls will include:

- Filing a Deed Restriction with the Wayne County Register of Deeds,
- Implementing inspection protocol of the areas, and
- Placing a permanent marker describing the area of WMU-3 and WMU-4 and delineating the Restricted Groundwater Use Area and the Restricted Excavation Area.

1.3.1 Restricted Groundwater Use Area

The inspection protocol for the Restricted Groundwater Use Area will be performed on a semi-annual basis to verify that no new wells are installed within the Restricted Groundwater Use Area, and that there is no evidence of tampering or deterioration of the verification wells and MW-101.

1.3.2 Restricted Excavation Area

In addition to the institutional controls described above, U-M will implement protocols to maintain the exposure barrier and permanent marker, restrict excavation and prevent exposure to soils exceeding direct contact criteria within the Restricted Excavation Area.

The exposure barrier for the Restricted Excavation Area currently consists of sand with varying amounts of silt and gravel overlain by several inches of gravel aggregate covered by asphalt. U-M will maintain a four-foot thick exposure barrier layer in the Restricted Excavation Area in order to prevent human contact with potentially contaminated subsurface soils which exist at depths between four to six feet bgs. The Restricted Excavation Area is depicted on Plate 3 in Appendix A.

Although elevated contaminants were only found in a limited area in subsoils within WMU-4 between four to six feet bgs, this corrective action conservatively prevents contact with all subsurface soil deeper than three feet bgs within the Restricted Excavation Area. The inspection protocol for the Restricted Excavation Area will be performed on a semi-annual basis to verify that the exposure barrier is in good condition and that it has not been significantly disturbed. In addition, the inspections shall confirm that the permanent marker is visible and legible.

2.0 INSPECTION, EXCAVATION, AND REPAIR PROTOCOLS

2.1 Inspection Scope

A site inspection will be performed two times per year on three areas/features (inspection areas are shown on Plate 3 in Appendix A):

1. Restricted Groundwater Use Area;
2. The exposure barrier area in the Restricted Excavation Area; and
3. The permanent marker located as noted on Plate 3 in Appendix A.

The inspection procedure for each area/item is detailed below.

2.1.1 Restricted Groundwater Use Area

The inspector shall walk the entire Restricted Groundwater Use Area two times per year. The inspector shall look for evidence of well installation within the Restricted Groundwater Use Area. The inspector shall verify the integrity of the protective casings/flush mounts, locks, and guard posts (as appropriate) of VW-1, VW-2 and VW-3, and MW-101. If evidence of new well installation, tampering or deterioration is identified, the HMRS Program Manager shall be notified immediately. The details of the inspection shall be noted on the record keeping forms discussed in Section 2.1.4.

2.1.2 Restricted Excavation Area

The inspector shall walk over the designated Restricted Excavation Area, inspect the entire ground surface, and identify any major damage, which is defined as excavation of soil more than three feet bgs. If any major damage is noted, the repair protocol described in Section 2.3 shall be initiated as soon as is practical.

2.1.3 Permanent Marker

The inspector shall confirm that the permanent marker is not removed, covered, obscured, or otherwise altered. The inspections shall confirm that the permanent marker is visible and legible. If the marker is damaged, repairs shall be completed as soon as is practical.

2.1.4 Inspection Form

The inspector shall note any major damage on the Semi-Annual Inspection Form. A copy of this form is included in Appendix B. The following procedure will be used:

- **Restricted Groundwater Use Area.** If neither no evidence of new well installation nor evidence of tampering or deterioration of the verification wells or MW-101 is observed, the inspector shall record "OK" in the "Comments" box of the Semi-Annual Inspection Form. If evidence of new well installation or tampering or deterioration of wells is found, the inspector shall record the location in the "Comments" box and notify the HMRS Program Manager immediately. The inspector shall locate each new well or evidence of tampering or deterioration of the wells on a map of the site (provided on the back side of the log).
- **Restricted Excavation Area.** If no major damage is observed, the inspector shall record "OK" in the "Comments" box on the Semi-Annual Inspection Form. If major damage is found, the inspector shall record the location and type of damage in the "Comments" box on the Semi-Annual Inspection Form. Similarly, if a building or grounds maintenance issue arises that is currently causing damage or has the potential to cause major damage to the exposure barrier if not repaired, the inspector shall note the maintenance issue in the "Comments" box on the Semi-Annual Inspection Form. The inspector shall locate each area of exposure barrier damage or maintenance needed on a map of the site (provided on the reverse side of the log).

- Permanent Marker. The marker shall be inspected to verify it is in good condition and is readable. If no damage is observed, the inspector shall record "OK" in the "Comments" box on the Semi-Annual Inspection Form. If damage is found, the inspector shall record the type of damage in the "Comments" box on the Semi-Annual Inspection Form.

In addition, the inspector shall answer the "yes or no" questions regarding evidence of wells, exposure barrier condition, permanent marker damage, or maintenance issues at the bottom of the Semi-Annual Inspection Form. The inspector shall print and sign his or her name, record the date of the inspection, and submit the log to the HMRS Program Manager. The HMRS Program Manager shall review the form, print and sign his or her name, and record the date of the review.

2.2 Protocol for Planned Excavation in the Restricted Excavation Area

If the exposure barrier in the Restricted Excavation Area must be excavated (i.e. for subsurface utility work), the HMRS Program Manager shall be notified prior to opening the exposure barrier (except in the case of an emergency). The HMRS Program Manager or his/her designee shall:

- Notify the MDEQ in writing if the proposed work will breach the integrity of the exposure barrier (i.e., activities at depths greater than 3 feet). The notice shall briefly describe the planned work and the schedule for conducting the work.
- Arrange for the work to be supervised to document that excavated soils are properly managed.
- Direct the persons excavating the exposure barrier to maintain excavated soils on plastic sheeting or other suitable impervious surface.
- Arrange for disposal of excavated soil from beneath the exposure barrier layer or, alternatively, return excavated soil to its original location beneath the exposure barrier. All soil shall be properly managed in accordance with appropriate federal & Michigan law.

2.3 Protocol for Repair of Restricted Excavation Area Exposure Barrier

For routine maintenance of the asphalt in the restricted excavation area, the following protocol shall be used:

- During the semiannual inspections, any observed damage to the asphalt cover shall be recorded on the inspection form.
- For linear cracking of the asphalt that is $\frac{1}{2}$ " wide and longer than 5 feet, asphalt sealant shall be used to repair the affected area within ten business days, weather-permitting.
- For linear cracking of the asphalt that is greater than $\frac{3}{4}$ " wide and longer than 5 feet, asphalt cold patch shall be used to repair the affected area within ten business days, weather-permitting. If cold patch is deemed unsuitable, an alternative means of repair shall be determined and scheduled within one month, and repairs shall be conducted as soon as practical.
- For damaged areas less than ten square feet (e.g. potholes, rutting); asphalt cold patch shall be used to repair the affected area within ten business days, weather-permitting.
- For damaged areas greater than ten square feet, U-M OSEH shall consult with the U-M Architecture, Engineering and Construction Department to determine the most effective means of restoring the asphalt to its original condition, or to a condition that provides an equivalent exposure barrier. Scheduling of the repair work shall be conducted within one month. Restoration or replacement of the asphalt is weather dependent (as hot mix asphalt paving is not practical during cold temperatures), but shall be conducted as soon as practical.
- Any maintenance activities to restore damaged asphalt shall be recorded on the inspection form.

When unscheduled excavations occur below three feet in the Restricted Excavation Area, the following steps shall be taken:

- Notify the MDEQ in writing of the proposed repair work. The notice shall briefly describe the planned work and the schedule for conducting the work.
- The area will be secured to prevent direct contact with the underlying subsoil. The area of major damage shall be cordoned off until the repairs are complete and the area has been re-

inspected. Additionally, appropriate measures shall be taken to minimize dust emissions from soil beneath the exposure barrier layer.

- Soil and aggregate shall be used to restore the excavated area to its original condition, or to a condition providing an equivalent exposure barrier.
- The entity conducting repairs shall provide written verification that repairs have been completed in accordance with industry standard construction practices.
- The area shall be re-inspected as indicated in the re-inspection protocol contained in Section 2.4.

3.0 RESPONSIBILITIES

3.1 Inspections and Repairs

The U-M HMRS Program Manager or his or her designee shall be responsible for facilitating timely semi-annual inspections, completing necessary repairs, and maintaining proper documentation. The HMRS Program Manager may designate a staff member or hire a consultant to conduct the inspections, but the responsibility for maintaining compliance with this O&M Plan resides with the HMRS Program Manager. U-M staff, a contractor, or a consultant may complete repairs.

A copy of this O&M Plan and copies of completed Semi-Annual Inspection Forms will be kept on file in the BRSF Building 2201 office and be made available for agency review upon request.

3.2 Notifications

The HMRS Program Manager shall be notified if any of the following occurs:

- An unplanned exposure barrier breach exposes soil deeper than three feet bgs within the Restricted Excavation Area.
- Any groundwater well installation is planned in the Restricted Groundwater Use Area.

A copy of all notifications shall be placed in the records kept at the BRSF Building 2201 office, and the HMRS Program Manager shall maintain a copy.

The HMRS Program Manager or his or her designee shall arrange to implement the appropriate protocols discussed in Section 2.

3.3 Record Retention

The HMRS Program Manager will coordinate the retention of records generated during the implementation of this O&M Plan.

Records and notifications associated with semi-annual inspections and exposure barrier repairs shall be retained on-site for the duration of the U-M's ownership or until the MDEQ lifts the land use restrictions. Repair records shall be detailed and include field notes and documentation of soil disposal, if appropriate.

If the BRSF property is sold, a copy of the O&M Plan, records and notifications shall be provided to the new owner. If other portions of the property are sold outside of the restricted areas as described in this document, the U-M shall maintain access to these areas through an easement or an alternative arrangement to facilitate compliance with this O&M Plan.

3.4 Responsibilities of the Inspector

The following list includes basic responsibilities for the designated site inspector:

- The inspector shall be familiar with the property and the design of the barrier layer.
- The inspector shall review the inspection protocol before each semi-annual inspection.
- The inspector shall be capable of walking the restricted areas on a semi-annual basis and shall promptly investigate and report damage.
- The inspector shall promptly re-inspect any areas where repairs have been made.
- The inspector shall submit the Semi-Annual Inspection Form promptly to the HMRS Program Manager.

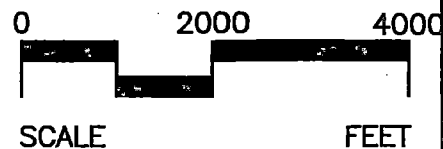
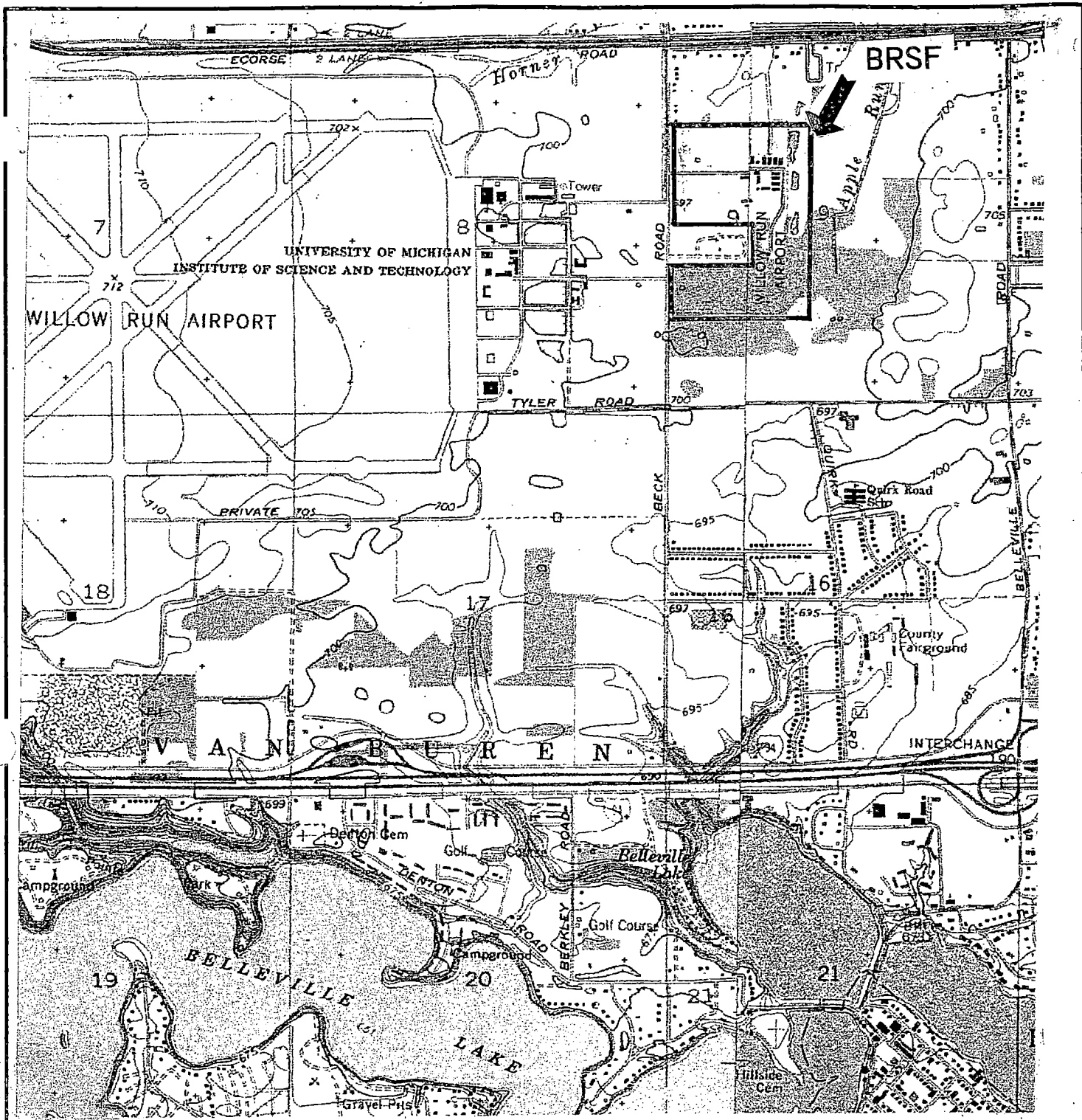
4.0 ABANDONMENT OF MONITORING WELLS AND PIEZOMETERS

Eleven wells/piezometers will be abandoned as part of this O&M Plan. These include MW-2, MW-3, MW-4, MW-5, MW-9, MW-14, MW-102, MW-103, PZ-1, PZ-2, and PZ-3. The wells/piezometers will be abandoned within 60-days after filing the Restrictive Covenant with the Wayne County Register of Deeds. The wells/piezometers will be abandoned in accordance with the procedures and requirements outlined in the Part 111 Administrative Rules of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

U-M will prepare a brief report summarizing abandonment operations for submittal to the MDEQ within 30 days of completion of the work. The report will include necessary certification statements as outlined in 40 CFR 270.11(d).

APPENDIX A

**BRSF Location Map, Plate 1;
Site Location, Plate 2; and
Limit of Restricted Area, Plate 3**



PROJECT NO.
13-021252-6A

SCALE:
AS SHOWN

DRAWN BY:
HK

CHECKED BY:
ACE

LOCATION:
UNIVERSITY OF MICHIGAN
BECK ROAD STORAGE FACILITY

TITLE:
BRSF LOCATION MAP

DATE:
11-06-03

SHEET
1 OF 1

PLATE NO:
1

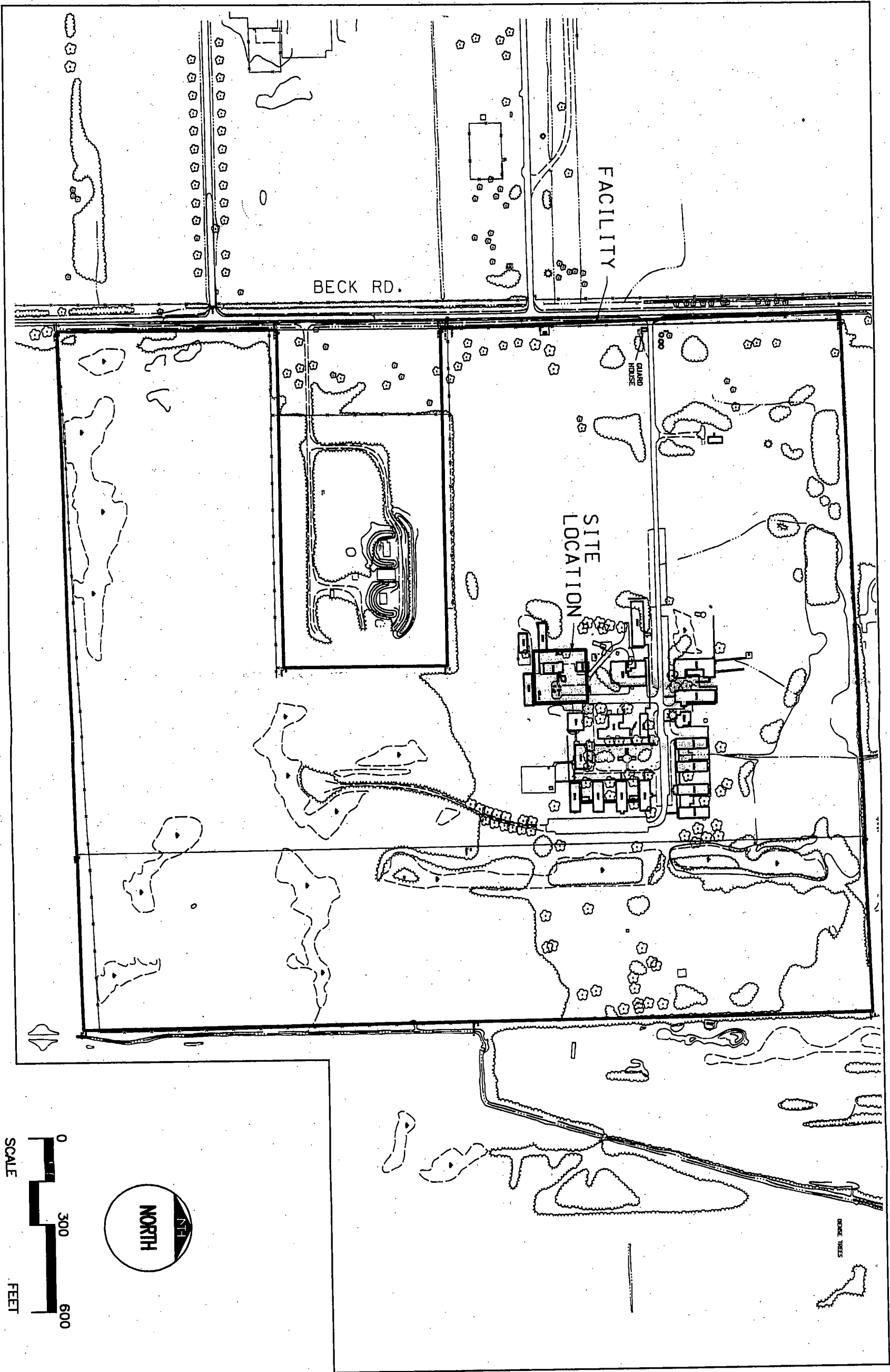


NTH Consultants, Ltd.

Professional Engineering & Environmental Services
Farmington Hills Detroit Exton Grand Rapids Lansing

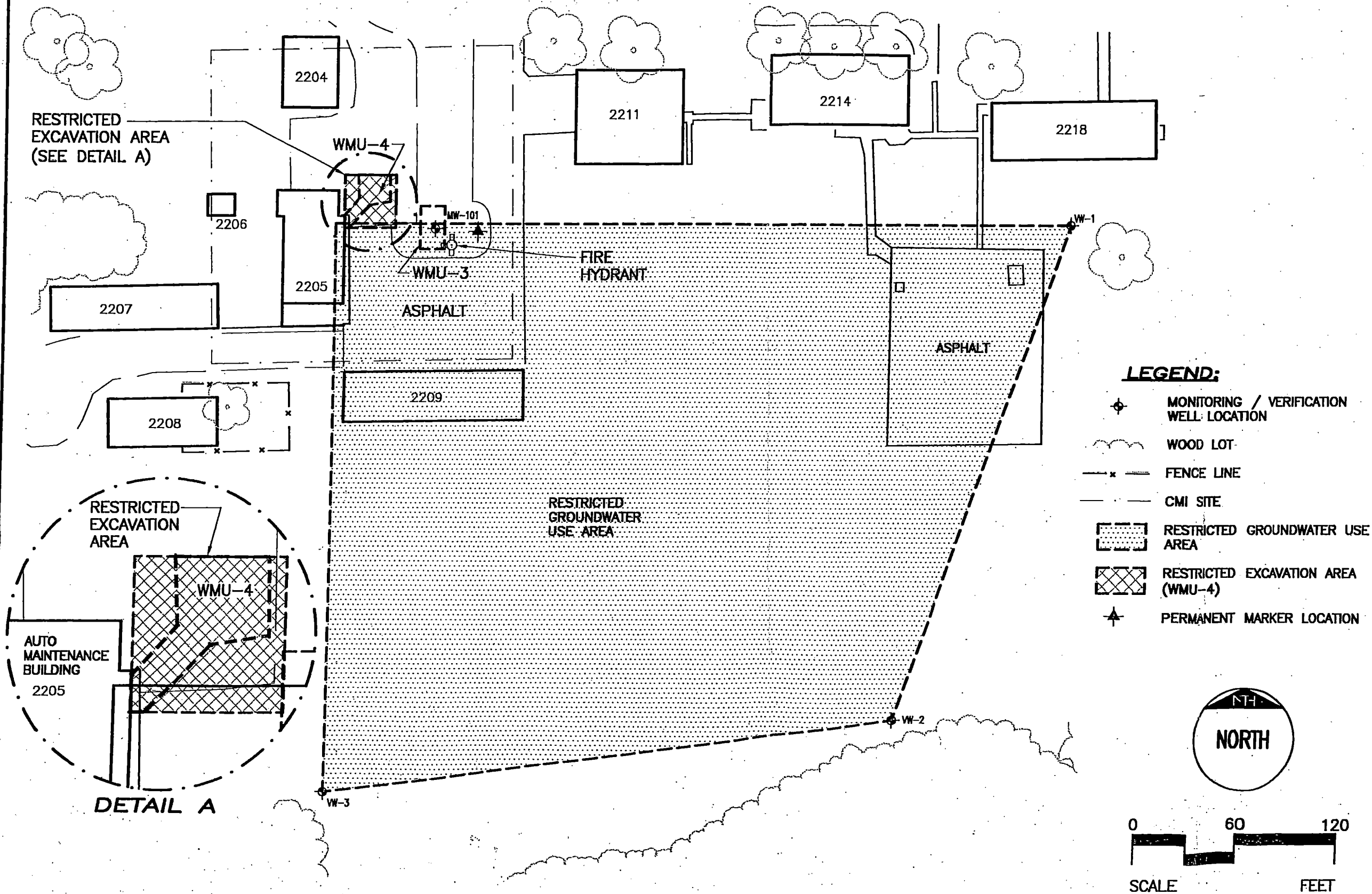
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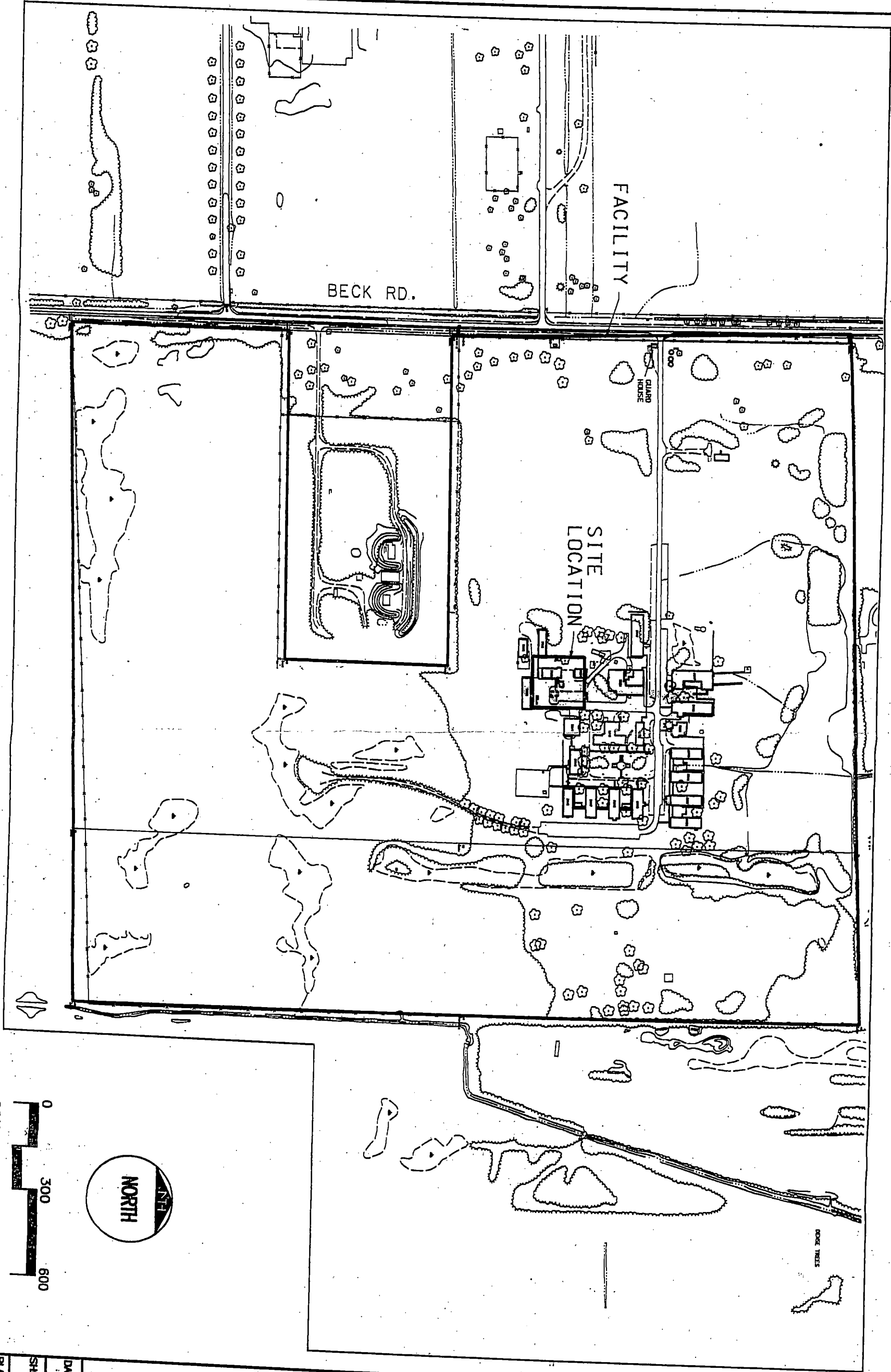
2	DATE: 11-06-03 SHEET 1 OF 1 PLATE NO:	SITE LOCATION UNIVERSITY OF MICHIGAN BECK ROAD STORAGE FACILITY	PROJECT NO. 13-021252-6A	NTH Consultants, Ltd. Professional Engineering & Environmental Services Farmington Hills Detroit Exton Grand Rapids Lansing	
			SCALE: AS SHOWN		
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			CHECKED BY: ACE		

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Professional Engineering & Environmental Services
Farmington Hills Detroit Exton Grand Rapids Lansing

LIMIT OF RESTRICTED AREAS	PROJECT NO. 13-021252-6A
	SCALE: AS SHOWN
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	CHECKED BY: ACE
UNIVERSITY OF MICHIGAN BECK ROAD STORAGE FACILITY	
DATE: 06-01-04	
SHEET 1 OF 1	
DATE NO: 3	



SCALE
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FEET



DATE: 11-06-03	SHEET 1 OF 1	PLATE NO: 9	SITE LOCATION UNIVERSITY OF MICHIGAN BECK ROAD STORAGE FACILITY	PROJECT NO. 13-021252-6A	NTH Consultants, Ltd. Professional Engineering & Environmental Services Farmington Hills Detroit Exton Grand Rapids Lansing	
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APPENDIX B

**Semi-Annual Inspection
Form and Map**

THE UNIVERSITY OF MICHIGAN BECK ROAD STORAGE FACILITY SEMI-ANNUAL INSPECTION FORM

Instructions:

- This form must be completed at the time of each inspection.
- Complete a full site inspection as detailed in the Inspection Protocol at least twice per year.
- Note the condition of each WMU area in the designated area of this sheet.
- Indicate (by circling) if repairs are necessary or if a maintenance issue has developed that is currently or could potentially impact the Restricted Excavation Area exposure barrier in the future.
- Sign and date form upon completion of each semi-annual inspection.
- If any major damage is noted, follow the procedures outlined in the Inspection, Excavation, and Repair Protocols (Section 2 of the Operation & Maintenance Plan).
- If repairs are necessary, upon completion of repairs, re-inspect the area where repairs have been made, indicate when they were completed, and initial the appropriate area on this form.
- This form, completed inspection records, and records of repair must be kept onsite by the facility owner until the MDEQ approves the lifting of the restrictions.

WMU-3	
Restricted GW Use Area	Comments:
Inspect Restricted GW Use Area for evidence of new well installation and tampering or deterioration of VW-1, VW-2, VW-3, and MW-101.	
WMU-4	
Restricted Excavation Area	Comments:
Inspect Exposure Barrier in the Restricted Excavation Area	
Permanent Marker	Comments:
Lettering in good condition and legible	

Evidence of new well installation?	<u>No / Yes</u>	If Yes, date wells removed?	_____	Initials: _____
Evidence of tampering or deterioration of VW/MW wells?	<u>No / Yes</u>	If Yes, date verification wells repaired?	_____	Initials: _____
Exposure Barrier Repairs Necessary?	<u>No / Yes</u>	If Yes, date Repaired?	_____	Initials: _____
Marker Repairs Necessary?	<u>No / Yes</u>	If Yes, date Repaired?	_____	Initials: _____
Maintenance Repair Issue?	<u>No / Yes</u>	If Yes, date Repaired?	_____	Initials: _____

Inspector: _____

Signature: _____

Date: _____

HMRS Program Manager: _____

Signature: _____

Date: _____

