State of Michigan
Department of Environmental Quality
HAZARDOUS WASTE MANAGEMENT FACILITY OPERATING LICENSE

as amended
Sept 20, 2013
Sept 30, 2013
Aug 6, 2015
July 1, 2017

ME OF LICENSEE: Drug & Laboratory Disposal, Incorporated

NAME OF FACILITY OWNER: Drug & Laboratory Disposal, Incorporated

NAME OF FACILITY OPERATOR: Drug & Laboratory Disposal, Incorporated

NAME OF TITLEHOLDER OF LAND: Folley, Incorporated

FACILITY NAME: Drug & Laboratory Disposal, Incorporated

FACILITY LOCATION: 331 Broad Street, Plainwell, Michigan 49080

EPA IDENTIFICATION (ID) NUMBER: MID 092 947 928 EFFECTIVE DATE: September 25, 2012

REAPPLICATION DATE: March 29, 2022 EXPIRATION DATE: September 25, 2022

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 Environmental (DEQ), an operating license (hereafter called the "license") is issued to Drug & Laboratory Disposal, Incorporated (hereafter called the "licensee") to operate a hazardous waste management facility (hereafter called the "facility") located at 331 Broad Street, Plainwell, Michigan at latitude 42°26'41"N and longitude 85°38'05"W. The licensee is authorized to conduct the following hazardous waste management activities:

☒ STORAGE	☒ TREATMENT	☐ DISPOSAL	☐ POSTCLOSURE
☒ Container	☒ Container	☐ Landfill	☐ Tank
☒ Tank	☐ Tank	☐ Land Application	☐ Surface Impoundment
☐ Waste Pile	☐ Surface Impoundment	☐ Surface Impoundment	☐ Landfill
☐ Surface Impoundment	☐ Incinerator		☐ Waste Pile
☐ Drip Pad	☒ Other: Miscellaneous Units		

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 31 pages of conditions attached hereto (including those in Attachments 1 through 13) and the applicable regulations contained in Part 111 and its rules 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 and construction permit applications submitted on January 2, 2009, and September 30, 2010, respectively, 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, as amended December 22, 2010, 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 25th day of September 2012

by Liane J. Shekter Smith

iane J. Shekter Smith, P.E., Chief
esource Management Division

HAZARDOUS WASTE MANAGEMENT FACILITY OPERATING LICENSE
FOR

DRUG & LABORATORY DISPOSAL, INCORPORATED
MID 092 947 928

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PART I
STANDARD CONDITIONS

A. TERMINOLOGY AND REFERENCES

Throughout this license, the term "Division" means the Resource Management Division within the DEQ responsible for administering Part 111 of Act 451 and the rules. Throughout this license, "Director" means the Director of the DEQ 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 DEQ, nor does the DEQ 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 §106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) {42 U.S.C. 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 DEQ pursuant to the terms of an emergency operating license. Any license noncompliance, except to the extent authorized by the DEQ 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. {§§11148, 11150, and 11151, R 299.9521(1)(a) and (c) and (3)(a) and (b), and 40 CFR §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 29, 2022**, 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 DEQ, 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

LIST OF ATTACHMENTS

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 Waste Analysis Plan, Attachment 1, of this license. {R 299.9605(1) and 40 CFR §264.13}

B. SECURITY

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

C. GENERAL INSPECTION REQUIREMENTS

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

2. The licensee shall develop and implement a procedure to ensure compliance with the requirements of R 299.9605(2) regarding transport vehicles and other containers leaving the facility.

D. PERSONNEL TRAINING

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

E. PREPAREDNESS AND PREVENTION

The licensee shall comply with the preparedness and prevention 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 4, 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 §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. {§11148 of Act 451 and R 299.9521(3)(b)}

date fixed by order of the reviewing court consistent with §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 §270.30(c) through (k), (l)(2), (3), (5), (7), and (11), and (m). {§§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. {R 299.9519(1)}

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)}

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 §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 §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. {R 299.9521(1)(a) and R 299.9521(3)(b) and 40 CFR §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 Plainwell or county of Allegan, 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 DEQ 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.I.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 5-day written notice requirement in favor of submittal of a written report 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 §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 §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

1. 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 5, 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 §§264.112(d)(1), 264.115, and 264.120}

2. For closure soil sampling, the licensee shall analyze for mercury, lead, arsenic, and the same parameters specified for groundwater sampling in Tables 2, 3, and 4 of the Sampling and Analysis Plan, Groundwater Monitoring, Attachment 11, of this license. The licensee shall also use the same analytical methods specified in Tables 2, 3, and 4, except that Method 5035A (Methanol Preservation) must be utilized for soil volatile organic compound (VOC) samples.

K. FINANCIAL ASSURANCE FOR CLOSURE

1. On the effective date of this license, the facility closure cost estimate is $182,993 for the existing units. This estimate covers the DLS-1, DLS-2, DLS-3, DLS-4, and the Hazardous Waste Loading Bay (HWLB-1). The licensee shall keep this estimate current as required under R 299.9702 and 40 CFR §264.142.

2. On the effective date of this license, the facility closure cost estimate for the proposed units is $1,200,879, excluding the Explosive Bunker.

Proposed Units	Closure Cost Estimate
DLS-5	$79,893.00
DLS-6a, DLS-6b, and DLS-12	$61,952.00
DLS-7	$136,959.00
DLS-8 and DLS-9	$173,503.00
DLS-10 and DLS-11	$748,572.00
Explosive Bunker	To Be Determined
TOTAL	**$1,200,879.00**

3. The license shall submit a closure cost estimate for the Explosive Bunker to the Division Chief 60 days prior to operation of the Explosive Bunker as allowed under Condition III.C.1.

4. The licensee shall submit proof of financial assurance for the proposed units in accordance with Condition III.B.1.(e) of this license.

5. The licensee shall continuously maintain financial assurance for the current closure cost estimate as required under R 299.9703.

FINANCIAL ASSURANCE FOR CORRECTIVE ACTION

1. On the effective date of this license, no cost has been identified for performing corrective action at the facility. The licensee shall perform corrective action as required by Condition VIII.C. of this license. For Waste Management Units and Area of Concerns (AOCs) not undergoing corrective action at this time, financial assurance will be required at a later date established by the Division Chief.

2. The licensee shall develop a detailed written estimate for the cost of performing corrective action at the facility based on the results of any investigation conducted pursuant to Condition VIII.D.

3. The cost estimate shall be submitted with the Corrective Action Investigation Final Report required by Conditions VIII.D and VIII.K.of this license.

4. The licensee shall continuously maintain financial assurance for corrective action pursuant to R 299.9713.

M. FINANCIAL REPSONSIBILITY FOR LIABILITY COVERAGE

The licensee shall continuously maintain liability coverage for sudden and accidental occurrences, as required by R 299.9710.

N. 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) and 40 CFR §264.73(b)(9), and §3005(h) of RCRA, and 42 U.S.C. §6925(h)}

O. 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}

P. AIR EMISSION STANDARDS

1. The licensee shall comply with the requirements of 40 CFR Part 264, Subpart BB, regarding air emission standards for equipment leaks, and Subpart CC, regarding air emission standards for containers, tanks, and miscellaneous units.

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}

3. The licensee shall operate the facility in a manner that will prevent air emissions in violation of Part 55, Air Pollution Control, of Act 451. {R 299.9602(1)(b)}

Q. 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 documents and records.
4. Contingency Plan.
5. Closure Plan.
6. Cost estimates for facility closure and corrective action and copies of related financial assurance documents.
7. Operating record.
8. Site Security Plan.
9. Facility engineering plans and specifications.
10. Record keeping procedures.
11. Environmental monitoring plans, including Sampling and Analysis Plans and QA/QC Plans.
12. Environmental monitoring data and statistical records.
13. Preventative procedures (Personnel Protection Plan).
14. Hazardous waste minimization program certification.

{R 299.9521(3)(a)}

S. ENGINEERING PLANS

The licensee shall construct, operate, and maintain the facility in accordance with the Engineering Plans, Attachment 12, of this license and any modifications to those plans shall be made in accordance with this license.

PART III

CONSTRUCTION FOR EXPANSION CONDITIONS

A. CONSTRUCTION

1. The licensee shall construct the expanded facility: DLS-5, DLS-6a, DLS-6b, DLS-7, DLS-8, DLS-9, DLS-10, DLS-11, DLS-12, and the Explosives Bunker, in accordance with the Engineering Plans, Attachment 12, of this license.

2. The licensee shall construct tank systems in DLS-7 in accordance with the applicable requirements of R 299.9615 and 40 CFR§§264.192, 264.193, and 264.194.

3. The licensee shall notify the Division Chief at least seven days prior to initiating any construction phase for the expanded facility.

4. The licensee shall submit quarterly progress reports regarding the construction activities to the Division Chief. The first report shall be submitted within 90 days of issuance of this license and then every 90 days thereafter during active construction until submission of the final as-built plans and construction certification documents.

5. The licensee shall obtain written approval from the Division Chief prior to initiating any construction change orders that modify the design standards or increase the containment or storage capacity approved in the Engineering Plans, Attachment 12, of this license. The construction change orders shall become part of this license upon approval by the Division Chief.

6. The licensee shall ensure that the registered professional engineer who signs the certification of construction required under §11123(2)(n)(ii) of Act 451, or competent subordinates under his or her direct supervision, are on-site at all times when construction activity authorized under this license is performed.

7. DLD shall initiate construction of the expanded facility on or before September 25, 2018. This authorization remains valid for a period of not more than 10 years if construction is initiated on or before September 25, 2018 and proceeds in a continuous manner.

B. POSTCONSTRUCTION DOCUMENTATION

1. The licensee shall submit postconstruction documentation to the Division Chief following construction of the expanded facility. The postconstruction documentation shall include the following:

   (a) Any changes in, or additions to, the previously submitted disclosure information, or a certification that the disclosure listings previously submitted continues to be correct.

   (b) A certification under the seal of a licensed professional engineer verifying that the construction has proceeded according to the plans approved by the Division Chief and, if applicable, the approved construction permit, including as-built plans.

   (c) A certification of the expanded facility capability of treating, storing, or disposing of hazardous waste in compliance with Part 111 of Act 451.

(d) Information regarding any deviations from the specific conditions in this license.

(e) Proof of financial assurance as required by R 299.9703.

{§§11123(2)(n) and 11125(9)}

2. The licensee shall submit the required postconstruction documentation in accordance with the schedule below.

POSTCONSTRUCTION DOCUMENTATION	SUBMITTAL DEADLINE
Updated disclosure information or certification that disclosure continues to be correct	Within 30 days after the change or within 30 days of construction completion, whichever occurs first.
Certification of construction	Within 30 days of construction completion and anytime thereafter, when requested by the Division Chief.
Certification of capability signed and sealed by licensed professional engineer	Within 30 days of construction completion.
Information regarding any deviations from specific conditions in operating license	As soon as the licensee becomes aware of the need to make the deviation, if applicable.
Proof of financial responsibility	60 days before the date on which hazardous waste is first received for treatment, storage, or disposal.

{§11125(9)}

C. OPERATION

1. The license shall not treat, store, or dispose of hazardous waste in the expanded facility until final written authorization is obtained from the Division Chief. {§11124(1)}

2. The licensee shall operate the expanded facility in compliance with Part 111 of Act 451, the rules, and this license. {R 299.9519(1)}

D. NOTICE REQUIREMENTS

1. Within 60 days of initiating operations in the expanded facility built during the final construction phase, the licensee shall modify the October 27, 2000, notice required pursuant to R 299.9525 to identify the legal description of the land upon which the expanded facility is located.

2. Within 30 days after the modification, the licensee shall submit verification of the execution, filing, and recording of the modified notice with the Allegan County Register of Deeds to the Division.

PART IV
CONTAINER STORAGE AND TREATMENT CONDITIONS

A. COVERAGE OF LICENSE

The existing and proposed hazardous waste container storage and treatment areas: DLS-1, DLS-2, DLS-3, HWLB-1, DLS-5, DLS-6a, DLS-6b, DLS-7, DLS-8, DLS-9, DLS-10, DLS-11, DLS-12, and the Explosives Bunker, shown in the Engineering Plans, Attachment 12, are covered by this license. Any expansion or enlargement beyond the facility boundary shown on the Master Site Plan or beyond the 429,416 gallon container storage design capacity requires a new license from the Division Chief. The Master Site Plan is incorporated into this license as part of Attachment 12. {R 299.9521(1)(b)}

B. WASTE IDENTIFICATION AND QUANTITY

The licensee may store no more than a total volume of 429,416 gallons of Acceptable Hazardous Wastes, Attachment 6, in containers at the facility, subject to the terms of this license. The maximum number of 55-gallon drums of hazardous waste that may be stored at the facility is 7,806 drums. {R 299.9521(2)(d)}

Location	Status	Waste Type	Storage Capacity
DLS-1	Existing	All	2,860 gallons
DLS-2	Existing	All	3,300 gallons
DLS-3	Existing	All	27,500 gallons
HWLB-1	Proposed	All	5,200 gallons
DLS-5	Proposed	All	114,400 gallons
DLS-6a	Proposed	Hazardous Controlled Substances	1,600 gallons
DLS-6b	Proposed	Hazardous Controlled Substances	10,780 gallons
DLS-7	Proposed	All	6,600 gallons
DLS-8	Proposed	All	52,260 gallons
DLS-9	Proposed	All	28,160 gallons
DLS-10	Proposed	All	94,500 gallons
DLS-11	Proposed	All	52,250 gallons
DLS-12	Proposed	All	30,000 gallons
Explosives Bunker	Proposed	Highly Reactive Materials	6 gallons or 50 pounds(lbs)
		Total	**429,416 gallons**

C. WASTE TREATMENT CAPACITY AND METHODS

1. The licensee shall treat Acceptable Hazardous Wastes, Attachment 6, at the facility in accordance with the table below, subject to the terms of this license. {R 299.9521(2)(d) and (3)(a) and (b)}

Location	Status	Waste Type	Treatment Capacity	Treatment Method	Number of Treatment Unit
DLS-1	Existing	All	550 gallons/treatment	Lab Packing	*
	Proposed	All	550 gallons/treatment/unit	Commingling	One Unit[1]
	Proposed	All	1,540 gallons/day	Filter Press	One Filter Press
	Proposed	Radioactive Materials	110 gallons/treatment	Stabilization	*
DLS-2	Existing	All	550 gallons/treatment	Lab Packing	*
	Existing	Solvents	550 gallons/treatment	Commingling	*
	Existing	Heavy Metals	165 gallons/treatment	Stabilization	*

Location	Status	Waste Type	Treatment Capacity	Treatment Method	Number of Treatment Unit
	Existing	All	165 gallons/ treatment	Solidification Treatment	*
	Existing	All	4,125 gallons/unit/day	Shredding	Two Shredder Units
	Proposed	All	550 gallons/treatment/day	Commingling	Two Units[1]
	Proposed	All	7,920 gallons/day	Hammer Mill	One Unit[1]
	Proposed	All	330 gallons/unit/day	Aerosol Recovery	Two Aerosol Discharge and Recovery Units
	Proposed	Explosive Materials	1 lb/treatment uninhibited waste or 5 lb/treatment inhibited or quench waste	Stabilization	*
DLS-3	Existing	All	1100 gallons/treatment	Lab Packing	*
	Existing	All	550 gallons/treatment	Commingling	*
	Existing	All	550 gallons/treatment/unit	Solidification of inorganic materials under Inorganic Fume Hood #1	One Unit[1]
	Existing	All	550 gallons/treatment	Solidification of organic materials under Organics Fume Hood #1	One Unit[1]
	Existing	All	330 gallons/unit/day	Distillation	Two Distillation Units
	Proposed	All	1,540 gallons/unit/day	Neutralization/ Precipitation Unit	One Neutralization/ Precipitation Unit.
	Proposed	All	550 gallons/treatment/unit	Commingling	Ten Units[1]
	Proposed	All	330 gallons/unit/day	Electrolytic Metal Recovery	One Metals Reclamation Unit
	Proposed	All	1,540 gallons/unit/day	Filter Press	One Filter Press
	Proposed	All	330 gallons/unit/day	Aerosol Recovery	Two Aerosol Discharge and Recovery Units
	Proposed	Explosive Materials	1 lb/treatment	Conversion Method	One Unit[1]
	Proposed	Explosive Materials	1 lb/treatment uninhibited waste or 5 lb/treatment inhibited or quenched waste	Dissolution Method	One Unit[1]
HWLB-1	Proposed	Heavy Metals	165 gallons/treatment	Stabilization	*
	Proposed	All	4,125 gallons/unit/day	Shredding	Three Shredder Units
	Proposed	All	550 gallons/treatment/unit	Commingling	One Unit[1]
	Proposed	All	330 gallons/unit/day	Electrolytic Metal Recovery	One Metals Reclamation Unit
	Proposed	All	1,540 gallons/unit/day	Filter Press	One Filter Press Unit
	Proposed	Explosive Materials	1 lb/treatment uninhibited waste or 5 lb/treatment inhibited or quench waste	Stabilization	*
DLS-5	Proposed	All	1100 gallons/treatment	Lab Packing	*
	Proposed	All	550 gallons/treatment/unit	Commingling	Six Units[1]
	Proposed	All	1,540 gallons/unit/day	Neutralization/ Precipitation Unit	One Neutralization/ Precipitation Unit
	Proposed	All	165 gallons/treatment	Solidification	*
	Proposed	All	4,125 gallons/unit/day	Shredding	Four Shredder Units
	Proposed	All	330 gallons/unit/day	Distillation	Three Distillation Units
	Proposed	All	330 gallons/unit/day	Electrolytic Metals Recovery	One Metals Reclamation Unit
	Proposed	All	1,540 gallons/unit/day	Filter Press	Two Filter Press Units

Location	Status	Waste Type	Treatment Capacity	Treatment Method	Number of Treatment Unit
	Proposed	All	330 gallons/unit/day	Aerosol Recovery Unit	Four Aerosol Discharge and Recovery Units
	Proposed	Explosive Materials	1 lb/treatment	Conversion Method	*
	Proposed	Explosive Materials	1 lb/treatment uninhibited waste or 5 lb/treatment inhibited or quenched waste	Dissolution Method	*
	Proposed	Explosive Materials	1 lb/treatment uninhibited waste or 5 lb/treatment inhibited or quench waste	Stabilization	*
DLS-7	Proposed	All	550 gallons/treatment	Lab Packing	*
DLS-8	Proposed	All	550 gallons/treatment	Lab Packing	*
DLS-9	Proposed	All	550 gallons/treatment	Lab Packing	*
DLS-10	Proposed	All	1,100 gallons/treatment	Lab Packing	*
	Proposed	All	550 gallons/treatment/unit	Commingling	Ten Units[1]
	Proposed	All	165 gallons/ treatment	Solidification	*
	Proposed	All	4,125 gallons/unit/day	Shredding	Two Shredder Units
	Proposed	All	330 gallons/unit/day	Distillation	Two Distillation Units
	Proposed	All	1,540 gallons/unit/day	Neutralization/ Precipitation Unit	Three Neutralization/ Precipitation Units
	Proposed	All	330 gallons/unit/day	Electrolytic Metals Recovery	Two Metals Reclamation Units
	Proposed	All	1,540 gallons/unit/day	Filter Press	Three Filter Press Units
	Proposed	All	330 gallons/unit/day	Aerosol Recovery	Four Aerosol Discharge and Recovery Units
	Proposed	Explosive Materials	1 lb/treatment	Conversion Method	*
	Proposed	Explosive Materials	1 lb/treatment uninhibited waste or 5 lb/treatment inhibited or quenched waste	Dissolution Method	*
	Proposed	Explosive Materials	1 lb/treatment uninhibited waste or 5 lb/treatment inhibited or quench waste	Stabilization	*
	Proposed	Radioactive materials	110 gallons/treatment	Stabilization	*
DLS-11	Proposed	All	1,960 gallons/treatment	Lab Packing	*
	Proposed	All	550 gallons/treatment/unit	Commingling	Twenty-eight Units[1]
	Proposed	All	1,540 gallons/unit/day	Neutralization/ Precipitation Unit	Two Neutralization/ Precipitation Units
	Proposed	All	275 gallons/treatment	Solidification	*
	Proposed	All	4,125 gallons/unit/day	Shredding	Two Shredder Units
	Proposed	All	330 gallons/unit/day	Distillation	Two Distillation Units
	Proposed	All	330 gallons/unit/day	Electrolytic Metals Recovery	One Metals Reclamation Unit
	Proposed	All	1,540 gallons/unit/day	Filter Press	Two Filter Press Units
	Proposed	All	330 gallons/unit/day	Aerosol Recovery	Two Aerosol Discharge and Recovery Units
	Proposed	Explosive Materials	1 lb/treatment	Conversion Method	*

Location	Status	Waste Type	Treatment Capacity	Treatment Method	Number of Treatment Unit
	Proposed	Explosive Materials	1 lb/treatment uninhibited waste or 5 lb/treatment inhibited or quenched waste	Dissolution Method	*
	Proposed	Explosive Materials	1 lb/treatment uninhibited waste or 5 lb/treatment inhibited or quench waste	Stabilization	*

**Treatment may occur in containers at any location within the boundaries of the designated licensed area.*
[1]Treatment unit consists of drums in treatment under appropriate fume hood.

2. The licensee shall treat Acceptable Hazardous Waste, Attachment 6, in accordance with the Treatment Procedures, Attachment 8, of this license, subject to the terms of this license. {R 299.9633}

3. The licensee shall only solidify hazardous wastes that are subject to 40 CFR Part 264, Subpart CC under the treatment hood for organics located in DLS-3, DLS-5, DLS-10, and DLS-11. {R 299.9634 and 40 CFR Part 264, Subpart CC}

4. The licensee shall store or treat no more than 550 gallons or ten, 55-gallon drums at a time under the existing or proposed inorganics fume hood or the organics fume hood, subject to the terms of this license. {R 299.9521(3)(b) and R 299.9602(1)(b)}

5. The licensee shall treat hazardous waste to render it nonhazardous, less hazardous, or made more suitable for shipment off-site for disposal at an appropriate treatment, storage, or disposal facility. {R 299.9633}

6. The licensee shall not mix, combine, or commingle incompatible hazardous waste. The licensee shall commingle waste in accordance with the Waste Analysis Plan, Attachment 1, and the Treatment Procedures, Attachment 8, of this license. {R 299.9521(3)(b) and R 299.9605(1) and 40 CFR §§264.13 and 264.17.

7. Commingling of hazardous waste shall be conducted under a fume hood appropriate for capturing emissions from the treatment process. {R 299.9521(3)(b) and R 299.9602(1)(b)}

8. Containers in which reactions are occurring shall remain under an appropriate fume hood until the reaction is complete. {R 299.9521(3)(b), R 299.9602(1)(b), and R 299.9633}

9. The licensee shall place small containers of hazardous waste in overpacked drums (lab packs) in accordance with the following:

   (a) All lab packing activities are conducted in the container storage areas identified as DLS-1, DLS-2, DLS-3, DLS-5, DLS-7, DLS-8, DLS-9, DLS-10, and DLS-11 and performed in accordance with the Treatment Procedures, Attachment 8, of this license. {R 299.9602(d) and R 299.9521(3)(b)}

   (b) All lab packing is conducted in accordance with the federal Department of Transportation Hazardous Materials Regulation provisions in 49 CFR Parts 171 through Parts 178. {R 299.9305}

   (c) Incompatible wastes or incompatible wastes and materials shall not be placed in the same outside container. {R 299.9521(3)(b) and R 299.9605(1) and 40 CFR §264.17, which is ABR in R 299.11003}

10. The licensee shall adhere to the general lab packing guidelines specified in the Treatment Procedures, Attachment 8, of this license. The licensee may revise those lab packing guidelines as appropriate to be consistent with any revisions implemented by the receiving facilities without necessitating a major license modification. The licensee shall submit the modifications to the Division Chief prior to implementing the use of the modified guidelines. If the Division Chief does not reject or require revision of the modified guidelines within 14 days of receipt, the licensee shall implement use of the modified guidelines and the guidelines shall be incorporated into this license as a replacement for the existing guidelines.

11. The licensee shall comply with the generator requirements of Part 3, Generators of Hazardous Waste, of the Part 111 administrative rules for any hazardous wastes that are mixed, combined, or commingled and shipped off-site to another appropriately licensed treatment, storage, or disposal facility. {R 299.9301(5)}

D. 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 §§264.171, 264.172, 264.173, and 268.50(a)(2)(i).

2. The licensee shall not stack small containers (<55-gallons) greater than three high or large containers (>55-gallons) greater than two high, except where the stacking occurs in an approved racking system. {R 299.9521(3)(b)}

3. The licensee shall construct, operate, and maintain the containment system in accordance with the requirements of R 299.9614 and 40 CFR §264.175, and the Engineering Plans, Attachment 12, of this license.

E. 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 §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 the Waste Analysis Plan, Attachment 1 and the Treatment Procedures, Attachment 8, 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 §264.17(a) and (c)}

3. The licensee shall immediately treat D003 Explosives as defined in R 299.9212(3)(f), (g), and (h), upon receipt or store that waste in the Explosives Bunker.

F. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES OR MATERIALS

1. Prior to placing incompatible wastes or incompatible wastes and materials in the same container, the licensee shall comply with R 299.9605 and 40 CFR §264.17(b) by following the procedures specified in the Treatment Procedures, Attachment 8, of this license. {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 §264.177(b)}

3. The licensee shall document compliance with Conditions IV.E.1. and IV.E.2. of this license and place this documentation in the operating record. {R 299.9605 and 40 CFR §264.17(c)}

4. The licensee shall separate containers of incompatible wastes as indicated in the procedures specified in the Waste Analysis Plan, Attachment 1, and the Treatment Procedures, Attachment 8, of this license. {R 299.9614 and 40 CFR §264.177(c)}

G. 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 and the procedures specified in the Containers, Attachment 7, of this license. {R 299.9521(3)(b) and R 299.9614(1)(a) and 40 CFR §264.175(b)(5)}

PART V
TANK SYSTEM STORAGE CONDITIONS

A. COVERAGE OF LICENSE

The existing and proposed hazardous waste tank systems, DLS-3, DLS-4, and DLS-7, shown in the Engineering Plans, Attachment 12, are covered by this license. Any expansion or enlargement beyond the facility boundary shown on the Master Site Plan or beyond the 120,000 gallon tank system storage design capacity requires a new license from the Division Chief. The Master Site Plan is incorporated into this license as part of Attachment 12. {R 299.9521(1)(b)}

B. WASTE IDENTIFICATION AND QUANTITY

The licensee may store no more than a total volume of 120,000 gallons of Acceptable Hazardous Wastes, Attachment 6, in the tank systems identified in the table below, subject to the terms of this license. {R 299.9521(2)(d)}

Location	Tank Designation	Status	Waste Type Restrictions	Storage Capacity
DLS-3	Tank 1	Existing	No reactives	5,000 gallons
	Tank 2	Existing	No reactives	5,000 gallons
	Tank 3	Existing	No reactives	5,000 gallons
DLS-4	Tank 4	Existing	No reactives	5,000 gallons
	Tank 5	Existing	No reactives	5,000 gallons
	Tank 6	Existing	No reactives	5,000 gallons
DLS-7	Tank 7	Proposed	No reactives	6,000 gallons
	Tank 8	Proposed	No reactives	6,000 gallons
	Tank 9	Proposed	No reactives	6,000 gallons
	Tank 10	Proposed	No reactives	6,000 gallons
	Tank 11	Proposed	No reactives	6,000 gallons
	Tank 12	Proposed	No reactives	6,000 gallons
	Tank 13	Proposed	No reactives	6,000 gallons
	Tank 14	Proposed	No reactives	6,000 gallons
	Tank 15	Proposed	No reactives	6,000 gallons
	Tank 16	Proposed	No reactives	6,000 gallons
	Tank 17	Proposed	No reactives	6,000 gallons
	Tank 18	Proposed	No reactives	6,000 gallons
	Tank 19	Proposed	No reactives	6,000 gallons
	Tank 20	Proposed	No reactives	6,000 gallons
	Tank 21	Proposed	No reactives	6,000 gallons
			Total	**120,000 gallons**

C. DESIGN, CONTAINMENT, AND ASSESSMENT OF TANK SYSTEMS

1. The licensee shall construct, operate, and maintain all tank systems in accordance with the applicable requirements of R 299.9615 and 40 CFR §§264.191, 264.192, 264.193, and 264.194, and in the Tanks Systems, Attachment 9, and the Engineering Plans, Attachment 12, of this license.

2. The licensee shall submit an Application for Installation to the DEQ, Remediation Division, Storage Tank Unit, within 1 year to no less than 30 days prior to installation of the tanks proposed for DLS-7. The licensee shall also submit information about the load/unload area for the proposed tanks.

D. MANAGEMENT OF TANK SYSTEMS

The licensee shall label and manage the tank systems in accordance with the requirements of R 299.9615 and R 299.9627; 40 CFR §§264.194, 264.196, and 268.50(a)(2)(ii); and R 29.4101 to R 29.4504 pursuant to the provisions of the Fire Prevention Act, 1941 PA 207, as amended, National Fire Protection Association (NFPA) Standard No. 704, and the spill and overfill prevention controls specified in the Tank Systems, Attachment 9, of this license. {R 299.9615}

E. SPECIAL REQUIREMENTS FOR IGNITABLE WASTES

1. The licensee shall not place ignitable waste in a tank system unless the precautions described in the Tank Systems, Attachment 9, of this license are followed. The licensee shall document compliance with this condition and place this documentation in the operating record. {R 299.9605, R 299.9609 and R 299.9615 and 40 CFR §§264.17(c), 264.73(b)(3), and 264.198(a)}

2. The licensee shall maintain the protective distances between the tank systems and any public ways, streets, alleys, or adjoining property lines that can be built upon, as required in Tables 2-1 through 2-6 of the NFPA's "Flammable and Combustible Liquids Code" (1977 or 1981) as specified in the Tank Systems, Attachment 9, of this license and as required by R 299.9615 and 40 CFR §264.198(b).]

F. PROHIBITION ON STORING REACTIVE WASTES OR MATERIALS

The licensee is prohibited from storing reactive wastes or materials in tank systems at the facility. {R 299.9521(2)(d) and (3)(b)}]

G. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES OR MATERIALS

The licensee shall not place incompatible wastes or incompatible wastes and materials in the same tank system or place hazardous waste in a tank system that has not been decontaminated and that previously held an incompatible waste or material. {R 299.9609 and R 299.9615 and 40 CFR §§264.17(c), 264.73(b)(3), and 264.199}

H. DISPOSITION OF ACCUMULATED LIQUIDS

The licensee shall remove spilled or leaked waste and accumulated precipitation from the tank system within 24 hours of detection and manage it in accordance with the requirements of Part 111 of Act 451 and the rules and the procedures specified in the Containers, Attachment 7, of this license. {R 299.9521(3)(b) and R 299.9615 and 40 CFR §264.193(c)(4)}

PART VI

MISCELLANEOUS UNIT CONDITIONS

A. COVERAGE OF LICENSE

The existing and proposed miscellaneous units, containers shredders, filter presses, and aerosol discharge and recovery units to be operated in DLS-2, HWLB-1, DLS-5, DLS-10, and DLS-11 shown in Miscellaneous Units, Attachment 10, are covered by this license. Any expansion or enlargement beyond the facility boundary shown on the previously referenced drawings in the Engineering Plans, Attachment 12, requires a new license from the Division Chief. {R 299.9521(1)(b)}

B. CONTAINER SHREDDERS

1. The licensee shall operate and maintain container shredders in DLS-2, HWLB-1, DLS-5, DLS-10, and DLS-11 in accordance with the requirements of R 299.9628(1) and the plans and procedures specified in Miscellaneous Units, Attachment 10, of this license.

2. The licensee shall treat no more than the maximum throughput capacity for shredders identified in Condition IV.C.1 of this license. {R 299.9521(2)(d)}

3. The licensee shall decontaminate the container shredders between processing hazardous and nonhazardous waste to avoid cross contamination in accordance with the procedures specified in Miscellaneous Units, Attachment 10, of this license. {R 299.9628}

4. The licensee shall use container shredders made of, or lined with, materials that will not react with, and are otherwise compatible with, the hazardous waste to be treated, so that the ability of the container shredders to treat the waste is not impaired and does not cause a safety hazard, in accordance with 40 CFR Part 264, Subpart X. {R 299.9628}

5. The licensee shall ensure that the container receiving the shredded waste is in compliance with the requirements of R 299.9614 and 40 CFR 264, Subpart I.

6. The licensee shall take precautions to prevent accidental ignition or reaction of waste during processing. {R 299.9605 and 40 CFR §264.17}

7. The licensee shall not place incompatible wastes or incompatible wastes and materials in the same shredder unless the shredder is decontaminated between wastes in accordance with the procedures specified in Miscellaneous Units, Attachment 10, of this license. {R 299.9605 and 40 CFR §264.17}

8. The licensee shall not place hazardous waste in an unwashed shredder that previously held an incompatible waste or material. {R 299.9605 and 40 CFR §264.17}

C. FILTER PRESS

1. The licensee shall operate and maintain filter presses in DLS-1, DLS-3, HWLB-1, DLS-5, DLS-10, and DLS-11 in accordance with the requirements of R 299.9628(1) and the plans and procedures specified in Miscellaneous Units, Attachment 10, of this license.

2. The licensee shall treat no more than the maximum throughput capacity for filter presses identified in Condition IV.C.1 of this license. {R 299.9521(2)(d)}

3. The licensee shall only treat wastes subject to the requirements of 40 CFR Part 264, Subpart CC, in a filter press if it is positioned under an appropriate treatment hood in DLS-1, DLS-3, HWLB-1, DLS-5, DLS-10, or DLS-11. {R 299.9634 and 40 CFR 264, Subpart CC}

4. The licensee shall decontaminate the filter press between processing hazardous and nonhazardous waste to avoid cross contamination in accordance with the procedures specified in Miscellaneous Units, Attachment 10, of this license. {R 299.9628}

5. The license shall not treat incompatible wastes or incompatible wastes and materials in the filter presses. {R 299.9605 and 40 CFR 264.17}

D. AEROSOL DISCHARGE AND RECOVERY UNIT

1. The licensee shall operate and maintain the aerosol discharge and recovery units in DLS-2, DLS-3, DLS-5, DLS-10, and DLS-11 in accordance with the requirements of R 299.9628(1) and the plans and procedures specified in Miscellaneous Units, Attachment 10, of this license.

2. The licensee shall decontaminate the aerosol discharge and recovery units between processing hazardous and nonhazardous waste to avoid cross contamination in accordance the procedures specified in Miscellaneous Units, Attachment 10, of this license. {R 299.9521(3)(b)}

3. The license shall not treat incompatible wastes or incompatible wastes and materials in the aerosol discharge and recovery units. {R 299.9605 and 40 CFR 264.17}

4. The licensee shall ensure that the container accumulating the liquids recovered from the aerosol discharge and recovery units is in compliance with the requirements of R 299.9614 and 40 CFR 264, Subpart I.

PART VII
ENVIRONMENTAL MONITORING CONDITIONS

A. GROUNDWATER MONITORING PROGRAM

1. The licensee shall conduct a detection monitoring program for primary and secondary parameters. Under this program, the licensee shall operate and maintain a groundwater monitoring system in accordance with the Groundwater Monitoring Program (GMP) Sampling and Analysis Plan (SAP), Attachment 11, of this license. {R 299.9611(2)(a) and (b), R 299.9612, and R 299.9629 and 40 CFR Part 264, Subpart F, excluding 40 CFR §§264.94(a)(2) and (3), 264.94(b) and (c), 264.100, and 264.101}

2. Water removed from each monitoring well shall be managed as specified in Section I-D-3 of the GMP SAP, Attachment 11, of this license. {R 299.9521(3)(b)}

3. The licensee shall submit an annual groundwater report to the Division Chief no later than March 1st of each year for the previous calendar year's activities. At a minimum, the report shall include the following information:

   (a) A narrative summary of the previous calendar year's sampling events, including sampling event dates, the identification of any significant problems with respect to the GMP SAP procedures, and copies of field log sheets.

   (b) A determination of the groundwater flow rate and direction in the monitored zone, including the preparation of a groundwater level contour map from this data.

   (c) A summary of groundwater quality data results, including a narrative summary of results and trends, data graphs, and data tables.

   (d) A presentation of the statistical analysis of the data and the identification of any statistically significant increases pursuant to Condition VII.A.5 of this license.

   (e) An analysis and discussion of laboratory and field related QA/QC information. This shall include results of equipment, field, and trip blanks, and discussion and evaluation of the adequacy of the data with respect to GMP SAP specifications and requirements.

   {R 299.9521(3)(b) and R 299.9612(1) and 40 CFR §264.97(j)}

4. The licensee shall establish background groundwater quality values at monitoring wells for the parameters specified in Table 1 of the GMP SAP, Attachment 11, of this license. In the event that groundwater quality at the upgradient wells shows a significant change, a petition may be submitted to the Division Chief to reestablish background quality. Background values may be reestablished only upon written approval of the Division Chief. {R 299.9612(1)(c), (d), and (e) and 40 CFR §264.97(a) and (g)}

5. Within 60 days of each sampling of each monitoring well, the licensee shall determine if a statistically significant increase has occurred compared to background levels for each primary parameter listed in the GMP SAP, Attachment 11, of this license. Any occurrence above the background level or laboratory detection limit(s) for the parameter(s) shall be considered

statistically significant. Sampling data from these parameters shall be reported per Condition II.I.3, of this license. {R 299.9612(1)(c) and (e) and 40 CFR §264.97(h) and (i)}

6. If a statistically significant increase is detected for any primary parameter, the licensee shall notify the Division, Hazardous Waste Section, Permit and Corrective Action Unit, by telephone within one working day and arrange a resampling as soon as possible to confirm if a statistically significant increase exists. Resampling must include not less than two replicate samples at the affected well(s) for the parameter(s) in question. For the nonnaturally occurring parameters, a statistically significant increase shall be confirmed if at least one of the two resample results are detected above the laboratory detection limit(s) for the parameter(s). {R 299.9612 and 40 CFR §264.97(g)}

7. If the licensee determines pursuant to Conditions VII.A.5 and VII.A.6, of this license, that a statistically significant increase (or change in pH) has occurred for primary parameters, the licensee shall address the increase in accordance with R 299.9612 and 40 CFR §264.98(f) and (g) which includes Appendix IX parameter sampling and:

   (a) Notify the Division Chief, or if unavailable, the DEQ PEAS at 1-800-292-4706.

   (b) Immediately take steps to determine the cause of the contamination and eliminate the source of discharge.

   (c) Within 180 days after the determination, submit to the Division Chief a detailed description of corrective actions that shall achieve compliance with applicable laws and rules, including a schedule of implementation. Corrective action shall also meet the requirements of R 299.9629 and include a plan for a groundwater monitoring program that shall demonstrate the effectiveness of the corrective action. Such a groundwater monitoring program may be based on a compliance monitoring program developed to meet the requirements of 40 CFR §264.99.

   (d) Prior to a license modification requiring a compliance monitoring and corrective action program, the licensee shall provide the Division Chief, or his or her designee, with weekly telephone updates and written reports every two weeks regarding the progress to date in determining the cause of contamination and eliminating the discharge. The written report shall include the results of all samples from environmental monitoring conducted by the licensee. {R 299.9521(3)(b)}

   (e) The licensee may demonstrate that a source other than the licensed facility, or an error in sampling, analysis, or evaluation solely caused the increase. A report that explains the chronology of events, investigative methods, all laboratory analyses, calculations, field activities, and findings related to this determination shall be submitted within 60 days of a statistically significant determination under Condition VII.A.5., of this license.

8. Secondary and tracking parameters shall be monitored in all monitoring wells for concentration trends over time.

   (a) Sampling data from these parameters shall be reported in accordance with Condition II.I.3, of this license and summarized in the annual groundwater report.

(b) If secondary parameters are detected in downgradient wells, but not in the upgradient wells, the Division Chief shall be notified within seven days of receipt of the analytical data. The licensee shall review if the secondary parameter(s) in question are consistent with historic background data and report the findings to the Division.

9. In the event that the Division Chief determines from the findings of Conditions VII.A.5. and VII.A.6., of this license that a statistically significant increase (or change in pH) in hazardous constituents has occurred in the groundwater and the Director finds, in accordance with §11148 of Act 451, that the increase may present an imminent and substantial hazard to the health of persons or to the natural resources, or is endangering or causing damage to public health or the environment, the licensee shall immediately comply with an order issued by the Director pursuant to §11148(1) of Act 451 to cease waste receipt, storage, and treatment at the affected unit(s) and conduct other activities as required by the Director to eliminate the said endangerment. {R 299.9612(1)(g)}

PART VIII
CORRECTIVE ACTION CONDITIONS

A. CORRECTIVE ACTION AT THE FACILITY

1. The licensee shall implement corrective action for all releases of a contaminant from any WMU 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, the temporary relocation of people, and the provision of alternative water supplies, or any corrective action allowed under Title II of the federal Solid Waste Disposal Act, PL 89-272, as amended, or regulations promulgated pursuant to that act. For the purposes of this license, the process outlined in Part 111 of Act 451 and the environmental protection standards adopted in R 299.9629 shall be used to satisfy the corrective action obligations under this license. {§§11102 and 11115a of Act 451 and R 299.9629}

2. To the extent that a release of a hazardous substance, as defined in §20101(t) of Act 451, that is not also a contaminant, as defined in §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, Environmental Remediation, of Act 451 remedial obligations for that release. {R 299.9521(3)(b)}

3. Any newly-constructed hazardous WMU that treats, stores, or disposes of hazardous waste at the facility shall become a WMU subject to the corrective action requirements in Part VIII of this license. {§11102 and 11115a of Act 451 and R 299.9629}

B. CORRECTIVE ACTION BEYOND THE FACILITY BOUNDARY

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

C. IDENTIFICATION OF WASTE MANAGEMENT UNITS AND AREAS OF CONCERN

The following WMUs and AOCs at the facility are identified below and shown on the WMU Site Map, Corrective Action, Attachment 13, of this license.

WMU Number	WMU Name	Description	Waste Managed
1	DLS-1	Used for container storage and treatment. Approximate unit dimensions are 21 feet by 30 feet.	All facility wastes
2	DLS-2	Used for container storage and treatment. Approximate unit dimensions are 25 feet by 50 feet.	All facility wastes
3	DLS-3	Used for container storage and treatment and tank storage in three steel 5,000 gallon tanks. Approximate unit dimensions are 75 feet by 50 feet.	All facility wastes except reactives in DLS-3 tanks

WMU Number	WMU Name	Description	Waste Managed
4	DLS-4	Used for tank storage in three steel 5,000 gallon tanks. Approximate unit dimensions are 35 feet by 14 feet.	All facility wastes except reactives
8	HWLB-1/New Unloading Area	Used for container storage and container loading/unloading. Approximate unit dimensions are 26 feet by 50 feet.	All facility wastes
6	Storage/Warehouse Building	A pole barn structure used for container and raw material storage. Approximate unit dimensions are 60 feet by 100 feet.	Raw materials and nonhazardous waste includes household hazardous waste, medical wastes, and wastes from conditionally exempt small quantity generators.
7	Crock Area	This unit consists of the location where three crocks were discovered and subsequently removed. The location is at the southeast corner of the DLD building (in the vicinity of the corner of the DLD office area and the analytical building). Waste material from the former A-1 Disposal operations passed through the crocks as an illegal connection to the city sewer.	Potentially any wastes managed by the former A-1 Disposal.
9	Outdoor Storage Area	This unit was previously used for storage without secondary containment.	Empty, disinfected pails that previously contained biomedical waste, corrugated bales, metal pipes, and wood pallets.

AOC Number	AOC Name	Description	Waste Managed
1	A-1 Disposal Property	Portions of this property formerly used by DLD for container storage. Former vehicular access to the DLD facility loading/unloading area was via A-1 Disposal property.	Ground glass and household hazardous waste
2	Property on the east site of DLD	The property to the east of the DLD building between the building and the fence at the property line. Area is approximately 10 feet by 120 feet. The area was previously exposed to traffic of the loading/unloading area, and the east side of DLS-2 and DLS-3 is exposed to this area.	None

1. The following AOC, identified in the draft RCRA Facility Assessment (RFA) Report dated September 26, 1991, requires further corrective action at this time.

   (a) AOC 1: A-1 Disposal Property. Corrective action for this unit is being addressed by the DEQ, Remediation Division, under a March 13, 1995, Generic Industrial Type C Remedial Action Plan.

2. The following AOCs, identified in the draft RFA Report requires further corrective action when the facility undergoes final closure, except as otherwise specified.

   (a) AOC 2: Property on the east side of the licensee. Based on the analytical results presented in Appendix G of the draft RFA Report, page 120, soils in this area contain methylene chloride at concentrations greater than Part 201 of Act 451 generic industrial drinking water protection criteria. In addition, this area has a ten-foot concrete apron extending outward easterly from the building at ground level to protect against soil contamination in the event of a spill of hazardous waste. This area is providing supplemental secondary containment for operating units DLS-2 and DLS-3 and will be constructed over due to the facility expansion. Prior to construction of DLS-11(Phase 6), the licensee must sample the area to evaluate the presence and extent of the methylene chloride contamination and determine if a release of other contaminants have occurred in the area. Soil samples must be analyzed for the same parameters specified for closure pursuant to Condition II.J.2, of this license.

   (b) WMU Number 7: Crock Area. This area consisted of three crocks. One crock was partially removed by the licensee and the other two crocks by A-1 Disposal personnel. The licensee has purchased some portions of the adjacent A-1 Disposal property in which the two crocks removed by A-1 personnel were located. The licensee has provided written and verbal information on the removal of the crocks. However, this information fails to demonstrate that any soil sampling was conducted in the crock area to conclusively demonstrate that there have been no releases from the operation of the crocks. The use of data from the downgradient monitoring well DL-6 is not useful information for determining whether a release has occurred from these two crocks because of the difficulty in distinguishing between existing groundwater contamination and contamination possibly flowing from these two crocks. Due to the facility expansion, this area may be constructed over. Therefore, soil sampling of this area must be conducted prior to the construction of the future parking area (Phase 10). Soil samples must be analyzed for the same parameters specified for closure pursuant to Condition II.J.2 of this license.

   (c) WMU Number 8: Outdoor Storage Area. This outdoor area stores empty, disinfected pails that previously contained biomedical waste, corrugated bales, metal pipes, and wood pallets. In the past, this area stored topsoil removed prior to construction of the storage/warehouse building and the addition north of the building. Materials are stored in this area directly on the ground surface without containment. The property on which this area is located was purchased by the licensee in the fall of 1989. No information is available on what activities were conducted in this area prior to the purchase. While the facility is operating, this area is subject to potential future releases. At final closure, the licensee must conduct soil sampling of this area to conclusively demonstrate that there have been no releases from the storage of materials in this area.

3. The following WMUs do not require corrective action at this time:

   (a) The following WMUs, identified in the draft RFA Report, are currently operating pursuant to the act and its rules with no evidence of a release of any contaminants. Corrective action may be required with any of the units undergo final closure.

   WMU Number 1: DLS-1
   WMU Number 2: DLS-2
   WMU Number 3: DLS-3
   WMU Number 4: DLS-4
   WMU Number 5: HWLB-1/New Unloading Area
   WMU Number 6: Storage/Warehouse Building

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

4. 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.

5. Based on a review of all of the information provided in Condition VIII.C.4, of this license, the Division Chief may require corrective action for the newly-identified WMU. The licensee shall submit a written Investigation Work Plan to the Division Chief within 60 days of written notification by the Division Chief that corrective action for the unit is required.

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

D. CORRECTIVE ACTION INVESTIGATION

The licensee shall conduct a Corrective Action Investigation to determine if a release of a contaminant(s) from any of the WMU identified in Condition VIII.C, of this license has occurred and, if a release(s) has occurred, evaluate the nature and extent of the release(s). The licensee shall submit a written Corrective Action Investigation Work Plan, Corrective Action Investigation Final Report documenting compliance with the approved Work Plan and supporting further corrective action at the facility, and Corrective Action Investigation progress reports to the Division Chief for review and approval in accordance with Condition VIII.K, of this license. The Division Chief will approve, modify and approve, or provide a Notice of Deficiency (NOD) for the Work Plan and Final Report. Upon approval, the Work Plan and Final Report become enforceable conditions of this license. {§§11102 and 11115a of Act 451 and R 299.9629}

E. INTERIM MEASURES

The licensee shall conduct interim measures (IM) at the facility, if determined necessary by the licensee or the Division Chief, to cleanup or remove a released contaminant or to take other actions, prior to the implementation of corrective measures, as may be necessary to prevent, minimize, or mitigate injury to the public health, safety, or welfare, or to the environment. The licensee shall submit a written IM Work Plan, an IM Final Report documenting compliance with the approved Work Plan and supporting further corrective action at the facility, and IM progress reports to the Division Chief for review and approval in accordance with Condition VIII.K, of this license. The Division Chief will approve, modify and approve, or provide an NOD for the Work Plan and Final Report. Upon approval, the Work Plan and Final Report become enforceable conditions of this license. {§§11102 and 11115a of Act 451 and R 299.9629}

F. 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 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 Corrective Action Investigation 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 VIII.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 Corrective Action Investigation 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 WMU 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 Condition VIII.F.2. or VIII.F.3., of this license, the results of the completed Corrective Action Investigation, 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.

{§§11102 and 11115a of Act 451 and R 299.9629(2)}

G. CORRECTIVE MEASURES STUDY

If the Division Chief determines, based on the results of the Corrective Action Investigation and other relevant information, that remedial activities are necessary, the Division Chief will notify the licensee in writing that a Corrective Measures Study (CMS) is required. If required by the Division Chief, the licensee shall conduct a CMS to develop and evaluate the corrective measures alternative(s) necessary to address the release(s) of a contaminant(s) or hazardous substances and the WMU(s) that are identified in the approved Corrective Action Investigation Final Report as requiring final remedial activities. The licensee shall submit a written CMS Work Plan, a CMS Final Report documenting compliance with the approved Work Plan and supporting further corrective action at the facility, and CMS progress reports to the Division Chief for review and approval in accordance with Condition VIII.K. of this license. The Division Chief will approve, modify and approve, or provide an NOD for the Work Plan and Final Report. Upon approval, the Work Plan and Final Report become enforceable conditions of this license. {§§11102 and 11115a of Act 451 and R 299.9629}

H. CORRECTIVE MEASURES IMPLEMENTATION PLAN

1. The licensee shall conduct final corrective measures based on the CMS Final Report approved by the Division Chief. The licensee shall submit a written Corrective Measures Implementation (CMI) Work Plan to the Division Chief for review and approval. The licensee shall also submit a written CMI Final Report documenting the compliance with the approved CMI Work Plan and providing justification that the corrective actions may cease along with CMI progress reports to the Division Chief for review and approval in accordance with Condition VIII.K., of this license. The Division Chief will approve, modify and approve, or provide an NOD for the Work Plan and Final Report. Upon approval, the Work Plan and Final Report become enforceable conditions of this license.

2. The Division will provide notice of its draft decision on the CMI Work Plan to persons on the facility mailing list and provide an opportunity for a public hearing.

3. The licensee shall implement the approved CMI Work Plan within 60 days of receipt of the Division Chief's written approval of the Work Plan.

{§§11102 and 11115a of Act 451 and R 299.9629}

I. CORRECTIVE ACTION MANAGEMENT UNITS

If applicable, the licensee shall comply with the requirements of R 299.9635 in order to designate an area at the facility as a corrective action management unit for implementation of corrective measures. {R 299.9521(3)(a)}

J. TEMPORARY UNITS

If applicable, the licensee shall comply with the requirements of R 299.9636 in order to designate tank or container storage units used for the treatment or storage of remediation wastes as temporary units for implementation of corrective measures. {R 299.9521(3)(a)}

K. SUMMARY OF CORRECTIVE ACTION SUBMITTALS

The licensee shall submit the required documents in accordance with of this license and the schedule below.

Document	Submittal Deadline
Written notification of a new release of a contaminant from an existing WMU, a new WMU, or a release of a contaminant from a new WMU	Within 30 days of discovery
Corrective Action Investigation Work Plan for a newly identified release of a contaminant from an existing WMU, a new WMU, or a release of a contaminant from a new WMU	Within 60 days of receipt of notification that an investigation is required
Revised Corrective Action Investigation Work Plan for WMUs and contaminant releases	Within 30 days of receipt of Corrective Action Investigation Work Plan NOD
Corrective Action Investigation progress reports	Within 60 days of initiation of the investigation and every 90 days thereafter, unless otherwise approved
Corrective Action Investigation Final Report for WMUs and contaminant releases	Within 60 days of completion of investigation
Revised Corrective Action Investigation Final Report for WMUs and contaminant releases	Within 30 days of receipt of Corrective Action Investigation Final Report NOD
IM Work Plan for WMUs and contaminant releases	Within 60 days of receipt of notification that Work Plan is required
Revised IM Work Plan for WMUs and contaminant releases	Within 60 days of receipt of IM Work Plan NOD
IM progress reports	Within 90 days of initiation of the IM and every 90 days thereafter, unless otherwise approved
IM Final Report for WMUs and contaminant releases	Within 60 days of completion of the IM
Revised IM Final Report for WMUs and contaminant releases	Within 60 days of receipt of IM Final Report NOD
CMS Work Plan for WMUs and contaminant releases	Within 60 days of receipt of notification that CMS is required
Revised CMS Work Plan for WMUs and contaminant releases	Within 60 days of receipt of CMS Work Plan NOD
CMS progress reports	Within 90 days of initiation of the CMS and every 90 days thereafter, unless otherwise approved
CMS Final Report for WMUs and contaminant releases	Within 60 days of completion of the CMS
Revised CMS Final Report for WMUs and contaminant releases	Within 60 days of receipt of CMS Final Report NOD
CMI Work Plan for WMUs and contaminant releases	Within 60 days of approval of the CMS Final Report
Revised CMI Work Plan for WMUs and contaminant releases	Within 60 days of receipt of CMI Work Plan NOD

Document	Submittal Deadline
CMI progress reports	Within 90 days of implementation of the CMI Work Plan and every 90 days thereafter, unless otherwise approved
CMI Final Report for remediated WMUs and contaminant releases	Within 60 days of when the remedial actions have been completed and cleanup criteria have been met
Revised CMI Final Report for WMUs and contaminant releases	Within 60 days of receipt of CMI Final Report NOD

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

PART IX
SCHEDULE OF COMPLIANCE

A. CONTIGENCY PLAN

The licensee shall develop procedures for assessing the nature and extent of off-site releases as early as reasonably possible during and after an on-site fire and/or explosion incident and provisions to conduct periodic practice drills so that the procedures can be quickly implemented if an emergency occurs. Within 60 days of issuance of this license, the licensee shall submit the procedures to the Division for review and approval. The approved procedures shall be included or incorporated by reference into the Contingency Plan, Attachment 4, of this license. Modifications to the Contingency Plan pursuant to this condition shall not constitute a license modification pursuant to R 299.9519.

B. CORRECTIVE ACTION

Land acquired by the licensee to expand the facility boundary will be subject to corrective action pursuant to Part 111 and the terms of this license. Within 60 days of land acquisition, the licensee shall submit to the Division an assessment report documenting the known nature and extent of any contamination that may be present on the acquired land. The assessment report is necessary for the Division to determine if a corrective action monitoring program is required.

C. GROUNDWATER MONITORING PROGRAM

Within 30 days of issuance of this license, the licensee shall submit a revised groundwater sampling and analysis plan to the Division for review and approval. The approved GMP SAP shall be become a part of this license.

ATTACHMENT 1

WASTE ANALYSIS PLAN

Drug & Laboratory Disposal, Inc.
MID 092 947 928

FORM EQP 5111 TEMPLATE

A3: WASTE ANALYSIS PLAN (WAP)

(Volume 1)

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 Drug & Laboratory Disposal, Inc. facility. All activities associated with the WAP will be conducted at the Drug & Laboratory Disposal, Inc. facility at 331 Broad Street/Plainwell, MI 49080.

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A3.C NOTIFICATION, CERTIFICATION, AND RECORD KEEPING REQUIREMENTS

A3.C.1 Retention of Generator Notices and Certifications

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A3.C.7 Required Notice

A3.A COMMERCIAL FACILITY

Drug & Laboratory Disposal, Inc. is a commercial facility that receives wastes generated off site. DLD has developed a WAP to ensure that its facility at 331 Broad Street/Plainwell, MI 49080 will accept only wastes that it is authorized to accept. The hazardous wastes stored at DLD 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 information from the generator and the information on the 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 Template B5, Attachment 1. 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, Drug & Laboratory Disposal, Inc. 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.

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)]

Drug & Laboratory Disposal, Inc. will require waste stream information for initial waste shipments from all off-site generators prior to shipment. Before a waste stream is accepted at DLD, a detailed characterization of the waste will be obtained from the generator [40 CFR §264.13(a)(1)]. The information required for each waste will be sufficient to determine the acceptance of the waste into DLD and to determine the treatment process the waste will receive at DLD.

In addition to the waste information submitted by the generator, Drug & Laboratory Disposal, Inc. may, as necessary:

- ☒ Require submittal of a representative waste sample
- ☒ Conduct an audit of the generator facility
- ☒ Review industry literature to identify typical waste streams
- ☒ Other: MSDS, consumer product guidance info from "off-the-shelf" containers, generator inventory

[NOTE: If a representative waste sample is requested, DLD will advise the generator that sampling should be accomplished using the protocols listed in Appendix I of 40 CFR 261 which is titled Representative Sampling Methods.]

FIGURE A3.A.1

INFORMATION THAT MUST BE SHOWN ON A GENERATOR'S WASTE PROFILE

Waste Generator Information:

- Generator Name
- Street Address
- City, State/Province
- Zip Code
- County
- Customer Contact
- Billing Address
- Telephone Number
- Generator EPA/ Federal ID #
- MDEQ ID #

Waste Stream Information

- Name of Waste
- Process Generating Waste
- Color
- Strong Odor [describe]
- Physical State at 70° F
- Layers
- Free Liquid Range
- pH Range
- Liquid Flash Point
- Physical and Chemical Composition
- Constituents
- Concentration Range
- Oxidizer
- Carcinogen
- Pyrophoric
- Infectious
- Explosive
- Shock Sensitive
- Radioactive
- Water Reactive
- Poison - Inhalation Hazard

Does the waste represented by this profile contain dioxins?

Does the waste represented by this profile contain asbestos?

Is the waste subject to RCRA Subpart CC controls?

Does the waste contain any Class I or Class II ozone-depleting substances?

Does the waste contain debris?

Are all containers included in this waste stream empty and as defined in R 299.9207 and/or 40 CFR §761.79?

Quantity of Waste: *(Including units)*

Shipping Information:

- Packaging
- Shipping Frequency
- Personal Protective Equipment Requirements

Figure A3.A.1 Continued Next Page

Figure A3.A.1 (Continued)

Generator Certification:

Is this a Part 111 of Act 451 hazardous waste (R 299.9201 to R 299.9229)?

Does the waste represented by this Waste Profile contain any of the following pesticides or herbicides: Endrin, Lindane, Methoxychlor, Toxaphene, 2,4-D, 2,4,5-TP (silvex), chlordane, Heptachlor (and its epoxide)?

Is the waste from a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (40 CFR, Part 300, Appendix B) or MDEQ mandated cleanup?

Does the waste represented by this Waste Profile contain concentrations of radioactive elements regulated by the Nuclear Regulatory Commission?

Does the waste represented by this Waste Profile contain concentrations of PCBs regulated under 40 CFR, Part 147, PCB Compounds, of Act 451 or 40 CFR, Part 761?

Do the Waste Profile and all associated information contain true and accurate descriptions of the waste material and has all the relevant information within the possession of the generator regarding known or suspected hazards pertaining to the waste been disclosed to the treatment storage and facility owner/operator?

Notes:

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EPA	U.S. Environmental Protection Agency
MDEQ	Michigan Department of Environmental Quality
PCB	Polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act of 1976, as amended
TSDF	Treat, Store, Disposal Facilities

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 Drug & Laboratory Disposal, Inc. in the following containers:

☒ Drums	☒ Totes	☒ Tanker trucks
☒ Carboys	☒ Wrangler box	☒ Filter bags
☒ Roll-off boxes	☒ Vacuum trucks	☒ Other: any UN approved specification package or any approved performance package

Upon receipt of wastes from an off-site generator, DLD 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)]

Drug & Laboratory Disposal, Inc. will review all paperwork, including manifests and LDR notifications, before any wastes are accepted by the facility. DLD will review all paperwork for completeness. In addition, the manifest and LDR notification will be compared for consistency. The manifest will also be compared to the waste information and any analytical information provided by the generator and to the waste shipment to ensure the accuracy of information provided on shipment paperwork. 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 processing the waste.

A3.A.2(b) Visual Inspection of Waste
[R 299.9605(1) and R 299.9504(1)(c) and 40 CFR §264.13(c)]

Drug & Laboratory Disposal, Inc. 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:

- ☒ Color
- ☒ Physical state
- ☒ pH
- ☒ Consistency
- ☐ Other:

Visual observations may be compared to the waste profile information. All discrepancies will be resolved before processing the waste.

All trucked incoming waste, regardless of the transporter, is brought into a truck loading bay. The wastes are off-loaded, segregated by the generator and manifest number, and put into temporary storage in DLS-3. The waste is stored in this area (following the requirements of 40 CFR 264.35, 40 CFR 264.171, 40 CFR 264.173, 40 CFR 264.174). After wastes are put into temporary storage, the Hazardous Waste Chemist or a team of Hazardous Waste Chemists, begins the examination and investigation of the waste. The Hazardous Waste Chemist will make a visual inspection of the wastes, verifying to his or her own satisfaction that it matches the manifest description and the Generator Waste Profile [40 CFR 264.13(a)(4)]. This inspection is documented. Wastes brought in via railcar, once the railroad spur is built (DLS-12), will be subject to the same fingerprinting process as wastes received by truck.

When it is necessary to remove aliquots of the waste, DLD utilizes the sampling methodologies dictated by 40 CFR 264.13 (b)(3) and 40 CFR 261, Appendix I (in most instances, COLIWASA sampling for liquids and Trier sampling for loose pack solids or suspensions are employed). The waste will remain in the temporary storage area (DLS-3 or DLS-5) and be handled by a Hazardous Waste Chemist or team supervised by a Hazardous Waste Chemist even after the fingerprinting has been completed. (A Hazardous Waste Chemist must sign-off on verification of waste (including fingerprinting.)

There are some cases where it is best to have one chemist work on a particular treatment area rather than working on a particular generator's waste (i.e., commingling of all acids). In these instances, once the waste has been fingerprinted and prepared for processing, it is often re-fingerprinted and may undergo additional screening or analysis. In these cases, after verification and sign off from the initial Hazardous Waste Chemist, the waste now is under the control of a Hazardous Waste Chemist until the waste leaves DLD for additional treatment off-site. The following methodologies are employed to fingerprint wastes before treatment:

1. Organic liquids to be commingled for incineration will be tested for compatibility following ASTM D5058A. Mixing the liquids would be done for the purpose of observing incompatibilities. The mixing process would be carried out in the waste processing and storage area. This procedure is particularly important since compatibility is often a matter of concentration.

2. Organic peroxides are received at DLD and inspected to assure that initiators are not packaged in the same container or, if they are in the same container, the initiators are separated. Processing of peroxides and initiators are carried out in separate locations in the DLS-3 waste processing and storage area. Organic peroxides are lab packed, quenched or deactivated. Quenching consists of diluting with an appropriate solvent and subsequent commingling with halogenated organics solvents. Deactivation is accomplished by hydrolysis in an alkaline solution.

3. Incoming waste from generators who could reasonably be expected to have PCBs in their waste and oil waste is screened for PCBs in most instances at the discretion of the Hazardous Waste Chemist.

4. Certain acids and bases are commingled, thereby reducing reactivity potential and generating neutral aqueous solutions. After the pH has been determined and neutralization completed, the liquid is stored until shipment off-site for further treatment and/or disposal.

5. Separation and determination of where and how acids will be disposed of is determined by a Hazardous Waste Chemist. All mineral acids or non-organic acids are tested for compatibility (ASTM D 5058A), commingled, and analyzed for certain metals before a determination is made as to whether precipitation or other metal removing processes are conducted. Acids are then tested for compatibility on a larger scale (ASTM D 5058A) and commingled to be sent off site for neutralization and continuing metal precipitation.

6. Further physical inspection using probes, test strips, simple chemical tests, or organoleptic testing will be employed as deemed necessary by the chemist with consideration for the treatment the waste will receive. This inspection will be documented.

7. If at any time during inspection the waste does not exhibit the expected properties, or if the fingerprint process identifies chemical incompatibilities of the waste prior to processing, the Hazardous Waste Director will be informed so that a secondary inspection can be conducted which will consist of the initial characterization plus the analytical parameters used for fingerprinting. If confirmation or verification can not be obtained at this point, then three options are available to the Hazardous Waste Director:

    a. Reject the waste. In this case, waste would be off-loaded and remain in storage until arrangements can be made to return the waste to the generator. DLD may transport the rejected wastes back to the generator and offer any expertise and knowledge to help the generator find an appropriate TSD facility for the waste; or

    b. Obtain additional information from the generator: In this case DLD would consult the generator for more information; or

c. Perform additional analysis: In this case DLD would have the waste sampled and conduct additional analyses to determine the chemical composition or characterization of the waste. Processing of that particular waste or container would be halted until determination is made as to what must be done in order to approve the waste stream. Any analyses which may be requested by the Hazardous Waste Chemist would be noted. If any significant discrepancies are verified, the generator would be notified and documentation made of the change and rejection or acceptance of different waste types. Additional analysis does not guarantee that the waste will be accepted.

8. If, after a visual and physical inspection, the waste material exhibits the expected properties, the chemist will proceed with processing.

9. If at any time during processing the waste does not exhibit the expected properties, the Hazardous Waste Chemist will take one of the actions described in Step 7.

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

[R 299.9605(1) and R 299.9504(1)(c) and 40 CFR §264.13(b)(4) and 264.13(c)(2)]

A prerequisite to proper waste management is the identification of hazardous wastes in accordance with regulatory and permit requirements. All generators that utilize the services of Drug & Laboratory Disposal, Inc. are required to evaluate solid wastes, through testing or applying acceptable knowledge, to determine if the wastes are hazardous in accordance with the RCRA characteristic and listed waste criteria (40 CFR 261). Also, as a result of the LDR regulations, they must determine whether hazardous wastes are restricted from land disposal.

The fingerprinting procedure is to assure that the waste is characterized to the extent necessary to determine the process that will receive the waste. Since the process that the waste will receive at DLD has been tentatively decided from information supplied with or on the waste profile, the fingerprinting procedure is to verify that the initial treatment decision was correct. The fingerprinting procedure also will verify that the manifest and/or shipping documents have properly described the waste [40 CFR 264.13(a)(4)].

In regards to its Waste Analysis Plan, DLD documents the fingerprint screen and/or additional analysis required for a particular generator and manifest number.

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 early in section A3.A1 monthly sampling, random biannual sampling. 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 processing the waste.

A3.A.2(d) Waste Analysis Procedures – Incoming drummed liquid and sold waste.

40 CFR 264.13(a)(3) specifies that "waste analysis must be repeated as often as necessary to ensure that it is accurate and up to date". The Hazardous Material Chemist notes any process or waste changes. This information would be noted with the waste profile information or a new waste profile can be requested from the generator at this time. If the waste changes, it is understood that additional screening and analysis may be required by the Hazardous Waste Chemist in order to process the waste. All sampling that would be required for frequent re-evaluation would be documented. This sampling occurs according to the following parameters:

Monthly Random Samples (see Table A3.A.1 for analysis parameters)

Drug & Laboratory Disposal, Inc. will continue to do full monthly random samples. Monthly samples will be pulled on any type of hazardous waste that DLD has received within a particular calendar month, regardless of whether or not changes have taken place with the process. Complete analyses will be run on this waste regardless of suspect.

Biannual, Large Quantity Generator Samples (see Table A3.A.1 for analysis parameters)

Twice a year (suggested dates: April and October), complete analyses will be run on samples from every large quantity generator that is expected to send waste to DLD at least four times per year. Biannual, large quantity (LQ) sampling will be done on any type of hazardous waste from the generator, regardless of whether or not changes have taken place with the process generating the waste.

Biannual, Small Quantity Generator Samples (see Table A3.A.1 for analysis parameters)

Twice a year (suggested dates: April and October), a randomly selected small quantity (SQ) generator of hazardous waste will be selected for complete analyses, regardless of whether or not changes have taken place with the process generating the waste.

TABLE A3.A.1

Monthly and Biannual Complete Analysis Requirements

Parameter 40 CFR 264.13 (b)(5)	Reference Methods 40 CFR 264.13(b)(2)	Reason For Analysis 40 CFR 264.13 (b)(1)
Volatile Organic Solvent Scan	SW-846, 8015A, 8021A	• confirms certain-solvents (or lack thereof) that could possibly be in the waste
Flash Point	SW-846, 1010	• ensuring that DLD is meeting DOT/EPA manifest requirements
PCB Analysis	SW-846, 8082	• ensure an off-site restricted material facility does not receive
Heat Content (BTU/lb)	ASTM D 240	• document within the parameters of incinerator and/or fuel blender requirements
Chlorine	ASTM D 808	• document within the parameters of incinerator and/or fuel blender requirements
Sulfide	ASTM D 4978A	• document within the parameters of incinerator and/or fuel blender requirements
Metals: As, Ba, Cd, Cr, Pb, Hg, Se, Ag	SW-846 (As) 7060A (Ba) 7080A (Cd) 7130 (Cr) 7190 (Pb) 7421 (Hg) 7470A (Hg) 7471A (Se) 7740 (Ag) 7761	• incinerator and fuel blender requirements • fuel quality control • check to ensure that metals quantities are within required incinerator and BIF parameters.
Physical analysis confirmation - organoleptic testing	ASTM D 4979	• confirm that the waste "appears" as it should: color, apparent viscosity, apparent weight

TABLE A3.A.2
Incoming Liquid Drum Requirements

Parameter 40 CFR §264.13(B)(5)	Reference Methods 40 CFR §264.13(B)(2)	Reason For Analysis 40 CFR §264.13 (B)(1)
Compatibility	ASTM D5058A	• System, container and waste compatibility
Water Compatibility Screen	ASTM D5058C	• ensure the miscibility of the waste in water • ensure the compatibility of the waste in water
pH (aqueous solutions)	SW-846, 9041A (test strips)	• System, container type and waste compatibility • document whether the waste meets the EPA definition of a hazardous waste due to the characteristic of corrosivity
Hg (for all acid and heavy metal solutions)	SW-846, 7470A	• knowledge of total Hg dictates the possible treatment options for liquids or solids containing Hg
Physical analysis confirmation - organoleptic testing	ASTM D 4979	• confirm that the waste "appears" as it should: color, apparent viscosity, apparent weight

TABLE A3.A.3
Incoming Inorganic Landfillable Solid Drum Requirements

Parameter 40 CFR §264.13(b)(5)	Reference Methods 40 CFR §264.13(b)(2)	Reason for Analysis 40 CFR §264.13 (b)(1)
Total Metals: As, Ba, Cd, Cr, Hg, Pb, Se, Ag	SW-846 (As) 7060A (Ba) 7080A (Cd) 7130 (Cr) 7190 (Pb) 7421 (Hg) 7470A (Hg) 7471A (Se) 7740 (Ag) 7761	• knowledge of total metals helps to determine possible treatment options for solids containing heavy metals
Physical analysis confirmation - organoleptic testing	ASTM D 4979	• confirm that the waste "appears" as it should: color, apparent weight

TABLE A3.A.4
Additional Requirements For Randomly Selected Fingerprinting Of Incoming Liquid Drums

Parameter 40 CFR §264.13(b)(5)	Reference Methods 40 CFR §264.13(b)(2)	Reason For Analysis 40 CFR §264.13 (b)(1)
Compatibility	ASTM D5058A	• System, container and waste compatibility
PCB Analysis	SW-846, 8082	• non-negative data provided by PCB screen
Heat Content (BTU/lb.)	ASTM D 240	• incinerator and fuel blender requirements
Chlorine	ASTM D 808	• fuel quality
Flash point	SW-846, 1010	• document whether meets the EPA definition of a hazardous waste due to the characteristic of ignitability

TABLE A3.A.5
Additional Requirements For Randomly Selected Fingerprinting Of Incoming Solid Drums

Parameter 40 CFR §264.13(b)(5)	Reference Methods 40 CFR §264.13(b)(2)	Reason For Analysis 40 CFR §264.13 (b)(1)
Heat Content (BTU/lb)	ASTM D 240	• incinerator and fuel blender requirements
Chlorine	ASTM D 808	• fuel quality

A3.A.2(e) Waste Analysis Procedures – Treatement Analysis Requirements

The goal for treatment at Drug & Laboratory Disposal, Inc. is to render wastes non-hazardous, less hazardous, or make it more appropriate for disposal at a receiving TSD facility.

Bulking organic liquids. In most instances, DLD is commingling both hazardous and non-hazardous solvents. After ensuring compatibility with container and other wastes, mixed liquids are transferred into appropriate tank(s). The tank contents continue to be regulated as hazardous waste under the "mixture" or "derived from" rules (40 CFR 261.3(c)).

TABLE A3.A6
Bulked Organic Liquid Requirements

Parameter 40 CFR §264.13(b)(5)	Reference Methods 40 CFR §264.13(b)(2)	Reason For Analysis 40 CFR §264.13 (b)(1)
Compatibility	ASTM D5058A	• System, container and waste compatibility
Water Compatibility Screen	ASTM D5058C	• ensure the miscibility of the waste in water • ensure the compatibility of the waste in water
Physical analysis confirmation - organoleptic testing	ASTM D 4979	• confirm that the waste "appears" as it should: color, apparent viscosity, apparent weight

Chromium reduction. This process involves the chemical reduction of hexavalent chromium to trivalent chromium. The presence of chromium must be verified to justify the treatment process.

TABLE A3.A7
Chromium Reduction Requirements

Parameter 40 CFR §264.13(b)(5)	Reference Methods 40 CFR §264.13(b)(2)	Reason For Analysis 40 CFR §264.13 (b)(1)
pH	SW-846, 9041A (test strips)	• document whether waste meets the EPA definition of a hazardous waste due to the characteristic of corrosivity
Hexavalent chrome	SW-846 7195, 7196A or 7197	• document the reduction of hexavalent chromium to trivalent chromium
Physical analysis confirmation - organoleptic testing	ASTM D 4979	• confirm that the waste "appears" as it should: color, apparent viscosity, apparent weight

Stabilization. This process involves the chemical stabilization process of waste or debris requiring stabilization as a method of reducing hazards of a waste stream and producing a product that can be sent for landfill.

TABLE A3.A.8
Stabilization Requirements

Parameter 40 CFR §264.13(b)(5)	Reference Methods 40 CFR §264.13(b)(2)	Reason For Analysis 40 CFR §264.13 (b)(1)
pH	SW-846, 9041A, (test strips)	• ensuring that solidification process takes place in a slightly basic solution to avoid violent reaction with the introduction of Portland cement
Compatibility	ASTM D 5058A	• ensure all materials intended for solidification will not cause violent reaction when mixed with cement mixture
Physical analysis confirmation - organoleptic testing	ASTM D 4979	• confirm that the waste "appears" as it should: color, apparent viscosity, apparent weight

Cyanide Oxidation. This process involves the chemical oxidation of cyanide to cyanate. The presence of cyanide must be verified to justify the treatment process and the pH must be determined to assure that cyanide gas will not be liberated during the commingling process.

TABLE A3.A.9
Cyanide Oxidation Requirements

Parameter 40 CFR §264.13(b)(5)	Reference Methods 40 CFR §264.13(b)(2)	Reason For Analysis 40 CFR §264.13 (b)(1)
Cyanide	ASTM D 5049C	• verification of cyanide • limit personnel exposure risk assessment
pH	SW-846, 9041A (test strips)	• documentation of required maintenance for proper pH necessary to assure that cyanide gas will not be liberated during the commingling process
Physical analysis confirmation - organoleptic testing	ASTM D 4979	• confirm that the waste "appears" as it should: color, apparent viscosity, apparent weight

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 Drug & Laboratory Disposal, Inc. 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 the waste profile 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 DLD receives a shipment of waste without LDR notification, or a notification with incorrect or incomplete information, the following actions will be conducted:

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.

Drug & Laboratory Disposal, Inc. may supply LDR notifications and certification, including appropriate analytical records to support the certification, to the receiving facility with initial shipments of waste and anytime the waste stream changes. The notifications and certifications will contain the information required under R 299.9627 and 40 CFR §268.7. Any additional waste data extracted from the waste profile, original LDR notifications, and/or analysis provided by the generator, will be provided to the licensed TSDF where the waste will be sent.

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 (F001-F005) are accepted at Drug & Laboratory Disposal, Inc. Generator process knowledge will be used to determine the presence of spent solvent wastes (F001-F005). Generator process knowledge will be documented with the waste profile 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.

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 may 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 profile 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)]

☐ The facility does not accept radioactive mixed waste.

OR

☒ Generator process knowledge will be used to determine whether a radioactive mixed waste meets the applicable treatment standard.

The acceptance of radioactive mixed wastes at Drug & Laboratory Disposal, Inc. is limited to radioactive oxidizing compounds that exhibit the EPA characteristic of ignitability (D001, 40 CFR §261.21(4)). The vast majority of radioactive oxidizers received are still in their original manufacturer containers. Prior to being shipped to a destination facility with the appropriate technology for disposal of radioactive wastes, these chemical compounds are deactivated by stabilization in cement, meeting the treatment standard set forth in 40 CFR §268.40, Treatment Standards For Hazardous Wastes, for the waste code D001 under the waste description and treatment/regulatory subcategory of "Ignitability (Oxidizer)" is based on 40 CFR §261.21(4).

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.

OR

☒ Single-source leachate will not be combined to produce multi-source leachates.

Drug & Laboratory Disposal, Inc. will conduct an initial analysis of all regulated constituents in F039 leachates and, based on the results of the analysis, develop a reduced list of constituents to be monitored on a regular basis.

A3.A.3(f) **Laboratory Packs**
[R 299.9627 and 40 CFR §268.7and 268.42(c) and Part 268, Appendix IV and Appendix V]

☐ The facility does not accept laboratory packs.

OR

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

Drug & Laboratory Disposal, Inc. utilizes degreed Hazardous Waste Chemists to sort the lab packed chemicals. Using chemical knowledge, the chemists commingle or repackage the lab packs.

Lab packs generated by DLD are then sent to other EPA licensed facilities for disposal. These facilities are chosen based on their compliance with the treatment standards enumerated in 40 CFR §268.40, Treatment Standards For Hazardous Waste, and 40 CFR §268.42(c). Wastes commingled with other compatible lab pack hazardous wastes and non-lab pack hazardous wastes are sent for treatment utilizing treatment standards protective of human health and the environment.

Hazardous waste - organic lab packs received at DLD are repacked and disposed off-site at high temperature hazardous waste incinerators with exhaust stack scrubbing units.

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)]

☒ The hazardous debris categories and the contaminant categories associated with the types of hazardous debris are accepted at the facility.

Hazardous debris accepted at Drug & Laboratory Disposal, Inc. that exhibits the characteristics of ignitability, corrosivity, or reactivity will be treated using one of the extraction, destruction, or immobilization technologies identified in Table 1 of 40 CFR §268.45.

Commingled debris accepted at DLD are repackaged and disposed of under the Thermal Destruction technology description in Table 1 – Alternative Treatment Standards For Hazardous Debris presented in 40 CFR §268.45. These incineration facilities are chosen based on their compliance with the treatment standards enumerated in 40 CFR §268.40, Treatment Standards For Hazardous Waste, and 40 CFR §268.42, or 40 CFR §268.45, Treatment standards for hazardous debris.

OR

☐ 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/or 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 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. [**Note**: these requirements may change in the future. At that time, this template may be amended.]

Drug & Laboratory Disposal, Inc. may not dilute or partially treat a listed waste to change its treatability category (i.e., from wastewater to nonwastewater), in order to comply with different treatment standards. If the wastes are all legitimately amenable to the same type of treatment to be performed, DLD may aggregate wastes for treatment.

A3.B CAPTIVE FACILITY

☐ Drug & Laboratory Disposal, Inc. generates waste on site. DLD does not receive waste generated off site.

OR

☒ Drug & Laboratory Disposal, Inc. generates waste on site. Drug & Laboratory Disposal, Inc. also receives waste generated off site. Waste screening procedures for receiving wastes from off-site generators is discussed in Section A3.A.

The hazardous waste treated will be properly characterized using generator knowledge or chemical analysis to ensure that it is properly managed within the facility.

All analysis performed pursuant to this application will be consistent with the QA/QC Plan included in Attachment B5. 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, DLD 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.

A3.B.1 Selection of Waste Analysis Parameters
[R 299.9605(1) and 40 CFR §264.13(B)(1)]

Drug & Laboratory Disposal, Inc. will select waste analysis parameters to confirm the identity of waste streams generated at the facility. The selection of waste analysis parameters will be based on knowledge of the raw material, analytical results, and physical and chemical processes that produce the waste stream. Knowledge of the process and analytical testing will be used to determine if the hazardous wastes exhibit one or more characteristics to: (1) ensure compliance with LDR regulations and (2) provide waste compatibility information to determine appropriate waste storage.

Tables A3.B.1 through A3.B.7 list the waste analysis procedures, including the waste analysis 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, the frequency of waste characterization, and the rationale for frequency. When it is necessary to remove aliquots of the waste, DLD utilizes the sampling methodologies dictated by 40 CFR 264.13 (b)(3) and 40 CFR 261, Appendix I (in most instances, COLIWASA sampling for liquids and Trier sampling for loose pack solids or suspensions are employed)

A3.B.2 Additional Waste Analysis Requirements

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

Drug & Laboratory Disposal, Inc. will review the waste characterization information to ensure that the facility is authorized to manage the waste in compliance with the following:

(Check as appropriate)

☒	R 299.9605 and 40 CFR §264.17	General requirements for ignitable, reactive, or incompatible wastes
☒	R 299.9605 and 40 CFR §264.314	Special requirements for bulk and containerized liquids
☐	R 299.9630 and 40 CFR §264.1034(d)	Test methods and procedures (Subpart AA) [Template A3, Section A3.B(2)]
☒	R 299.9631 and 40 CFR §264.1063(d)	Test methods and procedures (Subpart BB) [Template A3, Section A3.B(2)]
☒	40 CFR §264.1083	Waste determination procedures (Subpart CC) [Template A3, Section A3.B(2)]
☒	R 299.9627 and 40 CFR §268.7	Waste analysis and record keeping LDR requirements [Template A3, Sections A3.B(3) and A3.C]
☒	R 299.9228	Universal waste requirements

Drug & Laboratory Disposal, Inc. treats, commingles, packages, and otherwise handles hazardous and non-hazardous wastes from many generators. The resulting waste is shipped for final disposal with DLD listed as the generator on the manifest. Each receiving facility has very stringent requirements for all their incoming waste. DLD is responsible, as the waste generator, for the identification and characterization of the wastes and for completing all profiles requested by the off-site facility WAP.

Outgoing Waste Shipping Paper Requirements

Drug & Laboratory Disposal, Inc. is the generator of all wastes that leave the DLD facility. Receiving facilities are utilized based on TSDF site facility audits done by DLD employees, receiving TSDF abilities and economic factors. As the waste disposal options of DLD are not limited to facilities in Michigan, manifests utilized by the state where the receiving facility is located are used as appropriate. If an off-site facility state doesn't utilize its own manifest, then a Michigan manifest may be used. DLD must comply with all rules from the EPA, Michigan and any other off-site facility state when manifesting wastes. All appropriate LDR treatment standard notifications are then provided to the receiving TSDF.

Outgoing Waste Analysis Requirements

There are waste analysis requirements from off-site treatment facilities that Drug & Laboratory Disposal, Inc. utilizes to continue the waste treatment process. It is necessary to document the additional waste analysis as specified in 40 CFR 264.13 (5) and (6). All outgoing analyses are to verify the characteristics of the waste and to document the chemical content of the waste shipped off site. These analyses are also necessary to meet the waste analysis plan of the receiving facility because the generator, in this case DLD, is responsible for waste identification.

Outgoing Tank Requirements

Organic Solutions – Incineration, Fuel Blend Treatment or Waste Water Treatment - Off Site. The final procedure for ensuring that bulk waste is correctly disposed of involves the analysis of bulk shipments of liquid waste prior to shipment off site. The following analyses are performed on each 5000-gallon tank.

TABLE A3-B1
Organic Solutions Requirements

Parameter 40 CFR §264.13(b)(5)	Reference Methods 40 CFR §264.13(b)(2)	Reason For Analysis 40 CFR §264.13 (b)(1)
Volatile Organic Solvent Scan	SW-846, 8015A, 8021A	• confirms certain-solvents (or lack thereof) that could possibly be in the waste
Flash Point	SW-846, 1010	• ensuring that DLD is meeting DOT/EPA manifest requirements
PCB Analysis	SW-846, 8082	• ensure end disposal facility does not receive restricted materials
Heat Content (BTU/lb)	ASTM D 240	• document within the parameters of incinerator and fuel blender requirements
Chlorine	ASTM D 808	• document within the parameters of incinerator and/or fuel blender requirements
Sulfide	ASTM D 4978A	• document within the parameters of incinerator and/or fuel blender requirements
Metals: As, Ba, Cd, Cr, Pb, Hg, Se, Ag	SW-846 (As) 7060A (Ba) 7080A (Cd) 7130 (Cr) 7190 (Pb) 7421 (Hg) 7470A (Hg) 7471A (Se) 7740 (Ag) 7761	• incinerator and fuel blender requirements • fuel quality control • check to ensure that metals quantities are within required incinerator and BIF parameters
Physical analysis confirmation -	ASTM D 4979	• confirm that the waste "appears" as it should: color, apparent viscosity,

organoleptic testing		apparent weight

Outgoing Drum Requirements

Organic Mixtures - Incineration or Fuel Blend Treatment Off Site. This waste stream often includes non-pumpables which have accumulated in the bottom of the storage tanks of Drug & Laboratory Disposal, Inc. It is necessary that any listed waste codes that would be applicable to the tank contents would also be carried through and identified on drummed tank waste [40 CFR 261.3(c)].

TABLE A3.B2
Potential Additional Fuel Blend Requirements

Parameter 40 CFR §264.13(b)(5)	Reference Methods 40 CFR §264.13(b)(2)	Reason For Analysis 40 CFR §264.13 (b)(1)
PCB Analysis	SW-846, 8082	• restricted material for fuel blenders and incinerators
Heat Content (BTU/lb)	ASTM D 240	• document within the parameters of incinerator and fuel blender requirements
Physical analysis confirmation - organoleptic testing	ASTM D 4979	• confirm that the waste "appears" as it should, color, apparent viscosity, apparent weight

Possible additional analyses may be required on occasion (per off-site facility requirements).

TABLE A3.B3
Potential Additional Organic Mixtures Requirements

Parameter 40 CFR §264.13(b)(5)	Reference Methods 40 CFR §264.13(b)(2)	Reason For Analysis 40 CFR §264.13 (b)(1)
Volatile Organic Solvent Scan	SW-846, 8015A, 8021A	• provides knowledge about majority solvents within the drums
Flash Point	SW-846, 1010	• ensuring that DLD is meeting DOT/EPA manifest requirements
Heat Content (BTU/lb)	ASTM D 240	• document within the parameters of incinerator and fuel blender requirements
Metals: As, Ba, Cd, Cr, Pb, Hg, Se, Ag	SW-846 (As) 7060A (Ba) 7080A (Cd) 7130 (Cr) 7190 (Pb) 7421 (Hg) 7470A (Hg) 7471A (Se) 7740 (Ag) 7761	• incinerator and fuel blender requirements • fuel quality control • check to ensure that metals quantities are within required incinerator and BIF parameters • document metals for outgoing load
Physical analysis confirmation -	ASTM D 4979	• confirm that the waste "appears" as it should: color, apparent viscosity,

organoleptic testing		apparent weight

Acid Drum Waste Requirements. This waste has been segregated based on the incoming waste screens and analysis. When waste is sent to outside facilities for continuing treatment, it often requires accompanying analytical information.

TABLE A3 B4
Bulked Acid Requirements

Parameter 40 CFR §264.13(b)(5)	Reference Methods 40 CFR §264.13(b)(2)	Reason For Analysis 40 CFR §264.13 (b)(1)
Metals: Hg	SW-846, 7470A	• check to ensure that mercury quantities are within selected treatment facility requirements • ensure presence or absence of mercury and document mercury totals for outgoing waste
Physical analysis confirmation - organoleptic testing	ASTM D 4979	• confirm that the waste "appears" as it should: color, apparent viscosity, apparent weight

Additional testing for outgoing acid drums (randomly chosen or suspected concerns of the Hazardous Waste Chemist):

TABLE A3 B5
Potential Bulked Acid Requirements

Parameter 40 CFR §264.13(b)(5)	Reference Methods 40 CFR §264.13(b)(2)	Reason For Analysis 40 CFR §264.13 (b)(1)
Metals: As, Ba, Cd, Cr, Pb, Hg, Se, Ag	SW-846 (As) 7060A (Ba) 7080A (Cd) 7130 (Cr) 7190 (Pb) 7421 (Hg) 7470A (Hg) 7471A (Se) 7740 (Ag) 7761	• check to ensure that mercury quantities are within selected treatment facility requirements • ensure and document mercury totals for outgoing waste • ensure presence or absence of ten EPA/MI metals and document metal totals as required by off-site treatment facility

Outgoing heavy metal powders. Each waste stream that enters these drums has been segregated and in many cases analyzed for certain metals before being commingled. Before the waste is able to go out for continuing treatment, it requires additional analytical information.

TABLE A3.B6
Heavy Metals Powder Requirements

Parameter 40 CFR §264.13(b)(5)	Reference Methods 40 CFR §264.13(b)(2)	Reason For Analysis 40 CFR §264.13 (b)(1)
Metals: As, Ba, Cd, Cr, Pb, Hg, Se, Ag	SW-846 (As) 7060A (Ba) 7080A (Cd) 7130 (Cr) 7190 (Pb) 7421 (Hg) 7470A (Hg) 7471A (Se) 7740 (Ag) 7761	• check to ensure that mercury quantities are within selected treatment facility requirements • ensure and document mercury totals for outgoing waste • ensure presence or absence of ten EPA/MI metals and document metal totals as required by off-site treatment facility
Physical analysis confirmation - organoleptic testing	ASTM D 4979	• confirm that the waste "appears" as it should: color

Outgoing stabilized waste. This waste stream consists of the final product from the stabilization process. The intent of the process is to remove any characteristics that may cause the waste to be hazardous. This is intended to be a waste stream that would bind inert substances and make them less hazardous. Drug & Laboratory Disposal, Inc. specifically works to keep organic and all listed material from this waste. Since all organic material is restricted from this waste stream, only metals would be detected.

TABLE A3.B7
Solidified Waste Requirements

Parameter 40 CFR §264.13(b)(5)	Reference Methods 40 CFR §264.13(b)(2)	Reason For Analysis 40 CFR §264.13 (b)(1)
TCLP: complete without pesticides or herbicides	SW-846, 1311	• documentation of reduction of characteristics • documentation of applicability of landfill for the waste stream
Physical analysis confirmation - organoleptic testing	ASTM D 4979	• confirm that the waste "appears" as it should: color

A3.B.3 Procedures to Ensure Compliance with LDRs Requirements
[R 299.9627 and 40 CFR, Part 268]

In accordance with the LDR regulations, all wastes shipped off site will be analyzed 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 operating record of Drug & Laboratory Disposal, Inc. 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 may be land filled.

Drug & Laboratory Disposal, Inc. will supply LDR notifications and certifications, including appropriate analytical records or documentation of generator knowledge to support the certifications, 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.

A3.B.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 (F001-F005) are generated at Drug & Laboratory Disposal, Inc. The generator process knowledge will be used to determine the presence of spent solvent wastes (F001-F005). This process knowledge will be documented with the waste profile 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.B.3(b) Listed Wastes
[R 299.9627, R 299.9213, and R 299.9214 and 40 CFR, Sections 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 the 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 TCLP to determine if waste meets the treatment standards.

Generator process knowledge will be documented with the waste profile and LDR notification.

A3.B.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, and 268.43 and Part 268, Appendix I and Appendix IX]

Generator process knowledge will be used to determine whether characteristic wastes meet 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, Drug & Laboratory Disposal, Inc. will determine if the wastes meet treatment standards.

Characteristic D008 lead nonwastewaters and D004 arsenic nonwastewaters may be analyzed using TCLP to determine compliance with treatment standards. 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 standard prior to land disposal. In addition, generator process knowledge will be used to identify the underlying hazardous constituents that are expected to be present in D001 and D002 wastes. The generator process knowledge will be documented with the waste profile and LDR notification.

A3.B.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)]

☐ The facility does not generate radioactive mixed waste.

OR

☒ Generator process knowledge will be used to determine whether a radioactive mixed waste meets the applicable treatment standard.

OR

Currently, Drug & Laboratory Disposal, Inc. only treats radioactive oxidizing compounds that exhibit the EPA characteristic of reactivity (D001, 40 CFR §261.21(4)). Prior to being shipped to a destination facility with the appropriate technology for disposal of radioactive wastes, these chemical compounds are deactivated by stabilization in cement, meeting the treatment standard set forth in 40 CFR §268.40, Treatment Standards For Hazardous Wastes, for the waste code D001 under the waste description and treatment/regulatory subcategory of "Ignitability (Oxidizer)" is based on 40 CFR §261.21(4).

A3.B.3(e) Leachates
[R 299.9627 and 40 CFR §260.10, 268.35(a), and 268.40]

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

OR

☒ Single-source leachate will not be combined to produce multi-source leachates.

Drug & Laboratory Disposal, Inc. will conduct an initial analysis of all regulated constituents in F039 leachates and, based on the results of the analysis, develop a reduced list of constituents to be monitored on a regular basis.

A3.B.3(f) Laboratory Packs
[R 299.9627 and 40 CFR §268.7, 268.42(c) and Part 268, Appendix IV and Appendix V]

☐ The facility does not generate laboratory packs.

OR

☒ The laboratory packs generated at the facility are not land disposed.

Drug & Laboratory Disposal, Inc. utilizes degreed Hazardous Waste Chemists to sort the lab packed chemicals. Using chemical knowledge, the chemists commingle or repackage lab pack wastes.

Lab packs generated by DLD are then sent to other EPA licensed facilities for disposal. These facilities are chosen based on their compliance with the treatment standards enumerated in 40 CFR §268.40, Treatment Standards For Hazardous Waste, and 40 CFR §268.42(c). Wastes commingled with other compatible lab pack hazardous wastes and non-lab pack hazardous wastes are sent for treatment utilizing treatment standards protective of human health and the environment.

Hazardous waste organic lab packs received at DLD are repacked and disposed off-site at high temperature hazardous waste incinerators with exhaust stack scrubbing units.

A3.B.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)

☒ Hazardous debris generated at DLD that exhibits the characteristics of ignitability, corrosivity, or reactivity will be treated using one of the extraction, destruction, or immobilization technologies identified in Table 1 of 40 CFR §268.45.

OR

☐ Contaminated debris is not generated at the facility.

Commingled debris accepted at DLD are repackaged and disposed of under the Thermal Destruction technology description in Table 1 – Alternative Treatment Standards For Hazardous Debris presented in 40 CFR §268.45. These incineration facilities are chosen based on their compliance with the treatment standards enumerated in 40 CFR §268.40, Treatment Standards For Hazardous Waste, and 40 CFR §268.42, or 40 CFR §268.45, Treatment standards for hazardous debris.

A3.B.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/or analytical data will be used to demonstrate that waste mixtures and wastes carrying multiple codes are properly characterized. Wastes that carry more than one characteristic will be identified with a number for each characteristic.

A3.B.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 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.

Drug & Laboratory Disposal, Inc. 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, then DLD may aggregate wastes for treatment.

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)]

Drug & Laboratory Disposal, Inc. will perform the following procedures for preparing and/or maintaining applicable notifications and certifications to comply with LDRs:

A3.C.1 Retention of Generator Notices and Certifications
[R 299.9627 and 40 CFR §268.7(a)(7)]

Drug & Laboratory Disposal, Inc. will retain a copy of all notices, certifications, demonstrations, data, and other documentation associated with compliance to LDRs.

- 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).

A3.C.2 Notification and Certification Requirements for Treatment Facilities
[R 299.9627 and 40 CFR §268.7(b)]

Drug & Laboratory Disposal, Inc. will submit a notice and certification to the land disposal facility with each initial shipment of restricted waste or treatment residue of a restricted waste. The notice will include the information specified in R 299.9627 and 40 CFR §268.7(b)(4) and 268.7(b)(5).

If the waste or treatment residue will be further managed at a different treatment or storage facility, DLD will comply with the notice and certification requirements applicable to generators as specified in R 299.9627 and 40 CFR §268.7(b)(6).

A3.C.3 Waste Shipped to Subtitle C Facilities
[R 299.9627 and 40 CFR §268.7(a) and 268.7(b)(6)]

☐ Drug & Laboratory Disposal, Inc. does not ship waste to Subtitle C facilities.

OR

☒ For restricted waste or waste treatment residues that will be further managed at a Subtitle C (hazardous waste management) facility, Drug & Laboratory Disposal, Inc. 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 initial 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)]

☐ Drug & Laboratory Disposal, Inc. does not ship waste to Subtitle D facilities.

OR

☒ If Drug & Laboratory Disposal, Inc. ships hazardous debris or characteristic waste to a Subtitle D facility, DLD will submit a one-time notification and certification for characteristic wastes, or listed wastes that are listed only because they exhibit a characteristic, that have been treated to remove the hazardous characteristic and are no longer considered hazardous. DLD facility will place a certification and all treatment records in DLD's operating log and send a notification and certification to the Director, or delegated representative, describing the wastes and applicable treatment standards and identifying the Subtitle D (solid waste management) disposal facility receiving the waste. On an annual basis, the notification and certification will be updated and re-filed if the process or operation generating the waste changes and/or if the Subtitle D facility receiving the waste changes.

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

☐ Drug & Laboratory Disposal, Inc. does **not accept** recyclable materials used in a manner constituting disposal.

OR

☒ For wastes that are recyclable materials used in a manner constituting disposal, in accordance with R 299.9206 and 40 CFR §266.20(b), Drug & Laboratory Disposal, Inc. will submit a notice and certification to the Director, or delegated representative, with each shipment of waste describing the waste and applicable treatment standards and identifying the facility receiving the waste.

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)]

Drug & Laboratory Disposal, Inc. maintains a facility operating log in accordance with R 299.9609 and 40 CFR §264.73. The operating log consists of *Part 1 – Waste Received/Shipped; Part 2 – Analyses; Part 3 – Site Monitoring Data; Part 4 – Inspections/ Incidents; Part 5 – Air Monitoring Data* and other documents required by law to be part of the operating log..

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

If a significant manifest discrepancy is discovered (such as variation in piece count or misrepresentation of the type of waste) that cannot be resolved with the generator or transporter within 15 days of receipt, Drug & Laboratory Disposal, Inc. 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.

Recycling facilities: Drug & Laboratory Disposal, Inc. will keep records of the names and locations of each entity receiving a hazardous waste derived product.

Facilities managing a restricted waste that is excluded from the definition of a hazardous or solid waste or exempt from Subtitle C regulations: Drug & Laboratory Disposal, Inc. will place a one-time notice in the operating logs describing the generation, basis for exclusion or exemption, and disposal of the waste. For each shipment of treated debris, DLD will place a certification of compliance with applicable treatment standards in the operating logs.

A3.C.7 Required Notice

[R 299.9605(1) and 40 CFR §264.12(a) and (b))]

Drug & Laboratory Disposal, Inc. will notify the Division Chief in writing at least four weeks before the date that DLD 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, DLD 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 DLD is to receive hazardous waste from an off-site source, DLD will inform the generator in writing that DLD has the appropriate license for and will accept the waste the generator is shipping. DLD will keep a copy of this written notice in the operating logs.

ATTACHMENT 2

INSPECTION REQUIREMENTS

FORM EQP 5111 TEMPLATE

A5: INSPECTION REQUIREMENTS

(Volume 1)

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: Drug & Laboratory Disposal, Inc. in Plainwell, Michigan. (Check as appropriate)

☐ Operating License applicant

☒ Construction Permit applicant

Table of Contents

This template is organized as follows:

INTRODUCTION

A5.A WRITTEN SCHEDULE
[R 299.9605 and 40 CFR §264.15(b)(1)]

A5.A.1 Types of Problems
[R 299.9605 and 40 CFR §264.15(b)(3)]

See Paragraph A5.A.2 below.

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]

(a) Secondary Containment/Physical Structure
The physical structures of all areas managing hazardous waste are and will be checked every working day for any deterioration. The seal coating will be checked for wear, any cracking in the cement will be noted and the presence of any liquid in the sumps will be noted. Maintaining the integrity of secondary containment is a priority.

(b) Equipment
Processing equipment and hoods are and will be checked every working day to ascertain whether they are working properly, seals are intact, flaps are intact, air ducts are clear, fans are working properly and covers are in place. Shredders are and will be checked weekly to assure that airflow to the air pollution control devices is unobstructed. The filter press is checked for use and decontaminated monthly. Solvents for the gas neutralization processes are checked monthly as well.

(c) Containers
Containers are checked within 24 hours after they arrive onsite and every working day thereafter for leakage and proper labeling and marking. Containers and their covers and closure devices holding hazardous materials are visually inspected to check for visible cracks, holes, gaps, or other open spaces into the interior of the container.

(d) Tanks
Tanks are checked every working day to insure that there is no leaking or corrosion of valves, fittings and seams. High level alarms are also checked every working day. Tank liquid levels are recorded every working day also. Every two weeks the tank ancillary equipment and piping is checked for leaks, and the flange connection bolts are checked and tightened if necessary. Each tank's air pollution control device (charcoal filter) is tested once every three months for breakthrough. In addition, every tank is emptied, cleaned and then inspected by an independent, qualified and registered professional engineer once a year, who attests to tank system integrity.

(e) Communication Equipment

Safety and emergency communication devices, those being the telephone, intercom and two-way radios, are also checked daily. A weekly check is made of the alarm system and warning lights. Tank high level alarms are and will also be checked daily.

(f) Emergency Equipment

A weekly check of the following is and will be made. Safety showers and eyewash stations and condition of heat tape and circulating pumps in the winter. Fire extinguishers are checked for expiration dates and to make sure they are properly charged. Door seals on the decontamination room are checked to make sure they are intact. Contents of the multiple spill kits are checked for completeness. Pumps, hand pumps and vacuum pumps intended for emergency spills are checked for usability.

At such a time as DLS-7, DLS-8, DLS-9 and DLS-11 become operational, the emergency equipment including the fire suppression systems of these areas will be inspected/tested once a week also.

(g) Subpart BB and CC Inspections

Subpart BB regulates leaks from equipment that contacts hazardous waste streams equal or greater than 10% total organics. The majority of waste streams at DLD contain greater than 10% organics. Equipment at DLD covered by the regulations are vacuum pumps, valves in light liquid service, pipe flanges and pipe connections. An inspection program consisting of weekly visual inspections and an annual leak inspection is and will be conducted.

Subpart CC establishes VOC air emission control requirements for tanks and containers.

At DLD, our tanks meet Tank Level 1 control criteria, and are inspected once a year.

Containers at DLD meet the container control standard Level 1.

A5.B REMEDY SCHEDULE

[R 299.9605 and 40 CFR §264.15(c)]

All equipment, container and tank defects will be corrected as soon as possible, allowing for time to obtain parts or other repair equipment. Defects to the physical containment building will be corrected as soon as possible, with the limiting factors of obtaining parts and weather considerations.

A5.C INSPECTION LOG OR SUMMARY
[R 299.9605 and 40 CFR §264.15(d)]

At the present time, four inspection logs are kept at DLD:

1. A daily inspection log (Attachment A5-1);
2. A monthly inspection log(Attachment A5-2);
3. An auxiliary inspection log if the dock is in operation on a weekend (Attachment A5-3); and
4. A Grounds/Utility Inspection log for non-licensed areas (Attachment A5-4).

This last log covers security inspections such as gates, fencing, signage, lighting, etc. These inspection logs are representative of inspection logs prepared for all proposed hazardous waste management areas.

DAILY INSPECTION CHECK SHEET

		M	T	W	TH	F	Comments
Date:							
Time:							
Inspector's Initials:							
DLS-1 - Operating & Structural Equipment							
Containment Area:	No Cracks						
	No Deterioration						
	No Liquid in Sump						
Drums:	No Leaks						
	Covered Properly						
PCB Storage:	PCB Articles Not Leaking						
	PCB Containers Not Leaking						
	PCB Marks Displayed						
Safety & Emergency Equipment	Intercom Working						
DLS-2 - Operating & Structural Equipment							
Containment Area:	No Cracks						
	No Deterioration						
Drums:	No Leaks						
	Covered Properly						
Hammermill:							
	Flaps Intact						
	Integrity of Air Ducts						
	Fan Working Properly						
Shredder 3	Working Properly						
	No Deterioration						
	Fan working properly						
Shredder 2	Working Properly						
	No Deterioration						
	Fan Working Properly						
Blender:	Covers in Place						
Safety & Emergency Equipment:	Telephone/Intercom Working						
DLS-3 - Operating & Structural Equipment							
Containment Area:	No Cracks						
	No Deterioration						
	No Liquid in Sumps						
	Float Switch Operational						
Drums:	No Leaks						
	Covered Properly						
Tanks, Ancillary Equipment, & Piping:	No leaking or Corrosion of Valves/Fittings/Seams						
	High Level Alarms Working						
Fume Hoods:	Fume Hood #1 Fans Working						
	Fume Hood #2 Fans Working						
PCB Storage:	PCB Articles Not leaking						
	PCB Containers Not Leaking						
	PCB Marks Displayed						
Safety & Emergency Equipment:	Intercom Working						
DLS-4 - Operating & Structural Equipment							
Containment Area:	No Cracks						
	No Deterioration						
	No Free Liquid						
	Float Switch Operational						

Date:						
Time:						
Inspector's Initials:						
	M	T	W	TH	F	Comments
DLS-4 - Continued						
Tanks, Ancillary Equipment, & Piping:						
No leaking or Corrosion of Valves/Fittings/Seams						
High Level Alarms Working						
DLS-5 - Operating & Structural Equipment						
Shredder 4 Working Properly						
No Deterioration						
Fan working properly						

	M	T	W	TH	F	Start Date	Finish Date
TANK LIQUID LEVELS							
Tank #1 -							
Tank #2 -							
Tank #3 -							
Tank #4 -							
Tank #5 -							
Tank #6 -							

Comments: _____

(OOS = Out of Service) (NIU = Not in Use)

SAFETY & EMERGENCY EQUIPMENT INSPECTIONS

Inspected Weekly	Date Confirmed	Comments
Alarm System Tested & Operable		
Safety Shower Operable		
Shower Heat Tape Okay (in winter)		
Circulation Pump On (in winter)		

WEEKLY EQUIPMENT INSPECTIONS

Shredders (Weekly Splintax Test)

Shredder 3: Airflow Unobstructed? ☐ Yes ☐ No

Shredder 2: Airflow Unobstructed? ☐ Yes ☐ No

Shredder 4: Airflow Unobstructed? ☐ Yes ☐ No

OPERATING & STRUCTURAL EQUIPMENT

Inspected Bimonthly		Date Last Inspected	Date Inspected	Comments
Tanks, Ancillary Equipment, & Piping				
Flange Connection Bolts Intact	DLS-3			
	DLS-4			
Flange Connection Bolts Tightened	DLS-3			
	DLS-4			

MONTHLY INSPECTION SHEET

Inspection Date: _____

Time: _____

Inspector's Signature: _____

SAFETY & EMERGENCY EQUIPMENT INSPECTIONS

Inspected Monthly	Date Confirmed	Comments
Fire Protection		
Fire Extinguisher Dates Not Expired		
Fire Extinguishers Properly Charged		
Decontamination		
Decontamination Area Door Seals		
Spill Control Equipment		
Absorbent Material		
110 volt Suction Pumps (2)		
Hand Pumps (2)		
Air/Vacuum Pumps (3)		

EQUIPMENT INSPECTIONS

Filter Press

Has press been used this month? ☐ Yes ☐ No

If so, has it been decontaminated? ☐ Yes ☐ No

FILTERS

Tested Quarterly	Date Last Tested	Date of Last Replacement	Dates Tested		Date Replaced
Tank #1 Charcoal Filter					
Tank #2 Charcoal Filter					
Tank #3 Charcoal Filter					
Tank #4 Charcoal Filter					
Tank #5 Charcoal Filter					
Tank #6 Charcoal Filter					
Tested Yearly					
Fume Hood #1 Charcoal Filter					
Fume Hood #2 Charcoal Filter					
Hammermill Charcoal					
Particulate Filter					
Tested Monthly					
Shredder #2 Charcoal Filter					
Shredder #3 Charcoal Filter					
Shredder #4 Charcoal Filter					

GAS NEUTRALIZATION PROCESS

Solvents Used (lbs)		Date	Operator
H_2O:			
NH_4OH:			
Other solvents			

AUXILIARY INSPECTION CHECK SHEET

(To Be Used When Dock is Operational on Weekends)

Date:	
Time:	
Inspector's Initials:	

DLS-1 - Operating & Structural Equipment

Containment Area:	No Cracks	
	No Deterioration	
	No Liquid in Sump	
Drums:	No Leaks	
	Covered Properly	
PCB Storage:	PCB Articles Not Leaking	
	PCB Containers Not Leaking	
	PCB Marks Displayed	
Safety & Emergency Equipment	Intercom Working	

DLS-2 - Operating & Structural Equipment

Containment Area:	No Cracks	
	No Deterioration	
Drums:	No Leaks	
	Covered Properly	
Hammermill:	Seals Intact	
	Flaps Intact	
	Integrity of Air Ducts	
	Fan Working Properly	
Shredder 2	Working Properly	
	No Deterioration	
	Fan working properly	
Shredder 3	Working Properly	
	No Deterioration	
	Fan Working Properly	
Blender:	Covers in Place	
Safety & Emergency Equipment:	Telephone/Intercom Working	

DLS-3 - Operating & Structural Equipment

Containment Area:	No Cracks	
	No Deterioration	
	No Liquid in Sumps	
	Float Switch Operational	
Drums:	No Leaks	
	Covered Properly	
Tanks, Ancillary Equipment, & Piping:	No leaking or Corrosion of Valves/Fittings/Seams	
	High Level Alarms Working	
Fume Hoods:	Fume Hood #1 Fans Working	
	Fume Hood #2 Fans Working	
PCB Storage:	PCB Articles Not leaking	
	PCB Containers Not Leaking	
	PCB Marks Displayed	
Safety & Emergency Equipment:	Intercom Working	

DLS-4 - Operating & Structural Equipment

Containment Area:	No Cracks	
	No Deterioration	
	No Free Liquid	
	Float Switch Operational	
Tanks, Ancillary Equipment, & Piping:	No leaking or Corrosion of Valves/Fittings/Seams	
	High Level Alarms Working	

DLS-5 - Operating & Structural Equipment

Shredder 4	Working Properly	
	No Deterioration	
	Fan Working Properly	

TANK LIQUID LEVELS

	Tank #1	
	Tank #2	
	Tank #3	
(OOS = Out of Service)	Tank #4	
(NIU = Not in Use)	Tank #5	
	Tank #6	

COMMENTS

DRUG & LABORATORY DISPOSAL, INC.
GROUNDS/UTILITY INSPECTION CHECK SHEET
(Non-Licensed Area)

MONTHLY INSPECTIONS - This checklist should be completed by the 10th day of the month.
(Annual inspections on reverse side)

Inspection Date: _____ Inspector: _____

BACK FLOW PREVENTERS	In place & functional
Southwest Garage	
Beside Parking Lot Light Pole	
Outside Overhead Door Leading to Dock (DLS-2)	
Outside on North End of Vehicle Maintenance Garage	

FIRE EXTINGUISHERS	Pins in place and correct expiration date
Warehouse (2)	
Maintenance Garages (3)	
Loading Dock (3)	
5-Car Garage (2)	
Reception Area (1)	
Office Hallways (2)	
Server Room (1)	
South Garage (1)	
DLS-5 (4)	
Decontamination Hallway (1)	

OUTSIDE LIGHTS	Intact & functional
Main Building (5)	
Parking Lot (1)	
Flag Pole (1)	
Warehouse (4)	
Emergency Exit Lighting (10)	
DLS-5 (1)	

PERIMETER FENCING & GATES	Intact & functional
Fencing (must walk perimeter)	
Gates (locks present)	
No Authorized Personnel signs	

FURNACE FILTERS	Locks intact & functional
New Mechanical Room (1)	
Decontamination Room Closet (1)	

OUTSIDE ENTRANCES	Locks intact & functional
Main Building (5)	
Warehouse (1)	
5-Car Garage (1)	
DLS-5 (2)	

COMMENTS: _____

LRD:082106

YEARLY INSPECTIONS

This inspection should be completed no later than May 1 each year.

Inspection Date: _____ Inspector: _____

AIR CONDITIONER Primary Coils	Date Cleaned
Decon AC	
Breakroom AC	
Main Office AC	
Lab/Hall AC	

AIR CONDITIONER FILTERS Central Roof Air Intake	Replace annually (enter date)
Breakroom AC	
Main Office AC	
Lab/Hall AC	

AIR CONDITIONER Secondary Coils	Date Cleaned
Decon AC	
Breakroom AC	
Main Office AC	
Lab/Hall AC	

BACKFLOW PREVENTER	Must be checked annually by licensed plumbing firm

Firm Name Inspection Date

Signature

ATTACHMENT 3

PERSONNEL TRAINING

FORM EQP 5111 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 Drug & Laboratory Disposal, Inc. in Plainwell, 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.

(Check as appropriate)

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 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)]

Drug & Laboratory Disposal, Inc. (DLD) provides new employees with all regulatorily required initial training. Since initial training requirements vary based on the employee's duties, each individual job title has a customized Initial Training Program. Initial Training Program checklists for all positions which relate to hazardous waste management have been included in Attachment A10-2. A summary of initial training by job title has also been provided in Attachment A10-1. These documents are subject to change based on changes in regulations and business need.

A10.A.2 Outline for Continuing Education

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

DLD provides employees with all regulatorily required continuing education. Since continuing education requirements vary based on the employee's duties, each individual job title has a customized Continuing Education Program. Continuing Education Program checklists for all positions which relate to hazardous waste management have been included in Attachment A10-4. A summary of continuing education by job title has also been provided in Attachment A10-3. These documents are subject to change based on changes in regulations and business need.

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)]

Job descriptions for all facility personnel whose positions relate to hazardous waste management are attached in Attachment A10-5. At present, these positions include the following job titles:

- Customer Service Director
- Field Service Chemist
- Field Service Manager
- Hazardous Waste Assistant
- Hazardous Waste Chemist
- Hazardous Waste Director
- Hazardous Waste Driver
- Materials Handling Coordinator
- Temporary Hazardous Waste Assistant
- Waste Processing Aide
- Waste Processing Coordinator
- Waste Processing Director
- Waste Processing Manager

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)]

Initial Training

All facility personnel complete an initial training program which teaches the hazardous waste management procedures relevant to each employee's job title and duties. This initial training program also includes instruction for and familiarization with contingency plan implementation, emergency procedures, emergency equipment and emergency systems as applicable to the employee's position and our facility. The initial training program is completed within six months of an employee's date of hire or assignment to a new position at the facility, whichever is later.

The Initial Training Program Checklists (customized to each job title) which are summarized in Attachment A10-1 and attached in Attachment A10-2 provide a description of both the types of training provided and the timing in which training is completed.

Initial training methods include, but are not limited to, classroom instruction, internet-based training, and written instruction (i.e., Training Manual). New employees receive additional initial training through closely-supervised on-the-job training. While Initial Training Program Checklists are tailored to the duties of each job title, all Checklists include:

- Safety training that makes employees aware of the hazards in their jobs, how to effectively respond to emergencies in the facility, and what the Personal Protective Equipment (PPE) requirements are for their job
- Relevant hazardous waste management procedures
- Training regarding DLD's most commonly reported accidents and strategies for avoiding injury
- All OSHA training requirements
- All RCRA training requirements
- All DOT training requirements

Upon completion of each training requirement, the employee and instructor/trainer sign a certificate as required.

Initial Emergency Response Training for Hazardous Waste Management Personnel

All facility personnel performing tasks related to hazardous waste management must know the location of and be able to use the following:

- Intercom
- Two-way radios
- Fire extinguishers (including notifying appropriate persons when they need refilling)

- Absorbent and other emergency materials (for cleaning up spills)
- Filters and respirators as well as other personal safety articles such as gloves, face shields, hard hats
- Emergency buzzer (for emergency assistance or contingency plan evacuation and/or activation)

Specifically, the waste management procedures instruction includes the following job title requirements:

Field Service Chemist:

- Read Federal Motor Carrier Safety Regulations
- Pass written and driving road test
- Know DOT regulations regarding hazardous waste
- Know proper segregation of hazardous waste and materials
- Know how to read a hazardous waste manifest
- Know proper packaging procedures
- Know spill clean-up procedures and location of needed materials
- Know how to placard

Field Service Manager:

- Read Federal Motor Carrier Safety Regulations
- Pass written and driving road test
- Know DOT regulations regarding hazardous waste
- Know proper segregation of hazardous waste and materials
- Know how to read a hazardous waste manifest
- Know proper packaging procedures
- Know spill clean-up procedures and location of needed materials
- Know how to placard

Hazardous Waste Chemist

- Know location of reference materials
- Know location of all hazardous waste types stored at facility
- Know how to operate glass grinder and tank piping system
- Know proper segregation of hazardous waste chemicals
- Know guidelines of various disposal facilities (in order that packaged wastes are compatible and will be accepted)
- Know processing procedures for appropriate waste streams

- Know how to fill out inspection check sheet
- Know proper sampling procedures
- Know how to test waste (including miscibility and pH testing)
- Know storage and labeling requirements of all pertinent regulations, including DOT, RCRA and OSHA
- Know spill clean-up procedures and location of needed materials
- Know standard operating procedures for cutting and cleaning drums

Hazardous Waste Assistant:

- Know how to operate baling machine, container crushing machine, shredder and glass grinder
- Know processing procedures for appropriate nonhazardous waste
- Know storage and labeling requirements of all pertinent regulations, including DOT, RCRA and OSHA
- Know spill clean-up procedures and location of needed materials
- Know standard operating procedures for cutting and cleaning drums

Hazardous Materials Chemist

- Read Federal Motor Carrier Safety Regulations
- Pass written and driving road test
- Know DOT regulations regarding hazardous waste
- Know proper segregation of hazardous waste materials
- Know how to complete hazardous waste manifest
- Know proper packaging procedures
- Know spill clean-up procedures and location of needed materials
- Know how to placard

Materials Handling Coordinator

- Know processing procedures for appropriate nonhazardous waste
- Know DOT regulations regarding hazardous waste
- Know proper segregation of hazardous waste materials
- Know how to use refrigerant recovery equipment
- Know proper sampling procedures
- Know proper packaging procedures
- Know how to placard

- Know storage and labeling requirements of all pertinent regulations, including DOT, RCRA and OSHA
- Know spill clean-up procedures and location of needed materials
- Know standard operating procedures for cutting and cleaning drums

Waste Processing Coordinator

- Know location of reference materials
- Know location of all hazardous waste types stored at facility
- Know how to operate glass grinder and tank piping system
- Know proper segregation of hazardous waste chemicals
- Know guidelines of various disposal facilities (in order that packaged wastes are compatible and will be accepted)
- Know processing procedures for appropriate waste streams
- Know how to fill out inspection check sheet
- Know proper sampling procedures
- Know how to test waste (including waster miscible and pH testing)
- Know storage and labeling requirements of all pertinent regulations, including DOT, RCRA and OSHA
- Know spill clean-up procedures and location of needed materials
- Know standard operating procedures for cutting and cleaning drums

Waste Processing Manager:

- Know location of reference materials
- Know location of all hazardous waste types stored at facility
- Know how to operate glass grinder and tank piping system
- Know proper segregation of hazard classes
- Know guidelines of various disposal facilities (in order that packaged wastes are compatible and will be accepted)
- Know processing procedures for appropriate waste streams
- Know how to fill out inspection check sheet
- Know proper sampling procedures
- Know how to test waste (including water miscibility and pH testing)
- Know storage and labeling requirements of all pertinent regulations, including DOT, RCRA and OSHA
- Know spill clean-up procedures and location of needed materials
- Know standard operating procedures for cutting and cleaning drums

Waste Processing Director:

- Know location of reference materials
- Know location of all hazardous waste types stored at facility
- Know how to operate glass grinder and tank piping system
- Know proper segregation of hazardous waste chemicals
- Know guidelines of various disposal facilities (in order that packaged wastes are compatible and will be accepted)
- Know processing procedures for appropriate waste streams
- Know how to fill out inspection check sheet
- Know proper sampling procedures
- Know how to test waste (including water miscibility and pH testing)
- Know storage and labeling requirements of all pertinent regulations, including DOT, RCRA and OSHA
- Know spill clean-up procedures and location of needed materials
- Know standard operating procedures for cutting and cleaning drums

Actual job descriptions for these hazardous waste management positions are included in Attachment A10-5.

Since DLD does not have automatic waste feed systems and does not conduct any operations that would require a shutdown of operations other than simply ceasing that particular process, such information is not applicable and, therefore, not included in the above. Additionally, employees are instructed to report any emergency or monitoring equipment found to be needing attention during the daily inspections described in Section A5 to the appropriate persons for remediation and documentation on the inspection schedule.

All employees are required to read and review the contingency plan which is located in the office and posted at each building exit. Any person designated as an emergency coordinator must be familiar with the contingency plan and both initial and annual review of the plan is documented.

Continuing Education

All facility personnel take part in an annual review of the initial training described above. For every job title at DLD there is a Continuing Education Program Checklist (see Section A10.A.2 and Attachment A10-4) which provides a description of both the types of training provided and the timing in which training is completed.

The Continuing Education Program reviews initial training (at a minimum) and is presented by outside experts and DLD employees with regulatory expertise or hazardous waste management experience. Additionally, emergency coordinators reread the contingency plan in its entirety as part of their annual review.

Keeping up with current technologies, processing methods and regulations is vitally important to DLD. DLD continually strives to maintain a high level of knowledge. Some of the methods we have used to maintain that knowledge have been subscribing to the Federal Register, maintaining a full-time position for screening and communicating regulations, making various industry subscriptions readily accessible to employees (especially Chemists), and assigning specific areas of the regulations to specific employees to foster in-house expertise.

DLD employees frequently attend seminars which focus on industry and regulatory topics. Seminar topics have included hazardous/toxic waste management, hazardous materials transportation, safety, PPE and miscellaneous regulatory updates. In addition to the scheduled continuing education sessions, in-house training is provided for both regulatory and waste processing procedures. In-house training might include such topics as safety in processing a specific waste stream, proper manifesting under a new DOT regulation, or correct usage of new personal protection equipment. All seminar attendance is documented.

The training now required for TSDF's under OSHA further complements the EPA-required training as does the documentation required under DOT regulations. The requirements of these three agencies, additional seminars attended, industry publications, regulation reading and review, and continuing job knowledge all combine to comprise continuing education.

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)]

The Initial Training Program Checklists (customized to each job title) which are referenced in A10.A.1 and attached in Attachment A10-2 provide a description of both the types of training provided and the timing in which training is completed. All training required as part of initial training will be completed within six months of the employee's date of hire or assignment to a new position at the facility, whichever is later.

.A10.C.2 Continuing Education
[R 299.9605 and 40 CFR §264.16(c)]

All facility personnel take part in an annual review of the initial training as described in A10.B.2.

A10.D TRAINING DIRECTOR
[R 299.9605 and 40 CFR §264.16(a)(2)]

DLD's training program is directed by Brent W. Walter. Mr. Walter is the President of DLD, is a Certified Hazardous Materials Manager, and has fifteen years experience as operator of a treatment, storage and disposal facility.

Mr. Walter will oversee the execution of the following training responsibilities:

1. Identification and communication of regulatory requirements for training
2. Provision of actual training
3. Maintenance of training records and documentation

Facility personnel who assist in the execution of these responsibilities have either direct hazardous waste management experience or specific regulatory knowledge and expertise.

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)]

DLD maintains training records for current personnel until closure of the facility. For former employees, training records are kept until at least three years after the date the employee last worked at the facility. Both Initial and Continuing Education Program Checklists (which are customized to each individual job title) are used to ensure that all required training is given and received (see Attachments A10-1 through A10-4).

All employees receive an individual training record which consists of the following documentation:

- Job title and name of the employee filling the job
- A written job description
- A written description of the type and amount of training required for each position
- Documentation showing that required training (initial and continuing education) has been received by each employee

A10.E.1(a) Job Titles and Names of Employees Filling Each Job
[R 299.9605 and 40 CFR §264.16(d)(1)]

DLD maintains a report which lists the job title for each position at the facility related to hazardous waste management and the name of the employee filling each job. Furthermore, documentation of each employee's job title and full name is included in his or her individualized training record.

A10.E.1(b) Written Job Descriptions
[R 299.9605 and 40 CFR §264.16(d)(2)]

A written job description is contained in the individualized training record of all employees.

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)]

DLD maintains a record of training given to all employees, which includes a description of the type and amount (hours) of training provided. A summary report of this information is included in each employee's individualized training record.

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)]

DLD documents all required training that has been given by in-house trainers. When required, the method of documentation is a certificate which is signed by both the employee and the trainer. For training provided by trainers who are not DLD employees, DLD obtains a copy of the certificate, attendance sheet, seminar brochure or other documentation which shows that training has been given to and completed by the employee. All in-house documentation and outside training documentation are kept in the employee's individualized training record.

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

It is DLD's policy to maintain training records for current personnel as long as regulatorily required. For former employees, training records are kept until at least three years after the date the employee last worked at the facility. Both Initial and Continuing Education Program Checklists (which are customized to each individual job title) are used to ensure that all required training is given and received (see Attachments A10-1 through A10-4).

Attach...ent A10-1

Summary of Initial Training by Job Title

	Customer Service Director	Field Service Chemist	Field Service Manager	Hazardous Waste Assistant	Hazardous Waste Chemist	Hazardous Waste Director	Hazardous Waste Driver	Materials Handling Coordinator	Temporary Hazardous Waste Assistant	Waste Processing Aide	Waste Processing Coordinator	Waste Processing Director	Waste Processing Manager
EPA Training													
Contingency Plan Review	X	X	X	X	X	X	X	X	X	X	X	X	X
Emergency Education	X	X	X	X	X	X	X	X	X	X	X	X	X
Hazardous Waste Management Procedures		X	X	X	X	X	X	X	X	X	X	X	X
TSCA (PCB) Regulations	X	X	X	X	X	X	X	X	X	X	X	X	X
TSDF Regulations Review	X	X	X	X	X	X	X	X	X	X	X	X	X
DOT Training													
General Awareness Training	X	X	X	X	X	X	X	X	X	X	X	X	X
Function-Specific Training	X	X	X	X	X	X	X	X	X	X	X	X	X
Safety Training	X	X	X	X	X	X	X	X	X	X	X	X	X
Security Awareness Training	X	X	X	X	X	X	X	X	X	X	X	X	X
In-Depth Security Training	X	X	X	X	X	X	X	X	X	X	X	X	X
Indicators of Probable Drug Use	X		X			X		X			X	X	X
Indicators of Probable Alcohol Use	X		X			X		X			X	X	X
Entry-Level Driver Training (If Applicable)		X	X				X						
CDL Training (Tank or HazMat Endorsement)		X	X				X						
OSHA Training													
Introductory Safety Training	X	X	X	X	X	X	X	X	X	X	X	X	X
Bloodborne Pathogens	X	X	X	X	X	X	X	X	X	X	X	X	X
Confined Space				X	X	X		X		X	X	X	X
Fire Safety	X	X	X	X	X	X	X	X	X	X	X	X	X
Haz. Waste Operations & Emergency Response	X	X	X	X	X	X	X	X	X	X	X	X	X
Hazard Communication	X	X	X	X	X	X	X	X	X	X	X	X	X
Lockout/Tagout						X					X	X	X
Respiratory Protection		X	X	X	X	X	X	X	X	X	X	X	X

DLD
Drug & Laboratory Disposal, Inc.

Customer Service Director
Initial Training Program

Environmental Protection Agency Training

Training	Timing Code	Completion Date
☐ Contingency Plan Review	6	
☐ Emergency Education	6	
☐ TSCA (PCB) Regulations	2	
☐ TSDF Regulations	2	

Department of Transportation Training

Training	Timing Code	Completion Date
☐ General Awareness Training	1	
☐ Function-Specific Training	1	
☐ Safety Training	1	
☐ Security Awareness Training	1	
☐ In-Depth Security Training	1	
☐ Indicators of Probable Drug Use – Supervisors	1	
☐ Indicators of Probable Alcohol Use – Supervisors	1	

Michigan Occupational Health and Safety Administration Training

Training	Timing Code	Completion Date
☐ Introductory Safety Training	6	
☐ Bloodborne Pathogens Training	7	
☐ Fire Safety	9	
☐ Haz. Waste Operations & Emergency Response	8	
☐ Hazard Communication	6	

Timing Codes

Code	Definition	Code	Definition
1	3 Months (90 Days)	6	Before beginning work or when hazards change
2	6 Months (180 Days)	7	Before performing tasks covered by the training
3	12 Months/Annually	8	Before working without close supervision
4	Bi-Annually	9	Voluntary
5	Tri-Annually	10	Varies

DLD
Drug & Laboratory Disposal, Inc.

Field Service Chemist
Initial Training Program

Environmental Protection Agency Training

Training	Timing Code	Completion Date
☐ Contingency Plan Review	6	
☐ Emergency Education	6	
☐ Hazardous Waste Management Procedures	2	
☐ TSCA (PCB) Regulations	2	
☐ TSDF Regulations	2	

Department of Transportation Training

Training	Timing Code	Completion Date
☐ General Awareness Training	1	
☐ Function-Specific Training	1	
☐ Safety Training	1	
☐ Security Awareness Training	1	
☐ In-Depth Security Training	1	
☐ Entry-Level Driver Training (If Applicable)	1	
☐ CDL Training (Tank or HazMat Endorsement)	10	

Michigan Occupational Health and Safety Administration Training

Training	Timing Code	Completion Date
☐ Introductory Safety Training	6	
☐ Bloodborne Pathogens Training	7	
☐ Fire Safety	9	
☐ Haz. Waste Operations & Emergency Response	8	
☐ Hazard Communication	6	
☐ Respiratory Protection	7	

Timing Codes

Code	Definition	Code	Definition
1	3 Months (90 Days)	6	Before beginning work or when hazards change
2	6 Months (180 Days)	7	Before performing tasks covered by the training
3	12 Months/Annually	8	Before working without close supervision
4	Bi-Annually	9	Voluntary
5	Tri-Annually	10	Varies

DLD
Drug & Laboratory Disposal, Inc.

Field Service Manager
Initial Training Program

Environmental Protection Agency Training

Training	Timing Code	Completion Date
☐ Contingency Plan Review	6	
☐ Emergency Education	6	
☐ Hazardous Waste Management Procedures	2	
☐ TSCA (PCB) Regulations	2	
☐ TSDF Regulations	2	

Department of Transportation Training

Training	Timing Code	Completion Date
☐ General Awareness Training	1	
☐ Function-Specific Training	1	
☐ Safety Training	1	
☐ Security Awareness Training	1	
☐ In-Depth Security Training	1	
☐ Entry-Level Driver Training (If Applicable)	1	
☐ CDL Training (Tank or HazMat Endorsement)	10	
☐ Indicators of Probable Drug Use – Supervisors	1	
☐ Indicators of Probable Alcohol Use – Supervisors	1	

Michigan Occupational Health and Safety Administration Training

Training	Timing Code	Completion Date
☐ Introductory Safety Training	6	
☐ Bloodborne Pathogens Training	7	
☐ Fire Safety	9	
☐ Haz. Waste Operations & Emergency Response	8	
☐ Hazard Communication	6	
☐ Respiratory Protection	7	

Timing Codes

Code	Definition	Code	Definition
1	3 Months (90 Days)	6	Before beginning work or when hazards change
2	6 Months (180 Days)	7	Before performing tasks covered by the training
3	12 Months/Annually	8	Before working without close supervision
4	Bi-Annually	9	Voluntary
5	Tri-Annually	10	Varies

DLD
Drug & Laboratory Disposal, Inc.

Hazardous Waste Assistant
Initial Training Program

Environmental Protection Agency Training

Training	Timing Code	Completion Date
☐ Contingency Plan Review	6	
☐ Emergency Education	6	
☐ Hazardous Waste Management Procedures	2	
☐ TSCA (PCB) Regulations	2	
☐ TSDF Regulations	2	

Department of Transportation Training

Training	Timing Code	Completion Date
☐ General Awareness Training	1	
☐ Function-Specific Training	1	
☐ Safety Training	1	
☐ Security Awareness Training	1	
☐ In-Depth Security Training	1	

Michigan Occupational Health and Safety Administration Training

Training	Timing Code	Completion Date
☐ Introductory Safety Training	6	
☐ Bloodborne Pathogens Training	7	
☐ Confined Space	7	
☐ Fire Safety	9	
☐ Haz. Waste Operations & Emergency Response	8	
☐ Hazard Communication	6	
☐ Respiratory Protection	7	

Timing Codes

Code	Definition	Code	Definition
1	3 Months (90 Days)	6	Before beginning work or when hazards change
2	6 Months (180 Days)	7	Before performing tasks covered by the training
3	12 Months/Annually	8	Before working without close supervision
4	Bi-Annually	9	Voluntary
5	Tri-Annually	10	Varies

Hazardous Waste Chemist
Initial Training Program

Environmental Protection Agency Training

Training	Timing Code	Completion Date
☐ Contingency Plan Review	6	
☐ Emergency Education	6	
☐ Hazardous Waste Management Procedures	2	
☐ TSCA (PCB) Regulations	2	
☐ TSDF Regulations	2	

Department of Transportation Training

Training	Timing Code	Completion Date
☐ General Awareness Training	1	
☐ Function-Specific Training	1	
☐ Safety Training	1	
☐ Security Awareness Training	1	
☐ In-Depth Security Training	1	

Michigan Occupational Health and Safety Administration Training

Training	Timing Code	Completion Date
☐ Introductory Safety Training	6	
☐ Bloodborne Pathogens Training	7	
☐ Confined Space	7	
☐ Fire Safety	9	
☐ Haz. Waste Operations & Emergency Response	8	
☐ Hazard Communication	6	
☐ Respiratory Protection	7	

Timing Codes

Code	Definition	Code	Definition
1	3 Months (90 Days)	6	Before beginning work or when hazards change
2	6 Months (180 Days)	7	Before performing tasks covered by the training
3	12 Months/Annually	8	Before working without close supervision
4	Bi-Annually	9	Voluntary
5	Tri-Annually	10	Varies

Hazardous Waste Director
Initial Training Program

Environmental Protection Agency Training

Training	Timing Code	Completion Date
☐ Contingency Plan Review	6	
☐ Emergency Education	6	
☐ Hazardous Waste Management Procedures	2	
☐ TSCA (PCB) Regulations	2	
☐ TSDF Regulations	2	

Department of Transportation Training

Training	Timing Code	Completion Date
☐ General Awareness Training	1	
☐ Function-Specific Training	1	
☐ Safety Training	1	
☐ Security Awareness Training	1	
☐ In-Depth Security Training	1	
☐ Indicators of Probable Drug Use – Supervisors	1	
☐ Indicators of Probable Alcohol Use – Supervisors	1	

Michigan Occupational Health and Safety Administration Training

Training	Timing Code	Completion Date
☐ Introductory Safety Training	6	
☐ Bloodborne Pathogens Training	7	
☐ Confined Space	7	
☐ Fire Safety	9	
☐ Haz. Waste Operations & Emergency Response	8	
☐ Hazard Communication	6	
☐ Lockout/Tagout	7	
☐ Respiratory Protection	7	

Timing Codes

Code	Definition	Code	Definition
1	3 Months (90 Days)	6	Before beginning work or when hazards change
2	6 Months (180 Days)	7	Before performing tasks covered by the training
3	12 Months/Annually	8	Before working without close supervision
4	Bi-Annually	9	Voluntary
5	Tri-Annually	10	Varies

DLD
Drug & Laboratory Disposal, Inc.

Hazardous Waste Driver
Initial Training Program

Environmental Protection Agency Training

Training	Timing Code	Completion Date
☐ Contingency Plan Review	6	
☐ Emergency Education	6	
☐ Hazardous Waste Management Procedures	2	
☐ TSCA (PCB) Regulations	2	
☐ TSDF Regulations	2	

Department of Transportation Training

Training	Timing Code	Completion Date
☐ General Awareness Training	1	
☐ Function-Specific Training	1	
☐ Safety Training	1	
☐ Security Awareness Training	1	
☐ In-Depth Security Training	1	
☐ Entry-Level Driver Training (If Applicable)	1	
☐ CDL Training (Tank or HazMat Endorsement)	10	

Michigan Occupational Health and Safety Administration Training

Training	Timing Code	Completion Date
☐ Introductory Safety Training	6	
☐ Bloodborne Pathogens Training	7	
☐ Fire Safety	9	
☐ Haz. Waste Operations & Emergency Response	8	
☐ Hazard Communication	6	
☐ Respiratory Protection	7	

Timing Codes

Code	Definition	Code	Definition
1	3 Months (90 Days)	6	Before beginning work or when hazards change
2	6 Months (180 Days)	7	Before performing tasks covered by the training
3	12 Months/Annually	8	Before working without close supervision
4	Bi-Annually	9	Voluntary
5	Tri-Annually	10	Varies

Materials Handling Coordinator
Initial Training Program

Environmental Protection Agency Training

Training	Timing Code	Completion Date
☐ Contingency Plan Review	6	
☐ Emergency Education	6	
☐ Hazardous Waste Management Procedures	2	
☐ TSCA (PCB) Regulations	2	
☐ TSDF Regulations	2	

Department of Transportation Training

Training	Timing Code	Completion Date
☐ General Awareness Training	1	
☐ Function-Specific Training	1	
☐ Safety Training	1	
☐ Security Awareness Training	1	
☐ In-Depth Security Training	1	
☐ Indicators of Probable Drug Use – Supervisors	1	
☐ Indicators of Probable Alcohol Use – Supervisors	1	

Michigan Occupational Health and Safety Administration Training

Training	Timing Code	Completion Date
☐ Introductory Safety Training	6	
☐ Bloodborne Pathogens Training	7	
☐ Confined Space	7	
☐ Fire Safety	9	
☐ Haz. Waste Operations & Emergency Response	8	
☐ Hazard Communication	6	
☐ Respiratory Protection	7	

Timing Codes

Code	Definition	Code	Definition
1	3 Months (90 Days)	6	Before beginning work or when hazards change
2	6 Months (180 Days)	7	Before performing tasks covered by the training
3	12 Months/Annually	8	Before working without close supervision
4	Bi-Annually	9	Voluntary
5	Tri-Annually	10	Varies

DLD
Drug & Laboratory Disposal, Inc.

Temporary Hazardous Waste Assistant
Initial Training Program

Environmental Protection Agency Training

Training	Timing Code	Completion Date
☐ Contingency Plan Review	6	
☐ Emergency Education	6	
☐ Hazardous Waste Management Procedures	2	
☐ TSCA (PCB) Regulations	2	
☐ TSDF Regulations	2	

Department of Transportation Training

Training	Timing Code	Completion Date
☐ General Awareness Training	1	
☐ Function-Specific Training	1	
☐ Safety Training	1	
☐ Security Awareness Training	1	
☐ In-Depth Security Training	1	

Michigan Occupational Health and Safety Administration Training

Training	Timing Code	Completion Date
☐ Introductory Safety Training	6	
☐ Bloodborne Pathogens Training	7	
☐ Fire Safety	9	
☐ Haz. Waste Operations & Emergency Response	8	
☐ Hazard Communication	6	

Timing Codes

Code	Definition	Code	Definition
1	3 Months (90 Days)	6	Before beginning work or when hazards change
2	6 Months (180 Days)	7	Before performing tasks covered by the training
3	12 Months/Annually	8	Before working without close supervision
4	Bi-Annually	9	Voluntary
5	Tri-Annually	10	Varies

Waste Processing Aide
Initial Training Program

Environmental Protection Agency Training

Training	Timing Code	Completion Date
☐ Contingency Plan Review	6	
☐ Emergency Education	6	
☐ Hazardous Waste Management Procedures	2	
☐ TSCA (PCB) Regulations	2	
☐ TSDF Regulations	2	

Department of Transportation Training

Training	Timing Code	Completion Date
☐ General Awareness Training	1	
☐ Function-Specific Training	1	
☐ Safety Training	1	
☐ Security Awareness Training	1	
☐ In-Depth Security Training	1	

Michigan Occupational Health and Safety Administration Training

Training	Timing Code	Completion Date
☐ Introductory Safety Training	6	
☐ Bloodborne Pathogens Training	7	
☐ Confined Space	7	
☐ Fire Safety	9	
☐ Haz. Waste Operations & Emergency Response	8	
☐ Hazard Communication	6	
☐ Respiratory Protection	7	

Timing Codes

Code	Definition	Code	Definition
1	3 Months (90 Days)	6	Before beginning work or when hazards change
2	6 Months (180 Days)	7	Before performing tasks covered by the training
3	12 Months/Annually	8	Before working without close supervision
4	Bi-Annually	9	Voluntary
5	Tri-Annually	10	Varies

Waste Processing Coordinator
Initial Training Program

Environmental Protection Agency Training

Training	Timing Code	Completion Date
☐ Contingency Plan Review	6	
☐ Emergency Education	6	
☐ Hazardous Waste Management Procedures	2	
☐ TSCA (PCB) Regulations	2	
☐ TSDF Regulations	2	

Department of Transportation Training

Training	Timing Code	Completion Date
☐ General Awareness Training	1	
☐ Function-Specific Training	1	
☐ Safety Training	1	
☐ Security Awareness Training	1	
☐ In-Depth Security Training	1	
☐ Indicators of Probable Drug Use – Supervisors	1	
☐ Indicators of Probable Alcohol Use – Supervisors	1	

Michigan Occupational Health and Safety Administration Training

Training	Timing Code	Completion Date
☐ Introductory Safety Training	6	
☐ Bloodborne Pathogens Training	7	
☐ Confined Space	7	
☐ Fire Safety	9	
☐ Haz. Waste Operations & Emergency Response	8	
☐ Hazard Communication	6	
☐ Lockout/Tagout	7	
☐ Respiratory Protection	7	

Timing Codes

Code	Definition	Code	Definition
1	3 Months (90 Days)	6	Before beginning work or when hazards change
2	6 Months (180 Days)	7	Before performing tasks covered by the training
3	12 Months/Annually	8	Before working without close supervision
4	Bi-Annually	9	Voluntary
5	Tri-Annually	10	Varies

DLD
Drug & Laboratory Disposal, Inc.

Waste Processing Director
Initial Training Program

Environmental Protection Agency Training

Training	Timing Code	Completion Date
☐ Contingency Plan Review	6	
☐ Emergency Education	6	
☐ Hazardous Waste Management Procedures	2	
☐ TSCA (PCB) Regulations	2	
☐ TSDF Regulations	2	

Department of Transportation Training

Training	Timing Code	Completion Date
☐ General Awareness Training	1	
☐ Function-Specific Training	1	
☐ Safety Training	1	
☐ Security Awareness Training	1	
☐ In-Depth Security Training	1	
☐ Indicators of Probable Drug Use – Supervisors	1	
☐ Indicators of Probable Alcohol Use – Supervisors	1	

Michigan Occupational Health and Safety Administration Training

Training	Timing Code	Completion Date
☐ Introductory Safety Training	6	
☐ Bloodborne Pathogens Training	7	
☐ Confined Space	7	
☐ Fire Safety	9	
☐ Haz. Waste Operations & Emergency Response	8	
☐ Hazard Communication	6	
☐ Lockout/Tagout	7	
☐ Respiratory Protection	7	

Timing Codes

Code	Definition	Code	Definition
1	3 Months (90 Days)	6	Before beginning work or when hazards change
2	6 Months (180 Days)	7	Before performing tasks covered by the training
3	12 Months/Annually	8	Before working without close supervision
4	Bi-Annually	9	Voluntary
5	Tri-Annually	10	Varies

DLD
Drug & Laboratory Disposal, Inc.

Waste Processing Manager
Initial Training Program

Environmental Protection Agency Training

Training	Timing Code	Completion Date
☐ Contingency Plan Review	6	
☐ Emergency Education	6	
☐ Hazardous Waste Management Procedures	2	
☐ TSCA (PCB) Regulations	2	
☐ TSDF Regulations	2	

Department of Transportation Training

Training	Timing Code	Completion Date
☐ General Awareness Training	1	
☐ Function-Specific Training	1	
☐ Safety Training	1	
☐ Security Awareness Training	1	
☐ In-Depth Security Training	1	
☐ Indicators of Probable Drug Use – Supervisors	1	
☐ Indicators of Probable Alcohol Use – Supervisors	1	

Michigan Occupational Health and Safety Administration Training

Training	Timing Code	Completion Date
☐ Introductory Safety Training	6	
☐ Bloodborne Pathogens Training	7	
☐ Confined Space	7	
☐ Fire Safety	9	
☐ Haz. Waste Operations & Emergency Response	8	
☐ Hazard Communication	6	
☐ Lockout/Tagout	7	
☐ Respiratory Protection	7	

Timing Codes

Code	Definition	Code	Definition
1	3 Months (90 Days)	6	Before beginning work or when hazards change
2	6 Months (180 Days)	7	Before performing tasks covered by the training
3	12 Months/Annually	8	Before working without close supervision
4	Bi-Annually	9	Voluntary
5	Tri-Annually	10	Varies

Attachment A10-3

Summary of Continuing Education by Job Title

	Customer Service Director	Field Service Chemist	Field Service Manager	Hazardous Waste Assistant	Hazardous Waste Chemist	Hazardous Waste Director	Hazardous Waste Driver	Materials Handling Coordinator	Temporary Hazardous Waste Assistant	Waste Processing Aide	Waste Processing Coordinator	Waste Processing Director	Waste Processing Manager
EPA Training													
Contingency Plan Review	X	X	X	X	X	X	X	X	X	X	X	X	X
Emergency Coordinator Review of Cont. Plan						X					X	X	
Hazardous Waste Management Procedures		X	X	X	X	X	X	X	X	X	X	X	X
TSCA (PCB) Regulations	X	X	X	X	X	X	X	X	X	X	X	X	X
TSDF Regulations Review	X	X	X	X	X	X	X	X	X	X	X	X	X
DOT Training (Recurs every 3 years)													
General Awareness Training	X	X	X	X	X	X	X	X	X	X	X	X	X
Function-Specific Training	X	X	X	X	X	X	X	X	X	X	X	X	X
Safety Training	X	X	X	X	X	X	X	X	X	X	X	X	X
Security Awareness Training	X	X	X	X	X	X	X	X	X	X	X	X	X
In-Depth Security Training	X	X	X	X	X	X	X	X	X	X	X	X	X
Indicators of Probable Drug Use	X		X			X		X			X	X	X
Indicators of Probable Alcohol Use	X		X			X		X			X	X	X
Driver Wellness		X	X				X						
CDL Training (Tank or HazMat Endorsement)		X	X				X						
OSHA Training													
Bloodborne Pathogens	X	X	X	X	X	X	X	X	X	X	X	X	X
Confined Space				X	X	X		X		X	X	X	X
Fire Safety	X	X	X	X	X	X	X	X	X	X	X	X	X
Haz. Waste Operations & Emergency Response	X	X	X	X	X	X	X	X	X	X	X	X	X
Hazard Communication	X	X	X	X	X	X	X	X	X	X	X	X	X
Hearing Protection		X	X	X	X		X	X	X	X	X	X	X
Lockout/Tagout						X					X	X	X
Respiratory Protection		X	X	X	X	X	X	X	X	X	X	X	X

ATTACHMENT 4

CONTINGENCY PLAN

Table of Contents

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INTRODUCTION

A7.A BACKGROUND INFORMATION

A7.A.1 Purpose of the Contingency Plan
[R 299.9607 and 40 CFR §264.51and 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 DLD facility in Plainwell, Michigan, such as a fire, explosion, or any unplanned sudden or non-sudden 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 the Contingency 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 information has been submitted to:

Plainwell Public Safety (Fire and Police)
119 Island Drive
Plainwell, MI 49080

Borgess-Pipp Hospital
411 Naomi Street
Plainwell, MI 49080

Plainwell Area Ambulance Service
413 Naomi Street
Plainwell, MI 49080

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

A7.A.2 Description of Facility Operations

Drug & Laboratory Disposal, Inc. transports, treats, processes and stores a wide variety of small volume chemical wastes generated by small industries, academic institutions, and hospitals. DLD currently operates one shift.

Hazardous wastes accepted at DLD can be classified into four groups:

1. Characteristic Wastes
   - Ignitable (40 CFR 261.21)
   - Corrosive (40 CFR 261.22)
   - Reactive (40 CFR 261.23)
   - Toxic (40 CFR 261.24; R299.9219)
2. Hazardous Waste from Nonspecific Sources (40 CFR 261.31; R299.9221)
3. Hazardous Waste from Specific Sources (40 CFR 261.32; R299.9223)
4. Discarded Commercial Chemical Products, Off-Specification Species, Container Residue, and Spill Residues Thereof (40 CFR 261.33; R299.9226)

DLD acceptable waste codes include all EPA and MIDEQ codes.

DLD currently has six hazardous waste management units:

Hazardous Waste Loading Bay (HWLB): Set up specifically as access for incoming and outgoing waste, including temporary storage and processing of waste.

DLS-1: Used for DLD's Main PCB storage area, elemental mercury storage, and as a process area for infectious material. This room is climate controlled and used for temporary storage of chemicals that require temperature adjustment before processing.

DLS-2: A fairly small area on the dock containing saws, grinders, shredders, blenders and other electrical equipment. This is where solvent blending and debris shredding takes place. Because of limited room, it is rarely used for storage and used mainly for a processing area.

DLS-3: This area is set up as work area in the center and storage on the perimeter. DLS-3 is also a containment area for three 5,000-gallon stainless steel waste storage tanks.

DLS-4: A containment area for an additional three 5,000-gallon stainless steel waste storage tanks. DLS-4 is not used for waste processing.

DLS-5: This area is currently used to store and treat non-hazardous waste and hazardous waste. DLS-5 is constructed of steel and concrete. The floor is composed of hydrophobic concrete and the berms along the walls provide for secondary containment

A7.A.3 Identification of Potential Situations

This contingency plan could be activated in the event of a fire, an explosion, a tornado or strong wind storm, a direct lightning strike causing electrical or fuel fed fire, an earthquake, or a release of a hazardous chemical in a gaseous form. It could also be activated by a train derailment or collision (DLD is situated between two rail lines).

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 below. The coordinators are listed in the order in which they will assume responsibility.

A7.B.2 Qualifications of the Emergency Coordinators

[R 299.9607 and 40 CFR §264.55]

Emergency coordinators are chosen because they have a combination of intensive waste handling and emergency response training, multiple years working for DLD in a waste handling capacity, and/or a college degree in chemistry or a related field.

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

Drug & Laboratory Disposal, Inc., Plainwell, MI

Priority	Name	Address	Work phone	Home phone
Primary Coordinator	Kevin Jay Berghuis	6367 Winddrift Street Kalamazoo, MI 49009	269-685-9825	269-353-7658
Alternate Coordinator	Robert Rittersdorf, Jr	4659 Grantwood Avenue, SE Kentwood, MI 49508	269-685-9824 Ext. 222	616-530-1739

A7.B.3 Authority to Commit Resources

[R 299.9607 and 40 CFR §264.55]

All emergency coordinators are authorized to commit any necessary resources of the company that may be needed to carry out 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, or release of hazardous waste or hazardous waste constituents that could threaten human health or the environment.

When the emergency signal is activated, the emergency coordinator will immediately go to the employee gathering place to be apprised of the situation and receive headcount totals. In the event the emergency coordinator is on-duty but not on the premises, DLD's emergency number will be forwarded to their land line or a dedicated cell phone, and the emergency coordinator will appraise the situation, give instructions to personnel present at the site, and immediately proceed to DLD.

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.

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 (below) 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:

Plainwell Fire Department	911
Plainwell Police Department	911
Allegan County Sheriff Department	911
Plainwell Area Ambulance	(269) 685-6172
Borgess-Pipp Health Center Emergency Dept.	(269) 685-0737
Bronson Methodist Hospital Level I Trauma Unit	(269) 341-6386
Consumers Electric	(800) 477-5050
Michigan Gas Utilities (gas)	(800) 401-6451

State:

MIDEQ's Pollution Emergency Alerting System (PEAS)	(800) 292-4706

National:

National Response Center: (NRC)	(800) 424-8802

A7.D.2 Procedures to Be Used for Identification of Releases
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56]

The emergency coordinator will immediately do the following in the event of an emergency:

1. Activate the internal facility alarm at DLD if it has not already been activated. This is a loud electric buzzer which emits a continuous sound and can be activated from the canteen hallway, DLS-2, DLS-3, DLS-5, laboratory and the warehouse by any DLD employee. The purpose of the alarm is to alert facility personnel of an actual or imminent danger and for personnel to take appropriate action. This alarm system will be expanded to the proposed hazardous waste management units as they are constructed.

2. If the alarm was activated by someone other than the Emergency Coordinator, that individual must report to the Emergency Coordinator at the regrouping location and convey the circumstances that necessitated the activation of the alarm. If emergency assistance has not already been called, the Emergency will direct an employee to do so.

3. Identify the character, exact source, amount and extent of released material or determine the reason for activation of the alarm.

During or immediately following evacuation, the emergency coordinator or a person he designates will cut power and gas to the facility if necessary to to mitigate fire and explosion hazards. The shut-off valves are located as follows:

Gas Shut-off Valves: Located on the outside of the building on the east side of the southeast corner of the metals lab.

Electric Panels: Three gray electric panels located on the west wall of the south garage (office area).

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 to human health and the environment that may have resulted from any release of a hazardous material. This assessment will consider both direct and indirect effects of the release, such as the effects of any liquid release onto areas without secondary containment; toxic, irritating, or asphyxiating gases that are generated; and the effects of any hazardous run-off from water or chemical agents used to control fire.

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, above).

In addition to local authorities, the National Response Center will also be notified as required by law (see Table A7.D.1, above), and the following information must 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 plans are included in this Contingency Plan as Attachment A7.1..

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.

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.

These measures will include stopping processes, collecting and containing released waste and removing or isolating containers. At DLD, containing released hazardous waste is automatic since all hazardous waste treating, storing, and processing is within the confines of DLS-1, DLS-2, DLS-3, DLS-4 or DLS-5 secondary containment structures. The HWLB also has secondary containment. Household Hazardous Waste (HHW) is, at times, stored in containers on the warehouse loading dock. These areas have concrete floors and enclosed drains. All actions necessary to prevent spills from reaching the outside environment must be taken. Additionally, the emergency coordinator will monitor for leaks, pressure buildups, gas generation, or ruptures in primary containment vessels, valves, pipes, or equipment whenever appropriate.

The emergency coordinator will ensure that in the affected areas of the facility no waste incompatible with released material will be treated, stored, or disposed of until cleanup procedures are completed and emergency equipment listed in this plan is cleaned and fit for its intended use.

Attachment A7.3 is a detailed description of the type, amount, and the approximate location of all emergency equipment at the DLD 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)]

The emergency coordinator will coordinate staff to monitor for leaks, pressure buildup, gas generating, or ruptures in valves, pipes, or other equipment, should the facility operations cease.

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)]

Immediately after an emergency, the emergency coordinator must coordinate the treating, storing, or disposing of recovered waste, contaminated soil, surface water, or any other recoverable material that has resulted from a release or fire at the facility. This recovered material will be managed as necessary to comply with all applicable rules and regulations and to prevent harm to human health and the environment.

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

After any release of hazardous waste that has required the implementation of the contingency plan, the owner or operator of DLD will do all of the following:

1. Assure that the affected part of the facility and affected equipment has been repaired, if necessary, and is in compliance with all regulations.

2. Certify that any necessitated repairs have been completed to current industrial and/or good practice standards.

3. Notify the EPA Region 5 Administrator and State authorities that the facility is in compliance with all regulations and is ready to resume operations.

4. Note in the operating log the time, date, and details of the incident that required implementation of the contingency plan.

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.

Within fifteen days submit a written report of the incident to the EPA Region 5 Administrator and State authorities. The report will include:

a.

Facility name:	Drug & Laboratory Disposal, Inc.
Address:	331 Broad Street, Plainwell, MI 49080
Telephone number:	269-685-9824
EPA ID number:	MID092947928
Owner/Operator:	Brent W. Walter

b. Date, time, and type of incident (e.g., fire, release, etc.).

c. Name and quantity of materials involved.

d. Extent of injuries, if any.

e. An assessment of actual or potential hazards to human health or the environment.

f. Estimated quantities and disposition of recovered material that resulted from the incident, including the likely route of migration of any release and the type characteristics of surrounding soil if a surface release has occurred.

g. The results of monitoring and/or sampling that may have been necessary due to the release.

h. The proximity of downgradient drinking water sources, surface water, and population areas, as applicable to the release.

i. A description of response actions taken or those actions deemed necessary based on observation and/or monitoring and sampling of the release area.

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 Drug & Laboratory Disposal, Inc. and can be found at the following location: 331 Broad Street, Plainwell, MI 49080.

A7.E(2)(b) Written Incident Report

Within 15 days of an incident requiring implementation of the Contingency Plan, the DLD facility will submit a written incident report to the EPA Regional Administrator and the Director of the MDEQ.

The report will contain the following information:

1. Name, address, 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 reviewed, and immediately amended if necessary, whenever:

1. The facility permit is revised.
2. The plan fails in an emergency.
3. The facility changes in its design, construction, operation, maintenance, or other circumstances in a way that materially increases the potential for fires, explosions, or releases of hazardous waste constituents, or changes the response necessary in an emergency.
4. The list of emergency coordinators changes.
5. The list of emergency equipment changes.

Training of all employees will take place as necessary whenever the Contingency Plan is changed for one of the above reasons.

A7.G PROCEDURE FOR ASSESSING OFF-SITE RISK DURING AND AFTER A SIGNIFICANT UNPLANNED RELEASE

In the unlikely event that DLD suffers a catastrophic fire/explosion or other major environmental release, DLD will obtain information pertinent to the release and thoughly assess the off-site risk associated with the event. The procedure can be found in attachment A7.3.

Attachment A7.1 Drug & Laboratory Disposal Written Evacuation Plan

Evacuation routes are based on the zone occupied and zones are identified by color designations. The zone descriptions and associated exits for each area are as follows:

NAME AND DESCRIPTION OF ZONE	LOCATION OF EXIT
Green Zone: Support Operations Director's office, President's office, main laboratory, metals laboratory, laboratory office, GC room, records room, south garage, and mechanical room	Exit located at south end of north-south corridor. Alternate Exit for metals laboratory and main laboratory located on northeast wall of metals laboratory.
Red Zone: Main office	Exit located at the southwest corner of main office
Orange Zone: Hazardous Waste Director's office, Vice-President's office and server room, conference room, Marketing office, connecting corridors, locker rooms, and laundry room	Exit located at east end of east-west corridor
Yellow Zone: Reception area, break room, canteen, Hazardous Materials Chemist office	Exit located on west side of building (main entrance)
Purple Zone: Decontamination room, rest rooms, Dock Supervisor's office	Exit located on west side of decontamination room
Pink Zone: DLS-1, DLS-2, DLS-3, DLS-4	Exit located on east side of processing dock
Blue Zone: HWLB, maintenance garage	Exit located on west side of blue zone areas, any one of four garage doors
Amber Zone: Warehouse	Exit located on north side, any one of four garage doors. Alternate exits are west garage door.
Teal Zone: DLS-5	North door; open wall on northwest end; South door.
Magenta Zone: Annex 1	South door; past laboratory through Gate 5.

Attachment A7.2 - Emergency Equipment

Emergency Equipment

Emergency equipment available at DLD includes the following:

EQUIPMENT DESCRIPTION	LOCATION	EMERGENCY RESPONSE USAGE
1. Minimum of Twenty-nine Type ABC fire extinguishers		Extinguishing Type A (e.g. trash, wood, paper), Type B (e.g. liquids and grease), and Type C (e.g. electrical equipment) fires.
• Three 10#	DLS-1	
• Three 10#	DLS-2	
• Eight 10#	DLS-3	
• One 10#	DLS-4	
• Three10#	HWLB	
• Three 10#	Vehicle Maint. G.	
• Two 20# ; One 10#	Warehouse	
• Four 10#	Warehouse Dock; North side also	
• One 10#	Main Lab	
• Three 6#	Lobby/Halls	
• One 11#	Server Room	
• Two 20#	5-Car Garage	
• Four 10#	DLS-5	
2. One 30# D-type fire extinguisher	Dock Office	Extinguishing alkaline earth metal fires.
3. One Halon fire extinguisher	Metals Lab	Extinguishing Type A, B, & C fires.
4. Two 110 V AC suction Pumps	DLS-1 HWLB	Suction of liquids from sump area if not served by compressed air.
5. Two hand-operated pumps	DLS-1	Suction of small volumes of liquid from areas not served by compressed air or electricity.
6. Two air-driven vacuum pumps with 1½" inlet and outlet.	DLS-1 or DLS-3	Transfer of liquids, both viscous and non-viscous, as in spill clean-up.
7. Two air-driven vacuum pump with 3" inlet and outlet	DLS-1 or DLS-3	Transfer of liquids, both viscous and non-viscous, as in spill clean-up.

EQUIPMENT DESCRIPTION	LOCATION	EMERGENCY RESPONSE USAGE
8. Spill clean-up material: Oil dry, sawdust, brooms, pads, booms	DLS-3 , HWLB, Warehouse	As appropriate to the type of material spilled. Sawdust is not used on spills with potential for oxidation.
9. Personnel equipment—modified Level C (hard hats, face shields, rubber gloves, respirators, coveralls)	Decontamination Room	Clean-up of spills requiring not higher than Level C protection.
10. Personal equipment—modified Level C (same as # 9 plus supplied air)	Decontamination Room	Clean-up of spills requiring not higher than Level C protection.
11. Telephone/Intercom • Driver's Phones • Two-way radio set • Radio System (5)	Twenty-five office locations, five locations outside	Communication with office via intercom and with emergency responders.
12. Alarm system consisting of seven loud horns and seven activation locations	Entire Facility	Evacuation signal
13. Three visual alarms consisting of flashing red lights	West side of maintenance garage roof; west side of warehouse (outside west door); Inside 5-stall garage	Additional evacuation signal for outside areas when noise is a factor.
14. Mercury Vacuum	DLS-1	Clean-up of mercury spills
15. Decontamination Equipment: bucket, 1A2 drum, brushes, pump	DLS-1, DLS-2, or DLS-3	Clean-up of PCB spills
16. Emergency Gate Openers	Left side of west forklift door of warehouse; Very edge of west wall of rack area, right side of the non-RCRA loading dock	Emergency evacuation of employees and access to facility by emergency vehicles

Attachment A7.3 Standard Operating Procedure for Assessing Off-Site Risk

This written procedure is intended to give direction to DLD employees in the case of a catastrophic fire/explosion or other major environmental release impacting the off-site environment (off DLD property). DLD recognizes that much of the off-site sampling and monitoring will be performed by authorized governmental agencies such as the MDEW, EPA, and local response agencies. DLD will aid those governmental agencies with all available material and staff.

1. Records

The following records will be accumulated:

a. Documentation of the times the incident began and the duration of the overall event.

b. Identification of the specific location where the incident began, the physical extent of the incident and off-site properties involved.

c. List of all employees and witnesses having direct knowledge of the incident.

d. Meteorological data from the National Weather Service and any weather related data gleaned from involved employees.

e. All records pertaining to the incident, including inventory records, container/tanks records, laboratory data, waste profiles, and SDS if applicable.

2. Timeline / Analysis

f. Determine the sequence of events and time-line leading up to and throughout the incident. This should be done by reviewing employees statements, interviewing employees directly involved in the incident, interviewing employees on-site but not directly involved, as well as other witnesses, and reviewing automated data records and surveillance cameras.

g. Identify the event location(s), materials, and equipment involved.

h. Determine the volume, concentration, and weight of the substances involved and then determine if these substances have been chemically or physically altered by the incident. Create a list of compounds of concern based on determination these determinations.

i. Establish a place where all material and records regarding the incident will be housed.

3. Environmental Monitoring

j. If initial air, soil, and groundwater monitoring following the incident is done by a governmental agency, DLD will assist with all available resources.

k. In the event a post-incident sampling plan is developed, DLD will assist as necessary in the development and implementation of such a plan.

4. Corrective Action

DLD will perform all corrective actions in accordance with its Hazardous Waste Management Facility Operating License.

Index

A7.D.5 Procedures to Be Used to Ensure That Fires, Explosions, and Releases Do Not Occur, Reoccur, or Spread During the Emergency

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

A7.G PROCEDURE FOR ASSESSING OFF-SITE RISK DURING AND AFTER A SIGNIFICANT UNPLANNED RELEASE

Index of Attachments

DLD
Drug & Laboratory Disposal

Meeting Attendance Sheet

Subject	Date	Time	Location
Emergency Response Meeting	12-11-08	10:a.m.	Drug & Laboratory Disposal, Inc.

Name (Please Print)	Signature	Affiliation
Sharon I. Joles	Sharon I. Joles	DLD
Bob Rittersdorf	Bob Rittersdorf	DLD
Kevin Jay Berghuis	Kevin Jay Berghuis	DLD
Douglas W. Christance	Douglas W. Christance	D.L.D
Robert Pickett	Robert Pickett	DLD
David Rantz	David Rantz	PDPS
Jeff Welcker	Jeff Welcker	PDPS

Attachment A7-1

DLD
Drug & Laboratory Disposal, Inc.

November 22, 2008

Bill Bomar
Plainwell Public Safety Director
141 North Main Street
Plainwell, MI 49080

Dear Mr. Bomar:

Every ten years Drug & Laboratory Disposal, Inc. (DLD) must renew it's Hazardous Waste Facility Operating License, commonly known as the Part B license. Under this license we are required to apprise the emergency response organizations that would be called to an incident at DLD as to the extent of our operations and furnish them with our Contingency Plan. We think the best way to do this is to invite you to view DLD's facility and give you the opportunity to ask questions.

Thus, DLD cordially invites you or your representative to a meeting on Thursday, December 11 at 10:00 a.m. at Drug & Laboratory Disposal to discuss DLD's Emergency/Contingency Plans and for a site tour. As DLD is a secured facility, RSVP acceptance of our invitation would be appreciated. Picture ID will be required. If you have any questions, please feel free to call.

Sincerely,

Sharon I. Joles, MS
Environmental Director
269-685-9824 ext. 13
sjoles@dld-inc.com

331 Broad Street Plainwell, MI 49080 | Phone: (269) 685-9824 • Fax: (269) 685-1130 | www.dld-inc.com

DLD
Drug & Laboratory Disposal, Inc.

November 22, 2008

Heather Miller
Plainwell Area Ambulance Service
413 Naomi Street
Plainwell, MI 49080

Dear Ms. Miller:

Every ten years Drug & Laboratory Disposal, Inc. (DLD) must renew it's Hazardous Waste Facility Operating License, commonly known as the Part B license. Under this license we are required to apprise the emergency response organizations that would be called to an incident at DLD as to the extent of our operations and furnish them with our Contingency Plan. We think the best way to do this is to invite you to view DLD's facility and give you the opportunity to ask questions.

Thus, DLD cordially invites you or your representative to a meeting on Thursday, December 11 at 10:00 a.m. at Drug & Laboratory Disposal to discuss DLD's Emergency/Contingency Plans and for a site tour. As DLD is a secured facility, RSVP acceptance of our invitation would be appreciated. Picture ID will be required. If you have any questions, please feel free to call.

Sincerely,

Sharon I. Joles, MS
Environmental Director
269-685-9824 ext. 13
sjoles@dld-inc.com

Environmentally Correct Disposal of All Chemical Waste Since 1977 • Licensed Treatment Storage & Disposal Facility
331 Broad Street Plainwell, MI 49080 | Phone: (269) 685-9824 • Fax: (269) 685-1130 | www.dld-inc.com

DLD
Drug & Laboratory Disposal, Inc.

December 19, 2008

Heather Miller
Plainwell Area Ambulance Service
413 Naomi Street
Plainwell, MI 49080

Dear Ms. Miller:

This letter is a follow-up to a previous letter, dated 11-24-08, in which emergency response organizations were invited to a 12-11-08 site tour of Drug & Laboratory Disposal, Inc. (DLD). Plainwell Area Ambulance Service was not represented at that site tour.

Drug & Laboratory Disposal is currently in the process of renewing its Hazardous Waste Facility Operating License. The site tour was offered as a way of compliance with 40 CFR 264.37 which requires hazardous waste facilities to, among other things, attempt to make "arrangements to familiarize . . . emergency response teams with the layout of the facility, properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes."

The enclosed packet, which includes building layouts and DLD's contingency plan, was distributed at that site tour. In lieu of a signature on the attendance sheet provided at the 12-11-08 site tour, we would appreciate a letter from the Ambulance Service acknowledging familiarity with DLD's operations.

If you have any questions or would like to arrange a personal site tour, please feel free to call me.

Sincerely,

Sharon I. Joles, MS
Environmental Director
269-685-9824 ext. 13
sjoles@dld-inc.com

Enclosures

Joles, Sharon

From: Sybesma, Rhonda
Sent: Saturday, December 27, 2008 1:16 PM
To: Joles, Sharon
Subject: FW: FedEx Shipment 797196702780 Delivered

Rhonda Sybesma
Drug & Laboratory Disposal, Inc.
Fax: 269-685-9609 Phone: 269-685-9824
rsybesma@dld-inc.com

From: TrackingUpdates@fedex.com [mailto:TrackingUpdates@fedex.com]
Sent: Wednesday, December 24, 2008 3:46 PM
To: Sybesma, Rhonda
Subject: FedEx Shipment 797196702780 Delivered

This tracking update has been requested by:

Company Name:	DRUG & LABORATORY DISPOSAL
Name:	Sharon Joles
E-mail:	rsybesma@dld-inc.com

Our records indicate that the following shipment has been delivered:

Door Tag number:	DT101901474025
Ship (P/U) date:	Dec 19, 2008
Delivery date:	Dec 24, 2008 3:41 PM
Sign for by:	R.REED
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Express Saver
Packaging type:	FedEx Pak
Number of pieces:	1
Weight:	1.00 lb.
Special handling/Services:	Adult Signature Required Deliver Weekday
Tracking number:	797196702780

Shipper Information	Recipient Information
Sharon Joles	Heather Miller
DRUG & LABORATORY DISPOSAL	Plainwell Are Ambulance Service
331 BROAD STREET	413 NAOMI ST
PLAINWELL	PLAINWELL

DLD
Drug & Laboratory Disposal, Inc.

November 24, 2008

John Ryder, CEO
Borgess-Pipp Hospital
411 Naomi Street
Plainwell, MI 49080

Dear Mr. Ryder:

Every ten years Drug & Laboratory Disposal, Inc. (DLD) must renew it's Hazardous Waste Facility Operating License, commonly known as the Part B license. Under this license we are required to apprise the emergency response organizations that would be called to an incident at DLD as to the extent of our operations and furnish them with our Contingency Plan.. We think the best way to do this is to invite you to view DLD's facility and give you the opportunity to ask questions.

Thus, DLD cordially invites you or your representative to a meeting on Thursday, December 11 at 10:00 a.m. at Drug & Laboratory Disposal to discuss DLD's Emergency/Contingency Plans and for a site tour. As DLD is a secured facility, RSVP acceptance of our invitation would be appreciated. Picture ID will be required. If you have any questions, please feel free to call.

Sincerely,

Sharon I. Joles, MS
Environmental Director
269-685-9824 ext. 13
sjoles@dld-inc.com

331 Broad Street Plainwell, MI 49080 | Phone: (269) 685-9824 • Fax: (269) 685-1130 | www.dld-inc.com

December 19, 2008

John Ryder, CEO
Borgess-Pipp Hospital
411 Naomi Street
Plainwell, MI 49080

Dear Mr. Ryder:

This letter is a follow-up to a previous letter, dated 11-24-08, in which emergency response organizations were invited to a 12-11-08 site tour of Drug & Laboratory Disposal, Inc. (DLD). Borgess-Pipp Hospital was not represented at that site tour.

Drug & Laboratory Disposal is currently in the process of renewing its Hazardous Waste Facility Operating License. The site tour was offered as a way of compliance with 40 CFR 264.37 which requires hazardous waste facilities to, among other things, attempt to make "arrangements to familiarize local hospitals with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases at the facility."

The enclosed packet, which includes building layouts and DLD's contingency plan, was distributed at that site tour. In lieu of a signature on the attendance sheet provided at the 12-11-08 site tour, we would appreciate a letter from the Hospital acknowledging familiarity with DLD's operations.

If you have any questions or would like to arrange a personal site tour, please feel free to call me.

Sincerely,

Sharon I. Joles, MS
Environmental Director
269-685-9824 ext. 13
sjoles@dld-inc.com

Enclosures

Joles, Sharon

From: Sybesma, Rhonda
Sent: Tuesday, December 23, 2008 2:51 PM
To: Joles, Sharon
Subject: FW: FedEx Shipment 796200210615 Delivered

Rhonda Sybesma
Drug & Laboratory Disposal, Inc.
Fax: 269-685-9609 Phone: 269-685-9824
rsybesma@dld-inc.com

From: TrackingUpdates@fedex.com [mailto:TrackingUpdates@fedex.com]
Sent: Tuesday, December 23, 2008 2:48 PM
To: Sybesma, Rhonda
Subject: FedEx Shipment 796200210615 Delivered

This tracking update has been requested by:

Company Name:	DRUG & LABORATORY DISPOSAL
Name:	Sharon Joles
E-mail:	rsybesma@dld-inc.com

Our records indicate that the following shipment has been delivered:

Ship (P/U) date:	Dec 19, 2008
Delivery date:	Dec 23, 2008 2:43 PM
Sign for by:	L.ORYCZAK
Delivered to:	Shipping/Receiving
Service type:	FedEx Express Saver
Packaging type:	FedEx Pak
Number of pieces:	1
Weight:	1.00 lb.
Special handling/Services:	Deliver Weekday
Tracking number:	796200210615

Shipper Information	Recipient Information
Sharon Joles	John Ryder, CEO
DRUG & LABORATORY DISPOSAL	Borgess-Pipp Hospital
331 BROAD STREET	411 NAOMI ST
PLAINWELL	PLAINWELL
MI	MI
US	US

411 Naomi Street
Plainwell, MI 49080
(269) 685.0700
(269) 685.0800 Fax

BORGESS
Pipp Hospital

December 29, 2008

Sharon I. Joles, MS
Environmental Director
331 Broad St.
Plainwell, MI 49080

Dear Ms. Joles:

This letter is in response to an information packet sent and an invitation offered to tour Drug & Laboratory Disposal, Inc.. Thank you for the information as I was unable to attend due to being on orthopedic medical leave during the scheduled site tour. However, Officer Welcher, Plainwell Public Safety, brought over the materials given to participants and we went through your facility maps, contingency plans, and discussed joint response with law enforcement.

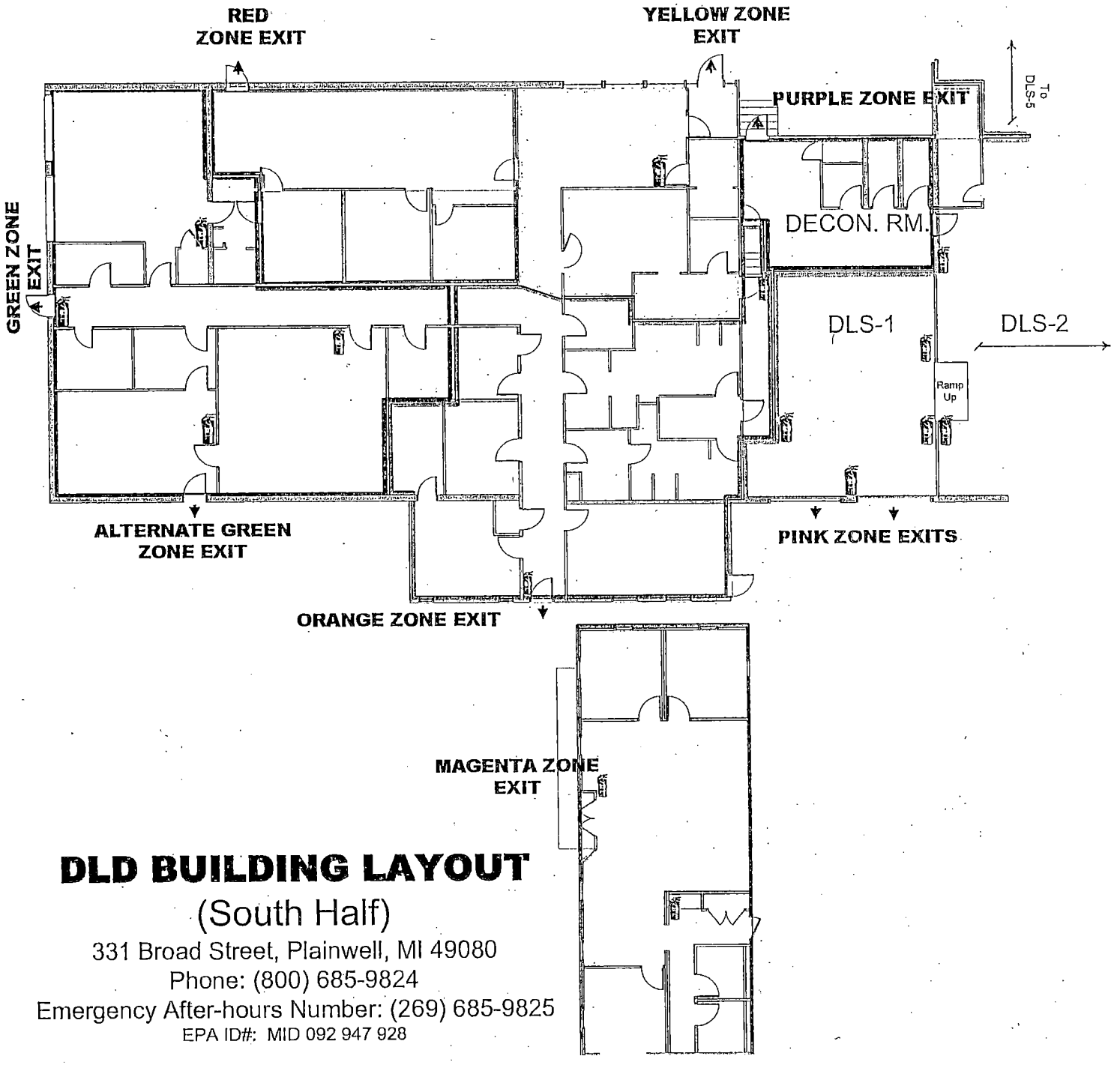
We will refresh our field staff about your operations, hazardous materials handled at DLD, and access to your facility.

If you have any questions, please feel free to call me.

Sincerely,

Heather Miller

Heather Miller
Operations Manager
Plainwell Area EMS
269-685-0880



DLD BUILDING LAYOUT

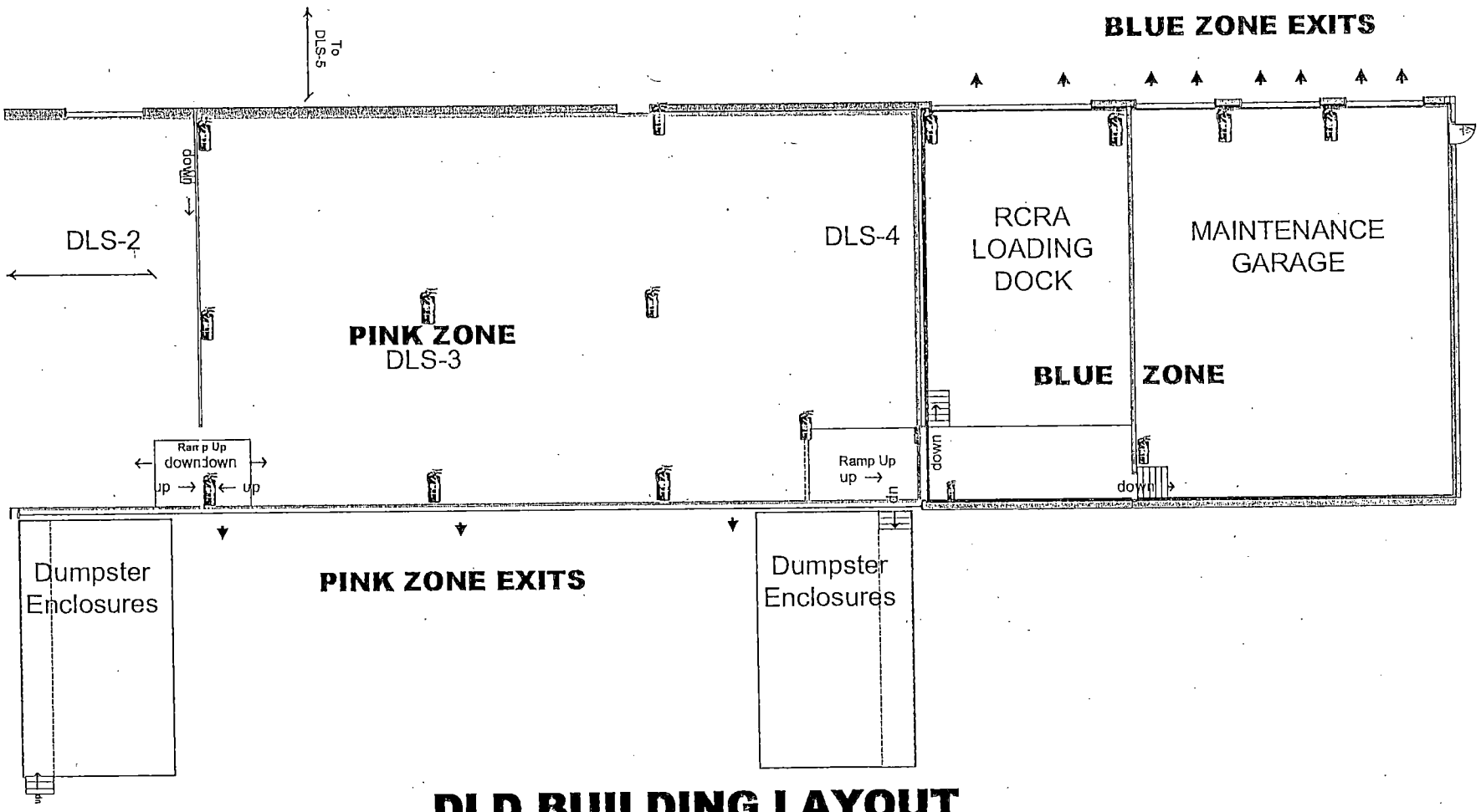
(South Half)

331 Broad Street, Plainwell, MI 49080

Phone: (800) 685-9824

Emergency After-hours Number: (269) 685-9825

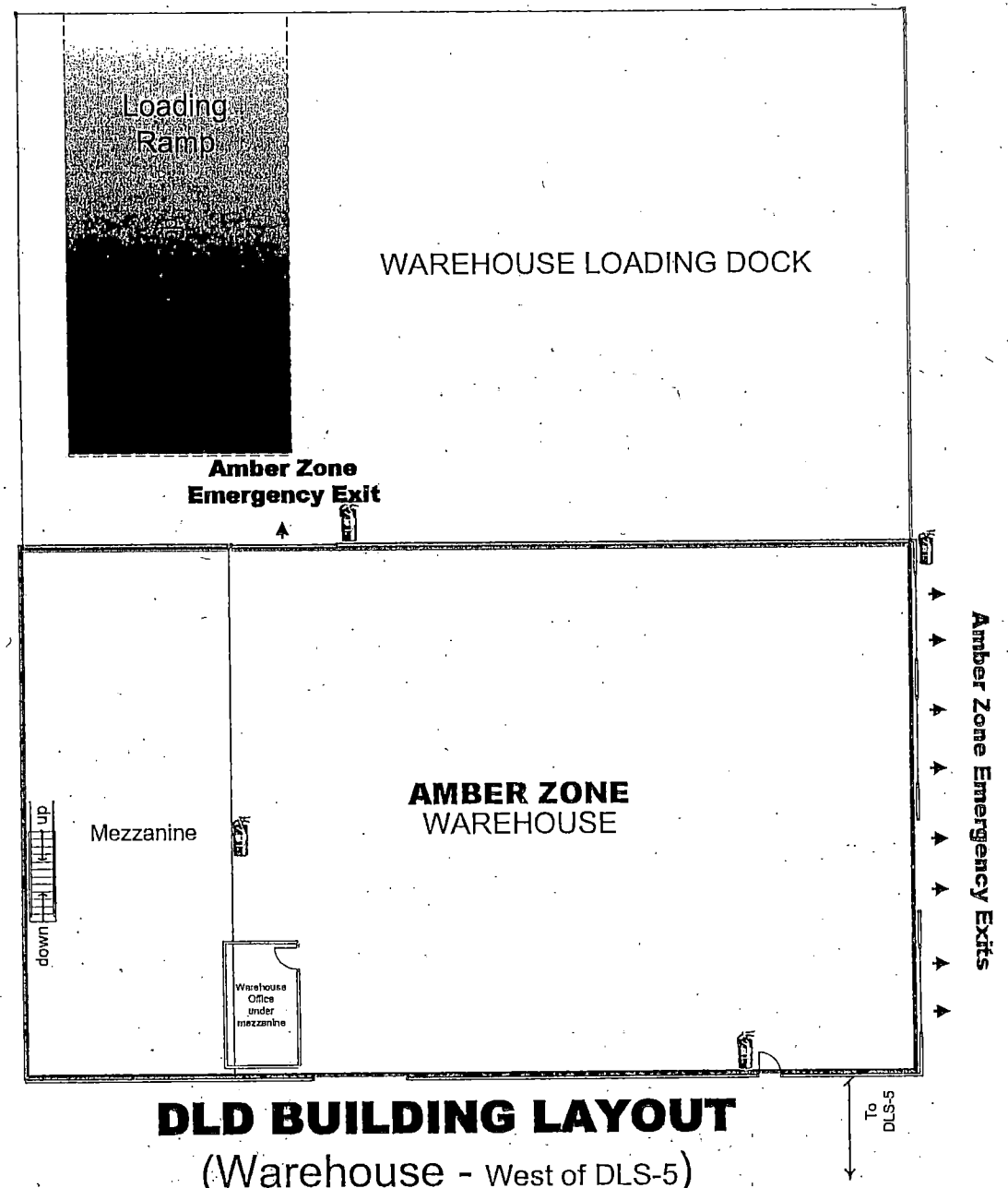
EPA ID#: MID 092 947 928



DLD BUILDING LAYOUT

(North Half)

331 Broad Street, Plainwell, MI 49080
Phone: (800) 685-9824
Emergency After-hours Number: (269) 685-9825
EPA ID#: MID 092 947 928



DLD BUILDING LAYOUT

(Warehouse - West of DLS-5)

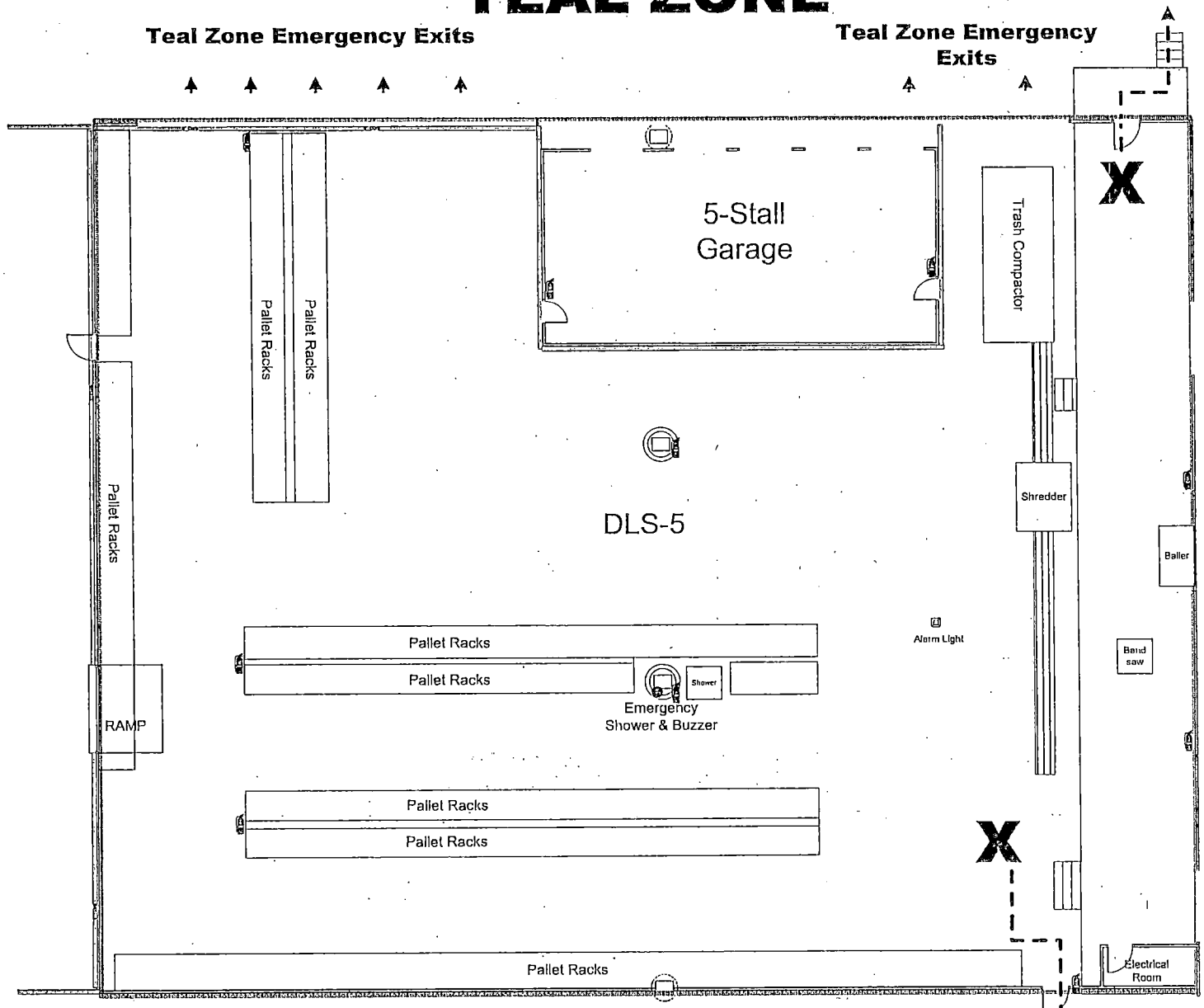
331 Broad Street, Plainwell, MI 49080

Phone: (800) 685-9824

Emergency After-hours Number: (269) 685-9825

EPA ID#: MID 092 947 928

TEAL ZONE



EVACUATION ROUTE

X = Your Curr t Position

Attachment A7.3 - Emergency Equipment

Emergency Equipment

Emergency equipment available at DLD includes the following:

EQUIPMENT DESCRIPTION	LOCATION	EMERGENCY RESPONSE USAGE
1. Twenty-nine Type ABC fire extinguishers • Three 10# • Three 10# • Eight 10# • One 10# • Three10# • Three 10# • One 20# • Two 10# • One 10# • Three 6# • One 11# • Two 20# • Four 10#	DLS-1 DLS-2 DLS-3 DLS-4 RCRA Loading Dock Vehicle Maint. G. Warehouse Warehouse Dock Main Lab Lobby/Halls Server Room 5-Car Garage DLS-5	Extinguishing Type A (e.g. trash, wood, paper), Type B (e.g. liquids and grease), and Type C (e.g. electrical equipment) fires.
2. One 30# D-type fire extinguisher	Dock Office	Extinguishing alkaline earth metal fires.
3. One Halon fire extinguisher	Metals Lab	Extinguishing Type A, B, & C fires.
4. Two 110 V AC suction Pumps	DLS-1 RCRA Loading Dock	Suction of liquids from sump area if not served by compressed air.
5. Two hand-operated pumps	DLS-1	Suction of small volumes of liquid from areas not served by compressed air or electricity.
6. Two air-driven vacuum pumps with 1½" inlet and outlet.	DLS-1 or DLS-3	Transfer of liquids, both viscous and non-viscous, as in spill clean-up.
7. One air-driven vacuum pump with 3" inlet and outlet	DLS-1 or DLS-3	Transfer of liquids, both viscous and non-viscous, as in spill clean-up.

EQUIPMENT DESCRIPTION	LOCATION	EMERGENCY RESPONSE USAGE
8. Spill clean-up material: Oil dry, sawdust, brooms, pads, booms	DLS-3 , RCRA Loading Dock, Warehouse	As appropriate to the type of material spilled. Sawdust is not used on spills with potential for oxidation.
9. Personnel equipment—modified Level C (hard hats, face shields, rubber gloves, respirators, coveralls)	Decontamination Room	Clean-up of spills requiring not higher than Level C protection.
10. Personal equipment—modified Level C (same as # 9 plus supplied air)	Decontamination Room	Clean-up of spills requiring not higher than Level C protection.
11. Telephone/Intercom • Driver's Phones • Two-way radio set • Radio System (5)	Twenty-five office locations, five locations outside	Communication with office via intercom and with emergency responders.
12. Alarm system consisting of seven loud horns and seven activation locations	Entire Facility	Evacuation signal
13. Two visual alarms consisting of flashing red lights	West side of maintenance garage roof and west side of warehouse (outside west door)	Additional evacuation signal for outside areas when noise is a factor.
14. Mercury Vacuum	DLS-1	Clean-up of mercury spills
15. Decontamination Equipment: bucket, 1A2 drum, brushes, pump	DLS-1, DLS-2, or DLS-3	Clean-up of PCB spills
16. Emergency Gate Opener	Right side of west door of warehouse	Emergency evacuation of employees and access to facility by emergency vehicles

FORM EQP 5111 TEMPLATE

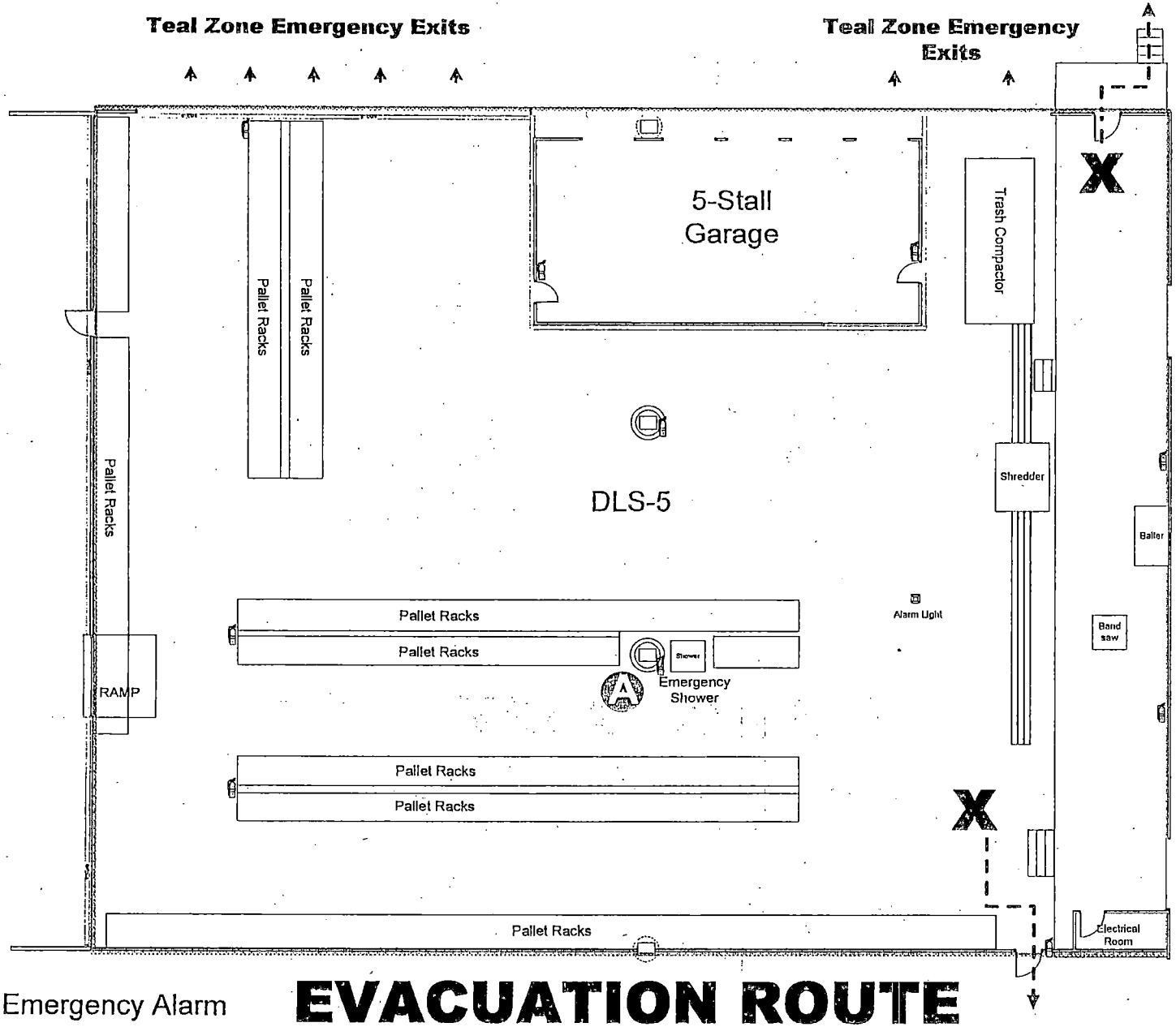
A7: CONTINGENCY PLAN

(Volume 2)

See Volume 1

A7: Contingency Plan

TEAL ZONE



Emergency Alarm

EVACUATION ROUTE

X = Your Current Position

DLD

Attachment V2-A7.1
Revision 1
Nonheated Processing Area

FORM EQP 5111 TEMPLATE

A7: CONTINGENCY PLAN

(Volume 6)

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 *Drug & Laboratory Disposal, Inc.* (DLD) in *Plainwell,*, Michigan.

☐ Operating License Applicant

☒ Construction Permit Applicant

Table of Contents

This template is organized as follows:

A7.D.5 Procedures to Be Used to Ensure That Fires, Explosions, and Releases Do Not Occur, Reoccur, or Spread During the Emergency

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

Index of Attachments

Attachment A7-1 Evacuation Plan and Routes

INTRODUCTION

A7.A BACKGROUND INFORMATION

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

See Volume 1, Section A7.A.1

A7.A.2 Description of Facility Operations

Reference is made to Volumes 1, 3, 4 and 5, Section A7.A.2 in each volume, with the addition of the following hazardous waste management units. These units are unique in their design and purpose and must follow other regulatory guidelines along with RCRA regulations.

DLS-6a & 6b: These areas will be storage areas for controlled substances brought to DLD under our DOJ-DEA Reverse Distributer license. DLS-6a will be a secured caged area within the existing warehouse. A very small fraction of controlled substances come under the classification of hazardous waste, but we have requested Part B licensing for the entire caged area. Secondary containment will be built, as well as sealing the floor area to prevent any release into the soil. DLD's current contingency plan, found in Volume 1, Section A7, will apply to this area.

DLS-6b is a proposed building to store large quantities of controlled substances. Its structure is mandated by the DEA, that being of concrete reinforced with rebar. This area will be secured with cameras, an alarm system and adequate communication. The risk of release, fire or explosion in this building is very small, thus it will be equipped with suitable fire extinguishers and adequate secondary containment. See Volume 6, Section B6 for engineering drawings applicable to DLS-6a & b.

DLS-12: This will be a rail siding where railroad tank car(s) will be loaded and unloaded in the process of both receiving waste and transporting waste off-site. Storage of hazardous waste in the cars during these processes is expected. This covered rail siding will be built with adequate secondary containment to prevent any releases into the environment. Both ends of the covered siding will be open, allowing for rapid evacuation of personnel. Safety equipment that complies with the regulations for railroad transportation as well as RCRA requirements will be supplied. See Volume 6, Section B6 for engineering drawings applicable to DLS-12.

Explosives Bunker: This structure will be built as mandated by the Bureau of Alcohol, Tobacco and Firearms. It is intended to store highly reactive materials that are classified as hazardous waste, and is not intended to house personnel except when the contents are being shifted. DLD will meet all required safety regulations from the ATF and RCRA, including adequate secondary containment, alarms, and communication devices. See Volume 6, Section B6 for engineering drawings applicable to the explosives bunker.

A7.A.3 Identification of Potential Situations

See volume 1, Section A7.A.3

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]

See Volume 1, Section A7.B.1.

A7.B.2 Qualifications of the Emergency Coordinators
[R 299.9607 and 40 CFR §264.55]

See Volume 1, Section A7.B.2.

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

See Volume 1, Table A7.B.1.

A7.B.3 Authority to Commit Resources
[R 299.9607 and 40 CFR §264.55]

See Volume 1, Section A7.B.3.

A7.C IMPLEMENTATION OF THE CONTINGENCY PLAN
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56]

See Volume 1, Section A7.C.

A7.D EMERGENCY PROCEDURES
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56]

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]

See Volume 1, Section A7.D.1.

A7.D.2 Procedures to Be Used for Identification of Releases
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56]

See Volume 1, Section A7.D.2.

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]

See Volume 1, Section A7.D.3.

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]

Evacuation plans for DLS-6a and DLS-6b are included in this Contingency Plan as Attachment V6-A7.1.

Evacuation plans for DLS-12 are included in this Contingency Plan as Attachment V6-A7.2.

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.

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.

Other measures will include stopping processes, collecting and containing released waste and removing or isolating containers. All actions necessary to prevent spills from reaching the outside environment will be taken.

The emergency coordinator will ensure that in the affected areas of the facility no waste incompatible with released material will be treated, stored, or disposed of until cleanup procedures are completed and emergency equipment listed in this plan is cleaned and fit for its intended use.

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)]

See Volume 1, Section A7.D.6.

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)]

See Volume 1, Section A7.D.7.

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

See Volume 1, Section A7.D.8.

A7.E NOTIFICATION AND RECORD KEEPING REQUIREMENTS
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56(l) and (j)

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]

See Volume 1, Section A7.E.1.

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

See Volume 1, Section A7.E.2.

A7.E.2(a) Operating Record

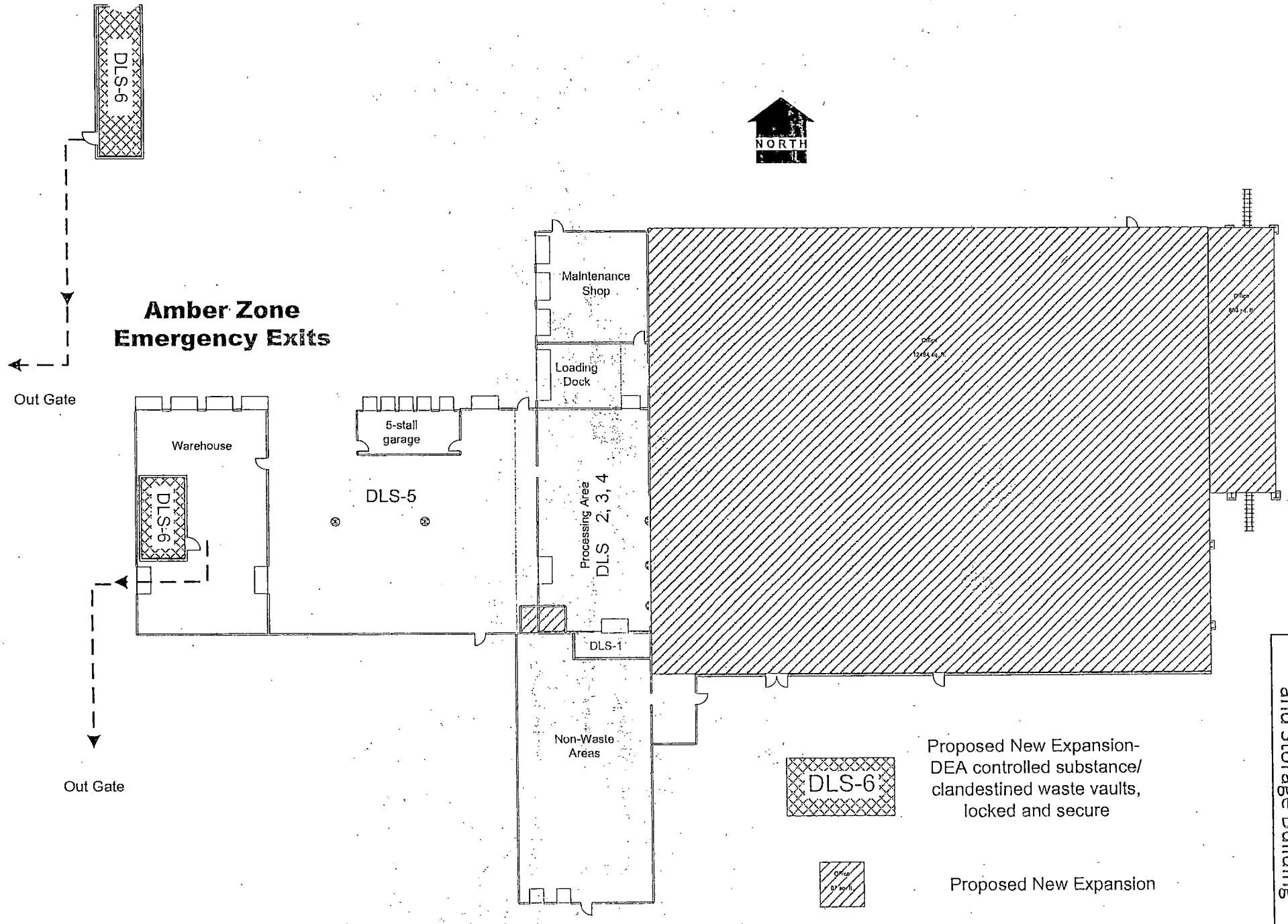
See Volume 1, Section A7.E.2(a)

A7.E.2(b) Written Incident Report

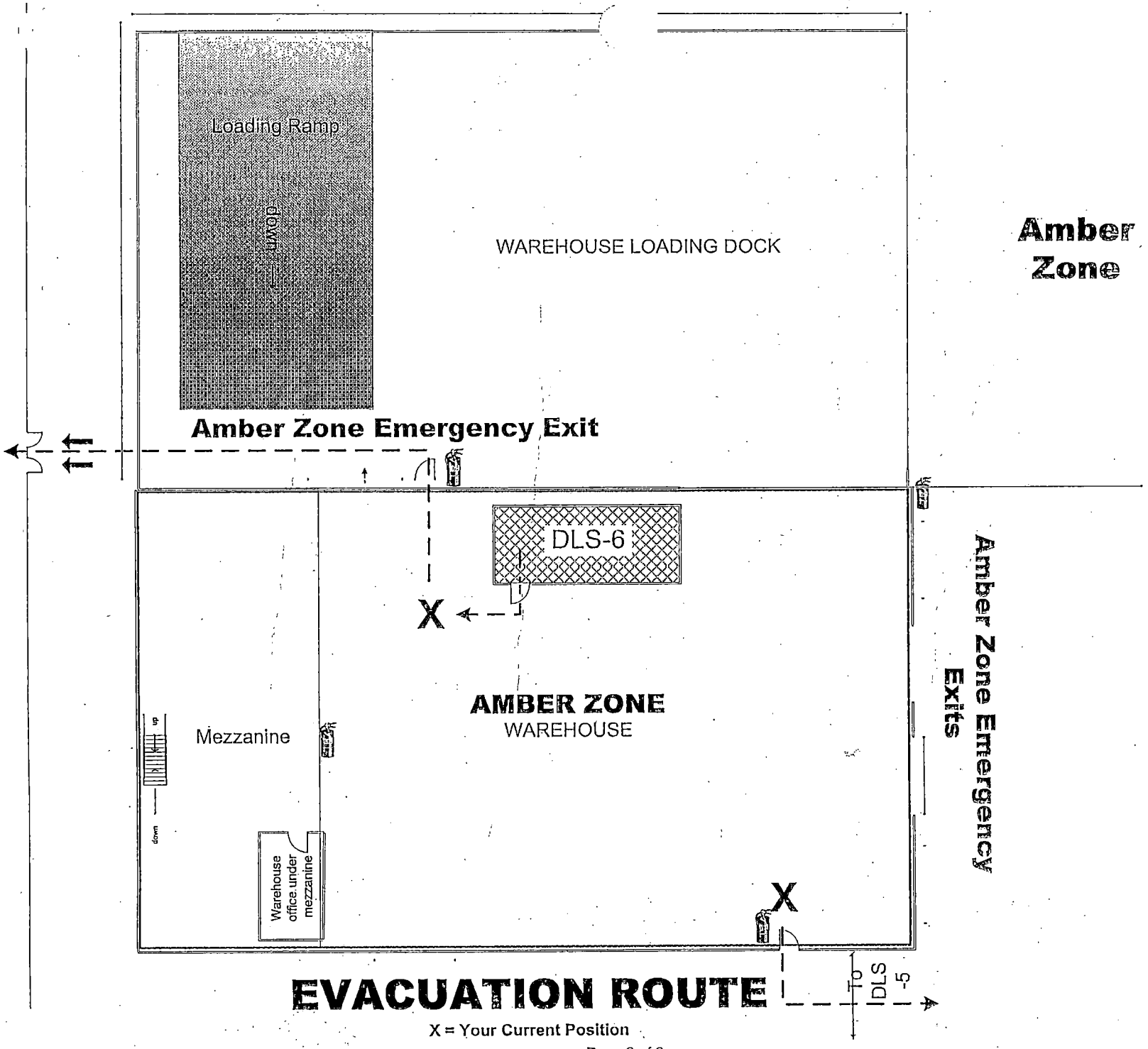
See Volume 1, Section A7.E.2(b)

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

See Volume 1, Section A7.F.



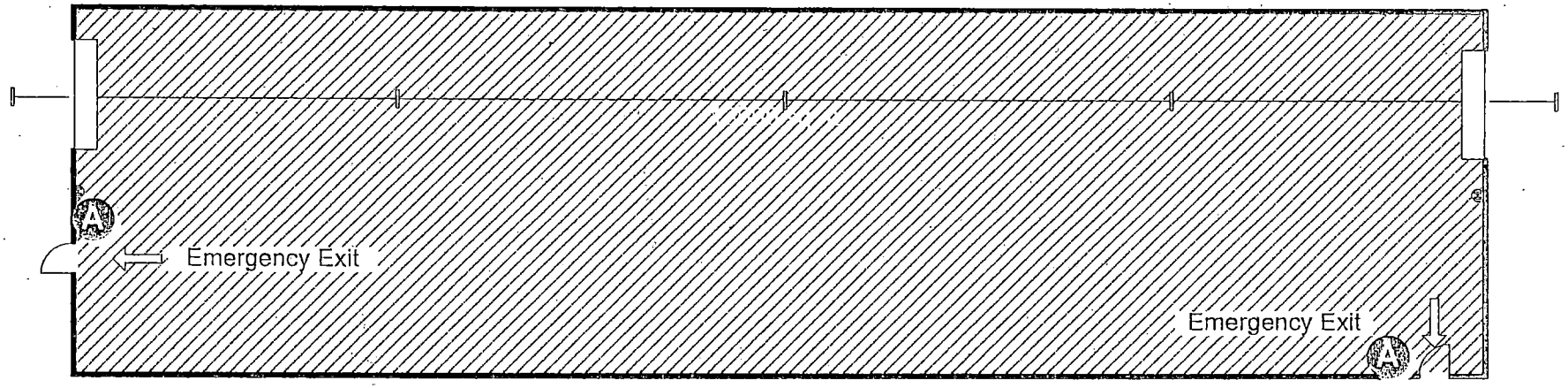
Attachment V6-A7.1
Controlled Substances Cage
and Storage Building



Attachment V6-A7.1
Controlled Substances Cage and Storage Building

EVACUATION ROUTES DLS-12 OLIVE ZONE

Rail Spur



Emergency Alarm

DLD
MID 092 947 928

Attachment V6-A7.2
Revision 1
Rail Transfer and Storage Area

FORM EQP 5111 TEMPLATE

A7: CONTINGENCY PLAN

(Volume 3)

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 *Drug & Laboratory Disposal, Inc.* (DLD) in *Plainwell,*, Michigan.

☐ Operating License Applicant

☒ Construction Permit Applicant

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INTRODUCTION

A7.A BACKGROUND INFORMATION

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

See Volume 1, Section A7.A.1

A7.A.2 Description of Facility Operations

Reference is made to Volume 1, Section A7.A.2, with the addition of the following hazardous waste management unit:

7. DLS-7: This area will be a tank farm, consisting of 15 approximately 6,000 gallon tanks. The building will be made of a hydrophobic cement mixture and the walls a combination of cement and steel. Each group of three tanks will have their own secondary containment, which will meet or exceed containment standards. The fire suppression system will consist of a CO_2 foam which will be automatically released when a fire breaks out. This fire suppression system will also have the capability of being manually operated if necessary. DLS-7 will be a bulk storage area storing the same type of hazardous waste as DLS-3 and DLS-4.

   See Volume 3, Section B6 for engineering drawings applicable to DLS-7.

A7.A.3 Identification of Potential Situations

See volume 1, Section A7.A.3

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]

See Volume 1, Section A7.B.1.

A7.B.2 Qualifications of the Emergency Coordinators
[R 299.9607 and 40 CFR §264.55]

See Volume 1, Section A7.B.2.

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

See Volume 1, Table A7.B.1.

A7.B.3 Authority to Commit Resources
[R 299.9607 and 40 CFR §264.55]

See Volume 1, Section A7.B.3.

A7.C IMPLEMENTATION OF THE CONTINGENCY PLAN
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56]

See Volume 1, Section A7.C.

A7.D EMERGENCY PROCEDURES
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56]

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]

See Volume 1, Section A7.D.1.

A7.D.2 Procedures to Be Used for Identification of Releases
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56]

See Volume 1, Section A7.D.2.

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]

See Volume 1, Section A7.D.3.

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]

Evacuation plans for DLS-7 are included in this Contingency Plan as Attachment A7.1.

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.

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. A CO_2 foam fire suppression system will be activated automatically upon evidence of a fire in DLS-7. This fire suppression system will also have the capability of being manually operated if necessary.

Other measures will include stopping processes, collecting and containing released waste and removing or isolating containers. DLS-7 will have sufficient secondary containment, and is designed to prevent releases to the environment. All actions necessary to prevent spills from reaching the outside environment will be taken. Additionally, the emergency coordinator will monitor for leaks, pressure buildups, gas generation, or ruptures in primary containment vessels, valves, pipes, or equipment whenever appropriate. A general list of emergency equipment is included in this Contingency Plan as Attachment A7.2.

The emergency coordinator will ensure that in the affected areas of the facility no waste incompatible with released material will be treated, stored, or disposed of until cleanup procedures are completed and emergency equipment listed in this plan is cleaned and fit for its intended use.

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)]

See Volume 1, Section A7.D.6.

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)]

See Volume 1, Section A7.D.7.

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

See Volume 1, Section A7.D.8.

A7.E NOTIFICATION AND RECORD KEEPING REQUIREMENTS
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56(l) and (j)

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]

See Volume 1, Section A7.E.1.

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

See Volume 1, Section A7.E.2.

A7.E.2(a) Operating Record

See Volume 1, Section A7.E.2(a)

A7.E.2(b) Written Incident Report

See Volume 1, Section A7.E.2(b)

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

See Volume 1, Section A7.F.

Attachment V3-A7.2 - Emergency Equipment

Emergency Equipment

Emergency equipment that will be available at DLD includes the following:

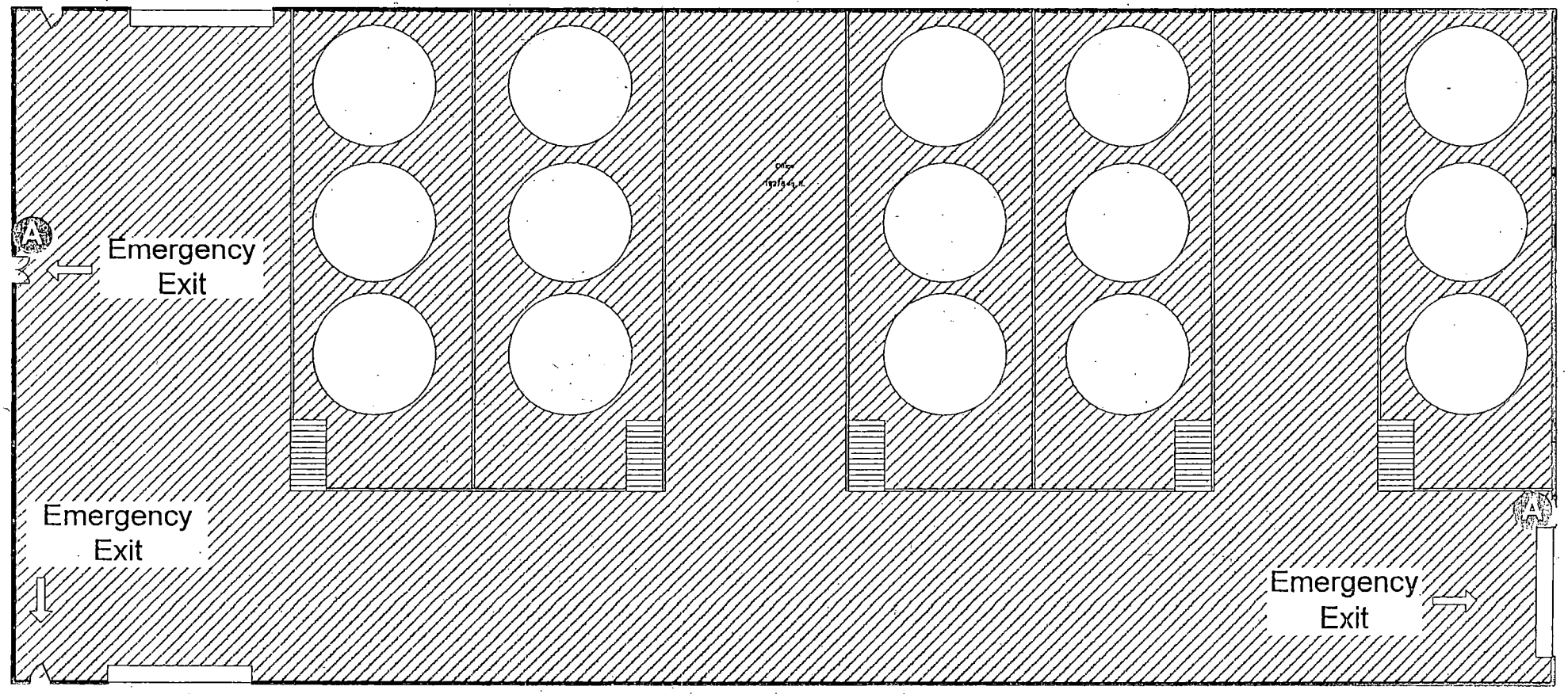
EQUIPMENT DESCRIPTION	LOCATION	EMERGENCY RESPONSE USAGE
1. Type ABC fire extinguishers Type D-type fire extinguisher	DLS-7	Extinguishing Type A (e.g. trash, wood, paper), Type B (e.g. liquids and grease), Type C (e.g. electrical equipment) and Type D (e.g. alkaline earth metal) fires.
2. 110 V AC suction Pumps		Suction of liquids from sump area if not served by compressed air.
3. Hand-operated pumps		Suction of small volumes of liquid from areas not served by compressed air or electricity.
4. Air-driven vacuum pumps with 1½" inlet and outlet.		Transfer of liquids, both viscous and non-viscous, as in spill clean-up.
5. Air-driven vacuum pump with 3" inlet and outlet		Transfer of liquids, both viscous and non-viscous, as in spill clean-up.
6. Spill clean-up material: Oil dry, sawdust, brooms, pads, booms		As appropriate to the type of material spilled. Sawdust is not used on spills with potential for oxidation.
7. Personnel equipment—modified Level C (hard hats, face shields, rubber gloves, respirators, coveralls)		Clean-up of spills requiring not higher than Level C protection.
8. Personal equipment—modified Level C (same as # 9 plus supplied air)		Clean-up of spills requiring not higher than Level C protection.
9. Telephone/Intercom • Driver's Phones • Two-way radio set • Radio System (5)		Communication with office via intercom and with emergency responders.

EQUIPMENT DESCRIPTION	LOCATION	EMERGENCY RESPONSE USAGE
10. Alarm system consisting of seven loud horns and seven activation locations		Evacuation signal
11. Visual alarms consisting of flashing red lights		Additional evacuation signal for outside areas when noise is a factor.
12. Mercury Vacuum		Clean-up of mercury spills
13. Decontamination Equipment: bucket, 1A2 drum, brushes, pump		Clean-up of PCB spills
14. Emergency Gate Opener		Emergency evacuation of employees and access to facility by emergency vehicles

Attachment V3-A7.1
Revision 1
Tank Farm

EVACUATION ROUTE FOR BROWN ZONE
DLS-7

A Emergency Alarm



DLD
MID 0[illegible]7 928

FORM EQP 5111 TEMPLATE

A7: CONTINGENCY PLAN

(Volume 4)

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 *Drug & Laboratory Disposal, Inc.* (DLD) in *Plainwell,*, Michigan.

☐ Operating License Applicant

☒ Construction Permit Applicant

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This template is organized as follows:

A7.D.5 Procedures to Be Used to Ensure That Fires, Explosions, and Releases Do Not Occur, Reoccur, or Spread During the Emergency

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

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A7.F PROCEDURES FOR REVIEWING AND AMENDING THE CONTINGENCY PLAN

Index of Attachments

INTRODUCTION

A7.A BACKGROUND INFORMATION

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

See Volume 1, Section A7.A.1

A7.A.2 Description of Facility Operations

Reference is made to Volumes 1 and 3, Sections A7.A.2 in each volume, with the addition of the following hazardous waste management units:

The building housing DLS-8 and DLS-9 will be built of hydrophobic cement and steel, and will have secondary containment in compliance with the containment standards. The entire area will be fully licensed, as it is intended for hazardous waste storage.

DLS-8: This area will be DLD's second hazardous waste loading and unloading area. The dock area will consist of nine loading bays, two of which will be specially designed and equipped for cargo tanks and seven bays for semis and straight trucks. It will be also be available for temporary parking of loaded trucks (both cargo tanks, trailers and straight trucks) and the dock portion will act as a temporary storage area to containers coming from or going to permanent storage. See Volume 4, Section B6 for engineering drawings applicable to DLS-8.

DLS-9: This area is intended for warm storage of hazardous waste and will also include an office area for the transportation staff and incoming drivers. Waste will be stored in containers on racks. See volume 4, Section B6 for engineering drawings applicable to DLS-9.

A7.A.3 Identification of Potential Situations

See volume 1, Section A7.A.3

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]

See Volume 1, Section A7.B.1.

A7.B.2 Qualifications of the Emergency Coordinators
[R 299.9607 and 40 CFR §264.55]

See Volume 1, Section A7.B.2.

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

See Volume 1, Table A7.B.1.

A7.B.3 Authority to Commit Resources
[R 299.9607 and 40 CFR §264.55]

See Volume 1, Section A7.B.3.

A7.C IMPLEMENTATION OF THE CONTINGENCY PLAN
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56]

See Volume 1, Section A7.C.

A7.D EMERGENCY PROCEDURES
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56]

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]

See Volume 1, Section A7.D.1.

A7.D.2 Procedures to Be Used for Identification of Releases
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56]

See Volume 1, Section A7.D.2.

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]

See Volume 1, Section A7.D.3.

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]

Evacuation plans for DLS-7 are included in this Contingency Plan as Volume 4, Attachment A7.1.

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.

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. A fire suppression system will be activated upon evidence of a fire in DLS-8 and DLS-9.

Other measures will include stopping processes, collecting and containing released waste and removing or isolating containers. DLS-8 and DLS-9 will have sufficient secondary containment, and is designed to prevent releases to the environment. All actions necessary to prevent spills from reaching the outside environment will be taken. Alarms and communication systems will be installed. A general list of emergency equipment is included in this Contingency Plan as Attachment A7.3.

The emergency coordinator will ensure that in the affected areas of the facility no waste incompatible with released material will be treated, stored, or disposed of until cleanup procedures are completed and emergency equipment listed in this plan is cleaned and fit for its intended use.

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)]

See Volume 1, Section A7.D.6.

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)]

See Volume 1, Section A7.D.7.

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

See Volume 1, Section A7.D.8.

A7.E NOTIFICATION AND RECORD KEEPING REQUIREMENTS
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56(l) and (j)

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]

See Volume 1, Section A7.E.1.

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

See Volume 1, Section A7.E.2.

A7.E.2(a) Operating Record

See Volume 1, Section A7.E.2(a)

A7.E.2(b) Written Incident Report

See Volume 1, Section A7.E.2(b)

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

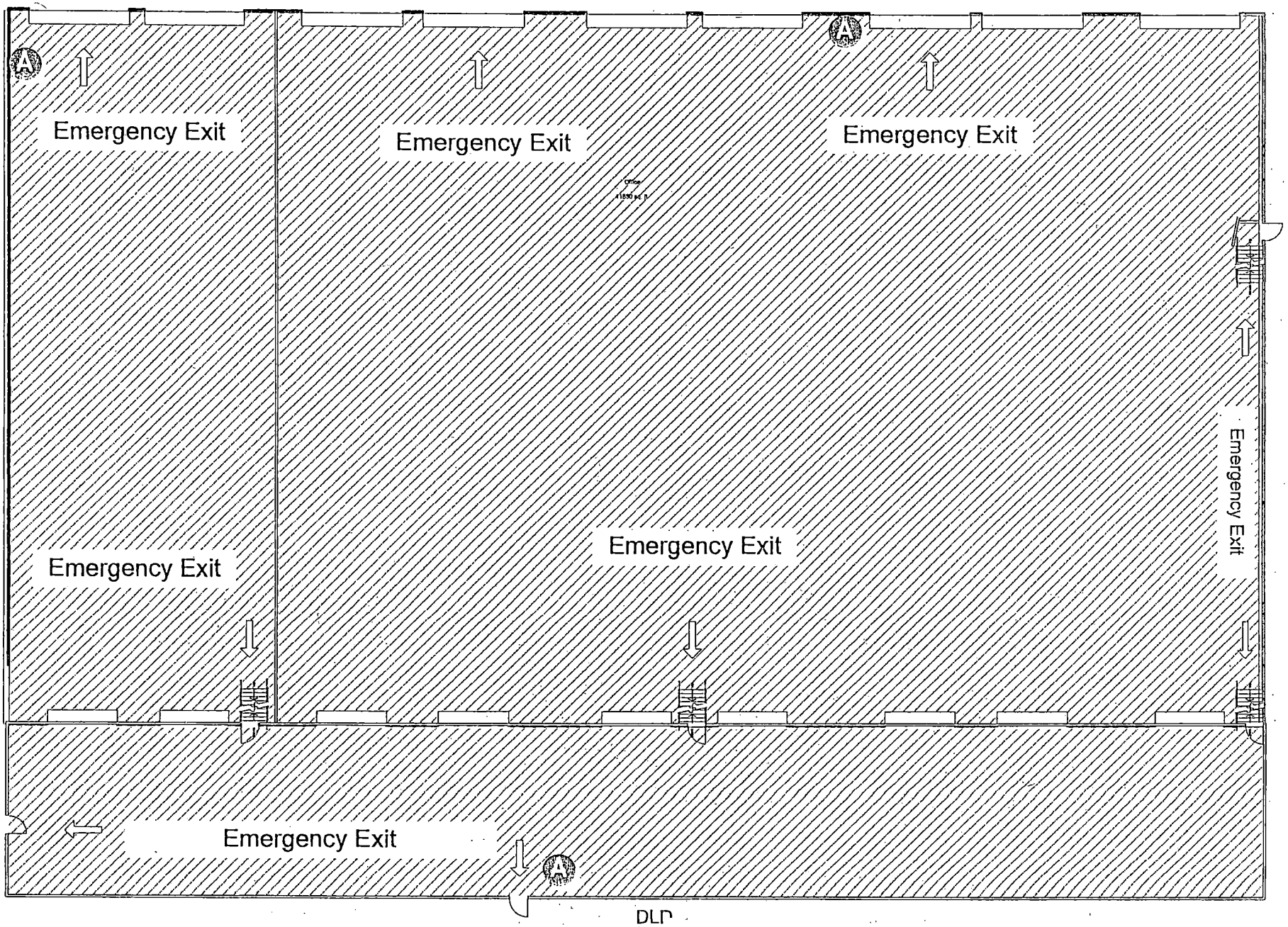
See Volume 1, Section A7.F.

EVACUATION ROUTE FOR LIME ZONE DLS-8

Attachment V4-A7.1
Revision 1
Hazardous Waste Loading Dock

Emergency Alarm

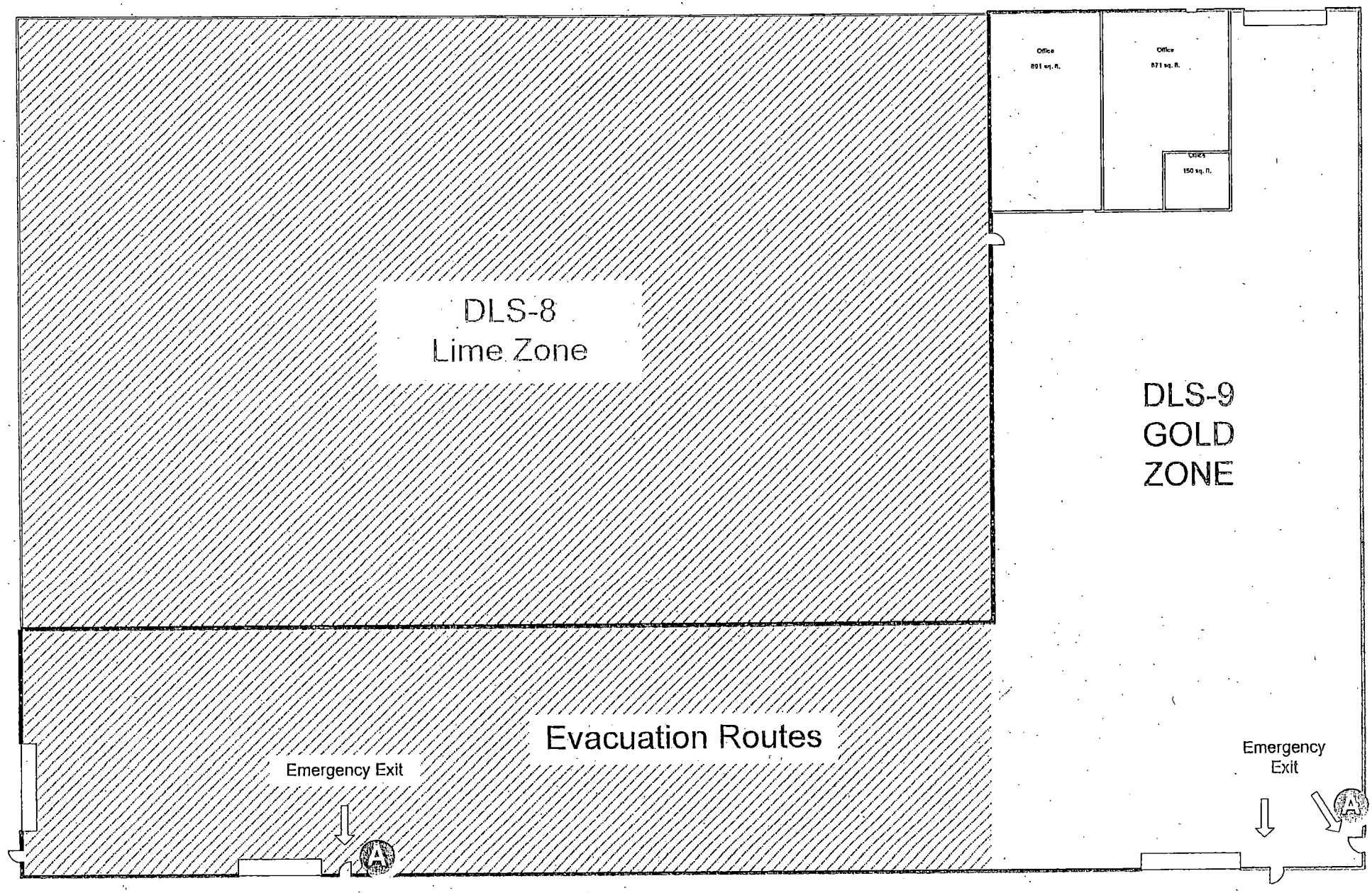
Overhead doors 1, 4, 7 have Emergency escape doors built-in



Attachment V4-A7.2
Revision 1
DLS-9 Heated Storage Area

Emergency Alarm

DLD
MID 092 947 928



Attachment V4-A7.3 - Emergency Equipment

Emergency Equipment

Emergency equipment that will be available at DLD includes the following:

EQUIPMENT DESCRIPTION	LOCATION	EMERGENCY RESPONSE USAGE
1. Type ABC fire extinguishers Type D-type fire extinguisher	DLS-8 & DLS-9	Extinguishing Type A (e.g. trash, wood, paper), Type B (e.g. liquids and grease), Type C (e.g. electrical equipment) and Type D (e.g. alkaline earth metal) fires.
2. 110 V AC suction Pumps		Suction of liquids from sump area if not served by compressed air.
3. Hand-operated pumps		Suction of small volumes of liquid from areas not served by compressed air or electricity.
4. Air-driven vacuum pumps with 1½" inlet and outlet.		Transfer of liquids, both viscous and non-viscous, as in spill clean-up.
5. Air-driven vacuum pump with 3" inlet and outlet		Transfer of liquids, both viscous and non-viscous, as in spill clean-up.
6. Spill clean-up material: Oil dry, sawdust, brooms, pads, booms		As appropriate to the type of material spilled. Sawdust is not used on spills with potential for oxidation.
7. Personnel equipment—modified Level C (hard hats, face shields, rubber gloves, respirators, coveralls)		Clean-up of spills requiring not higher than Level C protection.
8. Personal equipment—modified Level C (same as # 9 plus supplied air)		Clean-up of spills requiring not higher than Level C protection.
9. Telephone/Intercom • Driver's Phones • Two-way radio set • Radio System (5)		Communication with office via intercom and with emergency responders.

EQUIPMENT DESCRIPTION	LOCATION	EMERGENCY RESPONSE USAGE
10. Alarm system consisting of seven loud horns and seven activation locations		Evacuation signal
11. Visual alarms consisting of flashing red lights		Additional evacuation signal for outside areas when noise is a factor.
12. Mercury Vacuum		Clean-up of mercury spills
13. Decontamination Equipment: bucket, 1A2 drum, brushes, pump		Clean-up of PCB spills
14. Emergency Gate Opener		Emergency evacuation of employees and access to facility by emergency vehicles

FORM EQP 5111 TEMPLATE

A7: CONTINGENCY PLAN

(Volume 5)

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 *Drug & Laboratory Disposal, Inc.* (DLD) in *Plainwell,*, Michigan.

☐ Operating License Applicant

☒ Construction Permit Applicant

Table of Contents

This template is organized as follows:

A7.D.5 Procedures to Be Used to Ensure That Fires, Explosions, and Releases Do Not Occur, Reoccur, or Spread During the Emergency

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

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INTRODUCTION

A7.A BACKGROUND INFORMATION

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

See Volume 1, Section A7.A.1

A7.A.2 Description of Facility Operations

Reference is made to Section A7.A.2 in each of Volumes 1, 3 and 4, with the addition of the following hazardous waste management units:

The building housing DLS-10 and DLS-11 will be built of hydrophobic cement and steel, and will have secondary containment in compliance with the containment standards. The entire area will be fully licensed.

DLS-10: This area will be a non-heated storage area. Hazardous and non-hazardous waste will be stored in containers within this area. A racking system will be employed. See Volume 5, Section B6 for engineering drawings applicable to DLS-10.

DLS-11: This will be a processing area, with storage for those containers waiting to be processed. The processing area will consist of a series of "pods", each pod dedicated to a particular type of waste processing. Each pod will have a foam point source for fire suppression, so a fire or explosion in one area will be restrained from entering another area. See Volume 5, Section B6 for engineering drawings applicable to DLS-11.

A7.A.3 Identification of Potential Situations

See volume 1, Section A7.A.3

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]

See Volume 1, Section A7.B.1.

A7.B.2 Qualifications of the Emergency Coordinators
[R 299.9607 and 40 CFR §264.55]

See Volume 1, Section A7.B.2.

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

See Volume 1, Table A7.B.1.

A7.B.3 Authority to Commit Resources
[R 299.9607 and 40 CFR §264.55]

See Volume 1, Section A7.B.3.

A7.C IMPLEMENTATION OF THE CONTINGENCY PLAN
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56]

See Volume 1, Section A7.C.

A7.D EMERGENCY PROCEDURES
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56]

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]

See Volume 1, Section A7.D.1.

A7.D.2 Procedures to Be Used for Identification of Releases
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56]

See Volume 1, Section A7.D.2.

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]

See Volume 1, Section A7.D.3.

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]

Evacuation plans for DLS-10 are included in Volume 5, Attachment A7.1.
Evacuation plans for DLS-11 are included in Volume 5, Attachment A7.2.

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.

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. A foam fire suppression system will be activated upon evidence of a fire in DLS-10 and DLS-11.

Other measures will include stopping processes, collecting and containing released waste and removing or isolating containers. DLS-10 and DLS-11 will have sufficient secondary containment, and is designed to prevent releases to the environment. All actions necessary to prevent spills from reaching the outside environment will be taken. Alarms and communication systems will be installed. A general list of emergency equipment is included in this Contingency Plan as Attachment A7.3.

The emergency coordinator will ensure that in the affected areas of the facility no waste incompatible with released material will be treated, stored, or disposed of until cleanup procedures are completed and emergency equipment listed in this plan is cleaned and fit for its intended use.

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)]

See Volume 1, Section A7.D.6.

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)]

See Volume 1, Section A7.D.7.

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

See Volume 1, Section A7.D.8.

A7.E NOTIFICATION AND RECORD KEEPING REQUIREMENTS
[R 299.9607 and 40 CFR §264.51, 264.52, and 264.56(l) and (j)

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]

See Volume 1, Section A7.E.1.

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

See Volume 1, Section A7.E.2.

A7.E.2(a) Operating Record

See Volume 1, Section A7.E.2(a)

A7.E.2(b) Written Incident Report

See Volume 1, Section A7.E.2(b)

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

See Volume 1, Section A7.F

Attachment V5-A7.3 - Emergency Equipment

Emergency Equipment

Emergency equipment that will be available at DLD includes the following:

EQUIPMENT DESCRIPTION	LOCATION	EMERGENCY RESPONSE USAGE
1. Type ABC fire extinguishers Type D-type fire extinguisher	DLS-10 & DLS-11	Extinguishing Type A (e.g. trash, wood, paper), Type B (e.g. liquids and grease), Type C (e.g. electrical equipment) and Type D (e.g. alkaline earth metal) fires.
2. 110 V AC suction Pumps		Suction of liquids from sump area if not served by compressed air.
3. Hand-operated pumps		Suction of small volumes of liquid from areas not served by compressed air or electricity.
4. Air-driven vacuum pumps with 1½" inlet and outlet.		Transfer of liquids, both viscous and non-viscous, as in spill clean-up.
5. Air-driven vacuum pump with 3" inlet and outlet		Transfer of liquids, both viscous and non-viscous, as in spill clean-up.
6. Spill clean-up material: Oil dry, sawdust, brooms, pads, booms		As appropriate to the type of material spilled. Sawdust is not used on spills with potential for oxidation.
7. Personnel equipment—modified Level C (hard hats, face shields, rubber gloves, respirators, coveralls)		Clean-up of spills requiring not higher than Level C protection.
8. Personal equipment—modified Level C (same as # 9 plus supplied air)		Clean-up of spills requiring not higher than Level C protection.
9. Telephone/Intercom • Driver's Phones • Two-way radio set • Radio System (5)		Communication with office via intercom and with emergency responders.

EQUIPMENT DESCRIPTION	LOCATION	EMERGENCY RESPONSE USAGE
10. Alarm system consisting of seven loud horns and seven activation locations		Evacuation signal
11. Visual alarms consisting of flashing red lights		Additional evacuation signal for outside areas when noise is a factor.
12. Mercury Vacuum		Clean-up of mercury spills
13. Decontamination Equipment: bucket, 1A2 drum, brushes, pump		Clean-up of PCB spills
14. Emergency Gate Opener		Emergency evacuation of employees and access to facility by emergency vehicles

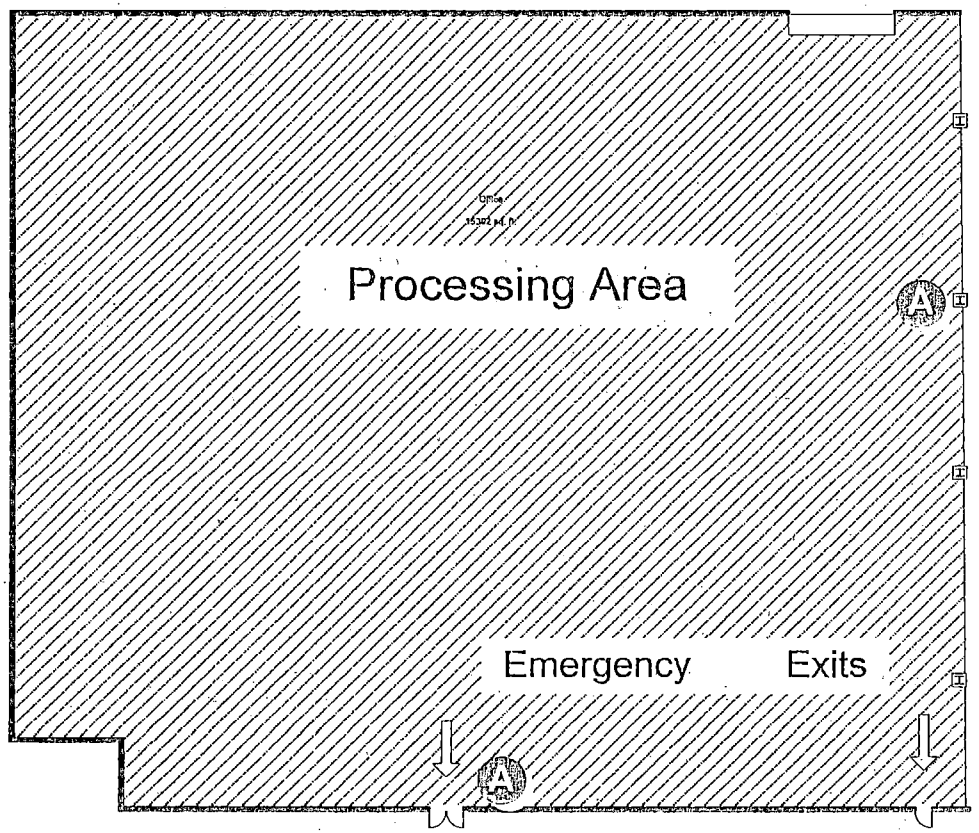
Evacuation Route for Khaki Zone DLS-10

DLD
MID 092 947 928

Attachment V5-A7.2
Revision 1
Nonheated Storage Area

EVACUATION ROUTES DLS-11 GREY ZONE

Emergency Alarm



Emergency Exits

DLD
MID 092 947 928

Attachment V5-A7.1
Revision 1
Nonheated Processing Area

ATTACHMENT 5

CLOSURE PLAN

FORM EQP 5111 TEMPLATE

A11: CLOSURE AND POSTCLOSURE CARE PLANS

(Volume 1)

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 **Drug & Laboratory Disposal, Inc. (DLD) facility in Plainwell, 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."

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

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.5 (b) Closure of Tank Systems
A11.A.5 (c) Closure of Surface Impoundments
A11.A.5 (d) Closure of Waste Piles
A11.A.5 (e) Closure of Landfills
A11.A.5 (f) Closure of Incinerators
A11.A.5 (g) Closure of Miscellaneous Units
A11.A.5 (h) Closure of Boilers and Industrial Furnaces
A11.A.5 (i) Other Closure Activities

A11.A.6 Certification of Closure

A11.A.7 Postclosure Notices Filed

A11.B POSTCLOSURE CARE PLAN

A11.B.1 Applicability

Since no hazardous waste will be left behind at closure, Section A11.B is not applicable.

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
☒ Tank systems	R 299.9615 and 40 CFR §264.197
☐ Surface impoundments	R 299.9616 and 40 CFR §264.228
☐ Waste piles	R 299.9617 and 40 CFR §264.258
☐ Land treatment [a]	R 299.9618 and 40 CFR §264.280
☐ Landfill	R 299.9619 and 40 CFR §264.310
☐ Incinerators	R 299.9620 and 40 CFR §264.351
☐ Drip pads [b]	R 299.9621 and 40 CFR §264.575
☒ Miscellaneous units	R 299.9623 and 40 CFR §264.601-603
☐ Hazardous waste munitions and storage[b]	R 299.9637 and 40 CFR §264.1202 explosive
☐ Boilers and industrial furnaces	R 299.9808 and 40 CFR §266.102(e)(11)

[a] Not included in the template
[b] *Not yet included in 40 CFR §264.111; therefore not considered*

Unit-specific closure procedures are discussed in Section A11.A.5 of this template for each unit type indicated above.

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 DLD 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. Unit-specific methods for closure and detailed schedules are discussed in Section A11.A.5 of this template.

Current Unit Designation	Maximum Inventory (Include Units)	Waste Codes of Hazardous Wastes Managed	Scheduled Closure Date	Estimated Duration of Closure
DLS-1	2,860 gallons	All codes (Part A, pages 5-21)	N/A	N/A
DLS-2	3,300 gallons	All codes (Part A, pages 5-21)	N/A	N/A
DLS-3	27,500 gallons	All codes (Part A, pages 5-21)	N/A	N/A
DLS-4	15,000 gallons	All codes (Part A, pages 5-21)	N/A	N/A
Loading Dock	5,200 gallons	All codes (Part A, pages 5-21)	N/A	N/A
Planned Unit Designation	**Maximum Inventory (Include Units)**	**Waste Codes of Hazardous Wastes Managed**	**Scheduled Closure Date**	**Estimated Duration of Closure**
DLS-5	11,440 gallons	All codes (Part A, pages 5-21)	N/A	N/A
DLS-6a	1,595 gallons	All codes (Part A, pages 5-21)	N/A	N/A
DLS-6b	10,780 gallons	All codes (Part A, pages 5-21)	N/A	N/A
DLS-7	90,000 gallons	All codes (Part A, pages 5-21)	N/A	N/A
DLS-8	52,260 gallons	All codes (Part A, pages 5-21)	N/A	N/A
DLS-9	28,160 gallons	All codes (Part A, pages 5-21)	N/A	N/A
DLS-10	93,500 gallons	All codes (Part A, pages 5-21)	N/A	N/A
DLS-11	52,250 gallons	All codes (Part A, pages 5-21)	N/A	N/A
DLS-12	26,000 gallons	All codes (Part A, pages 5-21)	N/A	N/A
Explosive Bunker	50 pounds	All codes (Part A, pages 5-21)	N/A	N/A

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

The DLD facility:

(Check as appropriate)

☐ Anticipates completing final closure of the entire facility by *[insert estimated date]*

☒ Has not determined when the facility will close and does not anticipate completing final closure of the entire facility prior to expiration of the facility's hazardous waste operating license.

Detailed Closure Schedule for Facility Closure: Provide a detailed breakdown showing the closure schedule with the anticipated time of completion for each activity below.

Closure Activity	Time Completed
A written closure notification plan will be sent to the Michigan Department of Natural Resources and the City of Plainwell 180 days prior to the projected date of final closure. During this period of time decreasing amounts of waste will be received. The closure notification will include the following: 1. The proposed date of closure. 2. A list of types and amounts of wastes on site and its location. 3. An inventory reduction plan detailing projected waste receipt during the 180-day period preceding closure and projected inventory at the end of each 60-day period prior to closure.	45 days before projected date of final closure
Removal of waste and soil sampling	Within 90 days from date of final closure
Decontamination of all hazardous waste units	Within 135 days from date of final closure
Write reports, compile analytical results, inspection	Within 180 days from date of final closure

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 partial closure shall follow the schedule specified in Section 11.A.3. The Director will be notified by the DLD facility at least 45 days before final closure begins. Final closure will be certified by both DLD 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 for the facility or any unit is necessary, the DLD facility will request an extension in accordance with the requirements of 40 CFR §264.113(a).

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.

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

This section describes the procedures for closure the container storage portion of DLD. 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

The specific procedures for closure would begin with DLD setting a date for the last off-site delivery of waste entering the facility. After this date, DLD would take a complete inventory of all containerized waste. All incoming waste would be treated and transported off site to the appropriate facilities for disposal. Since the life expectancy of DLD is difficult to determine, the final disposal sites of waste generated during closure is also difficult to determine. If closure

were to occur during calendar year 2010, the off site facilities listed in Attachment A11-1 would be used. During closure, all packaging and/or loading will be done in those areas having secondary containment. This will minimize the potential for escape of hazardous waste into the environment. All containers from commingling and other processes would be cleaned and recycled, including glass, plastic and metal.

2. Unit Inspection Procedures

The DLD operating license requires that the integrity of the containment areas be maintained. This requirement is documented by the use of inspection sheets (refer to Section A5). Completed inspection sheets become part of the operating log. This system of inspection and documentation will be continued until closure is completed. Prior to decontamination of these containment areas, an inspection will be made to verify the integrity of all containment structures. If defects are found, they will be sealed or otherwise made secure to assure that there will be no loss of contaminants through the concrete containment structures. If defects are found, their location will be documented so that soil samples of the area can be taken after decontamination.

3. Decontamination Procedures

Decontamination will consist of water blasting and steam cleaning followed by a second water blasting to meet the triple rinse clause and, finally, a visual inspection to confirm that all visible hazardous waste residues have been removed. The areas to be decontaminated will be those licensed areas identified on DLD engineering plans as treatment or storage areas (refer to Volume 1, Section B6). Additionally, storage tanks and all components which make up the tank system and Subpart X regulated equipment such as the shredder, glass grinder, and assorted pumps will be decontaminated. Water and residues (40 CFR 264.197) from this decontamination process will be considered hazardous waste and analyzed for waste constituents prior to shipment off site to a final disposal site.

4. Sampling and Analysis Procedures

Since all hazardous waste activities at DLD occur in contained, covered areas, it is unlikely that soil or water contamination will have occurred; however, to document the completeness of decontamination and waste removal, the following soil sampling procedure will be done using the parameters listed below.

Starting at a distance 15 feet from the licensed area and every 20 feet along the East side of the waste processing area, and on the South side of the loading dock approach ramp within 12 inches of the hard surfaced driveway, a discrete soil sample will be taken at a 6- to 12-inch depth. A minimum of 4 discrete soil samples will be taken from the 6- to 12-inch level.

If detectable levels of contaminants are found, and if these levels exceed the statutory limits, sampling will be repeated at a location ten feet outward from the waste processing area and the loading dock ramp, thus establishing a grid to fix the location for remediation. After establishing the lateral boundaries, vertical boundaries will be established by sampling at the 20- to 24-inch level, with each sample being analyzed for the same parameters as at the 6- to 12-inch level. This will establish the real location and depth of contamination. The soil will be removed to a depth of one foot (or deeper as determined by analysis) and disposed of in an appropriate facility or the contamination will be remediated by in-situ biodegradation or other methods which are acceptable at that time, unless it can be successfully demonstrated that the levels of contaminants are low enough as to not warrant remediation. If soil removal is chosen as the remediation process,

confirmation sampling using the sampling and grid system outlined above will be performed to verify that contaminated materials have been adequately removed.

The ground water monitoring plan approved as part of the 1985 Hazardous Waste Treatment and Storage Facility Operating License, and as modified by this application, and subsequent applications, will be maintained until closure is complete. Storm water run-on and run-off are not factors in this closure plan because the active waste processing areas are under cover and do not experience run-on or run-off of storm water.

5. Additional Waste Management Procedures

All hazardous waste residues and waste waters, generated during the containment decontamination operation will be sent off site as hazardous waste, as will materials that cannot be decontaminated.

A11.A.5(b) Closure of Tank Systems
[R 299.9615 and 40 CFR §264.197]

This section describes the procedures for closure of the tank storage portions of DLD. The general closure requirement and specific closure procedures are discussed below.

A. General Closure Requirement

At closure of the tank system, the DLD facility will remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste, and manage them as hazardous waste, unless 40 CFR §264.3(d) applies.

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
   See section A11.A.5(a)(B)(1)

2. Unit Inspection Procedure
   See section A11.A.5(a)(B)(2)

3. Decontamination Procedures
   See section A11.A.5(a)(B)(3)

4. Sampling and Analysis Procedures
   Random wipe samples will be taken to determine if the tanks are clean. The procedures listed in section A11.A.5(a)(B)(4) will be followed.

5. Additional Waste Management Procedures
   See section A11.A.5(a)(B)(5)

A11.A.5(c) Closure of Surface Impoundments
[R 299.9616 and 40 CFR §264.228(a)(1) and (2)]

DLD does not have and does not expect to have surface impoundments.

A11.A.5(d) Closure of Waste Piles
[R 299.9617 and 40 CFR §264.258]

DLD does not have and does not expect to have waste piles.

A11.A.5(e) Closure of Landfills
[R 299.9619 and 40 CFR §264.310(a)]

DLD does not have and does not expect to have landfills.

A11.A.5(f) Closure of Incinerators
[R 299.9620 and 40 CFR § 264.351]

DLD does not have and does not expect to have incinerators.

A11.A.5(g) Closure of Miscellaneous Units
[R 299.9623 and 40 CFR §264.601 through 264. 603]

This section describes the procedures for closure of the filter press and the container shredders. The general closure requirement and specific closure procedures are discussed below.

A. General Closure Requirement

At closure DLD will ensure protection of human health and the environment by preventing releases of hazardous waste constituents into the groundwater or subsurface environment; onto soils; into surface waters or wetlands; and into the air.

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

The container shredders are located within processing areas and portable filter presses are operated under processing hoods. This equipment is cleaned after use in hazardous waste processing.

2. Unit Inspection Procedures

Prior to decontamination, the filter presses and the shredders will be inspected to assure that no extraneous hazardous waste is contained within the equipment.

3. Decontamination Procedures

Decontamination will consist of water blasting and steam cleaning followed by a second water blasting to meet the triple rinse clause and, finally, a visual inspection to confirm that all visible hazardous waste residues have been removed. Water and residues (40 CFR §264.197) from this decontamination process will be considered hazardous waste and analyzed for waste constituents prior to shipment off-site to a final disposal site.

4. Sampling and Analysis Procedures

Not applicable.

A11.A.5(h) Closure of Boilers and Industrial Furnaces (BIF)
[R 299.9808 and 40 CFR §266.102(e)(11)]

DLD has no boilers or industrial furnaces.

A11.A.5(i) Other Closure Activities
[R 299.9504(1)(c), R 299.9508(1)(b), and R 299.9613(1) and 40 CFR §270.14(b)(13) and 264.112(b)(5)}

DLD will sample groundwater a final time to verify that the licensed facility did not release materials harmful to human health or the environment.

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

Within 60 days of completion of closure, DLD will submit to the Director, 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 DLD and by an independent registered professional engineer. Documentation supporting the independent registered engineer's certification will be furnished to the Director 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 DLD facility will maintain financial assurance for closure until the Director releases the DLD facility from the financial assurance requirements for closure under R 299.9703. The certification will 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.A.7 Postclosure Notices Filed
[R 299.9504(1)(c) and R 299.9508(1)(b) and 40 CFR, Section 270.14(b)(14)]

The applicant must provide documentation that the postclosure notices required under 40 CFR §264.119 have been filed for hazardous waste disposal units that have been closed at the facility.

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

A11.B.1 Applicability

(Check as appropriate)

☒ **Not applicable**: Hazardous waste will not be left behind at closure. A survey plat, postclosure care, postclosure certifications, and other notices are not required.

ATTACHMENT 6

LIST OF ACCEPTABLE HAZARDOUS WASTES

XIV. DESCRIPTION OF HAZARDOUS WASTES

LINE NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
				D.1. PROCESS CODES (*enter code*)				D.2. PROCESS DESCRIPTI *(if no code entered in D.1)*
1	D001	12500	T	S01	S02	T04	000	Commingle or lab pack
2				T31	T35	T39	T40	
3	D002	10000	T	S01	S02	T04	000	Commingle or lab pack
4				T31	T35	T39	T40	
5	D003	7800	T	S01	S02	T04	000	Commingle or lab pack
6				T31	T35	T39	T40	
7	D004	2500	T	S01	S02	T04	000	Commingle or lab pack
8				T31	T35	T39	T40	
9	D005	2500	T	S01	S02	T04	000	Commingle or lab pack
10				T31	T35	T39	T40	
11	D006	2500	T	S01	S02	T04	000	Commingle or lab pack
12				T31	T35	T39	T40	
13	D007	2500	T	S01	S02	T04	000	Commingle or lab pack
14				T31	T35	T39	T40	
15	D008	2500	T	S01	S02	T04	000	Commingle or lab pack
16				T31	T35	T39	T40	
17	D009	2500	T	S01	S02	T04	000	Commingle or lab pack
18				T31	T35	T39	T40	
19	D010	2500	T	S01	S02	T04	000	Commingle or lab pack
20				T31	T35	T39	T40	
21	D011	2500	T	S01	S02	T04	000	Commingle or lab pack
22				T31	T35	T39	T40	
23	D012	2500	T	S01	S02	T04	000	Commingle or lab pack
24				T31	T35	T30		
25	D013	2500	T	S01	S02	T04	000	Commingle or lab pack
26				T31	T35	T39		
27	D014	2500	T	S01	S02	T04	000	Commingle or lab pack
28				T31	T35	T39		
29	D015	2500	T	S01	S02	T04	000	Commingle or lab pack
30				T31	T35	T39		
31	D016	2500	T	S01	S02	T04	000	Commingle or lab pack
32				T31	T35	T39		
33	D017	2500	T	S01	S02	T04	000	Commingle or lab pack
34				T31	T35	T39		
35	D018	8000	T	S01	S02	T04		Commingle or lab pack
36	D019	6000	T	S01	S02	T04		Commingle or lab pack
37	D020	3000	T	S01	S02	T04		Commingle or lab pack
38	D021	2500	T	S01	S02	T04		Commingle or lab pack
39	D022	5000	T	S01	S02	T04		Commingle or lab pack
40	D023	1000	T	S01	S02	T04		Commingle or lab pack
41	D024	1500	T	S01	S02	T04		Commingle or lab pack
42	D025	1500	T	S01	S02	T04		Commingle or lab pack
43	D026	1500	T	S01	S02	T04		Commingle or lab pack
44	D027	1500	T	S01	S02	T04		Commingle or lab pack
45	D028	1500	T	S01	S02	T04		Commingle or lab pack
46	D029	1500	T	S01	S02	T04		Commingle or lab pack
47	D030	1500	T	S01	S02	T04		Commingle or lab pack
48	D031	1500	T	S01	S02	T04		Commingle or lab pack

XIV. DESCRIPTION OF HAZARDOUS WASTES

LINE NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES D.1. PROCESS CODES (enter code)				D.2. PROCESS DESCRIPTION (if no code entered in D.1)
49	D032	1500	T	S01	S02	T04		Commingle or lab pack
50	D033	1500	T	S01	S02	T04		Commingle or lab pack
51	D034	1500	T	S01	S02	T04		Commingle or lab pack
52	D035	1500	T	S01	S02	T04		Commingle or lab pack
53	D036	1500	T	S01	S02	T04		Commingle or lab pack
54	D037	1500	T	S01	S02	T04		Commingle or lab pack
55	D038	1500	T	S01	S02	T04		Commingle or lab pack
56	D039	1500	T	S01	S02	T04		Commingle or lab pack
57	D040	1500	T	S01	S02	T04		Commingle or lab pack
58	D041	1500	T	S01	S02	T04		Commingle or lab pack
59	D042	1500	T	S01	S02	T04		Commingle or lab pack
60	D043	1500	T	S01	S02	T04		Commingle or lab pack
61	F001	2750	T	S01	S02	T04		Commingle or lab pack
62	F002	5000	T	S01	S02	T04		Commingle or lab pack
63	F003	150000	T	S01	S02	T04		Commingle or lab pack
64	F004	3500	T	S01	S02	T04		Commingle or lab pack
65	F005	15000	T	S01	S02	T04		Commingle or lab pack
66	F006	4500	P	S01	S02	T04		Commingle or lab pack
67	F007	2500	P	S01	S02	T04		Commingle or lab pack
68	F008	2500	P	S01	S02	T04		Commingle or lab pack
69	F009	2500	P	S01	S02	T04		Commingle or lab pack
70	F010	2500	P	S01	S02	T04		Commingle or lab pack
	F011	2500	P	S01	S02	T04		Commingle or lab pack
	F012	2500	P	S01	S02	T04		Commingle or lab pack
73	F019	2500	P	S01	S02	T04		Commingle or lab pack
74	F020	2500	P	S01	S02	T04		Commingle or lab pack
75	F021	2500	P	S01	S02	T04		Commingle or lab pack
76	F022	2500	P	S01	S02	T04		Commingle or lab pack
77	F023	2500	P	S01	S02	T04		Commingle or lab pack
78	F024	2500	P	S01	S02	T04		Commingle or lab pack
79	F025	2500	P	S01	S02	T04		Commingle or lab pack
80	F026	2500	P	S01	S02	T04		Commingle or lab pack
81	F027	2000	P	S01	S02	T04		Commingle or lab pack
82	F028	2500	P	S01	S02	T04		Commingle or lab pack
83	F032	2500	P	S01	S02	T04		Commingle or lab pack
84	F034	2500	P	S01	S02	T04		Commingle or lab pack
85	F035	2500	P	S01	S02	T04		Commingle or lab pack
86	F037	2500	P	S01	S02	T04		Commingle or lab pack
87	F038	2500	P	S01	S02	T04		Commingle or lab pack
88	F039	2500	P	S01	S02	T04		Commingle or lab pack
89	K001	2500	P	S01	S02	T04		Commingle or lab pack
90	K002	2500	P	S01	S02	T04		Commingle or lab pack
91	K003	2500	P	S01	S02	T04		Commingle or lab pack
92	K004	2500	P	S01	S02	T04		Commingle or lab pack
93	K005	2500	P	S01	S02	T04		Commingle or lab pack
94	K006	2500	P	S01	S02	T04		Commingle or lab pack
	K007	2500	P	S01	S02	T04		Commingle or lab pack
	K008	2500	P	S01	S02	T04		Commingle or lab pack
97	K009	2500	P	S01	S02	T04		Commingle or lab pack

XIV. DESCRIPTION OF HAZARDOUS WASTES

LINE NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
				D.1. PROCESS CODES (enter code)				D.2. PROCESS DESCRIPTION (if no code entered in D.1)
98	K010	2500	P	S01	S02	T04		Commingle or lab pack
99	K011	2500	P	S01	S02	T04		Commingle or lab pack
100	K013	2500	P	S01	S02	T04		Commingle or lab pack
101	K014	2500	P	S01	S02	T04		Commingle or lab pack
102	K015	2500	P	S01	S02	T04		Commingle or lab pack
103	K016	2500	P	S01	S02	T04		Commingle or lab pack
104	K017	2500	P	S01	S02	T04		Commingle or lab pack
105	K018	2500	P	S01	S02	T04		Commingle or lab pack
106	K019	2500	P	S01	S02	T04		Commingle or lab pack
107	K020	2500	P	S01	S02	T04		Commingle or lab pack
108	K021	2500	P	S01	S02	T04		Commingle or lab pack
109	K022	2500	P	S01	S02	T04		Commingle or lab pack
110	K023	2500	P	S01	S02	T04		Commingle or lab pack
111	K024	2500	P	S01	S02	T04		Commingle or lab pack
112	K025	2500	P	S01	S02	T04		Commingle or lab pack
113	K026	2500	P	S01	S02	T04		Commingle or lab pack
114	K027	2500	P	S01	S02	T04		Commingle or lab pack
115	K028	2500	P	S01	S02	T04		Commingle or lab pack
116	K029	2500	P	S01	S02	T04		Commingle or lab pack
117	K030	2500	P	S01	S02	T04		Commingle or lab pack
118	K031	2500	P	S01	S02	T04		Commingle or lab pack
119	K032	2500	P	S01	S02	T04		Commingle or lab pack
	K033	2500	P	S01	S02	T04		Commingle or lab pack
	K034	2500	P	S01	S02	T04		Commingle or lab pack
122	K035	2500	P	S01	S02	T04		Commingle or lab pack
123	K036	2500	P	S01	S02	T04		Commingle or lab pack
124	K037	2500	P	S01	S02	T04		Commingle or lab pack
125	K038	2500	P	S01	S02	T04		Commingle or lab pack
126	K039	2500	P	S01	S02	T04		Commingle or lab pack
127	K040	2500	P	S01	S02	T04		Commingle or lab pack
128	K041	2500	P	S01	S02	T04		Commingle or lab pack
129	K042	2500	P	S01	S02	T04		Commingle or lab pack
130	K043	2500	P	S01	S02	T04		Commingle or lab pack
131	K044	2500	P	S01	S02	T04		Commingle or lab pack
132	K045	2500	P	S01	S02	T04		Commingle or lab pack
133	K046	2500	P	S01	S02	T04		Commingle or lab pack
134	K047	2500	P	S01	S02	T04		Commingle or lab pack
135	K048	2500	P	S01	S02	T04		Commingle or lab pack
136	K049	2500	P	S01	S02	T04		Commingle or lab pack
137	K050	2500	P	S01	S02	T04		Commingle or lab pack
138	K051	2500	P	S01	S02	T04		Commingle or lab pack
139	K052	2500	P	S01	S02	T04		Commingle or lab pack
140	K060	2500	P	S01	S02	T04		Commingle or lab pack

XIV. DESCRIPTION OF HAZARDOUS WASTES

LINE NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
				D.1. PROCESS CODES (enter code)				D.2. PROCESS DESCRIPTI (if no code entered in D.1)
141	K061	1500	P	S01	S02	T04		Commingle or lab pack
142	K062	1500	P	S01	S02	T04		Commingle or lab pack
143	K069	1500	P	S01	S02	T04		Commingle or lab pack
144	K071	1500	P	S01	S02	T04		Commingle or lab pack
145	K073	1500	P	S01	S02	T04		Commingle or lab pack
146	K083	1500	P	S01	S02	T04		Commingle or lab pack
147	K084	1500	P	S01	S02	T04		Commingle or lab pack
148	K085	1500	P	S01	S02	T04		Commingle or lab pack
149	K086	1500	P	S01	S02	T04		Commingle or lab pack
150	K087	1500	P	S01	S02	T04		Commingle or lab pack
151	K088	1500	P	S01	S02	T04		Commingle or lab pack
152	K093	1500	P	S01	S02	T04		Commingle or lab pack
153	K094	1500	P	S01	S02	T04		Commingle or lab pack
154	K095	1500	P	S01	S02	T04		Commingle or lab pack
155	K096	1500	P	S01	S02	T04		Commingle or lab pack
156	K097	1500	P	S01	S02	T04		Commingle or lab pack
157	K098	1500	P	S01	S02	T04		Commingle or lab pack
158	K099	1500	P	S01	S02	T04		Commingle or lab pack
159	K100	1500	P	S01	S02	T04		Commingle or lab pack
160	K101	1500	P	S01	S02	T04		Commingle or lab pack
1	K102	1500	P	S01	S02	T04		Commingle or lab pack
2	K103	1500	P	S01	S02	T04		Commingle or lab pack
163	K104	1500	P	S01	S02	T04		Commingle or lab pack
164	K105	1500	P	S01	S02	T04		Commingle or lab pack
165	K106	1500	P	S01	S02	T04		Commingle or lab pack
166	K107	1500	P	S01	S02	T04		Commingle or lab pack
167	K108	1500	P	S01	S02	T04		Commingle or lab pack
168	K109	1500	P	S01	S02	T04		Commingle or lab pack
169	K110	1500	P	S01	S02	T04		Commingle or lab pack
170	K111	1500	P	S01	S02	T04		Commingle or lab pack
171	K112	1500	P	S01	S02	T04		Commingle or lab pack
172	K113	1500	P	S01	S02	T04		Commingle or lab pack
173	K114	1500	P	S01	S02	T04		Commingle or lab pack
174	K115	1500	P	S01	S02	T04		Commingle or lab pack
175	K116	1500	P	S01	S02	T04		Commingle or lab pack
176	K117	1500	P	S01	S02	T04		Commingle or lab pack
177	K118	1500	P	S01	S02	T04		Commingle or lab pack
178	K123	1500	P	S01	S02	T04		Commingle or lab pack
179	K124	1500	P	S01	S02	T04		Commingle or lab pack
180	K125	1500	P	S01	S02	T04		Commingle or lab pack
181	K126	1500	P	S01	S02	T04		Commingle or lab pack
182	K131	1500	P	S01	S02	T04	T31	Commingle or lab pack
183	K132	1500	P	S01	S02	T04	T31	Commingle or lab pack

XIV. DESCRIPTION OF HAZARDOUS WASTES

LINE NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
				D.1. PROCESS CODES (*enter code*)				D.2. PROCESS DESCRIPTIO (*if no code entered in D.1*)
184	K136	1500	P	S01	S02	T04		Commingle or lab pack
185	K140	1500	P	S01	S02	T04		Commingle or lab pack
186	K141	1500	P	S01	S02	T04		Commingle or lab pack
187	K142	1500	P	S01	S02	T04		Commingle or lab pack
188	K143	1500	P	S01	S02	T04		Commingle or lab pack
189	K144	1500	P	S01	S02	T04		Commingle or lab pack
190	K145	1500	P	S01	S02	T04		Commingle or lab pack
191	K147	1500	P	S01	S02	T04		Commingle or lab pack
192	K148	1500	P	S01	S02	T04		Commingle or lab pack
193	K149	1500	P	S01	S02	T04		Commingle or lab pack
194	K150	1500	P	S01	S02	T04		Commingle or lab pack
195	K151	1500	P	S01	S02	T04		Commingle or lab pack
196	K156	1500	P	S01	S02	T04		Commingle or lab pack
197	K157	1500	P	S01	S02	T04		Commingle or lab pack
198	K158	1500	P	S01	S02	T04		Commingle or lab pack
199	K159	1500	P	S01	S02	T04		Commingle or lab pack
200	K161	1500	P	S01	S02	T04		Commingle or lab pack
201	K169	1500	P	S01	S02	T04		Commingle or lab pack
202	K170	1500	P	S01	S02	T04		Commingle or lab pack
203	K171	1500	P	S01	S02	T04		Commingle or lab pack
[illegible]	K172	1500	P	S01	S02	T04		Commingle or lab pack
	K174	1500	P	S01	S02	T04		Commingle or lab pack
206	K175	1500	P	S01	S02	T04		Commingle or lab pack
207	K176	1500	P	S01	S02	T04		Commingle or lab pack
208	K177	1500	P	S01	S02	T04		Commingle or lab pack
209	K178	1500	P	S01	S02	T04		Commingle or lab pack
210	K181	1500	P	S01	S02	T04		Commingle or lab pack
211	P001	2.5	T	S01	S02	T04		Commingle or lab pack
212	P002	2.5	T	S01	S02	T04		Commingle or lab pack
213	P003	2.5	T	S01	S02	T04		Commingle or lab pack
214	P004	2.5	T	S01	S02	T04		Commingle or lab pack
215	P005	2.5	T	S01	S02	T04		Commingle or lab pack
216	P006	2.5	T	S01	S02	T04		Commingle or lab pack
217	P007	2.5	T	S01	S02	T04		Commingle or lab pack
218	P008	2.5	T	S01	S02	T04		Commingle or lab pack
219	P009	2.5	T	S01	S02	T04		Commingle or lab pack
220	P010	2.5	T	S01	S02	T04		Commingle or lab pack
221	P011	2.5	T	S01	S02	T04		Commingle or lab pack
222	P012	2.5	T	S01	S02	T04		Commingle or lab pack
223	P013	2.5	T	S01	S02	T04		Commingle or lab pack
224	P014	2.5	T	S01	S02	T04		Commingle or lab pack
225	P015	2.5	T	S01	S02	T04		Commingle or lab pack
226	P016	2.5	T	S01	S02	T04		Commingle or lab pack

XIV. DESCRIPTION OF HAZARDOUS WASTES

LINE NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
				D.1. PROCESS CODES (enter code)				D.2. PROCESS DESCRIPTION (if no code entered in D.1)
227	P017	2.5	T	S01	S02	T04		Commingle or lab pack
228	P018	2.5	T	S01	S02	T04		Commingle or lab pack
229	P020	2.5	T	S01	S02	T04		Commingle or lab pack
230	P021	2.5	T	S01	S02	T04		Commingle or lab pack
231	P022	2.5	T	S01	S02	T04		Commingle or lab pack
232	P023	3.5	T	S01	S02	T04		Commingle or lab pack
233	P024	2.5	T	S01	S02	T04		Commingle or lab pack
234	P026	2.5	T	S01	S02	T04		Commingle or lab pack
235	P027	2.5	T	S01	S02	T04		Commingle or lab pack
236	P028	2.5	T	S01	S02	T04		Commingle or lab pack
237	P029	2.5	T	S01	S02	T04	T27	Commingle or lab pack
238	P030	5	T	S01	S02	T04	T27	Commingle or lab pack
239	P031	2.5	T	S01	S02	T04	T27	Commingle or lab pack
240	P033	2.5	T	S01	S02	T04	T27	Commingle or lab pack
241	P034	2.5	T	S01	S02	T04		Commingle or lab pack
242	P036	2.5	T	S01	S02	T04		Commingle or lab pack
243	P037	2.5	T	S01	S02	T04		Commingle or lab pack
244	P038	2.5	T	S01	S02	T04		Commingle or lab pack
245	P039	2.5	T	S01	S02	T04		Commingle or lab pack
246	P040	2.5	T	S01	S02	T04		Commingle or lab pack
[illegible]	P041	2.5	T	S01	S02	T04		Commingle or lab pack
	P042	2.5	T	S01	S02	T04		Commingle or lab pack
249	P043	2.5	T	S01	S02	T04		Commingle or lab pack
250	P044	2.5	T	S01	S02	T04		Commingle or lab pack
251	P045	2.5	T	S01	S02	T04		Commingle or lab pack
252	P046	2.5	T	S01	S02	T04		Commingle or lab pack
253	P047	2.5	T	S01	S02	T04		Commingle or lab pack
254	P048	2.5	T	S01	S02	T04		Commingle or lab pack
255	P049	2.5	T	S01	S02	T04		Commingle or lab pack
256	P050	2.5	T	S01	S02	T04		Commingle or lab pack
257	P051	2.5	T	S01	S02	T04		Commingle or lab pack
258	P054	2.5	T	S01	S02	T04		Commingle or lab pack
259	P056	2.5	T	S01	S02	T04		Commingle or lab pack
269	P057	2.5	T	S01	S02	T04		Commingle or lab pack
270	P058	2.5	T	S01	S02	T04		Commingle or lab pack
271	P059	2.5	T	S01	S02	T04		Commingle or lab pack
272	P060	2.5	T	S01	S02	T04		Commingle or lab pack
273	P062	2.5	T	S01	S02	T04		Commingle or lab pack
274	P063	2.5	T	S01	S02	T04		Commingle or lab pack
275	P064	2.5	T	S01	S02	T04		Commingle or lab pack
276	P065	2.5	T	S01	S02	T04		Commingle or lab pack
277	P066	2.5	T	S01	S02	T04		Commingle or lab pack
278	P067	2.5	T	S01	S02	T04		Commingle or lab pack

XIV. DESCRIPTION OF HAZARDOUS WASTES								
LINE NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
				D.1. PROCESS CODES (enter code)				D.2. PROCESS DESCRIPTI (if no code entered in D.1)
279	P068	2.5	T	S01	S02	T04		Commingle or lab pack
280	P069	2.5	T	S01	S02	T04		Commingle or lab pack
281	P070	2.5	T	S01	S02	T04		Commingle or lab pack
282	P071	2.5	T	S01	S02	T04		Commingle or lab pack
283	P072	2.5	T	S01	S02	T04		Commingle or lab pack
284	P073	2.5	T	S01	S02	T04		Commingle or lab pack
285	P074	2.5	T	S01	S02	T04	T27	Commingle or lab pack
286	P075	500	T	S01	S02	T04		Commingle or lab pack
287	P076	2.5	T	S01	S02	T04		Commingle or lab pack
288	P077	2.5	T	S01	S02	T04		Commingle or lab pack
289	P078	2.5	T	S01	S02	T04		Commingle or lab pack
290	P081	2.5	T	S01	S02	T04		Commingle or lab pack
291	P082	2.5	T	S01	S02	T04		Commingle or lab pack
292	P084	2.5	T	S01	S02	T04		Commingle or lab pack
293	P085	2.5	T	S01	S02	T04		Commingle or lab pack
294	P087	2.5	T	S01	S02	T04		Commingle or lab pack
295	P088	2.5	T	S01	S02	T04		Commingle or lab pack
296	P089	2.5	T	S01	S02	T04		Commingle or lab pack
297	P092	2.5	T	S01	S02	T04		Commingle or lab pack
298	P093	2.5	T	S01	S02	T04		Commingle or lab pack
299	P094	2.5	T	S01	S02	T04		Commingle or lab pack
)	P095	2.5	T	S01	S02	T04		Commingle or lab pack
301	P096	2.5	T	S01	S02	T04		Commingle or lab pack
302	P097	2.5	T	S01	S02	T04		Commingle or lab pack
303	P098	2.5	T	S01	S02	T04	T27	Commingle or lab pack
304	P099	2.5	T	S01	S02	T04	T27	Commingle or lab pack
305	P101	2.5	T	S01	S02	T04		Commingle or lab pack
306	P102	2.5	T	S01	S02	T04		Commingle or lab pack
307	P103	2.5	T	S01	S02	T04		Commingle or lab pack
308	P104	2.5	T	S01	S02	T04	T27	Commingle or lab pack
309	P105	2.5	T	S01	S02	T04		Commingle or lab pack
310	P106	2.5	T	S01	S02	T04	T27	Commingle or lab pack
311	P107	2.5	T	S01	S02	T04		Commingle or lab pack
312	P108	2.5	T	S01	S02	T04		Commingle or lab pack
313	P109	2.5	T	S01	S02	T04		Commingle or lab pack
314	P110	2.5	T	S01	S02	T04		Commingle or lab pack
315	P111	2.5	T	S01	S02	T04		Commingle or lab pack
316	P112	2.5	T	S01	S02	T04		Commingle or lab pack
317	P113	2.5	T	S01	S02	T04		Commingle or lab pack
318	P114	2.5	T	S01	S02	T04		Commingle or lab pack
319	P115	2.5	T	S01	S02	T04		Commingle or lab pack
320	P116	2.5	T	S01	S02	T04		Commingle or lab pack
321	P118	2.5	T	S01	S02	T04		Commingle or lab pack

XIV. DESCRIPTION OF HAZARDOUS WASTES

LINE NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
				D.1. PROCESS CODES (*enter code*)				D.2. PROCESS DESCRIPTION (*if no code entered in D.1*)
322	P119	2.5	T	S01	S02	T04		Commingle or lab pack
323	P120	2.5	T	S01	S02	T04	T22	Commingle or lab pack
324	P121	2.5	T	S01	S02	T04	T27	Commingle or lab pack
325	P122	2.5	T	S01	S02	T04		Commingle or lab pack
326	P123	2.5	T	S01	S02	T04		Commingle or lab pack
327	P127	2.5	T	S01	S02	T04		Commingle or lab pack
328	P128	2.5	T	S01	S02	T04		Commingle or lab pack
329	P185	2.5	T	S01	S02	T04		Commingle or lab pack
330	P188	2.5	T	S01	S02	T04		Commingle or lab pack
331	P189	2.5	T	S01	S02	T04		Commingle or lab pack
332	P190	2.5	T	S01	S02	T04		Commingle or lab pack
333	P191	2.5	T	S01	S02	T04		Commingle or lab pack
334	P192	2.5	T	S01	S02	T04		Commingle or lab pack
335	P196	2.5	T	S01	S02	T04		Commingle or lab pack
336	P197	2.5	T	S01	S02	T04		Commingle or lab pack
337	P198	2.5	T	S01	S02	T04		Commingle or lab pack
338	P199	2.5	T	S01	S02	T04		Commingle or lab pack
339	P200	2.5	T	S01	S02	T04		Commingle or lab pack
349	P201	2.5	T	S01	S02	T04		Commingle or lab pack
350	P202	2.5	T	S01	S02	T04		Commingle or lab pack
351	P203	2.5	T	S01	S02	T04		Commingle or lab pack
2	P204	2.5	T	S01	S02	T04		Commingle or lab pack
353	P205	2.5	T	S01	S02	T04		Commingle or lab pack
354	U001	2.5	T	S01	S02	T04		Commingle or lab pack
355	U002	2.5	T	S01	S02	T04		Commingle or lab pack
356	U003	2.5	T	S01	S02	T04		Commingle or lab pack
357	U004	2.5	T	S01	S02	T04		Commingle or lab pack
358	U005	2.5	T	S01	S02	T04		Commingle or lab pack
359	U006	2.5	T	S01	S02	T04		Commingle or lab pack
360	U007	2.5	T	S01	S02	T04		Commingle or lab pack
361	U008	2.5	T	S01	S02	T04		Commingle or lab pack
362	U009	2.5	T	S01	S02	T04		Commingle or lab pack
363	U010	5	T	S01	S02	T04		Commingle or lab pack
364	U011	2.5	T	S01	S02	T04		Commingle or lab pack
365	U012	2.5	T	S01	S02	T04		Commingle or lab pack
366	U014	2.5	T	S01	S02	T04		Commingle or lab pack
367	U015	2.5	T	S01	S02	T04		Commingle or lab pack
368	U016	2.5	T	S01	S02	T04		Commingle or lab pack
369	U017	2.5	T	S01	S02	T04		Commingle or lab pack
370	U018	2.5	T	S01	S02	T04		Commingle or lab pack
371	U019	30	T	S01	S02	T04		Commingle or lab pack
372	U020	2.5	T	S01	S02	T04		Commingle or lab pack
373	U021	2.5	T	S01	S02	T04		Commingle or lab pack

XIV. DESCRIPTION OF HAZARDOUS WASTES								
LINE NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
				D.1. PROCESS CODES (enter code)				D.2. PROCESS DESCRIPTI((if no code entered in D.1)
374	U022	2.5	T	S01	S02	T04		Commingle or lab pack
375	U023	2.5	T	S01	S02	T04		Commingle or lab pack
376	U024	2.5	T	S01	S02	T04		Commingle or lab pack
377	U025	2.5	T	S01	S02	T04		Commingle or lab pack
378	U026	2.5	T	S01	S02	T04		Commingle or lab pack
379	U027	2.5	T	S01	S02	T04		Commingle or lab pack
380	U028	2.5	T	S01	S02	T04		Commingle or lab pack
381	U029	2.5	T	S01	S02	T04		Commingle or lab pack
382	U030	2.5	T	S01	S02	T04		Commingle or lab pack
383	U031	2.5	T	S01	S02	T04		Commingle or lab pack
384	U032	2.5	T	S01	S02	T04		Commingle or lab pack
385	U033	2.5	T	S01	S02	T04		Commingle or lab pack
386	U034	2.5	T	S01	S02	T04		Commingle or lab pack
387	U035	2.5	T	S01	S02	T04		Commingle or lab pack
388	U036	10	T	S01	S02	T04		Commingle or lab pack
389	U037	2.5	T	S01	S02	T04		Commingle or lab pack
390	U038	2.5	T	S01	S02	T04		Commingle or lab pack
391	U039	2.5	T	S01	S02	T04		Commingle or lab pack
392	U040	2.5	T	S01	S02	T04		Commingle or lab pack
393	U041	2.5	T	S01	S02	T04		Commingle or lab pack
394	U042	2.5	T	S01	S02	T04		Commingle or lab pack
	U043	2.5	T	S01	S02	T04		Commingle or lab pack
396	U044	30	T	S01	S02	T04		Commingle or lab pack
397	U045	2.5	T	S01	S02	T04		Commingle or lab pack
398	U046	2.5	T	S01	S02	T04		Commingle or lab pack
399	U047	2.5	T	S01	S02	T04		Commingle or lab pack
400	U048	2.5	T	S01	S02	T04		Commingle or lab pack
401	U049	2.5	T	S01	S02	T04		Commingle or lab pack
402	U050	2.5	T	S01	S02	T04		Commingle or lab pack
403	U051	2.5	T	S01	S02	T04		Commingle or lab pack
404	U052	2.5	T	S01	S02	T04		Commingle or lab pack
405	U053	2.5	T	S01	S02	T04		Commingle or lab pack
406	U055	2.5	T	S01	S02	T04		Commingle or lab pack
407	U056	2.5	T	S01	S02	T04		Commingle or lab pack
408	U057	2.5	T	S01	S02	T04		Commingle or lab pack
409	U058	2.5	T	S01	S02	T04		Commingle or lab pack
410	U059	2.5	T	S01	S02	T04		Commingle or lab pack
411	U060	2.5	T	S01	S02	T04		Commingle or lab pack
412	U061	2.5	T	S01	S02	T04		Commingle or lab pack
412	U062	2.5	T	S01	S02	T04		Commingle or lab pack
413	U063	2.5	T	S01	S02	T04		Commingle or lab pack
414	U064	2.5	T	S01	S02	T04		Commingle or lab pack
415	U066	2.5	T	S01	S02	T04		Commingle or lab pack

XIV. DESCRIPTION OF HAZARDOUS WASTES

LINE NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
				D.1. PROCESS CODES (enter code)				D.2. PROCESS DESCRIPTI (if no code entered in D.1)
416	U067	2.5	T	S01	S02	T04		Commingle or lab pack
417	U068	2.5	T	S01	S02	T04		Commingle or lab pack
418	U069	2.5	T	S01	S02	T04		Commingle or lab pack
419	U070	2.5	T	S01	S02	T04		Commingle or lab pack
420	U071	2.5	T	S01	S02	T04		Commingle or lab pack
421	U072	2.5	T	S01	S02	T04		Commingle or lab pack
422	U073	2.5	T	S01	S02	T04		Commingle or lab pack
423	U074	2.5	T	S01	S02	T04		Commingle or lab pack
424	U075	2.5	T	S01	S02	T04		Commingle or lab pack
425	U076	2.5	T	S01	S02	T04		Commingle or lab pack
426	U077	2.5	T	S01	S02	T04		Commingle or lab pack
427	U078	2.5	T	S01	S02	T04		Commingle or lab pack
428	U079	2.5	T	S01	S02	T04		Commingle or lab pack
429	U080	2.5	T	S01	S02	T04		Commingle or lab pack
439	U081	30	T	S01	S02	T04		Commingle or lab pack
440	U082	2.5	T	S01	S02	T04		Commingle or lab pack
441	U083	2.5	T	S01	S02	T04		Commingle or lab pack
442	U084	2.5	T	S01	S02	T04		Commingle or lab pack
443	U085	2.5	T	S01	S02	T04		Commingle or lab pack
444	U086	2.5	T	S01	S02	T04		Commingle or lab pack
445	U087	2.5	T	S01	S02	T04		Commingle or lab pack
6	U088	2.5	T	S01	S02	T04		Commingle or lab pack
447	U089	2.5	T	S01	S02	T04		Commingle or lab pack
448	U090	2.5	T	S01	S02	T04		Commingle or lab pack
449	U091	2.5	T	S01	S02	T04		Commingle or lab pack
450	U092	2.5	T	S01	S02	T04		Commingle or lab pack
451	U093	2.5	T	S01	S02	T04		Commingle or lab pack
452	U094	2.5	T	S01	S02	T04		Commingle or lab pack
453	U095	2.5	T	S01	S02	T04		Commingle or lab pack
454	U096	2.5	T	S01	S02	T04		Commingle or lab pack
455	U097	2.5	T	S01	S02	T04		Commingle or lab pack
456	U098	2.5	T	S01	S02	T04		Commingle or lab pack
457	U099	2.5	T	S01	S02	T04		Commingle or lab pack
458	U101	2.5	T	S01	S02	T04		Commingle or lab pack
459	U102	2.5	T	S01	S02	T04		Commingle or lab pack
460	U103	2.5	T	S01	S02	T04		Commingle or lab pack
461	U105	2.5	T	S01	S02	T04		Commingle or lab pack
462	U106	2.5	T	S01	S02	T04		Commingle or lab pack
463	U107	2.5	T	S01	S02	T04		Commingle or lab pack
464	U108	2.5	T	S01	S02	T04		Commingle or lab pack
465	U109	2.5	T	S01	S02	T04		Commingle or lab pack
466	U110	2.5	T	S01	S02	T04		Commingle or lab pack
467	U111	2.5	T	S01	S02	T04		Commingle or lab pack

XIV. DESCRIPTION OF HAZARDOUS WASTES								
LINE NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
				D.1. PROCESS CODES (enter code)				D.2. PROCESS DESCRIPTIC (if no code entered in D.1)
468	U112	30	T	S01	S02	T04		Commingle or lab pack
469	U113	2.5	T	S01	S02	T04		Commingle or lab pack
470	U114	2.5	T	S01	S02	T04		Commingle or lab pack
471	U115	2.5	T	S01	S02	T04		Commingle or lab pack
472	U116	2.5	T	S01	S02	T04		Commingle or lab pack
473	U117	2.5	T	S01	S02	T04		Commingle or lab pack
474	U118	2.5	T	S01	S02	T04		Commingle or lab pack
475	U119	2.5	T	S01	S02	T04		Commingle or lab pack
476	U120	2.5	T	S01	S02	T04		Commingle or lab pack
477	U121	2.5	T	S01	S02	T04		Commingle or lab pack
478	U122	2.5	T	S01	S02	T04		Commingle or lab pack
479	U123	2.5	T	S01	S02	T04		Commingle or lab pack
480	U124	2.5	T	S01	S02	T04		Commingle or lab pack
481	U125	2.5	T	S01	S02	T04		Commingle or lab pack
482	U126	2.5	T	S01	S02	T04		Commingle or lab pack
483	U127	2.5	T	S01	S02	T04		Commingle or lab pack
484	U128	2.5	T	S01	S02	T04		Commingle or lab pack
485	U129	2.5	T	S01	S02	T04		Commingle or lab pack
486	U130	2.5	T	S01	S02	T04		Commingle or lab pack
487	U131	2.5	T	S01	S02	T04		Commingle or lab pack
488	U132	2.5	T	S01	S02	T04		Commingle or lab pack
)	U133	2.5	T	S01	S02	T04		Commingle or lab pack
490	U134	2.5	T	S01	S02	T04		Commingle or lab pack
491	U135	2.5	T	S01	S02	T04	T22	Commingle or lab pack
492	U136	2.5	T	S01	S02	T04		Commingle or lab pack
493	U137	2.5	T	S01	S02	T04		Commingle or lab pack
494	U138	2.5	T	S01	S02	T04		Commingle or lab pack
495	U140	2.5	T	S01	S02	T04		Commingle or lab pack
496	U141	2.5	T	S01	S02	T04		Commingle or lab pack
497	U142	2.5	T	S01	S02	T04		Commingle or lab pack
498	U143	2.5	T	S01	S02	T04		Commingle or lab pack
499	U144	2.5	T	S01	S02	T04		Commingle or lab pack
500	U145	2.5	T	S01	S02	T04		Commingle or lab pack
501	U146	2.5	T	S01	S02	T04		Commingle or lab pack
502	U147	2.5	T	S01	S02	T04		Commingle or lab pack
503	U148	2.5	T	S01	S02	T04		Commingle or lab pack
504	U149	2.5	T	S01	S02	T04		Commingle or lab pack
505	U150	2.5	T	S01	S02	T04		Commingle or lab pack
506	U151	2.5	T	S01	S02	T04		Commingle or lab pack
507	U152	2.5	T	S01	S02	T04		Commingle or lab pack
508	U153	2.5	T	S01	S02	T04		Commingle or lab pack
509	U154	30	T	S01	S02	T04		Commingle or lab pack
519	U155	2.5	T	S01	S02	T04		Commingle or lab pack

XIV. DESCRIPTION OF HAZARDOUS WASTES

LINE NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
				D.1. PROCESS CODES (enter code)				D.2. PROCESS DESCRIPTI (if no code entered in D.1)
520	U156	2.5	T	S01	S02	T04		Commingle or lab pack
521	U157	2.5	T	S01	S02	T04		Commingle or lab pack
522	U158	2.5	T	S01	S02	T04		Commingle or lab pack
523	U159	2.5	T	S01	S02	T04		Commingle or lab pack
523	U160	2.5	T	S01	S02	T04		Commingle or lab pack
524	U161	2.5	T	S01	S02	T04		Commingle or lab pack
525	U162	2.5	T	S01	S02	T04		Commingle or lab pack
526	U163	2.5	T	S01	S02	T04		Commingle or lab pack
527	U164	2.5	T	S01	S02	T04		Commingle or lab pack
528	U165	2.5	T	S01	S02	T04		Commingle or lab pack
529	U166	2.5	T	S01	S02	T04		Commingle or lab pack
530	U167	2.5	T	S01	S02	T04		Commingle or lab pack
531	U168	2.5	T	S01	S02	T04		Commingle or lab pack
532	U169	2.5	T	S01	S02	T04		Commingle or lab pack
533	U170	2.5	T	S01	S02	T04		Commingle or lab pack
534	U171	2.5	T	S01	S02	T04		Commingle or lab pack
535	U172	2.5	T	S01	S02	T04		Commingle or lab pack
536	U173	2.5	T	S01	S02	T04		Commingle or lab pack
537	U174	2.5	T	S01	S02	T04		Commingle or lab pack
538	U176	2.5	T	S01	S02	T04		Commingle or lab pack
539	U177	2.5	T	S01	S02	T04		Commingle or lab pack
0	U178	2.5	T	S01	S02	T04		Commingle or lab pack
541	U179	2.5	T	S01	S02	T04		Commingle or lab pack
542	U180	10	T	S01	S02	T04		Commingle or lab pack
543	U181	2.5	T	S01	S02	T04		Commingle or lab pack
544	U182	2.5	T	S01	S02	T04		Commingle or lab pack
545	U183	2.5	T	S01	S02	T04		Commingle or lab pack
546	U184	2.5	T	S01	S02	T04		Commingle or lab pack
547	U185	2.5	T	S01	S02	T04		Commingle or lab pack
548	U186	2.5	T	S01	S02	T04		Commingle or lab pack
549	U187	2.5	T	S01	S02	T04		Commingle or lab pack
550	U188	10	T	S01	S02	T04		Commingle or lab pack
551	U189	2.5	T	S01	S02	T04	T22	Commingle or lab pack
552	U190	2.5	T	S01	S02	T04		Commingle or lab pack
553	U191	2.5	T	S01	S02	T04		Commingle or lab pack
554	U192	2.5	T	S01	S02	T04		Commingle or lab pack
555	U193	2.5	T	S01	S02	T04		Commingle or lab pack
556	U194	2.5	T	S01	S02	T04		Commingle or lab pack
557	U196	2.5	T	S01	S02	T04		Commingle or lab pack
558	U197	2.5	T	S01	S02	T04		Commingle or lab pack
559	U200	2.5	T	S01	S02	T04		Commingle or lab pack
560	U201	2.5	T	S01	S02	T04		Commingle or lab pack
561	U202	2.5	T	S01	S02	T04		Commingle or lab pack

XIV. DESCRIPTION OF HAZARDOUS WASTES

LINE NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
				D.1. PROCESS CODES (enter code)				D.2. PROCESS DESCRIPTI((if no code entered in D.1)
562	U203	5	T	S01	S02	T04		Commingle or lab pack
563	U204	5	T	S01	S02	T04		Commingle or lab pack
564	U205	5	T	S01	S02	T04		Commingle or lab pack
565	U206	5	T	S01	S02	T04		Commingle or lab pack
566	U207	5	T	S01	S02	T04		Commingle or lab pack
567	U208	5	T	S01	S02	T04		Commingle or lab pack
568	U209	5	T	S01	S02	T04		Commingle or lab pack
569	U210	30	T	S01	S02	T04		Commingle or lab pack
570	U211	30	T	S01	S02	T04		Commingle or lab pack
571	U213	5	T	S01	S02	T04		Commingle or lab pack
572	U214	5	T	S01	S02	T04		Commingle or lab pack
573	U215	5	T	S01	S02	T04		Commingle or lab pack
574	U216	5	T	S01	S02	T04		Commingle or lab pack
575	U217	5	T	S01	S02	T04		Commingle or lab pack
576	U218	8	T	S01	S02	T04		Commingle or lab pack
577	U219	5	T	S01	S02	T04		Commingle or lab pack
578	U220	30	T	S01	S02	T04		Commingle or lab pack
579	U221	30	T	S01	S02	T04		Commingle or lab pack
580	U222	30	T	S01	S02	T04		Commingle or lab pack
581	U223	30	T	S01	S02	T04		Commingle or lab pack
582	U225	30	T	S01	S02	T04		Commingle or lab pack
	U226	30	T	S01	S02	T04		Commingle or lab pack
	U227	30	T	S01	S02	T04		Commingle or lab pack
585	U228	30	T	S01	S02	T04		Commingle or lab pack
586	U234	30	T	S01	S02	T04		Commingle or lab pack
587	U235	30	T	S01	S02	T04		Commingle or lab pack
588	U236	30	T	S01	S02	T04		Commingle or lab pack
589	U237	30	T	S01	S02	T04		Commingle or lab pack
590	U238	30	T	S01	S02	T04		Commingle or lab pack
591	U239	30	T	S01	S02	T04		Commingle or lab pack
592	U240	5	T	S01	S02	T04		Commingle or lab pack
593	U243	5	T	S01	S02	T04		Commingle or lab pack
594	U244	5	T	S01	S02	T04		Commingle or lab pack
595	U246	5	T	S01	S02	T04	T27	Commingle or lab pack
596	U247	5	T	S01	S02	T04		Commingle or lab pack
597	U248	5	T	S01	S02	T04		Commingle or lab pack
598	U249	5	T	S01	S02	T04		Commingle or lab pack
599	U271	5	T	S01	S02	T04		Commingle or lab pack
600	U278	5	T	S01	S02	T04		Commingle or lab pack
601	U279	5	T	S01	S02	T04		Commingle or lab pack
602	U280	5	T	S01	S02	T04		Commingle or lab pack
603	U328	5	T	S01	S02	T04		Commingle or lab pack
604	U353	5	T	S01	S02	T04		Commingle or lab pack

XIV. DESCRIPTION OF HAZARDOUS WASTES

LINE NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
				D.1. PROCESS CODES (enter code)				D.2. PROCESS DESCRIPTION (if no code entered in D.1)
605	U359	5	T	S01	S02	T04		Commingle or lab pack
606	U364	5	T	S01	S02	T04		Commingle or lab pack
607	U367	5	T	S01	S02	T04		Commingle or lab pack
608	U372	5	T	S01	S02	T04		Commingle or lab pack
609	U373	5	T	S01	S02	T04		Commingle or lab pack
610	U387	5	T	S01	S02	T04		Commingle or lab pack
611	U389	5	T	S01	S02	T04		Commingle or lab pack
612	U394	5	T	S01	S02	T04		Commingle or lab pack
613	U395	5	T	S01	S02	T04		Commingle or lab pack
614	U404	5	T	S01	S02	T04		Commingle or lab pack
615	U408	5	T	S01	S02	T04		Commingle or lab pack
616	U409	5	T	S01	S02	T04		Commingle or lab pack
617	U411	5	T	S01	S02	T04		Commingle or lab pack
618	001K	2000	P	S01	S02	T04		Commingle or lab pack
619	002K	2000	P	S01	S02	T04		Commingle or lab pack
620	001S	2000	P	S01	S02	T04		Commingle or lab pack
621	002S	2000	P	S01	S02	T04		Commingle or lab pack
622	003S	2000	P	S01	S02	T04		Commingle or lab pack
623	004S	2000	P	S01	S02	T04		Commingle or lab pack
624	005S	2000	P	S01	S02	T04		Commingle or lab pack
625	006S	2000	P	S01	S02	T04		Commingle or lab pack
626	007S	2000	P	S01	S02	T04		Commingle or lab pack
627	001U	2500	P	S01	S02	T04		Commingle or lab pack
628	002U	2500	P	S01	S02	T04		Commingle or lab pack
629	003U	2500	P	S01	S02	T04		Commingle or lab pack
630	004U	2500	P	S01	S02	T04		Commingle or lab pack
631	005U	2500	P	S01	S02	T04		Commingle or lab pack
632	006U	2500	P	S01	S02	T04		Commingle or lab pack
633	007U	2500	P	S01	S02	T04		Commingle or lab pack
634	008U	2500	P	S01	S02	T04		Commingle or lab pack
635	009U	2500	P	S01	S02	T04		Commingle or lab pack
636	011U	2500	P	S01	S02	T04		Commingle or lab pack
637	012U	2500	P	S01	S02	T04		Commingle or lab pack
638	013U	2500	P	S01	S02	T04		Commingle or lab pack
639	014U	2500	P	S01	S02	T04		Commingle or lab pack
640	015U	2500	P	S01	S02	T04		Commingle or lab pack
641	016U	2500	P	S01	S02	T04		Commingle or lab pack
642	017U	2500	P	S01	S02	T04		Commingle or lab pack
643	020U	2500	P	S01	S02	T04		Commingle or lab pack
644	022U	2500	P	S01	S02	T04		Commingle or lab pack
645	023U	2500	P	S01	S02	T04		Commingle or lab pack
646	024U	2500	P	S01	S02	T04		Commingle or lab pack
647	025U	2500	P	S01	S02	T04		Commingle or lab pack

XIV. DESCRIPTION OF HAZARDOUS WASTES

LINE NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
				D.1. PROCESS CODES (enter code)				D.2. PROCESS DESCRIPTIC (if no code entered in D.1)
648	027U	1500	P	S01	S02	T04		Commingle or lab pack
649	028U	1500	P	S01	S02	T04		Commingle or lab pack
650	029U	1500	P	S01	S02	T04		Commingle or lab pack
651	030U	1500	P	S01	S02	T04		Commingle or lab pack
652	031U	1500	P	S01	S02	T04		Commingle or lab pack
653	032U	1500	P	S01	S02	T04		Commingle or lab pack
654	033U	1500	P	S01	S02	T04		Commingle or lab pack
655	034U	1500	P	S01	S02	T04		Commingle or lab pack
656	036U	1500	P	S01	S02	T04		Commingle or lab pack
657	037U	1500	P	S01	S02	T04		Commingle or lab pack
658	038U	1500	P	S01	S02	T04		Commingle or lab pack
659	040U	1500	P	S01	S02	T04		Commingle or lab pack
660	041U	1500	P	S01	S02	T04		Commingle or lab pack
661	042U	1500	P	S01	S02	T04		Commingle or lab pack
662	043U	1500	P	S01	S02	T04		Commingle or lab pack
663	044U	1500	P	S01	S02	T04		Commingle or lab pack
664	046U	1500	P	S01	S02	T04		Commingle or lab pack
665	048U	1500	P	S01	S02	T04		Commingle or lab pack
666	049U	1500	P	S01	S02	T04		Commingle or lab pack
667	050U	1500	P	S01	S02	T04		Commingle or lab pack
668	051U	1500	P	S01	S02	T04		Commingle or lab pack
	052U	1500	P	S01	S02	T04		Commingle or lab pack
	054U	1500	P	S01	S02	T04		Commingle or lab pack
671	055U	1500	P	S01	S02	T04		Commingle or lab pack
672	056U	1500	P	S01	S02	T04		Commingle or lab pack
673	057U	1500	P	S01	S02	T04		Commingle or lab pack
674	058U	1500	P	S01	S02	T04		Commingle or lab pack
675	059U	1500	P	S01	S02	T04		Commingle or lab pack
676	061U	1500	P	S01	S02	T04		Commingle or lab pack
677	063U	1500	P	S01	S02	T04		Commingle or lab pack
678	064U	1500	P	S01	S02	T04		Commingle or lab pack
679	068U	1500	P	S01	S02	T04		Commingle or lab pack
680	070U	1500	P	S01	S02	T04		Commingle or lab pack
681	071U	1500	P	S01	S02	T04		Commingle or lab pack
682	072U	1500	P	S01	S02	T04		Commingle or lab pack
683	073U	1500	P	S01	S02	T04		Commingle or lab pack
684	074U	1500	P	S01	S02	T04		Commingle or lab pack
685	075U	1500	P	S01	S02	T04		Commingle or lab pack
686	076U	1500	P	S01	S02	T04		Commingle or lab pack
687	077U	5	T	S01	S02	T04		Commingle or lab pack
688	078U	1500	P	S01	S02	T04		Commingle or lab pack
689	079U	1500	P	S01	S02	T04		Commingle or lab pack
690	082U	1500	P	S01	S02	T04		Commingle or lab pack

XIV. DESCRIPTION OF HAZARDOUS WASTES

LINE NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
				D.1. PROCESS CODES (enter code)				D.2. PROCESS DESCRIPTION (if no code entered in D.1)
691	083U	1500	P	S01	S02	T04		Commingle or lab pack
692	086U	1500	P	S01	S02	T04		Commingle or lab pack
693	088U	1500	P	S01	S02	T04		Commingle or lab pack
694	089U	1500	P	S01	S02	T04		Commingle or lab pack
695	090U	1500	P	S01	S02	T04		Commingle or lab pack
696	092U	1500	P	S01	S02	T04		Commingle or lab pack
697	093U	1500	P	S01	S02	T04	T22	Commingle or lab pack
698	094U	1500	P	S01	S02	T04		Commingle or lab pack
699	095U	1500	P	S01	S02	T04		Commingle or lab pack
700	096U	1500	P	S01	S02	T04		Commingle or lab pack
701	097U	1500	P	S01	S02	T04		Commingle or lab pack
702	098U	1500	P	S01	S02	T04		Commingle or lab pack
703	099U	1500	P	S01	S02	T04		Commingle or lab pack
704	101U	1500	P	S01	S02	T04		Commingle or lab pack
705	102U	1500	P	S01	S02	T04		Commingle or lab pack
706	103U	1500	P	S01	S02	T04		Commingle or lab pack
707	104U	1500	P	S01	S02	T04		Commingle or lab pack
708	106U	1500	P	S01	S02	T04		Commingle or lab pack
709	108U	1500	P	S01	S02	T04		Commingle or lab pack
710	110U	1500	P	S01	S02	T04		Commingle or lab pack
711	111U	1500	P	S01	S02	T04		Commingle or lab pack
2	112U	1500	P	S01	S02	T04		Commingle or lab pack
713	113U	1500	P	S01	S02	T04		Commingle or lab pack
714	115U	1500	P	S01	S02	T04		Commingle or lab pack
715	116U	1500	P	S01	S02	T04		Commingle or lab pack
716	117U	1500	P	S01	S02	T04		Commingle or lab pack
717	118U	1500	P	S01	S02	T04		Commingle or lab pack
718	119U	1500	P	S01	S02	T04		Commingle or lab pack
719	120U	1500	P	S01	S02	T04		Commingle or lab pack
720	121U	1500	P	S01	S02	T04		Commingle or lab pack
721	122U	1500	P	S01	S02	T04		Commingle or lab pack
722	124U	1500	P	S01	S02	T04		Commingle or lab pack
723	127U	1500	P	S01	S02	T04		Commingle or lab pack
724	128U	1500	P	S01	S02	T04		Commingle or lab pack
725	129U	1500	P	S01	S02	T04		Commingle or lab pack
726	131U	1500	P	S01	S02	T04		Commingle or lab pack
727	132U	1500	P	S01	S02	T04		Commingle or lab pack
728	134U	1500	P	S01	S02	T04		Commingle or lab pack
729	135U	1500	P	S01	S02	T04		Commingle or lab pack
730	136U	1500	P	S01	S02	T04		Commingle or lab pack
731	138U	1500	P	S01	S02	T04		Commingle or lab pack
732	139U	1500	P	S01	S02	T04		Commingle or lab pack
733	140U	1500	P	S01	S02	T04		Commingle or lab pack

XIV. DESCRIPTION OF HAZARDOUS WASTES

NUMBER	A. HAZARDOUS WASTE NUMBER (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
				D.1. PROCESS CODES (enter code)				D.2. PROCESS DESCRIP (if no code entered in D.1)
734	141U	1500	P	S01	S02	T04		Commingle or lab pack
735	142U	1500	P	S01	S02	T04		Commingle or lab pack
736	143U	1500	P	S01	S02	T04		Commingle or lab pack
737	147U	1500	P	S01	S02	T04		Commingle or lab pack
738	150U	1500	P	S01	S02	T04		Commingle or lab pack
739	151U	1500	P	S01	S02	T04		Commingle or lab pack
740	152U	1500	P	S01	S02	T04		Commingle or lab pack
741	154U	1500	P	S01	S02	T04		Commingle or lab pack
742	159U	1500	P	S01	S02	T04		Commingle or lab pack
743	160U	1500	P	S01	S02	T04		Commingle or lab pack
744	161U	1500	P	S01	S02	T04		Commingle or lab pack
745	162U	1500	P	S01	S02	T04		Commingle or lab pack
746	163U	1500	P	S01	S02	T04		Commingle or lab pack
747	164U	1500	P	S01	S02	T04		Commingle or lab pack
748	165U	1500	P	S01	S02	T04		Commingle or lab pack
749	166U	1500	P	S01	S02	T04		Commingle or lab pack
750	167U	1500	P	S01	S02	T04		Commingle or lab pack
751	168U	1500	P	S01	S02	T04		Commingle or lab pack
752	169U	1500	P	S01	S02	T04		Commingle or lab pack
753	170U	1500	P	S01	S02	T04		Commingle or lab pack
754	171U	1500	P	S01	S02	T04		Commingle or lab pack
	172U	1500	P	S01	S02	T04		Commingle or lab pack
	173U	1500	P	S01	S02	T04		Commingle or lab pack
757	174U	1500	P	S01	S02	T04		Commingle or lab pack
758	175U	1500	P	S01	S02	T04		Commingle or lab pack
759	007L	1500	P	S01	S02	T04		Commingle or lab pack
760	014L	30	T	S01	S02	T04		Commingle or lab pack
761	017L	1500	P	S01	S02	T04		Commingle or lab pack
762	019L	2.5	T	S01	S02	T04		Commingle or lab pack
763	021L	6	T	S01	S02	T04		Commingle or lab pack
764	022L	1500	P	S01	S02	T04		Commingle or lab pack
765	026L	2	T	S01	S02	T04		Commingle or lab pack
766	029L	80	T	S01	S02	T04		Commingle or lab pack
767	030L	4	T	S01	S02	T04		Commingle or lab pack
768	031L	1500	P	S01	S02	T04		Commingle or lab pack
769	032L	1500	P	S01	S02	T04		Commingle or lab pack
770	033L	1500	P	S01	S02	T04		Commingle or lab pack
771	034L	1500	P	S01	S02	T04		Commingle or lab pack
772	035L	1500	P	S01	S02	T04		Commingle or lab pack
773	036L	1500	P	S01	S02	T04		Commingle or lab pack

ATTACHMENT 7

CONTAINERS

FORM EQP 5111 TEMPLATE

C1: USE AND MANAGEMENT OF CONTAINERS

(Volume 1)

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.

R 299.9614 of 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 29.4101 to R 29.4505 promulgated pursuant to the provisions of the Michigan Fire Protection Act, PA 207, as amended (Act 207); and Title 40 of the Code of Federal Regulations (CFR) §270.14(d), 270.15, and Part 264, Subpart I, establish requirements for the use and management of containers. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for the use and management of containers at the *Drug & Laboratory, Inc. (DLD)* facility in *Plainwell*, Michigan. This template addresses the condition of containers, compatibility of waste with containers, management of containers, inspections, containment, special requirements for ignitable or reactive waste, special requirements for incompatible wastes, and closure.

(Check as appropriate)

Operating License Applicant:

☐ R 299.9614 use and management of containers

Construction Permit Applicant:

☒ R 299.9614 use and management of containers

Table of Contents

This template is organized as follows:

INTRODUCTION

The container standards are performance standards for containers and container storage areas. Completion of this template should result in a demonstration of how your facility will meet these standards.

Please note that Template C11, Subpart CC, Air Emissions from Tanks, Containers, and Surface Impoundments, addresses air emissions for containers. Also note that while specific closure requirements for container storage areas are addressed in this template, you may reference information in Template A11: Closure and Postclosure Plan.

C1.A DESCRIPTION OF CONTAINERS

[R 299.9614 and 40 CFR §264.171]

Containment Area DLS-1 will be used to store a maximum of 2,860 gallons of hazardous waste. This maximum total volume may be accumulated by any combination of containers up to and including 330 gallon intermediate bulk containers.

Containment Area DLS-2 will be used to store a maximum of 3,300 gallons of hazardous waste. This maximum total volume may be accumulated by any combination of containers up to and including 330 gallon intermediate bulk containers.

Containment Area DLS-3 will be used to store a maximum of 27,500 gallons of hazardous waste. This maximum total volume may be accumulated by any combination of containers up to and including 330 gallon intermediate bulk containers.

The hazardous waste loading bay containment area, referred to as HWLB-1, will be used to store a maximum of 5,200 gallons of hazardous waste. This maximum total volume may be accumulated by any combination of containers up to and including 330 gallon intermediate bulk containers.

Container types and specifications:

Non-bulk performance-oriented packaging and performance-oriented intermediate bulk containers will be used for storage of wastes. Containers used to store wastes will conform to the specifications from 49 CFR §178 SUBPART L – Non-bulk Performance-Oriented Packaging Standards for non-bulk performance-oriented containers and 49 CFR §178 SUBPART N – IBC Performance-Oriented Standards for intermediate bulk containers.

Types of wastes stored in containers:

Containers will be used to store the hazardous wastes listed in Volume 1, Part A, pages 5-21, which includes, but is not limited to corrosive, flammable, reactive, toxic, biohazard, polychlorinated biphenyl, and radioactive wastes.

C1.B CONDITION OF CONTAINERS

[R 299.9614 and 40 CFR §264.171]

Containers in use will be visually inspected each day of operation. Containers holding hazardous waste that are not in good condition (e.g., severe rusting, apparent structural defects) or are leaking shall be transferred to a container that is in good condition or otherwise manage the waste in compliance with R299.9614 and 40 CFR §264.171. The transfer of waste from container to container or from container to storage tank shall be accomplished by pumping, pouring, scooping, or other means appropriate for the waste. Precautions appropriate to the hazard class shall be observed during the transfer of material.

C1.C COMPATIBILITY OF WASTE WITH CONTAINERS

[R 299.9614 and 40 CFR §264.172]

Containers used shall be constructed of materials in compliance with 49 CFR §178 SUBPART L – Non-bulk Performance-Oriented Packaging Standards for non-bulk performance-oriented containers and 49 CFR §178 SUBPART N – IBC Performance-Oriented Standards for intermediate bulk containers. Ensuring the construction material(s) of containers and liners are compatible with the waste to be stored shall be accomplished by following the guidelines for compatibility presented in 49 CFR §PART 173, using generator provided knowledge, and using knowledge of chemical and physical properties of the materials.

C1.D MANAGEMENT OF CONTAINERS

[R 299.9614 and 40 CFR §264.173]

All containers holding hazardous waste shall remain closed during storage except when it is necessary to add or remove waste. Containers shall not be opened, handled, or stored in a manner that may cause them to rupture or leak.

Each container holding hazardous waste shall be labeled or clearly marked with the words "Hazardous Waste", the EPA waste identification number(s), and the date that it was accepted for storage. The labels on each container shall be clearly visible for inspection.

Containers smaller than 55 gallons shall not be stacked more than three high, and 55 gallon containers, IBC's, and cubic yard containers shall not be stacked more than two high unless they are stacked in an approved racking system. The labels on each stacked container shall be clearly visible for inspection.

C1.E INSPECTIONS

[R 299.9614 and 40 CFR §264.174]

Volume 1, Section A5 presents the schedule for inspection of containers and containment structures. Any deterioration or malfunction of containers or containment structures that an inspection reveals will be noted on the Daily Inspection Check Sheet and remedied to ensure that the problem does not lead to an environmental or human health hazard. The remediation will also be noted on the Daily Inspection Check List.

Containers shall be inspected each day of operation to verify that they are properly closed and to check their condition. Containers that show signs of structural defect, severe rusting, or have begun to leak shall be replaced and noted on the Daily Inspection Check Sheet. The procedure described in C1.B above will be followed during the transfer of waste from unfit containers.

The secondary containment structure of the container storage areas (DLS-1, DLS-2, DLS-3, and HWLB-1) shall be inspected daily for cracks and deterioration. Any cracks or deterioration will be noted on the Daily Inspection Check Sheet and remedied to ensure that the problem does not lead to an environmental or human health hazard. The remediation will also be noted on the Daily Inspection Check Sheet.

C1.F CONTAINMENT

[R 299.9614 and 40 CFR §264.175 and 270.15]

C1.F.1 Secondary Containment System Design and Operation for Containers with Free Liquids

[R 299.9614 and 40 CFR §264.175(a) and 270.15(a)]

Detailed design drawings for the secondary containment systems and container storage areas are provided in Volume 1, Attachments B6-1.0 – B6-1.7.

C1.F.1(a) Requirement for Base or Liner

[R 299.9614 and 40 CFR §264.175(b)(1) and 270.15(a)(1)]

DLD has four (4) separate containment areas designed for the storage of containers of hazardous waste. Each of these areas were designed and constructed to prevent the loss of free liquids into the environment. These areas are designated as DLS-1, DLS-2, DLS-3, and HWLB-1. Containment areas consist of concrete floors sloped to blind collection sumps on appropriate foundations with six (6)-inch curbing, walls, or ramps surrounding each area. As added insurance against seepage of liquid through the floor or curb/floor joints, the following measures have been taken:

(1) The floors of DLS-1, DLS-2, and the elevated portion of DLS-3 were sealed with a waterproof, petroleum base sealer.

(2) The walls and floor of the recessed portion of DLS-3 have been sealed with a two-part epoxy sealant.

(3) Curbing in DLS-1, DLS-2, and DLS-3 has been sealed with a two-part epoxy sealant.

Each containment area is regularly inspected to ensure that there has been no loss of integrity. Any deterioration or malfunction of containment structure that an inspection reveals will be noted on the Daily Inspection Check Sheet and remedied to ensure that the problem does not lead to a loss of free liquids to the environment. The remediation will also be noted on the Daily Inspection Check Sheet.

C1.F.1(b) Containment System Drainage

[R 299.9614 and 40 CFR §264.175(b)(2) and 270.15(a)(2)]

Containment areas consist of concrete floors sloped to blind collection sumps on appropriate foundations with six-(6) inch curbing or ramps surrounding each area. Liquids that accumulate as the result of a leak or spill are removed immediately upon detection and returned to a container for reprocessing. Accumulation due to precipitation is removed within 24 hours of detection and put in containers for analysis and/or processing. Accumulation due to floor condensation is removed as soon as possible after a thaw and put in containers for analysis and/or processing.

C1.F.1(c) Containment System Capacity

[R 299.9614 and 40 CFR §264.175(b)(3) and 270.15(a)(3)]

Containment Area DLS-1 will be limited to a maximum of 2,860 gallons of hazardous waste. The total containment capacity for DLS-1 is 2,893 gallons (see Volume 1, Attachment B6-1.2). The total containment capacity of 2,893 gallons exceeds the maximum storage limit of 2,860 gallons.

Containment Area DLS-2 will be limited to a maximum of 3,300 gallons of hazardous waste. The total containment capacity of DLS-2 is 4,822 gallons (see Volume 1, Attachment B6-1.3). The total containment capacity of 4,822 gallons exceeds the storage limit of 3,300 gallons.

Containment Area DLS-3 will be limited to a maximum of 42,500 gallons of hazardous waste. The total containment capacity of DLS-3 is 54,894 gallons (see Volume 1, Attachment B6-1.4). The total containment capacity of 54,894 gallons exceeds the storage limit of 42,500 gallons.

The hazardous waste loading bay (HWLB-1) containment area will be limited to a maximum of 5,200 gallons of hazardous waste. The total containment capacity for HLWB-1 is 5,210 gallons (see Volume 1, Attachment C1-1).

In each storage area, the containment system exceeds the minimum requirements with containment capacity greater than 100% of the volume of allowed containers.

C1.F.1(d) Control of Run-on

[R 299.9614 and 40 CFR §264.175(b)(4) and 270.15(a)(4)]

Containment Areas DLS-1, DLS-2, and DLS-3 are elevated 26 inches above ground level, covered by a roof, enclosed on three sides by walls, and surrounded by six-inch curbing or ramps. Because the areas are covered, elevated, and surrounded by curbing, no run-on occurs.

The hazardous waste loading bay (HWLB-1) containment area is covered by a roof and enclosed by three walls and a bay door that rests on a six-inch curb with a ramp that slopes into the containment area on the inside. Outside of the bay door is a ramp that slopes away from the containment area to control run-on during a storm event.

C1.F.1(e) Removal of Liquids from Containment System

[R 299.9614 and 40 CFR §264.175(b)(5) and 270.15(a)(5)]

Liquids that accumulate as the result of a leak or spill are removed immediately upon detection and returned to a container for reprocessing as hazardous waste. Accumulation due to precipitation is removed within 24 hours of detection and put in containers for analysis and/or processing. Accumulation due to floor condensation is removed as soon as possible after a thaw and put in containers for analysis and/or processing.

C1.F.2 Secondary Containment System Design and Operation for Containers with No Free Liquids

[R 299.9614 and 40 CFR §264.175 and 270.15(b)(1)]

DLD shall manage containers with no free liquids using the operating guidelines presented in Section C1.F.1.

C1.F.2(a) Containment System Drainage

[R 299.9614 and 40 CFR §264.175 and 270.15(b)(2)]

DLD shall manage containers with no free liquids using the operating guidelines presented in Section C1.F.1.

C1.F.2(b) Containment Management

[R 299.9614 and 40 CFR §264.175 and 270.15(b)(2)]

DLD shall manage containers with no free liquids using the operating guidelines presented in Section C1.F.1.

C1.G SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE

[R 299.9614 and 40 CFR §264.176 and 270.15(b)(2)]

As indicated in the Site Plan Blueprint (Volume 1, Attachment A1-1), Parcel 1B extends the property line an additional 74.87 feet from the concrete apron to the east of the DLD waste processing area. Volume 1, Attachment C1-2 illustrates that the containment areas where ignitable or reactive waste may be stored are 50 feet or more from any of the facility property lines.

Reactive wastes that meet the criteria for C4.C.7, Waste that is readily capable of detonation or explosive decomposition at standard temperature and pressure (40 CFR 261.23(a)(7)), and C4.C.8, Waste that is a forbidden explosive as defined in 49 CFR §173.51, or a Class A explosive as defined in 49 CFR §173.53, or a Class B explosive as defined in 49 CFR §173.88 (40 CFR 261.23(a)(8)), may be stored for immediate processing in DLS-3, DLS-5 (Volume 2), DLS-10 and DLS-11 (Volume 5). For long term storage of these materials see Volume 6, Part III, C1.

C1.H SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

[R 299.9614 and 40 CFR §264.177(c) and §270.15(b)(2)]

1. Prior to placing incompatible wastes or incompatible wastes and materials in the same container, DLD will comply with R 299.9605 and 40 CFR §264.177(b), by following the procedures specified in Volume 1, Section C4 of this license.

2. Prior to placing hazardous waste into a container that previously held an incompatible waste the container will be visually inspected to verify that it has been washed/cleaned. [R 299.9614 and 40 CFR §264.177(b)]

3. Containers of incompatible wastes in DLS-3 will be separated as indicated in the procedures contained in Volume 1, Sections A3 and C4. [R 299.9614 and 40 CFR §264.177(c)]

4. Compliance with Sections C1.H.1 and C1.H.2 will be documented and this documentation will be placed in the facility operating record. [R 299.9614 and 40 CFR §264.17(c)]

5. Storage areas for incompatible materials are illustrated in Volume 1, Attachment B6-1.4.

C1.I CLOSURE

[R 299.9614 and 40 CFR §264.178]

Removal of hazardous waste and hazardous waste residues from the containment systems will be accomplished by following the procedures for facility closure enumerated in Volume 1, Section A11.

FORM EQP 5111 TEMPLATE

C1: USE AND MANAGEMENT OF CONTAINERS

(Volume 2)

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.

R 299.9614 of 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 29.4101 to R 29.4505 promulgated pursuant to the provisions of the Michigan Fire Protection Act, PA 207, as amended (Act 207); and Title 40 of the Code of Federal Regulations (CFR) §270.14(d), 270.15, and Part 264, Subpart I, establish requirements for the use and management of containers. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for the use and management of containers at the *Drug & Laboratory, Inc. (DLD)* facility in *Plainwell,* Michigan. This template addresses the condition of containers, compatibility of waste with containers, management of containers, inspections, containment, special requirements for ignitable or reactive waste, special requirements for incompatible wastes, and closure.

(Check as appropriate)

Operating License Applicant:

☐ R 299.9614 use and management of containers

Construction Permit Applicant:

☒ R 299.9614 use and management of containers

Table of Contents

This template is organized as follows:

INTRODUCTION

The container standards are performance standards for containers and container storage areas. Completion of this template should result in a demonstration of how your facility will meet these standards.

Please note that Template C11, Subpart CC, Air Emissions from Tanks, Containers, and Surface Impoundments, addresses air emissions for containers. Also note that while specific closure requirements for container storage areas are addressed in this template, you may reference information in Template A11, Closure and Postclosure Plan.

C1.A DESCRIPTION OF CONTAINERS
[R 299.9614 and 40 CFR §264.171]

Containment Area DLS-5 will be used to store a maximum of 114,400 gallons of hazardous waste. This maximum total volume may be accumulated by any combination of containers up to and including 330 gallon intermediate bulk containers.

Container types and specifications:
Non-bulk performance-oriented packaging and performance-oriented intermediate bulk containers will be used for storage of wastes. Containers used to store wastes will conform to the specifications from 49 CFR §178 SUBPART L – Non-bulk Performance-Oriented Packaging Standards for non-bulk performance-oriented containers and 49 CFR §178 SUBPART N – IBC Performance-Oriented Standards for intermediate bulk containers.

Types of wastes stored in containers:
Containers will be used to store the hazardous wastes listed in Volume 1, Part A, pages 5-21, which includes, but is not limited to corrosive, flammable, reactive, toxic, biohazard, and radioactive wastes.

C1.B CONDITION OF CONTAINERS
[R 299.9614 and 40 CFR §264.171]

Containers in use will be visually inspected each day of operation. Containers holding hazardous waste that are not in good condition (e.g., severe rusting, apparent structural defects) or are leaking shall be transferred to a container that is in good condition or otherwise manage the waste in compliance with R299.9614 and 40 CFR §264.171. The transfer of waste from container to container or from container to storage tank shall be accomplished by pumping, pouring, scooping, or other means appropriate for the waste. Precautions appropriate to the hazard class shall be observed during the transfer of material.

C1.C COMPATIBILITY OF WASTE WITH CONTAINERS
[R 299.9614 and 40 CFR §264.172]

Containers used shall be constructed of materials in compliance with 49 CFR §178 SUBPART L – Non-bulk Performance-Oriented Packaging Standards for non-bulk performance-oriented containers and 49 CFR §178 SUBPART N – IBC Performance-Oriented Standards for

intermediate bulk containers. Ensuring the construction material(s) of containers and liners are compatible with the waste to be stored shall be accomplished by following the guidelines for compatibility presented in 49 CFR §PART 173, using generator provided knowledge, and using knowledge of chemical and physical properties of the materials.

C1.D MANAGEMENT OF CONTAINERS
[R 299.9614 and 40 CFR §264.173]

All containers holding hazardous waste shall remain closed during storage except when it is necessary to add or remove waste. Containers shall not be opened, handled, or stored in a manner that may cause them to rupture or leak.

Each container holding hazardous waste shall be labeled or clearly marked with the words "Hazardous Waste", the EPA waste identification number(s), and the date that it was accepted for storage. The labels on each container shall be clearly visible for inspection.

Containers smaller than 55 gallons shall not be stacked more than three high, 55 gallon containers, IBC's, and cubic yard containers shall not be stacked more than two high unless they are stacked in an approved racking system (see Volume 2, Attachment C1-50). The labels on each stacked container shall be visible for inspection.

C1.E INSPECTIONS
[R 299.9614 and 40 CFR §264.174]

Volume 1, Section A5 presents the schedule for inspection of containers and containment structures. Any deterioration or malfunction of containers or containment structures that an inspection reveals will be noted on the Daily Inspection Check Sheet and remedied to ensure that the problem does not lead to an environmental or human health hazard. The remediation will also be noted on the Daily Inspection Check List.

Containers shall be inspected each day of operation to verify that they are properly closed and to check their condition. Containers that show signs of structural defect, severe rusting, or have begun to leak shall be replaced and noted on the Daily Inspection Check Sheet. The procedure described in C1.B above will be followed during the transfer of waste from unfit containers.

The secondary containment structure of container storage area DLS-5 shall be inspected daily for cracks and deterioration. Any cracks or deterioration will be noted on the Daily Inspection Check Sheet and remedied to ensure that the problem does not lead an environmental or human health hazard. The remediation will also be noted on the Daily Inspection Check Sheet.

C1.F CONTAINMENT
[R 299.9614 and 40 CFR §264.175 and 270.15]

C1.F.1 Secondary Containment System Design and Operation for Containers with Free Liquids
[R 299.9614 and 40 CFR §264.175(a) and 270.15(a)]

Detailed design drawings for the DLS-5 secondary containment systems and container storage areas are provided in Volume 2, Attachments B6-50.1 – B6-50.3.

C1.F.1(a) Requirement for Base or Liner
[R 299.9614 and 40 CFR §264.175(b)(1) and 270.15(a)(1)]

The DLS-5 containment area was designed and constructed to prevent the loss of free liquids into the environment. It consists of a concrete floor sloped to blind a collection sump on appropriate foundations with curbing or ramps surrounding the area. The joint where the floor of DLS-5 meets the elevated portion of the containment area was constructed using a chemical resistant water stop.

To prevent seepage of liquid through the floor or floor joints, the concrete in DLS-5 was formulated using calcium stearate as a hydrophobic additive (see Volume 2, Attachments C1-51.3 and C1-51.4) to reduce the volume of permeable voids in the concrete.

As a concrete additive, calcium stearate fills pores and micro-fractures that limits or prevents the capillary action that draws fluid into the concrete. In applications where concrete is subjected to hydrostatic and/or hydraulic pressure, calcium stearate acts as a plug that prevents liquid penetration into the concrete.

In addition to being insoluble in water, calcium stearate is resistant to chemical attack (see Volume 2, Attachments C1-51.5 and C1-51.6). It is insoluble in most solvents, including alcohol, acetone, ether, and chloroform, and is only slightly soluble in hot alcohol, hot aromatic compounds, hot chlorinated hydrocarbons, hot vegetable and mineral oils, and hot waxes. Calcium stearate is, however, soluble in hot pyridine.

Since DLD does not normally process heated liquid waste and leaks/spills are cleaned up as soon as they are detected (see Volume 2, *Section* C1.F.1(e), Removal of Liquids from Containment System), the admixture of calcium stearate should sufficiently render the concrete work surfaces impervious to seepage.

DLS-5 is regularly inspected to ensure that there has been no loss of integrity. Any deterioration or malfunction of containment structure that an inspection reveals will be noted on the Daily Inspection Check List and remedied to ensure that the problem does not lead to a loss of free liquids to the environment. The remediation will also be noted on the Daily Inspection Check List.

C1.F.1(b) Containment System Drainage
[R 299.9614 and 40 CFR §264.175(b)(2) and 270.15(a)(2)]

The floor of DLS-5 is sloped from the west to the east of the containment area. On the east end of DLS-5 there is a blind trench-sump for the easy removal of accumulated liquids. Liquids that accumulate as the result of a leak or spill are removed immediately upon detection and returned to a container for reprocessing. Accumulation due to precipitation is removed within 24 hours of detection and put in containers for analysis and/or processing.

Please note that DLS-5 is not climate controlled and condensation may form on storage containers with changes in the weather. Accumulation due to condensation is removed as soon as possible after a thaw and put in containers for analysis and/or processing.

C1.F.1(c) Containment System Capacity
[R 299.9614 and 40 CFR §264.175(b)(3) and §270.15(a)(3)]

DLD proposes to limit the DLS-5 containment area to a maximum of 114,400 gallons of containerized waste containing free liquids. Following regulation 40 CFR §264.175(b)(3), this area would require a total containment capacity of 11,440 gallons (10% of the volume of containers). The total containment capacity of DLS-5 is 41,805 gallons which exceeds the regulatory required capacity by approximately 30,000 gallons. (See DLS-5 floor plan drawing in Volume 2, Attachment B6-50.1, and containment calculations shown in Volume 2, Attachment C1-52)

C1.F.1(d) Control of Run-on
[R 299.9614 and 40 CFR §264.175(b)(4) and 270.15(a)(4)]

DLS-5 is covered by a roof, enclosed on three sides (east, west, and south), and surrounded by six-inch to eight-inch curbing or ramps. The curbing on the north side of DLS-5 butts directly with concrete slabs that slope away from the area to control run-on from that direction.

C1.F.1(e) Removal of Liquids from Containment System
[R 299.9614 and 40 CFR §264.175(b)(5) and 270.15(a)(5)]

Liquids that accumulate as the result of a leak or spill are removed immediately upon detection and returned to a container for reprocessing as hazardous waste. Accumulation due to precipitation are removed within 24 hours of detection and put in containers for analysis and/or processing. Accumulation due to condensation are removed as soon as possible after a thaw and put in containers for analysis and/or processing. Containers of accumulated precipitation and condensation will be analyzed for heavy metal and volatile organic solvent contamination to determine if they will be processed as hazardous or non-hazardous wastes.

C1.F.2 Secondary Containment System Design and Operation for Containers with No Free Liquids
[R 299.9614 and 40 CFR §264.175 and 270.15(b)(1)]

DLD shall manage containers with no free liquids using the operating guidelines presented in Volume 2, Section C1.F.1.

C1.F.2(a) Containment System Drainage
[R 299.9614 and 40 CFR §264.175 and 270.15(b)(2)]

DLD shall manage containers with no free liquids using the operating guidelines presented in Volume 2, Section C1.F.1.

C1.F.2(b) Containment Management
[R 299.9614 and 40 CFR §264.175 and 270.15(b)(2)]

DLD shall manage containers with no free liquids using the operating guidelines presented in Volume 2, Section C1.F.1.

C1.G SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE
[R 299.9614 and 40 CFR §264.176 and 270.15(b)(2)]

As indicated in the Site Plan blueprint (Volume 1, Attachment A1-1), Parcel B extends the property line an additional 74.87 feet from the concrete apron to the east of the DLD waste processing area. Volume 1, Attachment C1-2 illustrates that the containment areas where ignitable or reactive waste may be stored are 50 feet or more from any of the facility property lines.

C1.H SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES
[R 299.9614 and 40 CFR §264.177(c) and 270.15(b)(2)]

1. Prior to placing incompatible wastes or incompatible wastes and materials in the same container, DLD will comply with R 299.9605 and 40 CFR §264.177(b), by following the procedures specified in Volume 2, Section C4 of this license.

2. Prior to placing hazardous waste into a container that previously held an incompatible waste the container will be visually inspected to verify that it has been washed/cleaned. [R 299.9614 and 40 CFR §264.177(b)]

3. Containers of incompatible wastes in DLS-5 will be separated as indicated in the procedures contained in Volume 1, Section A3 and Volume 2, Section C4 of this license. [R 299.9614 and 40 CFR §264.177(c)]

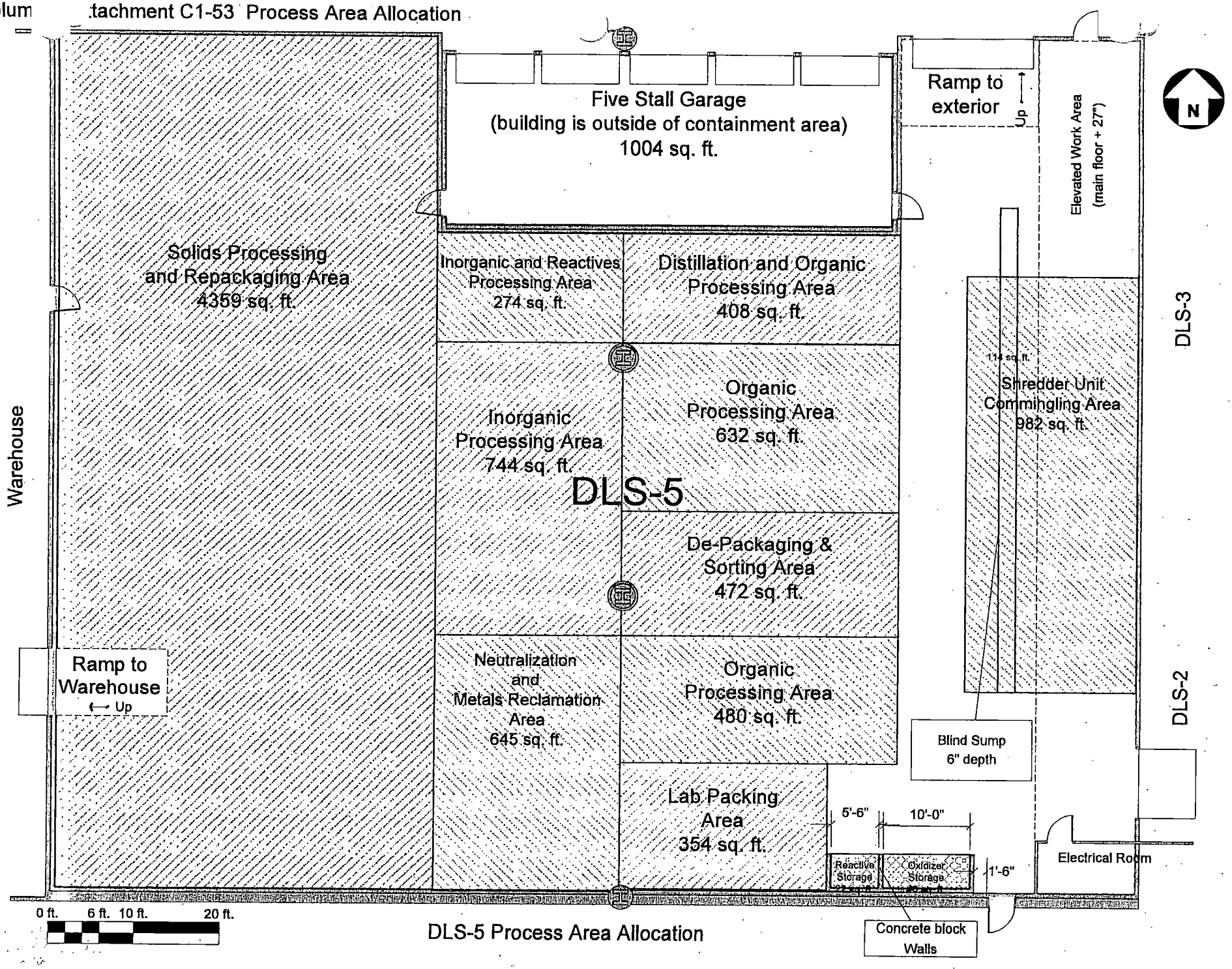
4. Compliance with Sections C1.H.1 and C1.H.2 will be documented and this documentation will be placed in the facility operating record. [R 299.9614 and 40 CFR §264.17(c)]

5. Storage for incompatible materials in DLS-5 is illustrated in Volume 2, Attachment C1-53. The portion of the rack system employed for storage of pyrophoric and water reactive compounds is enclosed on three sides by cement block walls to protect adjacent storage from fire should a reaction take place. The portion of the rack system employed for storage of oxidizing compounds is also enclosed on three sides by cement block walls to protect adjacent storage from fire should a reaction take place. The storage racks immediately adjacent to these areas are reserved for materials that are not flammable to further curtail the spread of fire.

C1.I CLOSURE

[R 299.9614 and 40 CFR §264.178]

Removal of hazardous waste and hazardous waste residues from the containment systems will be accomplished by following the procedures for facility closure enumerated in Volume 2, Section A11.



DLS-5 Process Area Allocation

FORM EQP 5111 TEMPLATE

C1: USE AND MANAGEMENT OF CONTAINERS

(Volume 6, Part I)

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.

R 299.9614 of 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 29.4101 to R 29.4505 promulgated pursuant to the provisions of the Michigan Fire Protection Act, PA 207, as amended (Act 207); and Title 40 of the Code of Federal Regulations (CFR) §270.14(d), 270.15, and Part 264, Subpart I, establish requirements for the use and management of containers. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for the use and management of containers at the *Drug & Laboratory, Inc. (DLD)* facility in *Plainwell,* Michigan. This template addresses the condition of containers, compatibility of waste with containers, management of containers, inspections, containment, special requirements for ignitable or reactive waste, special requirements for incompatible wastes, and closure.

(Check as appropriate)

Operating License Applicant:

☐ R 299.9614 use and management of containers

Construction Permit Applicant:

☒ R 299.9614 use and management of containers

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This template is organized as follows:

INTRODUCTION

The container standards are performance standards for containers and container storage areas. Completion of this template should result in a demonstration of how your facility will meet these standards.

Please note that Template C11, Subpart CC, Air Emissions from Tanks, Containers, and Surface Impoundments, addresses air emissions for containers. Also note that while specific closure requirements for container storage areas are addressed in this template, you may reference information in Template A11, Closure and Postclosure Plan.

C1.A DESCRIPTION OF CONTAINERS
[R 299.9614 and 40 CFR §264.171]

The Materials Control Enclosure containment area, referred to as DLS-6A (see Volume 6, Part I, Attachment B6-60.1), will be used to store a maximum of 1,600 gallons of hazardous waste. This maximum total volume may be accumulated by any combination of containers up to and including 330 gallon intermediate bulk containers.

The Materials Control Enclosure containment area, referred to as DLS-6B (see Volume 6, Part I, Attachment B6-60.2), will be used to store a maximum of 10,780 gallons of hazardous waste. This maximum total volume may be accumulated by any combination of containers up to and including 330 gallon intermediate bulk containers.

Container types and specifications:
Non-bulk performance-oriented packaging and performance-oriented intermediate bulk containers will be used for storage of wastes. Containers used to store wastes will conform to the specifications from 49 CFR §178 SUBPART L – Non-bulk Performance-Oriented Packaging Standards for non-bulk performance-oriented containers and 49 CFR §178 SUBPART N – IBC Performance-Oriented Standards for intermediate bulk containers.

Types of wastes stored in containers:
Containers will be used to store the hazardous wastes listed in Volume 1, Part A, pages 5-21, which includes, but is not limited to corrosive, flammable, reactive, toxic, and biohazard wastes.

C1.B CONDITION OF CONTAINERS
[R 299.9614 and 40 CFR §264.171]

Containers in use will be visually inspected each day of operation. Containers holding hazardous waste that are not in good condition (e.g., severe rusting, apparent structural defects, or are leaking) shall be transferred to a container that is in good condition or otherwise manage the waste in compliance with R299.9614 and 40 CFR §264.171. The transfer of waste from container to container or from container to storage tank shall be accomplished by pumping, pouring, scooping, or other means appropriate for the waste. Precautions appropriate to the hazard class shall be observed during the transfer of material.

C1.C COMPATIBILITY OF WASTE WITH CONTAINERS
[R 299.9614 and 40 CFR §264.172]

Containers used shall be constructed of materials in compliance with 49 CFR §178 SUBPART L – Non-bulk Performance-Oriented Packaging Standards for non-bulk performance-oriented containers and 49 CFR §178 SUBPART N – IBC Performance-Oriented Standards for intermediate bulk containers. Ensuring the construction material(s) of containers and liners are compatible with the waste to be stored shall be accomplished by following the guidelines for compatibility presented in 49 CFR Part 173, using generator provided knowledge, and using knowledge of chemical and physical properties of the materials.

C1.D MANAGEMENT OF CONTAINERS
[R 299.9614 and 40 CFR §264.173]

All containers holding hazardous waste shall remain closed during storage except when it is necessary to add or remove waste. Containers shall not be opened, handled, or stored in a manner that may cause them to rupture or leak.

Each container holding hazardous waste shall be labeled or clearly marked with the words "Hazardous Waste", the EPA waste identification number(s), and the date that it was accepted for storage. The labels on each container shall be clearly visible for inspection.

Containers smaller than 55 gallons shall not be stacked more than three high, 55 gallon containers shall not be stacked more than two high, and IBC's and cubic yard containers shall not be stacked more than two high unless stored in an approved rack system. The labels on each stacked container shall be visible for inspection.

C1.E INSPECTIONS
[R 299.9614 and 40 CFR §264.174]

Volume 1, Section A5 presents the schedule for inspection of containers and containment structures. Any deterioration or malfunction of containers or containment structures that an inspection reveals will be noted on the Daily Inspection Check List and remedied to ensure that the problem does not lead to an environmental or human health hazard. The remediation will also be noted on the Daily Inspection Check List.

Containers shall be inspected each day of operation to verify that they are properly closed and to check their condition. Containers that show signs of structural defect, severe rusting, or have begun to leak shall be replaced and noted on the Daily Inspection Check List. The procedure described in Section C1.B above will be followed during the transfer of waste from unfit containers.

The secondary containment structures of containment areas DLS-6A and DLS-6B shall be inspected daily for cracks and deterioration. Any cracks or deterioration will be noted on the Daily Inspection Check List and remedied to ensure that the problem does not lead an environmental or human health hazard. The remediation will also be noted on the Daily Inspection Check List.

C1.F CONTAINMENT
[R 299.9614 and 40 CFR §264.175 and 270.15]

In addition to regulations required in 40 CFR §264.175 and §270.15, the Materials Control Enclosure will also conform to 21 CFR §1301.72 (a) and (b) for Schedule I through V controlled substances.

C1.F.1 Secondary Containment System Design and Operation for Containers with Free Liquids
[R 299.9614 and 40 CFR §264.175(a) and 270.15(a)]

Detailed design drawings for the secondary containment systems and container storage areas are provided in Volume 6, Part I, Attachment B6-60.1 for DLS-6A and in Volume 6, Part I, Attachment B6-60.2 for DLS-6B.

C1.F.1(a) Requirement for Base or Liner
[R 299.9614 and 40 CFR §264.175(b)(1) and 270.15(a)(1)]

The containment areas designated as DLS-6A and DLS-6B are designed to prevent the loss of free liquids into the environment. They consist of concrete floors on appropriate foundations, sloped to blind collection sumps, with walls, curbing, and ramps surrounding the area to prevent the escape of free liquids to the environment. To prevent seepage of liquid through the floor or floor joints, the concrete in DLS-7 will be formulated using calcium stearate as a hydrophobic additive (see Volume 2, Attachments C1-51.3 and C1-51.4) to reduce the volume of permeable voids in the concrete.

As a concrete additive, calcium stearate fills pores and micro-fractures that limits or prevents the capillary action that draws fluid into the concrete. In applications where concrete is subjected to hydrostatic and/or hydraulic pressure, calcium stearate acts as a plug that prevents liquid penetration into the concrete.

In addition to being insoluble in water, calcium stearate is resistant to chemical attack (see Volume 2, Attachments C1-51.5 and C1-51.6). It is insoluble in most solvents, including alcohol, acetone, ether, and chloroform, and is only slightly soluble in hot alcohol, hot aromatic compounds, hot chlorinated hydrocarbons, hot vegetable and mineral oils, and hot waxes. Calcium stearate is, however, soluble in hot pyridine.

Since DLD does not normally process heated liquid waste and leaks/spills are cleaned up as soon as they are detected (see Volume 6, Part I, C1.F.1(e), Removal of Liquids from Containment System), the admixture of calcium stearate should sufficiently render the concrete work surfaces impervious to seepage.

The containment areas are regularly inspected to ensure that there has been no loss of integrity. Any deterioration or malfunction of containment structure that an inspection reveals will be noted on the Daily Inspection Check List and remedied to ensure that the problem does not lead to a loss of free liquids to the environment. The remediation will also be noted on the Daily Inspection Check List.

C1.F.1(b) Containment System Drainage
[R 299.9614 and 40 CFR §264.175(b)(2) and 270.15(a)(2)]

The floors of DLS-6A and DLS-6B will be sloped to blind sumps for the easy collection and removal of accumulated liquids. Liquids that accumulate as the result of a leak or spill are removed immediately upon detection and returned to a container for reprocessing.

Precipitation, melting snow or ice, and condensation from containers are other possible sources of accumulating liquids will be removed as soon as practicable. Accumulated liquids from these sources are either removed within 24 hours of detection, or as soon as practicable after the source of condensation/thaw have ceased, and are put in containers for analysis and/or processing.

C1.F.1(c) Containment System Capacity
[R 299.9614 and 40 CFR §264.175(b)(3) and 270.15(a)(3)]

DLS-6A will be limited to a maximum of 1,595 gallons of hazardous waste. The total containment capacity for DLS-6A is 1,635 gallons (see DLS-6A floor plan drawing in Volume 6, Part I, Attachment B6-60.2, and containment calculations shown in Volume 6, Part I, Attachment C1-60.1), which exceeds the proposed maximum storage limit of 1,595 gallons.

DLS-6B will be limited to a maximum of 10,780 gallons of hazardous waste. The total containment capacity for DLS-6B is 10,818 gallons (see DLS-6B floor plan drawing in Volume 6, Part I, Attachment B6-60.3, and containment calculations shown in Volume 6, Part I, Attachment C1-60.2), which exceeds the proposed maximum storage limit of 10,780 gallons.

C1.F.1(d) Control of Run-on
[R 299.9614 and 40 CFR §264.175(b)(4) and 270.15(a)(4)]

The DLS-6A containment area is housed completely within an existing building (see Volume 6, Part I, Attachment B6-60.1) which provides run-on control. The DLS-6A containment structure consists of a roof, four walls, and a ramp with a six inch rise that completes the containment area and facilitates access to the containment area, but also provides an additional deterrent to run-on during a storm event.

The DLS-6B containment area is housed completely within a building (see Volume 6, Part I, Attachment B6-60.2) which provides run-on control. The DLS-6B containment structure within the building provides a second layer of run-on control during a storm event.

C1.F.1(e) Removal of Liquids from Containment System
[R 299.9614 and 40 CFR §264.175(b)(5) and 270.15(a)(5)]

Liquids that accumulate as the result of a leak or spill are removed immediately upon detection and returned to a container for reprocessing as hazardous waste. Accumulation due to precipitation, snow/ice melt, and/or condensation on containers is possible. Accumulation of liquid from any of these sources are either removed within 24 hours of detection or as soon as practicable after the source of condensation/thaw has ceased and is put in containers for analysis and/or processing.

C1.F.2 Secondary Containment System Design and Operation for Containers with No Free Liquids
[R 299.9614 and 40 CFR §264.175 and 270.15(b)(1)]

DLD shall manage containers with no free liquids using the operating guidelines presented in C1.F.1.

C1.F.2(a) Containment System Drainage
[R 299.9614 and 40 CFR §264.175 and 270.15(b)(2)]

DLD shall manage containers with free liquids using the operating guidelines presented in Section C1.F.1.

C1.F.2(b) Containment Management
[R 299.9614 and 40 CFR §264.175 and 270.15(b)(2)]

DLD shall manage containers with free liquids using the operating guidelines presented in Section C1.F.1.

C1.G SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE
[R 299.9614 and 40 CFR §264.176 and 270.15(b)(2)]

For DLS-6A, the Site Plan Blueprint (Volume 1, Attachment A1-1) indicates that Parcel 1B extends the property line an additional 74.87 feet from the concrete apron to the east of the DLD waste processing area. Volume 1, Attachment C1-2 illustrates that the containment areas where ignitable or reactive waste may be stored are 50 feet or more from the facility property line.

For DLS-6B, the Site Development Plan blueprints (Volume 6, Attachment B6-60.1) indicates that the containment areas in the proposed new construction where ignitable or reactive waste may be stored are 50 feet or more from the facility property line.

C1.H SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

[R 299.9614 and 40 CFR §264.177(c) and 270.15(b)(2)]

1. Prior to placing incompatible wastes or incompatible wastes and materials in the same container, DLD will comply with R 299.9605 and 40 CFR §264.177(b), by following the procedures specified in Section C4 of this license.

2. Prior to placing hazardous waste into a container that previously held an incompatible waste the container will be visually inspected to verify that it has been washed/cleaned. [R 299.9614 and 40 CFR §264.177(b)]

3. Containers of incompatible wastes in DLS-6A will be separated as indicated in the procedures contained in Volume 1, Section A3 and Volume 1, Section C4 of this license. [R 299.9614 and 40 CFR §264.177(c)]

4. Compliance with Sections C1.H.1 and C1.H.2 will be documented and this documentation will be placed in the facility operating record. [R 299.9614 and 40 CFR §264.17(c)]

C1.I CLOSURE

[R 299.9614 and 40 CFR §264.178]

Removal of hazardous waste and hazardous waste residues from the containment systems will be accomplished by following the procedures for facility closure enumerated in Volume 1, Section A11.

FORM EQP 5111 TEMPLATE

C1: USE AND MANAGEMENT OF CONTAINERS

(Volume 6, Part II)

This document is an Section 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 Section.

R 299.9614 of 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 29.4101 to R 29.4505 promulgated pursuant to the provisions of the Michigan Fire Protection Act, PA 207, as amended (Act 207); and Title 40 of the Code of Federal Regulations (CFR) §270.14(d), 270.15, and Part 264, Subpart I, establish requirements for the use and management of containers. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for the use and management of containers at the *Drug & Laboratory, Inc. (DLD)* facility in *Plainwell,* Michigan. This template addresses the condition of containers, compatibility of waste with containers, management of containers, inspections, containment, special requirements for ignitable or reactive waste, special requirements for incompatible wastes, and closure.

(Check as appropriate)

Operating License Applicant:

☐ R 299.9614 use and management of containers

Construction Permit Applicant:

☒ R 299.9614 use and management of containers

Table of Contents

This template is organized as follows:

INTRODUCTION

The container standards are performance standards for containers and container storage areas. Completion of this template should result in a demonstration of how your facility will meet these standards.

Please note that Template C11, Subpart CC, Air Emissions from Tanks, Containers, and Surface Impoundments, addresses air emissions for containers. Also note that while specific closure requirements for container storage areas are addressed in this template, you may reference information in Template A11, Closure and Postclosure Plan.

C1.A DESCRIPTION OF CONTAINERS
[R 299.9614 and 40 CFR §264.171]

The containment area designated DLS-12 is designed to house railroad tank cars for use in the transport of hazardous waste. Secondary containment is provided in the event that the tank car should rupture or develop a leak.

Container types and specifications:

Rail cars up to 30,000 gallons in capacity will be housed for storage of hazardous waste prior to shipment from DLD to destination facilities. Rail cars used to transport wastes will conform to rail transport specifications.

Types of wastes stored in containers:

Containers will be used to store the hazardous wastes listed in Volume 1, Part A, pages 5-21, which includes, but is not limited to corrosive, flammable, reactive, toxic, biohazard, and radioactive wastes.

C1.B CONDITION OF CONTAINERS
[R 299.9614 and 40 CFR §264.171]

Tank cars in use will be visually inspected each day of operation. Tank cars holding hazardous waste that are deemed to not be in good condition (e.g., severe rusting, apparent structural defects, or leaking) shall have their contents transferred to a rail car that is in good condition or otherwise manage the waste in compliance with R299.9614 and 40 CFR §264.171.

The transfer of waste shall be accomplished by pumping, pouring, scooping, or other means appropriate for the waste. Precautions appropriate to the hazard class shall be observed during the transfer of material.

C1.C COMPATIBILITY OF WASTE WITH CONTAINERS
[R 299.9614 and 40 CFR §264.172]

Rail cars shall be constructed of materials that are compatible with, or will be lined with, materials that are compatible with the hazardous waste to be transported in them. Ensuring the construction material(s) of the rail cars are compatible with the waste to be stored shall be

accomplished by following the guidelines for compatibility presented in 49 CFR Part 173, using generator provided knowledge, or using knowledge of the chemical and physical properties of the materials.

C1.D MANAGEMENT OF CONTAINERS
[R 299.9614 and 40 CFR §264.173]

Rail cars holding hazardous waste shall remain closed during storage except when it is necessary to add or remove waste. Rail cars shall not be opened, handled, or stored in a manner that may cause them to rupture or leak.

Rail cars shall be labeled or clearly marked following Subpart D of 49 CFR Part 172. The labels on each container shall be clearly visible for inspection.

C1.E INSPECTIONS
[R 299.9614 and 40 CFR §264.174]

Volume 1, Section A5 presents the schedule for inspection of containers and containment structures. Any deterioration or malfunction of a rail car or containment structure that an inspection reveals will be noted on the Daily Inspection Check List and remedied to ensure that the problem does not lead to an environmental or human health hazard. The remediation will also be noted on the Daily Inspection Check List.

Rail cars shall be inspected each day of operation to verify that they are properly closed and to check their condition. Rail cars that show signs of structural defect, severe rusting, or have begun to leak shall be noted on the Daily Inspection Check List and actions appropriate to the remediation of the situation shall be undertaken, up to and including procuring another rail car to transfer the hazardous waste into. The procedure described in Section C1.B will be followed during the transfer of waste from unfit containers.

The secondary containment structure of DLS-12 shall be inspected daily for cracks and deterioration. Any cracks or deterioration will be noted on the Daily Inspection Check List and remedied to ensure that the problem does not lead an environmental or human health hazard. The remediation will also be noted on the Daily Inspection Check List.

C1.F CONTAINMENT
[R 299.9614 and 40 CFR §264.175 and 270.15]

C1.F.1 Secondary Containment System Design and Operation for Containers with Free Liquids
[R 299.9614 and 40 CFR §264.175(a) and 270.15(a)]

Detailed design drawings for the secondary containment system are provided in Volume 6, Part II, Attachments B6-120.0 through B6-120.9.

C1.F.1(a) Requirement for Base or Liner
[R 299.9614 and 40 CFR §264.175(b)(1) and 270.15(a)(1)]

The containment area designated DLS-12 is designed to prevent the loss of free liquids into the environment. It consists of a concrete floor sloped to a blind collection sump on appropriate foundations. To prevent seepage of liquid through the floor or floor joints, the concrete in DLS-7 will be formulated using calcium stearate as a hydrophobic additive (see Volume 2, Attachments C1-51.3 and C1-51.4) to reduce the volume of permeable voids in the concrete.

As a concrete additive, calcium stearate fills pores and micro-fractures that limits or prevents the capillary action that draws fluid into the concrete. In applications where concrete is subjected to hydrostatic and/or hydraulic pressure, calcium stearate acts as a plug that prevents liquid penetration into the concrete.

In addition to being insoluble in water, calcium stearate is resistant to chemical attack (see Volume 2, Attachments C1-51.5 and C1-51.6). It is insoluble in most solvents, including alcohol, acetone, ether, and chloroform, and is only slightly soluble in hot alcohol, hot aromatic compounds, hot chlorinated hydrocarbons, hot vegetable and mineral oils, and hot waxes. Calcium stearate is, however, soluble in hot pyridine.

Since DLD does not normally process heated liquid waste and leaks/spills are cleaned up as soon as they are detected (see Volume 6, Part II, C1.F.1(e), Removal of Liquids from Containment System), the admixture of calcium stearate should sufficiently render the concrete work surfaces impervious to seepage.

DLS-12 will be regularly inspected to ensure that there has been no loss of integrity. Any deterioration or malfunction of containment structure that an inspection reveals will be noted on the Daily Inspection Check List and remedied to ensure that the problem does not lead to a loss of free liquids to the environment. The remediation will also be noted on the Daily Inspection Check List.

C1.F.1(b) Containment System Drainage
[R 299.9614 and 40 CFR §264.175(b)(2) and 270.15(a)(2)]

The floor of DLS-12 will be sloped to a blind collection sump for ease of removal of accumulated liquids. Upon detection, an assessment will be made to determine the ability to safely remove the accumulated liquids from the secondary containment. Once the removal has been determined to be safe, liquids accumulated from a leak or spill will be removed immediately and returned to appropriate storage.

Precipitation, melting snow, and condensation from rail cars are other possible sources of accumulating liquids in DLS-12 will be removed as soon as practicable. As a precaution the safe removal of accumulated liquids will be determined prior to remediation. Once safety has been verified, accumulated liquids from these sources are either removed within 24 hours of detection, or as soon as possible after a thaw, or put in containers for analysis and/or processing.

C1.F.1(c) Containment System Capacity
[R 299.9614 and 40 CFR §264.175(b)(3) and 270.15(a)(3)]

DLS-12 is designed with a secondary containment volume of 30,715 gallons (see Volume 6, Part II, Attachment B6-120.5, Drawing Section 8). This containment volume exceeds the proposed capacity of a 30,000 gallon tank car.

C1.F.1(d) Control of Run-on
[R 299.9614 and 40 CFR §264.175(b)(4) and 270.15(a)(4)]

DLS-12 is fully enclosed structure with overhead doors on the north and south ends of the building to allow rail car access. Control of run-on is further enhanced by the exterior grade of the surrounding ground being sloped away from the structure.

C1.F.1(e) Removal of Liquids from Containment System
[R 299.9614 and 40 CFR §264.175(b)(5) and 270.15(a)(5)]

Upon detection of a leak or spill a safety assessment will be performed. Removal of liquids will not be undertaken until after this safety assessment. Once operations in the area are determined to be safe, liquids accumulated as the result of a leak or spill are removed and placed in a container(s) for analysis and/or re-processing.

Precipitation, melting snow, and condensation from rail cars are other possible sources of accumulating liquids in DLS-12. As a precaution the safe removal of accumulated liquids will be determined prior to remediation. Once safety has been verified, accumulated liquids from these sources are either removed within 24 hours of detection or as soon as possible after a thaw and put in containers for analysis and/or processing.

C1.F.2 Secondary Containment System Design and Operation for Containers with No Free Liquids
[R 299.9614 and 40 CFR §264.175 and 270.15(b)(1)]

DLS-12 shall be operated as a secondary containment structure for rail cars and, as such, containers with no free liquids will not be stored in this area.

C1.F.2(a) Containment System Drainage
[R 299.9614 and 40 CFR §264.175 and 270.15(b)(2)]

DLS-12 shall be operated as a secondary containment structure for rail cars and, as such, containers with free liquids will not be stored in this area.

C1.F.2(b) Containment Management
[R 299.9614 and 40 CFR §264.175 and 270.15(b)(2)]

DLS-12 shall be operated as a secondary containment structure for rail cars and, as such, containers with free liquids will not be stored in this area.

C1.G SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE

[R 299.9614 and 40 CFR §264.176 and 270.15(b)(2)]

As indicated in the Site Development Plan blueprint (Volume 6, Part II, Attachment B6-120.1), the containment areas where ignitable or reactive waste may be stored are 50 feet or more from the facility property line.

C1.H SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

[R 299.9614 and 40 CFR §264.177(c) and 270.15(b)(2)]

1. Prior to placing incompatible wastes or incompatible wastes and materials in the same container, DLD will comply with R 299.9605 and 40 CFR §264.177(b), by following the procedures specified in Volume 1, Section C4 of this license.

2. Prior to placing hazardous waste into a container that previously held an incompatible waste the container will be visually inspected to verify that it has been washed/cleaned. [R 299.9614 and 40 CFR §264.177(b)]

3. Containers of incompatible wastes in DLS-12 will be separated as indicated in the procedures contained in Volume 1, Section A3 and Volume 1, Section C4 of this license. [R 299.9614 and 40 CFR §264.177(c)]

4. Compliance with Sections C1.H.1 and C1.H.2 will be documented and this documentation will be placed in the facility operating record. [R 299.9614 and 40 CFR §264.17(c)]

C1.I CLOSURE

[R 299.9614 and 40 CFR §264.178]

Removal of hazardous waste and hazardous waste residues from the containment systems will be accomplished by following the procedures for facility closure enumerated in Volume 1, Section A11.

FORM EQP 5111 TEMPLATE

C1: USE AND MANAGEMENT OF CONTAINERS

(Volume 6, Part III)

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.

R 299.9614 of 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 29.4101 to R 29.4505 promulgated pursuant to the provisions of the Michigan Fire Protection Act, PA 207, as amended (Act 207); and Title 40 of the Code of Federal Regulations (CFR) §270.14(d), 270.15, and Part 264, Subpart I, establish requirements for the use and management of containers. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for the use and management of containers at the *Drug & Laboratory, Inc. (DLD)* facility in *Plainwell,* Michigan. This template addresses the condition of containers, compatibility of waste with containers, management of containers, inspections, containment, special requirements for ignitable or reactive waste, special requirements for incompatible wastes, and closure.

(Check as appropriate)

Operating License Applicant:

☐ R 299.9614 use and management of containers

Construction Permit Applicant:

☒ R 299.9614 use and management of containers

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The container standards are performance standards for containers and container storage areas. Completion of this template should result in a demonstration of how your facility will meet these standards.

Please note that Template C11, Subpart CC, Air Emissions from Tanks, Containers, and Surface Impoundments, addresses air emissions for containers. Also note that while specific closure requirements for container storage areas are addressed in this template, you may reference information in Template A11, Closure and Postclosure Plan.

C1.A DESCRIPTION OF CONTAINERS

[R 299.9614 and 40 CFR §264.171]

DLD proposes to use a Type 2 magazine, surrounded by a barricade, to store a maximum of 50 pounds of explosive materials (27 CFR 555.203 (b)). The combination of the Type 2 magazine and the barricade (the building in which the magazine will be placed) will be referred to as the Explosives Storage unit.

Container types and specifications:

Non-bulk performance-oriented packaging and performance-oriented intermediate bulk containers will be used for storage of wastes. Containers used to store wastes will conform to the specifications from 49 CFR §178 SUBPART L – Non-bulk Performance-Oriented Packaging Standards for non-bulk performance-oriented containers.

Types of wastes stored in containers:

Containers will be used to store hazardous wastes in the explosives magazine that meet the characteristics of reactivity listed in 40 CFR §261.23 (a)(6) through 40 CFR §261.23 (a)(8) and 40 CFR §261.23 (b), which includes, but is not limited to, readily capable of detonation or explosive decomposition.

C1.B CONDITION OF CONTAINERS

[R 299.9614 and 40 CFR §264.171]

Containers in use in the explosive magazine will be visually inspected each day of operation. Containers holding hazardous waste that are not in good condition (e.g., severe rusting, apparent structural defects) or are leaking shall be transferred to a container that is in good condition or otherwise manage the waste in compliance with R299.9614 and 40 CFR §264.171. The transfer of waste from container to container shall be accomplished following the requirements of 27 CFR §555.214 (c) and (d). Precautions appropriate to the hazard class shall be observed during the transfer of material.

C1.C COMPATIBILITY OF WASTE WITH CONTAINERS
[R 299.9614 and 40 CFR §264.172]

Containers used shall be constructed of materials in compliance with 49 CFR §178 SUBPART L – Non-bulk Performance-Oriented Packaging Standards for non-bulk performance-oriented containers. Ensuring the construction material(s) of containers and liners are compatible with the waste to be stored shall be accomplished by following the guidelines for compatibility presented in 49 CFR Part 173, using generator provided knowledge, and using knowledge of chemical and physical properties of the materials.

C1.D MANAGEMENT OF CONTAINERS
[R 299.9614 and 40 CFR §264.173]

All containers holding hazardous waste shall remain closed during storage except when it is necessary to add or remove waste. Containers shall not be opened, handled, or stored in a manner that may cause them to rupture or leak.

Explosive materials will also be handled in accordance to 27 CFR §555.214 (a) – (d). This regulation states that:

(1) Explosive materials within a magazine are not to be placed directly against interior walls and must be stored so as to not interfere with ventilation. To prevent contact of stored explosives materials with walls, a non-sparking lattice work or other non-sparking material may be used.

(2) Containers of explosive materials are to be stored so that marks are visible. Stocks of explosive materials are to be stored so they can be easily counted and checked upon inspection.

(3) Except with respect to fiberboard or other non-metal containers, containers of explosive materials are not to be unpacked or repacked inside a magazine to within 50 feet of a magazine, and must not be unpacked or repacked close to other explosive materials. Containers of explosive materials must be closed while being stored.

(4) Tools used for opening or closing containers of explosive materials are to be of non-sparking materials, except that metal slitters may be used for opening fiberboard containers. A wood wedge and fiber, rubber, or wooden mallet is to be used for opening or closing wood containers of explosive materials. Metal tools other that non-sparking transfer conveyors are not to be stored in any magazine containing high explosives.

In addition to the above regulation, each container holding hazardous waste shall be labeled or clearly marked with the words "Hazardous Waste", the EPA waste identification number(s), and the date that it was accepted for storage.

The explosives magazine is also required by 27 CFR §555.215 to be kept clean, dry, and free of grit, paper, empty packages, containers, and rubbish.

C1.E INSPECTIONS

[R 299.9614 and 40 CFR §264.174]

Volume 1, Section A5 presents the schedule for inspection of containers and containment structures. Any deterioration or malfunction of containers or containment structures that an inspection reveals will be noted on the Daily Inspection Check List and remedied to ensure that the problem does not lead to an environmental or human health hazard. The remediation will also be noted on the Daily Inspection Check List.

Containers shall be inspected each day of operation to verify that they are properly closed and to check their condition. Containers that show signs of structural defect, severe rusting, or have begun to leak shall be replaced and noted on the Daily Inspection Check List. The procedure described in Section C1.B above will be followed during the transfer of waste from unfit containers.

C1.F CONTAINMENT

[R 299.9614 and 40 CFR §264.175 and 270.15]

C1.F.1 Secondary Containment System Design and Operation for Containers with Free Liquids

[R 299.9614 and 40 CFR §264.175(a) and 270.15(a)]

Detailed design drawings for the secondary containment systems and container storage areas are provided in Volume 6, Part III, Attachments B6-EB.1 and B6-EB.2.

C1.F.1(a) Requirement for Base or Liner

[R 299.9614 and 40 CFR §264.175(b)(1) and 270.15(a)(1)]

The Explosives Storage unit is designed to prevent the loss of free liquids into the environment. It consists of a concrete floor sloped to a center collection point on appropriate foundations with curbing surrounding the area. To prevent seepage of liquid through the floor or floor joints, the concrete in DLS-7 will be formulated using calcium stearate as a hydrophobic additive (see Volume 2, Attachments C1-51.3 and C1-51.4) to reduce the volume of permeable voids in the concrete.

As a concrete additive, calcium stearate fills pores and micro-fractures that limits or prevents the capillary action that draws fluid into the concrete. In applications where concrete is subjected to hydrostatic and/or hydraulic pressure, calcium stearate acts as a plug that prevents liquid penetration into the concrete.

In addition to being insoluble in water, calcium stearate is resistant to chemical attack (see Volume 2, Attachments C1-51.5 and C1-51.6). It is insoluble in most solvents, including alcohol, acetone, ether, and chloroform, and is only slightly soluble in hot alcohol, hot aromatic compounds, hot chlorinated hydrocarbons, hot vegetable and mineral oils, and hot waxes. Calcium stearate is, however, soluble in hot pyridine.

Since DLD does not normally process heated liquid waste and leaks/spills are cleaned up as soon as they are detected (see Volume 6, Part III, C1.F.1(e), Removal of Liquids from Containment System), the admixture of calcium stearate should sufficiently render the concrete work surfaces impervious to seepage.

The Explosives Storage unit will be regularly inspected to ensure that there has been no loss of integrity. Any deterioration or malfunction of containment structure that an inspection reveals will be noted on the Daily Inspection Check List and remedied to ensure that the problem does not lead to a loss of free liquids to the environment. The remediation will also be noted on the Daily Inspection Check List.

C1.F.1(b) Containment System Drainage
[R 299.9614 and 40 CFR §264.175(b)(2) and 270.15(a)(2)]

The floor of the Explosives Storage unit is sloped to a center point to facilitate the removal of free liquids. Liquids that accumulate as the result of a leak or spill are removed immediately upon detection and returned to a container for storage until processing.

C1.F.1(c) Containment System Capacity
[R 299.9614 and 40 CFR §264.175(b)(3) and 270.15(a)(3)]

DLD proposes to limit storage in the Explosives Storage unit to a maximum of 50 pounds of explosive materials. The total containment capacity of the Explosives Storage unit is 412 gallons (see Explosive Storage plans drawing in Volume 6, Part III, Attachment B6-EB.1, and containment calculations shown in see Volume 6, Part III, Attachment C1-EB). Conservatively estimating that four (4) pounds of explosive materials would occupy a volume of one (1) gallon, this containment capacity exceeds the proposed storage capacity.

C1.F.1(d) Control of Run-on
[R 299.9614 and 40 CFR §264.175(b)(4) and 270.15(a)(4)]

The barricade that surrounds the Type 2 explosives magazine is designed as a fully enclosed structure that provides secondary containment. It will be covered by a roof, enclosed on all sides, and surrounded by six-inch to curbing. The area around the Explosives Storage unit will also be sloped away from the area to control run-on.

C1.F.1(e) Removal of Liquids from Containment System
[R 299.9614 and 40 CFR §264.175(b)(5) and 270.15(a)(5)]

Liquids that accumulate as the result of a leak or spill will be removed immediately upon detection and returned to a container for storage until processing. Accumulation due to precipitation is removed within 24 hours of detection and put in containers for analysis and/or processing. Accumulation due to condensation is removed as soon as possible after a thaw and put in containers for analysis and/or processing.

C1.F.2 Secondary Containment System Design and Operation for Containers with No Free Liquids
[R 299.9614 and 40 CFR §264.175 and 270.15(b)(1)]

DLD shall manage containers with no free liquids using the operating guidelines presented in Section C1.F.1.

C1.F.2(a) Containment System Drainage
[R 299.9614 and 40 CFR §264.175 and 270.15(b)(2)]

DLD shall manage containers with no free liquids using the operating guidelines presented in Section C1.F.1.

C1.F.2(b) Containment Management
[R 299.9614 and 40 CFR §264.175 and 270.15(b)(2)]

DLD shall manage containers with no free liquids using the operating guidelines presented in Section C1.F.1.

C1.G SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE
[R 299.9614 and 40 CFR §264.176 and 270.15(b)(2)]

The Master Site Plan blueprint (Volume 1, Attachment A1-1), indicates the location of the Explosives Storage unit. The placement of the Explosives Storage unit conforms to 40 CFR §264.176, which requires ignitable or reactive wastes to be stored 50 feet or more from the facility property line, and 27 CFR §555.218, which requires that a barricaded magazine with storage not exceeding 50 pounds of explosive materials be a minimum of: (1) 60 feet from a public highway with a traffic volume of 3000 or fewer vehicles per day; (2) 110 feet from passenger railways and public highways with a traffic volume of more than 3000 vehicles per day; and (3) 150 feet from all inhabited buildings.

C1.H SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES
[R 299.9614 and 40 CFR §264.177(c) and §270.15(b)(2)]

1. Prior to placing incompatible wastes or incompatible wastes and materials in the same container, DLD will comply with R 299.9605 and 40 CFR §264.177(b), by following the procedures specified in Volume 1, Section C4 of this license.

2. Prior to placing hazardous waste into a container that previously held an incompatible waste the container will be visually inspected to verify that it has been washed/cleaned. [R 299.9614 and 40 CFR §264.177(b)]

3. Containers of incompatible wastes will be separated as indicated in the procedures contained in Volume 1, Section A3 and Volume 1, Section C4 of this license. [R 299.9614 and 40 CFR §264.177(c)]

4. Compliance with Sections C1.H.1 and C1.H.2 will be documented and this documentation will be placed in the facility operating record. [R 299.9614 and 40 CFR §264.17(c)]

5. Quantity and storage restrictions for explosive materials in a Type 2 magazine will conform to 27 CFR §555.213(b)(2).

C1.I CLOSURE

[R 299.9614 and 40 CFR §264.178]

Removal of hazardous waste and hazardous waste residues from the containment systems will be accomplished by following the procedures for facility closure enumerated in Volume 1, Section A11.

FORM EQP 5111 TEMPLATE

C1: USE AND MANAGEMENT OF CONTAINERS

(Volume 3)

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.

R 299.9614 of 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 29.4101 to R 29.4505 promulgated pursuant to the provisions of the Michigan Fire Protection Act, PA 207, as amended (Act 207); and Title 40 of the Code of Federal Regulations (CFR) §§270.14(d), 270.15, and Part 264, Subpart I, establish requirements for the use and management of containers. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for the use and management of containers at the *Drug & Laboratory, Inc. (DLD)* facility in *Plainwell*, Michigan. This template addresses the condition of containers, compatibility of waste with containers, management of containers, inspections, containment, special requirements for ignitable or reactive waste, special requirements for incompatible wastes, and closure.

(Check as appropriate)

Operating License Applicant:

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C1.A DESCRIPTION OF CONTAINERS
[R 299.9614 and 40 CFR §264.171]

Containment area DLS-7 will be used to store a maximum of 105,600 gallons of hazardous waste – 90,000 gallons that may be stored in the tank system plus an additional 6,600 gallons of container storage. The 6,600 gallons of additional containerized waste storage may be accumulated by any combination of containers up to and including 330 gallon intermediate bulk containers.

Container types and specifications:
Non-bulk performance-oriented packaging and performance-oriented intermediate bulk containers will be used for storage of wastes. Containers used to store wastes will conform to the specifications from 49 CFR §178 SUBPART L – Non-bulk Performance-Oriented Packaging Standards for non-bulk performance-oriented containers and 49 CFR §178 SUBPART N – IBC Performance-Oriented Standards for intermediate bulk containers.

Types of wastes stored in containers:
Containers will be used to store the hazardous wastes listed in Volume 1, Part A, pages 5-21, which includes, but is not limited to corrosive, flammable, toxic, and biohazard wastes.

C1.B CONDITION OF CONTAINERS
[R 299.9614 and 40 CFR §264.171]

Containers in use will be visually inspected each day of operation. Containers holding hazardous waste that are not in good condition (e.g., severe rusting, apparent structural defects) or are leaking shall be transferred to a container that is in good condition or otherwise manage the waste in compliance with R299.9614 and 40 CFR §264.171. The transfer of waste from container to container or from container to storage tank shall be accomplished by pumping, pouring, scooping, or other means appropriate for the waste. Precautions appropriate to the hazard class shall be observed during the transfer of material.

C1.C COMPATIBILITY OF WASTE WITH CONTAINERS
[R 299.9614 and 40 CFR §264.172]

Containers used shall be constructed of materials in compliance with 49 CFR §178 SUBPART L – Non-bulk Performance-Oriented Packaging Standards for non-bulk performance-oriented containers and 49 CFR §178 SUBPART N – IBC Performance-Oriented Standards for intermediate bulk containers. Ensuring the construction material(s) of containers and liners are compatible with the waste to be stored shall be accomplished by following the guidelines for compatibility presented in 49 CFR §PART 173, using generator provided knowledge, and using knowledge of chemical and physical properties of the materials.

C1.D MANAGEMENT OF CONTAINERS
[R 299.9614 and 40 CFR §264.173]

All containers holding hazardous waste shall remain closed during storage except when it is necessary to add or remove waste. Containers shall not be opened, handled, or stored in a manner that may cause them to rupture or leak.

Each container holding hazardous waste shall be labeled or clearly marked with the words "Hazardous Waste", the EPA waste identification number(s), and the date that it was accepted for storage. The labels on each container shall be clearly visible for inspection.

Containers smaller than 55 gallons shall not be stacked more than three high, 55 gallon containers, IBC's, and cubic yard containers shall not be stacked more than two high unless they are stacked in an approved racking system. The labels on each stacked container shall be clearly visible for inspection.

C1.E INSPECTIONS
[R 299.9614 and 40 CFR §264.174]

Volume 1, Section A5 presents the schedule for inspection of containers and containment structures. Any deterioration or malfunction of containers or containment structures that an inspection reveals will be noted on the Daily Inspection Check Sheet and remedied to ensure that the problem does not lead to an environmental or human health hazard. The remediation will also be noted on the Daily Inspection Check List.

Containers shall be inspected each day of operation to verify that they are properly closed and to check their condition. Containers that show signs of structural defect, severe rusting, or have begun to leak shall be replaced and noted on the Daily Inspection Check Sheet. The procedure described in C1.B above will be followed during the transfer of waste from unfit containers.

The secondary containment structure of container storage area DLS-7 shall be inspected daily for cracks and deterioration. Any cracks or deterioration will be noted on the Daily Inspection Check Sheet and remedied to ensure that the problem does not lead an environmental or human health hazard. The remediation will also be noted on the Daily Inspection Check Sheet.

C1.F CONTAINMENT

[R 299.9614 and 40 CFR §§264.175 and 270.15]

C1.F.1 Secondary Containment System Design and Operation for Containers with Free Liquids

[R 299.9614 and 40 CFR §§264.175(a) and 270.15(a)]

Detailed design drawings for the secondary containment systems are provided in Volume 3, Attachment B6-70.

C1.F.1(a) Requirement for Base or Liner

[R 299.9614 and 40 CFR §§264.175(b)(1) and 270.15(a)(1)]

The DLS-7 containment area is designed to prevent the loss of free liquids into the environment. It consists of a concrete floor on appropriate foundations with curbing and/or ramps surrounding the area. The floor is sloped to drains that channel liquids to a collection vessel within a tank vault.

To prevent seepage of liquid through the floor or floor joints, the concrete in DLS-7 will be formulated using calcium stearate as a hydrophobic additive (see Volume 2, Attachments C1-51.3 and C1-51.4) to reduce the volume of permeable voids in the concrete. As a concrete additive, calcium stearate fills pores and micro-fractures that limits or prevents the capillary action that draws fluid into the concrete. In applications where concrete is subjected to hydrostatic and/or hydraulic pressure, calcium stearate acts as a plug that prevents liquid penetration into the concrete.

In addition to being insoluble in water, calcium stearate is resistant to chemical attack (see Volume 2, Attachments C1-51.5 and C1-51.6). It is insoluble in most solvents, including alcohol, acetone, ether, and chloroform, and is only slightly soluble in hot alcohol, hot aromatic compounds, hot chlorinated hydrocarbons, hot vegetable and mineral oils, and hot waxes. Calcium stearate is, however, soluble in hot pyridine.

Since DLD does not normally process heated liquid waste and leaks/spills are cleaned up as soon as they are detected (see Volume 3, C1.F.1(e), Removal of Liquids from Containment System), the admixture of calcium stearate should sufficiently render the concrete work surfaces impervious to seepage.

Chemical resistant water stops will be employed to prevent leakage through concrete joints.

In addition to using the hydrophobic/chemical resistant additive in the concrete, the walls and floor of each vault will be coated with a chemical resistant two-part epoxy for added protection against seepage and corrosion. Each vault will also be equipped with blind collection sumps to aid in the removal of accumulated liquids. Note that the main work floor will not receive the epoxy coating, but this coating will be applied in the tank vaults. Vault construction is detailed in Volume 3, Section C2: Tank Systems.

DLS-7 will be regularly inspected to ensure that there has been no loss of integrity. Any deterioration or malfunction of containment structure that an inspection reveals will be noted on the Daily Inspection Check Sheet and remedied to ensure that the problem does not lead to a loss of free liquids to the environment. The remediation will also be noted on the Daily Inspection Check Sheet.

C1.F.1(b) Containment System Drainage
[R 299.9614 and 40 CFR §§264.175(b)(2) and 270.15(a)(2)]

DLS-7 consists of a main work-level floor and three recessed tank vaults. The work-level floor is designed with drains that channel liquids to collection vessels within the tank vaults. Each vault has been designed with blind collection sumps to facilitate removal of accumulated liquids.

C1.F.1(c) Containment System Capacity
[R 299.9614 and 40 CFR §§264.175(b)(3) and 270.15(a)(3)]

DLD proposes to a store a maximum volume of 105,600 gallons of waste in DLS-7 – 90,000 gallons of which may be stored in the tank system and 6,600 gallons of additional waste that may be stored in containers. The total containment capacity of DLS-7 will be 105,925 gallons, which exceeds the proposed storage volume. (see DLS-7 floor plan drawing in Volume 3, Attachment B6-70.2, and containment calculations shown in Volume 3, Attachment C1-70)

C1.F.1(d) Control of Run-on
[R 299.9614 and 40 CFR §§264.175(b)(4) and 270.15(a)(4)]

DLS-7 is a completely enclosed secondary containment area. Exterior grades are sloped away from the containment curbing and doors remain closed during normal operations precluding run-on during a storm event.

C1.F.1(e) Removal of Liquids from Containment System
[R 299.9614 and 40 CFR §§264.175(b)(5) and 270.15(a)(5)]

Liquids that accumulate as the result of a leak or spill are removed immediately upon detection and returned to a container for reprocessing as hazardous waste. Accumulation due to condensation is removed as soon as possible after a thaw and put in containers for analysis and/or processing.

C1.F.2 Secondary Containment System Design and Operation for Containers with No Free Liquids
[R 299.9614 and 40 CFR §§264.175 and 270.15(b)(1)]

DLD shall manage containers with no free liquids using the operating guidelines presented in Section C1.F.1.

C1.F.2(a) Containment System Drainage
[R 299.9614 and 40 CFR §§264.175 and 270.15(b)(2)]

DLD shall manage containers with no free liquids using the operating guidelines presented in C1.F.1.

C1.F.2(a) Containment Management
[R 299.9614 and 40 CFR §§264.175 and 270.15(b)(2)]

DLD shall manage containers with no free liquids using the operating guidelines presented in C1.F.1.

C1.G SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE
[R 299.9614 and 40 CFR §§264.176 and 270.15(b)(2)]

As indicated in the Site Development Plan blueprints (Volume 3, Attachment B6-70.1), the containment areas where ignitable or reactive waste will be stored are 50 feet or more from the facility property line.

C1.H SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES
[R 299.9614 and 40 CFR §§264.177(c) and 270.15(b)(2)]

1. Prior to placing incompatible wastes or incompatible wastes and materials in the same container, DLD will comply with R 299.9605 and 40 CFR §264.177(b), by following the procedures specified in Volume 3, Section C4 of this license.

2. Prior to placing hazardous waste into a container that previously held an incompatible waste the container will be visually inspected to verify that it has been washed/cleaned. [R 299.9614 and 40 CFR §264.177(b)]

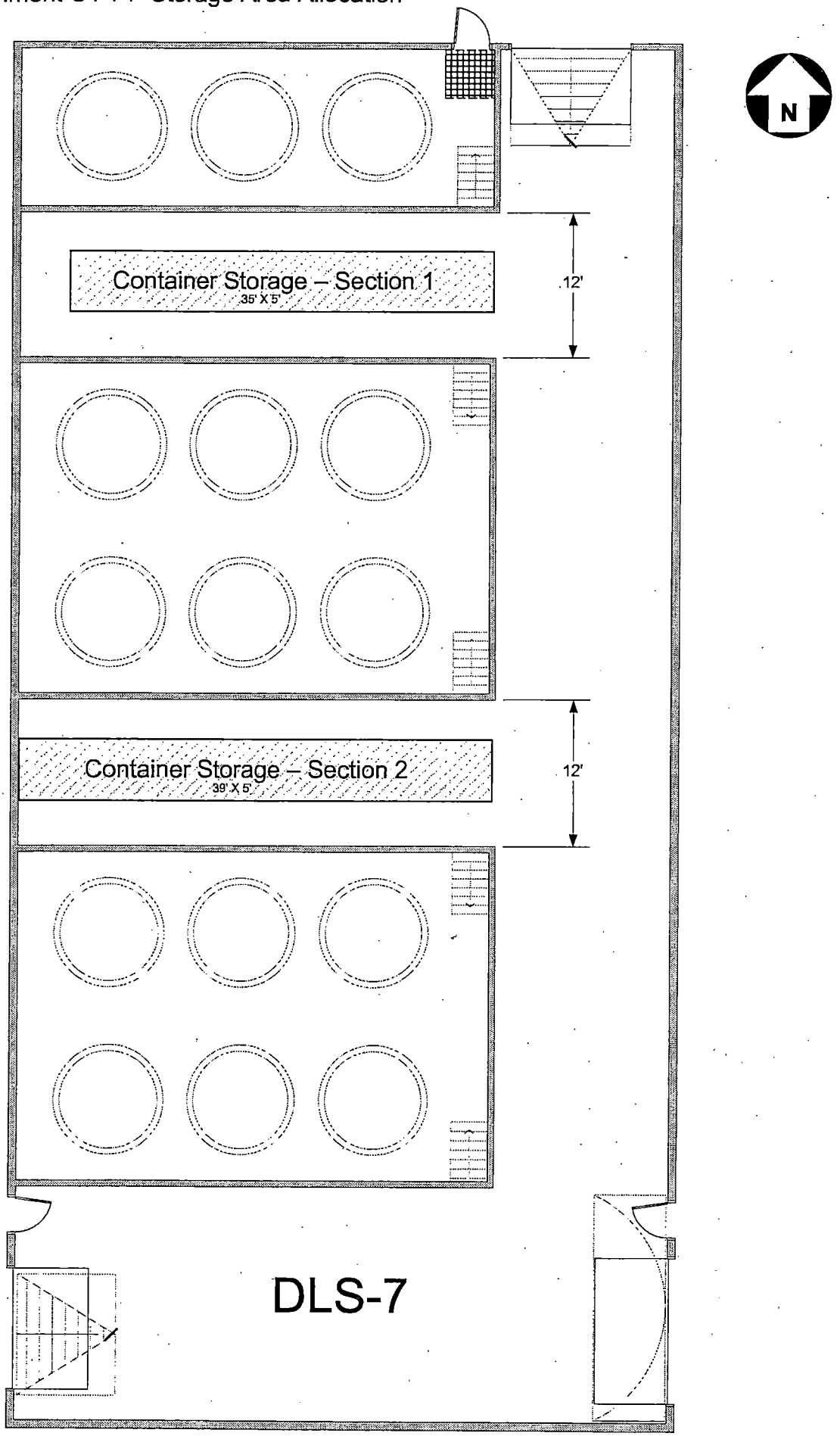
3. Containers of incompatible wastes in DLS-7 will be separated as indicated in the procedures contained in Volume 1, Section A3 and Volume 3, Section C4 and utilizing the guidelines presented in 40 CFR §264 Appendix V. The Storage Area Allocation diagram provided in Volume 3, Attachment C1-71 designates the areas in DLS-7 where waste may be stored. Storage Sections 1 and 2 provide separation for incompatible wastes. [R 299.9614 and 40 CFR §264.177(c)]

4. Compliance with C1.H.1 and C1.H.2 will be documented and this documentation will be placed in the facility operating record. [R 299.9614 and 40 CFR §264.17(c)]

5. Reactive wastes will not be stored in DLS-7.

C1.I CLOSURE
[R 299.9614 and 40 CFR §264.178]

Removal of hazardous waste and hazardous waste residues from the containment systems will be accomplished by following the procedures for facility closure enumerated in Volume 1, Section A11.


N
Container Storage – Section 1
35' X 5'
12'
Container Storage – Section 2
39' X 5'
12'
DLS-7

FORM EQP 5111 TEMPLATE

C1: USE AND MANAGEMENT OF CONTAINERS

(Volume 4)

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.

R 299.9614 of 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 29.4101 to R 29.4505 promulgated pursuant to the provisions of the Michigan Fire Protection Act, PA 207, as amended (Act 207); and Title 40 of the Code of Federal Regulations (CFR) §270.14(d), 270.15, and Part 264, Subpart I, establish requirements for the use and management of containers. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for the use and management of containers at the *Drug & Laboratory, Inc. (DLD)* facility in *Plainwell,* Michigan. This template addresses the condition of containers, compatibility of waste with containers, management of containers, inspections, containment, special requirements for ignitable or reactive waste, special requirements for incompatible wastes, and closure.

(Check as appropriate)

Operating License Applicant:

☐ R 299.9614 use and management of containers

Construction Permit Applicant:

☒ R 299.9614 use and management of containers

This template is organized as follows:

Table of Contents

This template is organized as follows:

INTRODUCTION

The container standards are performance standards for containers and container storage areas. Completion of this template should result in a demonstration of how your facility will meet these standards.

Please note that Template C11, Subpart CC, Air Emissions from Tanks, Containers, and Surface Impoundments, addresses air emissions for containers. Also note that while specific closure requirements for container storage areas are addressed in this template, you may reference information in Template A11, Closure and Postclosure Plan.

C1.A DESCRIPTION OF CONTAINERS

[R 299.9614 and 40 CFR §264.171]

DLS-8 will be used to park vehicles that are waiting to be unloaded or loaded, or preparing to leave the facility. It is designed to be the primary unloading and loading area for hazardous waste at DLD and will be used to store a maximum of 52,260 gallons of hazardous waste, including waste on vehicles. This maximum total volume may be accumulated by any combination of cargo truck contents, tanker truck contents, and up to 3,300 gallons in any combination of containers up to and including 330 gallon intermediate bulk containers.

The DLS-9 containment area will be used to store a maximum of 28,160 gallons of hazardous waste. This maximum total volume may be accumulated by any combination of containers up to and including 330 gallon intermediate bulk containers.

Container types and specifications:

Non-bulk performance-oriented packaging and performance-oriented intermediate bulk containers will be used for storage of wastes. Containers used to store wastes will conform to the specifications from 49 CFR §178 SUBPART L – Non-bulk Performance-Oriented Packaging Standards for non-bulk performance-oriented containers and 49 CFR §178 SUBPART N – IBC Performance-Oriented Standards for intermediate bulk containers.

Types of wastes stored in containers:

Containers will be used to store the hazardous wastes listed in Volume 1, Part A, pages 5-21, which includes, but is not limited to corrosive, flammable, reactive, toxic, biohazard, and radioactive wastes.

C1.B CONDITION OF CONTAINERS

[R 299.9614 and 40 CFR §264.171]

Containers in use will be visually inspected each day of operation. Containers holding hazardous waste that are not in good condition (e.g., severe rusting, apparent structural defects) or are leaking shall be transferred to a container that is in good condition or otherwise manage the waste in compliance with R299.9614 and 40 CFR §264.171. The transfer of waste from container to container or from container to storage tank shall be accomplished by pumping, pouring, scooping, or other means appropriate for the waste. Precautions appropriate to the hazard class shall be observed during the transfer of material.

C1.C COMPATIBILITY OF WASTE WITH CONTAINERS
[R 299.9614 and 40 CFR §264.172]

Containers used shall be constructed of materials in compliance with 49 CFR §178 SUBPART L – Non-bulk Performance-Oriented Packaging Standards for non-bulk performance-oriented containers and 49 CFR §178 SUBPART N – IBC Performance-Oriented Standards for intermediate bulk containers. Ensuring the construction material(s) of containers and liners are compatible with the waste to be stored shall be accomplished by following the guidelines for compatibility presented in 49 CFR §PART 173, using generator provided knowledge, and using knowledge of chemical and physical properties of the materials.

C1.D MANAGEMENT OF CONTAINERS
[R 299.9614 and 40 CFR §264.173]

All containers holding hazardous waste shall remain closed during storage except when it is necessary to add or remove waste. Containers shall not be opened, handled, or stored in a manner that may cause them to rupture or leak.

Each container holding hazardous waste shall be labeled or clearly marked with the words "Hazardous Waste", the EPA waste identification number(s), and the date that it was accepted for storage. The labels on each container shall be clearly visible for inspection.

Containers smaller than 55 gallons shall not be stacked more than three high, 55 gallon containers, IBC's, and cubic yard containers shall not be stacked more than two high unless they are stacked in an approved racking system. The labels on each stacked container shall be clearly visible for inspection.

C1.E INSPECTIONS
[R 299.9614 and 40 CFR §264.174]

Volume 1, Section A5 presents the schedule for inspection of containers and containment structures. Any deterioration or malfunction of containers or containment structures that an inspection reveals will be noted on the Daily Inspection Check Sheet and remedied to ensure that the problem does not lead to an environmental or human health hazard. The remediation will also be noted on the Daily Inspection Check Sheet.

Containers shall be inspected each day of operation to verify that they are properly closed and to check their condition. Containers that show signs of structural defect, severe rusting, or have begun to leak shall be replaced and noted on the Daily Inspection Check Sheet. The procedure described in C1.B above will be followed during the transfer of waste from unfit containers.

The secondary containment structure of both DLS-8 and DLS-9 shall be inspected daily for cracks and deterioration. Any cracks or deterioration will be noted on the Daily Inspection Check Sheet and remedied to ensure that the problem does not lead an environmental or human health hazard. The remediation will also be noted on the Daily Inspection Check Sheet.

C1.F CONTAINMENT
[R 299.9614 and 40 CFR §264.175 and 270.15]

C1.F.1 Secondary Containment System Design and Operation for Containers with Free Liquids
[R 299.9614 and 40 CFR §264.175(a) and 270.15(a)]

Detailed design drawings for the secondary containment systems and container storage areas are provided in Volume 4, Section B6. Note that the primary purpose of the DLS-8 containment area is to function as a dock bay for loading and unloading vehicles. Secondary containment is provided as a precaution in the event that a vehicle is carrying a leaky or ruptured container.

C1.F.1(a) Requirement for Base or Liner
[R 299.9614 and 40 CFR §264.175(b)(1) and 270.15(a)(1)]

The containment areas designated DLS-8 and DLS-9 are designed to prevent the loss of free liquids into the environment. They consist of concrete floors sloped to blind collection sumps on appropriate foundations with walls and ramps surrounding the area. The concrete will be formulated using calcium stearate to ensure containment of leaks, spills, and accumulated liquids until they are detected and removed.

Calcium stearate is a hydrophobic additive (see Volume 2, Attachments C1-51.3 and C1-51.4) that reduces the volume of permeable voids in concrete. As a concrete additive, calcium stearate fills pores and micro-fractures that limits or prevents the capillary action that draws fluid into the concrete. In applications where concrete is subjected to hydrostatic and/or hydraulic pressure, calcium stearate acts as a plug that prevents liquid penetration into the concrete.

In addition to being insoluble in water, calcium stearate is resistant to chemical attack (see Volume 2, Attachments C1-51.5 and C1-51.6). It is insoluble in most solvents, including alcohol, acetone, ether, and chloroform, and is only slightly soluble in hot alcohol, hot aromatic compounds, hot chlorinated hydrocarbons, hot vegetable and mineral oils, and hot waxes. Calcium stearate is, however, soluble in hot pyridine.

Since DLD does not normally process heated liquid waste and leaks/spills are cleaned up as soon as they are detected (see Volume 4, C1.F.1(e), Removal of Liquids from Containment System), the admixture of calcium stearate should sufficiently render the concrete work surfaces impervious to seepage.

DLS-8 and DLS-9 are regularly inspected to ensure that there has been no loss of integrity. Any deterioration or malfunction of a containment structure that an inspection reveals will be noted on the Daily Inspection Check Sheet and remedied to ensure that the problem does not lead to a loss of free liquids to the environment. The remediation will also be noted on the Daily Inspection Check Sheet.

C1.F.1(b) Containment System Drainage
[R 299.9614 and 40 CFR §264.175(b)(2) and 270.15(a)(2)]

The floors of DLS-8 and DLS-9 will be sloped to blind collection sumps in the containment areas for the easy collection and removal of accumulated liquids. Liquids that accumulate from a leak or spill are removed immediately upon detection and returned to a container for reprocessing.

Precipitation and melting snow carried in with vehicles and condensation from containers are other possible sources of accumulating liquids in these areas. Accumulated liquids from these sources are either removed within 24 hours of detection or as soon as possible after a thaw and put in containers for analysis and/or processing.

C1.F.1(c) Containment System Capacity
[R 299.9614 and 40 CFR §264.175(b)(3) and 270.15(a)(3)]

The DLS-8 containment area will be limited to a maximum of 52,260 gallons of hazardous waste. According to 40 CFR §264.175(b)(3), this area would require a total containment capacity of 5,226 gallons (10% of the volume of containers). The total containment capacity for DLS-8 is 8,440 gallons, which exceeds the regulatory required capacity by approximately 2000 gallons. Additionally, the maximum capacity for tanker trucks parked or stored in DLS-8 may not exceed 8,440 gallons.

DLD proposes to limit the DLS-9 containment area to a maximum of 28,160 gallons of hazardous waste. Following regulation 40 CFR §264.175(b)(3), this area would require a total containment capacity of 2,816 gallons (10% of the volume of containers). The total containment capacity for DLS-9 is 19,304 gallons, which exceeds the required capacity by approximately 16,000 gallons.

(See DLS-8 & DLS-9 floor plan drawing in Volume 4, Attachment B6-80.2, and containment calculations shown in Volume 4, Attachments C1-80 and Attachment C1-90.)

C1.F.1(d) Control of Run-on
[R 299.9614 and 40 CFR §264.175(b)(4) and 270.15(a)(4)]

DLS-8 and DLS-9 are located within an enclosed structure with run-on control provided by an exterior grade that slopes away from the containment area. Vehicle access is accomplished through nine (9) bay doors that remain closed during a storm event. The sloping grade and exterior of the building/doors control run-on to the containment area.

C1.F.1(e) Removal of Liquids from Containment System
[R 299.9614 and 40 CFR §264.175(b)(5) and 270.15(a)(5)]

Liquids that accumulate as the result of a leak or spill are removed immediately upon detection and returned to a container for reprocessing as hazardous waste. Accumulation due to precipitation and snow melt are removed within 24 hours of detection and put in containers for analysis and/or processing. Accumulation due to condensation is removed as soon as possible after a thaw and put in containers for analysis and/or processing. Containers of

accumulated precipitation and condensation will be analyzed for heavy metal and volatile organic solvent contamination to determine if they will be processed as hazardous or non-hazardous wastes.

C1.F.2 Secondary Containment System Design and Operation for Containers with No Free Liquids

[R 299.9614 and 40 CFR §264.175 and 270.15(b)(1)]

DLD shall manage containers with no free liquids using the operating guidelines presented in Volume 4, Section C1.F.1.

C1.F.2(a) Containment System Drainage

[R 299.9614 and 40 CFR §264.175 and 270.15(b)(2)]

DLD shall manage containers with no free liquids using the operating guidelines presented in Volume 4, Section C1.F.1.

C1.F.2(b) Containment Management

[R 299.9614 and 40 CFR §264.175 and 270.15(b)(2)]

DLD shall manage containers with no free liquids using the operating guidelines presented in Volume 4, Section C1.F.1.

C1.G SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE

[R 299.9614 and 40 CFR §264.176 and 270.15(b)(2)]

As indicated in the Site Development Plan blueprint (Volume 4, Attachment B6-80.1), the containment areas where ignitable or reactive waste may be stored are 50 feet or more from the facility property line.

C1.H SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

[R 299.9614 and 40 CFR §264.177(c) and 270.15(b)(2)]

1. Prior to placing incompatible wastes or incompatible wastes and materials in the same container, DLD will comply with R 299.9605 and 40 CFR §264.177(b), by following the procedures specified in Volume 1, Section C4 of this license.

2. Prior to placing hazardous waste into a container that previously held an incompatible waste the container will be visually inspected to verify that it has been washed/cleaned. [R 299.9614 and 40 CFR §264.177(b)]

3. Containers of incompatible wastes will be separated as indicated in the procedures contained in Volume 1, Section A3 and Volume 1, Section C4 of this license. [R 299.9614 and 40 CFR §264.177(c)]

4. Compliance with C1.H.1 and C1.H.2 will be documented and this documentation will be placed in the facility operating record. [R 299.9614 and 40 CFR §264.17(c)]

C1.I CLOSURE

[R 299.9614 and 40 CFR §264.178]

Removal of hazardous waste and hazardous waste residues from the containment systems will be accomplished by following the procedures for facility closure enumerated in Volume 1, Section A11.

FORM EQP 5111 TEMPLATE

C1: USE AND MANAGEMENT OF CONTAINERS

(Volume 5)

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.

R 299.9614 of 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 29.4101 to R 29.4505 promulgated pursuant to the provisions of the Michigan Fire Protection Act, PA 207, as amended (Act 207); and Title 40 of the Code of Federal Regulations (CFR) §§270.14(d), 270.15, and Part 264, Subpart I, establish requirements for the use and management of containers. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for the use and management of containers at the *Drug & Laboratory, Inc. (DLD)* facility in *Plainwell,* Michigan. This template addresses the condition of containers, compatibility of waste with containers, management of containers, inspections, containment, special requirements for ignitable or reactive waste, special requirements for incompatible wastes, and closure.

(Check as appropriate)

Operating License Applicant:

☐ R 299.9614 use and management of containers

Construction Permit Applicant:

☒ R 299.9614 use and management of containers

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This template is organized as follows:

INTRODUCTION

The container standards are performance standards for containers and container storage areas. Completion of this template should result in a demonstration of how your facility will meet these standards.

Please note that Template C11, Subpart CC, Air Emissions from Tanks, Containers, and Surface Impoundments, addresses air emissions for containers. Also note that while specific closure requirements for container storage areas are addressed in this template, you may reference information in Template A11, Closure and Postclosure Plan.

C1.A DESCRIPTION OF CONTAINERS

[R 299.9614 and 40 CFR §264.171]

The containment area designated DLS-10, will be used to store a maximum of 94,500 gallons of hazardous waste. This maximum total volume may be accumulated by any combination of containers up to and including 330 gallon intermediate bulk containers.

The containment area referred to as DLS-11 will be used to store a maximum of 52,250 gallons of hazardous waste. This maximum total volume may be accumulated by any combination of containers up to and including 330 gallon intermediate bulk containers.

Container types and specifications:

Non-bulk performance-oriented packaging and performance-oriented intermediate bulk containers will be used for storage of wastes. Containers used to store wastes will conform to the specifications from 49 CFR §178 SUBPART L – Non-bulk Performance-Oriented Packaging Standards for non-bulk performance-oriented containers and 49 CFR §178 SUBPART N – IBC Performance-Oriented Standards for intermediate bulk containers.

Types of wastes stored in containers:

Containers will be used to store the hazardous wastes listed in Volume 1, Part A, pages 5-21, which includes, but is not limited to corrosive, flammable, reactive, toxic, biohazard, and radioactive wastes.

C1.B CONDITION OF CONTAINERS

[R 299.9614 and 40 CFR §264.171]

Containers in use will be visually inspected each day of operation. Containers holding hazardous waste that are not in good condition (e.g., severe rusting, apparent structural defects) or are leaking shall be transferred to a container that is in good condition or otherwise manage the waste in compliance with R299.9614 and 40 CFR §264.171. The transfer of waste from container to container or from container to storage tank shall be accomplished by pumping, pouring, scooping, or other means appropriate for the waste. Precautions appropriate to the hazard class shall be observed during the transfer of material.

C1.C COMPATIBILITY OF WASTE WITH CONTAINERS
[R 299.9614 and 40 CFR §264.172]

Containers used shall be constructed of materials in compliance with 49 CFR §178 SUBPART L – Non-bulk Performance-Oriented Packaging Standards for non-bulk performance-oriented containers and 49 CFR §178 SUBPART N – IBC Performance-Oriented Standards for intermediate bulk containers. Ensuring the construction material(s) of containers and liners are compatible with the waste to be stored shall be accomplished by following the guidelines for compatibility presented in 49 CFR §PART 173, using generator provided knowledge, and using knowledge of chemical and physical properties of the materials.

C1.D MANAGEMENT OF CONTAINERS
[R 299.9614 and 40 CFR §264.173]

All containers holding hazardous waste shall remain closed during storage except when it is necessary to add or remove waste. Containers shall not be opened, handled, or stored in a manner that may cause them to rupture or leak.

Each container holding hazardous waste shall be labeled or clearly marked with the words "Hazardous Waste", the EPA waste identification number(s), and the date that it was accepted for storage. The labels on each contain
er shall be clearly visible for inspection.

Containers smaller than 55 gallons shall not be stacked more than three high, 55 gallon containers, IBC's, and cubic yard containers shall not be stacked more than two high unless they are stacked in an approved racking system (see Volume 2, Attachment C1-50). The labels on each stacked container shall be visible for inspection.

A provisional layout of the rack system proposed for DLS-10 is provided in Volume 5, Attachment C1-101. As areas in DLS-10 that are designated for treatment become active (see Volume 5, C4.K, Process Area Allocation), the placement of the rack system will be reapportioned to comply with the storage limitations presented in Volume 5, C4.K.2, Storage Within Pods.

A provisional layout of the rack system proposed has also been provided for DLS-11 in Volume 5, Attachment C1-111. The placement of the rack system will be apportioned as needed for equipment and treatment needs (see Volume 5, C4.K, Process Area Allocation).

C1.E INSPECTIONS
[R 299.9614 and 40 CFR §264.174]

Volume 1, Section A5 presents the schedule for inspection of containers and containment structures. Any deterioration or malfunction of containers or containment structures that an inspection reveals will be noted on the Daily Inspection Check Sheet and remedied to ensure that the problem does not lead to an environmental or human health hazard. The remediation will also be noted on the Daily Inspection Check Sheet.

Containers shall be inspected each day of operation to verify that they are properly closed and to check their condition. Containers that show signs of structural defect, severe rusting, or have begun to leak shall be replaced and noted on the Daily Inspection Check Sheet. The procedure described in C1.B above will be followed during the transfer of waste from unfit containers.

The secondary containment structure of container storage area DLS-10 shall be inspected daily for cracks and deterioration. Any cracks or deterioration will be noted on the Daily Inspection Check Sheet and remedied to ensure that the problem does not lead an environmental or human health hazard. The remediation will also be noted on the Daily Inspection Check Sheet.

C1.F CONTAINMENT

[R 299.9614 and 40 CFR §§264.175 and 270.15]

C1.F.1 Secondary Containment System Design and Operation for Containers with Free Liquids

[R 299.9614 and 40 CFR §§264.175(a) and 270.15(a)]

Detailed design drawings for the secondary containment systems and container storage areas are provided in Volume 5, Attachments B6-100.1 through B6-100.8.

C1.F.1(a) Requirement for Base or Liner

[R 299.9614 and 40 CFR §§264.175(b)(1) and 270.15(a)(1)]

The containment areas designated as DLS-10 and DLS-11 are designed to prevent the loss of free liquids into the environment. They consist of concrete floors sloped to blind collection sumps on appropriate foundations with walls, curbing, and/or ramps surrounding the area. To augment the concrete's ability to contain leaks, spills, and accumulated liquids until they are detected and removed, it will be formulated using a calcium stearate hydrophobic additive (see Volume 2, Attachments C1-51.3 and C1-51.4) to reduce the volume of permeable voids in the concrete. As a concrete additive, calcium stearate fills pores and micro-fractures thereby limiting or preventing capillary action that draws fluid into the concrete. In applications where concrete is subjected to hydrostatic and/or hydraulic pressure, calcium stearate acts as a plug that prevents liquid penetration into the concrete.

In addition to being insoluble in water, calcium stearate is resistant to chemical attack (see Volume 2, Attachments C1-51.5 and C1-51.6). It is insoluble in most solvents, including alcohol, acetone, ether, and chloroform, and is only slightly soluble in hot alcohol, hot aromatic compounds, hot chlorinated hydrocarbons, hot vegetable and mineral oils, and hot waxes. Calcium stearate is, however, soluble in hot pyridine.

Because DLD does not normally process heated liquid waste and leaks/spills are cleaned up as soon as they are detected (see Volume 5, C1.F.1(e), Removal of Liquids from Containment System), the admixture of calcium stearate should sufficiently render the concrete work surfaces impervious to seepage.

The areas are regularly inspected to ensure that there has been no loss of integrity. Any deterioration or malfunction of containment structure that an inspection reveals will be noted on the Daily Inspection Check Sheet and remedied to ensure that the problem does not lead to a loss of free liquids to the environment. The remediation will also be noted on the Daily Inspection Check Sheet.

C1.F.1(b) Containment System Drainage
[R 299.9614 and 40 CFR §§264.175(b)(2) and 270.15(a)(2)]

The floors of DLS-10 and DLS-11 will be sloped to blind collection sumps for ease of removal of accumulated liquids. Liquids that accumulate from a leak or spill are removed immediately upon detection and returned to a container for reprocessing.

Precipitation, melting snow, and condensation from containers are other possible sources of accumulating liquids. Accumulated liquids from these sources are either removed within 24 hours of detection or as soon as possible after a thaw and put in containers for analysis and/or processing.

C1.F.1(c) Containment System Capacity
[R 299.9614 and 40 CFR §§264.175(b)(3) and 270.15(a)(3)]

DLD proposes to limit the DLS-10 containment area to a maximum of 93,500 gallons of hazardous waste. The total containment capacity for DLS-10 is 97,998 gallons, which exceeds the proposed storage capacity.

DLD proposes to limit the DLS-11 containment area to a maximum of 52,250 gallons of hazardous waste. The total containment capacity for DLS-11 is 54,481, which exceeds the proposed storage limit. (See DLS-10 & DLS-11 floor plan drawing in Volume 5, Attachment B6-100.2, containment calculations shown in Volume 5, Attachment C1-100, and Volume 5, Attachment C1-110, respectively.)

C1.F.1(d) Control of Run-on
[R 299.9614 and 40 CFR §§264.175(b)(4) and 270.15(a)(4)]

DLS-10 is covered by a roof that connects to west side of the existing facility. It is walled on the north and south, but, to provide increased ventilation, is open on the east side with an overhang to limit accumulation from falling precipitation. DLS-11 is covered by a roof and connects to west side of the existing facility, abuts to the DLS-10 containment area on the east, and is walled to the north and south. Control of run-on is enhanced by the entirety of the containment structure being elevated, with the top of the containment curbing sitting 26" above the surrounding ground.

C1.F.1(e) Removal of Liquids from Containment System
[R 299.9614 and 40 CFR §§264.175(b)(5) and 270.15(a)(5)]

Liquids that accumulate as the result of a leak or spill are removed immediately upon detection and returned to a container for reprocessing as hazardous waste. Accumulation due to precipitation and snow melt are removed within 24 hours of detection and put in containers for analysis and/or processing. Accumulation due to condensation is removed as soon as possible after a thaw and put in containers for analysis and/or processing.

C1.F.2 Secondary Containment System Design and Operation for Containers with No Free Liquids
[R 299.9614 and 40 CFR §§264.175 and 270.15(b)(1)]

DLD shall manage containers with no free liquids using the operating guidelines presented in Volume 5, Section C1.F.1.

C1.F.2(a) Containment System Drainage
[R 299.9614 and 40 CFR §§264.175 and 270.15(b)(2)]

DLD shall manage containers with no free liquids using the operating guidelines presented in Volume 5, Section C1.F.1.

C1.F.2(b) Containment Management
[R 299.9614 and 40 CFR §§264.175 and 270.15(b)(2)]

DLD shall manage containers with no free liquids using the operating guidelines presented in Volume 5, Section C1.F.1.

C1.G SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE
[R 299.9614 and 40 CFR §§264.176 and 270.15(b)(2)]

As indicated in the Site Development Plan blueprint (Volume 5, Attachment B6-100.1), the containment areas where ignitable or reactive waste may be stored are 50 feet or more from the facility property line.

C1.H SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES
[R 299.9614 and 40 CFR §§264.177(c) and 270.15(b)(2)]

1. Prior to placing incompatible wastes or incompatible wastes and materials in the same container, DLD will comply with R 299.9605 and 40 CFR §264.177(b), by following the procedures specified in Volume 5, Section C4.

2. Prior to placing hazardous waste into a container that previously held an incompatible waste the container will be visually inspected to verify that it has been washed/cleaned. [R 299.9614 and 40 CFR §264.177(b)]

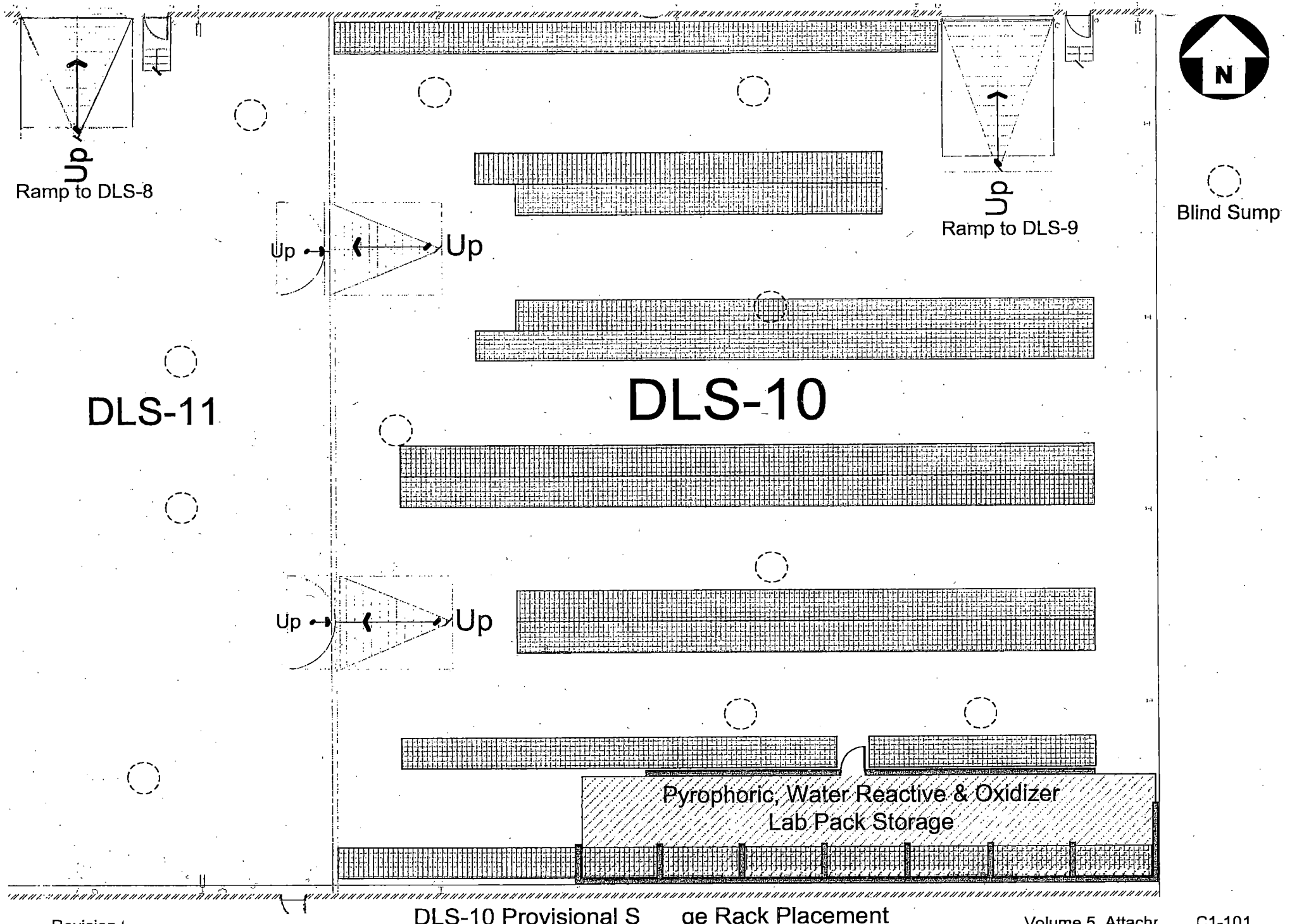
3. Containers of incompatible wastes in DLS-10 will be separated as indicated in the procedures contained in Volume 1, Sections A3 and Volume 5, Section C4. [R 299.9614 and 40 CFR §264.177(c)]

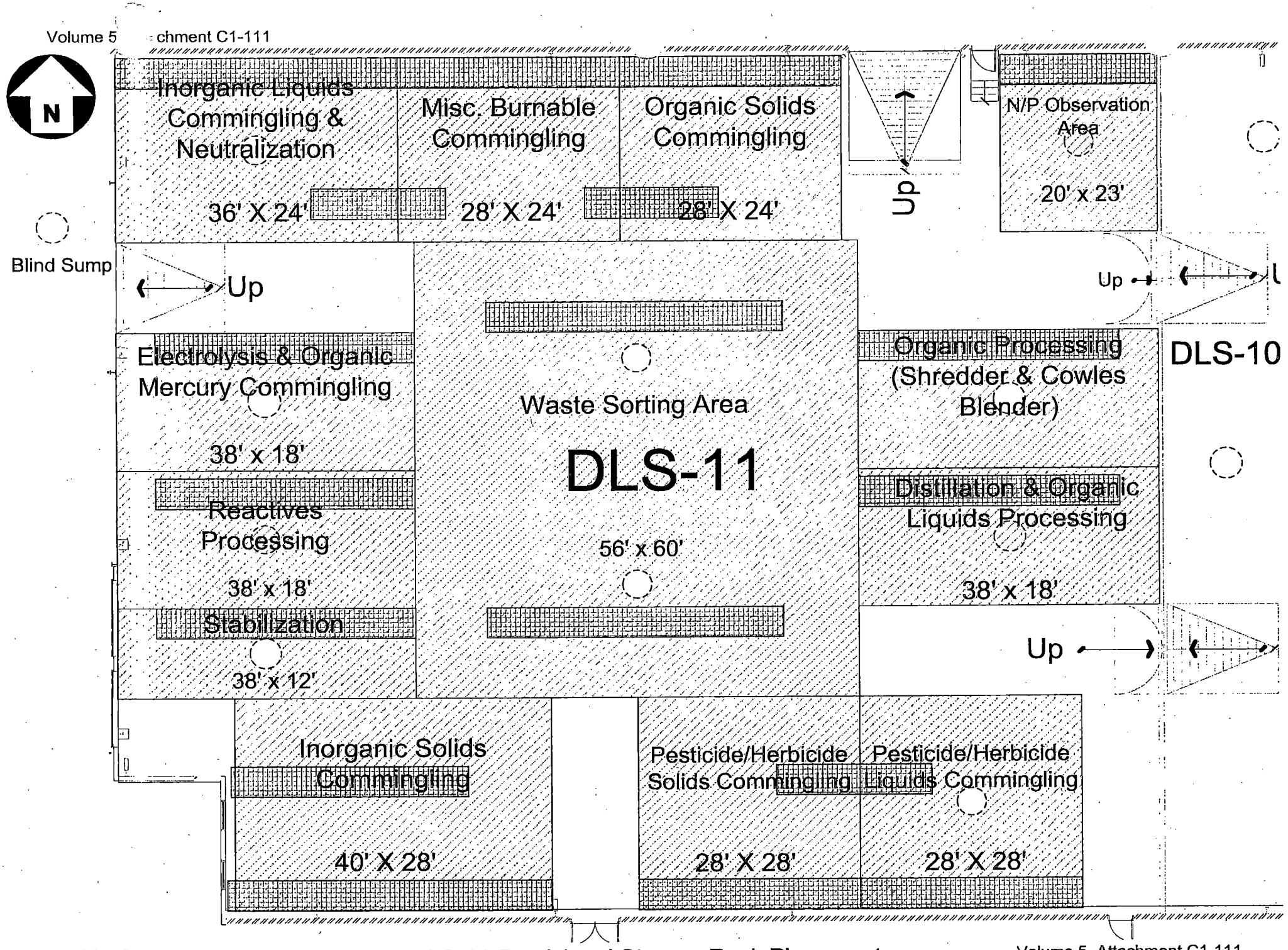
4. Compliance with C1.H.1 and C1.H.2 will be documented and this documentation will be placed in the facility operating record. [R 299.9614 and 40 CFR §264.17(c)]

5. Storage areas for pyrophoric and water-reactive wastes and for oxidizing wastes in DLS-10 are indicated in Volume 5, Attachment C4-100.2. The portions of the rack system dedicated for storage of these wastes are enclosed on three sides by cement block walls to protect adjacent storage with a fourth block wall that functions as a fire barrier for the rest of the facility should a reaction take place.

C1.I CLOSURE
[R 299.9614 and 40 CFR §264.178]

Removal of hazardous waste and hazardous waste residues from the containment systems will be accomplished by following the procedures for facility closure enumerated in Volume 1, Section A11.


Up
Ramp to DLS-8
Up
Up
Ramp to DLS-9
N
Blind Sump
DLS-11
DLS-10
Up
Up
Pyrophoric, Water Reactive & Oxidizer
Lab Pack Storage



DLS-11 Provisional Storage Rack Placement

ATTACHMENT 8

TREATMENT PROCEDURES

C4: TREATMENT

(Volume 1)

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C4: TREATMENT

(Volume 1)

C4.A LAB PACKING

DLD receives wastes in lab pack quantities from a variety of sources. A large portion of the wastes are expired chemicals still in the manufacturer's original container with the manufacturer's label identifying the container contents. A significant portion of this waste is non-hazardous by legal definition and still more of this waste is from non-regulated sources such as households. Because these wastes represent a wide variety of chemical properties, they must be sorted and lab packed according to compatibility guidelines established by other treatment facilities receiving the waste from DLD. For treatment of lab pack waste, Drug & Laboratory Disposal uses several different treatment facilities that each have their own compatibility and acceptability guidelines.

The vast majority of waste received by DLD is disposed of using high temperature hazardous waste incinerators, resulting in complete destruction of the original compound. Organic chemicals are broken down into environmentally inert compounds or elements such as carbon dioxide, water, and nitrogen. Organically bound metals are also incinerated with the metals being captured by the exhaust stack scrubbing units (required on all licensed hazardous waste incinerators) or in the ash. In most cases incineration is the most appropriate method of disposal. This is true for even difficult to destroy organic compounds such as polychlorinated biphenyls (PCBs) and dioxins.

Because of DLD's emphasis on incineration, the lab packing of chemicals is a major part of the facility's activities. All lab packing is done by degreed Hazardous Waste Chemists who make packing lists of the chemicals in each drum. These packing lists are sent to the incineration facility for approval prior to shipment of the lab packs. During the time between packing at DLD and transport to the destination facility, lab packs are placed in secondary containment areas for storage.

DLD general lab pack guidelines are presented in the following pages. They have been developed with the consideration of 40 CFR 264 Appendix V, DOT guidelines, the guidelines of all of the lab pack receiving facilities that DLD utilizes, and the cumulative knowledge and experience of the Drug & Laboratory Disposal staff. It is important to understand that the following guidelines are appropriate as of the date of this writing, but they change as receiving facilities revise their guidelines and as DLD protocol changes with experience. It is also important to remember that these guidelines do not serve as a compendium of all of the chemicals that DLD may receive, but do represent the majority of hazard classes encountered by our chemists.

C4.A.1 General Lab Packing Guidelines

a. *Cyanides and Sulfides.* Cyanides that are selected to go on for incineration are lab packed with vermiculite as the packing material. Cyanides and sulfides may be packaged together.

b. *Corrosive Liquids.* There are some corrosives where handling and neutralizing the liquid is not the most economically feasible choice for disposal. Corrosive liquids are packaged in plastic drums with vermiculite as the packing material.

c. *Flammable Liquids.* There are some flammable liquids that are unsuitable for commingling. These are packaged in plastic or fiber (with a plastic liner) drums with vermiculite as the packing material.

d. *Poison Inhalation Hazard - Zone A (PIH-A).* These compounds are packaged according to current applicable DOT regulations.

e. *Pyrophorics and Grignards.* These materials are packaged in plastic drums with vermiculite as the packing material. Pyrophoric compounds or Grignard reagents that are also Poison Inhalation Hazard – Zone A materials are packaged according to PIH-A standards.

f. *Flammable Solids.* These compounds are typically lab packed using sawdust or vermiculite in easy burn containers such as plastic or cardboard fiber drums. However, Raney nickel is a flammable solid and needs to be packed under water with vermiculite in plastic drums. Metal dusts must be packaged under oil with vermiculite in plastic drums.

g. *Red Phosphorus.* Red phosphorus must be packaged under oil in plastic or cardboard fiber drums with vermiculite as the packing material.

h. *Yellow/White Phosphorus.* Yellow or white phosphorus must be stored under water and packaged in plastic drums with vermiculite as the packing material.

i. *Inorganic Mercury Compounds.* Inorganic mercury compounds are usually packaged in vermiculite.

j. *Organic Mercury Compounds.* Organically bound mercury compounds may be packaged using sawdust or vermiculite as packing material.

k. *Iron Pentacarbonyl.* Iron pentacarbonyl is packaged according to current applicable DOT regulations. Other permissible carbonyls can also be packaged in the same lab pack.

l. *Isocyanates.* Isocyanates (that are not also Zone A - Poison Inhalation Hazards) are packaged in plastic drums or cardboard fiber drums with a plastic liner utilizing sawdust or vermiculite as the packing material. Those isocyanates that are Zone A – Poison Inhalation Hazards are packaged according to the Poison Inhalation Hazard standards.

m. *Non-RCRA Organic Materials.* Non-RCRA organic wastes that DLD believes should be incinerated rather than land-filled are grouped into this particular category. Lab packs of these compounds are typically packaged in plastic or cardboard fiber with sawdust as the packing material.

n. *Corrosive Solids.* DOT corrosive solids are packaged in plastic drums with sawdust or vermiculite as the packing material.

o. *Oxidizing Solids.* Oxidizing solids are packaged in plastic containers with vermiculite or oil dry as the packing material.

p. *Organic Peroxides.* Both solid and liquid forms of organic peroxides are lab packed for incineration, but must be packaged separately from inorganic oxidizers. Organic peroxides are packaged in plastic containers and packed with vermiculite or oil dry as the packing material.

q. *Toxic Liquids.* These materials are packaged in plastic containers with vermiculite as the packing material.

r. *Toxic solids.* These materials are packaged in plastic containers with vermiculite as the packing material.

s. *Water Reactive.* Water reactive compounds are packaged in plastic drums with vermiculite as the packing material. (Sawdust is not an acceptable packing material for water reactive compounds because its moisture content may initiate reactions.) Additionally, all alkali metals must be packaged under oil.

t. *Organic "Class 9" Hazardous Wastes.* DLD believes that organic "Class 9" hazardous wastes should be incinerated rather than land-filled. These lab packs are packaged in plastic or cardboard fiber drum with sawdust or vermiculite as the packing material.

u. *Radioactive Wastes.* DLD accepts very limited quantities and types of radioactive materials. Radioactive compounds are lab packed in metal or plastic containers with vermiculite as the packing material.

v. *Unknown Materials.* All outgoing unknown compounds must be lab packed on a repack profile with a fingerprint included. For the fingerprint, the following parameters must be recorded:

- physical description
- water miscibility/reactivity
- pH screen
- cyanide screen
- sulfide screen
- ignitability screen
- oxidizer screen
- peroxide screen

w. *Aerosols.* Aerosol cans are accepted for incineration, but the following guidelines must be followed in order for the incinerator to meet process and permit requirements.

i. A separate profile sheet must be submitted when profiling large amounts of aerosol cans. Exceptions are for less than five 55-gallon quantities. These small quantities may be added on to lab pack profiles using drum inventory sheets.

ii. If quantities of aerosol cans exceed five 55-gallon drums, no drum inventories are required. However, each package must be labeled "Inside Containers Comply with Prescribed Regulations" (per 49 CFR §173.304) and use an appropriate DOT proper shipping name (i.e. "UN1954, Waste compressed gas, flammable, n.o.s., 2.1" for flammable gases, "UN1956, Waste compressed gas, non-flammable, n.o.s." for non-flammable gases, etc.).

iii. Some aerosols may be California list waste.

C4.A.2 Packing (Absorbent) Material

There are many absorbent materials, also referred to as packing materials, that may be used when lab packing. Bentonite, cellulose, oil dry, kitty litter, vermiculite, ground corn cob, "Greenstuff" (a phenolic absorbent material), and sawdust are some examples of packing materials that may be utilized as absorbent materials in lab packs. The choice of absorbent material used is dependent on the chemical properties of the material being lab packed.

a. Chemicals of a reactive nature, such as oxidizer and pyrophoric compounds, are typically packed using an inert, non-combustible absorbent material such as bentonite, kitty litter, and vermiculite.

b. Chemicals of a non-reactive nature are typically packed using light weight absorbents like sawdust, vermiculite, and Greenstuff

c. Sawdust and ground corncob contain too much moisture to be used with moisture reactive or moisture sensitive materials (e.g. pyrophoric compounds, alkali metals, etc.).

d. The phenolic absorbent material known as "Greenstuff" is slightly acidic and is not used with acid reactive compounds.

C4.A.3 Development of Lab Pack Guidelines

Lab pack and sorting guidelines are not a set of static rules. They have been set up based on DOT regulations, regulations and suggested guidelines from the EPA, receiving facilities' requirements, and the experience and knowledge of the Drug & Laboratory Disposal staff. As new regulations, requirements, and first-hand experiences warrant, these guidelines are updated.

C4.B COMMINGLING

A significant portion of wastes generated by clients of Drug & Laboratory Disposal, Inc. is collected, stored, and transported in containers that hold five gallons or less. Most of these wastes are segregated and commingled (for purposes enumerated in R 299.9504 (5)) with compatible wastes prior to shipment offsite for treatment at a licensed disposal facility.

C4.B.1 Practices Common to DLD Commingling Processes

Containers transported and/or received at DLD are required to be labeled by the generator with the constituents they contain. As the primary means of identification, the generator's label is assumed to be correct; however, because errors in labeling can occur, it is expedient for a trained chemist to inspect containers during sorting and commingling. This inspection and evaluation of the physical and chemical properties of container contents, called the "fingerprint", will be documented for each shipment and is an invaluable safeguard against the contamination of waste streams and possible reaction of incompatible wastes. Inconsistency in the phase, color, density, viscosity, odor, homogeneity, or fingerprint analysis of the waste and the listed constituent(s) on the generator label can quickly be detected by the technical personnel employed at DLD.

After sorting and documenting that the fingerprint of the waste is comparable with the information received from the generator or, if warranted, laboratory analysis, compatible wastes are commingled as a method of reducing the volume of the original waste and making it more conducive to storage and transportation. Waste is stored in containers, lined containers, or IBC's compatible with the waste or, if the waste is a liquid, it may be stored in one of DLD's 5,000-gallon stainless steel storage tanks. Once sorting and fingerprinting is finished, the commingling of compatible waste will be carried out in one of the licensed containment areas (DLS-1, DLS-2, DLS-3, HWLB-1) under the supervision of a trained DLD chemist using generator (or manufacturer) information and knowledge gained from training and prior bench tests.

Waste or waste mixtures that have not been tested for compatibility before or are significantly different from those wastes that have been previously tested will be checked for compatibility. Compatibility will be determined by using an aliquot system or ASTM:D5058, Standard Test Methods for Compatibility of Screening Analysis of Waste. Wastes determined to be incompatible will not be commingled.

Wastes to be commingled may also contain compounds that have EPA listed waste codes (see Volume 1, Part A, pages 5-21) associated with them. All listed waste codes are retained by the commingled mixture and become part of the generator information provided to the licensed treatment facility to which the waste is shipped.

Because the composition of the waste mixture can be significantly different from the wastes commingled to generate it, a representative sample is taken and laboratory analysis performed (as described in Section A3.B.2), so that the licensed destination facility will have adequate information describing the waste, as per 40 CFR 268 – Land Disposal Restrictions. Prior to shipment off site for treatment/disposal, the sample's various constituents and properties as determined by laboratory analysis and generator information must conform to the criteria set by the destination facility in order for the waste to be approved for receipt.

C4.B.2(c) Liquid Pesticides and Herbicides

Wastes in this group are pest and vegetation killers/inhibitors of varying concentrations that may contain one or more of the EPA toxic characteristics designated as D004 through D043. These formulations are generally heavily halogenated compounds with a BTU content of less than 4000 BTU per pound and low volatility, but may also contain solvents as a carrier for the active ingredients.

Liquid pesticides and herbicides that are eligible to be commingled are processed in the DLS-3 containment area. These wastes are carefully commingled using generator information, knowledge gained from training and prior experience, and following the guidelines presented in C4.B.1 above.

A small percentage of these wastes are commingled in the DLS-2 containment area which is covered in Volume 1, Section C9 of this license.

Wastes in this category are shipped off site to a licensed treatment facility for disposal via incineration.

C4.B.2(d) Solvents and Solutions

Of all the commingling processes undertaken at DLD, this process represents the largest volume handled. These wastes are divided into three groups for separate commingling: halogenated solvents, high BTU solvents, and low BTU solvents/solutions. Each of these categories may be contaminated with constituents that display the EPA characteristic waste codes D004 through D043.

Halogenated solvents are carbon-containing liquids with one or more halogen atoms incorporated into the organic molecule, e.g., trifluoroethane, dichloromethane, and bromobenzene. High BTU solvents are primarily carbon-containing liquids that are not water miscible. Low BTU solvents/solutions are water-miscible liquids and solutions.

Halogenated solvents, high BTU solvents, and low BTU solvents/solutions are carefully commingled separately under a fume hood in the DLS-3 containment area using generator information, knowledge gained from training and prior experience, and following the guidelines presented in section C4.B.1 above.

A small percentage of these wastes are commingled in the DLS-2 and HWLB-1 containment areas which is covered in Volume 1, Section C9 of this license.

Storage and shipment of commingled organic solvents and solutions in drums, IBC's, or bulk tank is based on three factors: (1) the final composition of the commingled waste; (2) the acceptance criteria of the licensed disposal facility; and (3) economic considerations. The decision to ship these wastes off site for incineration, fuel recovery, or waste water treatment is determined based on these factors.

C4.B.2 Commingling Categories

Each incoming shipment is inspected and containers with wastes eligible for commingling are sorted into the following groups:

C4.B.2(a) Refrigerants for Recovery

DLD engages in the commingling of refrigerants from containerized waste and small appliances for the purpose of reclamation. Refrigerants eligible for recovery are stored in their original containers or commingled into regulatory compliant recovery cylinders. The commingling of these refrigerants are carried out by a Certified Type I technician or his/her apprentice (40 CFR §82.161(a)) using recovery equipment compliant with 40 CFR §82.158, with the recovered refrigerants being shipped off site to an EPA certified refrigerant reclamation facility.

Unlike most other wastes that are commingled, refrigerants do not require analytical testing for acceptability at a reclamation facility. Each refrigerant has a unique pressure-temperature relationship that identifies it. The purity and type of refrigerant is assessed by the Certified Type I Technician or apprentice using the pressure-temperature relationship prior to commingling into a recovery cylinder.

The containers and small appliances that have undergone refrigerant recovery and/or verification that the refrigerant has been evacuated (40 CFR §82.156(f)) are sent for recycling as scrap.

C4.B.2(b) Aqueous Acids and Heavy Metals Solutions

Aqueous acids are water solutions of inorganic compounds of varying concentrations and pH that may contain one or more of the EPA toxic characteristic metals (D004 through D011). In general, the water content is such that the flash point is above 140°F and BTU content is less than 1000 BTU per pound.

Heavy metal solutions are water solutions of compounds that contain one or more of the EPA toxic characteristic metals (D004 through D011) of varying concentrations and pH. In general, the water content is such that the flash point is above 140°F and BTU content is less than 1000 BTU per pound.

Armed with generator information, knowledge gained from training, and prior experience, and following the guidelines presented in C4.B.1 above, the majority of these wastes are carefully commingled underneath a fume hood in the DLS-3 containment area with the liquid present in the commingling vessel used as a heat sink to prevent violent reactions from occurring during the addition of the comparatively smaller volumes of these wastes. Regardless of which containment area (DLS-1, DLS-2, DLS-3, or HWLB-1) that this commingling is done in, a fume hood will be employed as a precautionary measure to capture fugitive corrosive and toxic fumes and vapors that may be released during the commingling process.

Wastes in this category either go through on site neutralization/precipitation or are shipped off site to a licensed treatment facility for disposal via neutralization/precipitation.

C4.B.2(g) Inorganic Solids

Inorganic solids are stable, non-reactive compounds that are typically ionically bonded and usually originate from a mineral or metal source. They may contain one or more of the EPA toxic characteristics designated as D004 through D011. Some examples of inorganic solids for purposes of this classification are barium chloride, sodium sulfate, calcium carbonate, and potassium phosphate. Many of the compounds that are commingled in this category are not RCRA hazardous, but are DOT hazardous materials and DLD does not believe that it is proper to dispose of them in a Type II landfill.

Even though these wastes are fairly innocuous, they are carefully commingled in the DLS-3 containment area using generator information, knowledge gained from training, and prior experience, and following the guidelines presented in C4.B.1 above. As with the solid pesticides and herbicides, great care is taken to minimize the generation of airborne dusts.

Wastes in this category are either solidified on site or shipped off site to a licensed disposal facility for solidification. The purpose of the solidification is to chemically immobilize the heavy metal containing solids into a medium which will pass the TCLP (Toxic Characteristic Leaching Procedure) test. Solids passing the TCLP test can be disposed of in a Type II landfill; however, DLD continues to ship this waste stream to a Type I secure chemical landfill.

C4.B.2(h) Organic Solids

Organic solids are stable, non-reactive organic compounds that may contain one or more of the EPA toxic characteristics designated as D004 through D043. Many of the compounds that are commingled in this category are not RCRA hazardous, but are DOT hazardous materials and DLD does not believe that it is proper to dispose of them in a landfill. In addition, these wastes tend to have a significant thermal value.

These organic solids are carefully commingled with high BTU solvent in the DLS-2 and DLS-3 containment areas using generator information, knowledge gained from training, and prior experience, and following the guidelines presented in C4.B.1 above. The resultant mixture is then blended to create a BTU rich slurry.

The disposal method of this waste is contingent on the final composition of the blended waste and the acceptance criteria of the licensed disposal facility. The decision to ship these wastes off site for incineration or fuel recovery is determined based on these two factors.

C4.B.2(i) Miscellaneous Burnable Materials

Absorbent materials used in spill clean-ups, used paint filters, plastic pipettes, and filter papers are just a few of the materials received by DLD that fit into this category. It consists of small debris contaminated with hazardous waste or that is declared a waste because it was "derived from" another waste that was hazardous and is required to be disposed of as a RCRA waste.

C4.B.2(e) Mercury for Recovery

Elemental mercury and mercury contaminated materials are segregated and carefully commingled for the purpose of volume reduction, rendering the waste more amenable to recovery, and making it more amenable to storage and shipment.

Using generator information, knowledge gained from training, and prior experience, and following the guidelines presented in C4.B.1 above, this process occurs primarily in the DLS-1 containment area while employing a tertiary containment tray to prevent the spread of mercury contamination. To control the emission of mercury vapor, DLD employs a mercury vacuum to thoroughly clean the containment tray after use. If the mercury contaminated materials are required to be left in the tray overnight, the mercury vacuum is used to clean as much of the visible elemental mercury as possible and the tray is covered.

Verification of the control of mercury vapor emission is conducted using a portable electronic mercury sensing device. The mercury "sniffer" is used to verify: (1) that the tertiary containment tray does not need to be covered; (2) that the containers used to transport the mercury contaminated material is mercury-free and may be re-used; (3) that the area in which the mercury commingling takes place is free of elemental mercury contamination; and (4) that other materials have been thoroughly decontaminated for recycle or disposal in another waste stream.

A small percentage of these wastes are commingled in the DLS-2 containment area which is covered in Volume 1, Section C9 of this license.

Recovered elemental mercury is stored in mercury flasks and shipped off site for reclamation at a licensed treatment facility by triple distillation. Other mercury contaminated materials are shipped off site to a licensed treatment facility for mercury recovery via retort.

C4.B.2(f) Solid Pesticides and Herbicides

Solid pesticides and herbicides are pest and vegetation killers and inhibitors of varying concentrations that may contain one or more of the EPA toxic characteristics designated as D004 through D043.

Solid pesticides and herbicides that are eligible to be commingled are processed in the DLS-3 containment area taking great care to minimize the generation of airborne dusts. These wastes are commingled using generator information, knowledge gained from training and prior experience, and following the guidelines presented in C4.B.1 above.

Wastes in this category are shipped off site to a licensed treatment facility for incineration.

Sawdust used at DLD to clean metal and plastic drums for recycling that previously held EPA "listed" waste is an example of "derived from" waste that is placed in this waste stream. This waste stream will also frequently contain materials with EPA toxic characteristics designated as D004 through D011 and D012 through D043.

These materials are carefully commingled in the DLS-1, DLS-2, DLS-3, and HWLB-1 containment areas using generator information, knowledge gained from training and prior experience, and following the guidelines presented in C4.B.1 above.

Wastes in this category are shipped off site to a licensed treatment facility for incineration.

C4.B.2(j) Distillation Candidates

Used paint thinners, spent solvents, spent solvent mixtures, and used chiller solutions are all candidates for distillation. Distillation candidates represent the opportunity to recycle or reuse waste materials that would normally be disposed of as hazardous waste.

Materials determined to be eligible for distillation are carefully commingled in the DLS-2 and DLS-3 containment areas for volume reduction. These wastes are then stored to await processing in a distillation unit. Once processed, the effluent(s) are repackaged/relabeled for use as a product. The still bottoms are packaged for disposal and labeled with all appropriate waste codes, including any applicable codes that were associated with the waste(s) prior to processing.

Wastes in this category are shipped off site to a licensed treatment facility for incineration or stabilization.

C4.B.2(k) Explosive Materials

The concentration of an explosive compound has a direct bearing on whether or not it is capable of detonation. Dissolution (see Volume 1, Section C4.C7(b)(ii)) of an explosive compound in an appropriate solvent will render it incapable of explosive decomposition. The resultant non-reactive solvent containing the formerly reactive compound may now be commingled with other compatible solvents and stored in one of DLD's 5,000-gallon stainless steel tanks until it is shipped off site to a licensed treatment facility.

The addition of waste generated by this method of disposal of compounds that were previously reactive (readily capable of detonation and forbidden explosives) to the waste streams generated in C4.B.2(b) and C4.B.2(d) does not alter the treatment parameters of these wastes. No additional analytical parameters are required to accommodate the addition of the dissolute compounds.

Only compounds amenable to safe commingling with an appropriate solvent and complete dissolution therein will be treated via commingling at the DLD facility. Compounds that are not able to be treated using the commingling method must be treated using one of the other methods discussed in Volume 1, Section C4 of this license. *Note that the commingling of solvents/solutions containing explosive materials occurs only after the dissolution process (see Volume 1, Section C4.C7(b)(ii)).*

C4.B.3 Container Disposal

All emptied waste containers, whether they are made from glass, metal or plastic, are assessed for recycling. Each container found suitable for recycling is cleaned using an appropriate method (e.g., washed and rinsed, cleansed using sawdust, etc.) to assure environmental safety and volume reduced for ease of storage and transport. Containers which have contained an acute hazardous waste are triple rinsed as required by R299.92075(a) of Michigan Act 451, Part 111, prior to being volume reduced.

C4.C REACTIVES

DLD routinely handles reactive waste meeting the criteria listed in paragraphs one through six of 40 CFR 261.23 (a). DLD proposes to also receive and handle materials meeting the criteria of paragraphs seven and eight of 40 CFR 261.23 (a). The definition and common examples of chemicals meeting these listed properties are as follows:

C4.C.1 Waste that is normally unstable and readily undergoes violent change without detonating.

Chemicals meeting this definition would include pyrophorics (air-reactives) such as white phosphorus, lithium hydride, and butyllithium. These chemicals are protected from air and/or moisture by being stored in an inert atmosphere or under water-free kerosene, solvent, or oil.

These chemicals are typically lab packed, stored, and shipped off site for incineration in the manufacturer's original container. DLD trains its Hazardous Waste Chemists to fingerprint these materials at the time of receipt of the waste, but not to perform bench tests or sample them for laboratory analysis because of the likelihood of combustion of these materials during sampling and/or analysis.

Some of the chemicals that fit this category are segregated for processing. Since the reactivity of some of these chemicals is related to their concentration, quenching them in an appropriate media will make them safer for transport and storage by reducing reactivity. Other chemicals in this category can be safely reacted. The quenching of pyrophoric chemicals takes place under an inert atmosphere by a trained DLD chemist.

C4.C.2 Waste that reacts violently with water.

Examples of water reactive chemicals meeting this definition include alkali metals (sodium, potassium, lithium, and rubidium), alkaline earth metals (calcium, magnesium, and strontium), anhydrous aluminum chloride, and phosphorus pentoxide. These chemicals are either treated to make them no longer reactive with water or are lab packed for shipment and treatment at a licensed treatment facility. The descriptions that follow are the treatment processes used for water reactive chemicals that are not lab packed.

C4.C.2(a) Alkali Metals

Alkali metals can be dissolved in an appropriate alkyl alcohol (R-OH) under controlled conditions represented by the following equation:

$$2Na + R\text{-}OH \text{ (excess)} \rightarrow NaO\text{-}R + H_2$$

The alkali metal reacts to form a metal alkoxide that remains dissolved in the excess alcohol throughout the reaction. When the reaction is complete, the waste solution is non-reactive and is commingled with high BTU organic solvents or low BTU solutions.

The commingled waste is then shipped off site for treatment at a licensed treatment facility.

C4.C.2(b) Alkaline Earth Metals

Alkaline earth metals can be treated slowly with water or dilute acid under controlled conditions represented by the following equation:

$$Ca + 2H_2 \rightarrow Ca(OH)_2 + H_2$$

The resulting hydroxide solution is neutralized and subsequently commingled with low BTU solutions. The commingled waste is then shipped off site for treatment at a licensed treatment facility.

C4.C.2(c) Anhydrous Aluminum Chloride

Anhydrous aluminum chloride can be treated slowly with water and neutralized with base (ammonium hydroxide, sodium hydroxide, calcium hydroxide, etc.) and is represented by the following equations:

$$AlCl_3 + 3H_2O \rightarrow Al(OH)_3 + 3HCl$$

$$2HCl + Ca(OH)_2 \rightarrow CaCl_2 + H_2O$$

The resulting solution is commingled with other low BTU solutions and shipped off site for treatment at a licensed treatment facility.

C4.C.2(d) Phosphorus Pentoxide

Phosphorus pentoxide can also be treated slowly with water and neutralized with base and is represented by the following equation:

$$P_2O_5 + 3H_2O \rightarrow 2H_3PO_4$$

$$H_3PO_4 + 2NaOH \rightarrow Na_2HPO_4 + 2H_2O$$

The resulting solution is commingled with other low BTU solutions and shipped off site for treatment at a licensed treatment facility.

C4.C.3 Waste that forms potentially explosive mixtures with water

Calcium carbide mixed with water is an example of this type of waste. It is either treated so it no longer forms explosive mixtures with water or it is lab packed for shipment and treatment at a licensed treatment facility. The calcium carbide reacts with the water to form acetylene (gas) and calcium hydroxide and is represented by the following equation:

$$CaC_2 + 2H_2O \rightarrow C_2H_2 + Ca(OH)_2$$

The acetylene is captured in a charcoal bed, while the calcium hydroxide solution is neutralized, commingled with low BTU solutions, and shipped off site for treatment at a licensed treatment facility.

C4.C.4 Waste that generates toxic gases when mixed with water.

Chemicals under this category, such as alkaline earth metals, are covered under C4.C.2 above. Other chemicals which could fall under this category are also covered in C4.C.6, below.

C4.C.5 Cyanide or sulfide bearing waste.

Cyanide- and sulfide-bearing waste is either treated to render these wastes incapable of generating toxic gases or lab packed for shipment to an off site licensed treatment facility. The descriptions that follow are the treatment processes used for cyanide or sulfide bearing wastes that are not lab packed.

C4.C.5(a) Cyanides

Cyanide-bearing waste received at DLD, whether liquid or solid, is stored away from mineral acids to avoid the possibility of a release of toxic gas in the event of a spill. Liquid cyanide wastes selected for treatment are first checked to ensure the pH is above seven (7) to guarantee that a release of hydrogen cyanide gas does not occur. DLD currently employs two methods of deactivation of cyanides: alkaline oxidation and alkaline chlorination.

i. **Alkaline Oxidation Method:** This method utilizes oxidizers (such as calcium hypochlorite, potassium nitrate, and hydrogen peroxide) in alkaline solution of pH greater than 10 to convert the cyanide anion to the cyanate anion. This reaction is represented by the following equation:

$$2CN + Ca(OCl)_2 \rightarrow 2NaOCN + CaCl_2$$

The resulting waste cyanate solution is no longer a cyanide bearing waste and is, therefore, no longer reactive. The solution is subsequently commingled with other compatible liquids and shipped off site for treatment at a licensed treatment facility.

ii. **Alkaline Chlorination Method:** In the alkaline chlorination method, a two step addition of chlorine using a closed system gas chlorinator renders the cyanide waste totally inert by oxidation. This method employs lecture cylinders of chlorine gas as the closed system gas injector. Closed system gas injection is a process whereby the chlorine gas is bubbled directly into the cyanide solution and does not release chlorine gas into the atmosphere. The reaction is represented by the following two equations:

(at pH of 11.5)

$$NaCN + Cl_2 + 2NaOH \rightarrow NaOCN + 2NaCl + H_2O$$

(at pH of 7.5 to 9)

$$2Na_2OC_2N + 3Cl_2 + 4NaOH \rightarrow 6NaCl + 2H_2O + N_2(gas) + 2CO_2(gas)$$

The resulting waste solution is no longer a cyanide bearing waste and is, therefore, no longer reactive. The solution is subsequently commingled with other liquids for shipment off site for treatment at a licensed treatment facility.

C4.C.5(b) Sulfides

Sulfide-bearing waste received at DLD, whether liquid or solid, is stored away from mineral acids to avoid the possibility of release of toxic gas in the event of a spill. Liquid sulfide wastes selected for treatment are first checked to ensure the pH is above seven (7) to guarantee that a release of hydrogen sulfide gas does not occur. Oxidizing compounds, such as calcium hypochlorite, potassium nitrate, and hydrogen peroxide, are employed to convert sulfides to sulfates and is represented by the following equation:

$$Na_2S + 2Ca(OCl)_2 \rightarrow Na_2SO4 + 2CaCl_2$$

The resulting waste solution is no longer a sulfide bearing waste and is, therefore, no longer reactive. The solution is subsequently commingled with other compatible liquids and shipped off site for treatment at a licensed treatment facility.

C4.C.6 Waste that is capable of detonation or explosive reaction if subjected to a strong initiating source or if heated under confinement.

These compounds are either treated to render these compounds incapable of detonation or lab packed for incineration. Examples of this reactive waste type would include organic peroxides, some mono- and dinitro-ring compounds, some alkylhydrazine salts, and picric acid. DLD employs two methods of deactivation of these compounds: conversion to non-reactive compounds and dissolution.

i. **Conversion Method:** Conversion of reactive to non-reactive compounds by chemical reaction is primarily used for, but not limited to, deactivation of organic peroxides. Organic peroxides are slowly hydrolyzed over time in the presence of water. The hydrolysis of an organic peroxide compound is represented by the following equation:

$$2R\text{-}O\text{-}O\text{-}R' + 2H_2O \rightarrow 2R\text{-}OH + 2R'\text{-}OH + O_2$$

The resulting waste solution no longer contains organic peroxides and is, therefore, no longer reactive. The solution is subsequently commingled with other compatible liquids and shipped off site for treatment at a licensed treatment facility.

ii. **Dissolution Method:** Since the concentration of these compounds have a direct bearing on whether or not they are capable of detonation, dissolution in an appropriate solvent will render them incapable of explosive decomposition. Upon complete dissolution of this type of waste, the resultant non-reactive solvent waste containing the formerly reactive compounds is commingled with other compatible solvents and stored in one of DLD's 5,000-gallon stainless steel tanks until it is shipped off site for treatment at a licensed treatment facility.

C4.C.7 Waste that is readily capable of detonation or explosive decomposition at standard temperature and pressure (40 CFR 261.23(a)(7)).

C4.C.7(a) Fingerprinting/Screening

The identification and fingerprinting of these wastes are the responsibility of the trained DLD chemists. Because of the potentially violent reactive nature of wastes in this category, laboratory analyses are seldom attempted and proper identification is of utmost importance.

Primary to the fingerprinting process is comparative identification with the information on the waste profile and manifest documents. Many of the compounds fitting this category must be wetted prior to transport and inspection should verify the visible presence of liquid in containers of these materials. Positive fingerprinting of the incoming wastes must be established prior to receiving these wastes at our facility.

The chemists' use of generator knowledge, manufacturer knowledge, and knowledge gained from on-the-job training and first-hand experience is critical to the successful completion of these operations. As such, identification and fingerprinting of wastes fitting this category will be accomplished under the direct supervision and involvement of a Hazardous Waste Chemist.

C4.C.7(b) Handling

Review of the profile, manifest document, and available material safety data sheets (MSDS) is essential before handling wastes fitting the description of this category. These compounds may be detonated by being subjected to shock, heat, friction, or catalyst and the modes of detonation need to be identified prior to working with each compound.

Shock sensitive materials must be handled to avoid all mechanical means of trauma. Removal of these materials from containers must be accomplished gently and without scraping or chiseling with a spatula. Lumps of shock sensitive materials should not be ground with a mortar and pestle.

Heat sensitive materials need to be isolated from open flames and heat sources, including extremely exothermic reactions.

Friction and static electricity must be carefully avoided. For all materials identified as friction sensitive, the threads of the containers must be soaked in water or lubricated with a surfactant prior to opening (friction caused by the action of the threads of a cap on residual explosive material between the threads and container has been known to detonate contents). For safety purposes, a remote opening device is available to unscrew threaded container caps.

C4.C.7(c) Processing

Compounds fitting this description are treated to render them incapable of detonation or, if unable to render them incapable of detonation, prepared for transport off-site for detonation. Examples of this reactive waste type would include wetted HMX, wetted RDX, dry ammonium picrate, and some organic peroxides.

(i) **Conversion Method:** This method employs chemical reactions to convert reactive compounds into non-reactive compounds. Conversion by chemical reaction will be frequently used for, but not limited to, deactivation of organic peroxides. Organic peroxides are hydrolyzed over time in the presence of water using ammonia as a catalyst. The hydrolysis of an organic peroxide compound is represented by the following equation:

$$2R\text{-}O\text{-}O\text{-}R' + 2H_2O \rightarrow 2R\text{-}OH + 2R'\text{-}OH + O_2$$

The resulting wastes no longer contain organic peroxides and are, therefore, no longer reactive. These wastes are subsequently commingled with other compatible wastes and shipped off site for treatment at a licensed treatment facility.

Waste treated using this method is limited to a maximum of one (1) pound at a time.

(ii) **Dissolution Method:** Since the concentration of these compounds have a direct bearing on whether or not they are capable of detonation, dissolution in an appropriate solvent or solution will render them incapable of explosive decomposition. Upon complete dissolution the resultant non-reactive solvent/solution waste containing the formerly reactive compounds is commingled with other compatible solvents or solutions and stored until it is shipped off site for treatment at a licensed treatment facility.

Uninhibited waste treated using this method is limited to a maximum of one (1) pound at a time. Inhibited or quenched waste treated using this method is limited to a maximum of five (5) pounds at a time.

(iii) **Stabilization Method:** Compounds in this category that prove incapable of dissolution in a solvent or solution may still be able to be rendered non-reactive using the Stabilization Method. This method relies on the ability to sufficiently quench these inorganic reactive compounds to prevent detonation during the stabilization process. Once quenched, they may be safely dispersed and encapsulated in cement leaving them incapable of detonation. Once solidified, these wastes no longer exhibit the EPA characteristic of reactivity and are no longer considered reactive.

Uninhibited waste treated using this method is limited to a maximum of one (1) pound at a time. Inhibited or quenched waste treated using this method is limited to a maximum of five (5) pounds at a time.

(iv) Detonation Method: Wastes that prove to be unsuitable for the aforementioned methods will be stored for transport off-site for disposal via detonation. Detonation will be overseen by DLD personnel after contacting the proper authorities and obtaining all required permits.

The maximum quantity of waste treated using this method will be determined using information about the detonation site and its distance from inhabited buildings and public thoroughfares. 27 CFR 555.218 will serve as a guideline in determining the maximum quantity detonated and safe detonation distance.

C4.C.8 Waste that is a forbidden explosive as defined in 49 CFR §173.51, or a Class A explosive as defined in 49 CFR §173.53, or a Class B explosive as defined in 49 CFR §173.88 (40 CFR 261.23(a)(8)).

C4.C.8(a) Fingerprinting/Screening

See Section C4.C.7(a), above.

C4.C.8(b) Handling

See Section C4.C.8(b), above

C4.C.8(c) Processing

Compounds fitting this description are treated to render them incapable of detonation or, if unable to render them incapable of detonation, prepared for transport off-site for detonation. Examples of this reactive waste type would include wetted lead azide, ammonium bromate, mercury fulminate, and some organic peroxides.

(i) Conversion Method: This method employs chemical reactions to convert reactive compounds into non-reactive compounds. Conversion by chemical reaction will be frequently used for, but not limited to, deactivation of organic peroxides. Organic peroxides are hydrolyzed over time in the presence of water. The hydrolysis of an organic peroxide compound is represented by the following equation:

$$2R\text{-}O\text{-}O\text{-}R' + 2H_2O \rightarrow 2R\text{-}OH + 2R'\text{-}OH + O_2$$

Other examples of chemical conversion methods include the controlled oxidation of azide compounds, represented by the equation:

$$MnO_4^- + 2N_3^- + 8H^+ \rightarrow Mn^{2+} + 3N_2 + 4H_2O$$

and the reduction of azide compounds, represented by the equation:

$$8Zn + 2N_3^- + 24H^+ \rightarrow 8Zn^{2+} + 6NH_4^+$$

In each case the reactive compound undergoes a chemical reaction after which it is no longer reactive. The resultant wastes are subsequently commingled with other compatible wastes and shipped off site for treatment at a licensed treatment facility.

Waste treated using this method is limited to a maximum of one (1) pound at a time.

(ii) **Dissolution Method**: Since the concentration of these compounds have a direct bearing on whether or not they are capable of detonation, dissolution in an appropriate solvent or solution will render them incapable of explosive decomposition. Upon complete dissolution of this type of waste, the resultant non-reactive solvent waste containing the formerly reactive compounds is commingled with other compatible solvents and stored until it is shipped off site for treatment at a licensed treatment facility.

Uninhibited waste treated using this method is limited to a maximum of one (1) pound at a time. Inhibited or quenched waste treated using this method is limited to a maximum of five (5) pounds at a time.

(iii) **Stabilization Method**: Compounds in this category that prove incapable of dissolution in a solvent or solution may still be able to be rendered non-reactive using the Stabilization Method. This method relies on the ability to sufficiently quench these inorganic reactive compounds to prevent detonation during the stabilization process. Once quenched, they may be safely dispersed and encapsulated in cement leaving them incapable of detonation. Once solidified, these wastes no longer exhibit the EPA characteristic of reactivity and are no longer considered reactive.

Uninhibited waste treated using this method is limited to a maximum of one (1) pound at a time. Inhibited or quenched waste treated using this method is limited to a maximum of five (5) pounds at a time.

(iv) **Detonation Method**: Wastes that prove to be unsuitable for the aforementioned methods will be stored for transport off-site for disposal via detonation. Detonation will be overseen by DLD personnel after contacting the proper authorities and obtaining all required permits.

The maximum quantity of waste treated using this method will be determined using information about the detonation site and its distance from inhabited buildings and public thoroughfares. 27 CFR 555.218 will serve as a guideline in determining the maximum quantity detonated and safe detonation distance.

C4.C.9 Summary

The identification and fingerprinting of the above wastes are the responsibility of the trained DLD chemists. Because of the nature of reactive wastes, laboratory analyses are seldom attempted and proper identification is of utmost importance. The chemists' use of generator knowledge, manufacturer knowledge, and knowledge gained from on-the-job training and first-

hand experience is critical to the successful completion of these operations. As such, all operations concerning the handling and deactivation of reactives are accomplished under the direct supervision and involvement of a Hazardous Waste Chemist.

Treatment of reactive materials will take place in DLS-3, DLS-5 (Volume 2), DLS-10, and/or DLS-11 (Volume 5). Treatment capable of evolving RCRA hazardous substances or volatile emissions will be performed under a fume hood.

C4.D HEXAVALENT CHROMIUM TREATMENT

The determination is made by the Hazardous Waste Chemist if wastes containing hexavalent chromium will be commingled for shipment off site to a licensed treatment facility or reacted at DLD. This decision is based on economic factors and the availability of reagents for treatment. Treatment at DLD is conducted under a fume hood in DLS-3 under the supervision of a trained DLD chemist. In the treatment process, the hexavalent chromium waste is reduced to its trivalent form using a reducing agent in basic media ranging in pH from 8 to 10. The reduction process is carried out using a reducing agent, such as sodium bisulfite, stannous chloride, or sodium borohydride, and is represented by the following equation:

$$12H^{+} + Cr_2O_7^{-2} + Na_2S_2O_5 + 2CrO_4^{-2} \rightarrow 2\ Cr_2O_3 + Na_2SO4 + 6H_2O$$

Neutralization of the resultant solution, which becomes acidic during the reaction, with alkaline hydroxide solution results in the precipitation of insoluble trivalent chromium salts.

Representative samples are taken during the reducing process to ensure complete reduction of all hexavalent chromium. These samples undergo a photometric test for Cr^{+6} using ASTM Test Number D-1687-86A.

The basic chromium salts which precipitate are encapsulated as part of the solidification process conducted at DLD and subsequent shipment to a Type I (chemically secure) landfill. The supernatant liquid generated from the process is commingled with other low BTU solvent/solutions and pumped into a 5,000-gallon stainless steel storage tank to await shipment off site to a licensed treatment facility for incineration or waste water treatment.

C4.E STABILIZATION

Drug & Laboratory Disposal receives heavy metal wastes from both regulated generators and non-regulated generators. The containers are required to be labeled as to their constituents. Metal salts of arsenic (D004), barium (D005), cadmium (D006), chromium (D007), lead (D008), mercury (D009), selenium (D010), silver (D011), copper (001D), and zinc (003D) are examples of the metals found in solutions received.

The stabilization process at DLD is designed to chemically convert these metals into insoluble heavy metal salts which can then be encapsulated (stabilized) in concrete and transported to a secure chemical landfill. This restricted waste (land ban waste) must meet the treatment standards specified in 40 CFR 268.41, and these treatment standards must be verified by a Toxicity Characteristic Leaching Procedure (TCLP) test.

The current process will be continued for all heavy metals wastes (D004 through D011) for which stabilization is determined to be the appropriate disposal method. It is important to note that the process used by DLD meets the treatment standards for all heavy metals, including mercury (D009) and arsenic (D004). Wastes classified as hazardous due to EPA characteristic hazards that is treated such that it no longer displays those characteristic, is no longer hazardous and, therefore, no longer needs to be stored, transported, and disposed of as hazardous waste. Because of this, solidified heavy metal solids passing these tests can be transported for disposal to a Type II landfill; however, DLD currently ships this waste to a Type I secure chemical landfill as a precaution.

Stabilization of waste will be carried out in DLS-2 or HWLB-1 under the supervision of a trained DLD chemist using generator (or manufacturer) information and knowledge gained from training and prior experience performing stabilization. In the stabilization process, the solids are mechanically mixed with Portland cement powder and aggregate and poured into a 1A2 drum where stabilization takes place.

During this stabilization/treatment process, a representative sample of each batch is collected using the ASTM Standard D140-70 method for extremely viscous liquids (as listed in Appendix I of 40 CFR Part 261) before it has hardened and allowed to solidify in the sample container. TCLP tests are then performed on this composite sample. Since this is a nearly continuous process, the sampling is used to verify and document that the waste stream produced has not changed. Analysis for metals utilizing EPA TCLP test method 1311 is conducted at least once each year that the stabilization processed is performed.

The sampling and analysis of solidified waste is performed whenever the stabilization process procedures are changed, any time the Hazardous Waste Chemist has reason to suspect that the solidified waste may have changed, or whenever the stabilization is not completed within 24 hours after placement of the waste into the shipment drum.

Stabilization of explosive materials will be carried out in DLS-2, DLS-5 (Volume 2), DLS-10, and/or DLS-11 (Volume 5).

Stabilization of radioactive materials will be performed in DLS-1, HWLB-1, DLS-5 (Volume 2), and DLS-10 (Volume 5) under the supervision of a trained DLD chemist using generator (or manufacturer) information and knowledge gained from training and prior experience performing stabilization. In the stabilization process, the radioactive materials are mechanically mixed with Portland cement and aggregate within the container that it will ultimately be shipped in for off site disposal at a licensed radioactive materials facility. Equipment used in the stabilization process (including personal protective equipment) is either decontaminated for re-use or is encapsulated for disposal as a radioactive material.

All waste is disposed of in accordance to State and Federal regulations with full consideration given to land disposal restriction.

C4.F NEUTRALIZATION

C4.F.1 Practices Common to DLD Neutralization Processes

As the primary means of identification, the generator's label is assumed to be correct; however, because errors in labeling can occur, it is expedient for a trained chemist to inspect containers during sorting and commingling. This inspection and evaluation of the physical and chemical properties of container contents, called the "fingerprint", will be documented for each shipment and is an invaluable safeguard against the contamination of waste streams and possible reaction of incompatible wastes. Inconsistency in the phase, color, density, viscosity, odor, homogeneity, or fingerprint analysis of the waste and the listed constituent(s) on the generator label can quickly be detected by the technical personnel employed at DLD.

After sorting and documenting that the fingerprint of the waste is comparable with the information received from the generator or, if warranted, laboratory analysis, these wastes are carefully neutralized to change their treatability group and to make the resultant waste more conducive to storage and transportation. Neutralization will be carried out in a licensed containment area (DLS-1, DLS-2, DLS-3, and HWLB-1) under the supervision of a trained DLD chemist using generator (or manufacturer) information and knowledge gained from training and prior bench tests. Since the neutralization process uses the heat sink method to prevent violent reactions from occurring and the wastes are likely to react with one another, testing for incompatibility is not a part of the process.

Neutralized waste is then stored in containers, lined containers, or IBC's compatible with the waste or, if the waste is a liquid, it may be commingled with other low BTU solutions and stored in one of DLD's 5,000-gallon stainless steel storage tanks.

Prior to shipment off site a representative sample of the storage tank is collected and analyzed so that the licensed destination facility will have adequate information describing the waste, as per 40 CFR 268 – Land Disposal Restrictions. The sample's various constituents and properties as determined by laboratory analysis and generator information must conform to the criteria set by the destination facility in order for the waste to be approved for receipt.

C4.F.2 Neutralization Categories

C4.F.2(a) Aqueous Acids and Aqueous Bases

Aqueous acids and bases are water solutions of inorganic compounds of varying concentrations and pH that may contain one or more of the EPA toxic characteristic metals (D004 through D011).

These liquid wastes are safely stored to prevent potentially incompatible acids and bases from reacting with each other until the liquids are commingled from their containers into a neutralization vessel. The safe commingling of these potentially incompatible liquids is carried out under the supervision of a trained DLD Hazardous Waste Chemist. Using generator information, knowledge gained from training and prior experience, and following the guidelines presented in Section C4.F.1 above, these wastes are carefully neutralized underneath a fume hood in any of the previously

mentioned containment areas. Great emphasis is placed on maintaining near neutrality in the vessel used for commingling since the mass of the neutralized liquid already present in the vessel acts as a heat sink to prevent violent reactions from occurring during the addition of smaller volumes. For this reason, an aliquot method of commingling is not used when processing aqueous acids and bases.

Both acids and bases are neutralized; however, acids predominate necessitating the use of basic solutions (ammonium hydroxide, sodium hydroxide, magnesium hydroxide, etc.) to maintain a relatively neutral pH in the neutralization vessel. The pH is checked via a universal pH indicator strip which can indicate a solution's pH at whole number intervals. When the neutralization vessel is full and a pH of 7 to 9 has been verified, the liquid has then been neutralized. The liquid from the neutralization vessel is then transferred to one of DLD's 5,000-gallon tanks for storage with other low BTU solutions.

Wastes in this category will be shipped off site for treatment at a licensed treatment facility.

C4.F.2(b) Heavy Metal Solutions

Heavy metal solutions are water solutions of compounds that contain one or more of the EPA toxic characteristic metals (D004 through D011) of varying concentrations and pH.

The safe commingling of these potentially incompatible liquids is carried out under the supervision of a trained DLD Hazardous Waste Chemist. Using generator information, knowledge gained from training and prior experience, and following the guidelines presented in Section C4.F.1, these wastes are carefully neutralized underneath a fume hood in any of the previously mentioned containment areas with the liquid present in the neutralization vessel used as a heat sink to prevent violent reactions from occurring during the addition of the comparatively smaller volumes of these wastes.

Both acidic and basic heavy metals solutions are treated in this process; however, acidic solutions are usually received in higher volumes than basic solutions. These liquid wastes are commingled using the heat sink method and a minimum pH of 10 is maintained using hydroxide solutions (ammonium hydroxide, sodium hydroxide, magnesium hydroxide, etc.). This results in a solution of heavy metal hydroxides which precipitate leaving supernatant liquids which no longer contain heavy metal concentrations above levels acceptable at the final disposal facility. The liquids and solids are separated to capture the solids and liberate the supernatant liquid.

In many instances the heavy metals content of the supernatant liquid is below RCRA limits. Even so, the supernatant liquids are transferred to one of DLD's 5,000-gallon tanks for storage with other low BTU solutions and are shipped off site for treatment at a licensed treatment facility.

The solids captured during the separation process contain the heavy metal wastes (D004 through D011) that were previously in solution and are collected and stored in containers. These solids may be stabilized on site or shipped off site for treatment at a licensed treatment facility. Solids with high mercury content are shipped off site for retort at a licensed treatment facility.

C4.F.3 Land Disposal Restriction Requirements

All waste is disposed of in accordance with State and Federal regulations with full consideration given to land disposal restriction requirements. DLD does not currently have a permit to discharge or a connection to a POTW.

C4.F.4 Neutralization/Precipitation Units

A by-product of the neutralization process can be the precipitation of solids. While the neutralized liquid waste may be stored in containers, or commingled with other low BTU solutions and stored in one of DLD's 5,000-gallon stainless steel storage tanks, excess solid waste in the storage tanks leads to corrosion. To minimize the amount of solids transferred to the storage tanks, neutralized waste is decanted so that the supernatant liquid may be placed in the storage tanks. The remaining mixture undergoes further processing prior to disposal.

To increase efficiency and reduce waste volumes, DLD proposes to use a series of portable tanks and a filter press for the neutralization, precipitation, and separation steps involved in this process (see Volume 1, Attachment C4-30). Trained DLD Hazardous Waste Chemists will identify and segregate wastes suitable for processing in the Neutralization/Precipitation Unit.

The first stage requires that all eligible liquids for neutralization/precipitation be fed into a large volume pH Neutralization Tank. The tank's pH is maintained close to neutral and takes advantage of the comparatively large mass of the neutralization tank which acts as a heat sink that prevents excessively violent reactions from occurring during the careful addition of waste.

The second stage is adjustment of the pH to maximize the precipitation of heavy metals. Maintaining the pH of this tank slightly above 10.5 optimizes the removal of RCRA metals from solution.

The next step in the process is the addition of a coagulant to tie up the solid fines and prevent them from exiting the process with the supernatant or effluent of the system. Flocculating agents are added in appropriate proportions to the precipitated solids and moved on to the Settling Tank.

The Settling Tank lets the bound solids settle to the bottom providing the opportunity for the supernatant liquid to be drawn off. The concentration of RCRA metals will be sufficiently low in the supernatant to allow it to be transferred to one of DLD's 5,000-gallon storage tanks.

Solids at the bottom of the Settling Tank will be transferred into the Solids Accumulation Tank and, once sufficient volume is accumulated, the solids are then fed into a filter press for liquid-solid separation.

In many instances the heavy metals content of the effluent from the filter press is below RCRA limits. Even so, these liquids are transferred to one of DLD's 5,000-gallon tanks for storage with other low BTU solutions and are shipped off site for treatment at a licensed treatment facility.

The solids captured during the separation process contain the heavy metal wastes (D004 through D011) that were previously in solution and are collected and stored in containers. These solids may be stabilized on site or shipped off site for treatment at a licensed treatment facility. Solids with high mercury content are shipped off site for retort at a licensed treatment facility.

DLD proposes to operate only one (1) Neutralization/Precipitation Unit in the DLS-3 containment area.

C4.G STORAGE

For long term storage of reactive materials meeting the definition of Volume 1, Sections C4.C.7 and C4.C.8, see Volume 6, Part III, Section C1. For storage of radioactive materials, see Volume 6, Part IV, Section C1. For all other materials, see Volume 1, Attachment C1, Containers, for storage information.

C4.H TREATMENT CAPACITIES

C4.H.1 Wastes Listed in Part A (DLS-1, DLS-2, DLS-3, HWLB-1)

DLD shall treat no more than a total volume of 5,115 gallons (ninety-three (93), 55-gallon drums) at a time of hazardous wastes listed in Volume 1, Part A, pages 5-21, of this license in the containment areas designated as DLS-1, DLS-2, DLS-3, and HWLB-1, excluding the treatment capacity of the Neutralization/Precipitation Unit in Section C4.H.7 below.

C4.H.2 Solidification (DLS-2)

DLD shall treat no more than a maximum of 165 gallons (three (3), 55-gallon drums) in the area during treatment at a time of hazardous waste in DLS-2 using the solidification treatment method specified in Volume 1, Section C4.E.

C4.H.3 Inorganic Fume Hoods (DLS-3)

DLD shall store or treat no more than 550 gallons (ten (10), 55-gallon drums) at a time under each of the inorganics fume hoods in the containment area designated as DLS-3.

C4.H.4 Organic Fume Hoods (DLS-3)

DLD shall store or treat no more than 550 gallons (ten (10), 55-gallon drums) at a time under each of the organics fume hoods in the containment area designated as DLS-3.

C4.H.5 Shredders (DLS-2)

DLD shall treat no more than a maximum throughput capacity of 4,125 gallons (seventy-five (75), 55-gallon drums) per day in a shredder (see Volume 1, Section C9 for information concerning shredders). DLD proposes to operate a maximum of two (2) shredders, fitted with pollution control devices, in the containment area designated as DLS-2.

C4.H.6 Distillation (DLS-3)

DLD shall treat no more than a maximum throughput capacity of 330 gallons (six (6), 55-gallon drums) per day in each distillation unit in the containment area designated as DLS-3. DLD proposes to operate a maximum of two (2) distillation units in DLS-3.

C4.H.7 Neutralization/Precipitation Unit (DLS-3)

DLD proposes a maximum throughput capacity of 1,540 gallons (twenty-eight (28), 55-gallon drums) per day in the Neutralization/Precipitation Unit in the containment area designated as DLS-3. The Neutralization/Precipitation Unit may store and treat no more than 3000 gallons. DLD proposes to operate a single (1) Neutralization/Precipitation Unit in DLS-3.

C4.H.8 Fume Hood (DLS-1)

DLD proposes to store or treat no more than 550 gallons (ten (10), 55-gallon drums) at a time under a single fume hood in the containment area designated as DLS-1.

C4.H.9 Fume Hoods (DLS-2)

DLD proposes to store or treat no more than 550 gallons (ten (10), 55-gallon drums) at a time under each of the fume hoods in the containment area designated as DLS-2. DLD proposes to operate a maximum of two fume hoods in DLS-2.

C4.H.9 Fume Hood (HWLB-1)

DLD proposes to store or treat no more than 550 gallons (ten (10), 55-gallon drums) at a time under a single fume hood in the containment area designated as HWLB-1.

C4.H.11 Multiple Fume Hood Units (DLS-3)

DLD proposes to operate a maximum of ten (10) fume hoods in the containment area designated as DLS-3, excluding pollution control devices fitted to the hammer mill and shredders.

C4.H.12 Multiple Shredder Units (HWLB-1)

DLD proposes to operate a maximum of three (3) shredders, fitted with pollution control devices, in the containment area designated as HWLB-1.

C4.H.13 Hammer Mill (DLS-2)

DLD proposes a maximum throughput capacity of 7,920 gallons (one hundred forty-four (144), 55-gallon drums) per day in the hammer mill. The hammer mill may store and treat no more than165 gallons at a time. DLD proposes to operate a single (1) hammer mill in DLS-2.

C4.H.14 Metals Reclamation (DLS-3, HWLB-1)

DLD proposes a maximum throughput capacity of 330 gallons (six (6), 55-gallon drums) per day per Metals Reclamation (Electrolysis) Unit. DLD proposes to operate one Metals Reclamation Unit in DLS-3 and one Metals Reclamation Unit in HWLB-1.

C4.H.15 Filter Press Units (DLS-1, DLS-3, HWLB-1)

DLD proposes to operate a maximum of three (3) 10 cubic foot Filter Press Units. DLD proposes a throughput capacity of 1,540 gallons (twenty-eight (28), 55-gallon drums) per day in each Filter Press Unit. These units may be operated in DLS-1, DLS-3, and HWLB-1.

C4.H.16 Aerosol Recovery/Recycling (DLS-2, DLS-3)

DLD proposes a maximum throughput capacity of 330 gallons (six (6), 55-gallon drums) per day in each Aerosol Recovery/Recycling unit. DLD proposes to operate a maximum of four (4) Aerosol Recovery/Recycling units. These units may be operated in DLS-2 and DLS-3.

C4.H.17 Conversion Method (DLS-3, DLS-5, DLS-10, DLS-11)

DLD proposes to treat no more than one (1) pound at a time of waste fitting the descriptions presented in Sections C4.C.7 and C4.C.8 (above) using the Conversion Method (presented in Sections C4.C.7(c)(i) and C4.C.8(c)(i) above).

C4.H.18 Dissolution Method (DLS-3, DLS-5, DLS-10, DLS-11)

DLD proposes to treat no more than one (1) pound of uninhibited waste or five (5) pounds of inhibited or quenched waste at a time fitting the descriptions presented in Sections C4.C.7 and C4.C.8 (above) using the Dissolution Method (presented in Sections C4.C.7(c)(ii) and C4.C.8(c)(ii) above).

C4.H.19 Stabilization Method (DLS-2, HWLB-1, DLS-5, DLS-10, DLS-11)

DLD proposes to treat no more than one (1) pound of uninhibited waste or five (5) pounds of inhibited or quenched waste at a time fitting the descriptions presented in Sections C4.C.7 and C4.C.8 (above) using the Stabilization Method (presented in Sections C4.C.7(c)(iii) and C4.C.8(c)(iii) above).

C4.H.20 Detonation Method (Off-site)

DLD proposes to use 27 CFR 555.218 as a guideline to determine the maximum quantity of waste fitting the descriptions presented in Sections C4.C.7 and C4.C.8 (above) that may be safely treated at one time using the Detonation Method (presented in Sections C4.C.7(c)(iv) and C4.C.8(c)(iv) above).

C4.I DISTILLATION

Some of the wastes received at DLD are contaminated solvents and spent solutions that are no longer useful to the generator. Distillation allows the reclamation and re-use of spent materials that would normally be disposed of as waste. Most solvents can be recovered through either simple distillation or fractional distillation, with the reclaimed material being a pure or nearly pure, completely usable product. Many spent solutions can also be restored to working concentrations and specified purity for reuse.

Distillation will be performed in the DLS-3 containment area using closed-loop distillation apparatuses which do not have process vents, and which consist of a process chamber (also called a boiler, reboiler, or pot), encapsulated heaters, condenser, associated piping, instrumentation, and collection vessel. Also, depending on the physical properties of the solvent/solution mixture, a reflux column and a vacuum pump unit may be used to facilitate separation and efficiency. Distillation on spent materials with a potential for generating fugitive emissions will be performed under a fume hood. Distillation will be performed underneath one of the organic fume hoods.

The following distillation methods will be used with the distillation apparatuses as described above:

C4.I.1 Simple Distillation

Simple distillation is typically used to separate liquids with greatly differing boiling points (50°F or more, as a rule of thumb). It is also used for purifying volatile liquids that contain non-volatile impurities (i.e. – oil, grease, rust).

In simple distillation, liquid is placed in the process chamber and heated to generate vapor from the lowest boiling constituent of the mixture. The vapor that travels out of the top of the process chamber, is cooled in a condenser, and is collected as a purified liquid in a collection vessel.

C4.I.2 Fractional Distillation

In cases where the boiling points of constituents in the liquid mixture are relatively close together, fractional distillation may be required. This type of distillation requires the addition of a packed reflux column between the process chamber and the condenser to provide repeated vaporization-condensation cycles within the confines of the reflux column. The repeated vaporization and condensation of the mixture allows the lower boiling point constituent, referred to as a fraction, to rise up the column in increasing purity and be captured as it leaves the condenser.

The passage of the lowest boiling point fraction allows the reflux column temperature to increase and begin purification of the next fraction. In this manner each constituent from the liquid mixture that is fractionable is separated and collected.

C4.I.3 Vacuum Distillation

By applying a vacuum to a system (i.e. – decreasing the pressure) the boiling point of constituents within the system will also be proportionally decreased. This is desirable if (1) the mixture to be distilled contains very high boiling compounds; (2) the normal boiling point of any constituent is above its decomposition temperature; or (3) a pressure swing is required to break an azeotrope.

Vacuum distillation is frequently used in the separation of oils.

C4.I.4 Azeotropic Distillation

An azeotrope is a mixture of two or more liquids whose composition cannot be changed by simple distillation. Azeotropes boil at a temperature that is different (higher or lower) from the boiling points of its constituents. Heating the mixture generates a vapor with the same ratio of constituents as the liquid mixture rendering simple distillation ineffective when attempting to separate the constituents.

Azeotropic distillation encompasses the use of techniques to break the azeotrope and allow the separation of pure constituents. One technique consists of adding additional constituents to the mixture that form a new mixture without an azeotrope or a mixture that forms an azeotrope that has already been surpassed by the temperature of the column. Pressure change, both negative and positive, is also commonly used to break azeotropes.

C4.J ELECTROLYTIC RECOVERY OF METALS

DLD proposes to use electrolysis to recover metals from wastes. Electrolytic recovery of metals, such as copper, silver, gold, platinum, and mercury, can reduce the amount of waste generated by this facility and return these metals to the industrial and consumer markets. Through the use of a controlled electric current, metals that are dissolved or suspended in waste solutions can be recovered. Solid wastes can be dissolved and the desirable metals can be subsequently recovered from solution and purified.

Electrolytic recovery of metals will be performed in the DLS-3 and HWLB-1 containment areas under a fume hood to control the potential release of toxic or otherwise dangerous emissions. A rectifier using an anode and cathode compatible with the waste material will be employed to carefully regulate the current to optimize the removal of the desired metal(s). Recovered metals will then be recycled.

All waste received at DLD is disposed of in accordance with State and Federal regulations with full consideration given to land disposal restriction requirements.

C4: TREATMENT

(Volume 2)

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This template is organized as follows:

C4: TREATMENT

(Volume 2)

C4.A LAB PACKING

Lab packing conducted in the DLS-5 Containment Area will follow the guidelines presented in Volume 1, Section C4.A, Lab Packing.

C4.B COMMINGLING

Commingling conducted in the DLS-5 Containment Area will follow the guidelines presented in Volume 1, Section C4.B, Commingling. All commingling operations listed in Volume 1, Section C4.B, Commingling, may be performed in the DLS-5 Containment Area.

C4.C REACTIVES

Handling of reactive wastes in the DLS-5 Containment Area will be conducted following the guidelines presented in Volume 1, Section C4.C, Reactives.

C4.D HEXAVALENT CHROMIUM TREATMENT

Treatment of wastes bearing hexavalent Chromium in the DLS-5 Containment Area will be conducted following the guidelines in Volume 1, Section C4.D, Hexavalent Chromium Treatment.

C4.E STABILIZATION

Stabilization performed in the DLS-5 Containment Area will be conducted following the guidelines in Volume 1, Section C4.E, Stabilization.

C4.F NEUTRALIZATION

Neutralization operations performed in the DLS-5 Containment Area will be conducted following the guidelines in Volume 1, Section C4.F, Neutralization. The following additional information is included in regard to Neutralization of waste in the DLS-5 containment area.

C4.F.4 Neutralization/Precipitation Units

DLD proposes to operate only one (1) Neutralization/Precipitation Unit in the DLS-5 containment area. The Neutralization/Precipitation Unit will be operated in the area designated in Volume 2, Attachment C1-53.

C4.G STORAGE

All areas that are not allocated for treatment and areas allocated for treatment that are inactive (see C4.K, Process Area Allocation) will be used for storage subject to the provisions in Volume 2, Attachment C1, Containers. Storage of waste in active treatment areas will be subject to the provisions in Volume 2, Attachment C1, Containers, and the additional constraints presented in C4.K.2, Storage Within Pods. Storage areas will be managed to maintain aisle space adequate for the entrance and egress of personnel and equipment.

C4.H TREATMENT CAPACITIES

DLD shall treat no more than a total volume of 3,520 gallons (64, 55-gallon drums) at a time of hazardous wastes listed in Volume 1, Part A, pages 5-21, of this license in the containment areas designated as DLS-5, excluding the treatment capacity of the Neutralization/Precipitation Unit in C4.H.23 below.

C4.H.22 Solidification (DLS-5)

DLD shall treat no more than a maximum of 165 gallons (three, 55-gallon drums) in the area during treatment at a time of hazardous waste in DLS-5 using the solidification treatment method specified in Volume 1, C4.E.

C4.H.23 Inorganic Fume Hoods (DLS-5)

DLD shall store or treat no more than 550 gallons (ten, 55-gallon drums) at a time under each of the inorganics fume hoods in the containment area designated as DLS-5.

C4.H.24 Organic Fume Hoods (DLS-5)

DLD shall store or treat no more than 550 gallons (ten, 55-gallon drums) at a time under each of the organics fume hoods in the containment area designated as DLS-5.

C4.H.25 Shredders (DLS-5)

DLD shall treat no more than a maximum throughput capacity of 4,125 gallons (75, 55-gallon drums) per day in a shredder (see Volume 1, Section C9, for information concerning shredders) in the containment area designated as DLS-5.

C4.H.26 Distillation (DLS-5)

DLD shall treat no more than a maximum throughput capacity of 330 gallons (6, 55-gallon drums) per day in each distillation unit in the containment area

designated as DLS-5. DLD proposes to operate a maximum of three (3) distillation units in DLS-5.

C4.H.27 Neutralization/Precipitation Unit (DLS-5)

DLD proposes a maximum throughput capacity of 1,540 gallons (28, 55-gallon drums) per day in the Neutralization/Precipitation Unit in the containment area designated as DLS-5. The Neutralization/Precipitation Unit may store and treat no more than 3000 gallons. DLD proposes to operate a single (1) Neutralization/Precipitation Unit in DLS-5.

C4.H.28 Multiple Fume Hoods (DLS-5)

DLD proposes to operate a maximum of 6 fume hoods in the containment area designated as DLS-5, excluding pollution control devices fitted to shredders.

C4.H.29 Multiple Shredders (DLS-5)

DLD proposes operate a maximum of four (4) shredders, fitted with pollution control devices, in the containment area designated as DLS-5.

C4.H.30 Metals Reclamation (DLS-5)

DLD proposes a maximum throughput capacity of 330 gallons (6, 55-gallon drums) per day per Metals Reclamation (Electrolysis) Unit. DLD proposes to operate one Metals Reclamation Unit in DLS-5.

C4.H.31 Filter Press Units (DLS-5)

DLD proposes to operate a maximum of two (2) 10 cubic foot Filter Press Units in DLS-5. DLD proposes a throughput capacity of 1,540 gallons (28, 55-gallon drums) per day in each Filter Press Unit.

C4.H.32 Aerosol Recovery/Recycling (DLS-5)

DLD proposes a maximum throughput capacity of 330 gallons (6, 55-gallon drums) per day in each Aerosol Recovery/Recycling unit. DLD proposes to operate a maximum of four (4) Aerosol Recovery/Recycling units in DLS-5.

C4.I DISTILLATION

Distillation operations performed in the DLS-5 Containment Area will be conducted following the guidelines presented in Volume 1, C4.I, Distillation. Distillation in DLS-5 will be performed in the area designated for this process (see Volume 2, Attachment C1-53).

C4.J ELECTROLYTIC RECOVERY OF METALS

Electrolytic recovery of metals performed in the DLS-5 Containment Area will be conducted following the guidelines presented in Volume 1, Section C4.J, Electrolytic Recovery of Metals. Electrolytic recovery of metals will be performed in the area noted on the Volume 2, Appendix C1-53, Process Area Allocation diagram.

C4.K PROCESS AREA ALLOCATION

C4.K.1 Pods

To minimize the potential for unexpected chemical interaction during the processing and storage of waste, the secondary containment area of DLS-5 has been divided into sections that are referred to as pods. Each pod delineates a footprint in which treatment for a specific waste stream, waste type, and/or waste process occurs (see Volume 2, Attachment C1-53). Pod boundaries are designed to be sufficiently expansive to simultaneously house:

- Processing equipment and supplies pertinent to treatment
- Required pollution control devices
- Accumulation containers
- Containers of waste undergoing treatment per Volume 2, C4.H Treatment Capacities
- Storage of containers of waste awaiting processing
- Storage of containers of processed waste prior to transfer to a primary waste storage area
- Spill clean-up materials
- Safety equipment

Pods will be managed to maintain aisle space adequate for the entrance and egress of personnel and equipment. Pods will also be managed to maintain adequate space for treatment processes.

Pods will be considered active when the processing equipment has been installed and the pod is ready to commence treatment. Pods will be considered inactive: (1) prior to the installation of processing equipment and subsequent commencement of treatment or (2) if treatment is no longer being performed in it.

C4.K.2 Storage Within Pods

Waste stored within the boundaries of an inactive pod will conform to the storage specifications presented in Volume 2, C1: USE AND MANAGEMENT OF CONTAINERS.

Waste stored within the boundaries of in an active pod will conform to the storage specifications presented in Volume 2, C1: USE AND MANAGEMENT OF CONTAINERS and will be additionally limited to:

1. Containers of waste staged for treatment in the pod.
2. Containers of waste undergoing treatment in the pod.
3. Containers of waste treated in the pod prior to transfer into primary storage.

C4: TREATMENT

(Volume 3)

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This template is organized as follows:

C4: TREATMENT

(Volume 3)

C4.A LAB PACKING

Lab packing conducted in the DLS-7 Containment Area will follow the guidelines presented in Volume 1, Section C4.A, Lab Packing. Lab packing activities will be conducted in the areas indicated in the Storage Area Allocation diagram (Volume 3, Attachment C1-71) that are not occupied by containers of stored waste.

C4.G STORAGE

See Volume 3, Attachment C1, Containers, for storage information.

C4: TREATMENT

(Volume 1)

Table of Contents

This template is organized as follows:

C4: TREATMENT

(Volume 4)

C4.A LAB PACKING

Lab packing conducted in the DLS-8 and DLS-9 Containment Areas will follow the guidelines presented in Volume 1, Section C4.A: Lab Packing.

C4.G STORAGE

See Volume 4, Attachment C1, Containers, for storage information.

C4: TREATMENT

(Volume 5)

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This template is organized as follows:

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C4: TREATMENT

(Volume 5)

C4.A LAB PACKING

Lab packing conducted in the DLS-10 and DLS-11 Containment Areas will follow the guidelines presented in Volume 1, Section C4.A, Lab Packing.

C4.B COMMINGLING

Commingling conducted in the DLS-10 and DLS-11 Containment Areas will follow the guidelines presented in Volume 1, Section C4.B, Commingling. All commingling operations listed in Volume 1, Section C4.B, Commingling, may be performed in the DLS-10 and DLS-11 Containment Areas.

C4.C REACTIVES

Handling of reactive wastes in the DLS-10 and DLS-11 Containment Areas will be conducted following the guidelines presented in Volume 1, Section C4.C, Reactives.

C4.D HEXAVALENT CHROMIUM TREATMENT

Treatment of wastes bearing hexavalent Chromium in the DLS-10 and DLS-11 Containment Areas will be conducted following the guidelines in Volume 1, Section C4.D, Hexavalent Chromium Treatment.

C4.E STABILIZATION

Stabilization performed in the DLS-10 and DLS-11 Containment Areas will be conducted following the guidelines in Volume 1, Section C4.E, Stabilization.

C4.F NEUTRALIZATION

Neutralization operations performed in the DLS-10 and DLS-11 Containment Areas will be conducted following the guidelines in Volume 1, Section C4.F, Neutralization. The following additional information is included in regard to Neutralization of waste in the DLS-10 and DLS-11 containment areas.

C4.F.4 Neutralization/Precipitation Units

DLD proposes to operate a maximum of three (3) Neutralization/Precipitation Units in the DLS-10 containment area. The Neutralization/Precipitation Unit will be operated in the area designated in Volume 5, Attachment C4-100.
DLD proposes to operate a maximum of two (2) Neutralization/Precipitation Units in the DLS-11 containment area. The Neutralization/Precipitation Unit will be operated in the area designated in Volume 5, Attachment C4-110.

C4.G STORAGE

All areas that are not allocated for treatment and areas allocated for treatment that are inactive (see C4.K, Process Area Allocation) will be used for storage subject to the provisions in Volume 5, Attachment C1, Containers. Storage of waste in active treatment areas will be subject to the provisions in Volume 5, Attachment C1, Containers, and the additional constraints presented in C4.K.2, Storage Within Pods. Storage areas will be managed to maintain aisle space adequate for the entrance and egress of personnel and equipment.

C4.H TREATMENT CAPACITIES

C4.H.33 Wastes Listed in Part A (DLS-10)

DLD shall treat no more than a total volume of 3,960 gallons (72, 55-gallon drums) at a time of hazardous wastes listed in Volume 1, Part A, pages 5-21, of this license in the containment areas designated as DLS-10, excluding the treatment capacity of the Neutralization/Precipitation Units in C4.H.35 below.

C4.H.34 Solidification (DLS-10)

DLD shall treat no more than a maximum of 165 gallons (three, 55-gallon drums) in the area during treatment at a time of hazardous waste in DLS-10 using the solidification treatment method specified in C4.E.

C4.H.35 Inorganic Fume Hoods (DLS-10)

DLD shall store or treat no more than 550 gallons (ten, 55-gallon drums) at a time under each of the inorganics fume hoods in the containment area designated as DLS-10.

C4.H.36 Organic Fume Hoods (DLS-10)

DLD shall store or treat no more than 550 gallons (ten, 55-gallon drums) at a time under each of the organics fume hoods in the containment area designated as DLS-10.

C4.H.37 Shredders (DLS-10)

DLD shall treat no more than a maximum throughput capacity of 4,125 gallons (75, 55-gallon drums) per day in a shredder (see Volume 5, Section C9 for information concerning DLS-10 shredders) in the containment area designated as DLS-10.

C4.H.38 Distillation (DLS-10)

DLD shall treat no more than a maximum throughput capacity of 330 gallons (six, 55-gallon drums) per day in each distillation unit in the containment area designated as DLS-10. DLD proposes to operate no more than two (2) distillation units in DLS-10.

C4.H.39 Neutralization/Precipitation Units (DLS-10)

DLD proposes a maximum throughput capacity of 1,540 gallons (28, 55-gallon drums) per day in each Neutralization/Precipitation Unit in the containment area designated as DLS-10. Each Neutralization/Precipitation Unit may store and treat no more than 3000 gallons. DLD proposes to operate a maximum of three (3) Neutralization/Precipitation Units in DLS-10.

C4.H.40 Multiple Fume Hoods (DLS-10)

DLD proposes to operate a maximum of 10 fume hoods in the containment area designated as DLS-10, excluding pollution control devices fitted to shredders.

C4.H.41 Multiple Shredders (DLS-10)

DLD proposes to operate a maximum of two shredders, fitted with pollution control devices, in the containment area designated as DLS-10.

C4.H.42 Metals Reclamation (DLS-10)

DLD proposes a maximum throughput capacity of 330 gallons (6, 55-gallon drums) per day per Metals Reclamation (Electrolysis) Unit. DLD proposes to operate two (2) Metals Reclamation Unit in DLS-10.

C4.H.43 Filter Press Units (DLS-10)

DLD proposes to operate a maximum of three (3) 15 cubic foot Filter Press Units in DLS-10. DLD proposes a throughput capacity of 1,540 gallons (28, 55-gallon drums) per day in each Filter Press Unit.

C4.H.44 Aerosol Recovery/Recycling (DLS-10)

DLD proposes a maximum throughput capacity of 330 gallons (6, 55-gallon drums) per day in each Aerosol Recovery/Recycling unit. DLD proposes to operate a maximum of four (4) Aerosol Recovery/Recycling units in DLS-10.

C4.H.45 Wastes Listed in Part A (DLS-11)

DLD shall treat no more than a total volume of 15,510 gallons (282, 55-gallon drums) at a time of hazardous wastes listed in Volume 1, Part A, pages 5-21, of this license in the containment areas designated as DLS-11, excluding the treatment capacity of the Neutralization/Precipitation Units in C4.H.47 below.

C4.H.46 Solidification (DLS-11)

DLD shall treat no more than a maximum of 275 gallons (five, 55-gallon drums) in the area during treatment at a time of hazardous waste in DLS-11 using the solidification treatment method specified in C4.E of the DLS-11 portion of this license.

C4.H.47 Inorganic Fume Hoods (DSL-11)

DLD shall store or treat no more than 550 gallons (ten, 55-gallon drums) at a time under each of the inorganics fume hoods in the containment area designated as DLS-11.

C4.H.48 Organic Fume Hoods (DLS-11)

DLD shall store or treat no more than 550 gallons (ten, 55-gallon drums) at a time under each of the organics fume hoods in the containment area designated as DLS-11.

C4.H.49 Shredders (DSL-11)

DLD shall treat no more than a maximum throughput capacity of 4,125 gallons (75, 55-gallon drums) per day in a shredder (see the Volume 5, Section C9 for DLS-11 information concerning shredders) in the containment area designated as DLS-11.

C4.H.50 Distillation (DLS-11)

DLD shall treat no more than a maximum throughput capacity of 330 gallons (6, 55-gallon drums) per day in each distillation unit in the containment area designated as DLS-11. DLD proposes to operate no more than two (2) distillation units in DLS-11.

C4.H.51 Neutralization/Precipitation Units (DLS-11)

DLD proposes a maximum throughput capacity of 1,540 gallons (28, 55-gallon drums) per day in each Neutralization/Precipitation Unit in the containment area designated as DLS-11. Each Neutralization/Precipitation Unit may store and treat no more than 3,000 gallons. DLD proposes to operate a maximum of two (2) Neutralization/Precipitation Units in DLS-11.

C4.H.52 Multiple Fume Hoods (DLS-11)

DLD proposes to operate a maximum of 28 fume hoods in the containment area designated as DLS-11, excluding pollution control devices fitted to shredders.

C4.H.53 Multiple Shredders (DLS-11)

DLD proposes to operate a maximum of two (2) shredders, fitted with pollution control devices, in the containment area designated as DLS-11.

C4.H.54 Metals Reclamation (DLS-11)

DLD proposes a maximum throughput capacity of 330 gallons (6, 55-gallon drums) per day per Metals Reclamation (Electrolysis) Unit. DLD proposes to operate one Metals Reclamation Unit in DLS-11.

C4.H.55 Filter Press Units (DLS-11)

DLD proposes to operate a maximum of two (2) 15 cubic foot Filter Press Units in DLS-11. DLD proposes a throughput capacity of 1,540 gallons (28, 55-gallon drums) per day in each Filter Press Unit.

C4.H.56 Aerosol Recovery/Recycling (DLS-11)

DLD proposes a maximum throughput capacity of 330 gallons (6, 55-gallon drums) per day in each Aerosol Recovery/Recycling unit. DLD proposes to operate a maximum of two (2) Aerosol Recovery/Recycling units in DLS-11.

C4.I DISTILLATION

Distillation operations performed in the DLS-10 and DLS-11 Containment Areas will be conducted following the guidelines presented in Volume 1, C4.I, Distillation. Distillation in DLS-10 will only be performed in the area designated for this process (see Volume 5, Appendix C4-100). Distillation in DLS-11 will only be performed in the area designated for this process (see Volume 5, Attachment C4-110).

C4.J ELECTROLYTIC RECOVERY OF METALS

Electrolytic recovery of metals performed in the DLS-10 and DLS-11 Containment Areas will be conducted following the guidelines presented in Volume 1, Section C4.J, Electrolytic Recovery of Metals. Electrolytic recovery of metals will be performed in the neutralization portion of the DLS-10 containment area (see Volume 5, Appendix C4-100, Process Area Allocation diagram). Electrolytic recovery of metals will be performed in the neutralization portion of the DLS-11 containment area (see Volume 5, Appendix C4-110, Process Area Allocation diagram).

C4.K PROCESS AREA ALLOCATION

C4.K.1 Pods

To minimize the potential for unexpected chemical interaction during the processing and storage of waste, the secondary containment area has been divided into sections that are referred to as pods. Each pod delineates a footprint in which treatment for a specific waste stream, waste type, and/or waste process occurs (see Volume 5, Attachments C4-100 and C4-110). Pod boundaries are designed to be sufficiently expansive to simultaneously house:

- Processing equipment and supplies pertinent to treatment
- Required pollution control devices
- Accumulation containers
- Containers of waste undergoing treatment per Volume 5, C4.H Treatment Capacities
- Storage of containers of waste awaiting processing
- Storage of containers of processed waste prior to transfer to a primary waste storage area
- Spill clean-up materials
- Safety equipment

Pods will be managed to maintain aisle space adequate for the entrance and egress of personnel and equipment. Pods will also be managed to maintain adequate space for treatment processes.

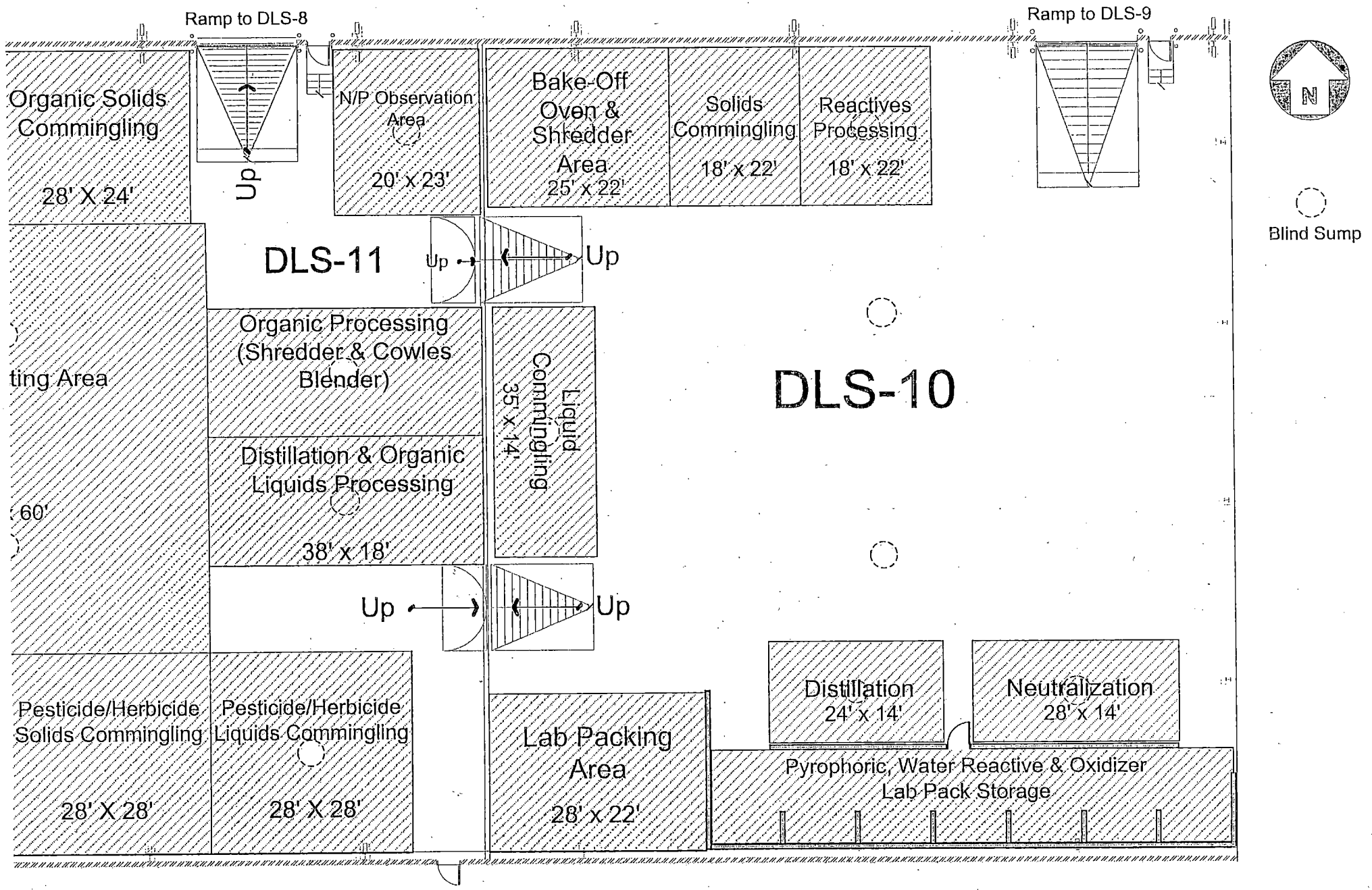
Pods will be considered active when the processing equipment has been installed and the pod is ready to commence treatment. Pods will be considered inactive: (1) prior to the installation of processing equipment and subsequent commencement of treatment or (2) if treatment is no longer being performed in it.

C4.K.2 Storage Within Pods

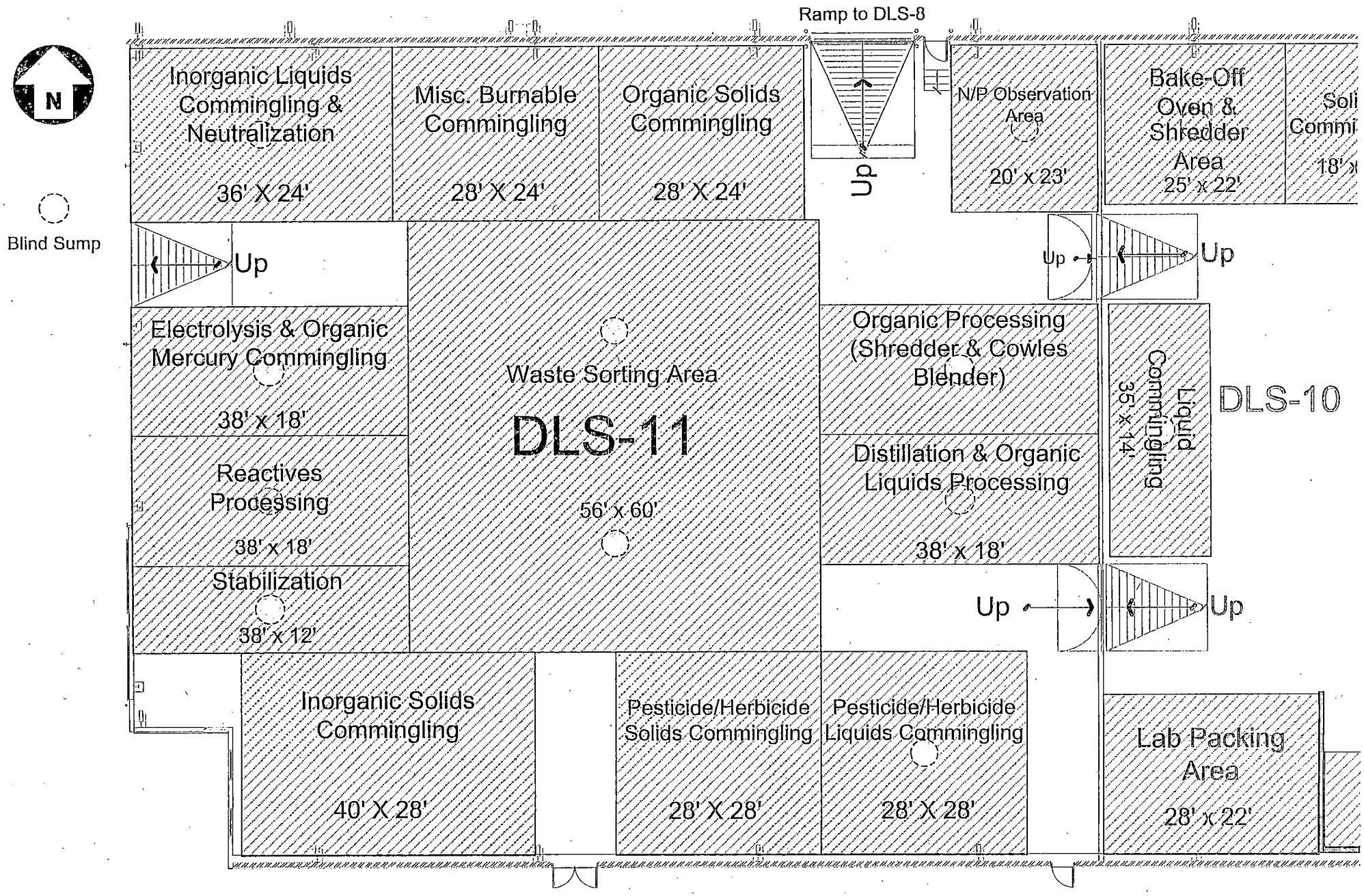
Waste stored within the boundaries of an inactive pod will conform to the storage specifications presented in Volume 5, C1: USE AND MANAGEMENT OF CONTAINERS.

Waste stored within the boundaries of in an active pod will conform to the storage specifications presented in Volume 5, C1: USE AND MANAGEMENT OF CONTAINERS and will be additionally limited to:

1. Containers of waste staged for treatment in the pod.
2. Containers of waste undergoing treatment in the pod.
3. Containers of waste treated in the pod prior to transfer into primary storage.



DLS-10 Process Area Allocation



DLS-11 Process Area Allocation

ATTACHMENT 9

TANK SYSTEMS

FORM EQP 5111 TEMPLATE

C2: TANK SYSTEMS

(Volume 1)

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.

R 299.9615 and R 299.9627 of 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 29.4101 to R 29.4505 promulgated pursuant to the provisions of the Michigan Fire Protection Act, PA 207, as amended (Act 207); and Title 40 of the Code of Federal Regulations (CFR) §§270.14(d), 270.16, 270.24, and 270.27 (Part 264, Subpart J and Part 60, Attachment A) establish requirements for tank systems. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

This license application template addresses requirements for tank systems at Drug & Laboratory Disposal, Inc. facility in Plainwell, Michigan. This template includes assessments of new and existing tank systems; installation of new tank systems; secondary containment systems and release detection; variances for secondary containment; controls and practices to prevent spills and overfills; inspections; response to leaks or spills and disposition of leaking or unfit-for-use tank systems; closure and postclosure requirements; requirements for storing or treating ignitable, reactive, or incompatible wastes

This template is organized as follows:

(Check as appropriate)

☒ Existing Tank System

☐ New Tank System

Instructions:

📖 EPA 1986. *Technical Resource Document for the Storage and Treatment of Hazardous Waste in Tank Systems.* Document No. 530-SW-86-044. December.

Note: Template C11, Subpart CC, Air Emissions from Tanks, Containers, and Surface Impoundments, addresses air emissions for tanks. Also note that while specific closure requirements for tank systems are addressed in this template, you may reference information in Template A11, Closure and Postclosure Plan.

This template is organized as follows:

C2.F CONTROLS AND PRACTICES TO PREVENT SPILLS AND OVERFILLS

C2.F.1 Spill Prevention Controls

C2.F.2 Overfill Prevention Controls

C2.F.3 Freeboard Maintenance

C2.G INSPECTIONS

C2.G.1 Schedule and Procedures for Overfill Control System Inspections

C2.G.2 Daily Inspections of Aboveground Portions of Tank Systems and Monitoring and Leak Detection Data

C2.G.3 Daily Inspection of Construction Materials, Local Areas, and Secondary Containment System for Erosion and Leakage

C2.G.4 Inspection of Cathodic Protection Systems

C2.G.5 Inspection Requirements Before Full Secondary Containment is Provided

Not Applicable. Full secondary containment has already been provided.

C2.G.6 Reporting Requirements

C2.H RESPONSE TO LEAKS OR SPILLS AND DISPOSITION OF LEAKING OR UNFIT-FOR-USE TANK SYSTEMS

C2.H.1 Response Actions for Leaks and Spills

- C2.H.1(a) Waste Flow Stoppage
- C2.H.1(b) Waste Removal
- C2.H.1(c) Visible Release Containment
- C2.H.1(d) Repair, Replacement, or Closure
- C2.H.1(e) Certification of Major Repairs

C2.H.2 Required Notifications and Reports

C2.I CLOSURE AND POSTCLOSURE REQUIREMENTS

C2.I.1 Category A

- C2.I.1(a) Closure Plan
- C2.I.1(b) Closure Activities
- C2.I.1(c) Cost Estimate for Closure
- C2.I.1(d) Financial Assurance for Closure

C2.I.2 Category B

Not Applicable

C2.I.3 Category C

Not Applicable

C2.I.4 Category D

Not Applicable

C2.J SPECIAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTES

C2.J.1 Ignitable or Reactive Wastes Precautions

C2.J.2 Distance Requirements for Ignitable or Reactive Wastes

C2.J.3 Incompatible Wastes

C2.A ASSESSMENT OF EXISTING TANK SYSTEM
[R 299.9615(1) and 40 CFR, Part 264, Subpart J]

The DLD tank system consists of six 5,000-gallon 304 stainless steel tanks placed in specially designed concrete vaults. Three tanks reside in a vault within the secondary containment area, designated DLS-3, which meets the requirements of 40 CFR §264.193 by approval of a technology- based variance (see C2.E, VARIANCES FOR SECONDARY CONTAINMENT). Three tanks reside in a vault, designated as DLS-4, which meets the requirements of 40 CFR §264.193.

A written assessment that attests to the tank system's integrity must be reviewed and certified by an independent, qualified, registered professional engineer. The written assessment must be kept on file at the facility.

Tank systems that store or treat materials that become hazardous wastes subsequent to July 14, 1986, must conduct this assessment within 12 months of the date that the waste becomes a hazardous waste.

This assessment must determine that the tank system is adequately designed and has sufficient structural strength and compatibility with the waste(s) to be stored or treated to ensure that it will not collapse, rupture, or fail. This assessment must verify that all tank systems were designed, constructed, operated, and maintained in compliance with the requirements of R 29.4101 to R 29.4505 pursuant to the provisions of Act 207. At a minimum, this assessment must consider the following:

C2.A.1 Design Standards
[R 299.9615 \(1) and 40 CFR §264.191(b)(1)]

The tanks at DLD were designed specifically to house ignitable waste. The three existing tanks in the DLS-3 vault were constructed to the specifications in Volume 1, Attachment B6-1.4 in 1984 and placed in service in 1985. Three additional tanks reside in the DLS-4 containment vault constructed in 1990 to the specifications in Volume 1, Attachment B6-1.5 and placed in service in 1991. All of the tanks were fabricated by Dowagiac Steel Tank Company following the criteria of the American Welding Society for stainless weldments of non-pressure vessels and the containment structural design was in accordance with the American Institute of Steel Construction, the American Concrete Institute and the Concrete re-Inforced Steel Institute current Codes and Specifications. These tanks were designed with sufficient structural strength and with regard to chemical compatibility with the wastes to ensure that they will not collapse, rupture, or fail. Included is a Certification and Assessment of Capability report for the tanks, ancillary equipment, and the containment area provided by an independent professional engineer (see Volume 1, Attachment C2-7.2).

While in service, these tanks have been regularly inspected, repaired, and maintained. Annual internal inspection of the tanks are conducted by an independent professional engineer. Reports for these inspections are on file at DLD with documentation that recommendations in each report have been implemented. Copies of the internal inspection reports are included in Volume 1, Attachments C2-5.1 through C2-5.6.

C2.A.2 Dimensions and Capacity of Each Tank
[R 299.9615(1) and 40 CFR §270.16(b)]

TANK DESCRIPTION

Tank Designation	Shape	Materials of Construction	Inside Diameter (feet)	Outside Height (feet)	Nominal Capacity (gallons)	Maximum Capacity (gallons)	Wall Thickness (inches)
Tank #1	Cylindrical	304 stainless steel	8	14	5,000	5,264	0.1875
Tank #2	Cylindrical	304 stainless steel	8	14	5,000	5,264	0.1875
Tank #3	Cylindrical	304 stainless steel	8	14	5,000	5,264	0.1875
Tank #4	Cylindrical	304 stainless steel	8	14	5,000	5,264	0.1875
Tank #5	Cylindrical	304 stainless steel	8	14	5,000	5,264	0.1875
Tank #6	Cylindrical	304 stainless steel	8	14	5,000	5,264	0.1875

APPURTENANCE DESCRIPTION

Tank Designation	Appurtenance Type	Size (inches)	Location	Comments
Tank #1	Manhole	24	Side	See Volume 1, Attachment B6-1.4
	Manhole	18	Top	
Tank #2	Manhole	24	Side	See Volume 1, Attachment B6-1.4
	Manhole	18	Top	
Tank #3	Manhole	24	Side	See Volume 1, Attachment B6-1.4
	Manhole	18	Top	
Tank #4	Manhole	24	Side	See Volume 1, Attachment B6-1.5
	Manhole	24	Top	
Tank #5	Manhole	24	Side	See Volume 1, Attachment B6-1.5
	Manhole	24	Top	
Tank #6	Manhole	24	Side	See Volume 1, Attachment B6-1.5
	Manhole	24	Top	

C2.A.3 Description of Feed Systems, Safety Cutoff, Bypass System, and Pressure Controls
[R 299.9615(1) and 40 CFR §270.16(c)]

DLD does not operate an automatic fill system for this tank system (consisting of tanks #1, #2, #3, #4, #5, and #6). The filling of these tanks is a manual operation. All valves are normally in the closed position except for the valves that are required for the tank being filled. Transfer of liquid into a tank requires an employee to physically open the valve to an individual tank and manually operate a pneumatic diaphragm pump. Overfilling of tanks is prevented by the presence of a high level warning alarm on each tank that activates whenever a tank becomes full. The high level warning alarm for each tank consists of an audible alarm that sounds for 20 seconds and a red indicator light in the immediate vacinity of the pneumatic pumping equipment that remains lit as long as the tank is full. There are no saftey cutoff or bypass mechanisms.

All tanks are top fill, independent, free standing, atmospheric tanks. Manifolds below the maximum fill level have purposely been omitted to prevent the emptying of all tanks in the event that one tank has a rupture or leak. A pressure equalizing vent system connecting all tanks is in place to preclude siphoning. This vent system is also used to capture and return vapors to the tank system when transferring liquid from a tank to a tanker. Each tank is also equipped with a second vent system containing charcoal for the absorption vapors before exiting the tank. This vent system is plumbed so as to require all air and vapor movement from within the tank to be passed through the charcoal.

The liquid transfer portion of the tank system piping consists of steel piping with welded flanges, valves, and pipe caps. The flanged connections are bolted together with gaskets sandwiched between the flanges. A manually operated pneumatic pump is connected via camlock fittings to a feed pipe with a check valve to transfer liquid into the tank system. Tank system piping is regularly inspected for leaks and loose bolts on flanged connections.

C2.A.3(a) Feed Systems
[R 299.9615(1) and 40 CFR §270.16(c)]

All tanks are top fill, independent, free standing, atmospheric tanks with manually operated valves. Tank valves remain in the closed position except when the tank is being used. Liquid transfer is accomplished with a manually connected and operated pneumatic diaphragm pump using plant-supplied compressed air. Each tank is equipped with a level sensor. When a tank is filled, the level sensor sounds a loud audible alarm for 20 seconds and activates a red light that indicates which tank is full which remains lit until the liquid level in the tank drops below the full level. The alarm is audible and the red light is visible to the employee operating the pneumatic pump and signals the cessation of pumping operation into that tank.

C2.A.3(b) Safety Cutoff or Bypass Systems
[R 299.9615(1) and 40 CFR §270.16(c)]

There are no safety cutoff or bypass mechanisms in DLD's tank system.

C2.A.3(c) Pressure Controls
[R 299.9615(1) and 40 CFR §270.16(c)]

A pressure equalizing vent system connecting all tanks is in place to preclude siphoning. This vent system is also used to capture and return vapors to the tank system when transferring liquid from a tank to a tanker. Each tank is also equipped with a second vent system containing charcoal for the absorption vapors before exiting the tank. This vent system is plumbed so as to require all air and vapor movement from within the tank to pass through the charcoal before exiting the system.

C2.A.4 Diagram of Piping, Instrumentation, and Process Flow
[R 299.9615(1) and 40 CFR §270.16(c)]

See Volume 1, Attachment C2-1, C2-2.1 and C2-3 for diagrams of the piping system.

C2.A.5 Characteristics of Waste
[R 299.9615(1) and 40 CFR §264.191(b)(2)]

In practice, DLD employees commingle liquid wastes with high water content, designated as low BTU (representative constituents from this waste stream are ethanol solutions, methanol solutions, acetone solutions, formalin solutions, and water contaminated with gasoline), separately from liquid wastes with low water content, designated as high BTU (representative constituents from this waste stream are benzene, toluene, and hexane) to meet the requirements of off-site facilities. While these commingled waste streams are stored in separate tanks, they both are ignitable (D001) and may contain constituents that are EPA toxic (D004 through D043). All six tanks at DLD have been used and will be used to store these liquid wastes. Detailed analytical reports of these waste streams can be found in Volume 1, Attachment C2-4.

Unless it has been entered and cleaned, a tank will contain residual tankage because the port used to remove waste does not reach the floor of the tank, leaving approximately eight inches of depth in the tank. The commingling process, which is done in smaller containers, results in a waste that is similar to and compatible with the eight inch residual.

The tanks that are currently in use at DLD are constructed from corrosion and oxidation resistant A304 stainless steel. Tank #1, Tank #2, and Tank #3 were put in service in 1985. Tank #4, Tank #5, and Tank #6 were put into service in 1991. These tanks were designed with sufficient structural strength and with regard for compatibility with the

wastes to be stored to ensure that they will not collapse, rupture, or fail. With proper inspection, maintenance, and repair, these tanks have been in regular use for the storage of waste with these characteristics for 23 years and 17 years, respectively. Based on the design, construction materials, and length of use, the DLD tank system has proven reliable to store such waste.

C2.A.6 Existing Corrosion Protection Measures
[R 299.9615(1) and 40 CFR §264.191(b)(3)]

Not applicable.

(Check as appropriate)

External corrosion protection required:

☐ External shell of metal tank will be in contact with soil or water.

☐ Any external metal components of the tank system will be in contact with soil or water.

Protection from accelerated corrosion is afforded through the use of type 304 stainless steel for construction of each tank. Materials that are incompatible with this construction are not placed in the tanks. The tanks are in a concrete vault and placed on a series of 1" x 6" pressure treated boards with spacing in between each board for the purpose of leak detection. Under normal operation the external shell and metal components of the tanks do not come in contact with soil or water.

C2.A.7 Documented Age of Tank System
[R 299.9615(1) and 40 CFR §264.191(b)(4)]

Storage Tanks #1, #2, and #3 were designed in 1983 (see Volume 1, Attachment B6-1.4) and constructed for DLD in 1984. These tanks and their ancillary components were put into service in 1985. Storage Tanks #1, #2, and #3 are approximately 23 years old.

Storage Tanks #4, #5, and #6 were designed in 1990 (see Volume 1, Attachment B6-1.5). These tanks were constructed for DLD in 1990-1991. The tanks and their ancillary components were put in service in 1991. Storage Tanks #4, #5, and #6 are approximately 17 years old.

C2.A.8 Leak Tests, Inspections, and Other Examinations
[R 299.9615(1) and 40 CFR §264.191(b)(5)]

C2.A.8(a) Nonenterable Underground Tanks
[R 299.9615(1) and 40 CFR §264.191(b)(5)(i)]

DLD does not have nonenterable underground tanks.

C2.A.8(b) Other than Nonenterable Underground Tanks and for Ancillary Equipment
[R 299.9615(1) and 40 CFR §264.191(b)(5)(ii)]

As part of the Unit Certifications (Volume 1, Attachment C2-7.2), assessment of the tanks and ancillary equipment was performed and approved by an independent certified professional engineer. Visual inspections of the tanks and ancillary equipment are performed regularly to ensure continued fitness of these components.

C2.A.8(c) Internal Inspections
[R 299.9615(1) and 40 CFR §264.191(b)(5)(ii)]

The existing tanks at DLD are above-ground enterable tanks. Leak testing is accomplished via internal inspection. Each tank is emptied, cleaned, and then inspected by an independent professional engineer once per year. Reports for the inspections can be found in Volume 1, Attachments C2-5.1 through C2-5.6.

C2.A.9 Ancillary Equipment Assessment
[R 299.9615(1) and 40 CFR §264.191(b)(5)(ii)]

As part of the Unit Certifications (Volume 1, Attachment C2-7.2), assessment of the tanks and ancillary equipment was performed and approved by an independent certified professional engineer. Ancillary equipment, including piping, flanges, and valves, are regularly inspected for leaks and loose bolts on flanged connections. Any deterioration or malfunction discovered during inspection are recorded on the Daily Inspection Check Sheet and/or Monthly Inspection Sheet that are on file at DLD. Remediation/repair will also be noted on the appropriate inspection sheet.

C2.A.10 Leaking or Unfit-for-Use Tank Systems
[R 299.9615(1) and 40 CFR §264.191(b)(5)(ii)]

The tank system at DLD is fit for use.

C2.A.11 Tank Labels
[R 299.9615 (5)]

Each of the six stainless steel storage tanks are labeled in accordance with the provisions of National Fire Protection Association (NFPA) Standard No. 704. Photographs of the NFPA markings on each of the tanks are presented in Volume 1, Attachment C2-6.

C2.B ASSESSMENT OF NEW TANK SYSTEM
[R 299.9615(1) and 40 CFR §264.192]

This section is Not Applicable to this license.

C2.C INSTALLATION OF NEW TANK SYSTEMS
[R 299.9615(1) and 40 CFR §§264.192(b) through (g)]

This section is Not Applicable to this license.

C2.D SECONDARY CONTAINMENT SYSTEMS AND RELEASE DETECTION
[R 299.9615(1) and 40 CFR §264.193(a)]

C2.D.1 Secondary Containment Implementation Schedule
[R 299.9615(1) and 40 CFR §264.193(a)]

The vault area of DLS-3 was constructed prior to the installation of storage tanks. This vault and the three stainless steel storage tanks residing within it were placed in service in 1986.

The vault area designated as DLS-4 was constructed prior to the installation of storage tanks. This vault and the three stainless steel storage tanks residing within it were placed in service in 1991.

C2.D.2 Secondary Containment Type and Performance Criteria
[R 299.9615(1) and 40 CFR §264.193(b)]

(Check all that apply):

☐ Liner external to the tank

☒ Vault

☐ Double-walled tank

☐ Device approved by the director

C2.D.3 Design Parameters
[R 299.9615(1) and 40 CFR §264.193(c)]

The vault for the existing tank system in the DLS-3 containment area was constructed two years prior to the promulgation of the current regulations. This containment vault was constructed using a design similar to present requirements to prevent the escape of

hazardous waste. Drug & Laboratory Disposal, Inc. applied for and received a variance, as allowed in 40 CFR §264.193(g).

The construction of the tank vault designated DLS-4 was started in 1990 and complies with the requirements of 40 CFR §270.16(a) through (j) and 40 CFR 264 Subpart J.

For the letters of Certification and Assessment of Capability provided by an independent professional engineer for both of the vaults, see Volume 1, Attachment C2-7.2.

C2.D.3(a) Compatibility and Strength
[R 299.9615(1) and 40 CFR §264.193(c)(1)]

The vault area of DLS-3 was constructed using 3500 psi, 4% - 6% air entrained concrete. The vault walls are 8" reinforced poured concrete and the floor is 6" reinforced concrete. The tanks sit on 6" reinforced concrete slab that was poured on top of the vault floor that has been designed to handle full tank capacity static load and single tank eccentric loads. The concrete is compatible with the materials that are most likely encountered, but, for added protection against deterioration, a two-part epoxy coating has been applied to the walls and the floor of the vault.

The DLS-4 vault was also constructed using 3500 psi, 4% - 6% air entrained concrete. Three of the walls of this vault are 8" reinforced poured concrete while the fourth wall is 12" reinforced poured concrete. The floor of the vault is 12" poured concrete with two layers of reinforcement. The floor is designed to handle full tank static load and single tank eccentric loads. The concrete is compatible with the materials that are most likely encountered, but, for added protection against deterioration, a two-part epoxy coating has been applied to the walls and the floor of the vault.

C2.D.3(b) Foundation Integrity
[R 299.9615(1) and 40 CFR §264.193(c)(2)]

The foundations of both vaults were designed to support full tank static loads and single tank eccentric loads. Each set of tanks rests on 12" of reinforced, air entrained concrete within the vaults.

C2.D.3(c) Leak Detection Capability
[R 299.9615(1) and 40 CFR §264.193(c)(3)]

Tanks and ancillary equipment are visually inspected each day of operation for potential leaks and the vaults are visually inspected each day of operation for accumulated liquids. Accumulated liquids and potential leaks are noted on the Daily Inspection Check Sheet. Accumulated liquids are removed within 24 hours of detection or at such time that site conditions allow the safe removal of the release. Potential leaks are monitored and, if determined to be a leak, will be repaired within five (5) days of detection or at such time that replacement parts are available and/or site conditions allow the safe repair of the leak(s). In addition to visual inspection, each vault contains a float device that triggers a continuous audible alarm when sufficient quantities of accumulated liquids

are released into a vault containment area.

C2.D.3(d) Adequate Drainage
[R 299.9615(1) and 40 CFR §264.193(c)(4)]

The floor of each vault is sloped to blinded sumps for ease of removal of accumulated liquid during a release event. Accumulated liquids are removed within 24 hours of detection or at such time that site conditions allow the safe removal of the release.

C2.D.4 External Liner Requirements
[R 299.9615(1) and 40 CFR §264.193(e)(1)]

Not Applicable. DLD does not employ external liners for its tank system.

C2.D.5 Vault Systems Requirements
[R 299.9615(1) and 40 CFR §264.193(e)(2)]

C2.D.5(a) Capacity
[R 299.9615(1) and 40 CFR §264.193(e)(2)(i)]

The vault that contains tanks #1, #2, and #3 is part of the secondary containment area of DLS-3 and has a capacity of 54,894 gallons (see Volume 1, Attachment B6-1.4). This capacity is greater than the 5,000 gallon capacity of each of the tanks residing within the vault.

The vault that contains tanks #4, #5, and #6 is designated as DLS-4 and has a capacity of 17,789 gallons (see Volume 1, Attachment B6-1.5). This capacity exceeds the 5,000 gallon capacity of each of the tanks residing within the vault.

C2.D.5(b) Stormwater Control
[R 299.9615(1) and 40 CFR §264.193(e)(2)(ii)]

The top of the walls of the DLS-3 and DLS-4 vaults are at the same elevation as Storage Area DLS-3, which is elevated 26 inches above ground level. These vault areas are within a building that is enclosed on three sides, covered by a roof, and surrounded by six-inch curbing or ramps (see Volume 1, Attachments B6-1.4 and B6-1.5). Because these areas are covered, elevated, and surrounded by curbing, no run-on occurs during a storm event.

C2.D.5(c) Joint Construction
[R 299.9615(1) and 40 CFR §264.193(e)(2)(iii)]

The DLS-3 vault was constructed utilizing 8" reinforced concrete walls keyed and dowelled into the 6" reinforced concrete floor slab supported on a continuously reinforced footer. Upon completion of the containment structure, after allowing proper curing time, a ½" minimum filleted caulk joint was applied around the floor/wall joint using a silicone base caulking material.

Note: The existing tank system in the DLS-3 containment area was inspected by the Michigan Department of Natural Resources and found to be out of compliance with the requirements for joint construction, 40 CFR §264.193(e)(2)(iii). Subsequent inspection of the tank system by an independent professional engineer, as required for an out-of-compliance system under 40 CFR §265.191, has shown the system to be adequately designed and capable of containing the wastes to be stored. The engineer's inspection report can be found in Volume 1, Attachment C2-7.2. Since the DLS-3 containment vault was constructed using a design similar to present requirements to prevent the escape of hazardous waste, and since the system was constructed two years prior to the regulation change requiring chemical resistant waterstops which caused the out-of-compliance condition, a variance was applied for from the MDNR, as allowed in 40 CFR §264.193(g). DLD was notified by a letter dated October 3, 1990, of approval of our secondary containment variance request. See Section C2.E for variance details.

The existing tank system in the vault designated DLS-4 was built using a neoprene "dumb-bell" waterstop at the joints in the vault (see Volume 1, Attachment B6-1.5).

C2.D.5(d) Coating or Lining for Concrete
[R 299.9615(1) and 40 CFR §264.193(e)(2)(iv)]

The floor and the side walls of tank vaults DLS-3 and DLS-4 have been coated with a two-part epoxy sealant. This coating is compatible with the materials that will be encountered in our storage tank operations.

C2.D.5(e) Prevention of Vapor Formation and Ignition
[R 299.9615(1) and 40 CFR §264.193(e)(2)(v)]

Each tank is equipped with a vent system containing charcoal for the absorption of vapors before exiting the tank. This vent system is plumbed so as to require all air and vapor movement from within the tank to be passed through the charcoal preventing the formation of vapors in the vault areas. Prevention of ignition is further accomplished through the use of non-sparking, pneumatic tools and/or hand tools, and explosion-proof electrical devices. When the use of high heat, open flame, or non explosion proof electrical devices are required, the air is monitored for explosive vapors before use.

C2.D.5(f) Exterior Moisture Barrier
[R 299.9615(1) and 40 CFR §264.193(e)(2)(vi)]

Neither of the vaults at DLD are subject to hydraulic pressure. As a precaution, however, DLS-4 was constructed using a neoprene "dumb-bell" waterstop at the joints in the vault (see Volume 1, Attachment B6-1.5). The vault in DLS-3 was built before the current regulations and thus was not constructed using chemical resistant waterstops.

C2.D.6 Double-walled Tank Requirements
[R 299.9615(1) and 40 CFR §264.193(e)(3)(i)]

Not Applicable. DLD does not currently employ double-walled tanks.

C2.D.7 Ancillary Equipment with Secondary Containment
[R 299.9615(1) and 40 CFR §264.193 (f)]

Ancillary equipment for DLD tank systems are all above ground, reside inside secondary containment areas DLS-3 and DLS-4, and are all visually inspected for leaks during each day of operation. Because all of the piping is above-ground and visually inspected each day of facility operation, secondary containment is not required.

Secondary containment is provided for ancillary equipment as an added precaution and relevant design parameters and performance criteria are presented in the following Sections of Volume 1 of this document: C1.F Containment; C2.A.1 Design Standards; C2.D.3 Design Parameters; and C2.D.5 Vault System Requirements.

C2.D.7(a) Secondary Containment Type and Performance Criteria
[R 299.9615(1) and 40 CFR §264.193(f)]

Not Applicable. DLD visually inspects ancillary equipment for leaks during each day of operation.

C2.D.7(b) Design Parameters
[R 299.9615(1) and 40 CFR §264.193(f)]

Not Applicable. DLD visually inspects ancillary equipment for leaks during each day of operation.

C2.D.7(c) Exempted Ancillary Equipment and Inspections
[R 299.9615(1) and 40 CFR §264.193(f)]

Not Applicable. DLD does not claim any exempt ancillary equipment.

C2.D.8 Requirements for Tank Systems That Are Not in Compliance With Secondary Containment
[R 229.9615(2)]

A variance for the DLS-3 vault area was obtained October 3, 1990 (see section C2.A.1).

C2.D.8(a) Aboveground Tanks
[R 229.9615(2)(a)]

Not Applicable. A variance for the DLS-3 vault area was obtained October 3, 1990 (see Volume 1, Section C2.A.1, C2..D.5(c), C2.E.1 and Attachment C2-7.2).

C2.D.8(b) Underground Tanks
[R 229.9615(2)(a)]

Not Applicable. DLD does not employ underground tanks.

C2.E VARIANCES FOR SECONDARY CONTAINMENT
[R 299.9615(1) and 40 CFR §264.193(g)]

(Check as appropriate)

☒ Technology-based Variance

☐ Risk-based Variance

C2.E.1 Technology-based Variance
[R 299.9615(1) and 40 CFR §264.193(g)]

The DLS-3 vault was constructed utilizing an 8" reinforced concrete wall keyed and dowelled into the 6" reinforced concrete floor slab supported on a continuously reinforced footer. More than two years after the vault was constructed, the promulgation of 40 CFR §264.193(e)(2)(iii) on or after July 14, 1986, requiring the use of chemical resistant waterstops caused the DLS-3 vault to be in non-compliance.

The non-compliance issue was resolved by applying a silicone base caulking material around the wall/floor joint, coating the interior of the vault with a xylene base sealant, and performing a hydro-static fluid pressure check to determine the potential for hazardous waste material to exit the containment structure.

On October 3, 1990, DLD received a Secondary Containment Variance Approval from the Michigan Department of Natural Resources for the tank vault located in the DLS-3

secondary containment area. This letter, the Tank System Variance Request Report by a certified, independent, professional engineer, and all supporting documents are included in Volume 1, Attachments C2-7.1 through C2-7-5.

C2.E.1(a) Nature and Quantity of Wastes
[R 299.9615(1) and 40 CFR §264.193(g)(1)(i)]

Wastes to be accumulated in the three 5,000-gallon stainless steel storage tanks are ignitable (D001) and may contain constituents that are EPA toxic (D004 through D043). These wastes will not exhibit EPA corrosivity or reactivity.

C2.E.1(b) Design and Operation
[R 299.9615(1) and 40 CFR §264.193(g)(1)(ii)]

The DLS-3 vault was constructed utilizing 8" reinforced concrete walls keyed and dowelled into the 6" reinforced concrete floor slab supported on a continuously reinforced footer. Upon completion of the containment structure and allowing proper curing time, a ½" minimum filleted caulk joint was applied around the floor/wall joint using a silicone base caulking material. The interior of containment structure was coated with a xylene base, two-part epoxy sealant. The concrete floor slab is sloped to blind collection sumps to facilitate removal of accumulated liquids.

The tanks, ancillary equipment, and containment area are inspected during each day of operation. Spills/leaks are cleaned up within 24 hours of detection or at such time that site conditions allow the safe removal of the release.

To evaluate the integrity of the joint and the potential for hazardous waste exiting the containment structure through the keyed joint in the event of a rupture or leak, a hydrostatic fluid pressure test was performed. Assuming a spill of one tank of 5,000 gallons of fluid with a specific gravity of 1.25, the fluid level in the vault would be 0.56 feet deep and exert a hydrostatic pressure on the floor at the floor/wall interface of 0.3 pounds per square inch. It is the judgement of a certified independent professional engineer that such low pressure would not force the fluid past the caulked joint and keyway prior to discovery and subsequent removal of accumulated fluid.

C2.E.1(c) Hydrogeologic Setting
[R 299.9615(1) and 40 CFR §264.193(g)(1)(iii)]

DLD has requested a waiver for the hydrogeologic report (see Volume 1, Section B3).

C2.E.1(d) Other Factors
[R 299.9615(1) and 40 CFR §264.193(g)(1)(iv)]

Not Applicable.

C2.E.1(e) Zone of Engineering Control
[R 299.9615(1) and 40 CFR §264.193(g)(3)]

The zone of engineering control for the approved variance consists of the DLS-3 containment area. The vault in DLS-3 was constructed utilizing 8" reinforced concrete walls keyed and dowelled into the 6" reinforced concrete floor slab supported on a continuously reinforced footer. A ½" minimum filleted caulk joint was applied around the floor/wall joint using a silicone base caulking material and interior of the containment structure was also coated with a two-part chemical resistant epoxy sealant. The floor is sloped to the center of the vault to blind collection sumps to facilitate removal of accumulated liquids. The slope and sumps also serve to keep accumulated liquids from coming in contact with the floor/wall joint unless sufficient quantities of liquids accumulate before daily inspection discovers the leak/spill. The elevated portion of the DLS-3 containment area consists of a concrete floor sloped to blind collection sumps on an appropriate foundation with six (6)-inch curbing, walls, or ramps surrounding each area. As added insurance against seepage of liquid, the elevated portion of DLS-3 was sealed with a waterproof, petroleum base sealer, and the curbing has been sealed with a two-part chemical resistant epoxy sealant.

C2.E.2 Risk-Based Variance
[R 299.9615(1) and 40 CFR §264.193(g)(2)]

Not Applicable.

C2.E.3 Variance Implementation Procedures
[40 CFR §264.193(h)]

On October 3, 1990, DLD received a Secondary Containment Variance Approval from the Michigan Department of Natural Resources for the tank vault located in the DLS-3 secondary containment area. This letter, the Tank System Variance Request Report by a certified, independent, professional engineer, and all supporting documents are included in Volume 1, Attachments C2-7.1 through C2-7.5.

C2.F CONTROLS AND PRACTICES TO PREVENT SPILLS AND OVERFILLS
[R 299.9615(1) and 40 CFR §264.194(b)]

C2.F.1 Spill Prevention Controls
[R 299.9615(1) and 40 CFR §264.194(b)]

All tanks are top fill, independent, free standing, atmospheric tanks with manually operated valves. Tank valves remain in the closed position except for the tank that is in use or was last in use when pumping operations ceased for the day. Liquid transfer is accomplished with a manually operated pneumatic diaphragm pump using plant supplied compressed air. The tank system feed piping is equipped with check valves to prevent back-flow of liquid once pumping operations are discontinued.

C2.F.2 Overfill Prevention Controls
[R 299.9615(1) and 40 CFR §264.194(b)]

Each tank is equipped with a level sensor. When a tank is filled, a level sensor sounds a loud alarm for 20 seconds and activates a red light, which remains lit until the liquid level in the tank drops below the full level, that indicates which tank is full. The alarm is audible and the red light is visible to the employee operating the pneumatic pump and signals the cessation of pumping operation into that tank.

C2.F.3 Freeboard Maintenance
[R 299.9615(1) and 40 CFR §264.194(b)]

Not Applicable. DLD does not operate uncovered tanks.

C2.G INSPECTIONS
[R 299.9615(1) and 40 CFR §264.195(a)]

Inspection procedures for the tank system enumerated here are also documented in Volume 1, Section A5.

C2.G.1 Schedule and Procedures for Overfill Control System Inspections
[R 299.9615(1) and 40 CFR §264.195(a)]

Overfill control equipment, noted on the Daily Inspection Check Sheet as High Level Alarms, are checked and recorded weekly. Operational failure of any component and remediation of the failure are noted on this sheet as well.

C2.G.2 Daily Inspections of Aboveground Portions of Tank Systems and Monitoring and Leak Detection Data
[R 299.9615(1) and 40 CFR §264.195(b)]

DLD stainless steel hazardous waste storage tanks are all installed above ground in a containment area. Tanks and tank systems are inspected for leaks or corrosion of valves, fittings, and seams each day of operation and their conditon noted on the Daily Inspection Check Sheet.

The bolts on flanged connections of the tanks, ancillary equipment, and piping are tightened and inspected for deterioration every other month.

Detection of a potential leak is noted on the Daily Inspection Check Sheet and monitored to determine if a leak exists. Monitoring and identification of leakage is performed using the Potential Equipment Leak Form, per 40 CFR §264, Subpart BB, and the Defect Detection And Repair Form, per 40 CFR §264, Subpart CC.

C2.G.3 Daily Inspection of Construction Materials, Local Areas, and Secondary Containment System for Erosion and Leakage
[R 299.9615(1) and 40 CFR §264.195(b)(3)]

Each vault is regularly inspected for signs of leaks and to ensure that there has been no loss of integrity. Any deterioration or malfunction of containment structure that an inspection reveals will be noted on the Daily Inspection Check Sheet and remedied to ensure that the problem does not lead to a loss of free liquids to the environment. The remediation will also be noted on the Daily Inspection Check Sheet.

C2.G.4 Inspection of Cathodic Protection Systems
[R 299.9615(1) and 40 CFR §264.195(c)]

Not Applicable. DLD does not employ cathodic protection systems.

C2.G.5 Inspection Requirements before Full Secondary Containment is Provided
[R 299.9615(1) and 40 CFR §264.193(i)]

Not Applicable. Full secondary containment has already been provided.

C2.G.6 Reporting Requirements
[R 299.9615(1) and 40 CFR §264.193(i)(4)]

The Daily Inspection Check Sheet is reviewed weekly and entered into the DLD Operating Record (see Volume 1, Section A5).

C2.H RESPONSE TO LEAKS OR SPILLS AND DISPOSITION OF LEAKING OR UNFIT-FOR-USE TANK SYSTEMS
[R 299.9615(1) and 40 CFR §264.196]

C2.H.1 Response Actions for Leaks and Spills
[R 299.9615(1) and 40 CFR §264.196(a)]

See Volume 1, Section A7.

C2.H.1(a) Waste Flow Stoppage
[R 299.9615(1) and 40 CFR §264.196(a)]

See Volume 1, Section A7.

C2.H.1(b) Waste Removal
[R 299.9615(1) and 40 CFR §264.196(b)]

See Volume 1, Section A7.

C2.H.1(c) Visible Release Containment
[R 299.9615(1) and 40 CFR §264.196(c)]

See Volume 1, Section A7.

C2.H.1(d) Repair, Replacement, or Closure
[R 299.9615(1) and 40 CFR §264.196(e)]

See Volume 1, Section A7.

C2.H.1(e) Certification of Major Repairs
[R 299.9615(1) and 40 CFR §264.196(f)]

See Volume 1, Section A7.

C2.H.2 Required Notifications and Reports
[R 299.9615(1) and 40 CFR §264.194(d)]

See Volume 1, Section A7.

C2.I CLOSURE AND POST CLOSURE REQUIREMENTS
[R 299.9615(1) and 40 CFR §270.14(b)]

See Volume 1, Section A11.

☒ Category A - *where decontamination is practical and secondary containment is provided*

☐ Category B - *where decontamination or removal is not practical and where secondary containment is provided and tank system will be closed as a landfill*

☐ Category C - *where decontamination is practical and where secondary containment is not provided*

☐ Category D - *where decontamination or removal is not practical, and where secondary containment is not provided, and tank system will be closed as a landfill*

C2.I.1 Category A
[R 299.9615(1) and 40 CFR §264.197]

C2.I.1(a) Closure Plan
[40 CFR §264.112, except 264.112(d)(1)]

See Volume 1, Section A11, Closure and Postclosure Plan.

C2.I.1(b) Closure Activities
[40 CFR §264.111 through 114 and R 299.9613(3)]

See Volume 1, Section A11, Closure and Postclosure Plan.

C2.I.1(c) Cost Estimate for Closure
[R 299.9702 and 40 CFR §264.142]

See Volume 1, Section A12 Closure and Postclosure Cost Estimates.

C2.I.1(d) Financial Assurance for Closure
[R 299.9703 and 40 CFR §264.143]

See Volume 1, Section A15.

C2.I.2 Category B
[R 299.9615(1) and 40 CFR §264.197]

Not Applicable.

C2.I.3 Category C
[R 299.9615(1) and 40 CFR §264.197]

Not Applicable.

C2.I.4 Category D
[R 299.9615(1) and 40 CFR §264.197]

Not Applicable.

C2.J SPECIAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTES
[R 299.9615(1) and 40 CFR §270.16(j)]

Since the tank system at DLD is intended to store ignitable wastes, special consideration is given to prevent conditions which may cause the waste to ignite. Reactive wastes, as defined by 40 CFR §261.23(a), are not stored or treated in the tank system.

C2.J.1 Ignitable or Reactive Wastes Precautions
[R 299.9615(1) and 40 CFR §264.198]

The primary function of the tank system at DLD is to store ignitable wastes so appropriate safeguards are implemented to prevent conditions that may cause ignition of the waste. These precautions include employing explosion proof lighting and electrical fixtures in the processing area; no other source of electricity in the immediate area of the tanks; a facility designed using open air ventillation of the area; each tank being fitted with carbon absorption filters to prevent the escape of fugitive emissions; and the posting of "No Smoking" signs.

The tank system is not intended for the storage or treatment of reactive wastes, as defined by 40 CFR §261.23(a). DLD stores reactive wastes in intermediate bulk containers (IBC's), if appropriate, or in quantities of 55 gallons or less. Reactive wastes are treated in quantites of 55 gallons or less and rendered non-reactive prior to being added to any tank.

C2.J.2 Distance Requirements for Ignitable or Reactive Wastes
[R 299.9615(1) and 40 CFR §264.198(a) and (b)]

The required buffer zone between the property lines and tanks containing ignitable liquids recommended by the National Fire Protection Association's "Flammable and Combustible Liquids Code" is one-half the diameter of the tank. All six tanks measure eight (8) feet in diameter, therefore the required distance to the nearest property line is four (4) feet. Regulations 40 CFR §264.176 and 40 CFR §265.176 require that ignitable waste be stored at least 50 feet from property lines. At DLD the minimum distance for storage or treatment of ignitable and reactive wastes from a property line is 55 feet and the tank-to-property line distance of the closest tank is 65 feet.

C2.J.3 Incompatible Wastes
[R 299.9615(1) and 40 CFR §264.199]

The addition of incompatible materials or dissimilar waste types does not occur because of the commingling process (see Volume 1, Section C2.A.5, Characteristics of Waste and Volume 1, Section C4.B). Commingling, which is done in a smaller container before being added to a tank, results in a waste that is similar to and compatible with the residual tankage.

Should occasion arise that a hazardous waste that is incompatible with residual tankage require storage in a tank, that tank will be decontaminated prior to liquid transfer.

ATTACHMENT 10

MISCELLANEOUS UNITS

C9: MISCELLANEOUS UNITS

40 CFR §264 Subpart X

(Volume 1)

This section is organized as follows:

INTRODUCTION

Drug & Laboratory Disposal, Inc. currently operates two container shredders and a filter press for the processing of waste. These processing units are operated and maintained in accordance with 40 CFR §264 Subpart X – Miscellaneous Units and the provisions made in this section of this document.

C9.A SHREDDERS

C9.A.1 Design

The shredders are located in the recessed pit area of the DLS-2 containment area. Shredders are also to be located on the elevated portion of the HWLB-1 containment area. DLS-2, as well as containment areas DLS-1, DLS-3, DLS-4, and HWLB-1 have been designed and constructed to protect the subsurface and subsurface environments, including both water and soil. Descriptions of compliance with the regulations applicable to the subsurface environment cited in 40 CFR §264.601(a) and the surface environment cited in 40 CFR §264.601(b) are included in Volume 1, Section C1 of this license. A schematic drawing of the DLS-2 containment area can be found in Volume 1, Section B6-1.3.

In accordance with the provisions of 40 CFR §264 Subpart X – Miscellaneous Units, the shredders are made of or lined with materials that will not react with and are otherwise compatible with the hazardous waste to be treated. The construction, design, and maintenance of the shredders insure that their ability to treat the hazardous waste is not impaired and does not cause a safety hazard.

As such, the shredders are of steel construction, each consisting of an inlet hopper, shredding device, collection head, two motor assemblies, and emergency stop bar. Volume 1, Attachment C9-1 is a schematic providing details of the shredder assembly. They are designed to shred waste thereby minimizing the volume of liquid and/or solid, which DLD receives in glass, metal, or plastic containers.

The shredders at DLD are equipped with the following safety features:

(1) Motors that will reverse and then stop if either motor draws too much current after start up;

(2) An emergency stop bar attached to the front of the inlet hopper;

(3) An emergency stop button located on the control panel; and

(4) Motor v-belt guards.

The shredders will not be operated if any of these safety features are missing or disabled.

An emission control device has been designed and installed on each shredder (see Volume 1, Attachment C9-2). Air that is potentially laden with vapors is collected from two points: the floor just outside the enclosed collection area, to collect heavier than air VOCs, and the collection head at the point where waste enters the collection drum. The air is then routed through a charcoal filter and the cleaned air is vented to the outside atmosphere.

C9.A.2 Operation

Wastes and waste containers that are fed into the inlet hopper go through the shredding machine and collection head and are collected in a drum below the collection head. When the collection drum is full, the shredder is turned off and the full drum is covered and removed for sampling and subsequent storage. All drums used for storage will conform to DOT standards and Volume 1, Section C1 of this license.

Shredders may be used to process hazardous or non-hazardous waste. Decontamination of a shredder that has previously processed hazardous waste shall be done prior to that shredder being used to process non-hazardous waste. Decontamination shall be accomplished by triple rinsing the inlet hopper, shredding machine, and collection head with a mixture of ground cellulose (which acts as an abrasive) and a solvent capable of removing the contaminants. All rinse solutions will be disposed of as hazardous waste.

Decontamination procedures will also be performed prior to shredding incompatible wastes in the same shredder. Waste shall not be processed in a shredder that has not been decontaminated and which previously held an incompatible waste or material. While operating the shredders, caution is exercised to prevent accidental ignition or reaction of waste.

In addition to the decontamination procedure, a dedicated stainless steel lining will be placed in the inlet hopper during non-hazardous waste processing, as this area has been identified as the most likely in which cross-contamination will occur. The lining will be removed when hazardous waste is processed. Non-hazardous waste will only be shredded into clean, non-contaminated drums.

C9.A.3 Monitoring and Maintenance

Both shredders are inspected daily for physical and operating conditions. The emergency stop bar and emergency stop button are tested to insure they are operable and the belt guards are visually verified to be in place. The shredders are lubricated daily before waste operations commence. In the event that maintenance is needed, the shredder is removed from service and the maintenance is performed as soon as it is feasible. Appropriate lock-out devices are employed during maintenance and/or repair.

The air emission devices will also be checked daily to determine that there is proper flow through the carbon adsorption filters and that the exhaust fans are working properly. Air emission testing is performed on a regular basis to

determine if breakthrough has occurred. The charcoal in the filter devices shall be replaced annually or when needed. Operation of the container shredders will comply with 40 CFR §264 Subpart CC – Air Emission Standards for Tanks, Surface Impoundments, and Containers.

Waste accumulated from the operation of the container shredders will follow the guidelines presented in Volume 1, Section C1 of this license. Inspection and monitoring of the container shredders is noted on DLD's Daily Inspection Check Sheet, Monthly Inspection Check Sheet, and Air Emission Monitoring Record.

C9.B FILTER PRESS

C9.B.1 Design, Operation, and Monitoring

A filter press is a mobile apparatus designed for efficient liquid/solid separation. This separation is accomplished by transferring a solid/liquid mixture through several hollow filter plates that rest on a frame (see Volume 1, Attachment C9-3). Between the filter plates are porous membranes, called filter cloths, which trap solids and allow liquid to pass through them. The solid particles accumulate between the membranes under increased pressure creating a mass of filtered solids called filter cakes. This process creates separate liquid and solid wastes which are more amenable to individual handling, storage, and disposal. DLD will utilize up to three filter press units, each capable of handling up to 10 cubic feet of solids per filtration cycle.

Filter presses can be utilized for processing both hazardous and non-hazardous wastes. Prior to using for non-hazardous waste, the filter cloths and filter plates need to be decontaminated. First, the filter cloths are removed from the filter plates, soaked in an alkaline cleaning solution, and rinsed in water to remove solid particulates. The filter cloths are then placed back on the filter plates and the press is flushed with four gallons of alkaline cleaning solution. Finally, the filter press is flushed with water to remove remaining particulate matter. All of the solids and liquids generated from the decontamination procedure are collected and treated as hazardous waste.

When being used to treat wastes that are subject to 40 CFR §264, Subpart CC, the filter presses will be operated underneath an appropriate treatment hood in DLS-3 or HWLB-1. For wastes not subject to 40 CFR §264, Subpart CC, filter presses may be operated in DLS-1, DLS-3, and HWLB-1.

In all cases, filter presses will be operated and maintained in accordance with the requirements of R299.9628 and 40 CFR §264, Subpart X.

C9.C AEROSOL DISCHARGE AND RECOVERY UNIT

C9.C.1 Design, Operation, and Monitoring

An aerosol discharge and recovery unit is a mobile apparatus designed to puncture aerosol containers and safely capture its contents. It threads directly into a tight-head drum to collect the container's contents and remove volatile organic compounds (VOCs) from the released propellant (see Volume 1, Attachment C9-4). It uses a non-sparking puncture tip to penetrate the container and releases the remaining volume of constituents into the collection drum. The unit also utilizes a two-stage filter to coalesce and capture atomized liquids and activated carbon to adsorb VOCs before they can be released to the environment. To prevent release of VOCs, the activated carbon portion of the filter is equipped with a colorimetric indicator that denotes when the filter needs replacement before break-through occurs.

The end result of the use of the aerosol discharge and recovery unit is the collection of liquids that are either properly disposed of or recycled and an empty container that, according to 40 CFR §261.6(a)(3)(iv), would meet the definition of scrap metal and may be recycled.

Although this unit will primarily be used for non-hazardous wastes, it can also be used for processing hazardous wastes. As such, decontamination of a unit that has previously processed hazardous waste shall be done prior to that unit being used to process non-hazardous waste. Decontamination shall be accomplished by triple rinsing the puncturing portion of the unit with a solvent appropriate for cleaning the hazardous material that was processed. The decontamination process shall include the removal and cleaning of the puncture pin prior to returning the aerosol puncture/recovery unit to service. All rinse liquids will be collected and disposed of as hazardous waste.

Collection of aerosol contents through the use of an aerosol puncture/recovery unit falls under DLD's commingling treatment process (see Volume 1, Section C4.B). Compatibility of aerosol contents shall be assessed following the guidelines presented in Volume 1, Section C4.B, prior to puncturing an aerosol and capturing its contents.

Aerosol puncture/recovery units may be operated in DLS-2 and DLS-3, but may not be operated in DLS-1.

Waste accumulated from the operation of these units will follow the guidelines presented in Volume 1, Section C1 of this license. Inspection of the seals and gaskets of the units will be done each day that a unit is operated to minimize the release of VOCs. While in operation the colorimetric indicator shall be checked daily to verify that the activated carbon portion of the filter has not exceeded its capacity.

In all cases, aerosol discharge and recovery units will be operated and maintained in accordance to the requirements of R299.9628 and 40 CFR §264, Subpart X.

FORM EQP 5111 TEMPLATE

C9: MISCELLANEOUS UNITS

40 CFR §264 Subpart X

(Volume 2)

This section is organized as follows:

Introduction

Along with the expansion of the physical footprint of its processing facility, Drug & Laboratory Disposal, Inc. proposes to expand its use of processing equipment to the DLS-5 containment area. The proposed processing units will be operated and maintained in accordance with 40 CFR §264 Subpart X – Miscellaneous Units and the provision made in this document.

C9.A SHREDDERS

C9.A.1 Design

Shredders will be located on the elevated portion of the DLS-5 containment area. DLS-5 has been designed and constructed to protect the subsurface and subsurface environments, including both water and soil. Descriptions of compliance with the regulations applicable to the subsurface environment cited in 40 CFR §264.601(a) and the surface environment cited in 40 CFR §264.601(b) are included in Volume 2, Section C1 of this license. Engineering drawings for the DLS-5 containment area can be found in Volume 2, Section B6 and a diagram indicating the allocated processing areas can be found in Volume 2, Attachment C1-53.

In accordance with the provisions of 40 CFR §264 Subpart X – Miscellaneous Units, shredders are to be made of or lined with materials that will not react with and are otherwise compatible with the hazardous waste to be treated. The construction, design, and maintenance of the shredders insure that their ability to treat the hazardous waste is not impaired and does not cause a safety hazard.

As such, the shredders are of steel construction, each consisting of an inlet hopper, shredding device, collection head, two motor assemblies, and emergency stop bar. Volume 1, Attachment C9-1 is a schematic providing details of the shredder assembly. They are designed to minimize the volume of waste, liquid and/or solid, received in glass, metal, or plastic containers.

The shredders at DLD are equipped with the following safety features:

(1) Motors that will reverse and then stop if either motor draws too much current after start up;

(2) An emergency stop bar attached to the front of the inlet hopper;

(3) An emergency stop button located on the control panel; and

(4) Motor v-belt guards.

The shredders will not be operated if any of these safety features are missing or disabled.

An emission control device has been designed and installed on each shredder (see Volume 1, Attachment C9-2). Air that is potentially laden with vapors is collected from two points: the floor just outside the enclosed collection area, to collect heavier than air VOCs, and the collection head at the point where waste enters the collection drum. The air is then routed through a charcoal filter and the cleaned air is vented to the outside atmosphere.

C9.A.2 Operation

Wastes and waste containers that are fed into the inlet hopper, go through the shredding machine and collection head, and are collected in a drum below the collection head. When the collection drum is full, the shredder is turned off and the full drum is covered and removed for sampling and subsequent storage. All drums used for storage will conform to DOT standards and Volume 2, Section C1 of this license.

Shredders may be used to process hazardous or non-hazardous waste. Decontamination of a shredder that has previously processed hazardous waste shall be done prior to that shredder being used to process non-hazardous waste. Decontamination shall be accomplished by triple rinsing the inlet hopper, shredding machine, and collection head with a mixture of ground cellulose (which acts as an abrasive) and a solvent capable of removing the contaminants. All rinse solutions will be disposed of as hazardous waste.

Decontamination procedures will also be performed prior to shredding incompatible wastes in the same shredder. Waste shall not be processed in a shredder that has not been contaminated and which previously held an incompatible waste or material. While operating the shredders, caution is exercised to prevent accidental ignition or reaction of waste.

In addition to the decontamination procedure, a dedicated stainless steel lining will be placed in the inlet hopper during non-hazardous waste processing, as this area has been identified as the most likely in which cross-contamination will occur. The lining will be removed when hazardous waste is processed. Non-hazardous waste will only be shredded into non-contaminated drums.

C9.A.3 Monitoring and Maintenance

Shredders are to be inspected daily for physical and operating conditions. The emergency stop bar and emergency stop button are tested to insure they are operable and the belt guards are visually verified to be in place. Shredders are lubricated daily before waste operations commence. In the event that maintenance is needed, the shredder is removed from service and the maintenance is performed as soon as it is feasible. Appropriate lock-out devices are employed during maintenance and/or repair.

The air emission devices will also be checked daily to determine that there is proper flow through the activated carbon adsorption filters and that the exhaust

fans are working properly. Air emission testing is performed on a regular basis to determine if breakthrough has occurred. The charcoal in the filter devices shall be replaced annually or when needed. Operation of the container shredders will comply with 40 CFR §264 Subpart CC – Air Emission Standards for Tanks, Surface Impoundments, and Containers.

Waste accumulated from the operation of the container shredders will follow the guidelines presented in Volume 2, Section C1. Inspection and monitoring of the container shredders is noted on DLD's Daily Inspection Check Sheet, Monthly Inspection Check Sheet, and Air Emission Monitoring Record.

C9.B FILTER PRESS

C9.B.1 Design, Operation, and Monitoring

A filter press is a mobile apparatus designed for efficient liquid/solid separation. This separation is accomplished by transferring a solid/liquid mixture through several hollow filter plates that rest on a frame (see Volume 1, Attachment C9-3). Between the filter plates are porous membranes, called filter cloths that trap solids and allow liquid to pass through them. The solid particles accumulate between the membranes under increased pressure creating a mass of filtered solids called filter cakes. This process creates separate liquid and solid wastes which are more amenable to individual handling, storage, and disposal. DLD will utilize up to three filter press units, each capable of handling up to 10 cubic feet of solids per filtration cycle.

Filter presses can be utilized for processing both hazardous and non-hazardous wastes. Prior to using for non-hazardous waste, the filter cloths and filter plates need to be decontaminated. First, the filter cloths are removed from the filter plates, soaked in an alkaline cleaning solution, and rinsed in water to remove solid particulates. The filter cloths are then placed back on the filter plates and the press is flushed with four gallons of alkaline cleaning solution. Finally, the filter press is flushed with water to remove remaining particulate matter. All of the solid and liquids generated from the decontamination procedure are collected and treated as hazardous waste.

When being used to treat wastes that are subject to 40 CFR §264, Subpart CC, the filter presses will be operated underneath an appropriate treatment hood in DLS-5. For wastes not subject to 40 CFR §264, Subpart CC, filter presses may be operated in any portion of the containment area designated as DLS-5.

In all cases, filter presses will be operated and maintained in accordance with the requirements of R299.9628 and 40 CFR §264, Subpart X.

C9.C AEROSOL DISCHARGE AND RECOVERY UNIT

C9.B.1 Design, Operation, and Monitoring

An aerosol discharge and recovery unit is a mobile apparatus designed to puncture aerosol containers and safely capture its contents. It threads directly into a tight-head drum to collect the container's contents and remove volatile organic compounds (VOCs) from the released propellant (see Volume 1, Attachment C9-4). It uses a non-sparking puncture tip to penetrate the container and releases the remaining volume of constituents into the collection drum. The unit also utilizes a two-stage filter to coalesce and capture atomized liquids and activated carbon to adsorb VOCs before they can be released to the environment. To prevent release of VOCs, the activated carbon portion of the filter is equipped with a colorimetric indicator that denotes when the filter needs replacement before break-through occurs.

The end result of the use of the aerosol discharge and recovery unit is the collection of liquids that are either properly disposed of or recycled and an empty container that, according to 40 CFR §261.6(a)(3)(iv), would meet the definition of scrap metal and may be recycled.

Although this unit will primarily be used for non-hazardous wastes, it can also be used for processing hazardous wastes. As such, decontamination of a unit that has previously processed hazardous waste shall be done prior to that unit being used to process non-hazardous waste. Decontamination shall be accomplished by triple rinsing the puncturing portion of the unit with a solvent appropriate for cleaning the hazardous material that was processed. . The decontamination process shall include the removal and cleaning of the puncture pin prior to returning the aerosol puncture/recovery unit to service. All rinse liquids will be collected and disposed of as hazardous waste.

Collection of aerosol contents through the use of an aerosol puncture/recovery unit falls under DLD's commingling treatment process (see Volume 1, Section C4.B). Compatibility of aerosol contents shall be assessed following the guidelines presented in Volume 1, Section C4.B, prior to puncturing an aerosol and capturing its contents.

Waste accumulated from the operation of these units in DLS-5 will follow the guidelines presented in Volume 2, Section C1 of this license. Inspection of the seals and gaskets of the units will be done each day that a unit is operated to minimize the release of VOCs. While in operation the colorimetric indicator shall be checked daily to verify that the activated carbon portion of the filter has not exceeded its capacity.

In all cases, aerosol discharge and recovery units will be operated and maintained in accordance to the requirements of R299.9628 and 40 CFR §264, Subpart X.

FORM EQP 5111 TEMPLATE

C9: MISCELLANEOUS UNITS

40 CFR §264 Subpart X

(Volume 5)

This section is organized as follows:

Introduction

Along with the expansion of the physical footprint of its processing facility, Drug & Laboratory Disposal, Inc. proposes to expand its use of processing equipment to the DLS-10 containment area. The proposed processing units will be operated and maintained in accordance with 40 CFR §264 Subpart X – Miscellaneous Units and the provision made in this document.

C9.A SHREDDERS

C9.A.1 Design

DLS-10 and DLS-11 have been designed to protect the subsurface and subsurface environments, including both water and soil. Descriptions of compliance with the regulations applicable to the subsurface environment cited in 40 CFR §264.601(a) and the surface environment cited in 40 CFR §264.601(b) are included in Volume 5, Section C1 of this license. Engineering drawings for these containment areas can be found in Volume 5, Attachment B6-100 and a diagram indicating the allocated processing areas can be found in Volume 5, Attachments C4-100 and C4-110.

In accordance with the provisions of 40 CFR §264 Subpart X – Miscellaneous Units, shredders are to be made of or lined with materials that will not react with and are otherwise compatible with the hazardous waste to be treated. The construction, design, and maintenance of the shredders insure that their ability to treat the hazardous waste is not impaired and does not cause a safety hazard.

As such, the shredders are of steel construction, each consisting of an inlet hopper, shredding device, collection head, two motor assemblies, and emergency stop bar. Volume 1, Attachment C9-1 is a schematic providing details of the shredder assembly. They are designed to minimize the volume of waste, liquid and/or solid, received in glass, metal, or plastic containers.

The shredders at DLD are equipped with the following safety features:

(1) Motors that will reverse and then stop if either motor draws too much current after start up;

(2) An emergency stop bar attached to the front of the inlet hopper;

(3) An emergency stop button located on the control panel; and

(4) Motor v-belt guards.

The shredders will not be operated if any of these safety features are missing or disabled.

An emission control device has been designed and installed on each shredder (see Volume 1, Attachment C9-2). Air that is potentially laden with vapors is collected from two points: the floor just outside the enclosed collection area, to collect heavier than air VOCs, and the collection head at the point where waste enters the collection drum. The air is then routed through a charcoal filter and the cleaned air is vented to the outside atmosphere.

C9.A.2 Operation

Wastes and waste containers are fed into the inlet hopper, go through the shredding machine and collection head, and are collected in a drum below the collection head. When the collection drum is full, the shredder is turned off and the full drum is covered and removed for sampling and subsequent storage. All drums used for storage will conform to DOT standards and Volume 5, Section C1 of this document.

Shredders will be allocated to process either hazardous or non-hazardous waste, but may be used to process both. As such, decontamination of a shredder that has previously processed hazardous waste shall be done prior to that shredder being used to process non-hazardous waste. Decontamination shall be accomplished by triple rinsing the inlet hopper, shredding machine, and collection head with a mixture of ground cellulose (which will act as an abrasive) and a solvent capable of removing the contaminants. All rinse solutions will be collected and disposed of as hazardous waste.

Decontamination procedures will also be performed prior to shredding incompatible wastes in the same shredder. Waste shall not be processed in a shredder that has not been contaminated that previously held an incompatible waste or material. While operating the shredders, caution is exercised to prevent accidental ignition or reaction of waste.

In addition to the decontamination procedure, a dedicated stainless steel lining will be placed in the inlet hopper during non-hazardous waste processing, as this area has been identified as the most likely in which cross-contamination will occur. The lining will be removed when hazardous waste is processed. Non-hazardous waste will only be shredded into non-contaminated drums.

C9.A.3 Monitoring and Maintenance

Shredders are to be inspected daily for physical and operating conditions. The emergency stop bar and emergency stop button are tested to insure they are operable and the belt guards are visually verified to be in place. Shredders are lubricated daily before waste operations commence. In the event that maintenance is needed, the shredder is removed from service and the maintenance is performed as soon as it is feasible. Appropriate lock-out devices are employed during maintenance and/or repair.

The air emission devices will also be checked daily to determine that there is proper flow through the activated carbon adsorption filters and that the exhaust

fans are working properly. Air emission testing is performed on a regular basis to determine if breakthrough has occurred. The charcoal in the filter devices shall be replaced annually or when needed. Operation of the container shredders will comply with 40 CFR §264 Subpart CC – Air Emission Standards for Tanks, Surface Impoundments, and Containers.

Waste accumulated from the operation of the container shredders will follow the guidelines presented in Volume 5, Section C1. Inspection and monitoring of the container shredders is noted on DLD's Daily Inspection Check Sheet, Monthly Inspection Check Sheet, and Air Emission Monitoring Record.

C9.B FILTER PRESS

C9.B.1 Design, Operation, and Monitoring

The filter press is a mobile apparatus designed for efficient liquid/solid separation. This separation is accomplished by transferring a solid/liquid mixture through several hollow filter plates that rest on a frame (see Volume 1, Attachment C9-3). Between the filter plates are porous membranes, called filter cloths, which trap solids and allow liquid to pass through them. The solid particles accumulate between the membranes under increased pressure creating a mass of filtered solids called filter cakes. This process creates separate liquid and solid wastes which are more amenable to individual handling, storage, and disposal.

DLD proposes to operate up to three filter press units in DLS-10, each capable of handling up to 15 cubic yards of solids per filtration cycle.

DLD proposes to operate up to two filter press units in DLS-11, each capable of handling up to 15 cubic yards of solids per filtration cycle.

The filter press can be utilized for processing both hazardous and non-hazardous wastes. Prior to using for non-hazardous waste, the filter cloths and filter plates need to be decontaminated. First, the filter cloths are removed from the filter plates, soaked in an alkaline cleaning solution, and rinsed in water to remove solid particulates. The filter cloths are then placed back on the filter plates and the press is flushed with four gallons of alkaline cleaning solution. Finally, the filter press is flushed with water to remove remaining particulate matter. All of the solid and liquids generated from the decontamination procedure are collected and treated as hazardous waste.

When being used to treat wastes that are subject to 40 CFR §264, Subpart CC, the filter press will be operated underneath a treatment hood in DLS-10. For wastes not subject to 40 CFR §264, Subpart CC, the filter press may be operated in any portion of the containment area designated as DLS-10.

In all cases, the filter press will be operated and maintained in accordance to the requirements of R299.9628 and 40 CFR §264, Subpart X.

C9.C AEROSOL DISCHARGE AND RECOVERY UNIT

C9.B.1 Design, Operation, and Monitoring

An aerosol discharge and recovery unit is a mobile apparatus designed to puncture aerosol containers and safely capture its contents. It threads directly into a tight-head drum to collect the container's contents and remove volatile organic compounds (VOCs) from the released propellant (see Volume 1, Attachment C9-4). It uses a non-sparking puncture tip to penetrate the container and releases the remaining volume of constituents into the collection drum. The unit also utilizes a two-stage filter to coalesce and capture atomized liquids and activated carbon to adsorb VOCs before they can be released to the environment. To prevent release of VOCs, the activated carbon portion of the filter is equipped with a colorimetric indicator that denotes when the filter needs replacement before break-through occurs.

The end result of the use of the aerosol discharge and recovery unit is the collection of liquids that are either properly disposed of or recycled and an empty container that, according to 40 CFR §261.6(a)(3)(iv), would meet the definition of scrap metal and may be recycled.

Although this unit will primarily be used for non-hazardous wastes, it can also be used for processing hazardous wastes. As such, decontamination of a unit that has previously processed hazardous waste shall be done prior to that unit being used to process non-hazardous waste. Decontamination shall be accomplished by triple rinsing the puncturing portion of the unit with a solvent appropriate for cleaning the hazardous material that was processed. . . The decontamination process shall include the removal and cleaning of the puncture pin prior to returning the aerosol puncture/recovery unit to service. All rinse liquids will be collected and disposed of as hazardous waste.

Collection of aerosol contents through the use of an aerosol puncture/recovery unit falls under DLD's commingling treatment process (see Volume 1, Section C4.B). Compatibility of aerosol contents shall be assessed following the guidelines presented in Volume 1, Section C4.B, prior to puncturing an aerosol and capturing its contents.

Waste accumulated from the operation of these units will follow the guidelines presented in Volume 5, Section C1. Inspection of the seals and gaskets of the units will be done each day that a unit is operated to minimize the release of VOCs. While in operation the colorimetric indicator shall be checked daily to verify that the activated carbon portion of the filter has not exceeded its capacity.

In all cases, aerosol discharge and recovery units will be operated and maintained in accordance to the requirements of R299.9628 and 40 CFR §264, Subpart X.

ATTACHMENT 11

GROUNDWATER MONITORING

B5.A GROUNDWATER MONITORING PROGRAM

[R 299.9611(2)(b) and (3), R 299.9612, and R 299.9629 and 40 CFR, Part 264, Subpart F, except 40 CFR §§264.94(a)(2) and (3), (b), and (c), 264.100, and 264.101]

Drug & Laboratory Disposal, Inc. is currently located on 3.4 acres of land which is owned by Folley, Inc. This land is situated in the southwest corner of the plot of land formerly owned by A-1 Disposal. The A-1 Disposal property and surrounding area is the object of an ongoing groundwater contamination remediation. Groundwater at the site has been impacted by various businesses in the area, including A-1 Disposal and other up gradient facilities. In 1995 a groundwater Remedial Action Plan (RAP) for the A-1 Disposal site was implemented. The remediation system removes water down gradient and recharges it into the groundwater at an up gradient position on the A-I Disposal site. This system, which went into service in the first quarter of 1996, circulates approximately 80 gallons per minute and prevents contamination from leaving the site. It has been responsible for the reduction of total contaminants to less than 1 part per million (ppm) and often analysis shows contaminant levels less than 20 parts per billion (ppb). The operation of this system is expected to continue until such time as the water has reached acceptable clean standards. Under the A-1 RAP, the former A-1 site will become the property of DLD after closure.

Drug & Laboratory Disposal, Inc. has monitored the groundwater beneath their facility every three months since July 1986. Laboratory results of the groundwater samples indicate that operations at the Drug & Laboratory Disposal facility have not contributed to groundwater contamination and that the level of contamination has continued to decline.

B5.A.1 Unit-Specific Groundwater Monitoring Program

Table B5.A.1 Current Groundwater Monitoring Program

Unit	Name of Unit Subject to Monitoring	Conditional Non-LDF Waiver	No Migration Waiver	Detection Monitoring	Compliance Monitoring	Corrective Action Monitoring
	DLS-1	NA	NA	Yes	NA	NA
	DLS-2	NA	NA	Yes	NA	NA
	DLS-3	NA	NA	Yes	NA	NA
	DLS-4	NA	NA	Yes	NA	NA
	HW Loading Dock	NA	NA	Yes	NA	NA

B5.A.2(b) No Migration

[R 299.9611(3)(b)]

Not applicable.

B5.A.3 General Groundwater Monitoring Requirements
[R 299.9612 and 40 CFR §§264.97 and 264.91(b)]

The DLD facility will comply with the requirements for a groundwater monitoring program by implementing the program described in this section. This program was developed to satisfy the requirements of R 299.9612 and R 299.9629 and 40 CFR §264.98 and §264.99, except 40 CFR §264.94(a)(2) and (3) and §264.94(b) and (c). DLD's groundwater monitoring program is mandated by the MDNRE to prove that DLD does not contribute to the contamination on the A-1 Disposal Remediation Site.

B5.A.3(a) Sampling and Analysis Plan
[R 299.9611(2)(a)]

A sampling and analysis plan for groundwater monitoring at DLS-1, DLS-2, DLS-3, DLS-4 and the RCRA loading dock is found in Attachment B5-2. The sampling and analysis plan was prepared in accordance with the requirements specified in R 299.9611(2)(a). All sampling and analysis performed pursuant to this application will be consistent with the QA/QC Plan (Please see Attachment B5-1.) All analytical samples acquired for the purpose of environmental monitoring will be collected, transported, stored, and disposed by trained and qualified individuals in accordance with the QA/QC Plan. (Please see Attachment B5-2.)

B5.A.3(b) Description of Wells
[R 299.9612 and 40 CFR §264.97(a), (b), and (c)]

Twelve existing monitoring wells are part of the alternate groundwater monitoring program. The three up gradient wells to be sampled are DL-3, DL-4 and DL-6. The four down gradient wells are DL-1, DL-5, A-5, and A-6. The five additional wells which have only static water levels measured are DL-2, A-3, A-4, A-14, and MW-10. Please see Attachment B5-3 for a diagram of well locations.

Well construction details for the twelve existing monitoring wells have been recorded on standard well/boring log forms. The well logs for these and all other existing monitoring wells on the site as well as a schematic of standard monitoring well construction using the procedures described in this section are part of DLD's current license. These wells have been monitored for over 12 years and are expected to continue in service.

The monitoring wells are constructed of two-inch galvanized steel casing with a 2 to 3 foot steel or stainless steel screen. The maximum separation between the up gradient monitoring wells is approximately 90 feet. Maximum separation between the down gradient monitoring wells is approximately 100 feet. These close horizontal distances will allow DLD to quickly estimate the lateral and horizontal extent of any contaminants migrating from up gradient of the facility or from under the facility.

The monitoring wells are screened at the same elevation plus or minus 1 foot within the upper aquifer. Five of the seven existing sampling wells are screened below the water table and two have screens straddling the water table. Because of the absence of large recharge areas under

aquifer will most accurately detect dissolved constituents migrating with the ground water under the licensed area. In addition, since all of the monitoring parameters are at least partially soluble in water, it is appropriate to monitor the shallow ground water to provide the earliest possible indication of a release from the facility.

MONITORING WELL CONSTRUCTION DETAILS

Well I.D.	A-5	A-6	DL-1	DL-3	DL-4	DL-5	DL-6
Installer:	A-1 Disposal Corp.	A-1 Disposal Corp.	Drug & Laboratory Disposal	Drug & Laboratory Disposal	Drug & Laboratory Disposal	Drug & Laboratory Disposal	Drug & Laboratory Disposal
Date Installed	11-21-80	11-24-80	10-29-84	10-29-84	10-29-84	03-14-85	03-14-85
Top of Casing (feet)	730.05	728.10	729.06	730.04	729.76	730.01	730.02
Casing Material	galvanized steel	galvanized steel	galvanized steel	galvanized steel	galvanized steel	galvanized steel	galvanized steel
Casing Diameter	2 inches	2 inches	2 inches	2 inches	2 inches	2 inches	2 inches
Depth of Well (feet)	16.5	20.5	13.0	16	15	16	16
Screened Interval	14-16.5	18-20.5	11-13	14-16	12-15	14-16	14-16
Screen Material	steel	steel	stainless steel	stainless steel	stainless steel	stainless steel	stainless steel
Backfill Material	natural soil & bentonite	sand & bentonite	natural soil & bentonite	natural soil & bentonite	natural soil & bentonite	bentonite	bentonite

B5.A.3(c) Procedure for Establishing Background Quality
[R 299.9612 and 40 CFR §264.97(a)(1) and (g)]

Samples are taken from three up gradient wells. These samples provide the background for evaluating samples taken from the four down gradient wells. Please see Attachment B5-2 for details.

B5.A.3(d) Statistical Procedures
[R 299.9612 and 40 CFR §§264.97(h) and 264.97(i)(1), (5), and (6)]

Please see Attachment B5-2, page 13

B5.A.4 Detection Monitoring Program
[R 299.9612 and 40 CFR §§264.91(a)(4) and 264.98]

B5.A.4(a) Indicator Parameters, Waste Constituents, and Reaction Products
[R 299.9506(3)(a) and (f), R 299.9506(4)(a), and R 299.9612 and 40 CFR §264.98(a)]

Please see Attachment B5-2 pages 10-12.

B5.A.4(b) Groundwater Monitoring System
[R 299.9612 and 40 CFR §§264.97(a)(2), (b), and (c) and 264.98(b)]

Please see Section B5.A.3(a).

B5.A.4(c) Background Concentration Values for Proposed Parameters
[R 299.9612 and 40 CFR §§264.98(c) and 264.97(g)(1) and (2)]

Please see Section B5.A.3(b) and (c).

B5.A.4(d) Proposed Sampling and Analysis Procedures
[R 299.9506(3)(e) and R 299.9612 and 40 CFR §§264.97(d), (e), and (f) and 264.98(d), (e), and (f)]

Please see Section B5.A.3(a) and (b).

B5.B AMBIENT AIR MONITORING PROGRAM
[R 299.9611(2)(c) and (4)]

DLD is requesting that ambient air monitoring be waived. DLD is not a fee-subject facility nor is it a Title V facility. Also, DLD does not operate any combustion processes.

B5.C ANNUAL SOIL MONITORING PROGRAM
[R 299.9611(2)(d) and (4)]

As allowed for under R299.9611(4), DLD is requesting that annual soil monitoring be waived. DLD is in close proximity to the A-1 site, which would make it difficult to determine the source of any organic contamination. Additionally, R299.9611(d) suggests "areas subject to spills, such as loading and unloading areas" be subject to annual soil sampling. At DLD the loading and unloading area is hard surfaced, has secondary containment and is under a roof. This makes for very low potential impact on the soils.

Drug & Laboratory Disposal, Inc.

Quality Assurance/Quality Control Procedures Manual

Andrew Dinsmore, Laboratory Director

Date: 20 March 1998 (Revised 08 December 2008)

TABLE OF CONTENTS

1.0 PURPOSE

DLD Analytical (DLDA) is currently used for several different projects:

- Analyzing waste in accordance with Drug and Laboratory Disposal, Inc.'s (DLD) Waste Analysis Plan (WAP).
- Analyzing environmental samples in accordance with DLD's Resource Conservation and Recovery Act (RCRA) operating license
- Analyzing groundwater and surface wipe samples in accordance with DLD's Toxic Substances Control Act (TSCA) operating license
- Analyzing groundwater and surface water samples taken in order to monitor the ongoing groundwater remediation process at the site of the now-defunct A-1 Disposal's previous hazardous waste disposal operations.

The purpose of this quality assurance plan is to enable DLD Analytical (DLDA) to produce data that is scientifically valid, defensible, and of known precision and accuracy. The data will be of sufficient known quality to withstand scientific and legal challenges relative to the use for which the data are obtained. The data acquired from Quality Control (QC) procedures are used to estimate the quality of analytical data, to determine the need for corrective action in response to identified deficiencies, and to interpret results after corrective action procedures are implemented. Method-specific QC procedures are incorporated in the individual methods since they are not all applied universally.

DLD has established and documented the sampling and analysis plan (SAP) for all of these projects. These documents are all kept in DLD's main office. The WAP and environmental monitoring SAP required by DLD's RCRA license are included in DLD's RCRA operating license. The environmental monitoring required under DLD's TSCA operating license is incorporated into that license approval. The SAP for the A-1 site remediation project is included in the Operation and Maintenance Manual, A-1 Disposal Corporation, Groundwater Remediation System.

Any sample analysis not covered by DLDA's Standard Operating Procedures (SOP's) will be performed according to published standard methods. These documents will be available and their use will be referenced in the documentation and/or records for the analysis activities.

This manual includes a description of the laboratory facilities, job descriptions, training procedures, general laboratory procedures, general analytical QA/QC requirements, and general document control procedures. Separate Standard Operating Procedure (SOP) documents are maintained for each task. Electronic copies of all SOP's, logs, Statistical Process Control (SPC) charts, and this manual are stored on the computer network. Hard copies are also kept in colour-coded three-ring binders in the laboratory and laboratory office.

2.0 LABORATORY DESCRIPTION

2.1 Physical layout

DLD Analytical is located in Drug and Laboratory Disposal, Inc.'s (DLD) facility at 331 Broad Street in Plainwell, Michigan. The combined laboratory and office consist of four rooms covering a total of 890 ft2. The largest analytical area is the Main Laboratory. It is reserved for hazardous waste sample storage, reagents and supply storage, organic and inorganic sample preparation, and wet chemistry analyses. Two fume hoods are located in this room and are the primary means of general ventilation and exhaust. At least one ventilator hood is on whenever the laboratory is occupied. The room air exchange rate is approximately 15 times per hour.

The next largest analytical area is the Metals Laboratory. It is used for metals and semivolatile organics analysis and the storage of volatile organic standards and reagents that need to be protected from light or kept cool.

The smallest analytical area is the Gas Chromatography (GC) Laboratory. It is used for water and soil (non-waste) sample storage and volatile organic analysis. This room is maintained at a slight positive pressure with air filtered through activated carbon beds. The activated carbon is replaced biannually.

The Laboratory Office is adjacent to the Wet Chemistry and Metals Laboratories.

2.2 Reagent water

Reagent water is supplied by running water through an activated carbon bed followed by two mixed bed deionizing resin tanks. The water is continually monitored at the discharge of the first deionizing tank by a 1 megohm indicator light and also at the tap by an analog resistivity meter. The primary tank is replaced whenever the resistivity of its discharge drops below 1 megohms. The water at the tap is not used for any analytical purposes unless the resistivity is greater than 13 megohms.

2.3 Equipment

The following is a list of all capital equipment used in preparing and analyzing both environmental and hazardous waste samples. Written logs for all instruments and equipment are kept with the instruments in their respective laboratories. They contain a record of all calibration, analyses, and maintenance performed with those instruments.

- Varian 3900 and 2100T GC/MS with CP8400 Autosampler and CDS 7000 Purge and Trap
- Varian 3800 GC/ECD/ECD with CP8400 Autosampler
- Varian 3800 GC/FID
- Hach Odyssey Spectrophotometer DR-2500
- Varian Spectra AA 220FS FLAA with VGA-77 Vapor Generator
- Parr Bomb Calorimeter
- Orion KF Titrator/pH Meter
- ERDCO Flash Point Tester
- Mettler AE200, AV2120, BB2440 Analytical Balances
- Precision Draft Oven
- Blue M Muffle Furnace

3.0 PERSONNEL

Note: The Laboratory Director also serves as Chemical Hygiene Officer, Quality Assurance Officer, and Office Manager.

3.1 Job Descriptions

3.1.1 Laboratory Director

- Is responsible for insuring that DLD Analytical (DLDA) operates in a safe, ethical, efficient, and effective manner.
- Provides proper training and work-related materials to all DLDA employees so that they can competently carry out their duties.
- Provides training in laboratory safety, good laboratory practices, analytical methods, documentation protocols, and QA/QC requirements.
- Maintain current knowledge concerning legal requirements affecting the operation of the laboratory.
- Makes recommendations concerning capital expenditures and long range business needs.
- Makes sure that adequate supplies are on hand at all times.

3.1.2 Office Manager

- Maintains personnel records.
- Maintains a filing system for all laboratory documents.

3.1.3 Chemical Technician

- Prepares and analyzes samples.
- Documents all analyses, including the calibration and QC information.
- Maintains laboratory equipment and instruments.
- Handles the treatment and disposal of laboratory waste.
- Washes laboratory glassware.
- Receives, records, and stores incoming supplies.
- Logs, preserves, and stores incoming samples.

3.1.4 Quality Assurance Officer

- Monitors operations to insure that all aspects of the analytical system conform to the QA/QC plan.
- Conducts an annual QA/QC audit (see Appendix I).

3.1.5 Chemical Hygiene Officer

Note: All logs, forms, audits, and any other documents required by the Chemical Hygiene Plan (CHP) are kept in the same binder as the hard copy of the Plan. This binder is kept in the Main Laboratory along with binders containing all of the MSDS's for the reagents and standards used at DLDA.

- Works with other employees to develop and implement appropriate chemical hygiene policies.
- Documents these policies in the Chemical Hygiene Plan (CHP). An electronic copy of the CHP is kept on the computer network and a hard copy is kept in a three-ring binder in the Main Laboratory.
- Conducts and documents annual reviews of the Chemical Hygiene Plan.
- Conducts and documents annual safety audits.

- Monitors all safety equipment on a regular basis. The current monitoring logs are kept with the equipment and as the forms are completed, they are filed in the Laboratory Office.

- Implements and documents corrective procedures whenever safety-related deficiencies are found. These records are kept in the CHP binder.

- Trains all employees in proper chemical hygiene and general laboratory safety. Keeps the training records current.

- Determines the proper level of personal protection equipment needed by each employee.

- Insures that every employee has adequate personal protection equipment and knows when and how to use it and how to maintain it.

- Monitors the waste disposal process.

3.2 Training

3.2.1 Safety training

- All the documentation of an employee's safety training conducted by either DLD or DLDA will be kept with that employee's personnel file in DLD's main office.

- DLD will provide the initial training in Emergency Response, including the activation of the DLD Contingency Plan, to the extent necessitated by the employee's particular job description as required by 40 CFR 265.16.

- DLD will review the Contingency Plan annually with all employees.

- DLD will maintain all the required training documentation related to Emergency Response instruction in each employee's personnel file.

- All respirator training and record keeping will be conducted by DLD. Each employee will keep a monthly respirator log.

- DLD Analytical's Chemical Hygiene Officer will provide all new employees with information and training on hazardous chemicals in his or her work area as required by 40 CFR 1910.1450.

- The Chemical Hygiene Officer and any new employee will fill out an Initial Personnel Training form and an Employee Chemical Hygiene Training Checklist.

- Whenever new chemicals are introduced into an employee's work area, the Chemical Hygiene Officer will provide information and training for all of the affected employees.

- The Chemical Hygiene Officer and all affected employees will fill out a New Chemical Training Checklist at the completion of the training.
- All Hazard Communication training documentation will be turned over to DLD's personnel manager to be placed in the employee's personnel file.

3.2.2 Direct job training

- The Laboratory Director will oversee the training of all employees.
- The Quality Assurance Officer will continually educate all employees about the purpose, goals, and tools of the quality assurance plan.
- A written SOP will cover all tasks for which a specific procedure must be followed.
- The Laboratory Director will authorize all SOP's.

3.2.3 Indirect job training

- DLD's personnel department will keep records of all other job-related training, such as seminars and continuing education classes, in it's main office.

4.0 GENERAL LABORATORY PROCEDURES

4.1 Waste Disposal Plan

Old samples, waste solvents and acids, outdated reagents, and contaminated plastic and glassware will be handled by Drug & Laboratory Disposal, Inc., the parent company of DLD Analytical. The Chemical Technician will remove wastes from the laboratory at least once per week.

4.2 Cleaning of Labware

4.2.1 Metals

Since trace concentration samples and high concentration samples are both prepared in this laboratory, disposable pre-cleaned labware will be used for both trace and high concentration samples.

4.2.2 Semi-volatile organics

Since trace concentration samples and high concentration samples are both prepared in this laboratory, disposable pre-cleaned labware will be used for both trace and high concentration samples.

Since trace concentration samples and high concentration samples are both prepared in this laboratory, pre-cleaned labware will be used for both trace and high concentration samples.

4.2.4 General wet chemistry glassware

Cleaning Instructions:

1) Remove surface residuals immediately after use. As soon as possible after glassware (i.e., beakers, pipettes, flasks, or bottles) has come in contact with the sample or standards, flush the glassware with alcohol or water before it is placed in the hot detergent soak. If this is not done, the soak bath may serve to contaminate all other glassware placed therein.

2) Use a hot soak to loosen and float most of the particulate material. The hot soak consists of a bath of a suitable detergent in water of 50W or higher. The detergent, powder or liquid, will be entirely synthetic and not a fatty acid base.

3) Use a hot water rinse to flush away the floated particulates.

4) Use distilled water to rinse away metallic deposits from the tap water.

5) Place the glassware on a sink pegboard and allow it to air dry.

4.3 Reagent/Standard Preparation and Storage

The procedures describing how to prepare standards and reagents are specified in the individual SOP's. This includes information concerning specific grades of materials used in reagent and standard preparation, appropriate glassware and containers for preparation and storage, and labeling and record keeping for stocks and dilutions. For all containers, the date opened will be written on the container. All unopened standards and reagents are discarded after the manufacturer's recommended expiration date. The unused portion of all reagents and standards are discarded a year after they were initially opened or by the manufacturer's recommended expiration date, whichever comes first. Diluted working standards will be discarded daily. Diluted intermediate standards will be discarded after 30 days.

Problems with reagents or calibration standards are detected by the routine analysis of method or reagent blanks and/or method spikes.

4.3.1 Storage Locations

4.3.1.1 Samples

- Water and soil samples taken for VOC analysis are stored in an under-counter refrigerator in the GC lab. This room is supplied with activated carbon filtered air and is

- Water and soil samples taken for semivolatile organic compound analysis are stored in a refrigerator in the metals lab.
- Hazardous waste samples are stored in ventilated cabinets in the main lab.

4.3.1.2 Reagents

- Flammable organic reagents are stored in ventilated floor cabinets in the main lab.
- Acids and bases are stored in separate acid storage cabinets in the main lab.
- Solid reagents are stored in wall mounted glass cabinets.

4.3.1.3 Standards

- Inorganic standards are stored in closed wall mounted cabinets in the main lab.
- Volatile organic standards are stored in a refrigerator in the metals lab.
- Semivolatile organic standards are stored in a refrigerator in the main lab.

4.3.1.4 Glassware and disposable supplies

- Glassware and disposable supplies are stored in wall cabinets and benches in both the main lab and metals lab.

5.0 DOCUMENT AND SAMPLE MANAGEMENT SYSTEM

Except where otherwise specified, documents and computer files will be held for at least 5 years. Analytical reports and other associated records will be kept permanently.

All of the documentation for each piece of equipment will be kept on file in the Laboratory Office, one file for each item. This includes warranties, original quotations and purchase orders, maintenance manuals, and operating instructions.

5.1 Primary Documents

All the primary documents will be kept in color-coded three ring binders. The combination SOP/QC Manuals and the Sample Logbooks will be color-coded according to their individual project plans. All the instrument and equipment logs will be kept in blue binders. This manual and the Work-in-Progress logbook will be kept in red binders.

5.1.1 SOP/QC Manuals

The laboratory is divided into three sections; organics (by GC), metals (by atomic absorption), and wet chemistry. There are four areas of responsibility as well: WAP (analyzing hazardous waste for DLD and its clients), TSCA (analyzing ground water and wipe samples for PCBs), RCRA license (analyzing environmental samples in order to comply with the monitoring requirements of DLD's RCRA operating license), and A-1 (monitoring ground and surface water as part of the A-1 site remediation project). The SOP's for each combination of analytical area and project responsibility will be kept in a color-coded three ring binder along with any QC records (such as MDL determinations, calibration standard records, and statistical process control (SPC) charts). The overall QC requirements for all the SOP's within each analytical area will also be included in each binder.

SOP/QC MANUALS

5.1.2 Sample Logbooks

There is a sample logbook of the same color as the SOP/QC Manual for each project. Each log book will contain the sample login form (if applicable), the chain-of-custody form with any other associated paperwork, and a copy of the final reports.

5.1.3 Analytical Instrument Logs

Instrument logs for each analytical instrument will be kept in a blue three-ring binder. All the instrument logs for all the wet chemistry equipment (flash point tester, bomb, etc.) will be kept in a single binder. All the original data (except for computer data files, such as chromatograph runs), operational conditions, maintenance procedures, and preventative maintenance logs will be kept in these binders. These data will include such information as gas flows, pressures, temperatures, method programs, baseline signals, and standard calibration responses.

5.1.4 Equipment Logs

All the equipment logs will also be kept in the same binder as the wet chemistry analytical instruments.

Equipment logs will be kept for temperature controlled storage devices and balances. They will be kept in the same binder as the wet chemistry analytical instrument log. All thermometers will be calibrated against a National Bureau of Standards (NBS) thermometer.

The analytical balance will be calibrated at the beginning of every day that it will be used. All balances will be professionally serviced and calibrated twice per year.

5.2 Sample Receipt, Storage, and Handling

Upon receipt of a sample submitted for analysis, an authorized laboratory employee will determine which project the sample is for and then enter the date, the assigned sample identification number, and the sample name into the Sample Database spreadsheet. The Chain-

container will also be labeled with the following information: sample location, date and time of collection, collector's name, and preservative added (when applicable). A Chain-of-Custody form must accompany every sample. Any form may be considered a Chain-of-Custody form regardless of the title of the form if it contains the following information; sample name, sample location, date and time of collection, collector's name, preservative added, sample type, any special remarks concerning the sample, and a record of all changes of possession. All of this information must be in indelible ink. If the Chain-of-Custody form does not include a list of the required analyses, a Sample Analysis Request form must also be completed. The information on the label of the sample container should be consistent with the information on the Chain-of-Custody form. There are tables for each project located in the Sample Login book that specify the required containers, preservation techniques, and holding times for each type of sample relative to the required analyses. If the sample has not been properly preserved, the required preservative will be added and it will be recorded on the Chain-of-Custody form. If it is in an improper container, that will be noted on the Chain-of-Custody form so that the final data can be appropriately qualified. Also, the holding time limit cannot be later than the due date.

The Chain-of-Custody forms for the WAP project are placed in the Work-in-Progress notebook. When the final analysis for a sample is completed, the completed Sample Request/Chain-of-Custody form is submitted to the QA Officer for review. The Laboratory Office Manager will then generate an Analytical Report for each completed sample and then submit both the Sample Request/Chain-of-Custody forms and the Analytical Reports to a proofreader. When there are no mistakes, the Analytical Reports are distributed to the appropriate parties and the Chain-of-Custody forms are returned to the laboratory and the sample numbers of the reported samples on the Sample Scheduling Chart are removed. The report date and report number are then added to the information in the Sample Database. The Chain-of-Custody form and a copy of the Analytical Report are placed in a white permanent storage binder. The completed samples are held for two more weeks and then discarded. As these books are filled up, they are placed in the Records Storage Room and a new binder is started.

6.0 GENERAL ANALYTICAL REQUIREMENTS

6.1 Analytical Methods

The following sources for analytical procedures are used at DLD Analytical:

Standard Methods for the Examination of Water and Wastewater. American Public Health Association, American Water Works Association, Water Pollution Control Federation.

Annual Book of ASTM Standards. American Society for Testing and Materials.

Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods. SW-846.

Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. U.S. EPA

6.2 Standard Operating Procedures (SOP)

DLD Analytical maintains a SOP manual for each project that contains the SOP's for all test procedures routinely performed at this laboratory. These manuals are listed in Table 2. The manuals are all kept in the laboratories in which they are used. The following format is used for all analytical SOP's:

Title - The property, analyte, or class of compounds being measured and the type of procedure to be used.

Scope and Purpose - The kinds of samples to be analyzed by this procedure and the purpose for doing so.

Summary Of Method - A brief general description of the principles and procedures used in this analysis.

Interferences - Various conditions or compounds that may interfere with the analysis of the target compound.

Sampling - Any sampling considerations not covered in the project SAP.

Apparatus And Materials - The manufacturer and model of any analytical instruments and a description of any special conditioning, class, or special assembly of labware.

Reagents - Any chemicals needed for the test and their required purity. This includes instructions on reagent preparation, shelf life, standardization, and disposal when applicable.

Procedure - A step-by-step protocol describing each step that is actually used in the laboratory.

Calculations - The mathematical steps used to complete the analysis. This will include a sample calculation if it will be helpful. It will also include directions for using spreadsheet templates. The number of significant figures to report will also be included.

Quality Control - This includes any instrument checks, reagent checks, or equipment checks specific to that procedure. It also includes specifications regarding the type and frequency of blanks, duplicates, and matrix spikes to be done.

6.3 Sampling

Sampling may be the single most important factor in an analytical scheme since all the subsequent steps in data generation can only be a reflection of the sample that was submitted for analysis. Whether the sampling is done by DLD, an outside client or contractor, the following items must be in place to ensure the reliability of the data.

1. A properly designed sampling plan.

2. Sampling containers of the proper material and type that have been properly cleaned for their intended use.

3. Containers that satisfy requirements for sample size, including provision for field duplicates and field blanks.

4. Containers that optimize conditions necessary for replication of results and preservation of the chemical integrity of the sample.

5. Chemical preservatives or refrigeration that meet the requirements of the analytical method.

All the projects address these issues in their sampling and analysis plans. These documents are all kept in DLD's main office. The WAP and environmental monitoring SAP required by DLD's RCRA license are included in DLD's RCRA operating license. The environmental monitoring required under DLD's TSCA operating license is incorporated into that license approval. The SAP for the A-1 site remediation project is included in the Operation and Maintenance Manual, A-1 Disposal Corporation, Groundwater Remediation System. DLDA will determine if the samples are in appropriate containers with the appropriate preservative, and, if not, any data will be qualified accordingly. Anything not covered in those plans related to sample handling or preservation will be covered in each project's individual analytical SOP's.

6.4 Laboratory Control Samples

Laboratory control samples will be analyzed for each analytical method where appropriate for the method. A laboratory control sample consists of either a control matrix spiked with analytes representative of the target analytes or a certified reference material. No sample measurement will be considered complete until the quality control checks are also complete.

Laboratory control sample(s) will be analyzed with each batch of samples processed to verify that the precision and bias of the analytical process are within control limits. The results of the laboratory control sample(s) are compared to control limits established for both precision and bias to determine usefulness of the data.

6.5 Method Blank

When appropriate for the method, a method blank will be analyzed with each batch of samples processed to assess contamination levels in the laboratory. Guidelines are in place in each SOP for accepting or rejecting data based on the level of contamination in the blank.

Procedures are in place in each SOP for documenting the effect of the matrix on method performance. When appropriate for the method, there should be at least one matrix spike and either one matrix duplicate or one matrix spike duplicate per analytical batch. Additional control samples may be necessary to assure data quality meets the project-specific Data Quality Objectives (DQO's).

6.6 Matrix-Specific Bias

Procedures are in place in each SOP for determining the bias of the method due to the matrix. These procedures will include preparation and analysis of matrix spikes, selection and use of surrogates for organic methods, and the method of standard additions for metal and inorganic methods. When the concentration of the analyte in the sample is greater than 0.1%, no spike is necessary.

6.6 Matrix-Specific Precision

Procedures are in place in each SOP for determining the precision of the method for a specific matrix. These procedures should include analysis of matrix duplicates and/or matrix spike duplicates. The frequency of use of these techniques will be based on the SOP for each analytical procedure.

6.7 Matrix-Specific Method Detection Limit (MDL)

Where applicable, procedures will be in place in the individual SOP's for determining the MDL for a specific matrix type.

7.0 GENERAL QA/QC PROCEDURES

Policies and procedures outlined in this section are applicable to all four project plans.

7.1 Quality Assurance Review

The QA Review consists of internal and external assessments to ensure that QA/QC procedures are in use and to ensure that field and laboratory staff conform to these procedures. QA review will be conducted at least once per year.

7.2 QC Limits

All method detection limits (MDL) will be recalculated once per year according to their individual SOP's. All Statistical Process Control (SPC) limits will be recalculated on an ongoing basis based on the last 27 data points. All Statistical Process Control (SPC) limits are calculated by multiplying the standard deviation of the measurements by the Students' *t* value at an alpha level of 0.01 for a two-tailed test or one-tailed test, whichever is appropriate.

7.3 Data Quality Objectives

Data quality objectives (DQO's) for the data collection activity describe the overall level of uncertainty that an analyst is willing to accept results derived from environmental data. This uncertainty is used to specify the quality of the measurement data required, usually in terms of objectives for precision, bias, representativeness, comparability and completeness. The DQO's for each project are defined in the individual project plans, which are kept in DLD's main office.

7.4 Deviations

All deviations from plan will be documented as to the extent of, and reason for, the deviation. Any activity not performed in accordance with procedures or the sampling and analysis plan is considered a deviation from plan. Deviations from plan may or may not affect data quality.

7.5 Corrective Action

Errors, deficiencies, deviations, certain field events, or data that fall outside established acceptance criteria will be investigated. In some instances, corrective action may be needed to resolve the problem and restore proper functioning to the system. The investigation of the problem and any subsequent corrective action taken will be documented in the Sample Logbook.

7.6 Analysis and Testing

Analytes and properties of concern, analytical and testing procedures to be employed, required detection limits, and requirements for precision and bias are specified in the SOP manuals for each project. Quality control procedures are also specified for estimating the precision and bias of the data. Wherever applicable, the recommended minimum requirements for QC samples established by EPA must be met in order to satisfy the minimum criteria for acceptable data quality. These requirements will be the default until at least 27 QC samples have been analyzed, at which time the data will be used to determine the new statistical process control limits based on a tolerance of three times the standard deviation of the data. These criteria will be revised biannually based on the most recent data points. Where there are no EPA-recommended criteria, the initial default tolerance range will be ±20%. SPC limits for each sample matrix will be determined individually.

7.7 Data That Fails to Meet QC Criteria

In cases where samples have been improperly handled or preserved or their holding times have been exceeded, the reported data will be appropriately qualified. There will be instances where the inability to meet specific quality control acceptance criteria is due to a problem with the specific sample rather than the analytical process. In these cases, a full explanation of the problem that caused the sample to fail to meet the quality control acceptance criteria and exactly which criterion it failed to meet will be included on the working copy of the Sample Request form. When preparing the final report, this information is included on the same page as the analytical data. Whenever a sample is sent to an outside laboratory for analysis, the analytical data from the outside laboratory is reported in DLD Analytical's normal format, but a clear statement to the effect that the data has been transcribed from that laboratory is included.

In all cases where QA/QC checks indicate a problem, the course of action taken to correct the problem will be documented. This documentation will include, at minimum, a statement of the problem, the steps taken to determine the cause of the problem, and the steps taken to correct the problem. This documentation will be kept in the SOP manual for whatever methods are affected.

SAMPLING AND ANALYSIS PLAN (SAP)

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SAMPLING AND ANALYSIS PLAN (SAP)

The Drug & Laboratory Disposal, Inc. (DLD) facility is engaged in the treatment, storage, and repackaging of waste chemicals generated by academic, industrial, environmental and hospital laboratories. As part of its operating license under Michigan Act 451, Part 111, Drug & Laboratory Disposal must implement an environmental monitoring program which includes a sampling and analysis plan addressing groundwater, soil, and ambient air quality.

This sampling and analysis plan presents the methods used for the collection, analysis, and data evaluation of those environmental samples Drug & Laboratory Disposal will obtain to fulfill the environmental monitoring requirements. This SAP is divided into three parts: groundwater sampling criteria in Section I, soil sampling criteria in Section II, and ambient air sampling criteria in Section III.

I. GROUND WATER MONITORING

The program outlined in this section is designed to provide additional protection for the groundwater by detecting releases from the hazardous waste management area to the upper most aquifer. It is designed to comply with the groundwater monitoring requirements found in R299.9612. This program contains specific information on sampling locations, parameters to be monitored, sampling and analysis schedule, sampling procedures, documentation, analytical procedures and data evaluation.

The design of this program is heavily influenced by two characteristics of this aquifer. First, the uppermost aquifer is relatively homogenous, permeable sand aquifer; therefore, the ground water flow direction is readily determined by examining the direction of the hydraulic gradient in the aquifer. The ground water is flowing north-northwest, so this arrangement allows for thorough coverage of the facility with monitoring wells upgradient and downgradient of the waste management area.

The second characteristic of the aquifer which impacts the design of this monitoring system is groundwater contamination by sources upgradient of the DLD waste management area. This causes difficulty in determining whether the DLD waste management area has influenced the uppermost aquifer, because the ground water flowing under the site has already been impacted by other sources.

Given these characteristics, the groundwater monitoring system under this license will consist of six wells from which static water levels are measured and samples are taken: two upgradient and four downgradient. Five additional wells will have only static water levels measured.

Drug & Laboratory Disposal is proposing to collect samples quarterly. This sampling will be consistent with the minimum detection monitoring requirements in 40 CFR 264.98. The six wells will be sampled once per quarter (March, June, September, and December)

Drug & Laboratory is committed to providing an accurate evaluation of this data. The proposed data evaluation procedure (section I-H) consists comparison to a prediction limit. This procedure is an appropriate method to determine if the concentration of a parameter at a

compliance well is greater than the concentration in the background groundwater. A prediction limit for a constituent is established from the distribution of the background data and the level of that constituent in each compliance well, compared to that prediction limit. Therefore, the groundwater at the downgradient well will be considered to be impacted by the facility if the concentration of that constituent greater than the prediction limit.

I-A. Monitoring Well Locations

The two upgradient wells to be sampled in the ground water monitoring program are DL-3 and DL-4. The four downgradient wells are DL-1, DL-5, DL-7, and A-6. The five additional wells which have only static water levels measured are DL-2, A-3, A-4, A-14, and MW-10. The locations of these monitoring wells are shown on Attachment 1.

The monitoring wells are constructed of two-inch galvanized steel casing with a 2 to 3 foot steel or stainless steel screen. The monitoring wells are screened at the same elevation plus or minus 1 foot within the upper aquifer. Five of the six sampling wells are screened below the water table and one has a screen straddling the water table.

I-B. Monitoring Parameters

Drug & Laboratory Disposal handles a multitude of materials, most in small quantities. It would not be practical to monitor for every substance that is delivered to Drug & Laboratory Disposal. Therefore, the parameters to be monitored are chosen based on the quantity of a particular parameter handled by Drug & Laboratory Disposal and the vulnerability of the environment to a particular parameter.

The monitoring parameters are divided into the primary, secondary and tracking parameters in, listed below in Table 1.

TABLE 1
MONITORING PARAMETERS

Primary Parameters	Secondary Parameters	Tracking Parameters
acetone	bromodichloromethane	conductivity
acetonitrile	bromoform	Inorganic mercury
benzene	bromomethane	pH
carbon tetrachloride	chlorobenzene	vinyl chloride
chloroform	chloroethane	
diethyl ether	dibromochloromethane	
ethanol	1,1-dichloroethane	
ethyl acetate	1,2-dichloroethane	
hexane	1,1-dichloroethene	
methanol	1,2- dichloroethene	
methylene chloride	1,2-dichloropropane	
toluene	cis-1,3,-dichloropropene	
xylene	trans-1,3,-dichloropropene	
	ethylbenzene	
	1,1,2,2-tetrachloroethane	
	tetrachloroethene	
	1,1,1-trichloroethane	
	1,1,2-trichloroethane	
	trichloroethene	
	trichlorofluoromethane	

The analyses of the thirteen primary parameters will be evaluated to determine if the ground water quality changes as the ground water flows under the facility.

The concentrations of the twenty secondary parameters have varied in the historical analyses of the ground water. Therefore, these parameters do not provide a reliable indication of changes in ground water chemistry due to the historical uses of property upgradient of the facility. The analyses of the secondary parameters, if needed, will be evaluated in the same manner as the primary parameters.

The four tracking parameters are indicators of general ground water chemistry and statistical analysis is not necessary. Vinyl chloride will be considered a tracking parameter in this program. Both trichloroethene and dichloroethene degrade to vinyl chloride. This relationship may cause elevated future vinyl chloride concentrations downgradient of the Drug & Laboratory Disposal facility, but does not represent a chemical release.

Inorganic mercury will also be considered a tracking parameter. Both upgradient and downgradient wells will be monitored for inorganic mercury for four sampling quarters (one year). Mercury samples will be sent to an accredited laboratory for analysis, according to Method 7470A. After that period, a report will be submitted to the Michigan Department of Environmental Quality (MDEQ) detailing the analytical results. If levels of inorganic mercury are greater upgradient than downgradient, this parameter will not be incorporated in future ground water monitoring.

I-C. Sampling and Analyses Schedule

Monitoring wells will be sampled quarterly (March, June, September, and December) for the primary, secondary and tracking parameters.

I-D. Sample Collection

Sample collection procedures described in this section are designed to generate samples and data which are representative of the actual conditions in the ground water under the Drug & Laboratory Disposal facility. These procedures are also designed to supply sufficient documentation of the sample collection procedures to allow future users of the data to reevaluate the sample collection procedures. Appropriate Health & Safety procedures will be utilized during ground water sampling performed at the Drug & Laboratory Disposal facility.

I-D-1. Sampling Equipment

Samples of the ground water will be collected with a peristaltic pump. Wells will be purged with a peristaltic pump as described in Section I-D-3. The following equipment will be required for each sampling event:

- Hydrolite
- Field tape measure (graduated in 0.1 feet)
- Fluid finding paste
- Peristaltic pump with appropriate size and length of suction and discharge hose.
- Graduated 5-gallon container; this container should be marked on the outside at 1 gallon intervals.
- Appropriate type and number of sample containers. Each container should have a label with space to enter the following items:
    a. Monitoring well number
    b. Date sampled
    c. Time sampled
    d. Sampled by
- multiparameter meter

I-D-2. Measurement of Static Water Level

The six sampling wells and five additional monitoring wells will have static water level elevations measured. Static water level elevations for all wells will be measured to within 0.01 foot, using each well's surveyed top of casing (TOC) elevation as a fixed data point.

Measurements will be made with a steel tape. The portion of the tape which comes in contact with the ground water will be washed with distilled or deionized water between wells. Fluid finding paste will be used on the tape to provide an accurate assessment. Groundwater elevations will be calculated by subtracting the distance from the TOC to the static water level from the elevation of the TOC.

All static water level measurements will be collected prior to purging so that purging volumes can be calculated and to ensure that the water level measurements are not affected by the withdrawal of groundwater by the purging activity. In addition, all of the wells will be measured within a 24-hour period so that the water levels are comparable between wells.

I-D-3. Well Evacuation

Prior to the collection of each groundwater sample, stagnant water will be removed from each monitoring well. The wells will be purged. Groundwater purged from the monitoring wells will be discharged into a bucket during purging.

The well will be pumped using a low-flow peristaltic pump. When the suction hose of the peristaltic pump is placed inside a well, the bottom of the suction hose should be about six inches into the water. If the pump breaks lift, the suction hose is lowered slightly deeper in the well. The pump is started and the volume of water is measured using the graduated 5-gallon container. The well is pumped until stabilization of parameters has occurred. Pumping time is to be recorded.

I-D-4. Sample Withdrawal

Samples will be drawn from the peristolic pump tubing at the end of the purging cycle.The sample containers for volatile organic analyses must be filled in such a manner that no air bubbles are present. Sample identification tags will be filled out and attached to the appropriate container(s). The sample containers will then be placed in an ice chest or taken directly to the lab. Chain-of-custody forms will be maintained (see Section I-F).

The tubing must be thoroughly cleaned between samples to avoid cross-contamination between wells. This will be done by washing the tubing with detergent and water followed by a distilled water rinse. The thoroughness of this cleaning is a critical component in collecting independent samples which are representative of the ground water.

I-D-5. Field Analyses

Field analyses consisting of pH and specific conductivity measurements will be performed each time a well is sampled. The analysis will be done after the well is purged, but before sampling is accomplished.

Prior to the sampling event, the multipurpose meter will be calabrated according to the device's operating manual .

I-D-6. Sample Blanks

Because of the possibility of cross-contamination, a field blank will be collected during each of the quarterly sample collections. When the sample bottles are prepared prior to shipment to the field, one set of sample bottles will be selected and labeled "field blank". The field blanks will filled with distilled water from the distilled water source used for decontamination of pump and be transported to the field. They will be sent to the laboratory for analyses along with the other sample bottles. The field blank will be analyzed for each parameter listed in Table 1 to evaluate possible sample contamination from the sample bottles, shipping methods, or laboratory analyses. The data from the field blank will be used to correct the concentrations in ground water samples.

I-D-7. Documentation of Sample Collection

The documentation procedure which will be used in this sampling program uses customized field data entry forms for each well. The field data entry forms are included in Attachment 2. These forms are designed with spaces for all of the required information at a well and contain site-specific information such as the depth of the well and the elevation of the top of the casing.

No monitoring program design can foresee all of the modifications which are required by changing field conditions, and field sampling personnel may be confronted with conditions which make it impossible to follow the designed sample collection procedures. If the sample collection procedures are modified, any changes will be noted on the field data entry forms, so that these forms will always document the actual procedures used during the sample collection

I-E. Sample Preservation and Shipment

Complete and unequivocal preservation of samples is practically impossible. Preservation techniques are used to retard the chemical and biological changes that may take place after a sample is taken from its parent source. Sample containers, preservation methods and holding times for all parameters are summarized in Tables 2, 3, and 4.

I-F. Chain of Custody

The chain-of-custody program documents the possession and handling of individual samples from the field collection through laboratory analysis. This program includes sample labels which identify the sample, the field data entry forms which record data about the collection of each sample (see Section I-D-7), a chain-of-custody form to trace the possession of the samples after they are collected and laboratory logbooks which contain information about the analyses of the samples in the laboratory. A sample of the chain-of-custody form is in Attachment 3, and should contain the following information:

* Project name

* Signature of sampler(s)
* Sample Date
* Sample matrix
* Sample ID
* Number of containers
* Container Type and Volume
* Comments
* Signature of relinquisher
* Date and Time relinquished
* Signature of receiver
* Date and Time Received

I-G. Analytical Methods

Samples collected by DLD personnel will be delivered to DLD's laboratory. The QA/QC manual for the laboratory is included in Attachment 4.

In the event DLD's laboratory cannot analyze the waste for any reason, the samples will be sent to an accredited laboratory. At the present time DLD uses Trimatrix Laboratory from Grand Rapids, MI and Trace Analytical Laboratory from Muskegon, MI.

A summary of the analytical methods, procedures, references, and expected detection limits for primary, secondary, and tracking parameters is given in Tables 2, 3, and 4, respectively.

TABLE 2
PRIMARY PARAMETERS--WATER SAMPLING CRITERIA

Primary Parameters	Sample Container	Sample Preservation	Holding Time	Analytical Method	Analytical Procedure	Method Reference	Expected Detection Limit
Acetone	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8015	purge & trap GC/PID	SW-846 3rd Ed.	100 µg/L
Acetonitrile	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8015	GC/FID	SW-846 3rd Ed.	100 µg/L
Benzene	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/PID	SW-846 3rd Ed.	1.0 µg/L
Carbon tetrachloride	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L
Chloroform	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L
Diethyl ether	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8015	purge & trap GC/FID	SW-846 3rd Ed.	10 µg/L
Ethanol	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8015	GC/FID	SW-846 3rd Ed.	800 µg/L
Ethyl acetate	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8015	GC/FID	SW-846 3rd Ed.	100 µg/L
..exane	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8015	purge & trap GC/FID	SW-846 3rd Ed.	100 µg/L
Methanol	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8015	GC/FID	SW-846 3rd Ed.	800 µg/L
Methylene chloride	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L
Toluene	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/PID	SW-846 3rd Ed.	1.0 µg/L
Xylenes	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/PID	SW-846 3rd Ed.	3.0 µg/L

TABLE 3
SECONDARY PARAMETERS--WATER SAMPLING CRITERIA

Secondary Parameters	Sample Container	Sample Preservation	Holding Time	Analytical Method	Analytical Procedure	Method Reference	Expected Detection Limit
Bromodichloromethane	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L
Bromomethane	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	5.0 µg/L
Bromoform	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L
Chlorobenzene	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L
Chloroethane	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	5.0 µg/L
Dibromochloromethane	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L
1,1-Dichloroethane	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L
1,1-Dichloroethene	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L
1,2-Dichloroethane	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L
cis-1,2-Dichloroethene	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L
trans-1,3-Dichloroethene	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L
Ethylbenzene	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/PID	SW-846 3rd Ed.	1.0 µg/L
1,1,2,2-Tetrachloroethane	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L
Tetrachloroethane	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L
1,1,1-Trichloroethane	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L
1,1,2-Trichloroethane	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L
Trichloroethene	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	1.0 µg/L

TABLE 4
TRACKING PARAMETERS--WATER SAMPLING CRITERIA

Tracking Parameters	Sample Container	Sample Preservation	Holding Time	Analytical Method	Analytical Procedure	Method Reference	Expected Detection Limit
pH	1 L plastic	none	field analysis	4500-H^+	Electrometric	SMWW 18th Ed.	NA
Specific conductance	1 L plastic	none	field analysis	9050A	Electrometric	SW-846 3rd Ed.	NA
Vinyl chloride	2-40 ml vials	1+1HCL, pH<2 cool to 4°C	14 days	8021	purge & trap GC/ELCD	SW-846 3rd Ed.	5.0 µg/L
Total Mercury	250 ml plastic vials	Nitric Acid	28 days	7470A	Manual Cold-Vapor Technique	SW-846 On-line	0.2 µg/L

I-H. Data Evaluation

I-H-1. Evaluation of Primary and Secondary Parameters

Primary parameters will be evaluated using a non-parametric prediction limit with re-sampling. The prediction limits will be based upon pooled background data from monitoring wells DL-3, DL-4 and DL-6 using data from 2006 through 2011. The initial prediction limits are noted below in Table 5. That background data set will be updated annually if necessary using new data.

Table 5

Primary Parameters	Non-parametric prediction limit (µg/l)
Acetone	<100
Acetonitrile	<100
Benzene	6.30
Carbon tetrachloride	<1.00
Chloroform	3.50
Diethyl ether	<10.0
Ethanol	<800
Ethyl acetate	<100
Hexane	<100
Methanol	<800
Methylene chloride	<1.00
Toluene	<1.00
Xylene	<3.00

If an analyzed parameter is below the given limit of detection in one or more of the samples, then numerical data must be substituted for that measurement to perform the statistical test. In this case, calculations will be made using the detection limit values.

If, during the initial sampling, a primary parameter exceeds the prediction limit, the downgradient well for which the exceedance is found will be resampled. Duplicate samples be analyzed and if one of the two re-samples shows the concentration of the chemical in question is over the prediction limit, the exceedance will be considered statistically significant and confirmed. If contamination is found, DLD will initiate an investigation into causes of the contamination, and propose a plan of corrective action.

Secondary and tracking parameters, assumed to be related to upgradient contamination from a historic source, will simply be tracked for trends graphically, by concentration over time. Sampling data from these parameters will be reported along with primary parameters, and be included in the annual groundwater report.

Confirmed instances of laboratory error will be excluded prior to calculations. Data confirmed to be a laboratory error will be submitted, but with the groundwater report, along with an explanation of why it was excluded

ATTACHMENT 12

ENGINEERING PLANS

EXISTING STORAGE AND TREATMENT UNITS
(DLS-1, DLS-2, DLS-3, DLS-4, HWLB-1)

B6: ENGINEERING PLANS INDEX

(Volume 1)

Index of Attachments

ATTACHMENT	DESCRIPTION
B6-1.0	Sheet Index Existing Facility
B6-1.1	Drawing C101, Blueprint 09024LC001.dwg Site Development Plan – Existing Facility
B6-1.2	Drawing DLS-101, Blueprint 09024LDLS1-101.dwg DLS-1 Floor Plan and Details
B6-1.3	Drawing DLS2-101, Blueprint 09024LDLS2-101.dwg DLS-2 Floor Plan and Details
B6-1.4	Drawing DLS3-101, Blueprint 09024LDLS3-101.dwg DLS-3 Floor Plan and Details (including Storage Tanks)
B6-1.5	Drawing DLS4-101, Blueprint 09024LDLS4-101.dwg DLS-4 Floor Plan and Details (including Storage Tanks)
B6-1.6	Drawing HWLB-101, Blueprint 09024LHWLB-101.dwg HWLB-1 Floor Plans, Sections, and Details
B6-1.7	Drawing GAR-101, Blueprint 09024LGAR-101.dwg Maintenance Garage Plans, Sections, and Details

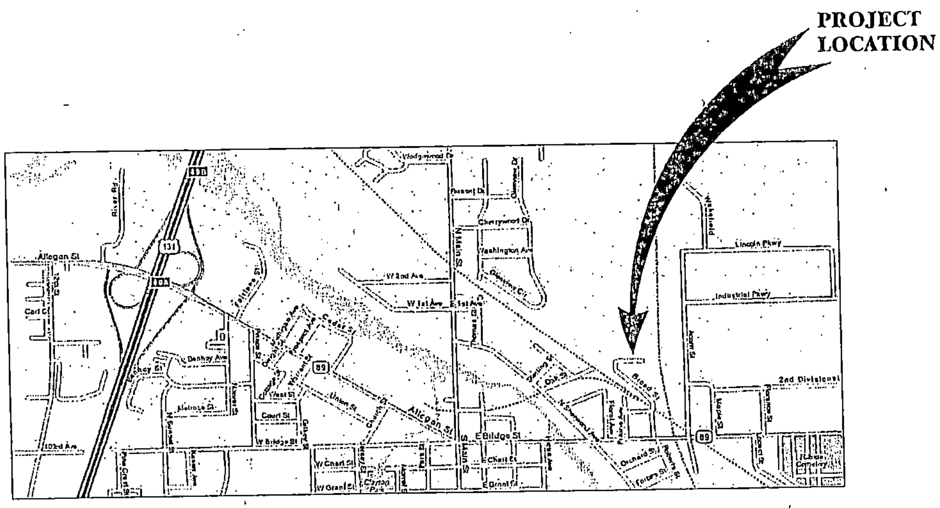
Drug & Laboratory Disposal

Existing DLS

Broad Street, Plainwell, Michigan 49080

September 8, 2010 for State Submittal

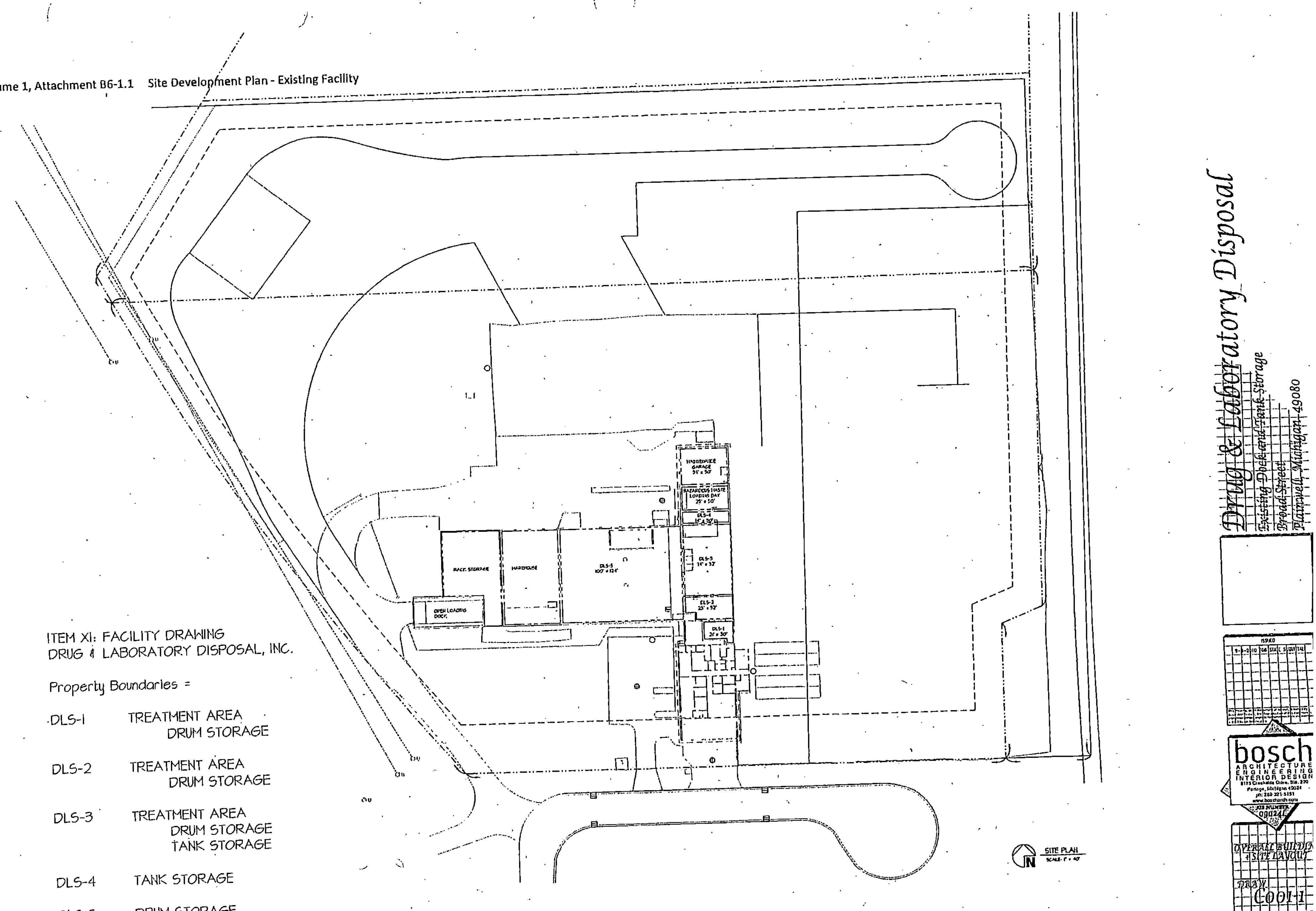
SHEET INDEX



LOCATION MAP
NOT TO SCALE

Drug & Laboratory Disposal
Existing Dock and Tank Storage
Broad Street
Plainwell, Michigan 49080

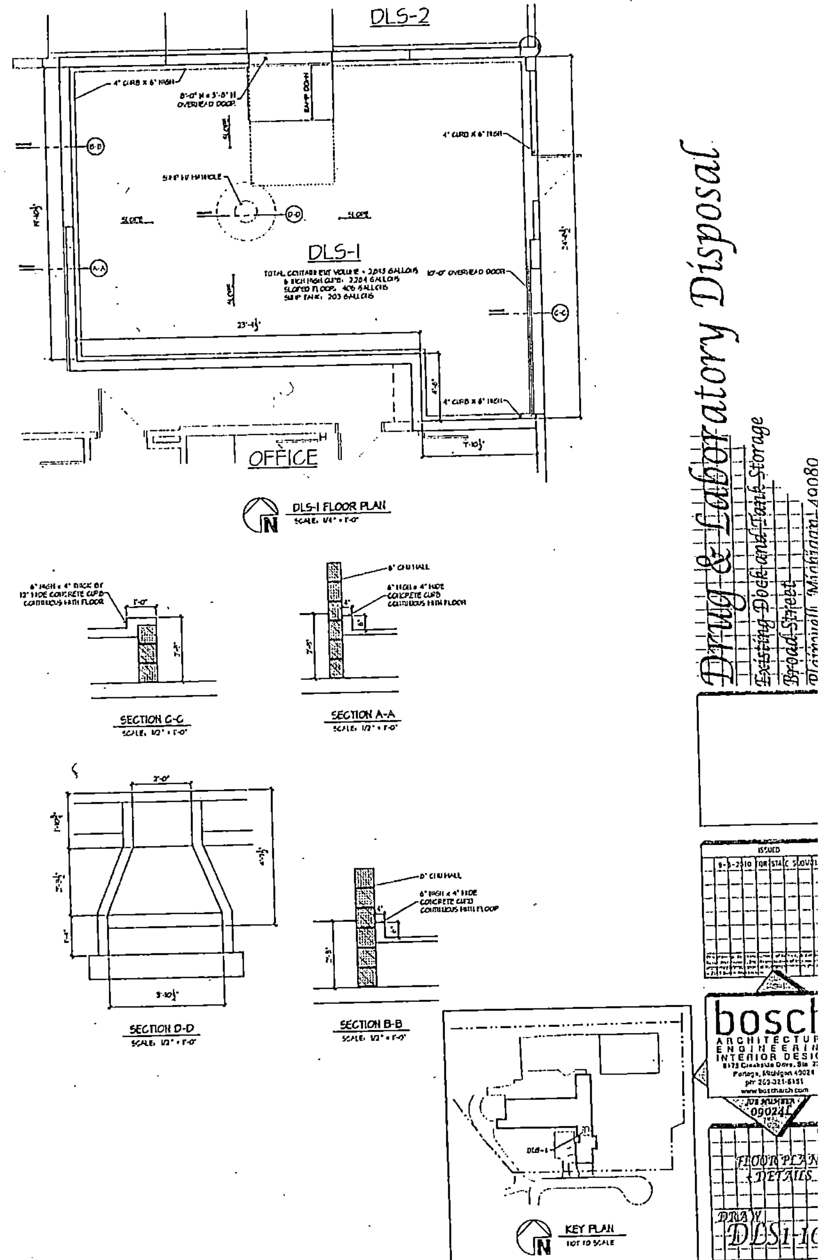
bosch
ARCHITECTURE ENGINEERING INTERIOR DESIGN

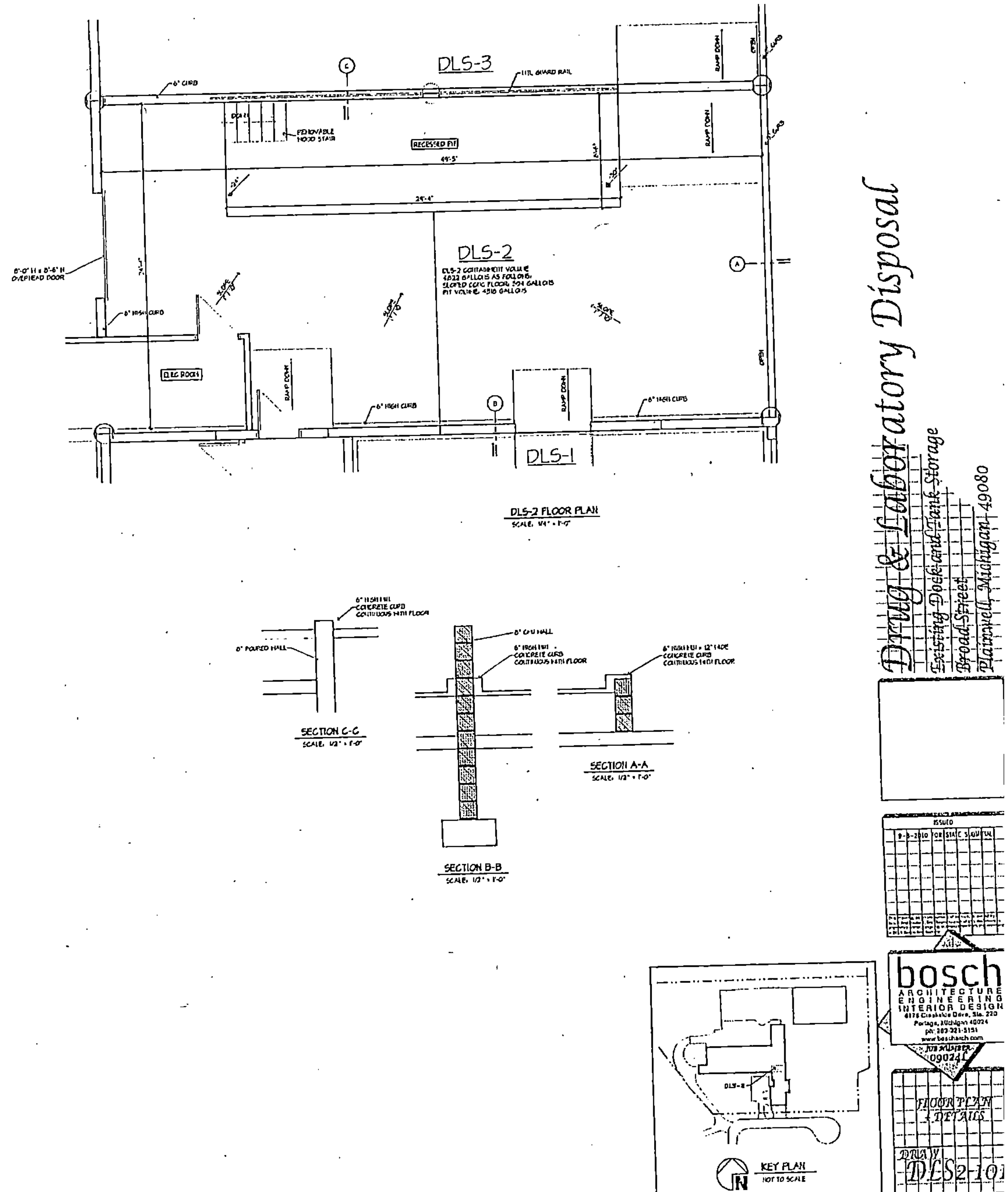


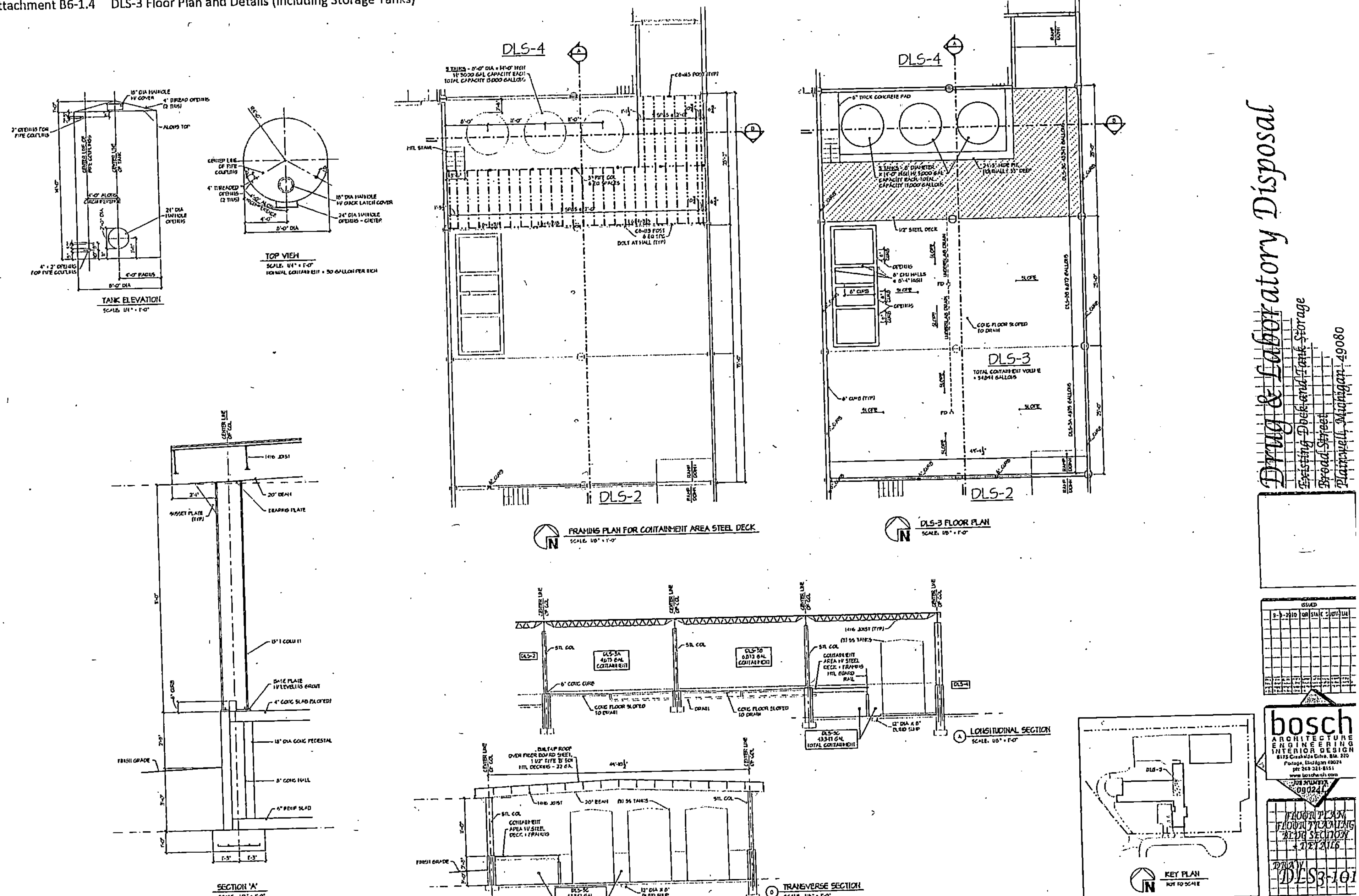
ITEM XI: FACILITY DRAWING
DRUG & LABORATORY DISPOSAL, INC.

Property Boundaries =

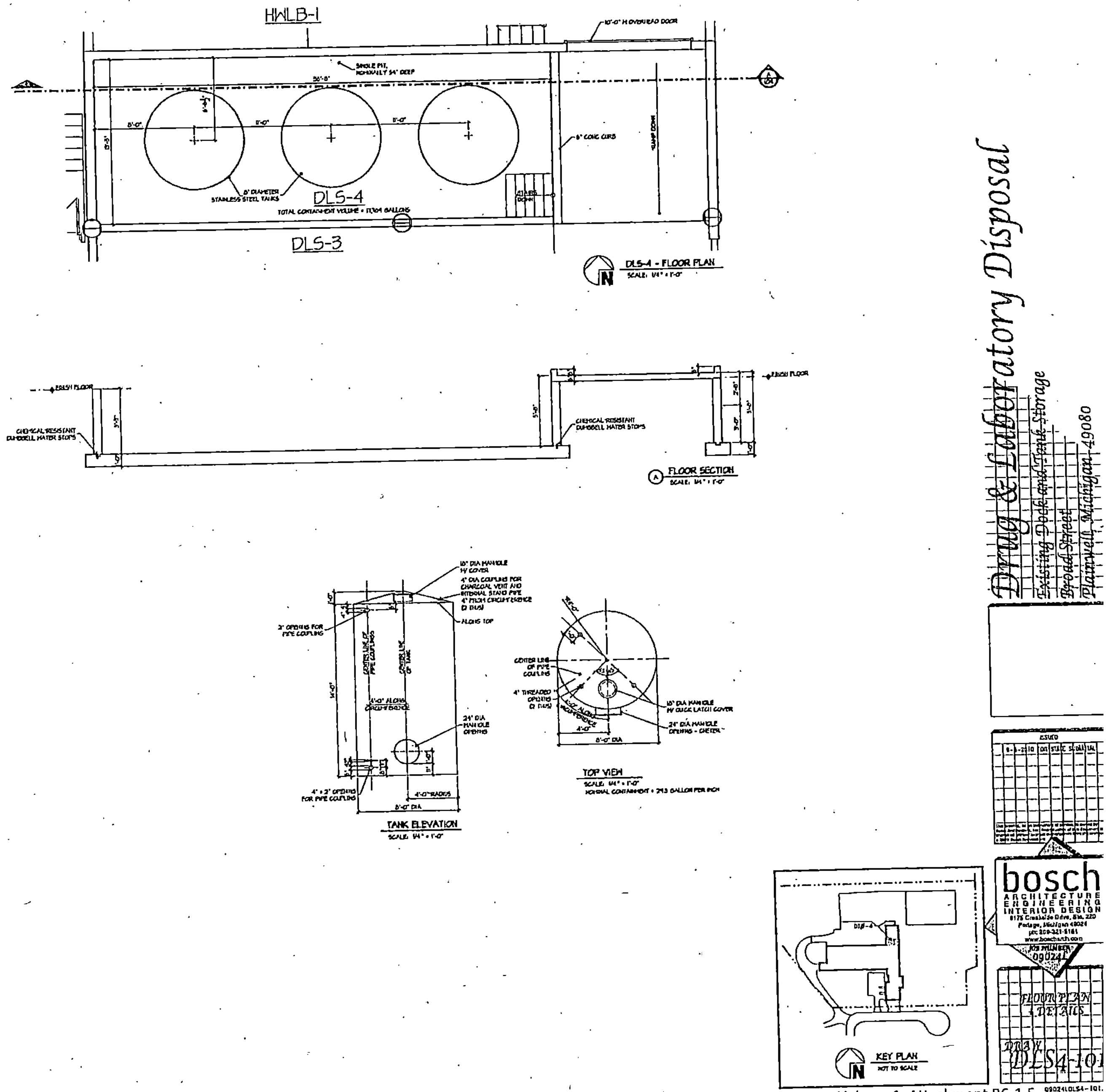
DLS-1	TREATMENT AREA	DRUM STORAGE
DLS-2	TREATMENT AREA	DRUM STORAGE
DLS-3	TREATMENT AREA	DRUM STORAGE TANK STORAGE
DLS-4	TANK STORAGE	
DLS-5	DRUM STORAGE	

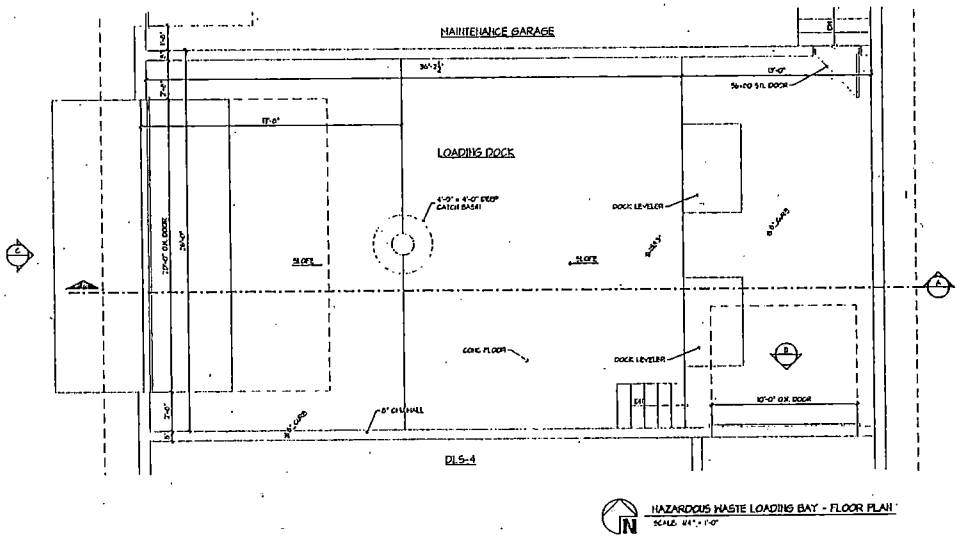

DLS-2
DLS-1
OFFICE
DLS-I FLOOR PLAN
SECTION C-C
SECTION A-A
SECTION D-D
SECTION B-B
KEY PLAN
Drug & Laboratory Disposal
bosch

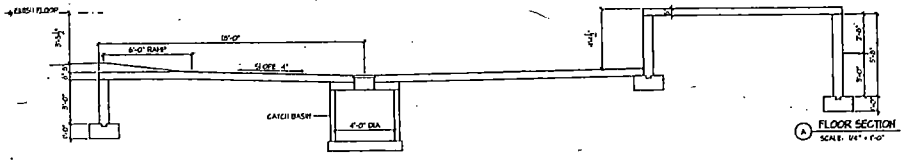

DLS-3
DLS-2
DLS-1
DLS-2 FLOOR PLAN
SECTION C-C
SECTION B-B
SECTION A-A
KEY PLAN
Drug & Laboratory Disposal
Existing Dock and Tank Storage
Broad Street
Plainwell, Michigan 49080
bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN
FLOOR PLAN & DETAILS
DLS2-101

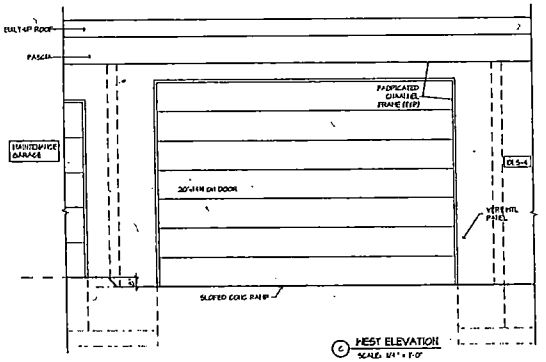

TANK ELEVATION
TOP VIEW
SECTION 'A'
DLS-4
DLS-2
FRAMING PLAN FOR CONTAINMENT AREA STEEL DECK
DLS-3 FLOOR PLAN
DLS-3
LONGITUDINAL SECTION
TRANSVERSE SECTION
KEY PLAN
Drug & Laboratory Disposal
bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN

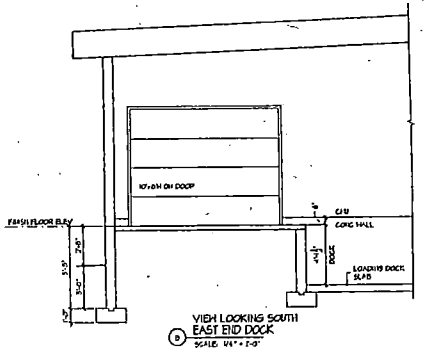
Volume 1, Attachment B6-1.5 DLS-4 Floor Plan and Details (Including Storage Tanks)

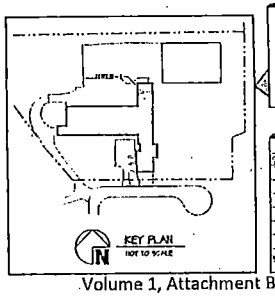












Existing Depot and Yard Storage
Broad Street
Plainwell, Michigan 49080

Hazardous Waste Temporary Disposal

bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN

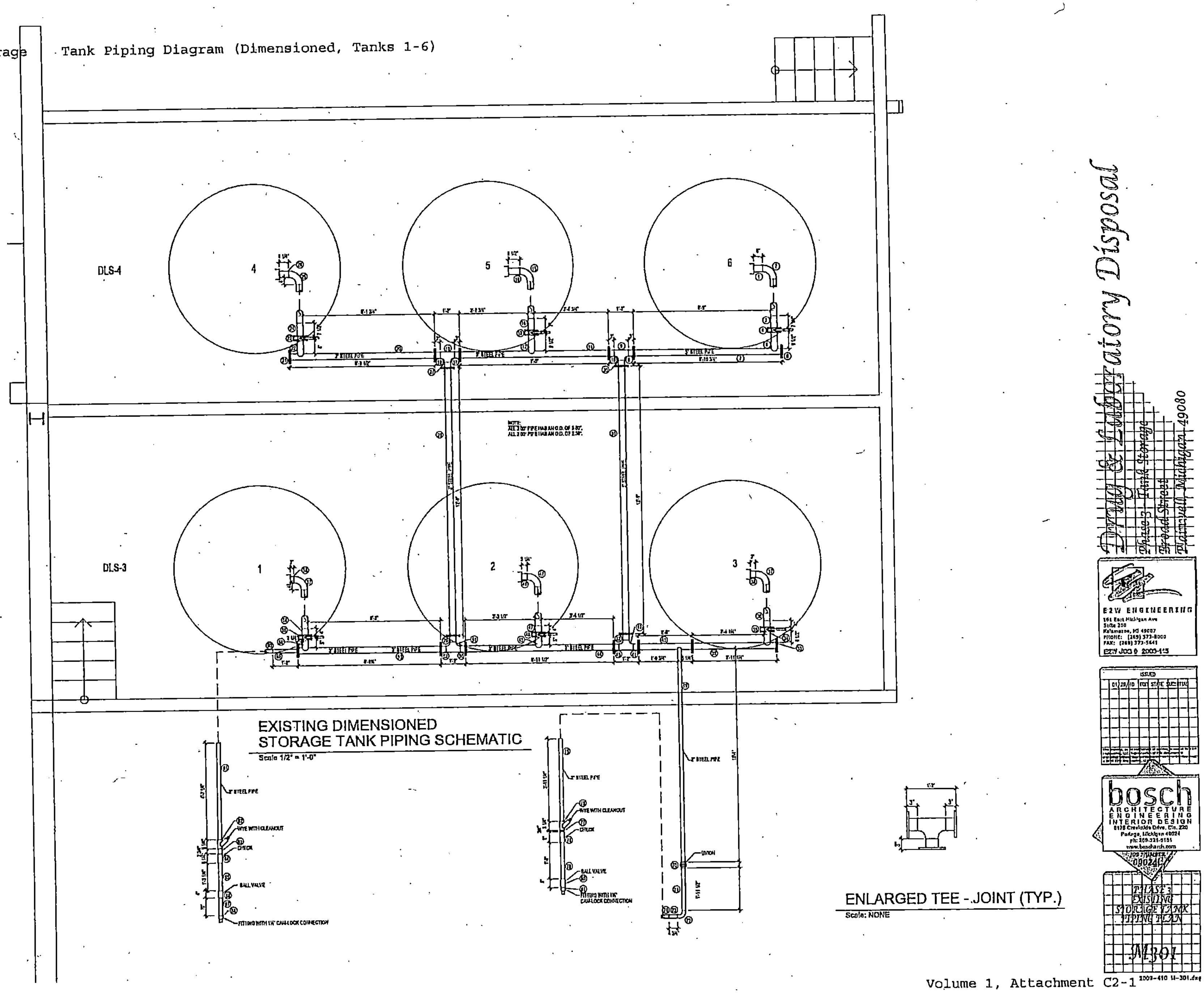
HAZARDOUS WASTE LOADING BAY PLANS, SECTIONS + EXTERIOR

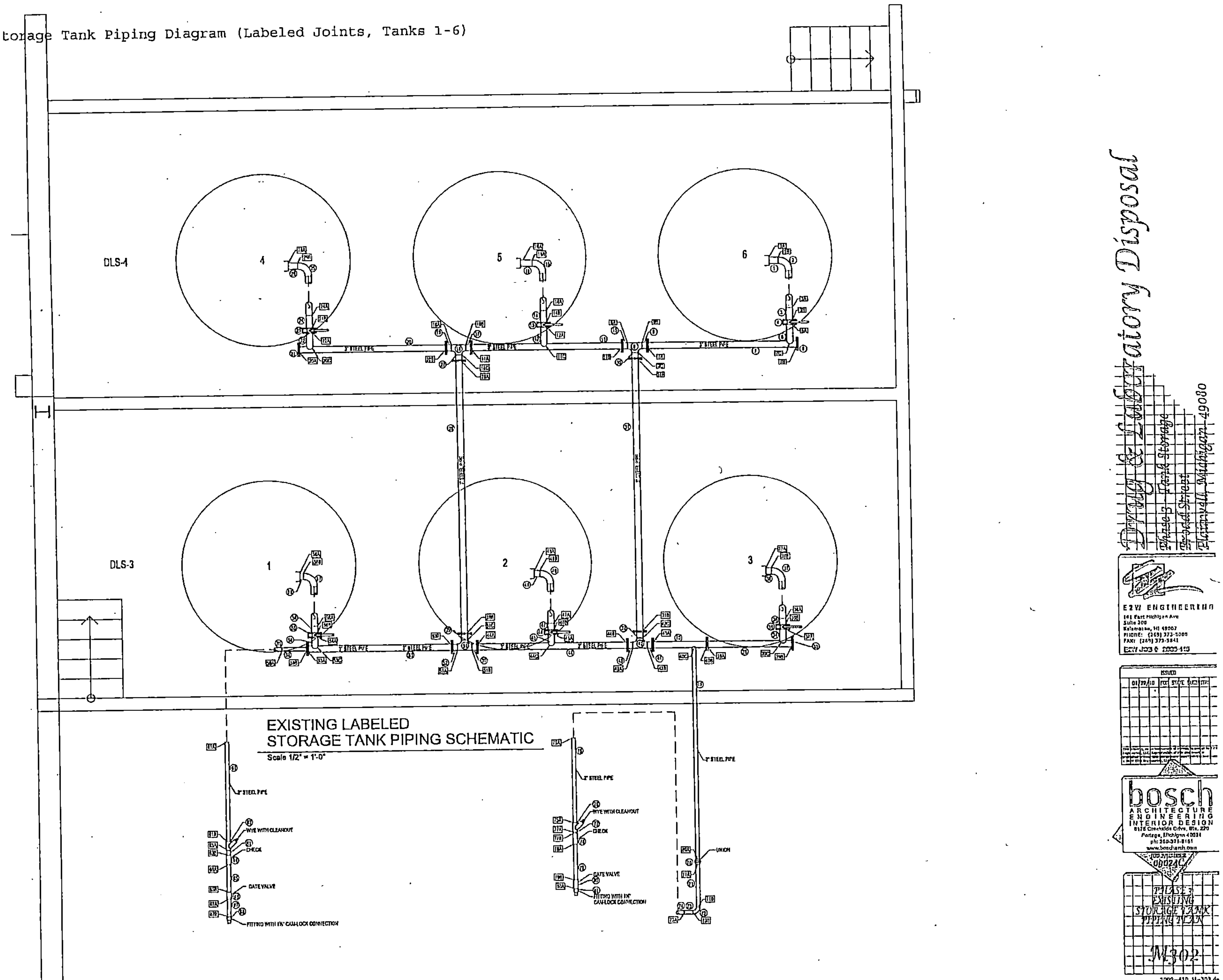
HWLB-1

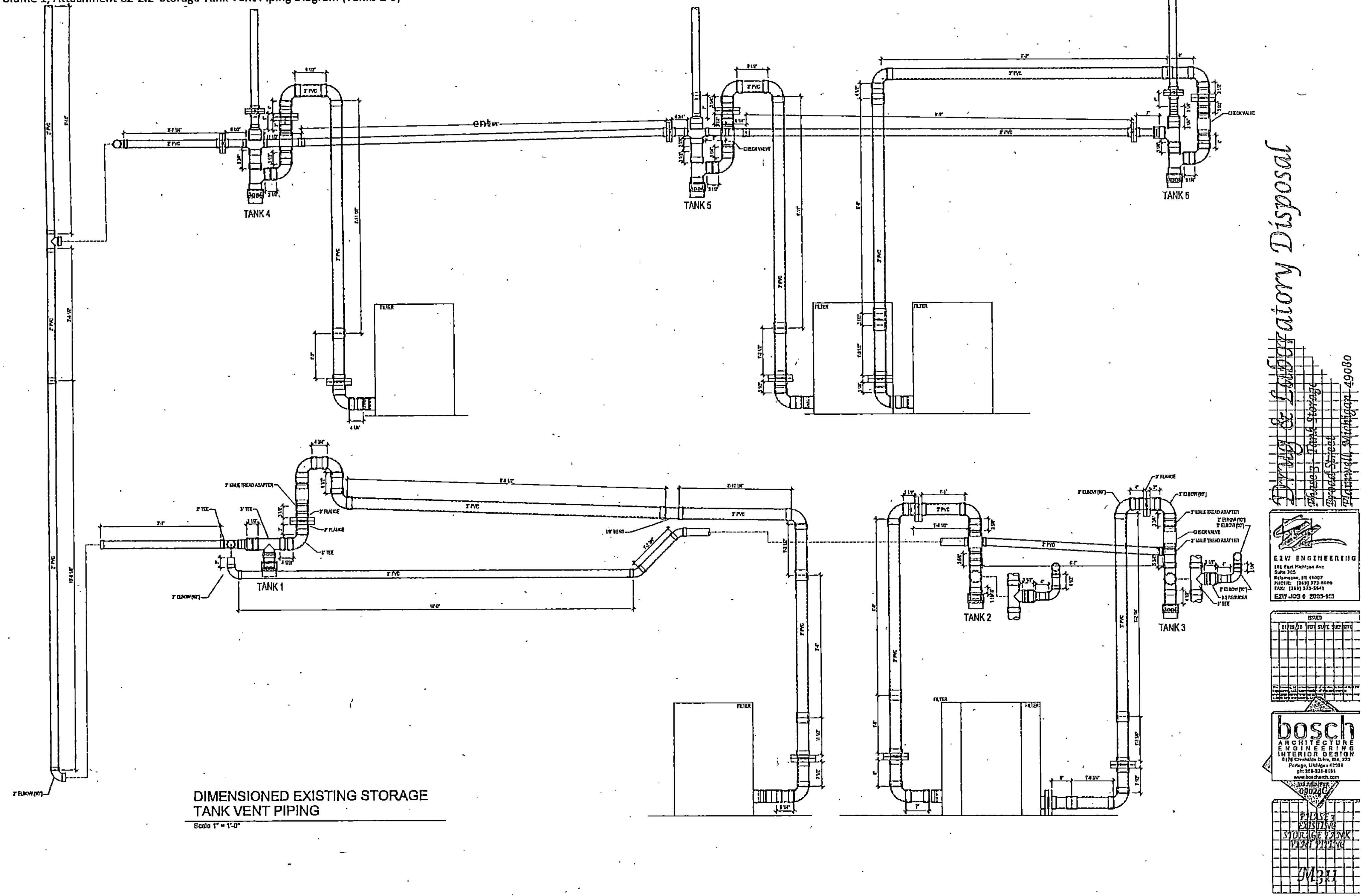
C2: TANKS - INDEX OF ATTACHMENTS

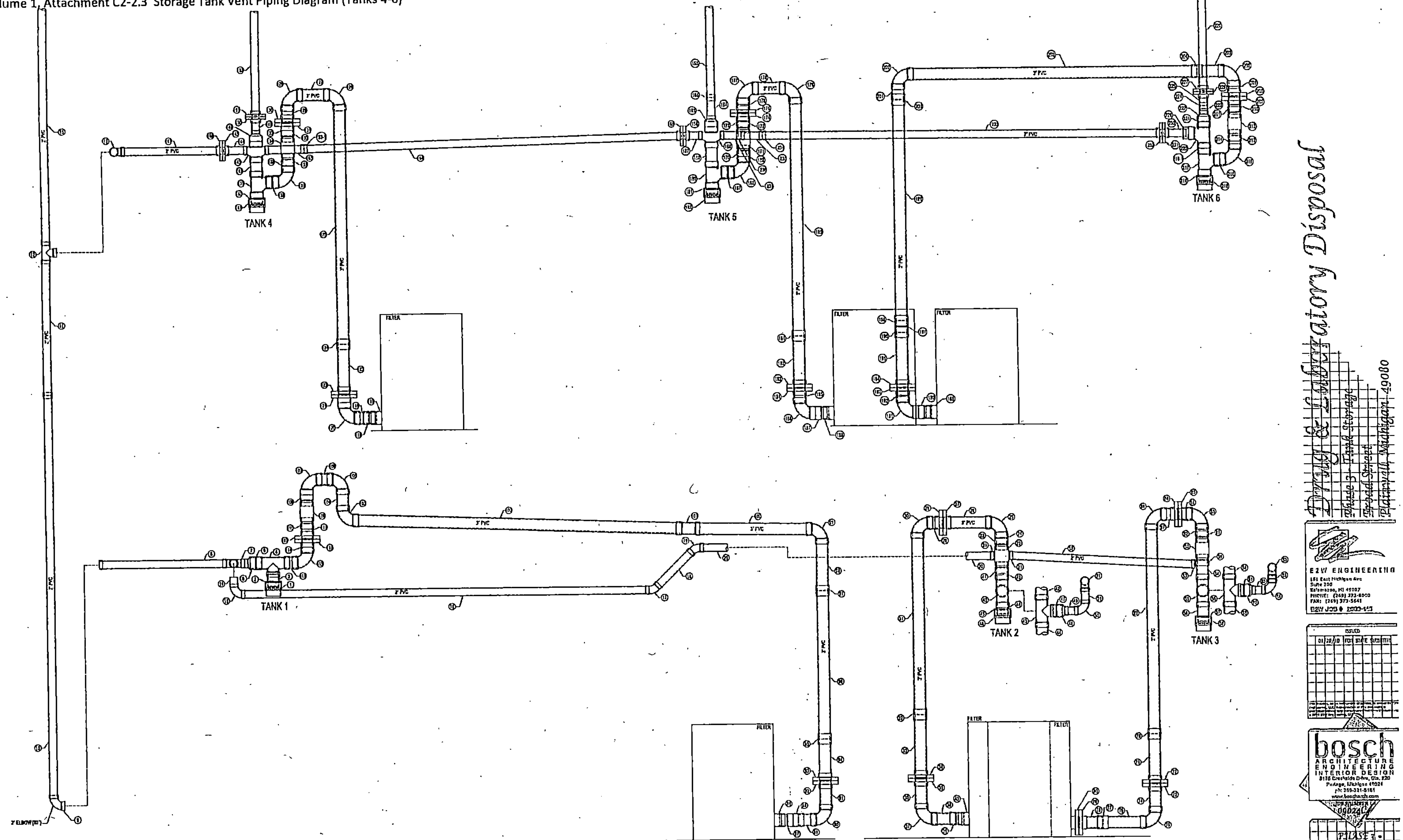
VOLUME 1

ATTACHMENT	DESCRIPTION
C2-1	Drawing M301, Blueprint 2009-410 M-301.dwg Storage Tank Piping Diagram (Dimensioned, Tanks #1 - #6)
C2-2.1	Drawing M302, Blueprint 2009-410 M-301.dwg Storage Tank Piping Diagram (Labeled, Tanks #1 - #6)
C2-2.2	Drawing M311, Blueprint M-311.dwg Storage Tank Vent Piping Diagram (Tanks #1 - #3)


DLS-4
4
5
6
DLS-3
1
2
3
EXISTING DIMENSIONED
STORAGE TANK PIPING SCHEMATIC
Scale 1/2" = 1'-0"
ENLARGED TEE - JOINT (TYP.)
Scale: NONE
Drugs & Laboratory Disposal
Broad Street
Plainwell, Michigan 49080
E2W ENGINEERING
bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN
M301


DLS-1
DLS-3
EXISTING LABELED
STORAGE TANK PIPING SCHEMATIC
Scale 1/2" = 1'-0"
Drug & Laboratory Disposal
bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN
M302


TANK 4
TANK 5
TANK 6
TANK 1
TANK 2
TANK 3
FILTER
CHECK VALVE
DIMENSIONED EXISTING STORAGE
TANK VENT PIPING
Drug & Laboratory Disposal
E2W ENGINEERING
bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN
M311



LABELED EXISTING STORAGE
TANK VENT PIPING

Scale 1" = 1'-0"

PROPOSED STORAGE AND TREATMENT UNITS (DLS-5, DLS-6a, DLS-6b, DLS-7, DLS-8, DLS-9, DLS-10, DLS-11, DLS-12, EXPLOSIVES STORAGE)

Drug & Laboratory Disposal, Inc.
MID 092 947 928

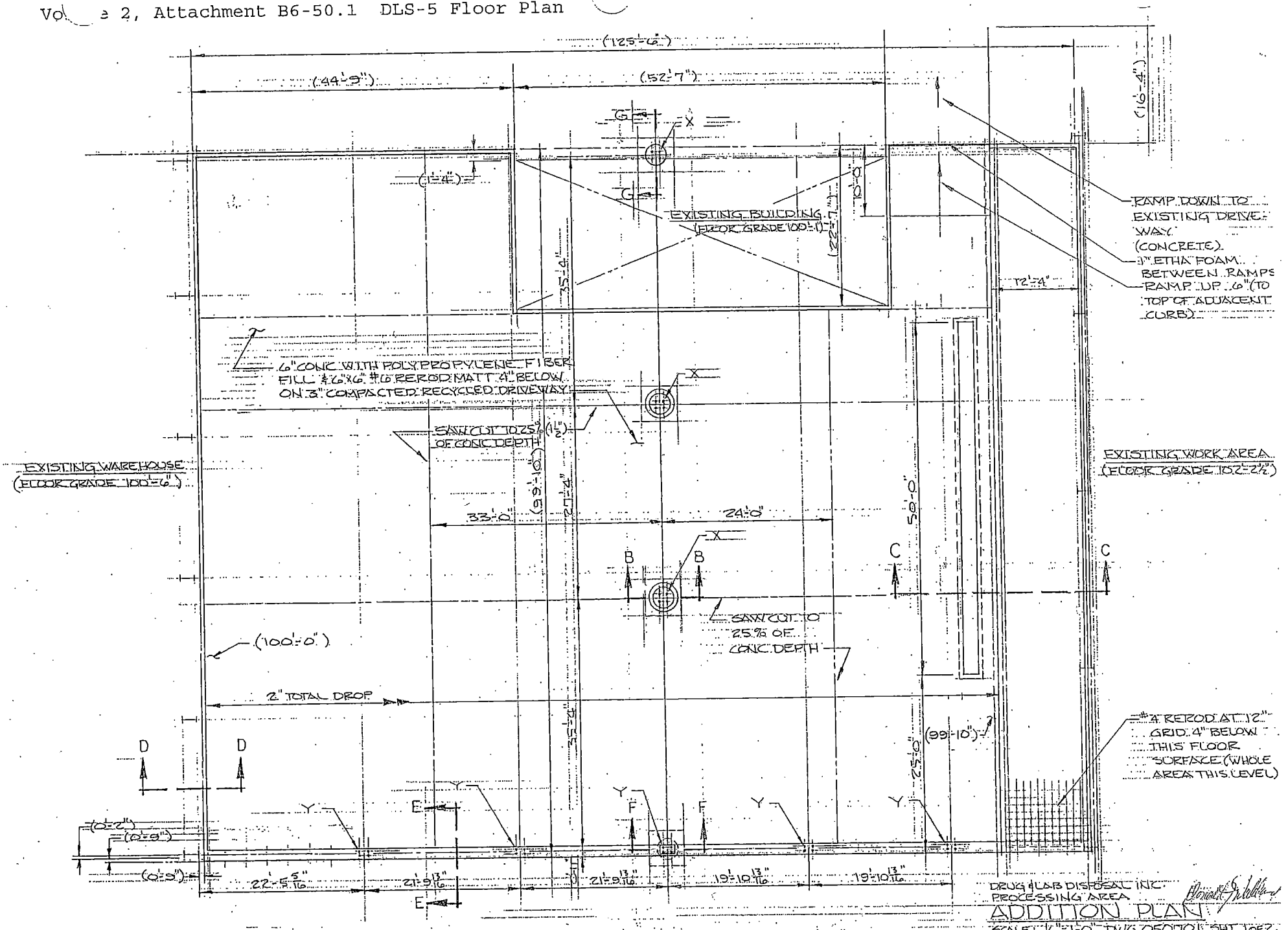
B6: ENGINEERING PLANS

(Volume 2)

Index of Attachments

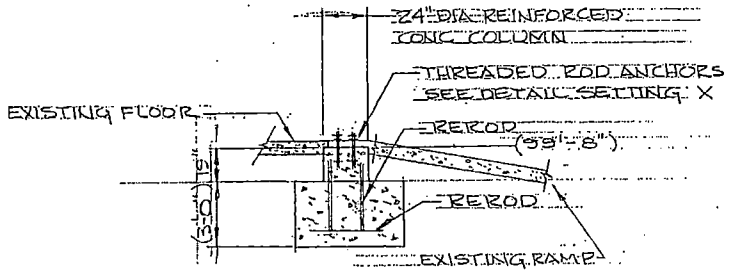
ATTACHMENT	DESCRIPTION
B6-50.1	Blueprint DWG050701 Sheet 1 of 2 DLS-5 Floor Plan
B6-50.2	Blueprint DWG050701 Sheet 2 of 2 DLS-5 Foundation Details
B6-50.3	Blueprint DLS-5 Section Details

Volume 2, Attachment B6-50.1 DLS-5 Floor Plan

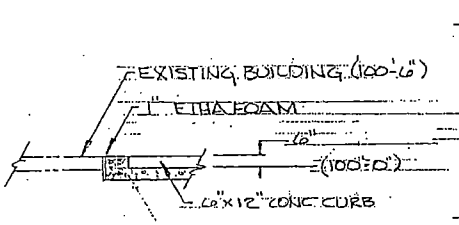


DRUG LAB DISPOSAL INC.
PROCESSING AREA
ADDITION PLAN
SCALE: 1/8"=1'-0" DWG 050701 SHT 1 OF 2
7-15-05, REVISED 8-5-05, REVISED 10-26-05

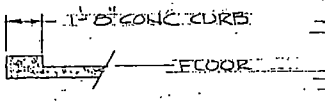
NOTES: 1. CONC CUTS REQUIRED PRIOR TO CONST. WILL BE DONE BY DRUG LAB.
2. TOP OF ACC CURBS AT 100'-6"
3. ( ) IS REFERENCE INFORMATION.
4. REF STEEL STRUCTURE DWG JOB # 3961 05-3 PAT STEEL



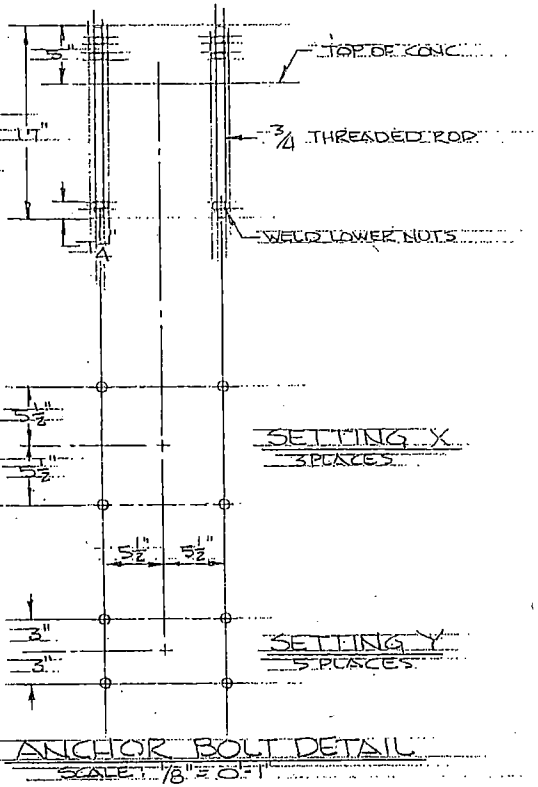
SECTION G-G
SCALE: 1/4"=1'-0"



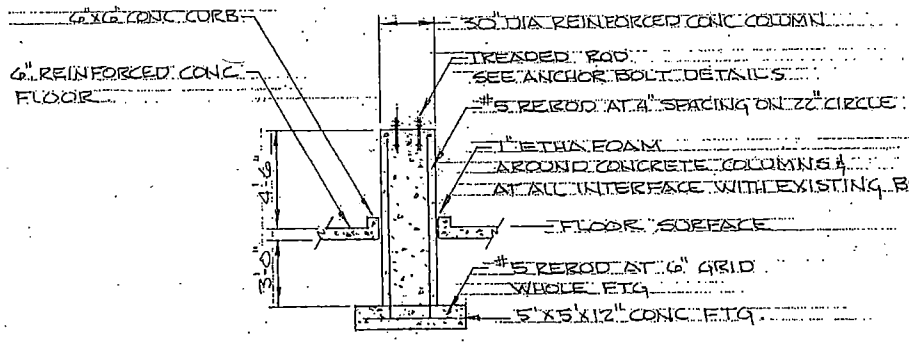
SECTION D-D
SCALE: 1/4"=1'-0"



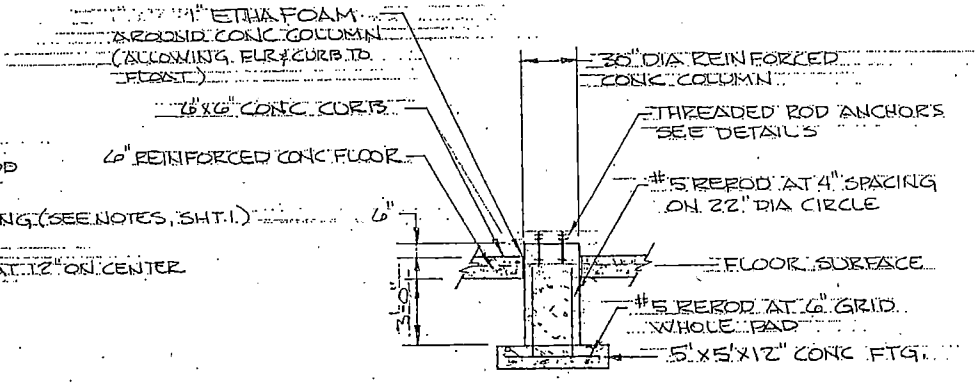
SECTION E-E
SCALE: 1/4"=1'-0"
(ROTATED VIEW)

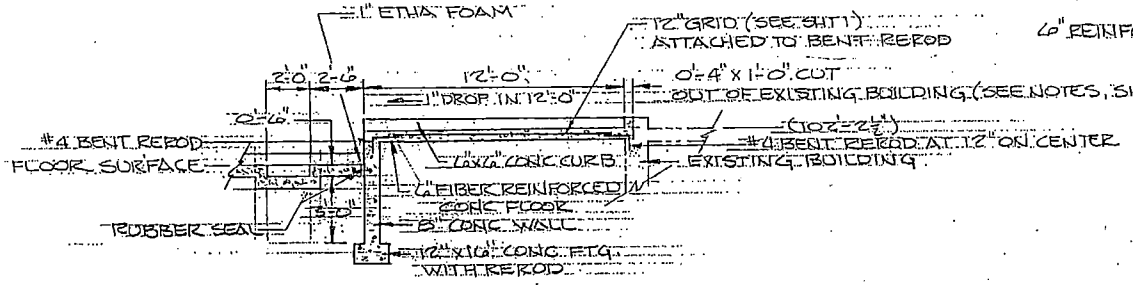


ANCHOR BOLT DETAIL
SCALE: 1/8"=1'-0"



SECTION B-B
SCALE: 1/4"=1'-0"
(TYPICAL 2 PLACE WITH SETTING X)





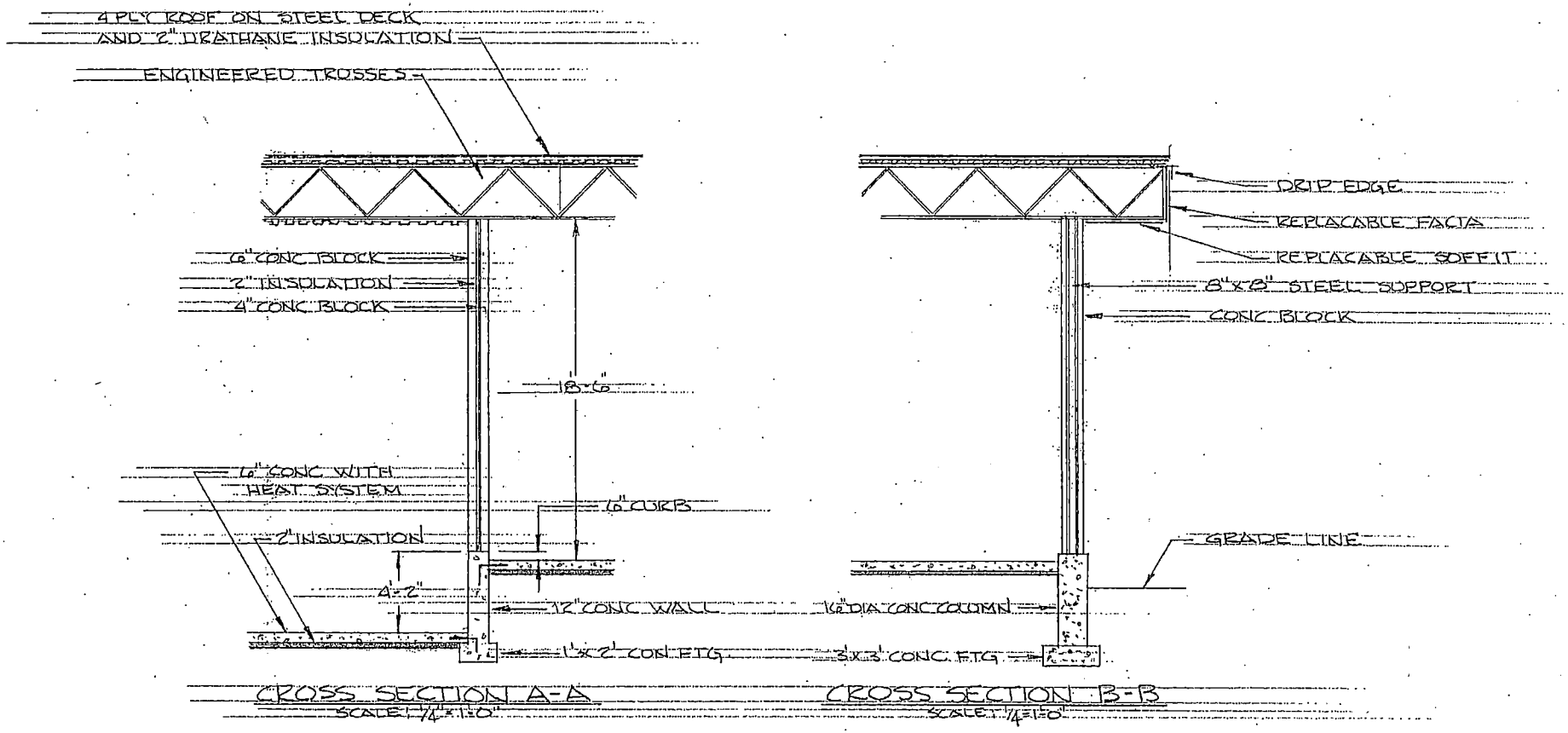
SECTION C-C
SCALE: 1/4"=1'-0"

SECTION F-F
SCALE: 1/4"=1'-0"

DRUG & LAB DISPOSAL INC.
PROCESSING AREA

ADDITION PLAN DETAILS

SCALE: NOTED DWG 0501101 SHT 2 OF 2
7-15-05; REVISED 8-5-05; REVISED 10-24-05



SECTION DETAILS

B6: ENGINEERING PLANS INDEX

(Volume 6)

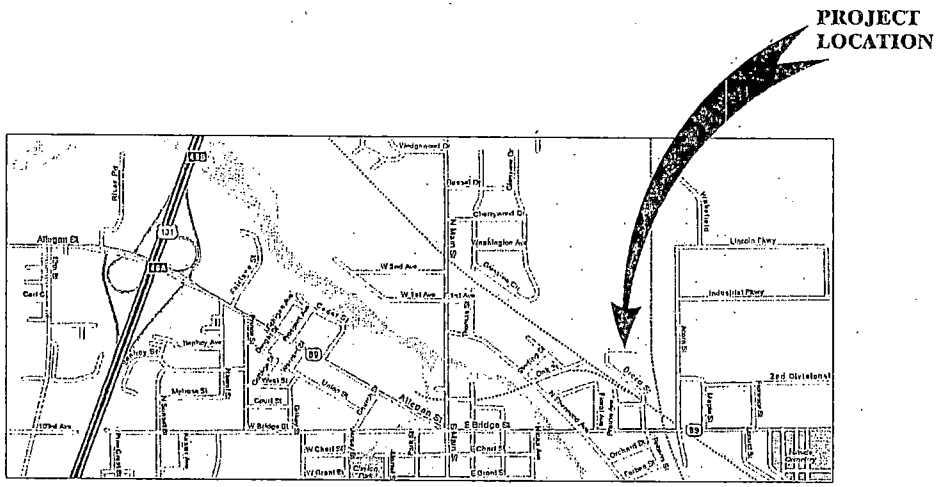
Index of Attachments

ATTACHMENT	DESCRIPTION
B6-60.0	Sheet Index DLS-6A & DLS-6B Containment Areas
B6-60.1	Drawing C001, Blueprint 09024JC001.dwg Site Development Plan / DLS-6A & DLS-6B
B6-60.2	Drawing A101, Blueprint 09024JA101.dwg DLS-6A Floor Plan, Elevations, and Details
B6-60.3	Drawing A102, Blueprint 09024JA101.dwg DLS-6B Floor Plan and Details
B6-60.4	Drawing A201, Blueprint 09024JA201.dwg DLS-6B Exterior Elevations and Building Details

Drug & Laboratory Disposal
Phase 9 - Materials Control Enclosure

Broad Street, Plainwell, Michigan 49080

January 29, 2010 for State Submittal



LOCATION MAP
NOT TO SCALE

SHEET INDEX

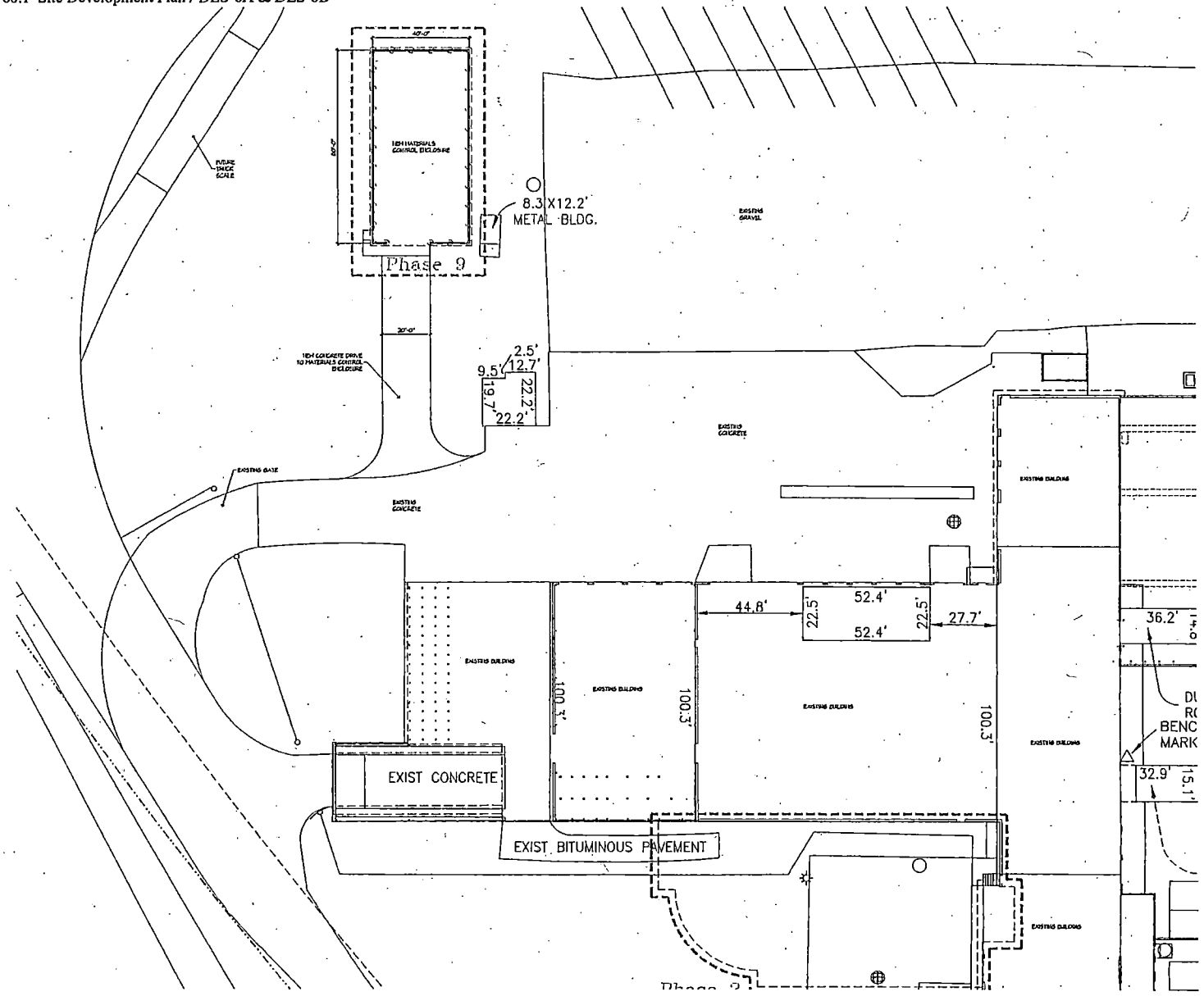
COVER SHEET + INDEX

C001	SITE DEVELOPMENT PLAN
A101	EXISTING WAREHOUSE FLOOR PLAN, ELEVATIONS + DETAILS
A102	STAND ALONE FLOOR PLAN + DETAILS
A201	EXTERIOR ELEVATIONS + BUILDING SECTION

Drug & Laboratory Disposal
Phase 9 - Materials Control Enclosure
Broad Street
Plainwell, Michigan 49080

ISSUED

bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN
8175 Creekside Drive, Ste. 220
Portage, Michigan 49024
ph: 269 321-5151
www.boschaih.com



GENERAL NOTES (SITE WORK)

1. THE SOILS INVESTIGATION REPORT IS AVAILABLE TO THE GENERAL CONTRACTOR UPON REQUEST.
2. FOUNDATION DESIGN CAPACITIES:

	DESCRIPTION	CAPACITY
A.	STRIP FOOTINGS	GROSS 3,000 PSF
B.	SPREAD FOOTINGS	GROSS 2,000 PSF

3. DEMOLITION
   A. REMOVAL OF EXISTING UTILITIES, STRUCTURES AND SLABS SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS. IF REMOVAL LINES ARE NOT SHOWN, THEY SHALL BE TAKEN AS REQUIRED TO COMPLETE THE PROJECT.
   B. DISCONNECTS OF ALL UTILITIES TO BE ACHIEVED SHALL BE BY THE TRADE NEGOTIATED OR THE APPROPRIATE UTILITY CO. AS DIRECTED BY THE GENERAL CONTRACTOR.
   C. DISPOSAL OF MATERIAL REMOVED SHALL BE OFF SITE BY THE GENERAL CONTRACTOR.
4. SITE PREPARATION
   A. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE PROVIDED BY THE CONTRACTOR IN COMPLIANCE WITH ACT 347.
   D. ORGANIC TOPSOIL SHALL BE STRIPPED FROM THE CONSTRUCTION AREA TO DEPTHS RANGING FROM APPROXIMATELY 6" TO 24" AND STOCKPILED AS DIRECTED BY THE ARCHITECT FOR LATER USE.
   G. IT IS REQUIRED THAT COMPACTION OF THE EXISTING SOILS BE PERFORMED BEFORE ANY FOOTINGS ARE CONSTRUCTED. SEE DIVISION 2 OF THE SPECIFICATION FOR ADDITIONAL INFORMATION.
5. EARTHWORK
   A. CALL MISS DIG AT 1-800-482-7171 BEFORE BEGINNING EXCAVATION.
   B. EXCAVATION SHALL BE LEVEL TO EXACT DEPTHS AND DIMENSIONS INDICATED ON DRAWINGS.
   C. [illegible]
   D. EXTREME CARE SHALL BE TAKEN NOT TO DISTURB OR DAMAGE EXISTING FOOTINGS, FOUNDATIONS, FLOORS, AND UTILITY OR SERVICE LINES. CONTRACTOR SHALL PROVIDE ALL REQUIRED SHORING AND BRACING TO PREVENT CAVE INS OR SETTLEMENT OF EXISTING STRUCTURES OR UTILITIES.
   E. PLACE 6 INCHES OF CLEAN RUN SAND COMPACTED TO 95% OF MAXIMUM DENSITY UNDER ALL FLOOR SLABS ON GRADE.
   F. SOIL TESTING WILL BE CONTRACTED AND PAID FOR BY THE GENERAL CONTRACTOR.
   G. SITE SHALL BE FINE GRADED BEFORE PLACING TOP SOIL OR GRANULAR BASE MATERIAL.
   H. EXTERIOR SURFACE DRAINAGE SHALL BE AWAY FROM BUILDINGS.
   I. AFTER BACKFILL IS PLACED AND PRIOR TO PLACING CONCRETE FLOORS, THE SOIL WILL BE TREATED FOR TERMITE CONTROL.

SITE DEVELOPMENT PLAN
SCALE 1" = 30'

Drug & Laboratory Disposal
Phase 9 - Material Control Enclosure
Broadstreet

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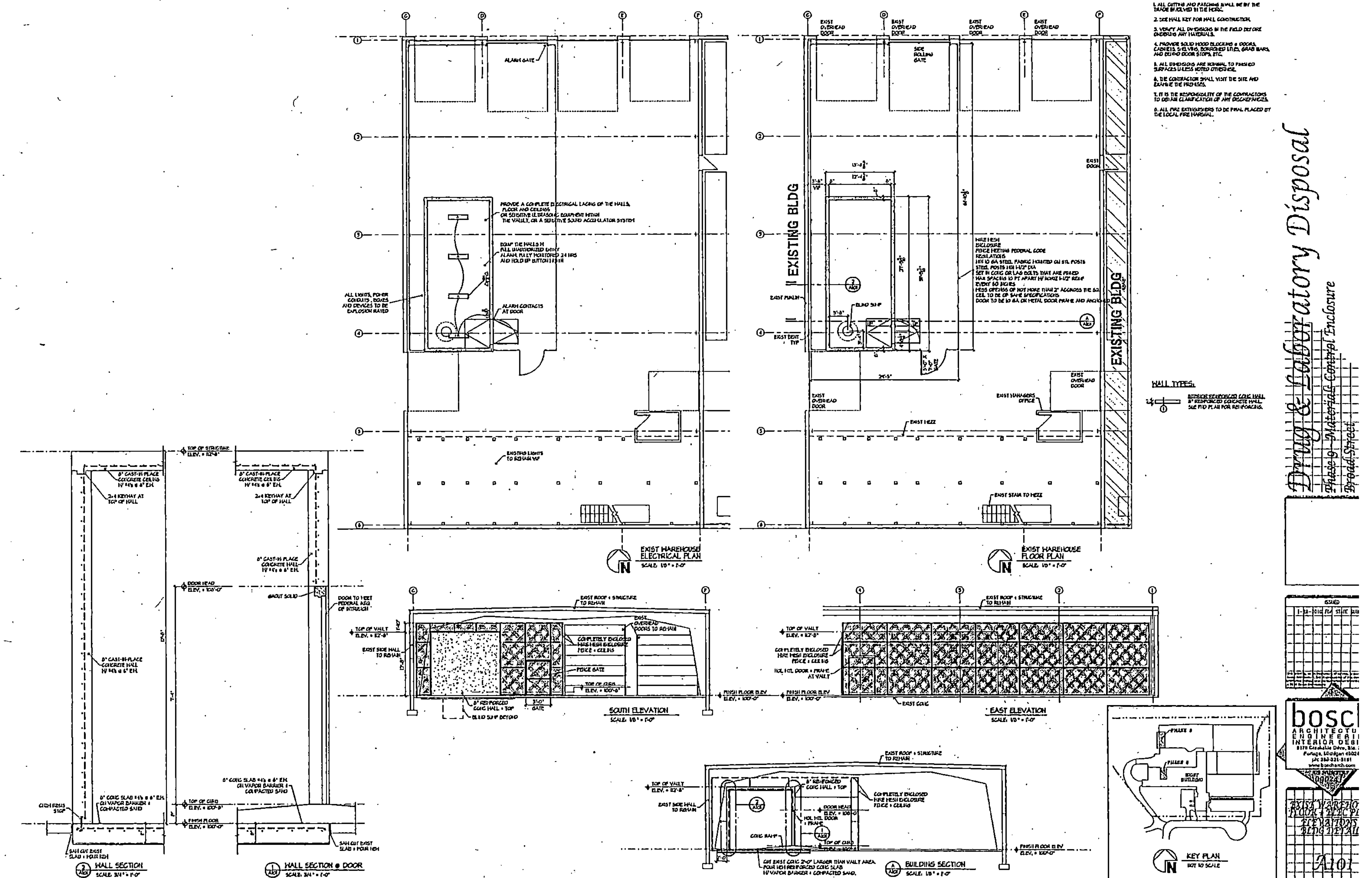
ARCHITECTU
ENGINEERI
INTERIOR DES
9178 Crawford Drive, Ste.
Portage, Michigan 4900
ph: 866-321-6161
www.boschinch.com

SITE DEVELOPMENT PLAN
C001


GENERAL NOTES:
EXISTING BLDG
EXISTING BLDG
EXIST WAREHOUSE ELECTRICAL PLAN
EXIST WAREHOUSE FLOOR PLAN
WALL TYPES
SOUTH ELEVATION
EAST ELEVATION
BUILDING SECTION
WALL SECTION
WALL SECTION @ DOOR
KEY PLAN
Drug & Laboratory Disposal
Phase 9 - Material Control Enclosure
Broad Street
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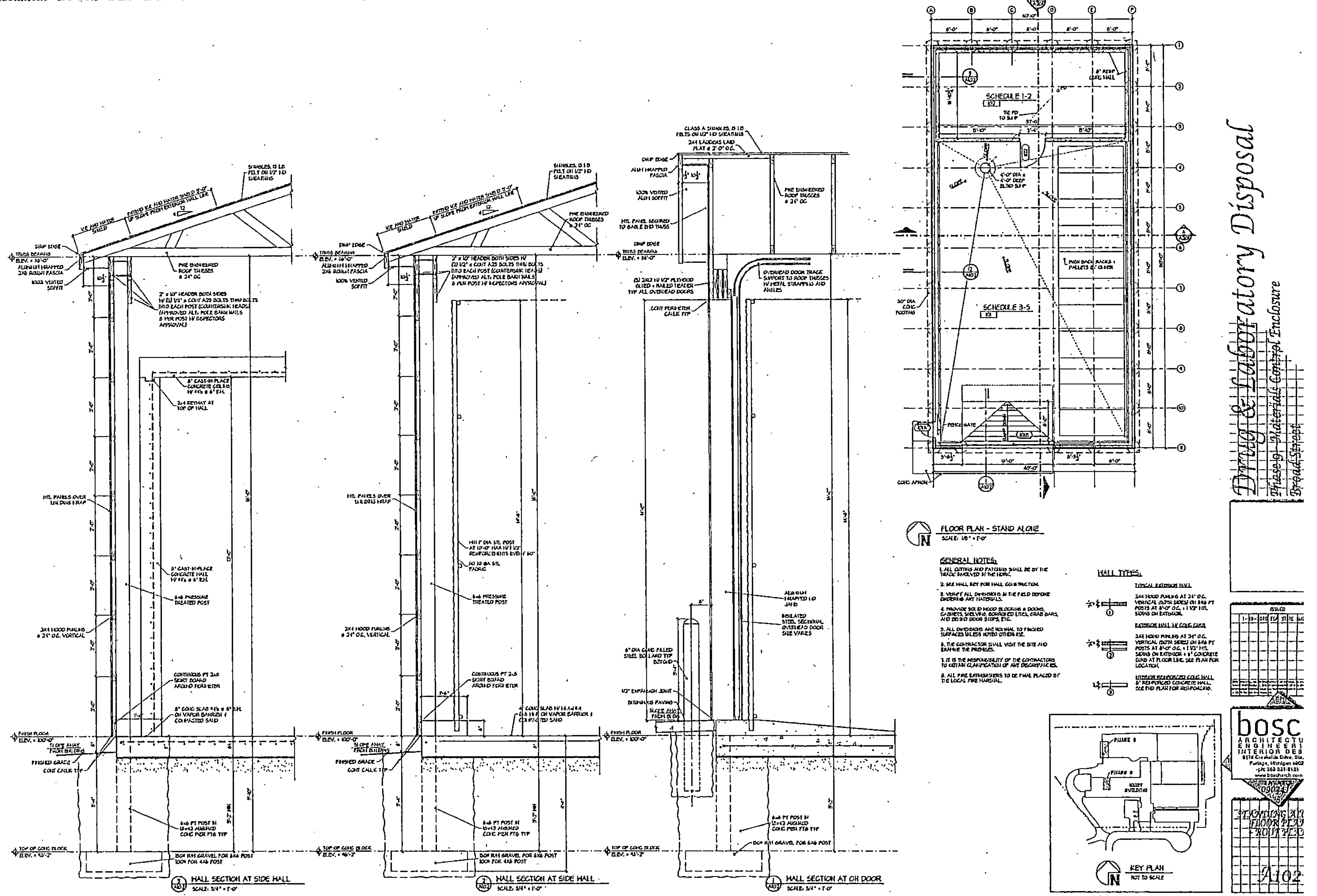
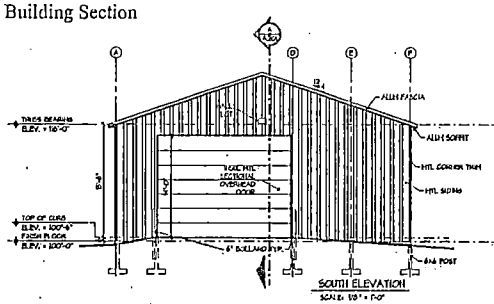
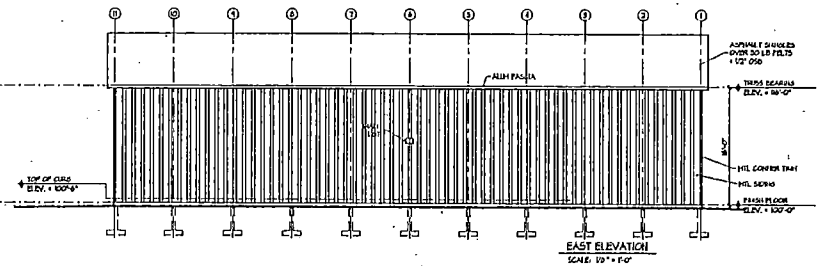
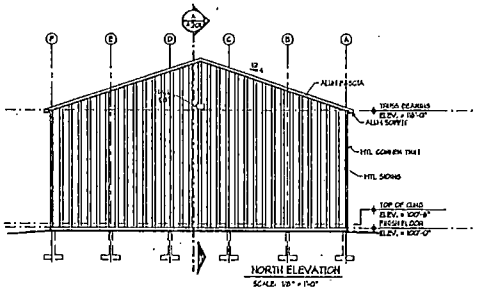
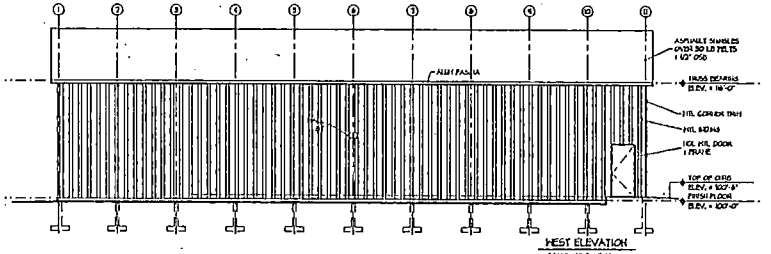
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN
A101

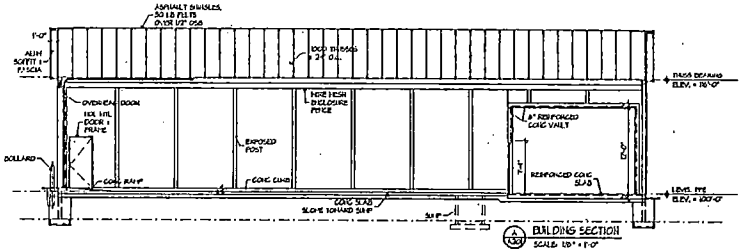

HALL SECTION AT SIDE HALL
HALL SECTION AT SIDE HALL
HALL SECTION AT OH DOOR
SCHEDULE 1-2
SCHEDULE 3-5
FLOOR PLAN - STAND ALONE
GENERAL NOTES
HALL TYPES
KEY PLAN
Drug & Laboratory Disposal
bosc
A102

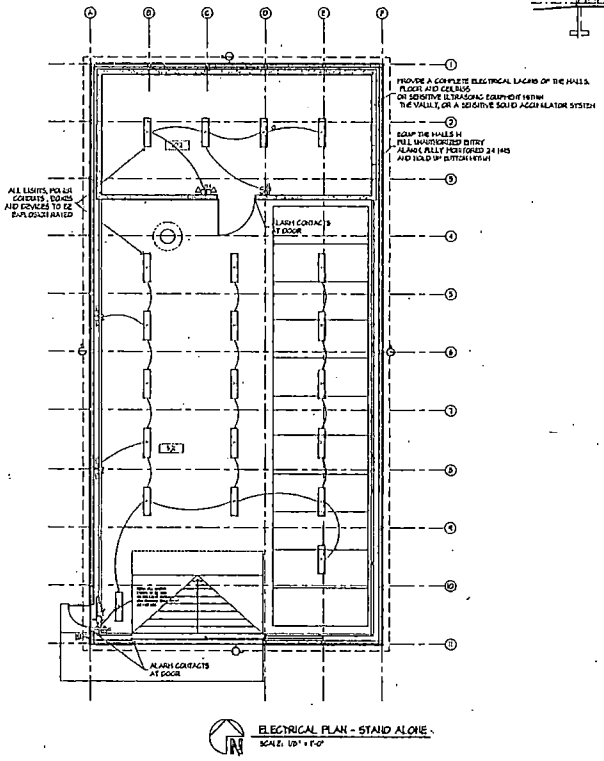












Drug & Laboratory Disposal
Phase 1 Materials Control Enclosure
Broad Street

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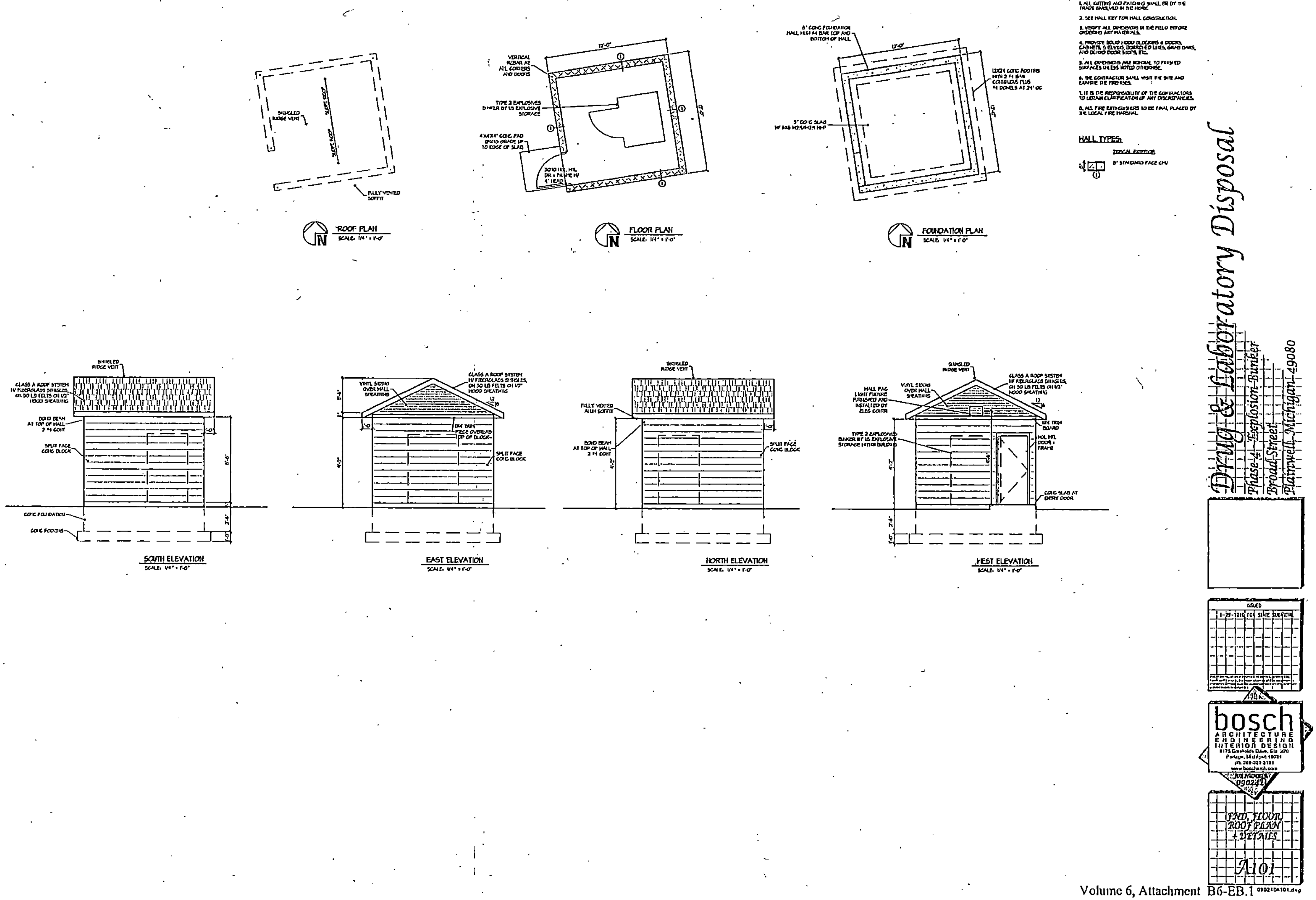
INTERIOR DESIGN

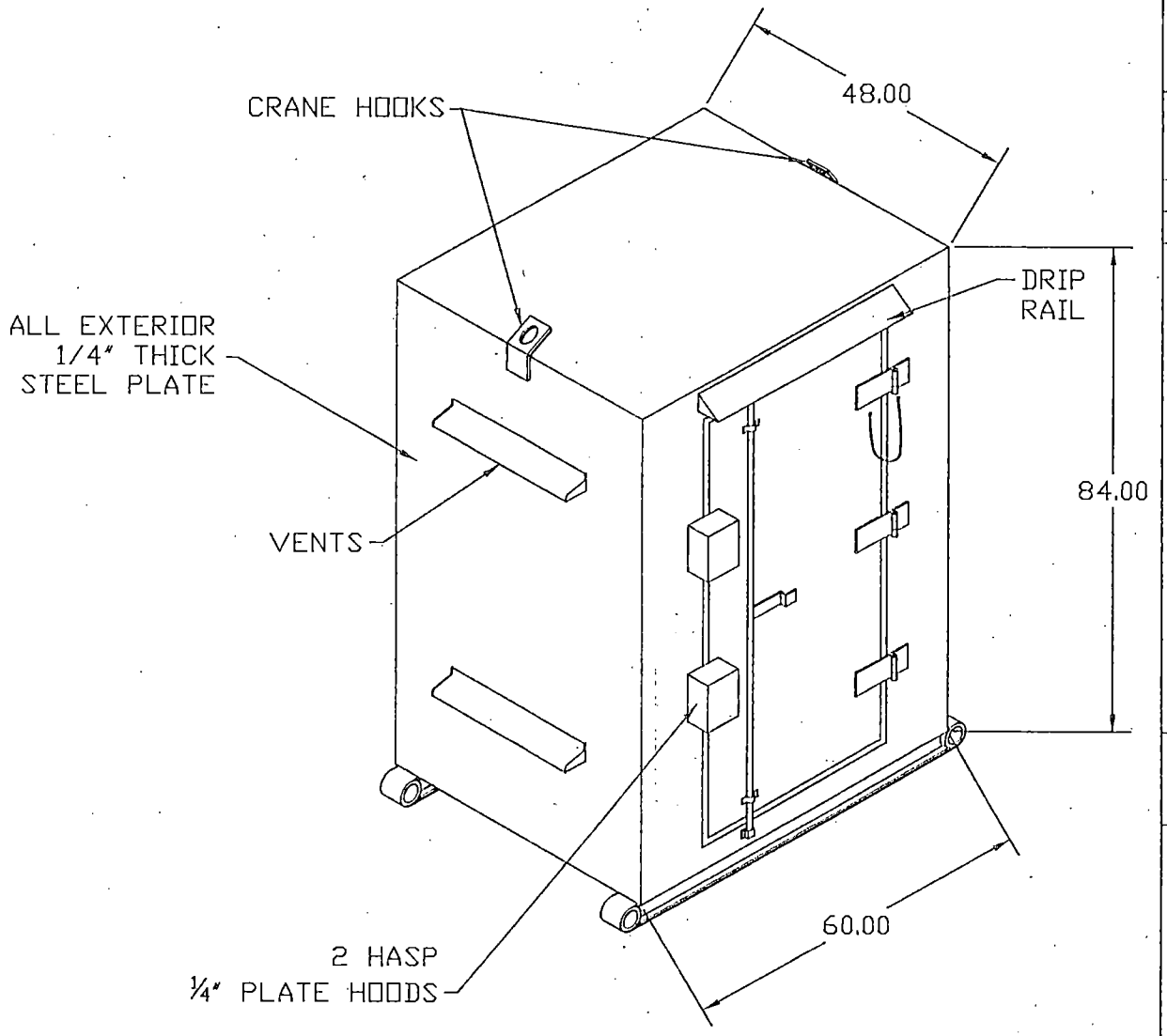
EXTERIOR ELEVATIONS

A201


ROOF PLAN
FLOOR PLAN
FOUNDATION PLAN
GENERAL NOTES:
WALL TYPES:
SOUTH ELEVATION
EAST ELEVATION
NORTH ELEVATION
WEST ELEVATION
Drug & Laboratory Disposal
Phase 4 - Explosion Bunker
Broad Street
Plainwell, Michigan 49080
bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN
FND, FLOOR, ROOF PLAN + DETAILS
A101

ML229
TYPE 2 OUTDOOR MAGAZINE

INTERIOR LINED WITH 3" HARDWOOD
BUILT TO ATF SPECIFICATIONS



GENERAL NOTES:
1- ALL MATERIAL AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF THE LATEST REVISION OF THE UBC 1997. DESIGN ACCORDING TO AISC, ASD, AND WITH ANSI/ ASCE 7-95.
2- NO LOADS OTHER THAN THOSE GIVEN UNDER "DESIGN DATA" BELOW SHALL BE IMPOSED ON THE "STUCTURE."
DESIGN DATA (MATERIALS)
STRUCTURAL QUALITY ASTM SPECIFICATION, A36 ER70S WELDING WIRE.
DESIGN DATA IN ACCORDANCE WTH ANSI/ ASCE 7-95:

ALL DIMENSIONS SHOWN ON THIS PRINT ARE FOR YOUR REFERENCE. TOLERANCES ARE ±1" UNLESS OTHERWISE NOTED.

DATE: 9–27–04

DRAWN BY: KB

APPROVAL PRINT

THIS PRINT IS CONFIRMATION OF YOUR ORDER AND ILLUSTRATES THE APPROXIMATE LOCATION OF FACTORY INSTALLED OPTIONS. CUSTOMER APPROVAL IS REQUIRED BEFORE MANUFACTURING CAN BEGIN. ANY CHANGES MADE AFTER CUSTOMER APPROVAL MAY INCUR EXTRA CHARGES AND DELAY ESTIMATED DELIVERY.

SIGNATURE

PLEASE PRINT NAME DATE

U.S. EXPLOSIVE storage ®

MANUFACTURING FACILITY

1806 River Road, Hwy 268 W.
Wilkesboro, NC 28697
PHONE: 1.888.583.9823
FAX: 1.336.838.0045

B6-120: ENGINEERING PLANS INDEX

(Volume 6)

Index of Attachments

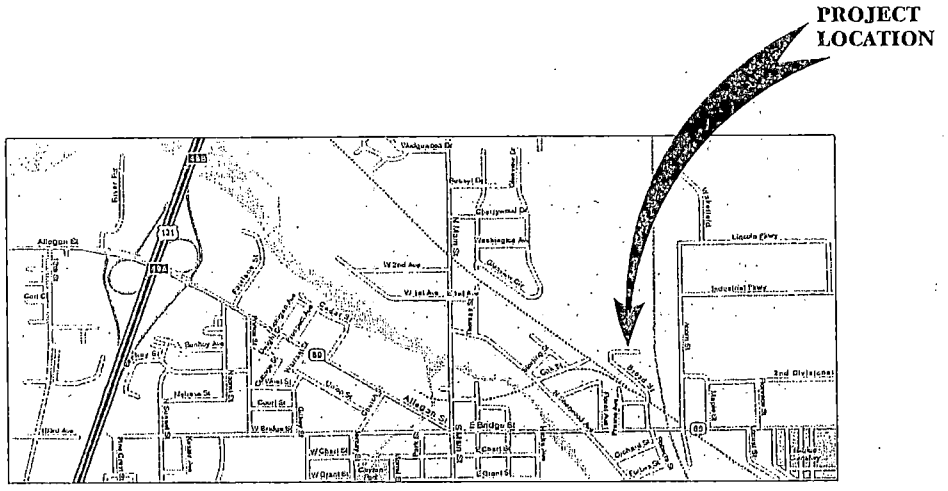
ATTACHMENT	DESCRIPTION
B6-120.0	Sheet Index DLS-12 Rail Transfer
B6-120.1	Drawing C001, Blueprint 09024GC001.dwg Site Development Plan/Rail Transfer (DLS-12)
B6-120.2	Drawing A101, Blueprint 09024GA101.dwg DLS-12 Floor Plan
B6-120.3	Drawing A201, Blueprint 09024GA201.dwg DLS-12 Exterior Elevations, Building Sections, and Details
B6-120.4	Drawing S100, Blueprint 09024GS100.dwg DLS-12 Foundation Plan
B6-120.5	Drawing S501, Blueprint 09024GS501.dwg DLS-12 Foundation Details

Drug & Laboratory Disposal

Phase 7 - Rail Transfer Station

Broad Street, Plainwell, Michigan 49080

January 29, 2010 for State Submittal



LOCATION MAP
NOT TO SCALE

SHEET INDEX

COVER SHEET + INDEX

C001	SITE DEVELOPMENT PLAN
A101	FLOOR PLAN
A201	EXTERIOR ELEVATIONS, BUILDING SECTION + DETAIL
S100	FOUNDATION PLAN
S501	FOUNDATION DETAILS
M101	PHASE 7 MECHANICAL PLAN
E100	ELECTRICAL SYMBOLS + NOTES
E400	PHASE 7 LIGHTING PLAN
E500	PHASE 7 POWER PLAN

Drug & Laboratory Disposal
Phase 7 - Rail Transfer Station
Broad Street, Plainwell, Michigan 49080

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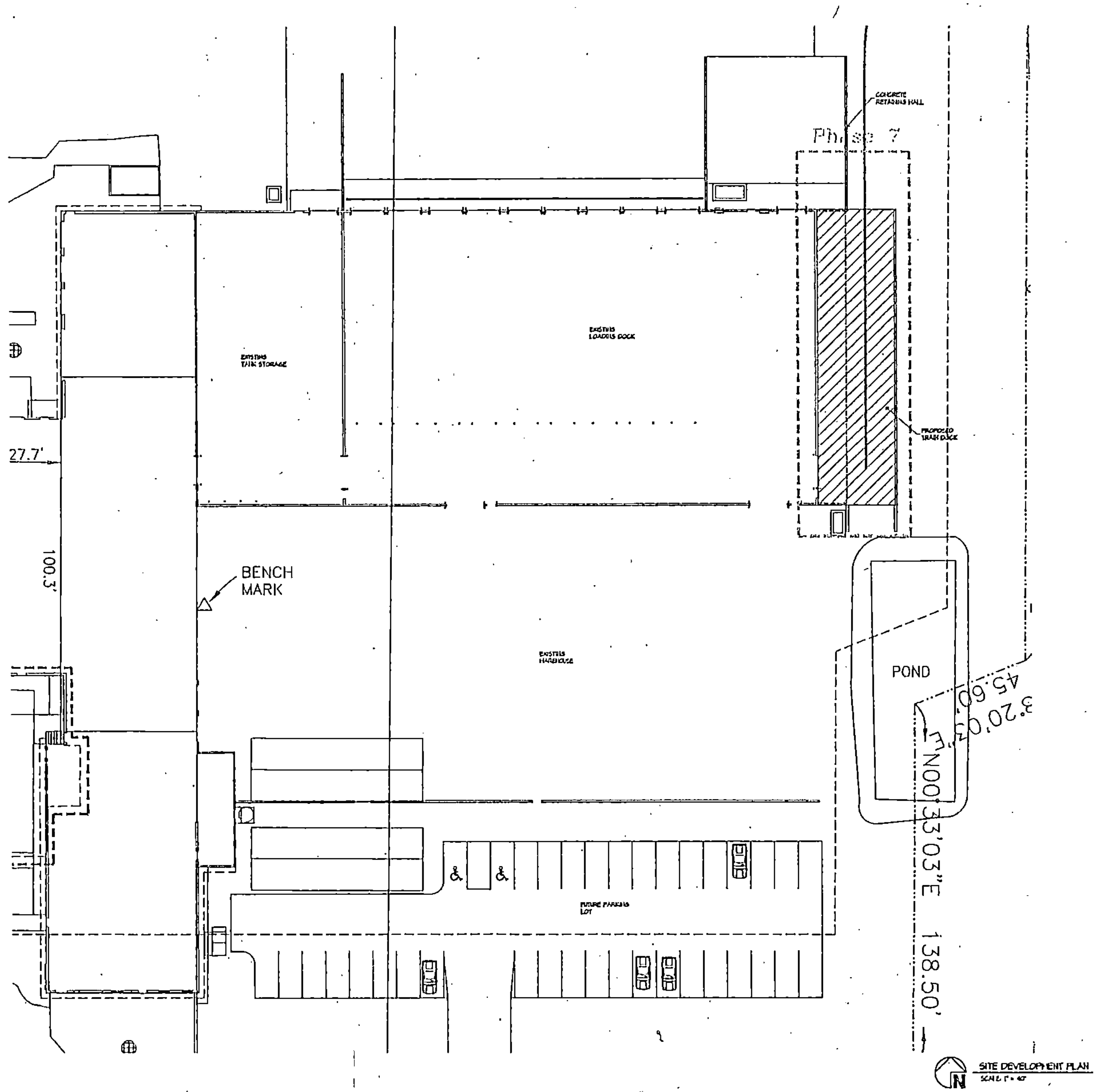
INTERIOR DESIGN



GENERAL NOTES (SITE WORK)

1. THE SOILS INVESTIGATION REPORT IS AVAILABLE TO THE GENERAL CONTRACTOR UPON REQUEST.

2. FOUNDATION DESIGN CAPACITIES.

	DESCRIPTION	CAPACITY
A.	STRIP FOOTINGS	GROSS 2000 PSF
B.	SPREAD FOOTINGS	GROSS 2000 PSF

3. DEMOLITION

A. REMOVAL OF EXISTING UTILITIES, STRUCTURES AND SLABS SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS. IF REMOVAL LIMITS ARE NOT SHOWN, THEY SHALL BE THE MINIMUM REQUIRED TO COMPLETE THE PROJECT.

B. DISCONNECTS OF ALL UTILITIES TO BE REMOVED SHALL BE BY THE TRADE INVOLVED OR THE APPROPRIATE UTILITY CO. AS DIRECTED BY THE GENERAL CONTRACTOR.

C. DISPOSAL OF MATERIAL REMOVED SHALL BE OFF SITE BY THE GENERAL CONTRACTOR.

4. SITE PREPARATION.

A. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE PERFORMED BY THE CONTRACTOR IN COMPLIANCE WITH ACT 347.

B. ORGANIC TOPSOIL SHALL BE STRIPPED FROM THE CONSTRUCTION AREA TO DEPTHS RANGING FROM APPROXIMATELY 6" TO 30" AND STOCKPILED AS INSTRUCTED BY THE ARCHITECT FOR LATER USE.

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C. [redacted]

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Drug & Laboratory Disposal

Phase 7 Rail Transfer Station

Broad Street

Plainwell, Michigan 49080

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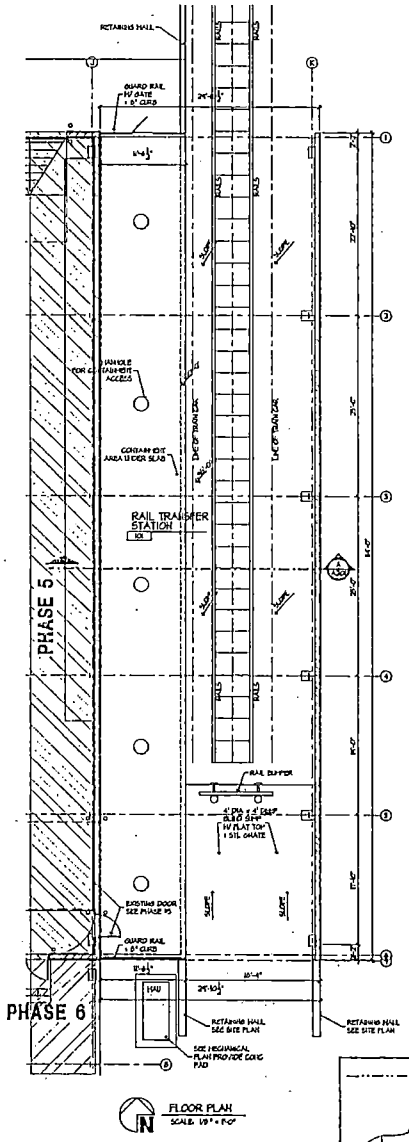
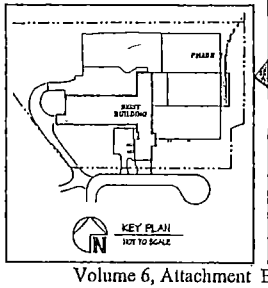
ENGINEERING
INTERIOR DESIGN

SITE DEVELOPMENT PLAN

C001

Volume 6, Attachment B6-120.2 DLS-12 Floor Plan





Drop & Load Laboratory Disposal

Phase 7 - Rail Transfer Station

Broad Street

Plainwell, Michigan 49080

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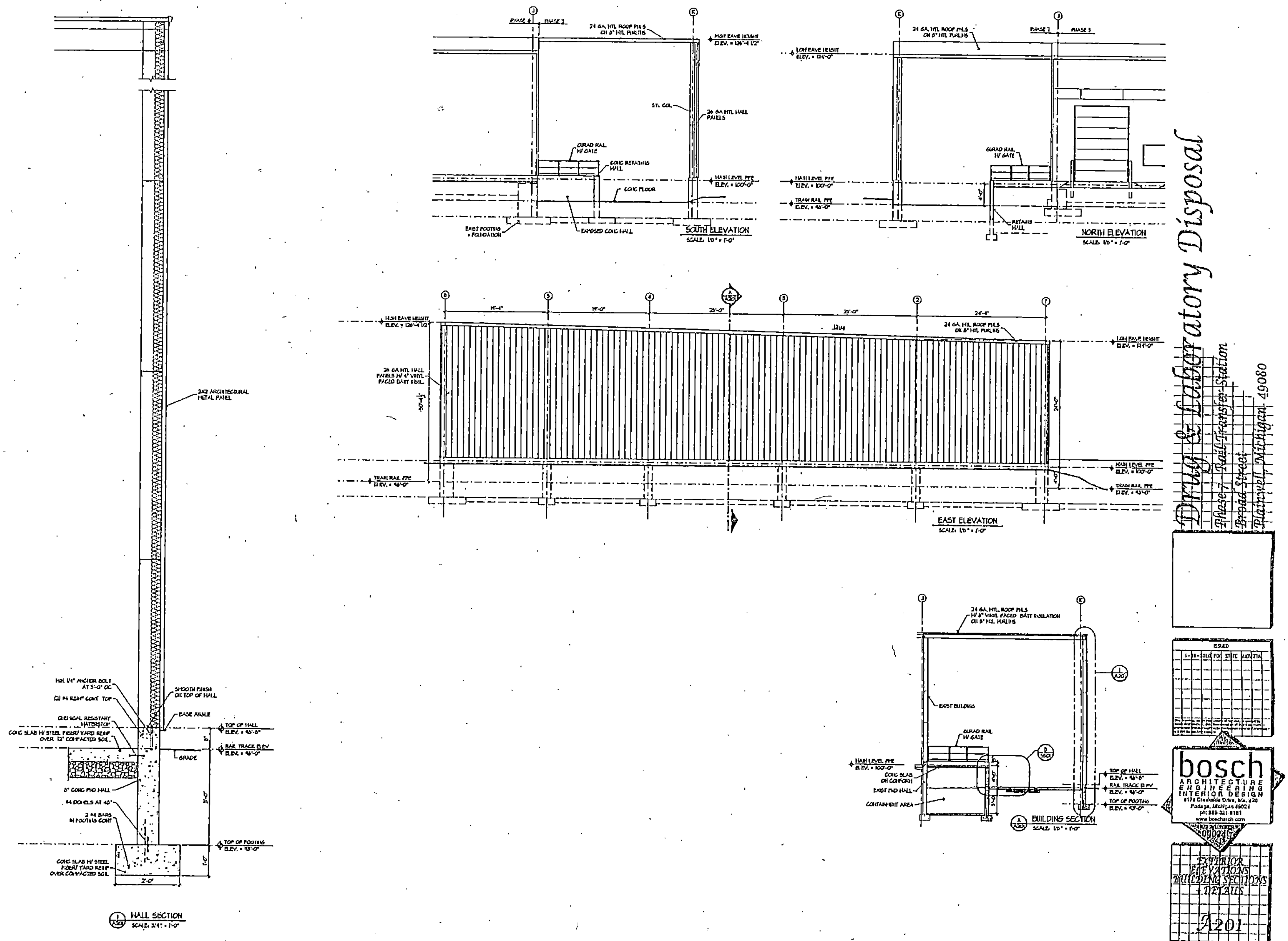
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN

FLOOR PLAN
DOOR & ROOM
SCHEDULES

A101


SOUTH ELEVATION
NORTH ELEVATION
EAST ELEVATION
WALL SECTION
BUILDING SECTION
Drug & Laboratory Disposal
Phase 7 Rail Transfer Station
Broad Street
Plainwell, Michigan 49080
bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN
EXTERIOR ELEVATIONS BUILDING SECTIONS + DETAILS
A201

CONCRETE

1. CONCRETE STRENGTH SHALL BE 4000 PSI IN 28 DAYS FOR ALL INTERIOR SLABS, 3500 PSI FOR FOUNDATION WALLS, 3000 PSI FOR FOOTINGS. SEE SPECIFICATIONS DIVISION 3 FOR ADDITIONAL INFO.

2. MATERIAL PROPERTIES REINFORCING AND CONNECTION STEEL:

	FY PSI	ASTM
#3 BARS	40,000	A615
ALL BARS #4 AND LARGER, UN	60,000	A615
WELDED WIRE FABRIC (SMOOTH)	65,000	A185

3. CONCRETE PROTECTION FOR REINFORCEMENT: THE FOLLOWING MINIMUM CONCRETE SHALL BE PROVIDED FOR REINFORCEMENT.

	MIN. COVER (IN)
1. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3
2. CONCRETE EXPOSED TO EARTH OR WEATHER #6 THROUGH #8 BARS	2
#5 BAR, W31 OR D31 WIRE, AND SMALLER	1 1/2
3. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND.	3/4

4. PROVIDE FOOTING/WALL DOWELS AND CORNER REBARS AS SHOWN ON THE DRAWINGS.

5. CONCRETE FINISHES.

1. EXTERIOR SLABS LIGHT BROOM FINISH
2. INTERIOR SLABS STEEL TROWELED FINISH
3. INTERIOR SLABS THAT DO NOT RECEIVE A FINISHED FLOORING MATERIAL SHALL BE SEALED AFTER CURING.

6. RECESS FOUNDATION WALL 8" AT DOORWAYS AND POUR SLAB THRU OPENINGS.

1. LOCATION OF CONSTRUCTION AND CONTRACTION JOINTS FOR THE SLAB ON GRADE WILL BE THE CONTRACTOR'S RESPONSIBILITY.
2. ALL NON BEARING WALLS ON SLABS TO HAVE SILL PLATE ANCHORED WITH POWDER ACTUATED FASTENERS AT 24" O.C. HILTI OR EQUAL.

7. SOIL BEARING CAPACITY TO BE A MIN OF 3000 PSI AT THE WALLS AND 4000 PSI AT THE COLUMNS.

UNLESS NOTED OTHERWISE

ANCHOR BOLT NOTE:
FOR EXACT SIZE, LOCATION AND NUMBER OF ANCHOR BOLTS SEE SHOP DRAWINGS BY METAL BUILDING COMPANY

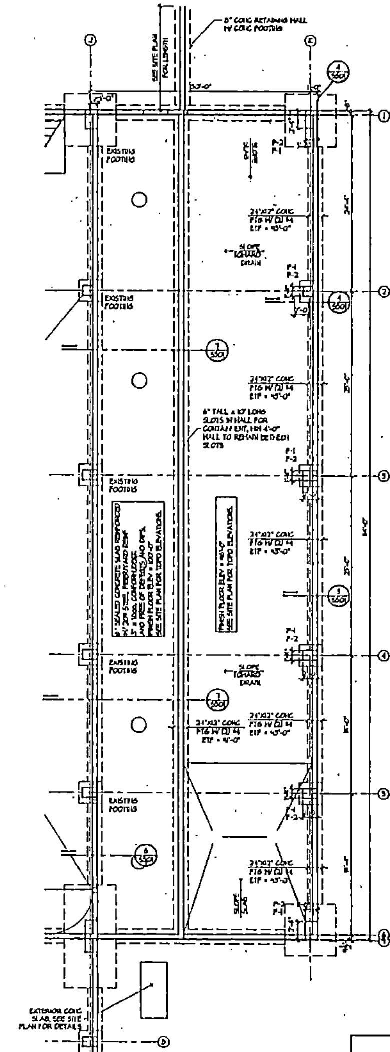
PIER NOTE:
PIER SIZE SHALL BE DETERMINED BY SHOP DRAWINGS FROM METAL BUILDING COMPANY

SCHEDULE OF MINIMUM RECOMMENDED ANCHOR BOLT LENGTHS

DIAMETER	LENGTH
3/4"	1'-3"
7/8"	1'-6"
1"	1'-4"
1-1/8"	2'-0"
1-1/4"	2'-0"

ALL BOLT LENGTH AND DIAMETER TO BE AS SHOWN ON METAL BUILDING COMPANY SHOP DRAWINGS

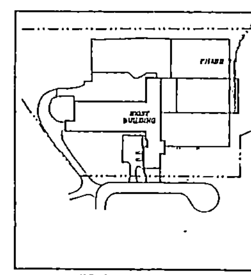
ALL ANCHOR BOLTS TO PROJECT A MINIMUM OF 3" ABOVE FOOTING



FOUNDATION PLAN
SCALE: 1/8" = 1'-0"

PIER SCHEDULE			
MARK	MINIMUM PIER SIZE	REINFORCING	REMARKS
P-1	1'-4" X 2'-0"	4-#5 VERT & #3 TIES @ 10" OC	—
P-2	1'-8" X 2'-6"	4-#5 VERT & #3 TIES @ 10" OC	—
			—
			—

FOOTING SCHEDULE			
MARK	FOOTING SIZE	REINFORCING	REMARKS
F-1	7'-0" x 7'-0" x 1'-6"	(8) #5 EA. WAY T&B	—
F-2	3'-2" x 3'-0" x 12"	(4) #4 EA. WAY	—



Drug & Laboratory Disposal
Phase 7 Rail Transfer Station
Broad Street
Plainwell, Michigan 49080

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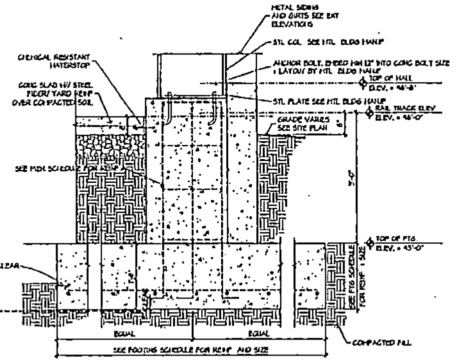
FOUNDATION PLAN

S100

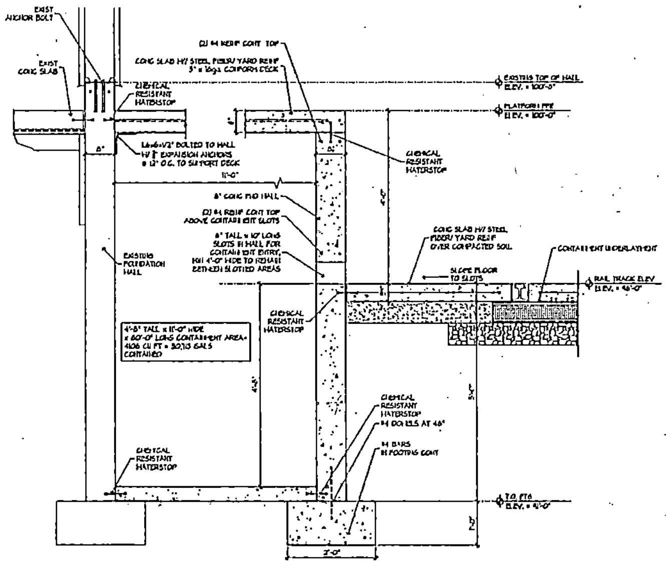


4 TYPICAL MAIN PIER/FTG @ RAIL BAY
SCALE: 3/4" = 1'-0"

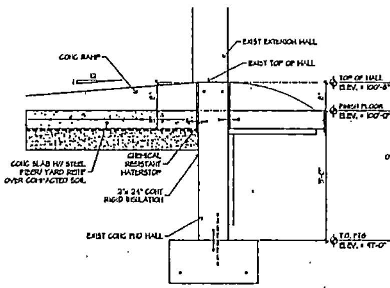
3 NOT USED
SCALE: 3/4" = 1'-0"

2 NOT USED
SCALE: 3/4" = 1'-0"

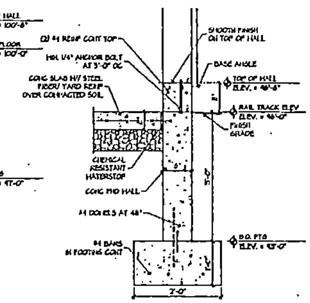
1 NOT USED
SCALE: 3/4" = 1'-0"



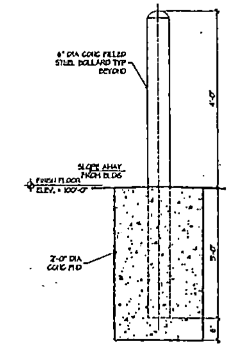
8 INTERIOR FND WALL
SCALE: 3/4" = 1'-0"



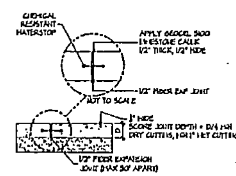
6 EXISTING FROST WALL @ OH DOORS
SCALE: 3/4" = 1'-0"



5 PERIMETER FND WALL @ EAST WALL
SCALE: 3/4" = 1'-0"



10 BOLLARD DTL
SCALE: 3/4" = 1'-0"



9 CONCRETE DETAIL
SCALE: 3/4" = 1'-0"

Drug & Laboratory Disposal
Phase I Rail Transfer Station
Tripod Street
Plainwell, Michigan 49080

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FOUNDATION DETAILS

S501

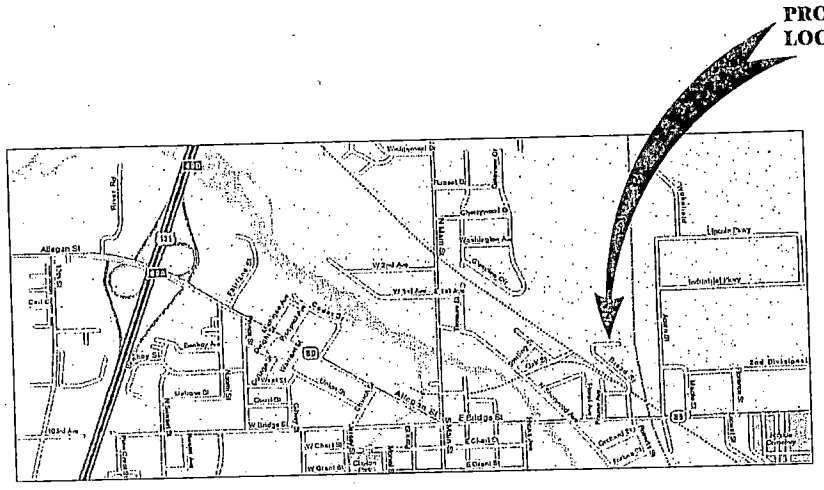
Volume 3, Attachment B6-70.0 Tank Storage Sheet Index

Drug & Laboratory Disposal

Phase 3 - Tank Storage

Broad Street, Plainwell, Michigan 49080

January 29, 2010 for State Submittal



LOCATION MAP
NOT TO SCALE

SHEET INDEX

Drug & Laboratory Disposal
Phase 3 - Tank Storage
Broad Street
Plainwell, Michigan 49080

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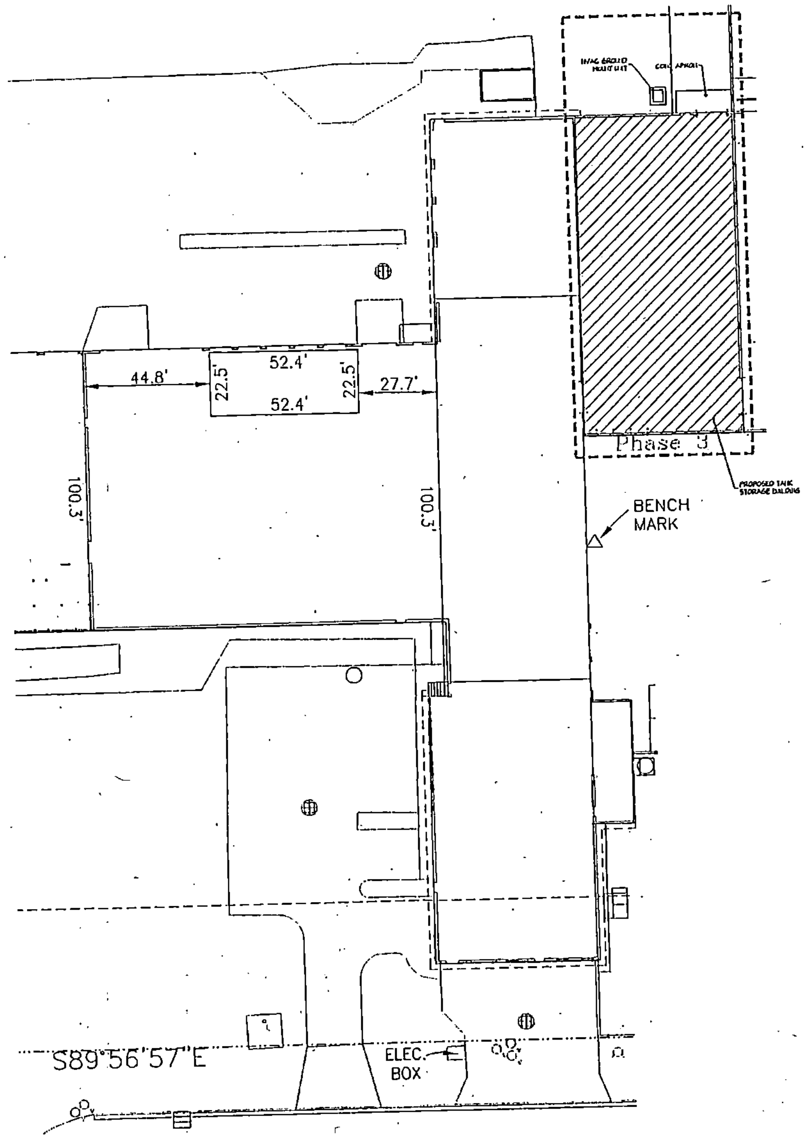
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN

Volume 2, Attachment B6-70.0



GENERAL NOTES (SITE WORK)

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2. FOUNDATION DESIGN CAPACITIES

	DESCRIPTION	CAPACITY
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B.	SPREAD FOOTINGS	GROSS 1500 PSF

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B. EXCAVATION SHALL BE LEVEL TO EXACT DEPTHS AND DIMENSIONS INDICATED ON DRAWINGS.

C. CONSTRUCTION OF FOUNDATIONS AND SLABS ON GRADE WILL BE ON COMPACTED FILL IN MOST AREAS. LAYERED COMPACTION SHALL BE PERFORMED TO A MINIMUM DENSITY OF 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM DESIGNATION D 1557 VALUES AND AS OUTLINED IN THE SPECIFICATIONS DIVISION 2.

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Drug & Laboratory Disposal

Phase 3 Tank Storage
Broad Street
Plainwell, Michigan 49080

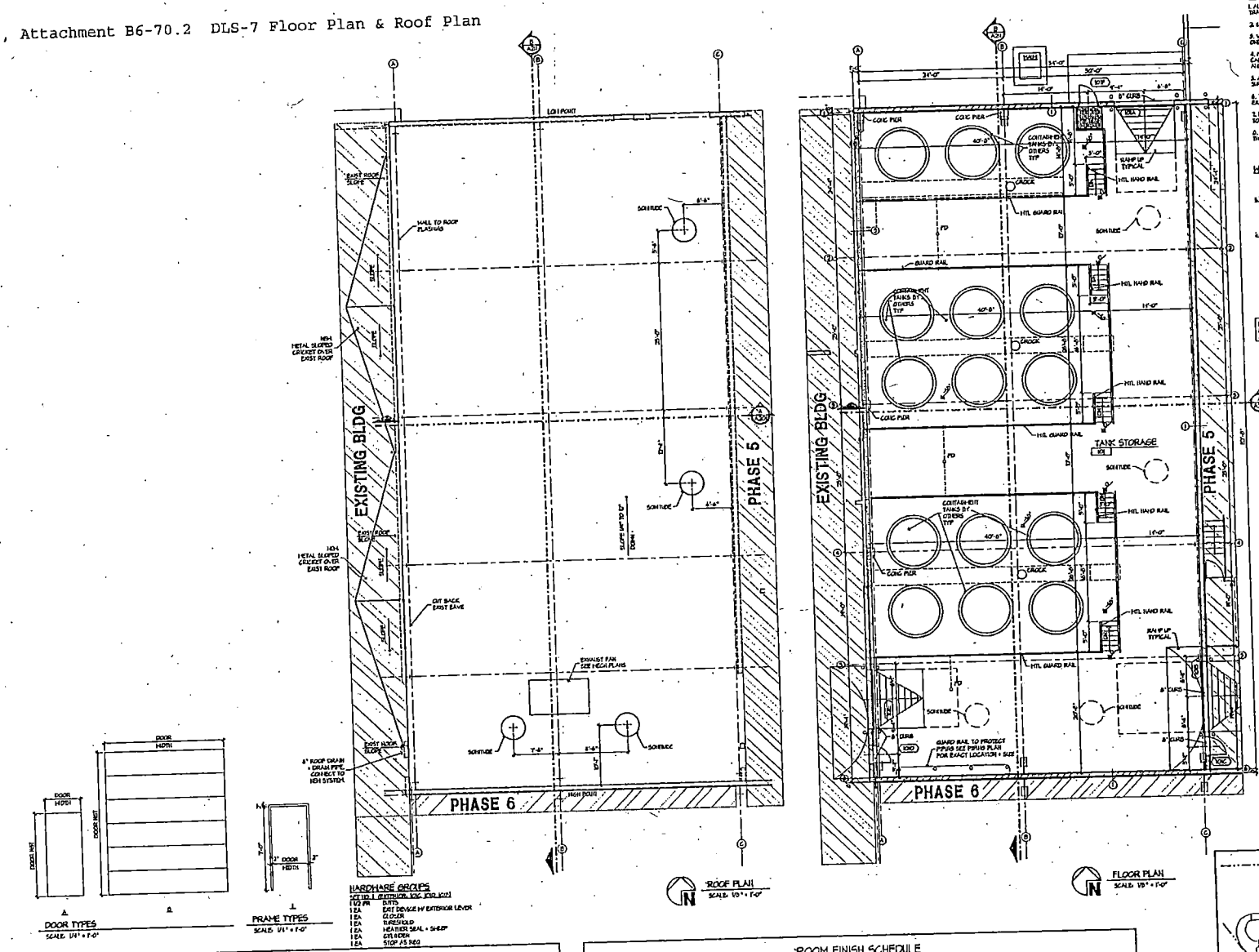
ISSUED

bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN

SITE DEVELOPMENT PLAN

C001

SITE DEVELOPMENT PLAN



DOOR SCHEDULE

DOOR NUMBER	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR SIZE THICK.	TYPE	DOOR MAT.	FRAME	HDW GROUP	RATING	DETAILS J	DETAILS J	DETAILS H	REMARKS
100A	12'-0"	14'-0"	1 3/4"	B	ROLL FTL	—	—	—				
100B	12'-0"	14'-0"	1 3/4"	B	ROLL FTL	—	—	—				
100C	3'-0"	7'-0"	1 3/4"	A1	HM	HM	1	—	—	—	—	
100D	3'-0"	7'-0"	1 3/4"	A1	HM	HM	1	—	—	—	—	
102	10'-0"	11'-0"	1 3/4"	B	ROLL FTL	—	—	—				
104	3'-0"	7'-0"	1 3/4"	A1	HM	HM	1	—	—	—	—	

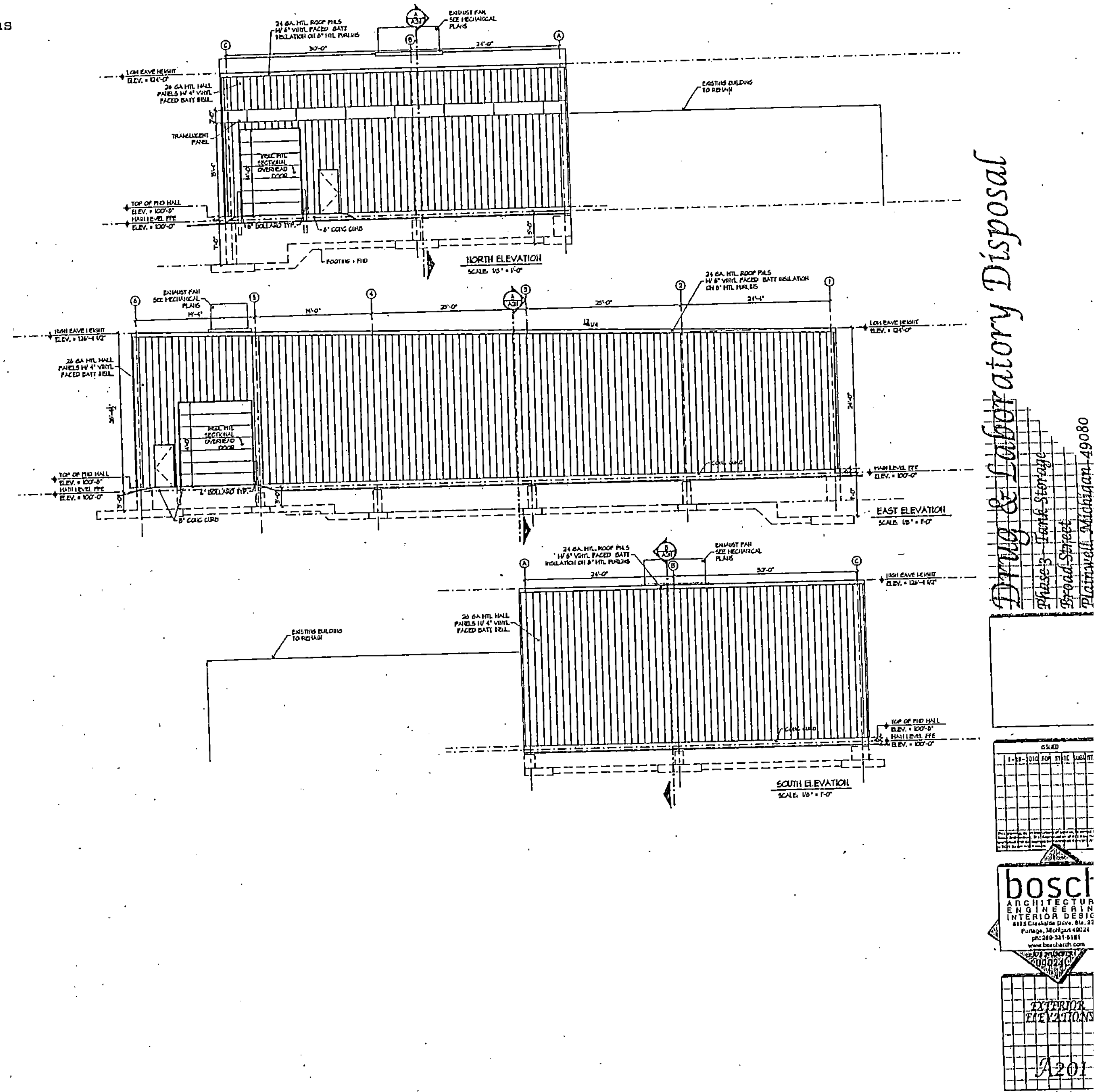
ROOM FINISH SCHEDULE

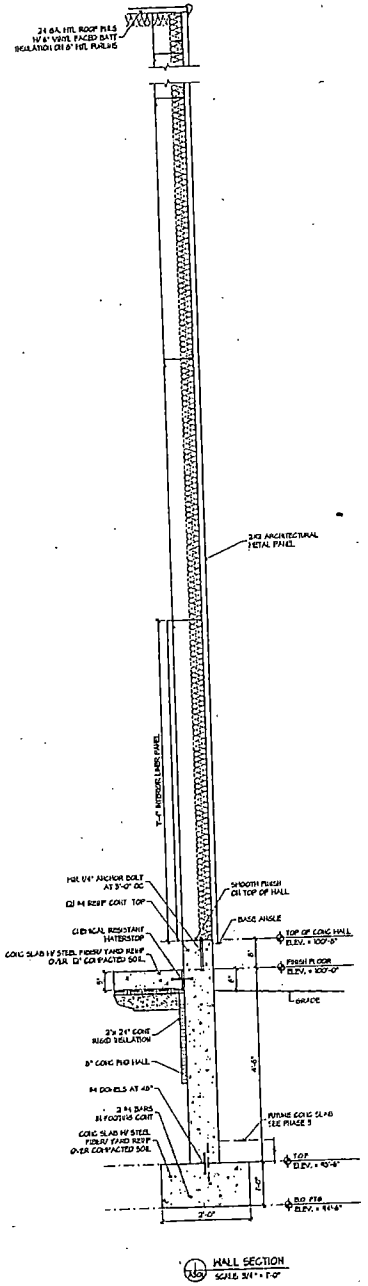
ROOM NO	ROOM NAME	FLOOR	BASE	HALL MAT.	HALL FIN.	CEILING MAT.	CEILING FIN.	CLG HGT	REMARKS
101	TANK STORAGE	CONC.	CONC.		—	EXPOSED	—	—	

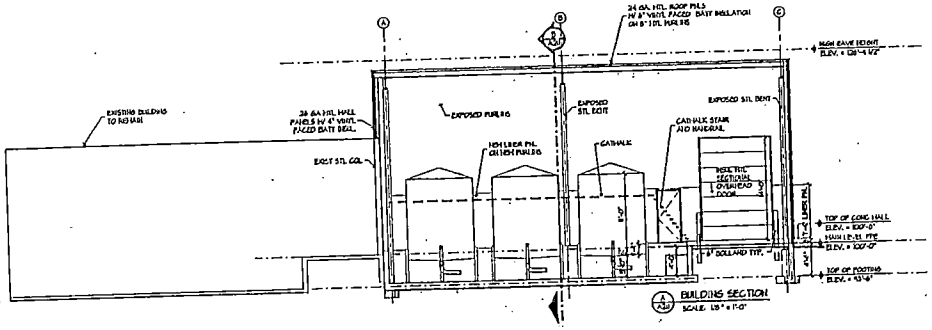
Drug & Laboratory Disposal
Phase 3 Tank Storage
Broad Street
Plymouth, Michigan 49080

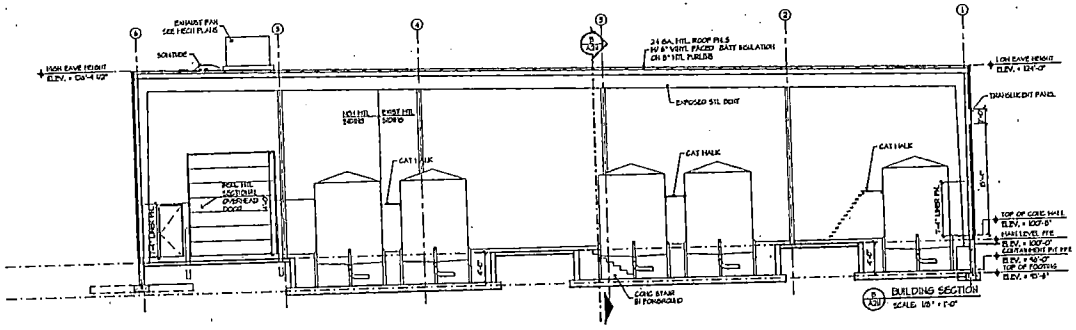
Volume 3, Attachment B6-70.2

Volume 3, Attachment B6-70.3 DLS-7 Exterior Elevations

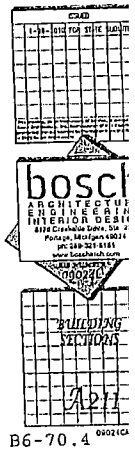




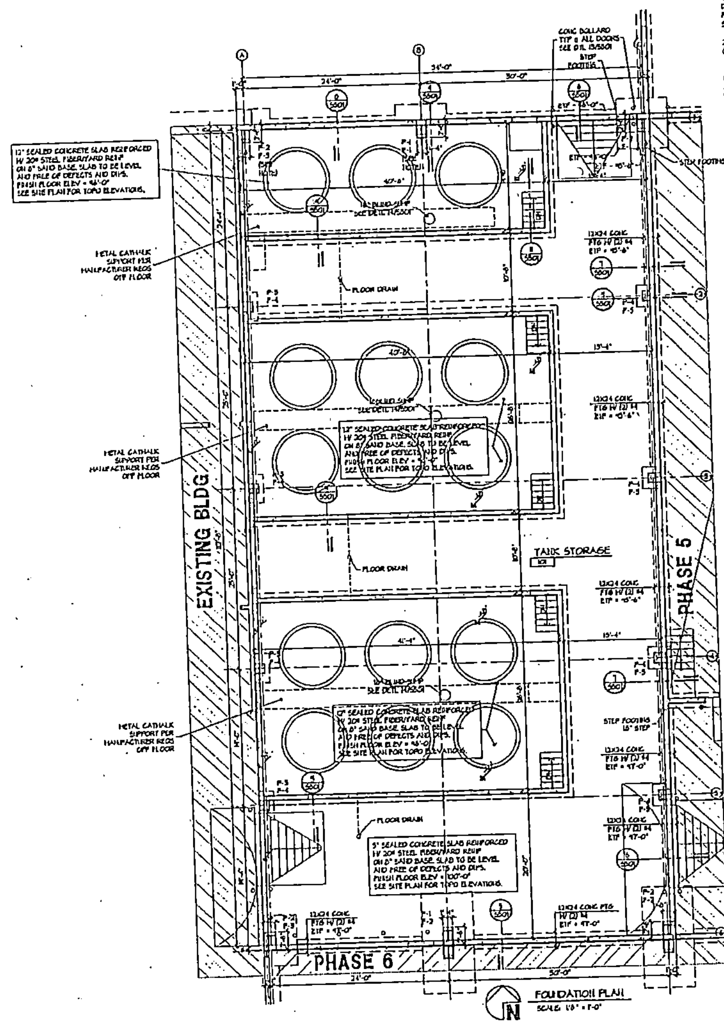


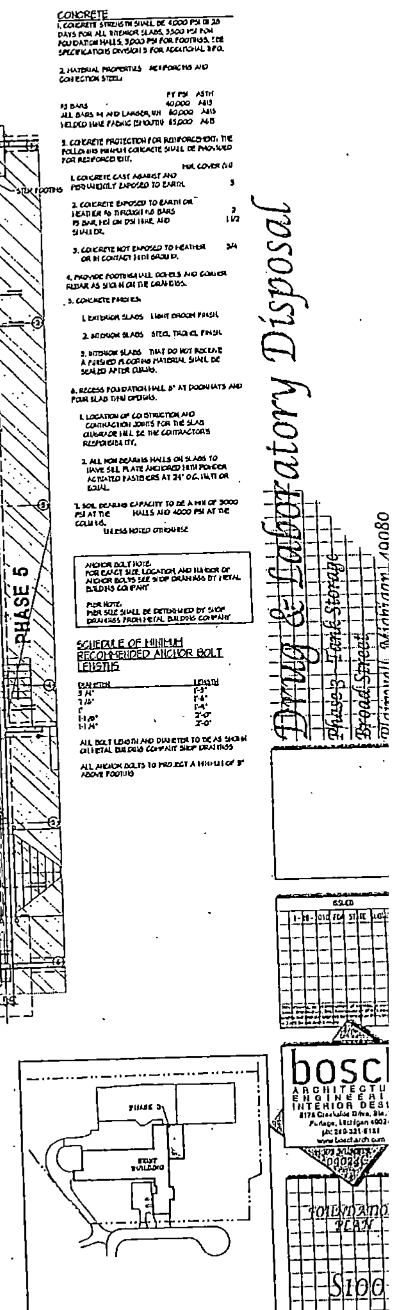


Drug & Laboratory Disposal
Phase 5 Tank Storage
Broad Street
Dimondale, Michigan 48821



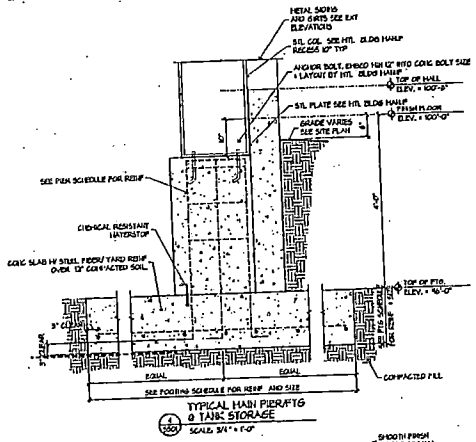
Volume 3, Attachment B6-70.5 DLS-7 Foundation Plan



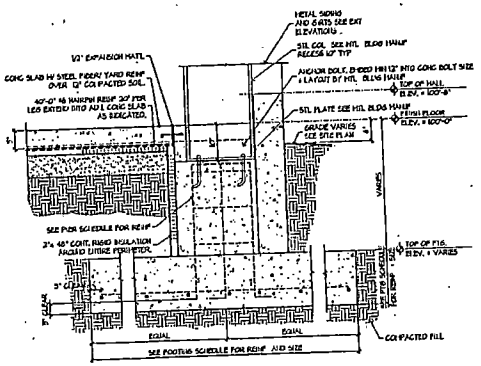


PIER SCHEDULE			
MARK	MINIMUM PIER SIZE	REINFORCING	REMARKS
P-1	1'-4" X 2'-6"	4-#5 VERT & #3 TIES @ 10" OC	—
P-2	1'-6" X 2'-6"	4-#5 VERT & #3 TIES @ 10" OC	—
P-3	1'-4" X 1'-4"	4-#5 VERT & #3 TIES @ 10" OC	—
P-4	1'-4" X 1'-6"	4-#5 VERT & #3 TIES @ 10" OC	—

FOOTING SCHEDULE			
MARK	FOOTING SIZE	REINFORCING	REMARKS
F-1	7'-0" x 7'-0" x 1'-6"	(7) #5 EA. WAY T&B	AT TANK CONTAINMENT, FOOTING IS 12" THICK TO MATCH SLAB
F-2	7'-0" x 14'-0" x 2'-0"	#6@12" EA. WAY T&B	FOOTING IS LARGER FOR PHASE 6 FUTURE COLUMNS
F-3	7'-0" x 4'-6" x 1'-6"	#5@12" EA. WAY T&B	AT TANK CONTAINMENT, FOOTING IS 12" THICK TO MATCH SLAB
F-4	2'-0" x 4'-0" x 12"	#4@12" EA. WAY	—
F-5	5'-2" x 5'-0" x 12"	(4) #4 EA. WAY	—

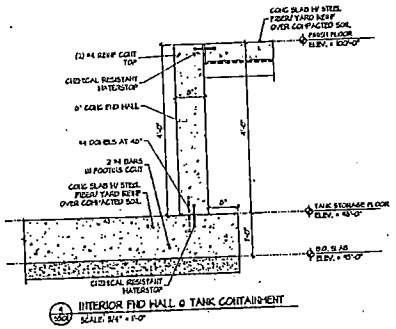


4/S001 TYPICAL MAIN PIER/FTG @ TANK STORAGE
SCALE: 3/4" = 1'-0"

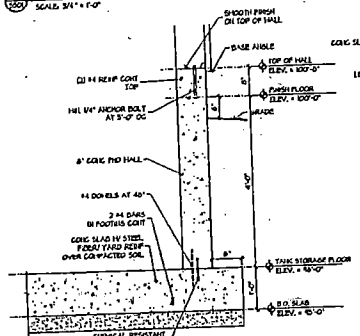


1/S001 TYPICAL MAIN PIER/FTG
SCALE: 3/4" = 1'-0"

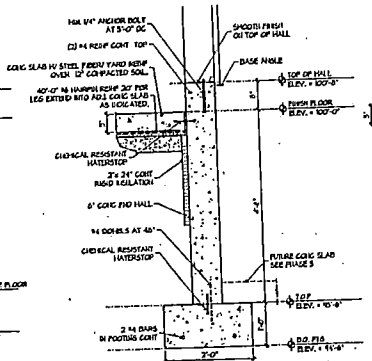
2/S001 NOT USED
SCALE: 3/4" = 1'-0"



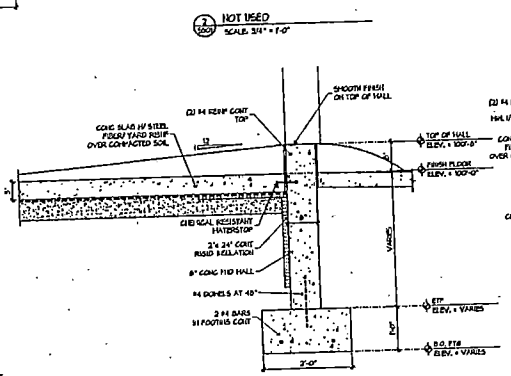
4/S001 INTERIOR FND WALL @ TANK CONTAINMENT
SCALE: 3/4" = 1'-0"



6/S001 PERIMETER FND WALL @ TANK CONTAINMENT
SCALE: 3/4" = 1'-0"

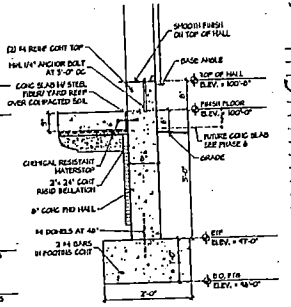


1/S001 PERIMETER FND WALL @ EAST HALL
SCALE: 3/4" = 1'-0"



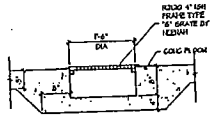
2/S001 PERIMETER FROST HALL @ OH DOORS
SCALE: 3/4" = 1'-0"

1/S001 NOT USED
SCALE: 3/4" = 1'-0"

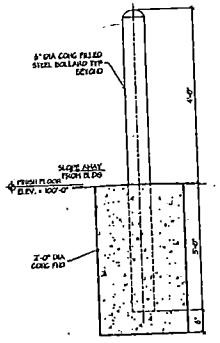


1/S001 PERIMETER FROST HALL
SCALE: 3/4" = 1'-0"

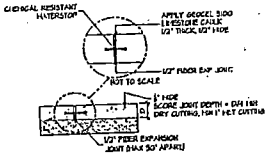
1/S001 NOT USED
SCALE: 3/4" = 1'-0"



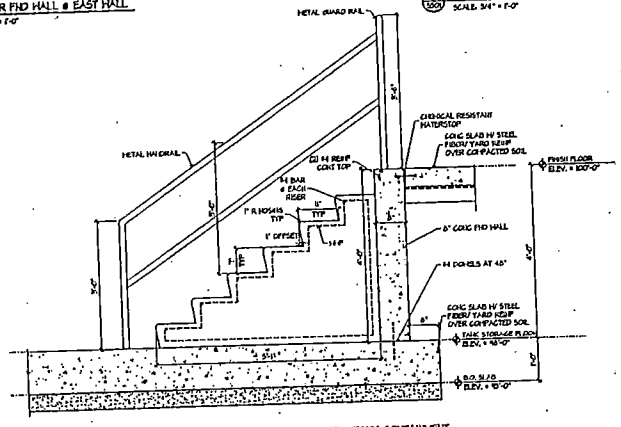
11/S001 SMALL BLIND SUMP
SCALE: 3/4" = 1'-0"



15/S001 BOLLARD DTL
SCALE: 3/4" = 1'-0"



12/S001 CONCRETE DETAIL
SCALE: 3/4" = 1'-0"



1/S001 CONC STAIR @ TANK CONTAINMENT
SCALE: 3/4" = 1'-0"

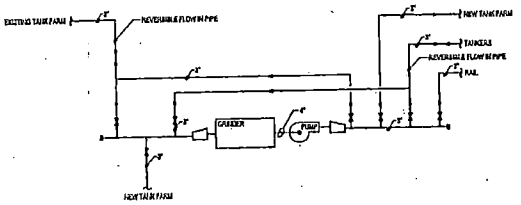
10/S001 NOT USED
SCALE: 3/4" = 1'-0"

Drug & Laboratory Disposal
Phase 3 - Tank Storage
Broadstreet
Plainwell, Michigan 49080

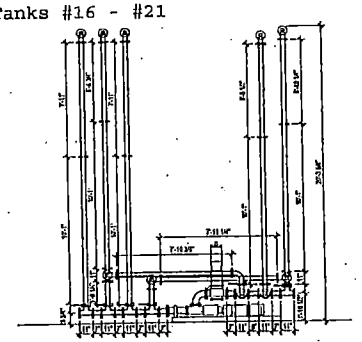
bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN
8178 Crosstown Drive, Ste. 2
Portage, Michigan 49024
ph: 269.323.8181
www.boscharch.com

FOUNDATION DETAILS

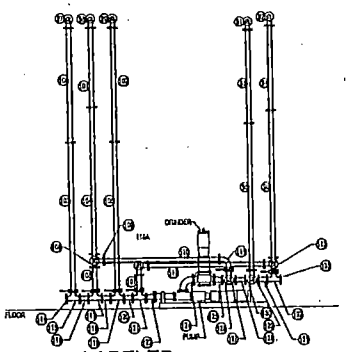
S501



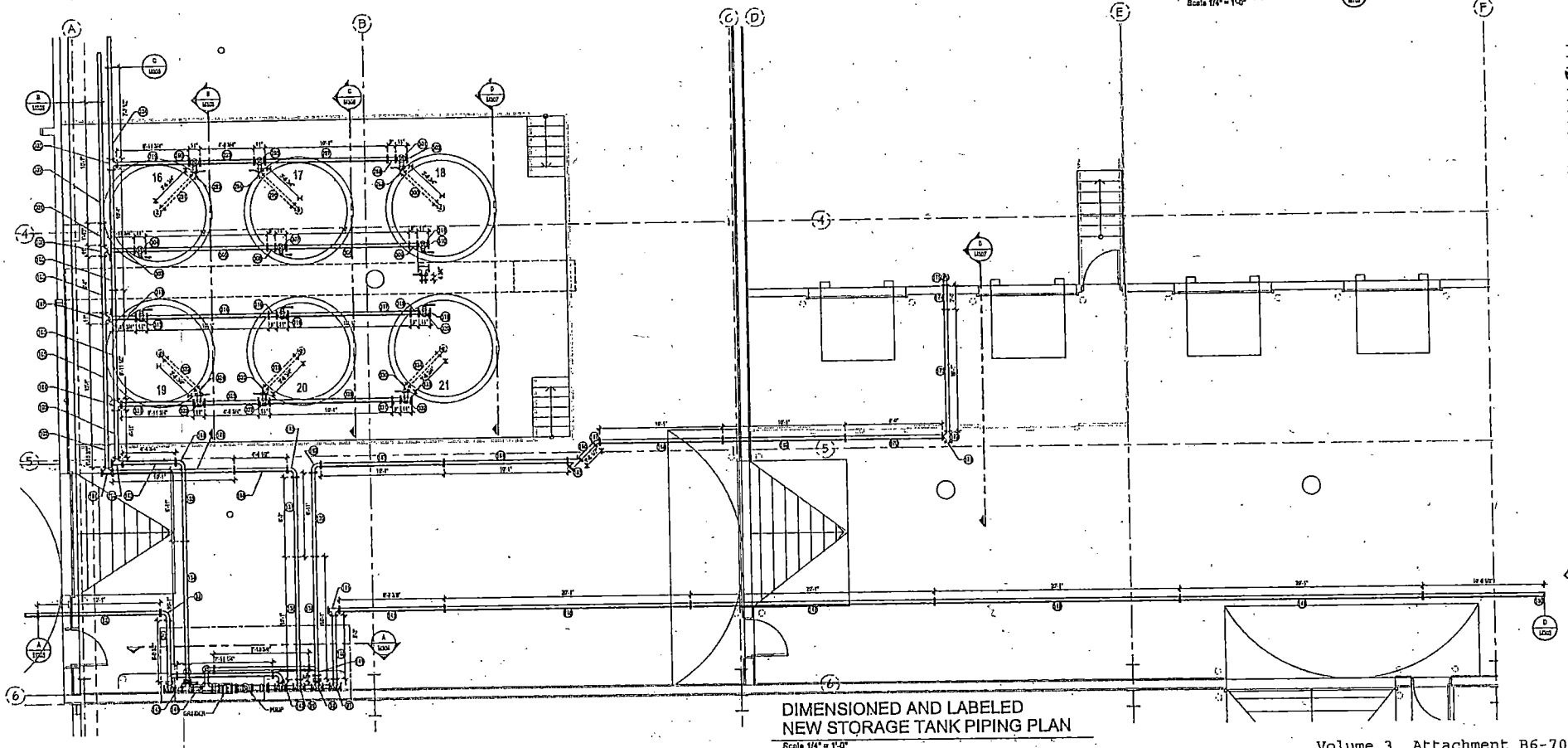
PIPING SCHEMATIC
Scale: None



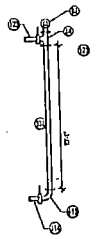
DIMENSIONED
SECTION A
Scale 1/4" = 1'-0"



LABELED
SECTION A
Scale 1/4" = 1'-0"

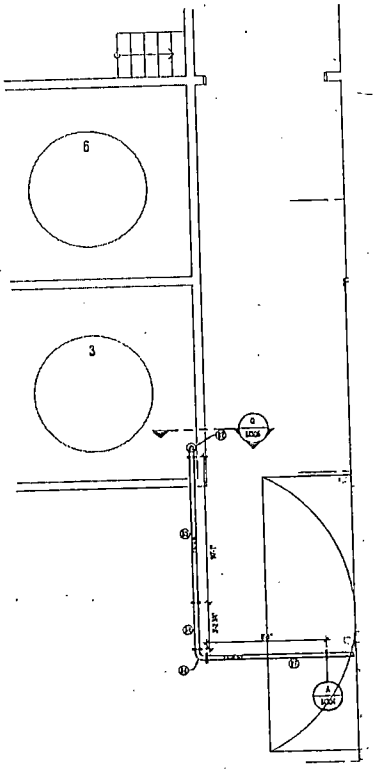


DIMENSIONED AND LABELED
NEW STORAGE TANK PIPING PLAN
Scale 1/4" = 1'-0"



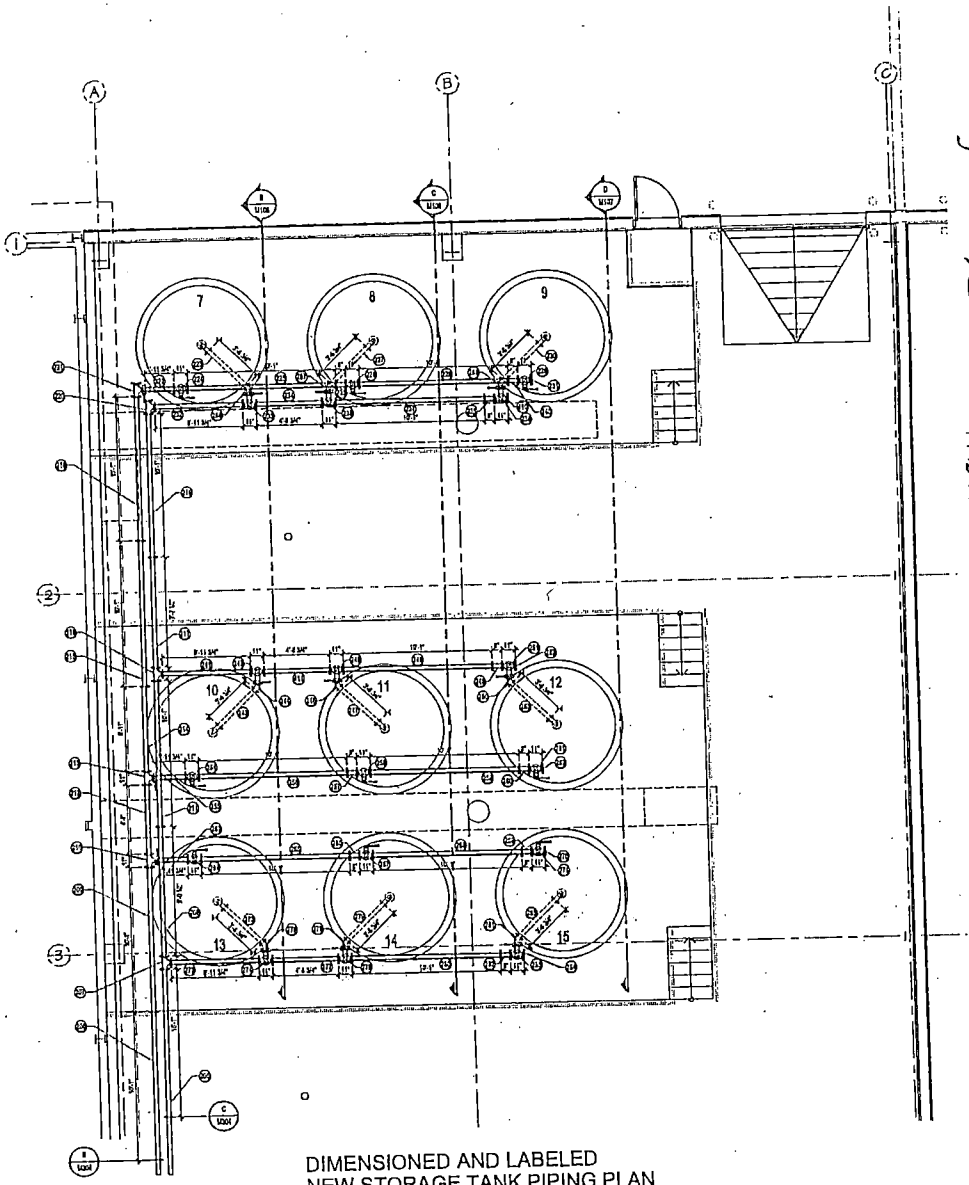
DIMENSIONED AND
LABELEDSECTION A

Scale 1/4" = 1'-0"



DIMENSIONED AND LABELED
NEW STORAGE TANK PIPING PLAN

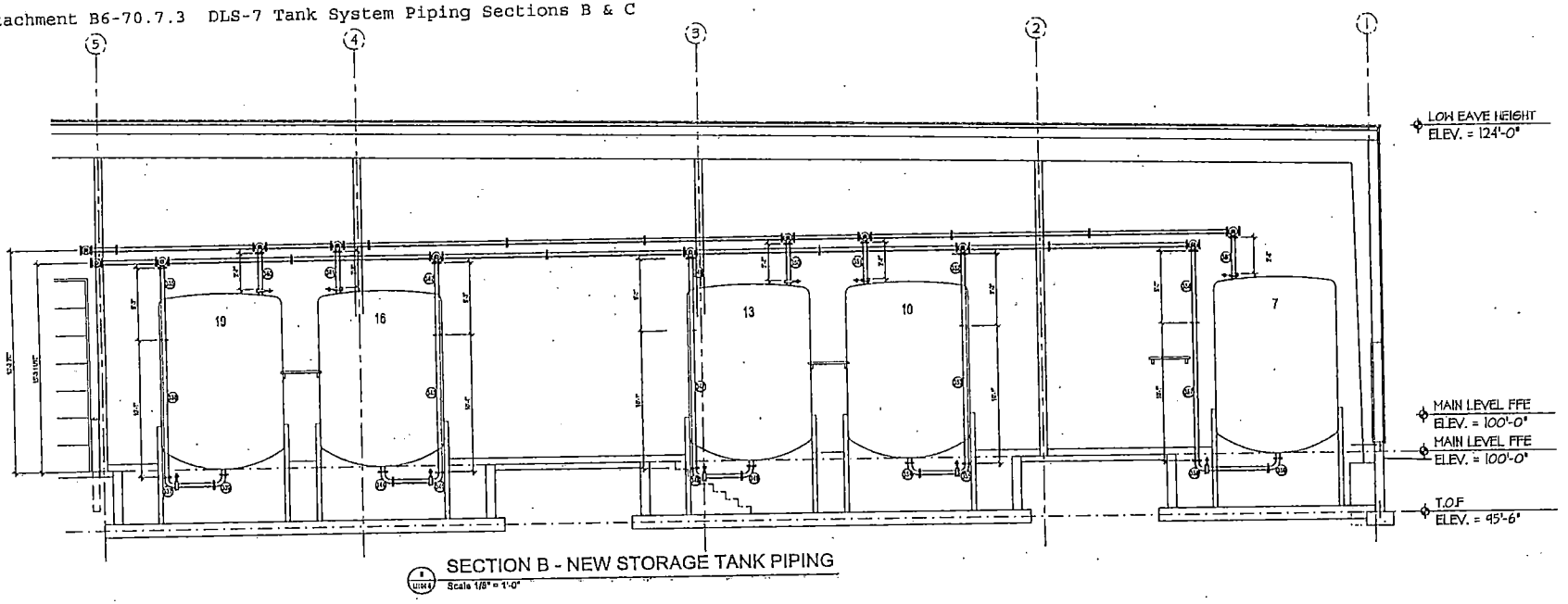
Scale 1/4" = 1'-0"



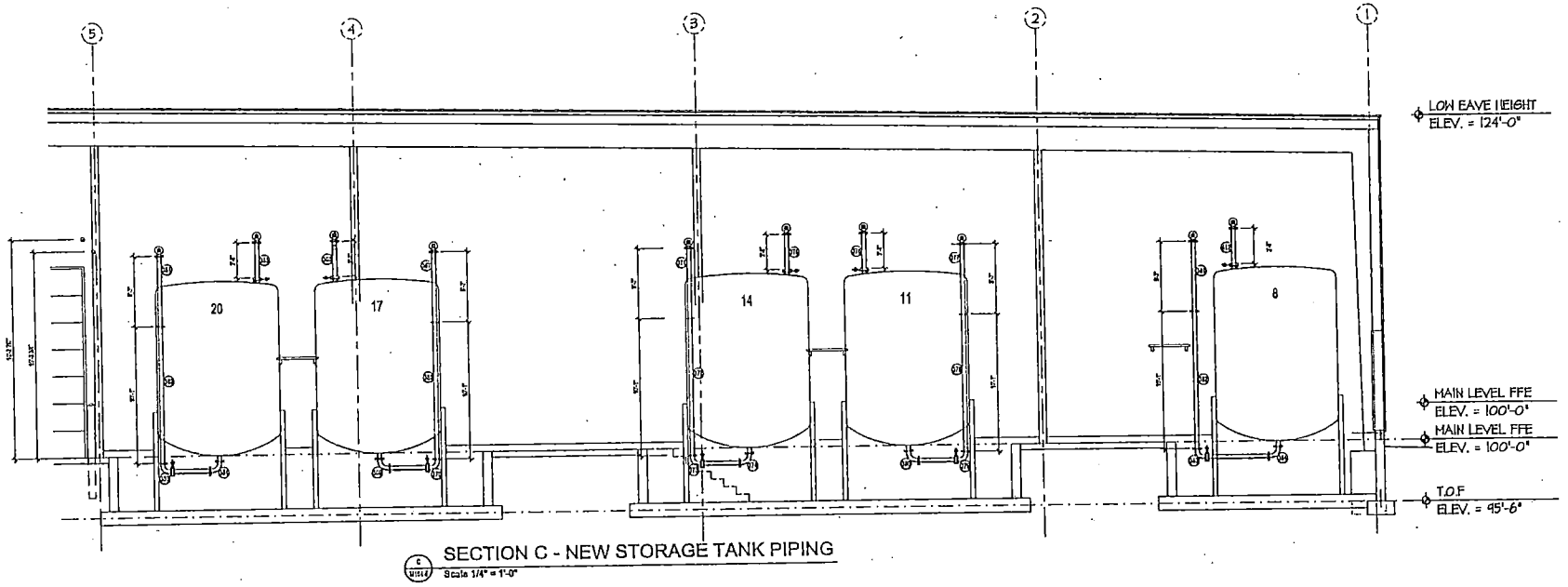
DIMENSIONED AND LABELED
NEW STORAGE TANK PIPING PLAN

Scale 1/4" = 1'-0"

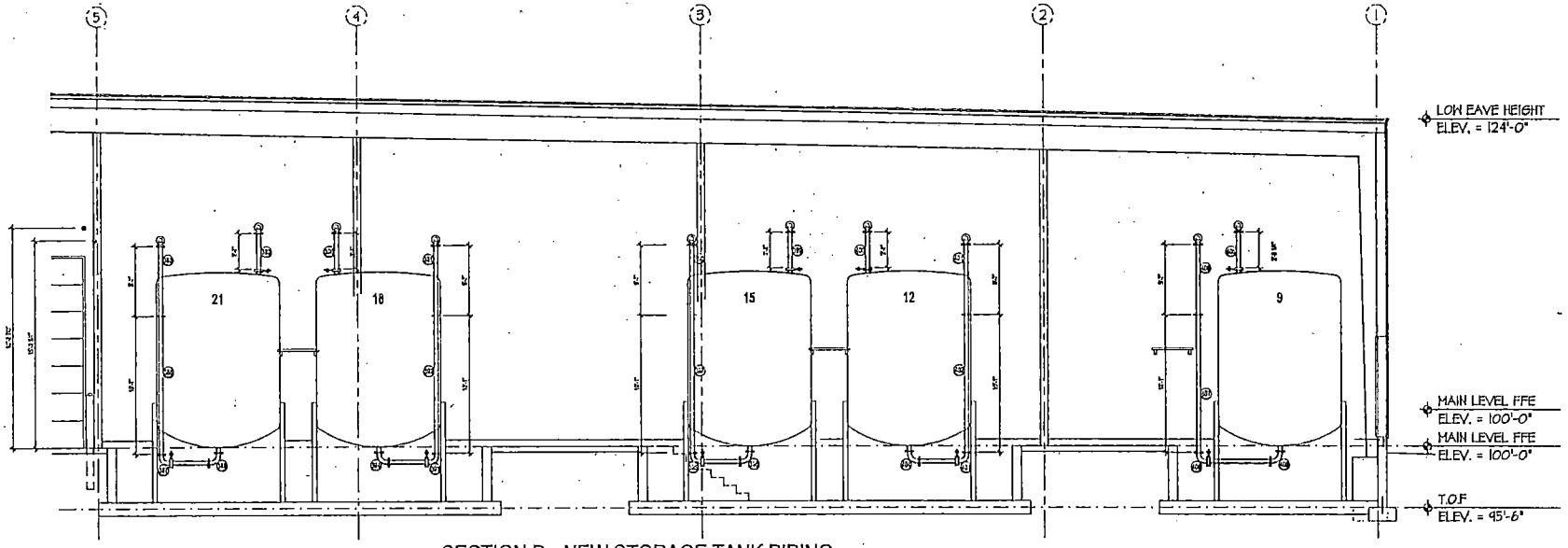
Proposed Laboratory Disposal



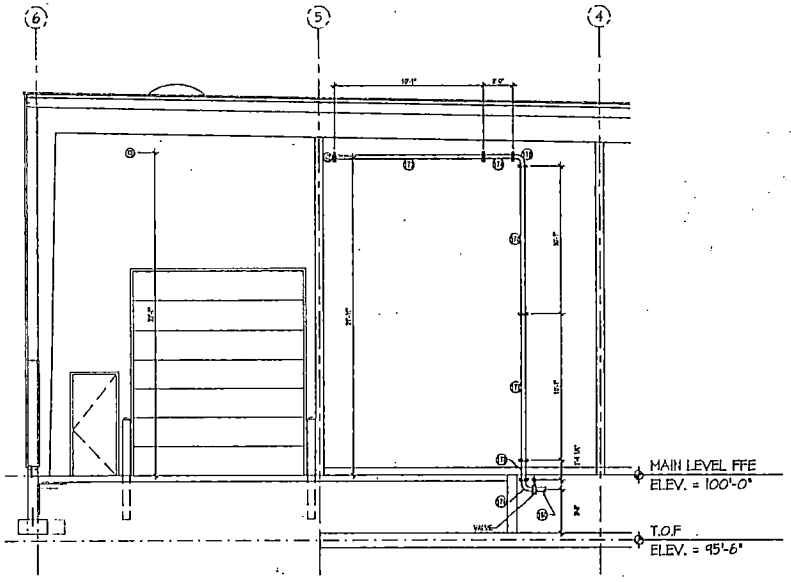
SECTION B - NEW STORAGE TANK PIPING
Scale 1/8" = 1'-0"



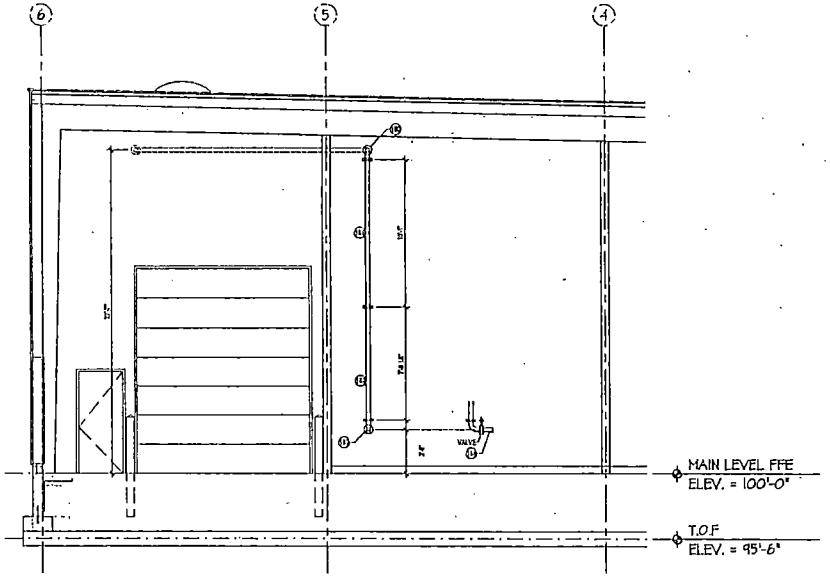
SECTION C - NEW STORAGE TANK PIPING
Scale 1/4" = 1'-0"



SECTION D - NEW STORAGE TANK PIPING
Scale 1/4" = 1'-0"



SECTION E - TRUCK DOCK PIPING
Scale 1/4" = 1'-0"



SECTION F - TRAIN DOCK PIPING
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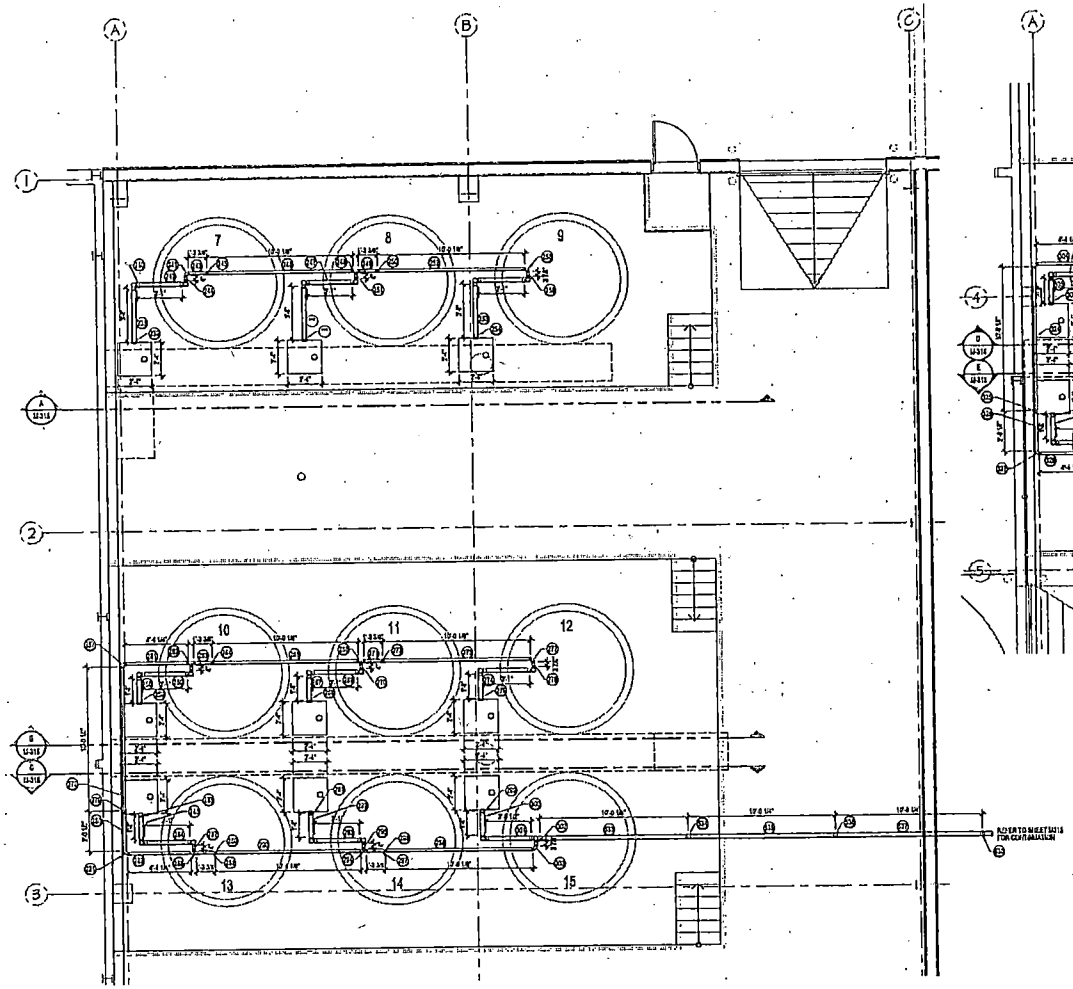
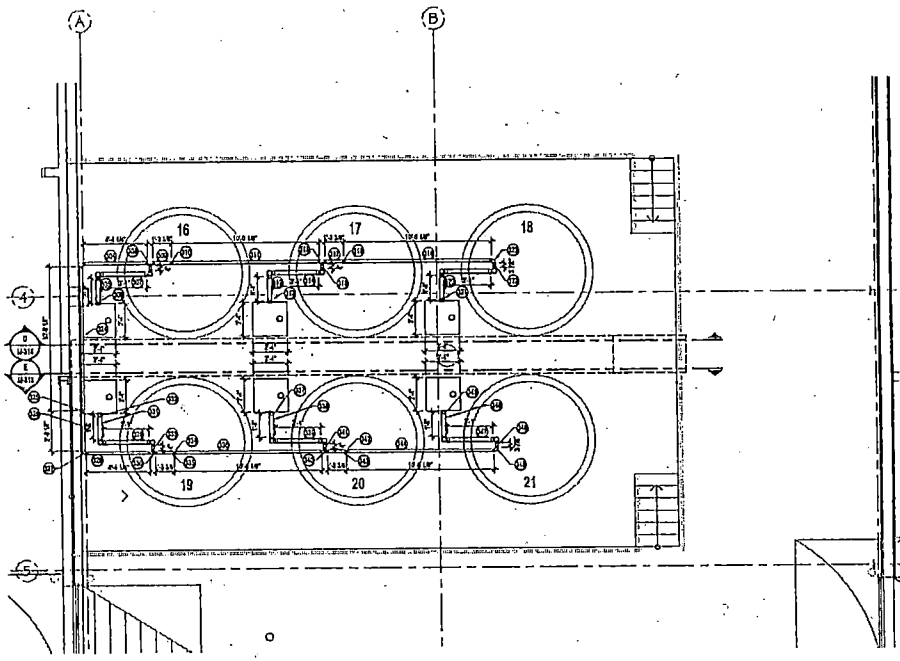


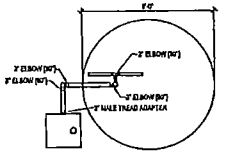
NEW STORAGE TANK VENT PIPING PLAN

Scale 1/4" = 1'-0"



NEW STORAGE TANK VENT PIPING PLAN

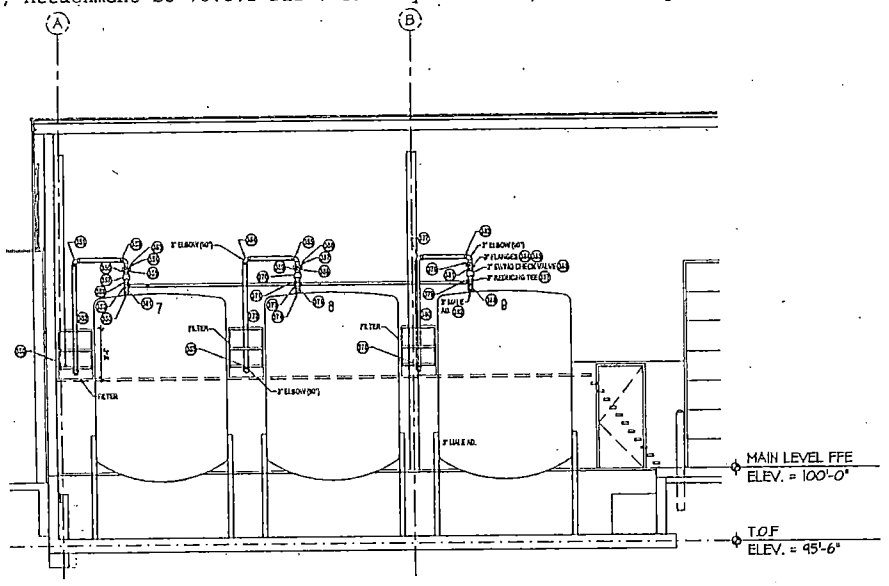
Scale 1/4" = 1'-0"



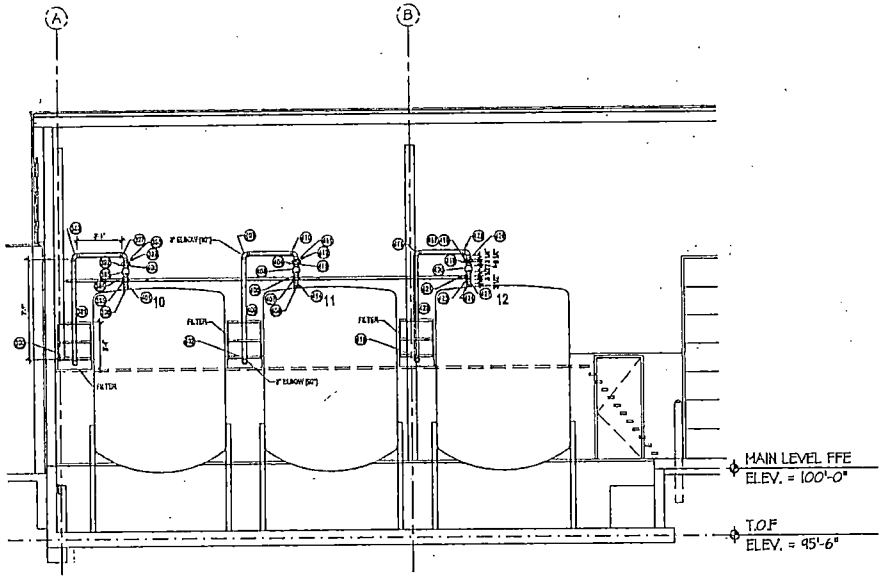
NEW STORAGE TANK VENT PIPING DETAIL

Scale 1/4" = 1'-0"

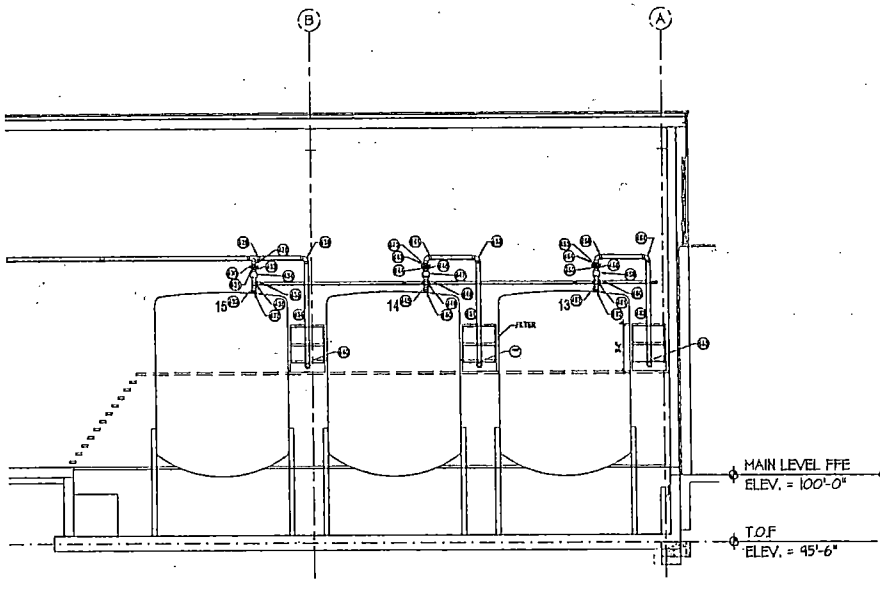
Drug & Laboratory Disposal



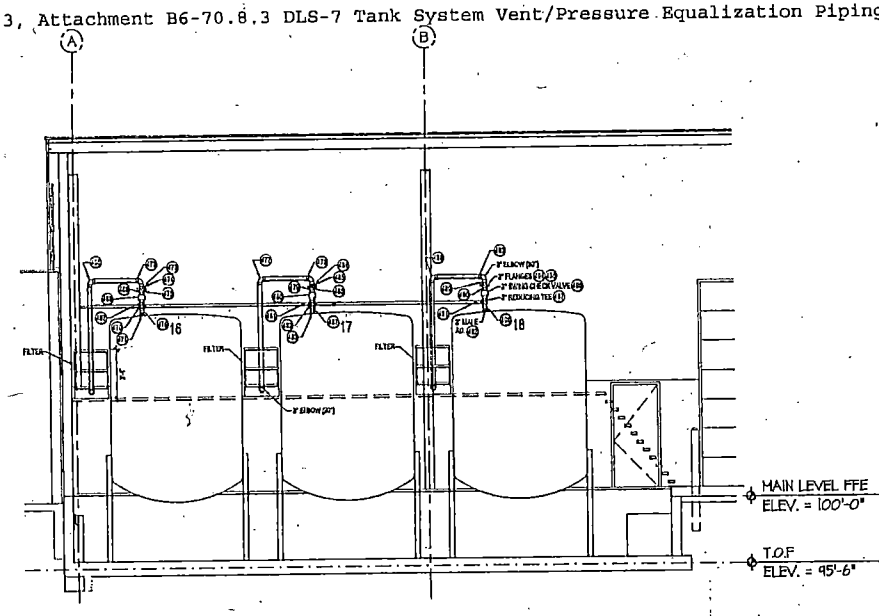
NEW STORAGE TANK VENT PIPING - ELEVATION A
Scale 1/4" = 1'-0"



NEW STORAGE TANK VENT PIPING - ELEVATION B
Scale 1/4" = 1'-0"



NEW STORAGE TANK VENT PIPING - ELEVATION C
Scale 1/4" = 1'-0"



NEW STORAGE TANK VENT PIPING - ELEVATION D
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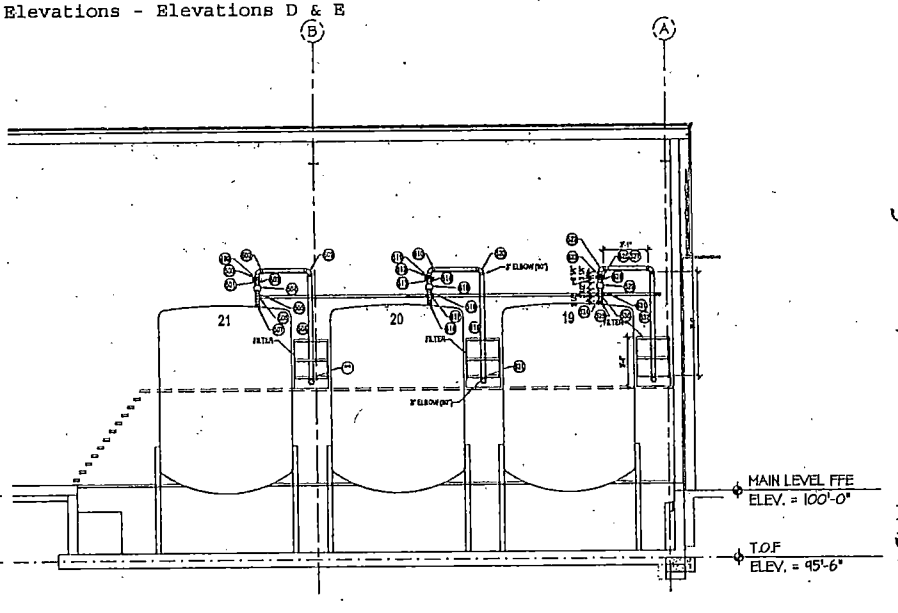
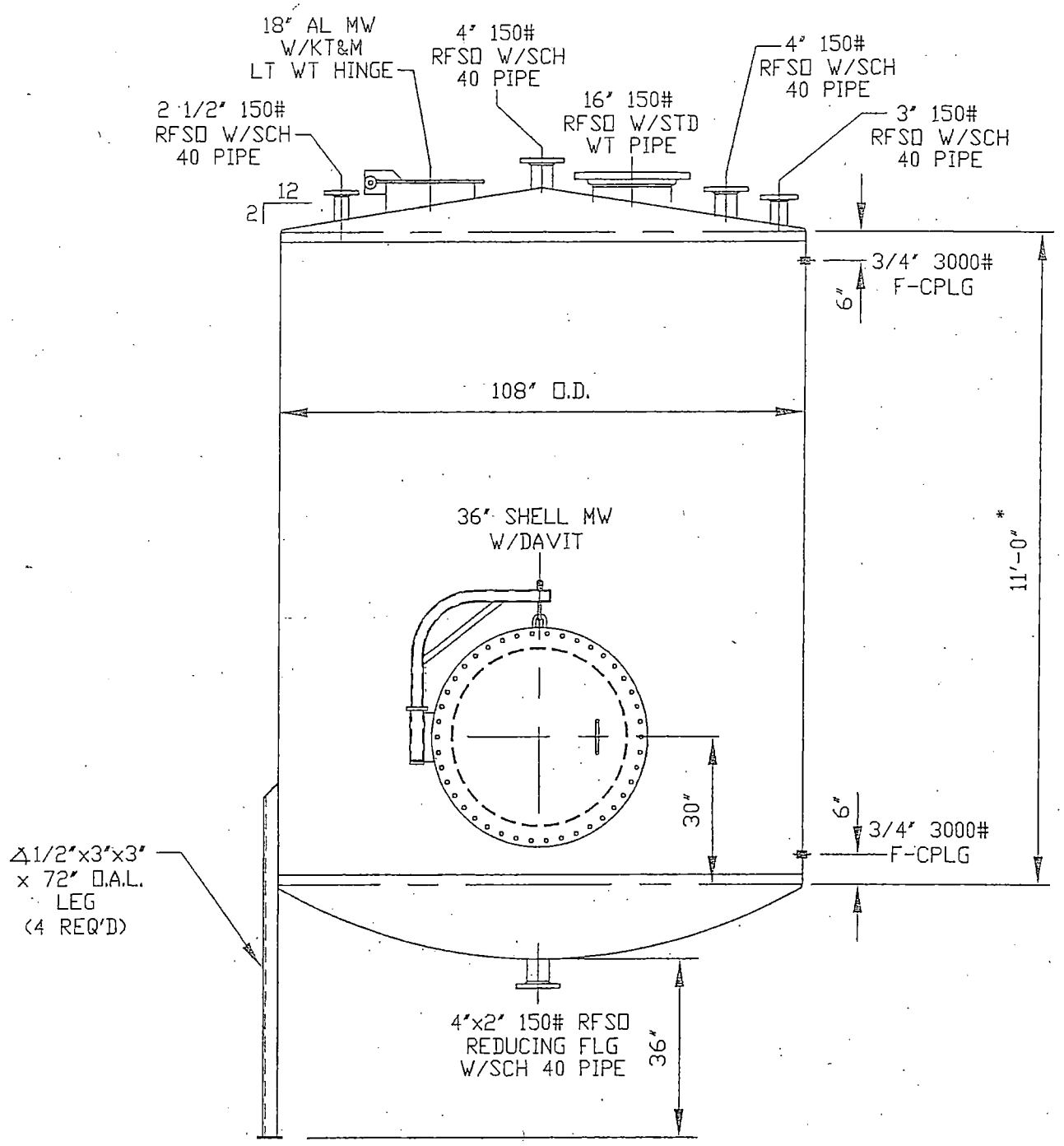


NEW STORAGE TANK VENT PIPING - ELEVATION E
Scale 1/4" = 1'-0"



* Tank height 11'-0" for 5000 gal. nominal
Tank height 13'-0" for 6000 gal. nominal
BR 082410

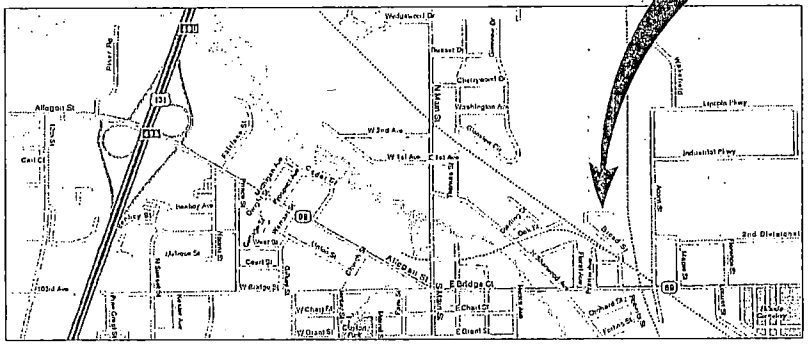
FOR: *DRUG & LABORATORY DISPOSAL, INC.*		
REVISIONS	CAD: *MJM*	KENNEDY
NO. DATE BY	APP'D BY: —	
1	QC: *REN*	DRAWING NO.: PKBQUOTE2
2	DATE: 12/16/09	
3	JOB NO.: —	SHEET 1 OF 1
QUANTITY ONE	PLOT SCALE: 3/8"=12"	

Drug & Laboratory Disposal

Phase 5 - Loading Dock

Broad Street, Plainwell, Michigan 49080

January 29, 2010 for State Submittal



LOCATION MAP
NOT TO SCALE

SHEET INDEX

COVER SHEET + INDEX

C001	SITE DEVELOPMENT PLAN
A101	FLOOR PLAN
A150	DOOR + ROOM FINISH SCHEDULES + INT ELEV
A201	EXTERIOR ELEVATIONS
A211	BUILDING SECTION + DETAILS
S100	FOUNDATION PLAN
S501	FOUNDATION DETAILS
M101	PHASE 5 MECHANICAL PLAN
E100	ELECTRICAL SYMBOLS + NOTES
E400	PHASE 5 LIGHTING PLAN
E500	PHASE 5 POWER PLAN

Drug & Laboratory Disposal
Plainwell, Michigan 49080
Broad Street - Phase 5 - Loading Dock

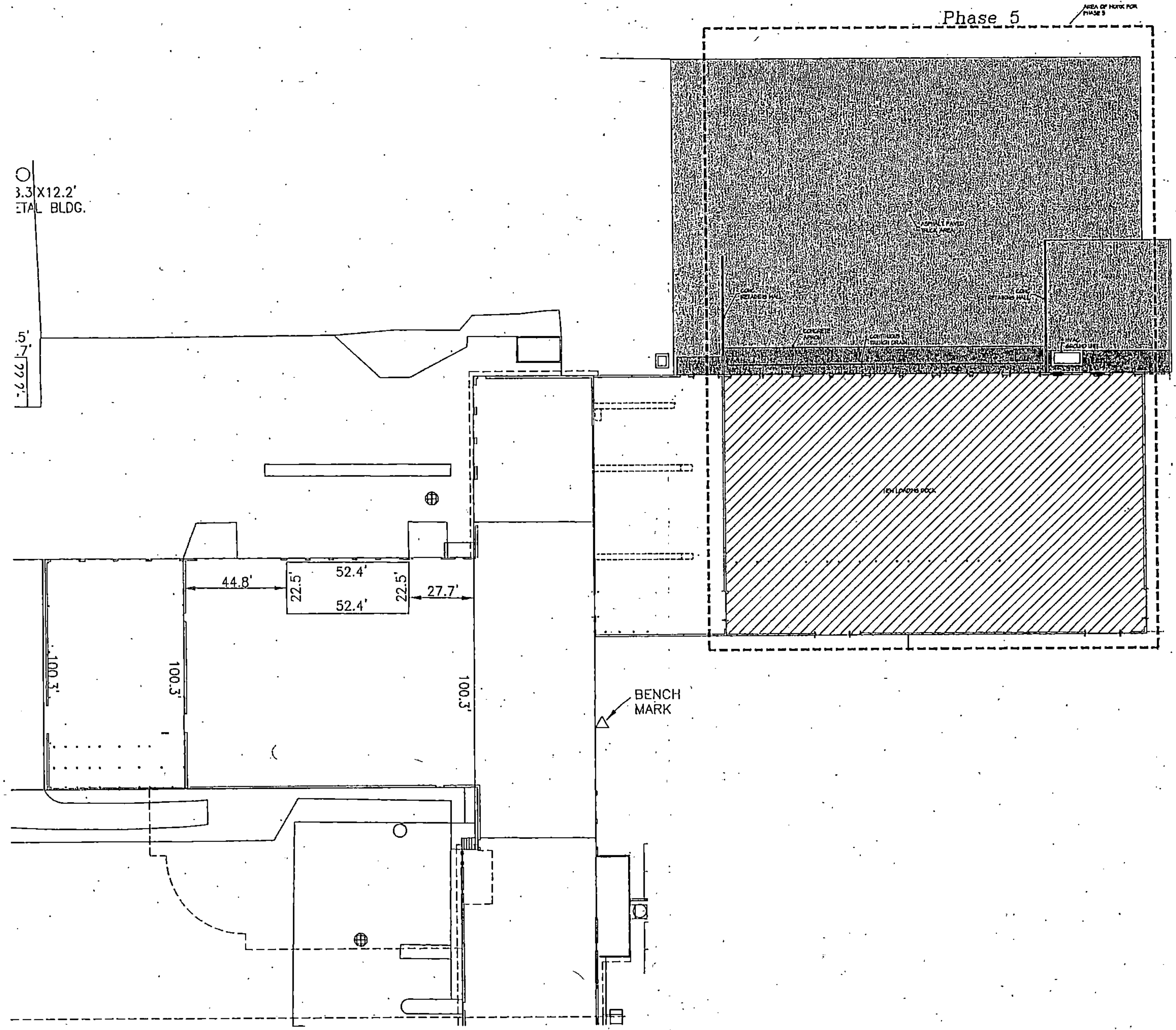
bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN

B6: ENGINEERING PLANS INDEX

(Volume 4)

Index of Attachments

ATTACHMENT	DESCRIPTION
B6-80.0	Sheet Index DLS-8 & DLS-9, Loading Bays and Warm Storage
B6-80.1	Drawing C001, Blueprint 09024EC001.dwg Site Development Plan / DLS-8 & DLS-9
B6-80.2	Drawing A101, Blueprint 09024EA101.dwg DLS-8 & DLS-9 Floor Plan
B6-80.3	Drawing A150, Blueprint 09024EA150.dwg DLS-8 & DLS-9 Finish Schedule
B6-80.4	Drawing A201, Blueprint 09024EA201.dwg DLS-8 & DLS-9 Exterior Elevations
B6-80.5	Drawing A501, Blueprint 09024EA501.dwg DLS-8 & DLS-9 Building Section and Details
B6-80.6	Drawing S100, Blueprint 09024ES100.dwg DLS-8 & DLS-9 Foundation Plan
B6-80.7	Drawing S501, Blueprint 09024ES501.dwg DLS-8 & DLS-9 Foundation Details



GENERAL NOTES (SITE WORK)

1. THE SOILS INVESTIGATION REPORT IS AVAILABLE TO THE GENERAL CONTRACTOR UPON REQUEST.

2. FOUNDATION DESIGN CAPACITIES.

	DESCRIPTION	CAPACITY
A.	STRIP FOOTINGS	GROSS 2,000 PSF
B.	SPREAD FOOTINGS	GROSS 2,000 PSF

3. DEMOLITION

A. REMOVAL OF EXISTING UTILITIES, STRUCTURES AND SLABS SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS. IF REMOVAL LIMITS ARE NOT SHOWN, THEY SHALL BE THE MINIMUM REQUIRED TO COMPLETE THE PROJECT.

B. DISCONNECTS OF ALL UTILITIES TO BE REMOVED SHALL BE BY THE TRADE INVOLVED OR THE APPROPRIATE UTILITY CO. AS DIRECTED BY THE GENERAL CONTRACTOR.

C. DISPOSAL OF MATERIAL REMOVED SHALL BE OFF SITE BY THE GENERAL CONTRACTOR.

4. SITE PREPARATION

A. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE PERFORMED BY THE CONTRACTOR IN COMPLIANCE WITH ACT 347.

B. ORGANIC TOPSOIL SHALL BE STRIPPED FROM THE CONSTRUCTION AREA TO DEPTHS RANGING FROM APPROXIMATELY 6" TO 30" AND STOCKPILED AS DIRECTED BY THE ARCHITECT FOR LATER USE.

C. IT IS REQUIRED THAT DENSIFICATION OF THE EXISTING SOILS BE PERFORMED BEFORE ANY FOOTINGS ARE CONSTRUCTED. SEE DIVISION 2 OF THE SPECIFICATION FOR ADDITIONAL INFORMATION.

5. EARTHWORK

A. CALL MISS DIG AT 1-800-482-7171 BEFORE BEGINNING EXCAVATION.

B. EXCAVATION SHALL BE LEVEL TO EXACT DEPTHS AND DIMENSIONS INDICATED ON DRAWINGS.

C. [illegible]

D. EXTREME CARE SHALL BE TAKEN NOT TO DISTURB OR DAMAGE EXISTING FOOTINGS, FOUNDATIONS, FLOORS, AND UTILITY OR STORM LINES. CONTRACTOR SHALL PROVIDE ALL REQUIRED SHORING AND BRACING TO PREVENT CAVE-INS OR SETTLEMENT OF EXISTING STRUCTURES OR UTILITIES.

E. PLACE 6 INCHES OF BANK RUN SAND COMPACTED TO 95% OF MAXIMUM DENSITY UNDER ALL FLOOR SLABS ON GRADE.

F. SOIL TESTING WILL BE CONTRACTED AND PAID FOR BY THE GENERAL CONTRACTOR.

G. SITE SHALL BE FINE GRADED BEFORE PLACING TOP SOIL OR GRANULAR BASE MATERIAL.

H. EXTERIOR SURFACE DRAINAGE SHALL BE AWAY FROM BUILDINGS.

I. AFTER BACKFILL IS PLACED AND PRIOR TO PLACING CONCRETE FLOORS, THE SOIL WILL BE TREATED FOR TERMITE CONTROL.

SITE DEVELOPMENT PLAN

Drug & Laboratory Disposal

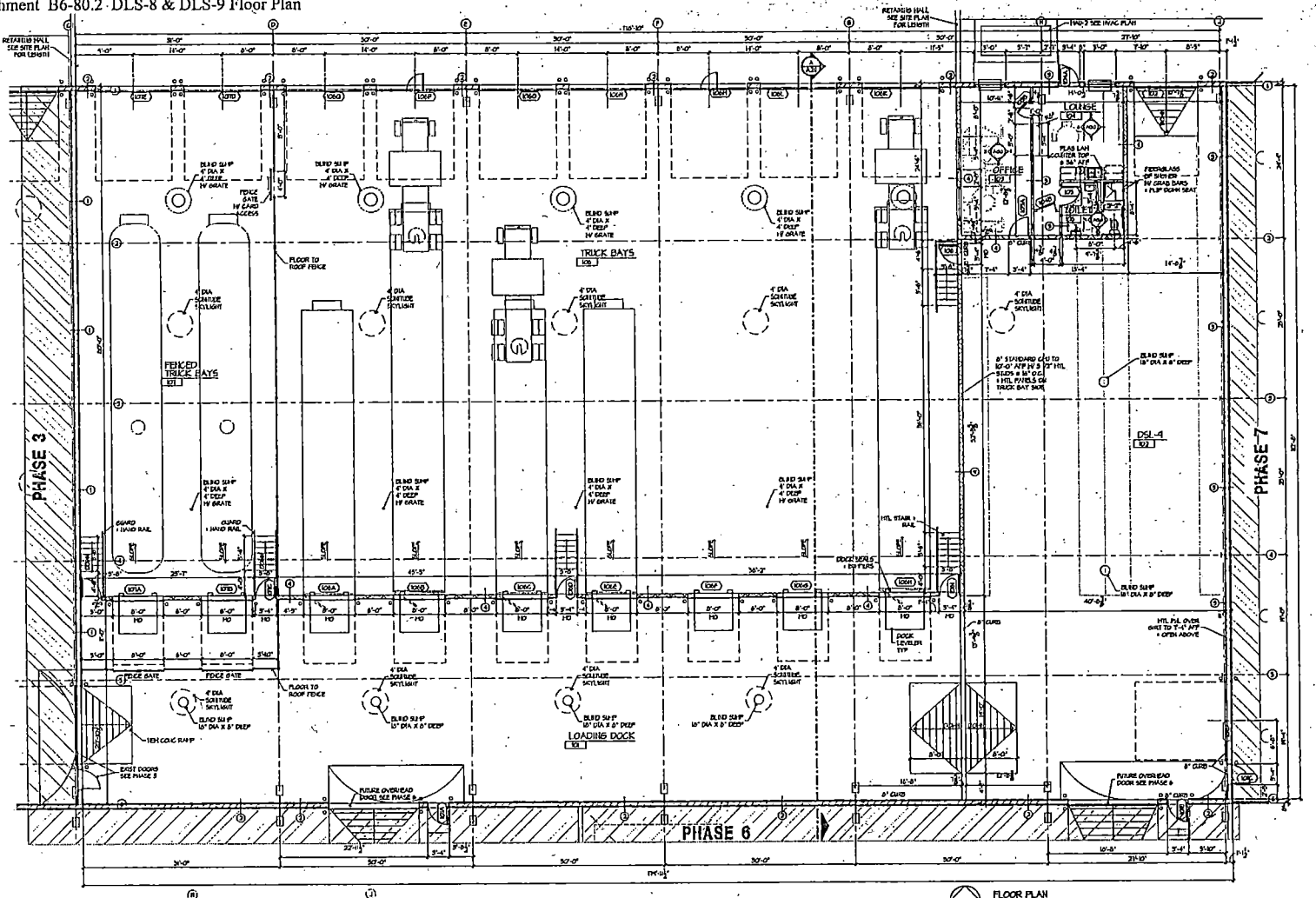
Plainwell, Michigan 49080

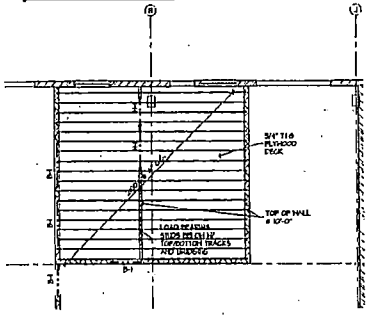
bosch ARCHITECTURE ENGINEERING INTERIOR DESIGN

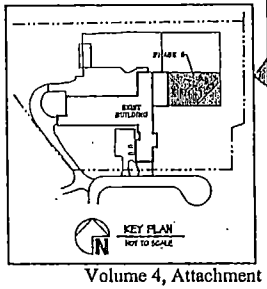
SITE DEVELOPMENT PLAN

C001

Volume 4, Attachment B6-80.2 DLS-8 & DLS-9 Floor Plan







GENERAL NOTES:

1. ALL CUTTING AND PATCHING SHALL BE BY THE TRADE INVOLVED IN THE WORK.
2. SEE HALL KEY FOR HALL CONSTRUCTION.
3. VERIFY ALL DIMENSIONS IN THE FIELD BEFORE ORDERING ANY MATERIALS.
4. PROVIDE SOLID WOOD BLOCKING @ DOORS, CABINETS, SHELVING, SCHEDULED LITES, GRAB BARS, AND DEMAND DOOR STOPS, ETC.
5. ALL DIMENSIONS ARE TO BE TO FINISHED SURFACES UNLESS NOTED OTHERWISE.
6. THE CONTRACTOR SHALL VISIT THE SITE AND EXAMINE THE PREMISES.
7. IT IS THE RESPONSIBILITY OF THE CONTRACTORS TO OBTAIN CLARIFICATION OF ANY DISCREPANCIES.
8. ALL FIRE EXTINGUISHERS TO BE FINAL PLACED BY THE LOCAL FIRE MARSHAL.

NOTE: FIRE SUPPRESSION SYSTEM TO BE INSTALLED PER CODE THROUGH OUT TRUCK BAYS AND FENCED TRUCK BAYS AREA.

WALL TYPES:

EXTERIOR WALL

1. EXISTING WALL TO REMAIN REMAIN AS REQ.
2. HTL PURLIN @ 24" O.C. SHIM ON EXTERIOR.
3. HTL PURLINS @ 24" O.C. SHIMS ON INTERIOR UP TO 9'-6" AFF AND OPEN ABOVE, 24" HTL SHIMS ON EXTERIOR FULL HT.

INTERIOR WALL

4. 8" STANDARD C.M.U. UP TO 10'-0" AFF W/ 3 1/2" HTL STUDS @ 16" O.C. + HTL PANELS ON TRUCK BAY SIDE W/ 8" CORE CONC.
5. 3 1/2" HTL STUDS @ 16" O.C. W/ 5/8" TYPE 'X' GYP. BD ON BOTH SIDES. LOAD BEARING.

Proposed Masonry Addition

Phase 3 Phase 6 Phase 7

49060

ISSUED

bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN
8178 Brookside Drive, Ste. 220
Portage, Michigan 49024
phone 269-321-8181
www.boscharch.com

FLOOR PLAN

A101

Volume 4, Attachment B6-80.2 07024EA101.dwg

DOOR SCHEDULE

DOOR NUMBER	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR SIZE THICK.	TYPE	DOOR MAT.	FRAME	HDW GROUP	RATING	DETAILS J	DETAILS J	DETAILS H	REMARKS
101A	3'-0"	7'-0"	1 3/4"	A1	HM	HM	1	—				
101B	3'-0"	7'-0"	1 3/4"	A1	HM	HM	1	—				
101C	3'-0"	7'-0"	1 3/4"	A1	HM	HM	1	—				
101D	12'-0"	14'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
102	10'-0"	14'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
103A	3'-0"	7'-0"	1 3/4"	A2	HM	HM	2	—				
103B	3'-0"	7'-0"	1 3/4"	A1	HM	HM	2	—				
104A	3'-0"	7'-0"	1 3/4"	A1	HM	HM	1	—				
104B	3'-0"	7'-0"	1 3/4"	A1	HM	HM	2	—				
105	3'-0"	7'-0"	1 3/4"	A1	HM	HM	4	—				
106A	8'-0"	10'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
106B	8'-0"	10'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
106C	8'-0"	10'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
106D	3'-0"	7'-0"	1 3/4"	A2	HM	HM	5	—				
106E	8'-0"	10'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
106F	8'-0"	10'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
106G	8'-0"	10'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
106H	8'-0"	10'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
106I	3'-0"	7'-0"	1 3/4"	A2	HM	HM	5	—				
106J	3'-0"	7'-0"	1 3/4"	A2	HM	HM	5	—				
106K	12'-0"	14'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
106L	12'-0"	14'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
106M	12'-0"	14'-0"	1 3/4"	C	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
106N	12'-0"	14'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
106O	12'-0"	14'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
106P	12'-0"	14'-0"	1 3/4"	C	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
106Q	12'-0"	14'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
107A	8'-0"	10'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
107B	8'-0"	10'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
106C	3'-0"	7'-0"	1 3/4"	A2	HM	HM	3	—				
107D	12'-0"	14'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE
107E	12'-0"	14'-0"	1 3/4"	B	HOLL MTL	—	—	—				OVERHEAD INSULATED DOOR W/ REMOTE

ROOM FINISH SCHEDULE

ROOM NO	ROOM NAME	FLOOR	BASE	WALL MAT.	WALL FIN.	CEILING MAT.	CEILING FIN.	CLG HGT	REMARKS
101	LOADING DOCK	CONC	—	MTL / CMU	—	EXPOSED	—	—	
102	STORAGE	CONC	—	MTL / CMU	—	EXPOSED	—	—	
103	OFFICES	CONC	VINYL / CONC	GYP BD / CMU	PNT	ACT	—	9'-0"	
104	LOUNGE	CONC	VINYL / CMU	GYP BD / CMU	PNT	ACT	—	9'-0"	
105	TOILET	CONC	VINYL / CMU	GYP BD / CMU	PNT	ACT	—	9'-0"	
106	TRUCK BAYS	CONC	—	CMU / CONC	—	EXPOSED	—	—	
107	FENCED TRUCK BAYS	CONC	—	CMU / CONC	—	EXPOSED	—	—	

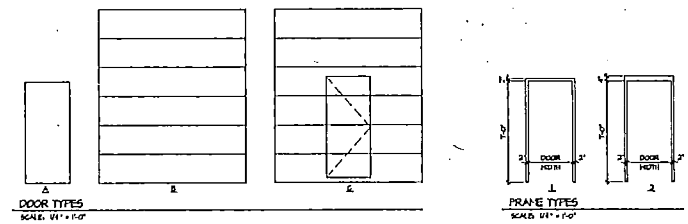
HARDWARE GROUPS

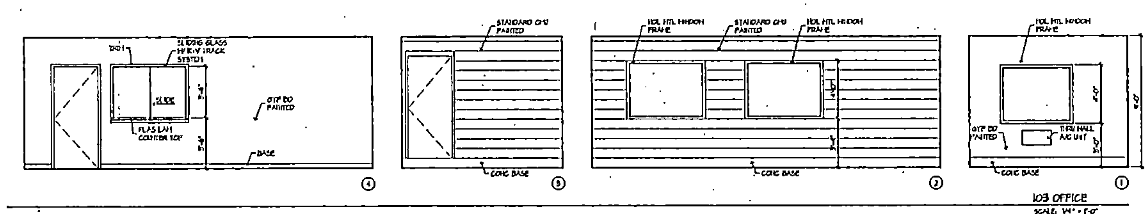
SET NO. 1 (EXTERIOR, 101, 104B)
- 1 1/2 PR BUTTS
- 1 EA EXIT DEVICE W/ EXTERIOR LEVER
- 1 EA CLOSER
- 1 EA THRESHOLD
- 1 EA WEATHER SEAL + SWEEP
- 1 EA CYLINDER
- 1 EA STOP AS REQ

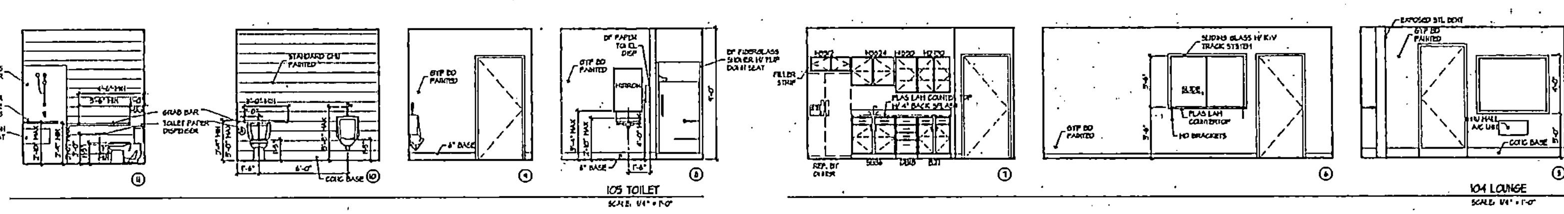
SET NO. 2 (GENERAL PASSAGE, 103, 104, 105A, 105B, 106G, 106, 107, 108A, 109)
- 1 1/2 PR BUTTS
- 1 EA LOCKSET
- 1 EA STOP AS REQ

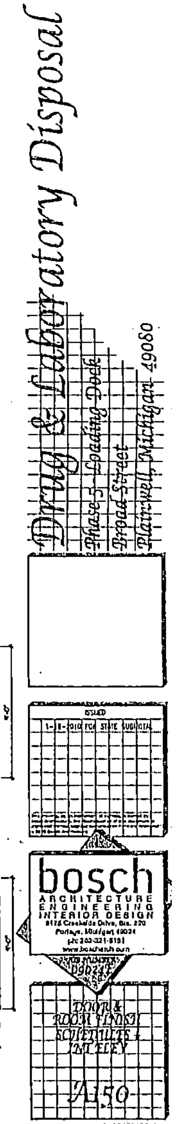
SET NO. 3 (INNER ENTRY DOOR, 101A)
- 1 1/2 PR BUTTS
- 1 EA LOCKSET
- 1 EA STOP AS REQ
- 1 EA CLOSER

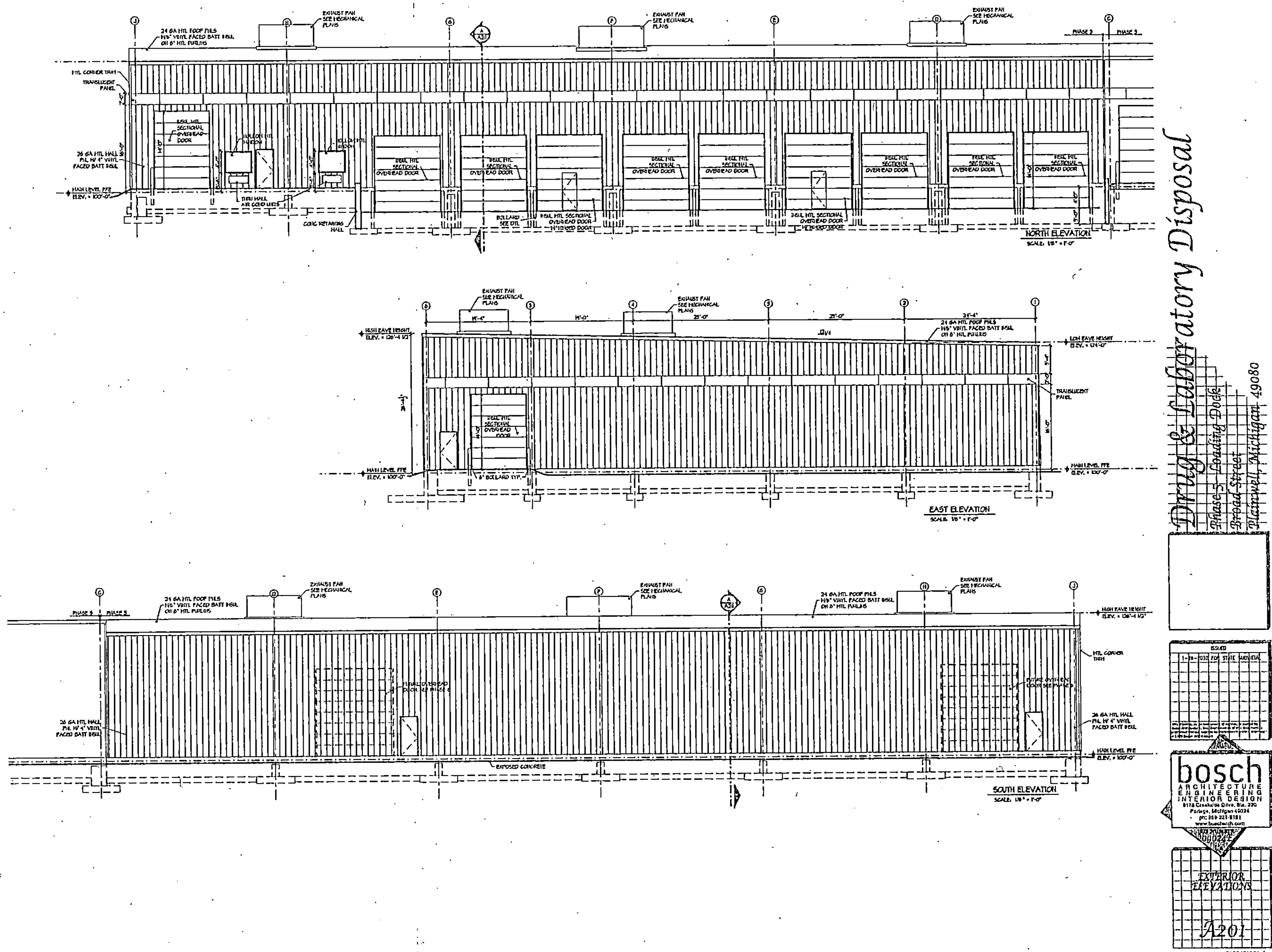
SET NO. 4 (TOILETS, 105, 111)
- 1 1/2 PR BUTTS
- 1 EA PRIVACY SET
- 1 EA STOP AS REQ

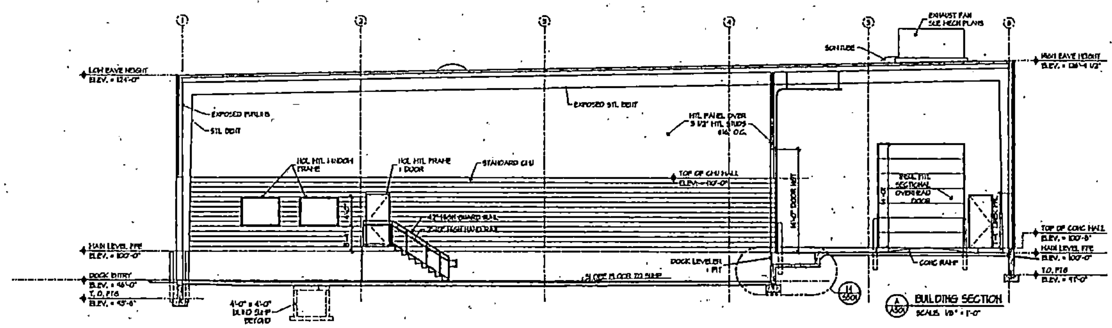




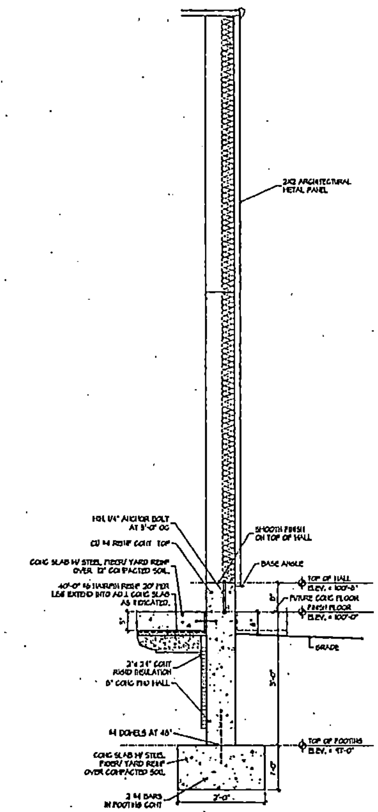





NORTH ELEVATION
EAST ELEVATION
SOUTH ELEVATION
Drug & Laboratory Disposal
Phase 5 Loading Dock
Broad Street
Plainwell, Michigan 49080
bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN
EXTERIOR ELEVATIONS
A201



BUILDING SECTION



WALL SECTION

Drug & Laboratory Disposal
Phase 5 Loading Dock
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Plainwell Michigan 49080

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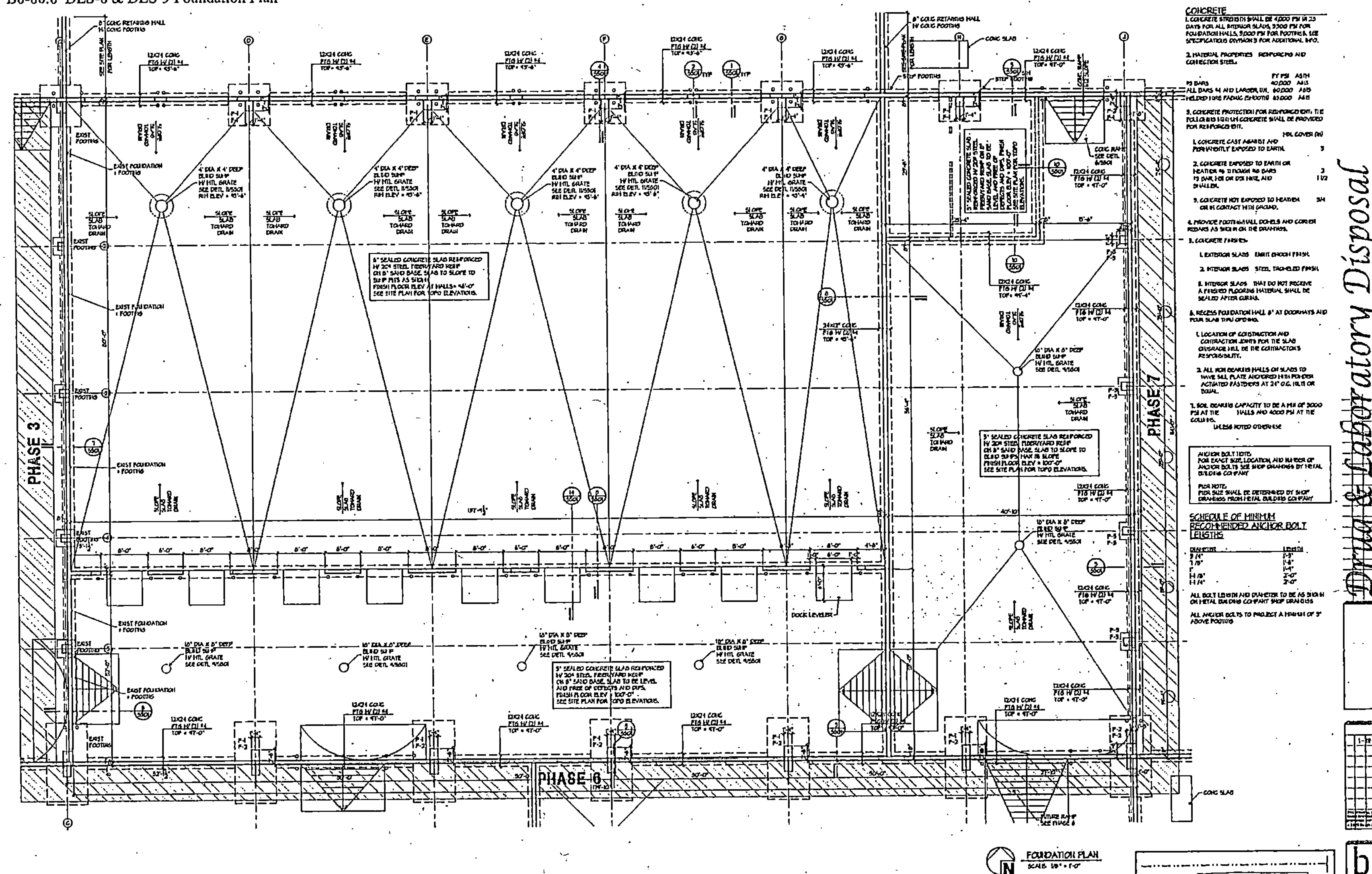
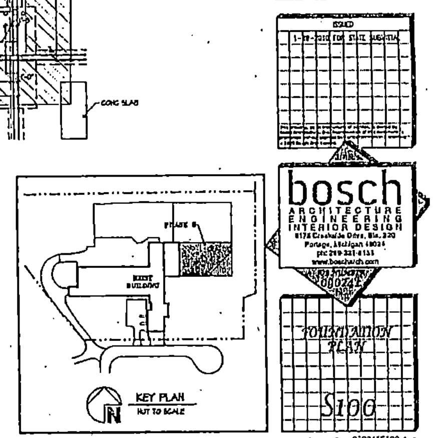
BUILDING SECTION / DETAILS

A211



PIER SCHEDULE			
MARK	MINIMUM PIER SIZE	REINFORCING	REMARKS
P-1	1'-4" X 2'-6"	4-#5 VERT & #3 TIES @ 10" OC	—
P-2	1'-8" X 2'-6"	4-#5 VERT & #3 TIES @ 10" OC	—
P-3	1'-4" X 2'-0"	4-#5 VERT & #3 TIES @ 10" OC	—
			—

FOOTING SCHEDULE			
MARK	FOOTING SIZE	REINFORCING	REMARKS
F-1	7'-0" x 7'-0" x 1'-6"	(7) #5 EA. WAY T&B	—
F-2	7'-0" x 11'-0" x 2'-0"	#6@12" EA. WAY T&B	FOOTING IS LARGER FOR PHASE 6 FUTURE COLUMNS
F-3	5'-2" x 5'-0" x 12"	(4) #5 EA. WAY	—



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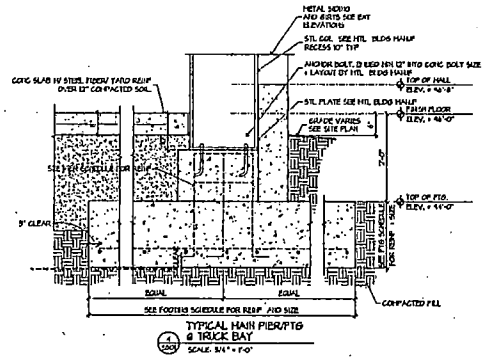
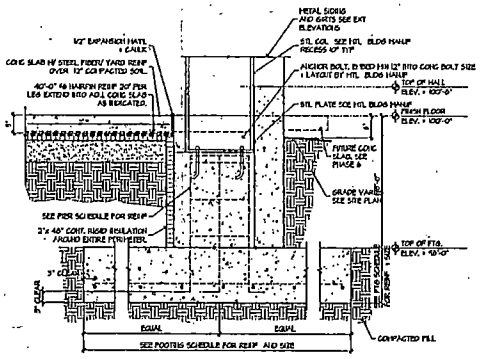
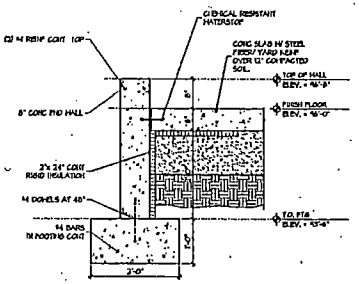


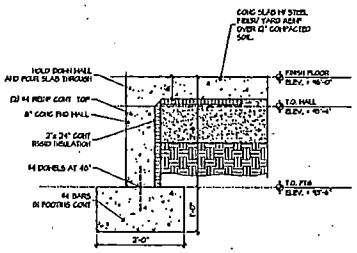
TYPICAL MAIN PIER/FTG @ TRUCK BAY
SCALE: 3/4" = 1'-0"



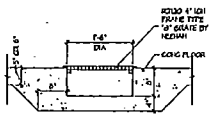
TYPICAL MAIN PIER/FTG
SCALE: 3/4" = 1'-0"



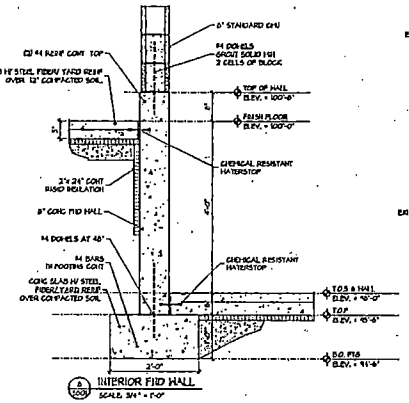
TRUCK DOCK BETWEEN DOORS
SCALE: 3/4" = 1'-0"



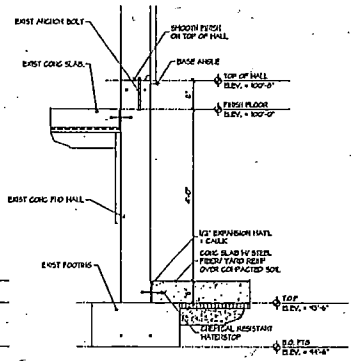
TRUCK DOCK AT DOORS
SCALE: 3/4" = 1'-0"



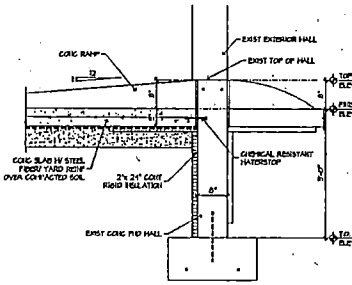
SMALL BLIND SUMP
SCALE: 3/4" = 1'-0"



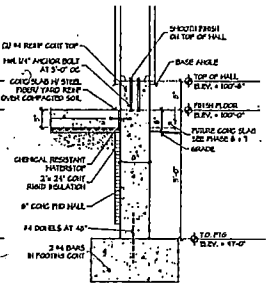
INTERIOR FND WALL
SCALE: 3/4" = 1'-0"



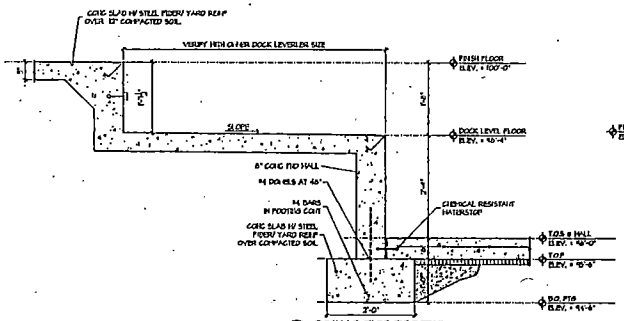
PERIMETER FND WALL @ WEST WALL
SCALE: 3/4" = 1'-0"



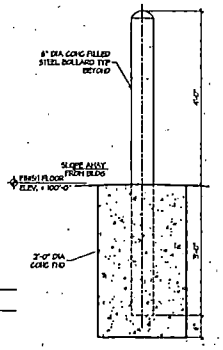
RAMP DETAIL @ DH DOORS
SCALE: 3/4" = 1'-0"



PERIMETER FROST WALL
SCALE: 3/4" = 1'-0"



DOCK LEVELER PIT DETAIL
SCALE: 3/4" = 1'-0"



BOLLARD DTL
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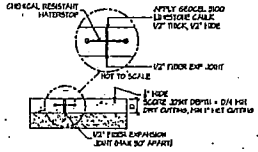
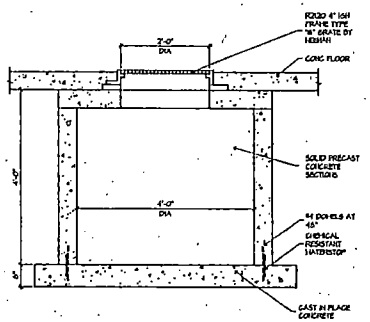


CONCRETE DETAIL
SCALE: 3/4" = 1'-0"



LARGE BLIND SUMP
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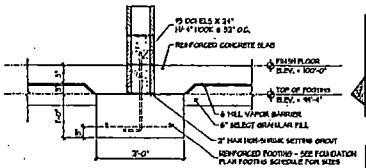


TYPICAL INTERIOR CMU WALL FOOTING
SCALE: 3/4" = 1'-0"

Drug & Laboratory Disposal
Phase 5 Loading Dock
Broad Street
Plainwell, Michigan 49080

ISSUED
1-28-010 FOR SITE PLAN APPR.

bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN
8178 Crossfields Drive, Ste. 250
Portage, Michigan 49024
ph: 269 321-8181
www.boschassoc.com

FOUNDATION DETAILS

S501

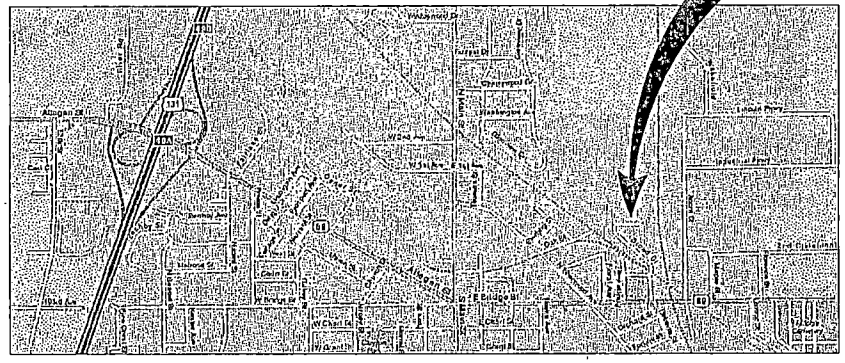
D0024ES501.dwg

Drug & Laboratory Disposal

Phase 6 - Warehouse

Broad Street, Plainwell, Michigan 49080

January 29, 2010 for State Submittal



LOCATION MAP
NOT TO SCALE

SHEET INDEX

COVER SHEET + INDEX

PRELIMINARY NOT FOR CONSTRU 9/2

Drug & Laboratory Disposal
Phase 6 - Warehouse
Broad Street

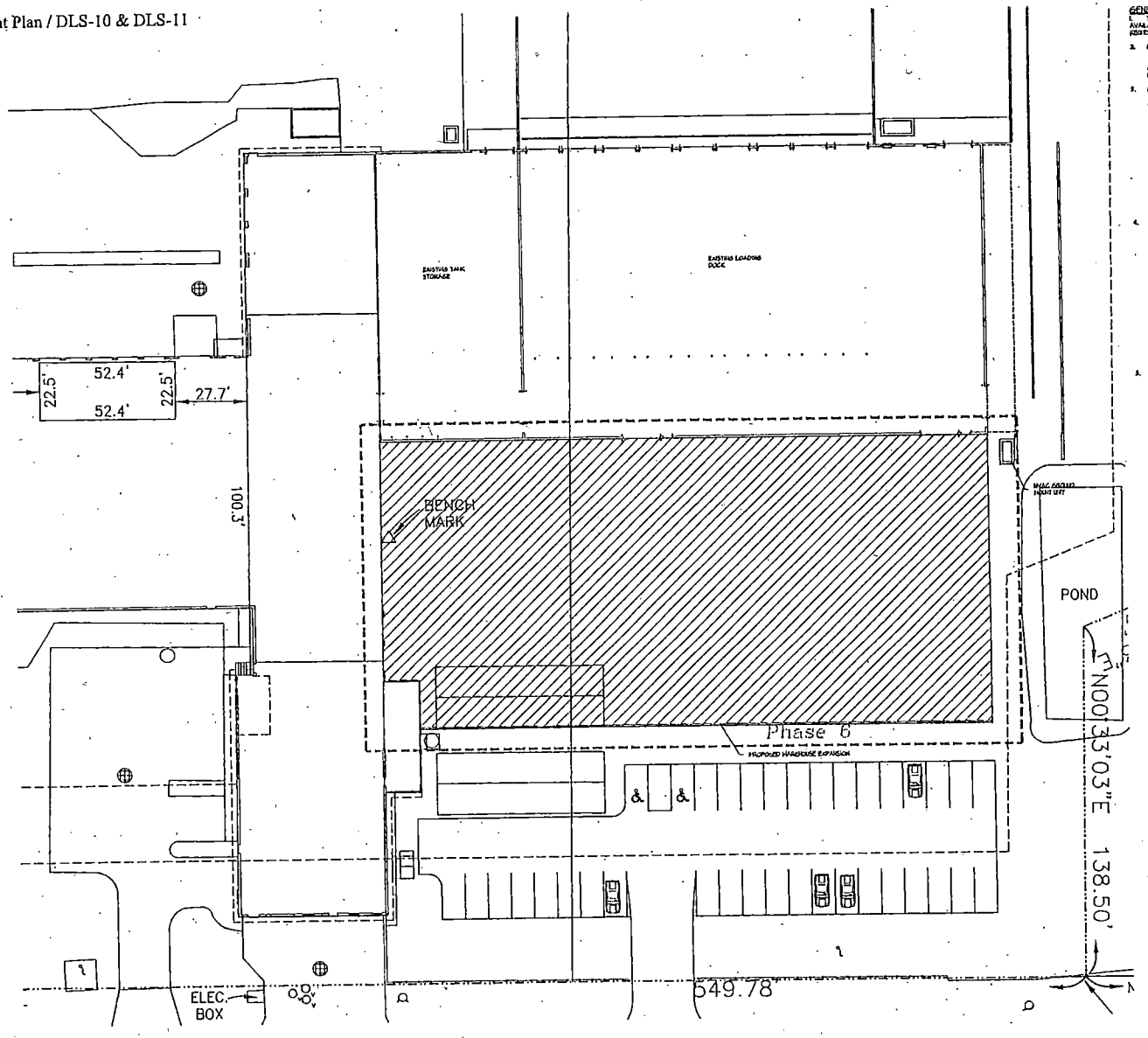
bosc ARCHITECT ENGINEER INTERIOR DE

B6: ENGINEERING PLANS

(Volume 5)

Index of Attachments

ATTACHMENT	DESCRIPTION
B6-100.0	Sheet Index DLS-10 & DLS-11 Containment Areas
B6-100.1	Drawing C001, Blueprint 09024FC001.dwg Site Development Plan/DLS-10 & DLS-11
B6-100.2	Drawing A101, Blueprint 09024FA101.dwg DLS-10 & DLS-11 Floor Plan
B6-100.3	Drawing A201, Blueprint 09024FA201.dwg DLS-10 & DLS-11 Exterior Elevations
B6-100.4	Drawing S100, Blueprint 09024FS100.dwg DLS-10 & DLS-11 Foundation Plan
B6-100.5	Drawing S501, Blueprint S501.dwg DLS-10 & DLS-11 Foundation Details



SITE DEVELOPMENT PLAN
SCALE: 1" = 20'

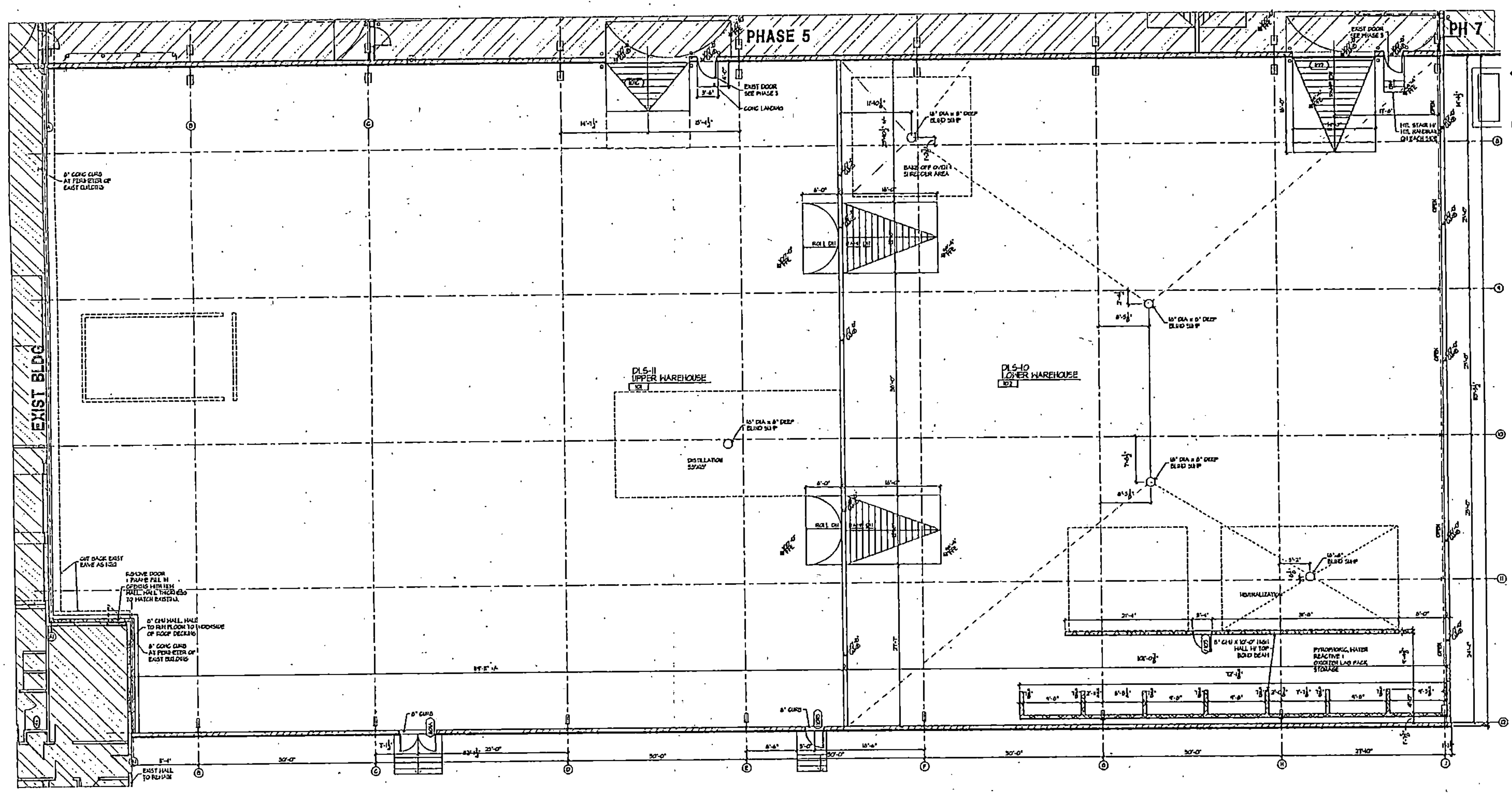
GENERAL NOTES (SITE WORK)

1. THE SOILS INVESTIGATION REPORT IS AVAILABLE TO THE GENERAL CONTRACTOR UPON REQUEST.
2. FOUNDATION DESIGN CAPACITIES:
   - A. STRIP FOOTINGS — GROSS 1500 PSF
   - B. SPREAD FOOTINGS — GROSS 1500 PSF
3. DEMOLITION
   - A. REMOVAL OF EXISTING UTILITIES, STRUCTURES AND SLABS SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS. IF REMOVAL LIMITS ARE NOT SHOWN, THEY SHALL BE THE MINIMUM REQUIRED TO COMPLETE THE PROJECT.
   - B. DISCONNECTS OF ALL UTILITIES TO BE REMOVED SHALL BE BY THE TRADE ENGAGED OR THE APPROPRIATE UTILITY CO. AS DIRECTED BY THE GENERAL CONTRACTOR.
   - C. DISPOSAL OF MATERIAL REMOVED SHALL BE OFF SITE BY THE GENERAL CONTRACTOR.
4. SITE PREPARATION
   - A. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE PROVIDED BY THE CONTRACTOR IN COMPLIANCE WITH ACT 347.
   - B. ORGANIC TOPSOIL SHALL BE STRIPPED FROM THE CONSTRUCTION AREA TO DEPTHS RANGING FROM APPROXIMATELY 6" TO 30" AND STOCKPILED AS DIRECTED BY THE ARCHITECT FOR LATER USE.
   - C. IT IS REQUIRED THAT IDENTIFICATION OF THE EXISTING SOILS BE PERFORMED BEFORE ANY FOOTINGS ARE CONSTRUCTED. SEE DIVISION 2 OF THE SPECIFICATION FOR ADDITIONAL INFORMATION.
5. EARTHWORK
   - A. CALL MISS DIG AT 1-800-482-7171 BEFORE BEGINNING EXCAVATION.
   - B. EXCAVATION SHALL BE LEVEL TO EXACT DEPTHS AND DIMENSIONS INDICATED ON DRAWINGS.
   - C. [redacted]
   - D. EXTREME CARE SHALL BE TAKEN NOT TO DISTURB OR DAMAGE EXISTING FOOTINGS, FOUNDATIONS, FLOORS, AND UTILITY OR STORM LINES. CONTRACTOR SHALL PROVIDE ALL REQUIRED SHORING AND BRACING TO PREVENT CAVE-INS OR SETTLEMENT OF EXISTING STRUCTURES OR UTILITIES.
   - E. PLACE 6 INCHES OF SAND RUN SAND COMPACTED TO 95% OF MAXIMUM DENSITY UNDER ALL FLOOR SLABS ON GRADE.
   - F. SOIL TESTING WILL BE CONTRACTED AND PAID FOR BY THE GENERAL CONTRACTOR.
   - G. SITE SHALL BE FINE GRADED BEFORE PLACING TOP SOIL OR GRANULAR BASE MATERIAL.
   - H. EXTERIOR SURFACE DRAINAGE SHALL BE AWAY FROM BUILDING.
   - I. AFTER BACKFILL IS PLACED AND PRIOR TO PLACING CONCRETE FLOORS, THE SOIL WILL BE TREATED FOR TERMITE CONTROL.

PRELIMINARY NOT FOR CONSTRUCTION 9/20

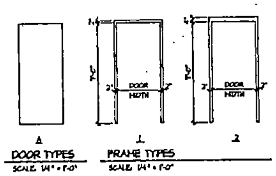
Drug & Laboratory Disposal

Phase 6 Warehouse Expansion

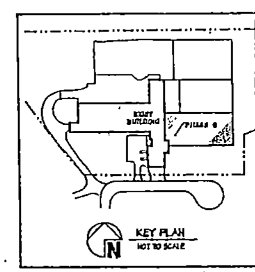


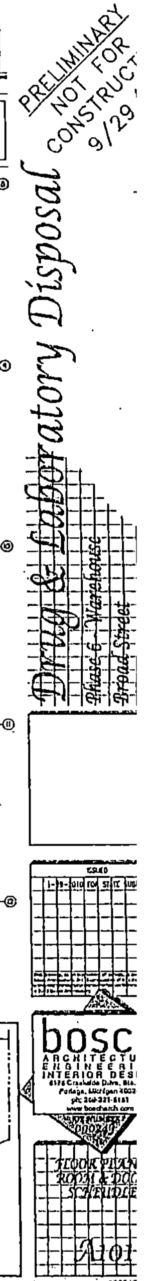
FLOOR PLAN
SCALE: 1/8" = 1'-0"

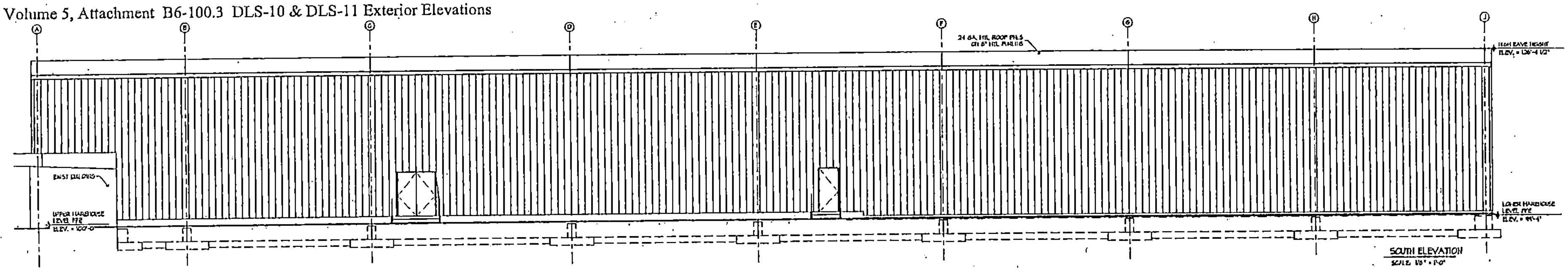
ROOM FINISH SCHEDULE									
ROOM NO	ROOM NAME	FLOOR	BASE	WALL		CEILING		CLG HGT	REMARKS
				MAT.	FIN	MAT.	FIN		
101	DLS-11 UPPER WAREHOUSE	CONC	CONC	MTL PNL	—	EXPOSED	—	—	
102	DLS-10 LOWER WAREHOUSE	CONC	CONC	MTL PNL	—	EXPOSED	—	—	

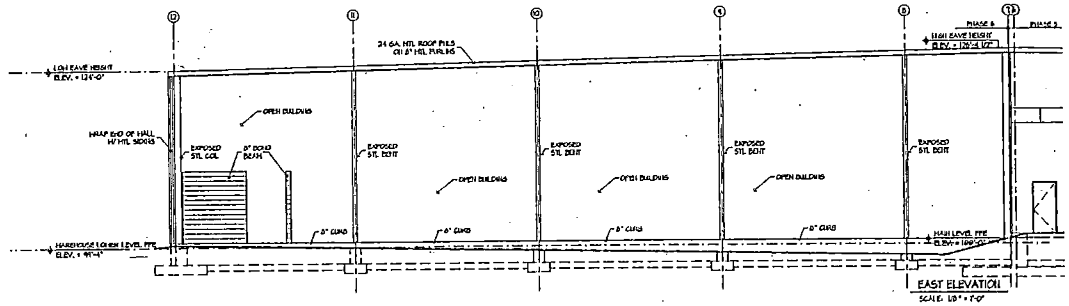


DOOR SCHEDULE												
DOOR NUMBER	DOOR SIZE			TYPE	DOOR MAT.	FRAME	HDW GROUP	RATING	DETAILS			REMARKS
	WIDTH	HEIGHT	THICK.						J	J	H	
101A	PR 3'-0"	7'-0"	1 3/4"	A1	HM	HM	1	—				
101B	3'-0"	7'-0"	1 3/4"	A1	HM	HM	1	—				
102	3'-0"	7'-0"	1 3/4"	A1	HM	HM	1	—				
103	3'-0"	7'-0"	1 3/4"	A2	HM	HM	1	—				







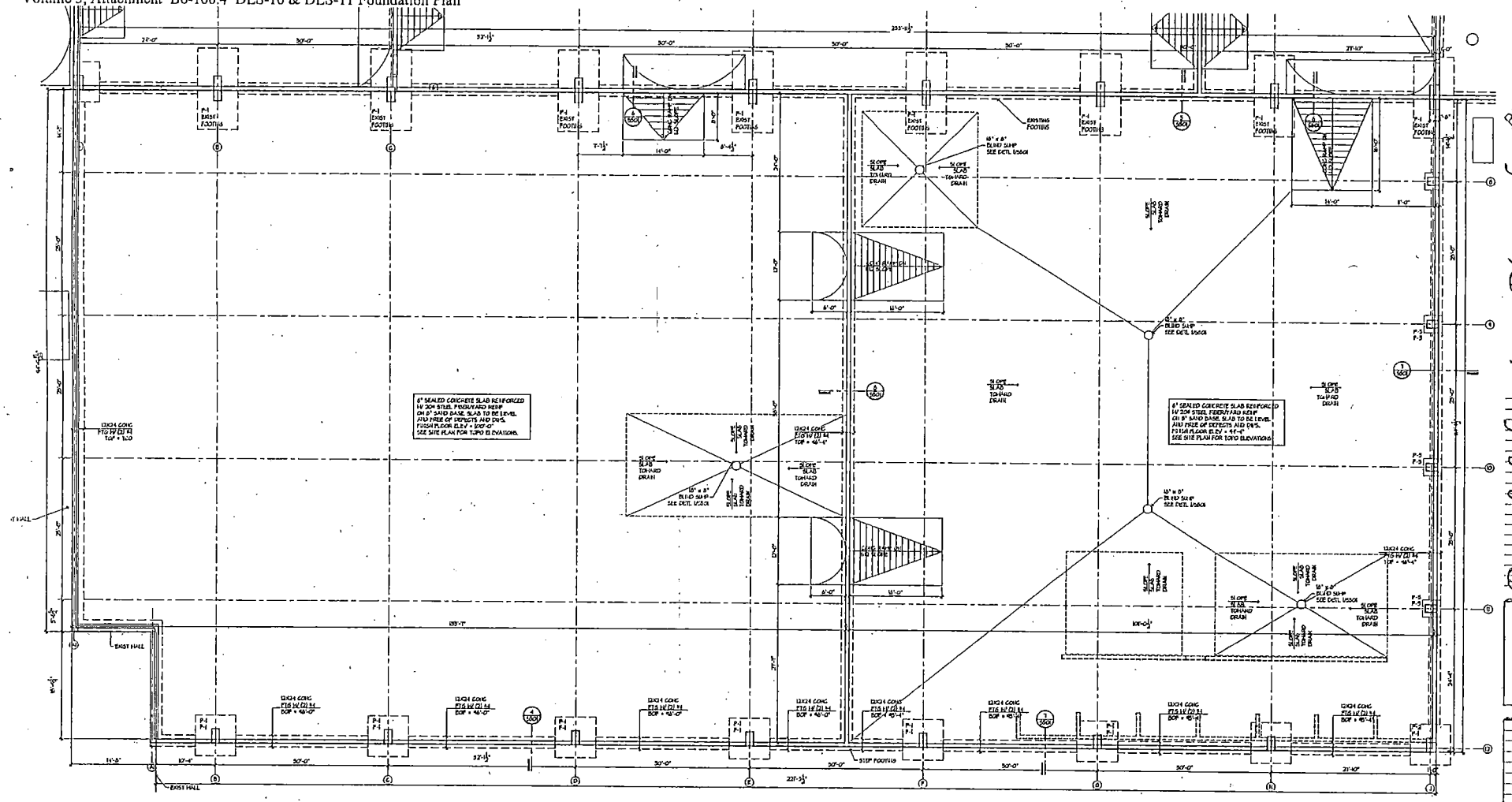


PRELIMINARY NOT FOR CONSTRUC 9/29

Drug & Laboratory Disposal
Phase 6 - Warehouse
Broad Street

bosc
ARCHITECT
ENGINEER
INTERIOR DE

EXTERIOR ELEVATION & DETAIL
A20



PIER SCHEDULE				FOOTING SCHEDULE			
MARK	MINIMUM PIER SIZE	REINFORCING	REMARKS	MARK	FOOTING SIZE	REINFORCING	REMARKS
P-1	1'-4" X 3'-4"	4-#5 VERT & #3 TIES @ 10" OC	–	F-1	7'-0" x 7'-0" x 1'-6"	(5) #5 EA. WAY T&B	–
P-2	1'-8" X 3'-8"	4-#5 VERT & #3 TIES @ 10" OC	–	F-2	NOT USED		
P-3	2'-4" X 3'-0"	4-#5 VERT & #3 TIES @ 10" OC	–	F-3	5'-0" x 5'-0" x 12"	(5) #4 EA. WAY	–
			–				

CONCRETE

1. CONCRETE STRENGTH SHALL BE 4,000 PSI IN 28 DAYS FOR ALL INTERIOR SLABS, 3500 PSI FOR FOUNDATION WALLS, 3,000 PSI FOR FOOTINGS, SEE SPECIFICATION 8 DIVISION 3 FOR ADDITIONAL INFO.

2. MATERIAL PROPERTIES REINFORCING AND CONNECTION STEEL.

	PT PSI	ASTM
#3 BARS	40,000	A615
ALL BARS #4 AND LARGER, UN WELDED WIRE FABRIC SMOOTH	60,000	A615
	65,000	A185

3. CONCRETE PROTECTION FOR REINFORCEMENT: THE FOLLOWING MINIMUM CONCRETE SHALL BE PROVIDED FOR REINFORCEMENT.

	MIN. COVER (IN)
1. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3
2. CONCRETE EXPOSED TO EARTH OR WEATHER: #6 THROUGH #18 BARS	2
#5 BAR, W31 OR D31 WIRE, AND SMALLER.	1 1/2
3. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND.	3/4

4. PROVIDE FOOTING/WALL DOWELS AND CORNER REBARS AS SHOWN ON THE DRAWINGS.

5. CONCRETE FINISHES.

1. EXTERIOR SLABS: LIGHT BROOM FINISH.

2. INTERIOR SLABS: STEEL TROWELED FINISH.

3. INTERIOR SLABS THAT DO NOT RECEIVE A FINISHED FLOORING MATERIAL SHALL BE SEALED AFTER CURING.

6. RECESS FOUNDATION WALL 8" AT DOORWAYS AND FOUR SLAB TIED OPENING.

1. LOCATION OF CONSTRUCTION AND CONTRACTION JOINTS FOR THE SLAB ON GRADE WILL BE THE CONTRACTORS RESPONSIBILITY.

2. ALL IRON BEARING WALLS OR SLABS TO HAVE SILL PLATE ANCHORED WITH POWDER ACTUATED FASTENERS AT 24" O.C. MIN OR EQUAL.

7. SOIL BEARING CAPACITY TO BE A MIN OF 3000 PSF AT THE WALLS AND 4000 PSF AT THE COLUMNS.

UNLESS NOTED OTHERWISE

ANCHOR BOLT NOTE:
FOR EXACT SIZE, LOCATION, AND NUMBER OF ANCHOR BOLTS SEE SHOP DRAWINGS BY METAL BUILDING COMPANY

FOR NOTE:
FOR SIZE SHALL BE DETERMINED BY SHOP DRAWINGS FROM METAL BUILDING COMPANY

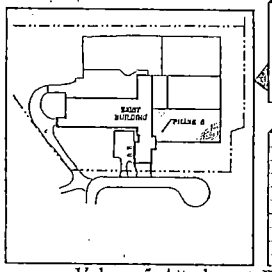
SCHEDULE OF MINIMUM RECOMMENDED ANCHOR BOLT LENGTHS

DIAMETER	LENGTH
3/4"	1'-3"
7/8"	1'-6"
1"	1'-9"
1 1/8"	2'-0"
1 1/4"	2'-3"

ALL BOLT LENGTH AND DIAMETER TO BE AS SHOWN ON METAL BUILDING COMPANY SHOP DRAWINGS

ALL ANCHOR BOLTS TO PROJECT A MINIMUM OF 3" ABOVE FOOTING

N FOUNDATION PLAN
SCALE: 1/8" = 1'-0"



PRELIMINARY NOT FOR CONSTRUCTION 9/2

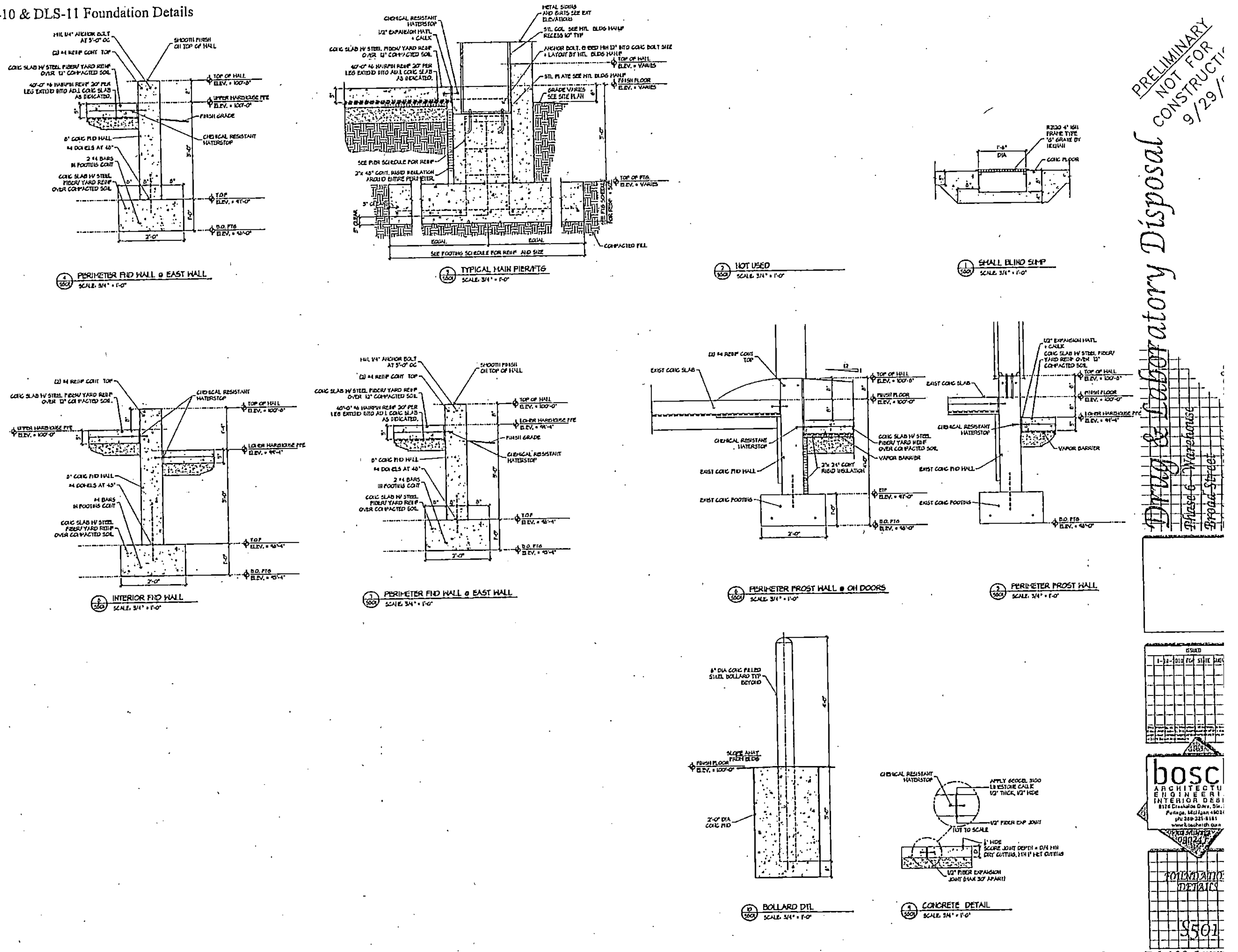
Drug & Laboratory Disposal
Phase 6 Warehouse
Broad Street

ISSUED
1 - 8 - 01 FOR SITE PLAN

bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN
5614 Crosslake Drive, Ste. 2
Portage, Michigan 49024
ph: 269-321-8181
www.boschenvis.com

FOUNDATION PLAN

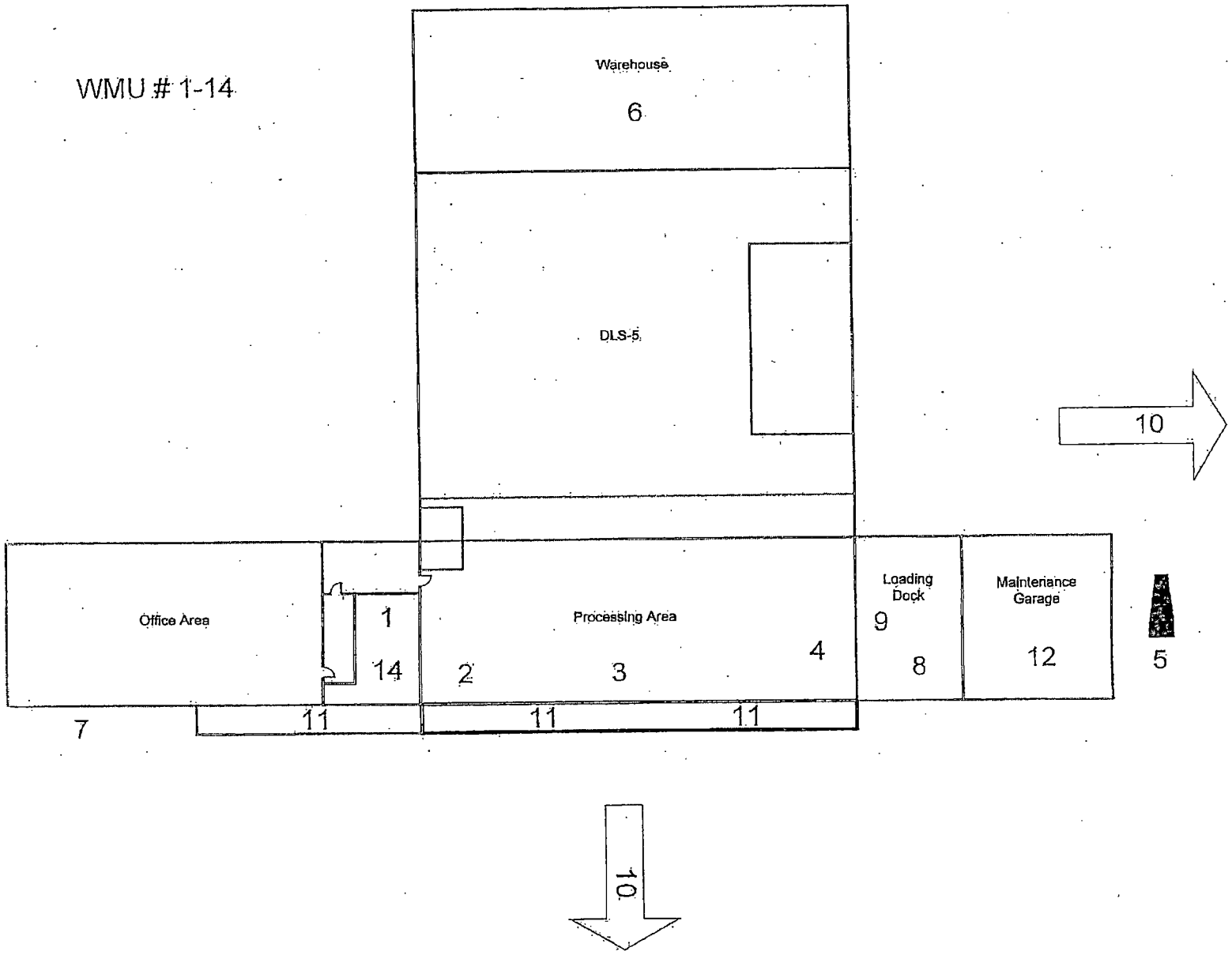
S106


PERIMETER FND WALL @ EAST WALL
SCALE: 3/4" = 1'-0"
TYPICAL MAIN PIER/FTG
SCALE: 3/4" = 1'-0"
NOT USED
SCALE: 3/4" = 1'-0"
SMALL BLIND SUMP
SCALE: 3/4" = 1'-0"
INTERIOR FND WALL
SCALE: 3/4" = 1'-0"
PERIMETER FND WALL @ EAST WALL
SCALE: 3/4" = 1'-0"
PERIMETER FROST WALL @ OH DOORS
SCALE: 3/4" = 1'-0"
PERIMETER FROST WALL
SCALE: 3/4" = 1'-0"
BOLLARD DTL
SCALE: 3/4" = 1'-0"
CONCRETE DETAIL
SCALE: 3/4" = 1'-0"
PRELIMINARY NOT FOR CONSTRUCTION
Drug & Laboratory Disposal
Phase 6 - Warehouse
Broad Street
FOUNDATION DETAILS
S501

ATTACHMENT 13

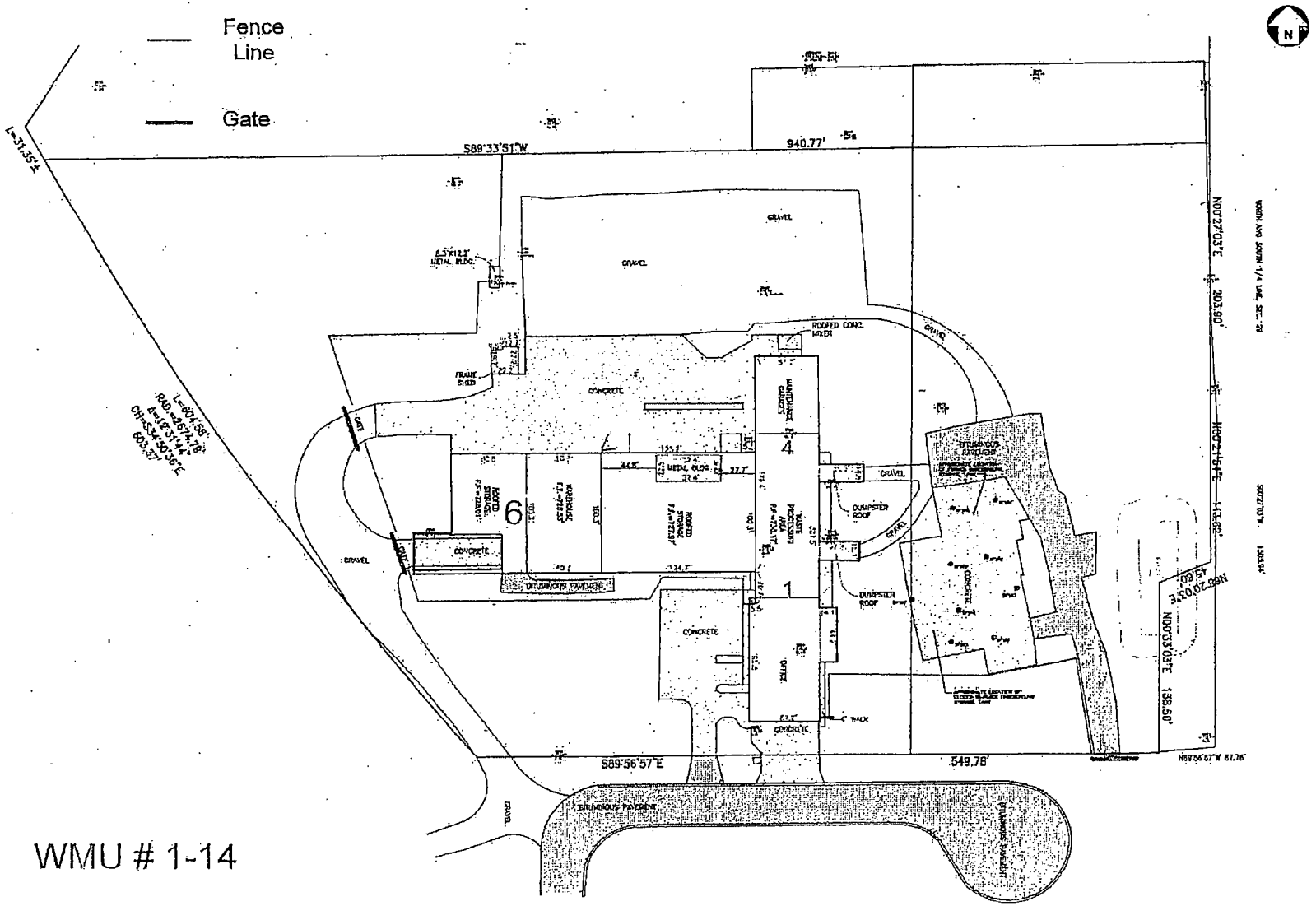
CORRECTIVE ACTION

WMU # 1-14


Warehouse
6
DLS-5
10
Office Area
1
14
Processing Area
2
3
4
Loading Dock
9
8
Maintenance Garage
12
5
7
11
11
11
10
13

Site Map

Drug and Laboratory Disposal, Inc.
MID 092 947 928



WMU # 1-14