DLD
Drug & Laboratory Disposal, Inc.

April 15, 2019

Lisa Graczyk
RCRA/TSCA Programs Section
U.S. EPA Region 5
77 Jackson Blvd. (LR-17J)
Chicago, IL 60604

Dear Ms. Graczyk:

RE: PCB Waste Storage Application Part II:

Please find attached DLD's Response to your letter dated March 28, 2019 and your site visit to DLD regarding DLD's application to commercially store PCB waste. This response is in nine sections, each one addressing a point made in your letter.

In your April 24 e-mail you asked what method DLD's laboratory uses for PCB analysis and extraction. That would be EPA 8082.

If you have any questions or find something we forgot to include, please feel free to contact myself (269-685-9824 ext.213) or Pete VanBruggen (269-685-9824 ext. 245). Again, my apologies for submitting this document so close to a deadline.

Sincerely,

Sharon I. Joles

Sharon I. Joles, MS
Environmental Director

Enclosures

Point #1

Point #1: Background Information:

DLD is addressing the request for information regarding DLD's waste operations with the following attachments.

Attachment #1: General waste operations are described in DLD's *Waste Analysis Plan* (WAP) from our 2012 license.

Attachment #2: Those waste handling practices specific to PCBs are addressed by the *PCB Best Practice* document.

Attachment #3: Sampling and analysis is addressed by The Sampling and Analysis plan (SAP) as PCB well water samples are taken by the same method as DLD's monitoring wells. PCB samples are taken from monitoring wells DL-3, DL-4, DL-5 and DL-1.

Attachment #4: List of current permits.

DLD has resumed PCB wipe sampling as of March, 2019. Four duplicate samples plus a field blank will be taken once a quarter (March, June, September and December). The monitoring areas are: Entrance to the decontamination room, entrance to DLD-1, DLD-3 PCB Storage area and the entrance to the Hazardous Waste Loading Bay. The samples consist of swabbing a 100 cm^2 area with a gauze square. The solvent is methylene chloride. Samples will be sent to DLD's laboratory for analysis. If the laboratory is unable to do the analysis, the samples will be sent off-site as noted in DLD's SAP.

Attachment 1

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

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

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

This license application template addresses requirements for a WAP for the hazardous waste management units and the hazardous waste management facility for the 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.

A3.A COMMERCIAL FACILITY
- A3.A.1 Initial Waste Characterization Requirements for Generators
  - A3.A.1(a) Generator Waste Characterization Discrepancies
  - A3.A.1(b) Subsequent Waste Shipment Procedures
  - A3.A.1(c) Additional Waste Analysis Requirements
- Figure A3.A.1 Information to be on Each Generator's Waste Profile Form
- A3.A.2 Waste Acceptance Procedures
  - A3.A.2(a) Review Paperwork
  - A3.A.2(b) Visual Inspection of Waste
  - A3.A.2(c) Waste Screening/Fingerprinting
- Table A3.A.1 Waste Analysis Procedures
- Table A3.A.2 Sampling Procedures
- A3.A.3 Procedures to Ensure Compliance with Land Disposal Restrictions (LDR) Requirements
  - A3.A.3(a) Spent Solvent and Dioxin Wastes
  - A3.A.3(b) Listed Wastes
  - A3.A.3(c) Characteristic Wastes
  - A3.A.3(d) Radioactive Mixed Waste
  - A3.A.3(e) Leachates
  - A3.A.3(f) Laboratory Packs
  - A3.A.3(g) Contaminated Debris
  - A3.A.3(h) Waste Mixtures and Wastes with Overlapping Requirements
  - A3.A.3(i) Dilution and Aggregation of Wastes
- Table A3.A.3 Contaminated Debris Categories

A3.B CAPTIVE FACILITY
- A3.B.1 Selection of Waste Analysis Parameters
- Table A3.B.1 Waste Analysis Procedures
- Table A3.B.2 Sampling Procedures
- A3.B.2 Additional Waste Analysis Requirements
- A3.B.3 Procedures to Ensure Compliance with Land Disposal Restriction Requirements

A3.A COMMERCIAL FACILITY

Drug & Laboratory Disposal, Inc. is a commercial facility that receives wastes generated off site. Drug & Laboratory Disposal, Inc. 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 Drug & Laboratory Disposal, Inc. will be properly characterized prior to waste acceptance. All generators will be required to provide a complete waste characterization, including chemical analysis when appropriate. Waste screening will be conducted on every shipment of waste to ensure that the waste conforms to the waste profile for the generator and information on incoming manifests and to ensure that the waste is properly managed within the facility.

All analysis performed pursuant to this application will be consistent with the QA/QC Plan included in Template B5, Appendix 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 the following waste profile information for initial waste shipments from all off-site generators prior to shipment.

Figure A3.A.1 Information to be on Each Generator Waste Profile Form.

In addition to the waste profile 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

Before a waste is accepted by DLD, a detailed characterization of the waste will be obtained from the generator (40 CFR 264.13(a)(1)). The information required on each waste stream, as documented on the Generator Waste Profile Form, will determine the treatment process the waste will receive at DLD, and if necessary, 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. All the information needed to treat, store and dispose of the waste safely, properly, and in accordance with land disposal restrictions as required in 40 CFR 268 will be contained in:

1. Generator Audit Form

   This form will be completed by the DLD Hazardous Materials Chemist during the initial visit to the generator's facility. The purpose of this document is to obtain information about the process(es) generating the waste for use by the DLD Hazardous Waste Chemist during processing of the waste. This form is to be used in conjunction with the chemical information supplied on the Generator Waste Profile Form.

2. Generator Waste Profile Form

   This form is supplied to DLD for each waste stream and is revised or recertified at least annually by the generator or at any time that the process generating the waste changes.

3. Manifest.

   This is the standard uniform hazardous waste manifest form for all incoming EPA hazardous waste shipments into DLD.

4. Land Disposal Restriction Notification.

   Generators are required to notify Drug & Laboratory Disposal or certify that they have generated a restricted waste which must be treated to an applicable treatment standard prior to land disposal.

The most important portion of the incoming waste documentation is a properly completed Generator Waste Profile Form (GWPF). The completion of this form requires data that allows

DLD to accept waste with the full knowledge necessary to select the process that will receive the waste. If the GWPF is not properly completed, it is returned to the generator with instructions as to the needed information.

A3.A.1(a) Generator Waste Characterization Discrepancies
[R 299.9605(1) and R 299.9504(1)(c) and 40 CFR §§264.13(a)(3) and (4), 264.13(b)(c), and 264.72]

If during visual inspection of received waste it is determined that discrepancies with regard to the waste have occurred procedures have been documented in section 3.A.2(b)(8) entitled Visual Inspection of Waste.

In the event of manifest discrepancies, DLD may opt to reject the waste (which would be marked on the manifest and returned to the generator), or reject any residues that exceed the quantity limits for "empty" containers set forth in 40 CFR 261.7(b) or if able, work with generator to determine if manifest can be amended or re-manifested in a manner that would correct the discrepancy and allow DLD to accept the waste.

A3.A.1(b) Subsequent Waste Shipment Procedures
[R 299.9605(1) and R 299.9504(1)(c) and 40 CFR §§264.13(a)(3) and 264.13(b)(4)]

The initial analysis of waste from each generator will be reviewed or repeated annually to ensure that the analysis is accurate and up-to-date. If at any time DLD is notified by a generator or suspects that a particular waste stream has changed significantly from the chemical data on file with the GWPF, and at least annually, an updated GWPF will be obtained from the small or large quantity generator or from DLD's routine sampling and analysis program.

A3.A.1(c) Additional Waste Analysis Requirements
[R 299.9605(1) and R 299.9504(1)(c) and 40 CFR §§264.13(b)(6) and 264.13(c(3)]

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

☒ R 299.9605 and 40 CFR §264.17	General requirements for ignitable, reactive, or incompatible wastes
☒ R 299.9605 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.A.2(c)]
☒ R 299.9631 and 40 CFR §264.1063(d)	Test methods and procedures (Subpart BB) [Template A3, Section A3.A.2(c)]

☒ 40 CFR §264.1083	Waste determination procedures (Subpart CC) [Template A3, Section A3.A.2(c)]
☒ R 299.9627 and 40 CFR §268.7	Waste analysis and record keeping LDR requirements
☒ R 299.9228	[Template A3, Sections A3.A.3, A3.B.3 and A3.C] Universal waste requirements

FIGURE A3.A.1
INFORMATION THAT MUST BE SHOWN ON A GENERATOR'S WASTE PROFILE FORM
(If a copy of the generator's Waste Profile Form containing all required information listed below is submitted, please omit this figure.)

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

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 Form 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 Form contain concentrations of radioactive elements regulated by the Nuclear Regulatory Commission?

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

Do the Waste Profile Form and all attachments 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 the facility 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, Drug & Laboratory Disposal, Inc. 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. Drug & Laboratory Disposal, Inc. 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 profile and 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.

3.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	☒ Consistency
☒ Physical state	☐ Other:
☒ pH	

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

All incoming waste, regardless of the transporter, is brought into the 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, 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. Wearing the standard safety equipment (respirator, hard hat, face shield, coveralls, gloves, and steel-toed boots), 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 Form(40 CFR 264.13(a)(4)). The Hazardous Waste Chemist shall first note all labels and container markings that indicate the chemical components and chemical properties. This inspection is documented.

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. The controlling 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. All treatment areas are in DLS-2 and DLS-3. Waste being treated still remains in DLS-2 or DLS-3 and can be stored in DLS-1,DLS-2,DLS-3 or DLS-4. 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. This mixing would be done for the purpose of observing incompatibilities. This process would be carried out in the DLS-3 waste processing and storage area. This procedure is particularly important since compatibility is often determined to be a matter of concentration. Appendix V of 40 CFR 264 is the basis for testing for waste incompatibilities.

2. Organic peroxides are received at DLD in their original manufacturer's packaging and inspection is 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 tested for compatibility with waste in low BTU tanks (ASTM D 5058A) and commingled for storage.

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. Inorganic liquids to be commingled prior to entering the stabilization process are tested for pH and cyanide content to avoid gas liberation, violent reactions, or container deterioration during storage.

7. 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.

8. 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.

    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 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 additional chemical analyses which may be requested by the Hazardous Waste Chemist would be noted on Generator/Billing Sheet and the Analytical Request Form/Chain of Custody [A3.A2(b)-4] would be completed and would accompany sampled waste (40 CFR 264.13 (b)(3) and 40 CFR 261, Appendix I) to the laboratory for analysis. If any significant discrepancies are verified, generators are notified and documentation made of the change and rejection or

acceptance of different waste type. Additional analysis does not guarantee that the waste will be accepted.

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

10. 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 8.

A3.A.2(c) Waste Screening/Fingerprinting
[R 299.9605(1) and R 299.9504(1)(c) and 40 CFR §§264.13(b)(14) and 264.13(c)(2)]

A prerequisite step in proper waste management is the identification of hazardous wastes in accordance with regulatory and permit requirements. All generators that would be utilizing the TSDF opportunities that DLD can provide 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 Generator Waste Profile Form, the fingerprinting procedure is to verify that the previous 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)).

Fingerprinting will be documented. The Generator/Billing Sheet is a form that accompanies each waste movement. It is a multi-purpose sheet that provides information that is vital to the waste management process. Pertaining to our Waste Analysis Plan, DLD documents the fingerprint screen and/or additional analysis required for a particular generator and manifest number. This fingerprint is documented by the controlling Hazardous Waste Chemist after completion of the fingerprint screen and requested analyses are received and after job processing has been completed.

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

Table A3.A.1 Waste Analysis Procedures – incoming

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". As the generator/billing sheet accompanies the waste from the generator to DLD, the Hazardous Material Chemist notes any process or waste changes. This information would be noted on the current Generator Waste Profile Form or a new Generator Waste Profile Form can be requested from the generator at this time. With the change in waste, 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 frequency re-evaluation would be documented. This sampling occurs according to the following parameters:

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

DLD 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.

A3.A1(b) - Biannual, Large Quantity Generator Samples (see 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 sends 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.

A3.A1(c) - Biannual, Small Quantity Generator Samples (see A3.A.1 Table 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.

A3.A.1 TABLE 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 any 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 fuel blender requirements
Chlorine	ASTM D 808	• fuel quality
Sulfide	ASTM D 4978A	• fuel quality and personnel exposure risk assessment
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

Incoming Waste Analysis Requirements

A3.A1(d) Waste analysis requirements for incoming drummed solid and liquid waste and additional requirements for randomly selected incoming drummed waste.

A3.A.1 TABLE 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 failure of 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

A3.A.1. TABLE 3 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

A3.A1. TABLE 4 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)]
Ash	ASTM 830	• determine "inertness" of material
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

A3.A1. TABLE 5 Additional Requirements For Randomly Selected Fingerprinting Of Incoming Solid Drums		
PARAMETER	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

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

A3.A1(e) - Treatment Analysis Requirements

Bulking organic liquids. In most instances, we are commingling both hazardous and non-hazardous solvents. After ensuring compatibility with container and other wastes, mixed liquids are bulked by water miscibility and are pumped via portable pneumatic pumps into appropriate tanks. The tank contents continue to be regulated as hazardous waste under the "mixture" or "derived from" rules (40 CFR 261.3(c)).

A3.A1. TABLE 6 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.

A3.A1. TABLE 7 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 containers or debris requiring stabilization as a method of reducing hazards of a waste stream and producing a product that can be sent for landfill. This is a process that only utilizes characteristic wastes. All listed wastes are purposefully kept from this process and are sent out in their original container as part of a lab pack or other bulk waste stream. The designated disposal method of this waste stream is Subtitle C landfill. Before this waste leaves this facility it is further analyzed (see outgoing waste analysis requirements).

A3.A1. TABLE 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.

A3.A1. TABLE 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 the facility will be accompanied by appropriate generator notification and LDR notification in accordance with R 299.9627 and 40 CFR §268.7. The LDR notification accompanying generator wastes will be reviewed, and any discrepancies in the LDR notification and the associated manifest, analytical records, or Generator Waste Profile Form will require shipment rejection unless additional, satisfactory,

clarifying information is provided by the generator. All information obtained to document LDR compliance will be maintained in the facility operating record until closure of the facility.

If the facility receives a shipment of waste without LDR notification, or a notification with incorrect or incomplete information, the following actions will be conducted:

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 inital shipments of waste and anytime waste stream changes. The notifications and certifications will contain the information required under R 299.9627 and 40 CFR §268.7. Any additional data obtained from the generators (e.g., Waste Profile Forms, original LDR notifications, analysis provided by generators) will be provided to the licensed TSDF where the waste will be sent.

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 the facility. Generator process knowledge will be used to determine the presence of spent solvent wastes (F001-F005). Generator process knowledge will be documented on the Generator Waste Profile Form and LDR notification. The LDR notification will provide additional information regarding the appropriate treatment standards for the waste and whether it has already been treated to the appropriate standards.

A3.A.3(b) Listed Wastes
[R 299.9627, R 299.9213, and R 299.9214 and 40 CFR §§264.13(a)(1), 268.7, 268.33, 268.34, 268.35, 268.36, 268.39, 268.40, 268.41, 268.42, and 268.43]

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

A3.A.3(c) Characteristic Wastes
[R 299.9627, R 299.9208, and R 299.9212 and 40 CFR §§261.3(d)(1), 264.13(a)(1), 268.7, 268.9, 268.37, 268.40, 268.41, 268.42, 268.43 and Part 268, Appendix I and Appendix IX]

Generator process knowledge will be used to determine whether characteristic waste meets the applicable treatment standards or to demonstrate that the waste has been treated by the appropriate specified treatment technology. In accordance with R 299.9627 and 40 CFR

§268.41, where treatment standards are based on concentrations in the waste extract, generators shipping waste to the facility will determine if their wastes meet treatment standards.

Characteristic D008 lead nonwastewaters and D004 arsenic nonwastewaters 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 Generator Waste Profile Form 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 DLD is limited to radioactive oxidizing compounds that exhibit only the EPA characteristic of reactivity (D003, 40 CFR §261.23). 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 D003 under the waste description and treatment/regulatory subcategory of "Other Reactives Subcategory based on 261.23(a)(1)".

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.

DLD 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 the facility 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 is 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 analytical data will be used to demonstrate that those waste mixtures and wastes with multiple codes are properly characterized. Each waste that has more than one characteristic or a listed Reactivity Group Number (RGN) will be identified with a

number for each characteristic. Waste identified as meeting a listing and exhibiting a characteristic will be primarily identified with the listed waste code for the purpose of manifesting, etc.

A3.A.3(i) Dilution and Aggregation of Wastes
[R 299.9627 and 40 CFR §268.3]

Listed wastes, if destined for land disposal, may not be diluted from the point of generation to the point of land disposal. Characteristic wastes may only be diluted if, (1) the waste is managed in a Clean Water Act (CWA)/CWA-equivalent surface unit or a Class I Safe Drinking Water Act injection well, (2) the waste has a concentration-based treatment standard or is treated using the DEACT technology-based treatment standard, and (3) the waste is not a D003 reactive waste. [**Note**: these requirements may change in the future. At that time, this template may be amended.]

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

A3.B CAPTIVE FACILITY

☐ *Drug & Laboratory Disposal, Inc.* generates waste on site. *Drug & Laboratory Disposal, Inc.* 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.

Table A3.B.1 Tables 10 thru16 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. The sampling method that will be used to obtain a representative sample of the wastes to be analyzed, the sampling equipment to use, and rationale to use are presented in Table A3.B.1.

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

DLD 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. It is, therefore, of utmost importance for these waste streams to be properly characterized and/or analyzed. Each receiving facility has very stringent requirements that are required for all their incoming waste. DLD is responsible, as the waste generator, for the identification, characterization of the wastes, and for completing all profiles requested by the off-site facility WAP.

Outgoing Waste Shipping Paper Requirements

Drug & Laboratory Disposal 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 our waste disposal options 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 states 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 requirements from off-site treatment facilities that DLD 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.

A3.B1. TABLE 10 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	• provides knowledge about majority solvents within the tanks
Flash Point	SW-846, 1010	• ensuring that DLD is meeting DOT/EPA manifest requirements
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
Chlorine	ASTM D 808	• fuel quality
Sulfide	ASTM D 4978A	• fuel quality and personnel exposure risk assessment
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 - organoleptic testing	ASTM D 4979	• confirm that the waste "appears" as it should: color, apparent viscosity, 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 DLD storage tanks. 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)).

A3.B1. TABLE 11		
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).

A3.B1. TABLE 12 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 - organoleptic testing	ASTM D 4979	• confirm that the waste "appears" as it should: color, apparent viscosity, 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.

A3.B1. TABLE 13 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).

A3.B1. TABLE 14 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, Cu, Zn	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.

A3.B1. TABLE 15 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, Cu, Zn	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 was 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. DLD 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.

A3.B1. TABLE 16 Solidified Waste Requirements		
PARAMETER	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

For owners or operators of surface impoundments exempted from LDRs under 40 CFR §268.4(a):

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 facility operating record until closure of the facility. Wastes that are determined through analysis to meet treatment standards as specified in R 299.9627 and 40 CFR §§268.41-43 may be land filled.

Drug & Laboratory Disposal, Inc. will supply LDR notifications and certification, including appropriate analytical records or documentation of generator knowledge to support the certification, to the receiving facility with each shipment of waste. The notifications and certifications will contain the information required under R 299.9627 and 40 CFR §268.7.

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 the facility. Generator process knowledge will be used to determine the presence of Spent solvent wastes (F001-F005). Generator process knowledge will be documented on the Generator Waste Profile Form 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 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 wastes meet treatment standards.

Generator process knowledge will be documented on the Generator Waste Profile Form 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, the facility will determine if 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, the *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 on the Generator Waste Profile Form 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, DLD only treats radioactive oxidizing compounds that exhibit only the EPA characteristic of reactivity (D003, 40 CFR §261.23). 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 D003 under the waste description and treatment/regulatory subcategory of "Other Reactives Subcategory based on 261.23(a)(1)".

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.

DLD 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)

☒ The hazardous debris categories and the contaminant categories associated with the type of hazardous debris are generated at the facility are presented in Table A3.B.3.

Hazardous debris generated at the facility 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 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 or listed RGN 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.

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

A3.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)]

The treatment facility will submit a notice and certification to the land disposal facility with each 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, the facility 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)]

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

A3.C.4 Waste Shipped to Subtitle D Facilities

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

☐ The facility does not ship waste to Subtitle D facilities.

OR

☒ If the facility ships hazardous debris or characteristic to a Subtitle D facility, the facility 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. The facility will place a certification and all treatment records in the facility's file 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)]

☐ The facility 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), the facility 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 miscellaneousdocuments 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 at the facility. Files will be maintained for a minimum of three years (for inspection records and LDR notification), or until facility closure (for inventory records).

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

Recycling facilities: The facility will keep records of the name and location 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: The facility will place a one-time notice in the facility files describing the generation, basis for exclusion or exemption, and disposal of the waste. For each shipment of treated debris, the facility will place a certification of compliance with applicable treatment standards in the facility's files.

A3.C.7 Required Notice

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

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

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

DLD

Drug & Laboratory Disposal, Inc.

PCBs
Best Practice
VERSION 1

Drug & Laboratory Disposal, Inc.
331 Broad Street
Plainwell, MI 49080
www.dld-inc.com

1.0 PURPOSE

1.1 Drug & Laboratory Disposal, Inc. (DLD) receives several different types of waste containing PCBs from both clients and Household Hazardous Waste collections. This document is intended to inform personnel on processing PCBs.

1.2 DLD always seeks to improve on processes, so many of the recorded process documents are subject to change or alternate approaches based on the individuals carrying out each process. When a step in a process, however, is **mandatory, and must be performed as described, the step will appear in bold text.**

2.0 SCOPE

2.1 PCB stands for Polychlorinated Biphenyl.

2.2 PCBs are normally received in the form of capacitors, ballasts, transformers, debris, or oil, but are also generated from the paint waste stream due to the old paint that contained PCBs.

2.3 PCBs must be tracked into and out of the facility, which requires some additional paper work.

3.0 QUICK REFERENCE

3.1 Container weights for tracking PCB weights

3.1.1 30DFOH 7.3kg

3.1.2 55DFOH

3.1.3 14DFOH

3.1.4 5DFOH

4.0 SAFETY & HEALTH CONSIDERATIONS

4.1 Required Personal Protective Equipment

4.1.1 Chemical resistant coverall (Tyvek or equivalent)

4.1.2 Chemical resistant gloves

4.1.3 Respirator and eye protection

4.1.3.1 Full-face – does not require additional eye protection

4.1.3.2 Half-mask and safety goggles

4.1.3.3 Supplied air hood and safety glasses

4.1.4 Protective helmet

4.1.5 Safety boots with toe protection

4.1.6 Disposable boot covers

4.2 TOOLS & EQUIPMENT

4.2.1 PCBs are received at DLD in various forms – oils, transformers, capacitors, light fixtures, lamp ballasts, etc. – that require a variety of different tools. Examine the PCB waste to identify the tools necessary for processing and assemble then prior to starting. Commonly used tools are screwdrivers, wrenches, pliers, scrapers, and hammers.

4.2.2 Large items contaminated with and/or containing PCBs may require the use of a pallet jack, drum lift, and/or chain-fall. Assess the large PCB waste items and determine if this type of equipment are needed. Assemble the equipment prior to starting the process.

5.0 GENERAL PROCESSING PRECAUTIONS

5.1 Physical Properties of Concern

5.1.1 There are 15 PCB mixtures that were produced by Monsanto Company under the name of Aroclor 1200 Series. The third and fourth digits in the 1200 Series designated the percentage of chlorine by mass.

C.A.S. #	IUPAC Name	Type	C.A.S. #	IUPAC Name	Type	C.A.S. #	IUPAC Name	Type
12674-11-2	Aroclor 1016	Mixture	11141-16-5	Aroclor 1232	Mixture	89577-78-6	Aroclor 1252	Mixture
147601-87-4	Aroclor 1210	Mixture	71328-89-7	Aroclor 1240	Mixture	11097-69-1	Aroclor 1254	Mixture
151820-27-8	Aroclor 1216	Mixture	53469-21-9	Aroclor 1242	Mixture	11096-82-5	Aroclor 1260	Mixture
11104-28-2	Aroclor 1221	Mixture	12672-29-6	Aroclor 1248	Mixture	37324-23-5	Aroclor 1262	Mixture
37234-40-5	Aroclor 1231	Mixture	165245-51-2	Aroclor 1250	Mixture	11100-14-4	Aroclor 1268	Mixture

5.1.2 The viscosity of the Aroclors increase as the mass of chlorine in the mixtures increase.

5.1.3 Aroclors 1260 and above are solids with the consistency of grease or soft wax.

5.1.4 As the viscosity increases the PCBs become thicker and more adherent making it more difficult to remove from other surfaces.

5.2 Contamination Potential

5.2.1 PCB oils, greases, and/or waxes unknowingly dripped or spilled onto the floor can be stepped in and spread throughout the facility. Likewise PCBs that are on gloves can be transferred to other objects that an employee handles. If PCBs are tracked into walkways the potential that every employee using the walkway will step in the PCB residue on the floor and also become a means of spreading the contamination.

5.2.2 As a precaution, employees processing PCBs must evaluate the contamination potential prior to working on PCB wastes and use their knowledge and employ engineering controls and techniques appropriate for the wastes they are working with.

5.2.3 When working with PCBs employees should assume that their PPE has come into contact with PCBs. Prior to leaving the PCB work station employees need to remove disposable PPE such as boot covers, coveralls, and gloves. Hard hats, safety glasses, work boots, and respirators need to be inspected prior to leaving the area with them.

5.2.4 At the completion of the tasks or the end of the shift all disposable PPE must be disposed of in a PCB waste receptacle and handled/disposed of as PCB waste.

5.3 Decontamination/Clean Up

5.3.1 PCB items that will be reused or recycled must be decontaminated using suitable cleaning methods. Any item that cannot be properly decontaminated must be disposed of as PCB waste.

5.3.2 DLD employs kerosene as our solvent of choice for PCB decontamination. Kerosene is not flammable and is a suitable solvent for PCB compounds.

5.3.3 Containers and equipment that are contaminated may be decontaminated by triple rinsing with new kerosene. Saw dust may be used in conjunction with kerosene to provide an abrasive when needed. Dry sawdust may also be used as an absorbent to remove residual kerosene from the container or equipment after being triple rinsed. All kerosene and sawdust used in the decontamination process must be disposed of as PCB waste.

5.3.4 Decontamination of floors is accomplished by triple rinsing with a kerosene/sawdust mixture. After the decontamination of a floor contamination event, wipe samples are collected and analyzed for PCB compounds. If necessary, the floor will go through the decontamination process again.

5.3.5 Floors with rough surfaces and/or crevices may require the use of a scrub brush and surfactant (soap). In the event that wipe samples still show the floor to be contaminated after kerosene/sawdust decontamination, the floor may be cleaned by using a scrub brush, and soap and water. After scrubbing the floor is dried using sawdust and all materials used in the cleaning process are disposed of as PCB waste.

5.3.6 All equipment that cannot be adequately decontaminated must be disposed of as PCB waste.

6.0 PROCEDURE DESCRIPTION

6.1 General PCB Guidelines

6.1.1 PCBs are not considered PCBs until the concentration is 50 ppm or greater. Anything with PCB content 50ppm or higher must be treated as PCB.

6.1.2 DLD may not treat anything with 500ppm or more PCB on site. These items must be sent out as is.

6.1.3 Waste that is received as PCB-contaminated must be treated as such, regardless of the actual PCB content.

6.1.3.1 **If waste is received as PCB waste, it is to be treated as containing PCB, even if analytical proves PCB content less than 50ppm.**

6.1.3.2 The exception to this rule may be with ballasts. If DLD receives a drum of PCB ballasts that accidentally contains non-PCB ballasts, these may be separated out.

6.1.4 All incoming PCB waste must be thoroughly tracked so there is a record of which drum it is sent out in. Likewise all outgoing PCB mass must be linked to a generator (DLD is often a generator) and a date of removal.

6.1.5 The date of removal refers to the date that DLD received the specific PCB waste.

6.1.6 All PCB waste must be processed and sent out within one year of its date of removal. It is DLD's policy to attempt to send out PCB waste within six months.

6.1.7 Any item that comes in contact with PCB liquid is considered contaminated. It must either become part of the PCB debris stream or be cleaned according to the clean up guide lines.

6.2 Processing PCB

6.2.1 There are several PCB waste streams that make up the majority of DLD's outgoing PCB waste; ballasts, paint, debris, and capacitors. It is also not uncommon for DLD to receive Transformers, bulk toxic liquid containing PCB or oil containing PCB.

6.2.2 All PCB drums must have a date of removal, which is indicated as date of removal in section 14 of the manifest. The date of removal that should be used for drums is the oldest date of removal from the waste that is put into the drum.

6.2.3 A yellow PCB label should be put on all drums that contain PCBs.

6.3 Ballasts

6.3.1 In the past PCB ballasts and non-PCB ballasts were treated together. Despite the change, it is not uncommon to receive PCB ballasts and non-PCB ballasts mixed in the same drums.

6.3.2 The easiest way to tell the difference is the "no PCBs" indicator written or stamped on the ballast from the manufacturer. To be on the safe side, if there is no manufacture label or the determination cannot be made, the ballast is to be treated as if it contains PCBs.

6.3.3 There are currently accumulation drums (55DMOH) for both PCB and non-PCB ballasts in the warm room.

6.3.3.1 Each PCB ballast accumulation drum has its own unique identification number which is PCB # XXXX, where XXXX is a number increasing in numerical order. All PCB drums use the same identification prefix, but the number will change for each unique drum that is made.

6.3.3.2 The Non-PCB ballast accumulation drums get the prefix BAL- XXX, where XXX is a number increasing in numerical order.

6.3.4 To track the waste, the drum must be weighed in kilograms and the net weight of the PCB containing articles deducted from the total drum weight. This weight is the PCB mass.

6.3.5 The PCB must specify the outlet for the PCB articles. A typical container that comes in will then have a PCB mass, and a non-PCB mass for the non-PCB

ballasts, which should add up to the total drum weight minus the empty drum weight.

6.3.5.1 PCB tracking must be indicated on each count sheet / billing sheet for waste that is manifested as PCB.

6.3.5.2 Information must also be entered in the DLD PCB Tracking log which is located in the G: drive under rrittersdorf user file, then PCB accumulation logs and the current year. An example of what a count sheet may look like for PCB ballast is as follows.

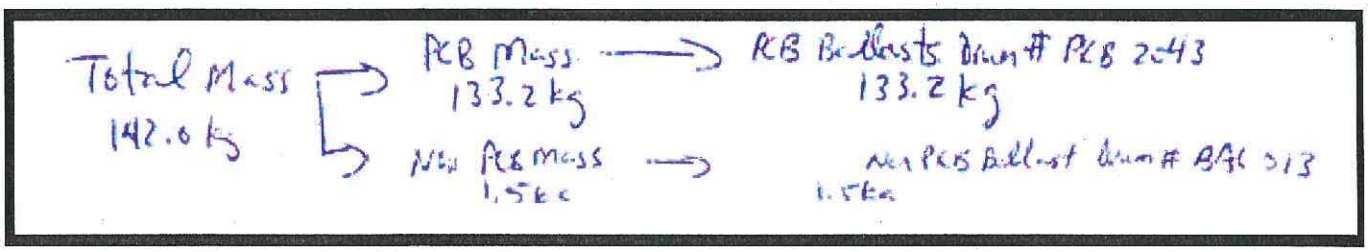


Figure 1: Sample PCB Ballast count sheet

6.3.5.3 Notice how the PCB mass and the Non-PCB mass when added up equal the total mass minus the weight of the container which is 7.3 kg for a 30 gallon drum fiber open head. For more detailed information on tracking PCB waste refer to the section at the end of the PCB guidelines.

6.4 Paint

6.4.1 DLD samples each processed paint drum for PCB content. If a drum has a PCB content of 50ppm or more, it is treated as a PCB drum.

6.4.2 Assign these drums a PCB identification number, relabel them appropriately, and have their pertinent information recorded (this will be further explained in the tracking and labeling sections).

6.4.2.1 If a paint drum has a PCB hit between 0.1 and 10 ppm the paint can go out as is.

6.4.2.2 If the paint drums have a PCB hit of 10.01 to 20 ppm the drums will have the solvent drained and then fill back up with clean solvent and then be re-

sampled. This liquid is referred to as "R & R liquid" or "rinse and resample liquid."

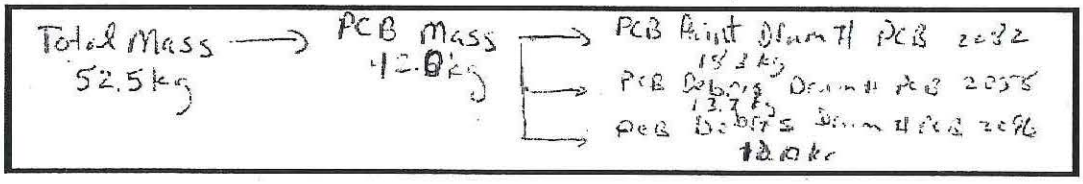
6.4.2.3 If Paint drums are between 20.01 and 49.99 ppm PCB they can be rinsed and re-sampled or sent out as PCB depending on which PCB the hit came from.

6.4.3 Since there is already a waste profile for PCB paint, accumulated flammable liquid is also labeled and referred to as 'paint'.

6.4.3.1 There is currently an accumulation drum (55DMOH) for flammable liquids containing PCBs in the warm room. Each accumulated liquid drum has its own unique identification number which is PCB # XXXX, where XXXX is a number increasing in numerical order.

6.4.3.2 Items that might go into the accumulation drum would be rinse and resample solvent from paint, solvents containing PCBs, kerosene from PCB cleanup, and PCB standards, which are processed using the hammer mill. Waste that is processed using the hammer mill come out as shredded glass, but will have solvents mixed in.

6.4.3.3 Just like with the ballasts, all waste needs to be tracked and if the PCBs are from a client, the tracking must be on the count / billing sheets, along with the PCB accumulation logs. When PCBs come as a flammable liquid, usually there is some type of debris along with the actual flammable liquid containing the PCB. An example of the tracking of PCB waste that would go into the accumulated liquid drums is:



6.4.4 All paint drums, whether actual paint or accumulated flammable liquid, need to have mercury analytical run on them. If a Paint drum is determined to be PCB from lab analytical, then a chain of custody needs to be filled out for the drum. The old paint drum number and the new PCB number, and the request for

the drum to be tested for mercury needs to be on the new chain of custody. The accumulated liquid drums must be sampled upon being filled. All PCB Paint drums whether paint or accumulated liquid need to have a bung seal put on the bung of the drums once it is determined to be PCB and is sampled. (see bung seal SOG) For more detail about PCB tracking refer to the section at the end of the PCB guidelines on PCB tracking.

6.5 Debris

6.5.1 PCB debris may consist of almost any PCB contaminated articles. However, the material is incinerated, so large metal objects are not accepted. Also no RCRA codes are allowed in the waste because it is sent out as NON RCRA waste.

6.5.2 If large contaminated metal is received, it should be accumulated separately in a cowboy. There is currently an accumulation drum (55DFOH) in the warm room for PCB debris (If large debris is received it may be sent out in a cowboy). Each PCB debris accumulation drum has its own unique identification number which is PCB # XXXX, where XXXX is a number increasing in numerical order.

6.5.3 Debris drums may be smashed for volume reduction though it is not required.

6.5.3.1 If the smasher is used the plunger must be lined with a 30gallon drum liner to prevent contamination. Smashing debris is most beneficial (and worth the time) if high volumes are received at once or if there is a large quantity of clean up debris (sawdust).

6.5.4 All waste must be tracked on the count / billing sheets along with being added in the PCB accumulation logs. Most debris will not come in as debris, but will result from the other waste streams, such as empty containers, or sawdust used to clean out containers. For more detail refer to the section at the end of the PCB guidelines on PCB tracking.

6.6 Capacitors

6.6.1 Capacitors are generally bulked into an accumulation drum (55DMOH) in the warm room. Each PCB capacitor accumulation drum has its own unique identification number which is PCB # XXXX, where XXXX is a number increasing in numerical order.

6.6.2 It is possible to send out capacitors on a skid if shipments of numerous large capacitors are received.

6.6.3 PCB tracking must be indicated on each count sheet / billing sheet for waste that is manifested as PCB. Information must also be entered in the DLD PCB Tracking log. An example of PCB capacitor Tracking is:

Total Mass → PCB Mass → PCB Capacitors Drum # AG 2042
41.6kg 39.7kg 39.7kg

6.6.4 For more detail refer to the section at the end of the PCB guidelines on PCB tracking.

6.7 Transformers

6.7.1 Transformer oil often contains PCB. Once a transformer is received, a sample of the oil must be taken for analytical. Make sure **not** to damage the casing while acquiring the sample (Transformer may need to be shipped out as is). It is subject to the same PCB guidelines as anything else.

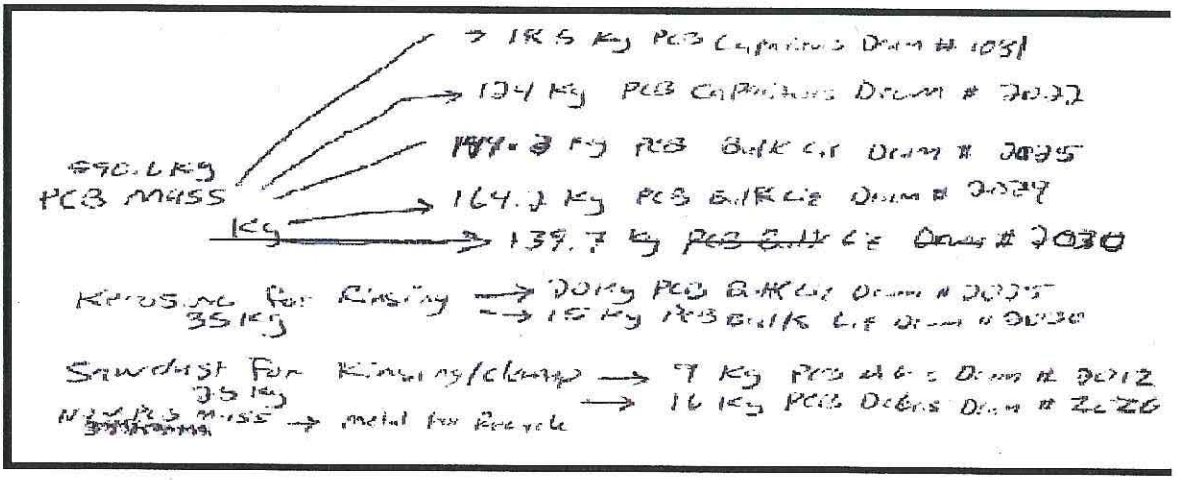
6.7.2 If the oil is less than 50ppm PCB the oil may be drained and treated as normal oil waste, and the carcass may be recycled. If the oil has more than 50ppm and less than 500ppm, the oil can be drained and treated as PCB waste. The casing then needs to be rinsed according to the clean up guidelines before it can be recycled.

6.7.3 Keep in mind that it is not always economical or feasible to drain transformers in the 50 to 500ppm range. Difficult transformers can be sent out as is, especially if they are awkward in size and/or difficult to drain and clean. If the oil's PCB content is 500ppm or greater the whole transformer **must be sent out**.

6.7.4 If the transformer is small the drained oil may go into the PCB accumulated liquid drum. For larger amounts of oil start a new drum for oil. Since oil has no waste codes the PCB oil would actually go out as a non RCRA waste.

6.7.5 Before filling, all labels and marking should be properly placed on the drum. The drum number should also be put on the drum and as with all other PCBs, the prefix is PCB followed by a four digit number that is used in increasing numerical order.

6.7.6 Sample the filled oil drums for mercury. If the transformers are 50 to 500 ppm PCB, the metal container weight should be taken away from the actual PCB weight. All kerosene and sawdust used to rinse the containers should be noted. For Example:



For more detail refer to the section at the end of the PCB guidelines on PCB tracking.

6.8 Bulk Toxic Liquid

6.8.1 Occasionally specific clients send bulk drums of toxic liquids contaminated with PCB. The information corresponding to these drums must be given to the Hazardous Waste Director. The Hazardous Waste Director will ensure that the toxic drums are properly profiled for out going shipments.

6.8.2 As with the other PCBs there drums must be assigned a PCB identification number, get relabeled appropriately, and have their pertinent information recorded on the count / billing sheets and PCB accumulation logs. For more detail refer to the section at the end of the PCB guidelines on PCB tracking. All PCB liquid drums need to have a bung seal put on the bung once it is determined to be PCB and is sampled.

6.9 Oil

6.9.1 DLD samples all received oil drums and full oil totes. A tote that is high in PCB must be drained into drums and properly rinsed according to the clean up guidelines.

6.9.2 All full oil drums that are turned into PCB drums must be sampled for mercury analysis.

6.9.3 These drums must also be assigned a new PCB identification number, get relabeled appropriately, and have their pertinent information recorded on the count / billing sheets and PCB accumulation logs. For more detail refer to the section at the end

of the PCB guidelines on PCB tracking. All PCB liquid drums need to have a bung seal put on the bung once it is determined to be PCB and is sampled.

6.10 PCB Clean-Up

6.10.1 All articles that come in contact with PCB liquid are considered to be contaminated. These items must either become part of the PCB debris stream or get cleaned according to specific standards. This includes drums and containers that previously contained PCB liquids and anything that is contaminated during by a spill.

6.10.2 To properly clean PCB from a surface an item must be rinsed three distinct times with kerosene. All kerosene used in the rinsing process is treated as PCB contaminated. Any sawdust or other cleaning material used to clean up the original PCB liquid is also considered to be PCB contaminated and treated as such.

6.11 PCB Paperwork

6.11.1 When DLD receives PCB waste, dock staff treats the paperwork completely separately. PCB count sheets are kept separate from the same client's other count sheets. PCB waste also has its own separate billing sheet. PCB count sheets (which are generally handled by only one person) need to provide the following information:

6.11.1.1 Mass of received drums in kg
6.11.1.2 Mass of PCB waste in kg (not including drum mass)
6.11.1.3 Which of DLD's PCB drums the waste went into and how much went into each.

6.12 PCB Tracking

6.12.1 DLD keeps a very thorough PCB log to help with tracking PCB waste. There is an overall tracking log that quickly shows general information for each PCB drum. There are also accumulation logs for each individual PCB drum that show much more drum specific information. To access the current PCB tracking and accumulation logs go to:

6.12.1.1 The G drive: User Files Folder: RRittersdorf Folder: PCB Accumulation Logs Folder: "Year" PCB Accumulation Logs Folder

6.12.2 The overall tracking log shows an overview of all of DLD's PCB drums for that specific year. Please see Attachment for an example of an old PCB tracking log. The tracking log needs to provide the following information (columns A through I respectively):

6.12.2.1 DLD drum number
6.12.2.2 These numbers are simply assigned in numerical order
6.12.2.3 Each drum number on this spreadsheet is hyperlinked to that drums individual accumulation log for quick easy access.

6.13 Type of PCB waste

6.13.1 Further description of waste

6.13.1.1 Paint, NP, and Oil drums that end up being PCB drums should have their original drum number noted here

6.13.1.2 If a full drum is received by a client and is being sent out as is, its original manifest number and line item should be noted here

6.13.2 Date of Removal

6.13.2.1 For accumulated drums the date of removal for the drum should reflect the earliest date of removal of the accumulated waste

6.13.2.2 For DLD drums that became PCB drums due to analytical results the date of removal should reflect the date the lab produced it's report (this date can be located in column E of the sample database)

7.0 Mass of full drum (kg)

7.1 Fill Date

7.1.1 For accumulated drums this date should represent the latest date of removal for the accumulated waste.

7.1.2 For DLD drums that became PCB drums due to analytical results the fill date may be the same lab report date as the date of removal.

7.2 Date of Shipment

7.2.1 The date that the waste was shipped from DLD's facility.

Location

7.2.2 While the drum is at DLD this column should reflect which area the drum is located in. Only DLS1 and DLS3 are currently appropriately licensed for PCB storage.

7.2.3 Mercury Content

7.2.3.1 Along with the overall tracking log, each individual drum has its own accumulation log. There are blank templates for these saved in an 'Excel PCB Templates' Folder in the PCB Accumulation Logs Folder.

7.2.3.2 Individual accumulation log sheets need lots of the same basic information; Drum number, date or removal, fill date, waste type, and full drum mass. It also needs additional information such as the net PCB mass.

7.2.3.3 Here there is also a list of the specific wastes that went into the drum along with the generator responsible and the date of removal for each. It is very important that these generator masses and dates match up with the information that was written on the count sheets and billing sheets.

7.2.3.4 It is also necessary to make sure that the total PCB mass (calculated from the sum of all the generator waste mass) is equal to the net PCB mass (calculated from the actual drum mass less the drum tare mass). If for some reason these masses are not equal (they should at least be close due to diligence) DLD mass in the drum may be slightly adjusted to accommodate the difference. In desperate circumstances the drum tare mass may be slightly adjusted as long as it is still within reason.

7.3 Labeling PCB Drums

7.3.1 PCB drums require slightly more information on the outside of the drum than most other waste streams. All PCB drums must have the following information and labels clearly marked:

7.3.2 Waste label

7.3.3 The date on the label needs to match the date of removal

7.4 PCB label

Label must be filled out with DLD's company name and phone number

7.5 PCB drum number

7.6 Date of Removal

8.0 FUTURE

As any changes to the process occur, this document will be updated to match.

9.0 REVISION HISTORY

REVISION HISTORY			
Revision Level	**Effective Date**	**Initiator**	
1	1/8/2018	Garret Forsman	

Section Number	Description and Justification of Changes
All	Converted text to best practice format, adjusted wording for voice.

SAMPLING AND ANALYSIS PLAN (SAP)

TABLE OF CONTENTS

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 of a 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	Total 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
Hexane	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.

DLD
Drug & Laboratory Disposal, Inc.

Facility Name	Drug & Laboratory Disposal, Inc.
Address	331 Broad Street, Plainwell, MI 49080
EPA Site ID	MID 092 947 928
Principle Business	Transfer and Storage and Disposal of Hazardous Waste, Facility
Regulatory Agency	EPA, DEA, DOT, MDEQ, MIOSHA, TSCA

Environmental Licenses and Permits

Permit Number	Permit Title
759-83A	Air Quality Permit, Tanks 1-6; Issued 05-04-00
708-83	Air Quality Permit, Fume Hood #1; Issued 12-28-83
708-83S	Air Quality Permit, Fume Hood #2; Issued 09-23-92
236-10	Air Quality Permit, Hammermill; Issued 03-18-11
239-10	Air Quality Permit, DLS-5; Issued 03-28-11
MID092947928	Operating License-Hazardous Waste Treatment and Storage Facility. Issued 09-25-12; Expires 09-25-22
MW0001761	Certification of Registration as a Producing Facility of Medical Wastes Issued 06-30-15; Expires 06-30-18
n/a	Approval to Commercially Store Polychlorinated Biphenyls (PCBs) Issued 12/16/97
n/a	EPA Acknowledgment of Notification of Hazardous Waste Activity Issued 03-13-86
080715 550 014XZ	Hazardous Materials Certificate of Registration Issued 08-07-15; Expires 06-30-18
UPW0194060MI	Michigan Uniform Program Credentials Issued 10-01-17; Expires 10-01-18
LIW0194060MI	Michigan Liquid Industrial Waste Transportation Credentials Issued 10-01-17; Expires 10-01-18
RD0284048	DEA Controlled Substance Registration Certification Issued 9-5-17; Expires 6-30-18
M289203	MI Manufacturer and Wholesaler License Expires 06-30-18
M289204	MI Controlled Substance License Expires 6-30-18

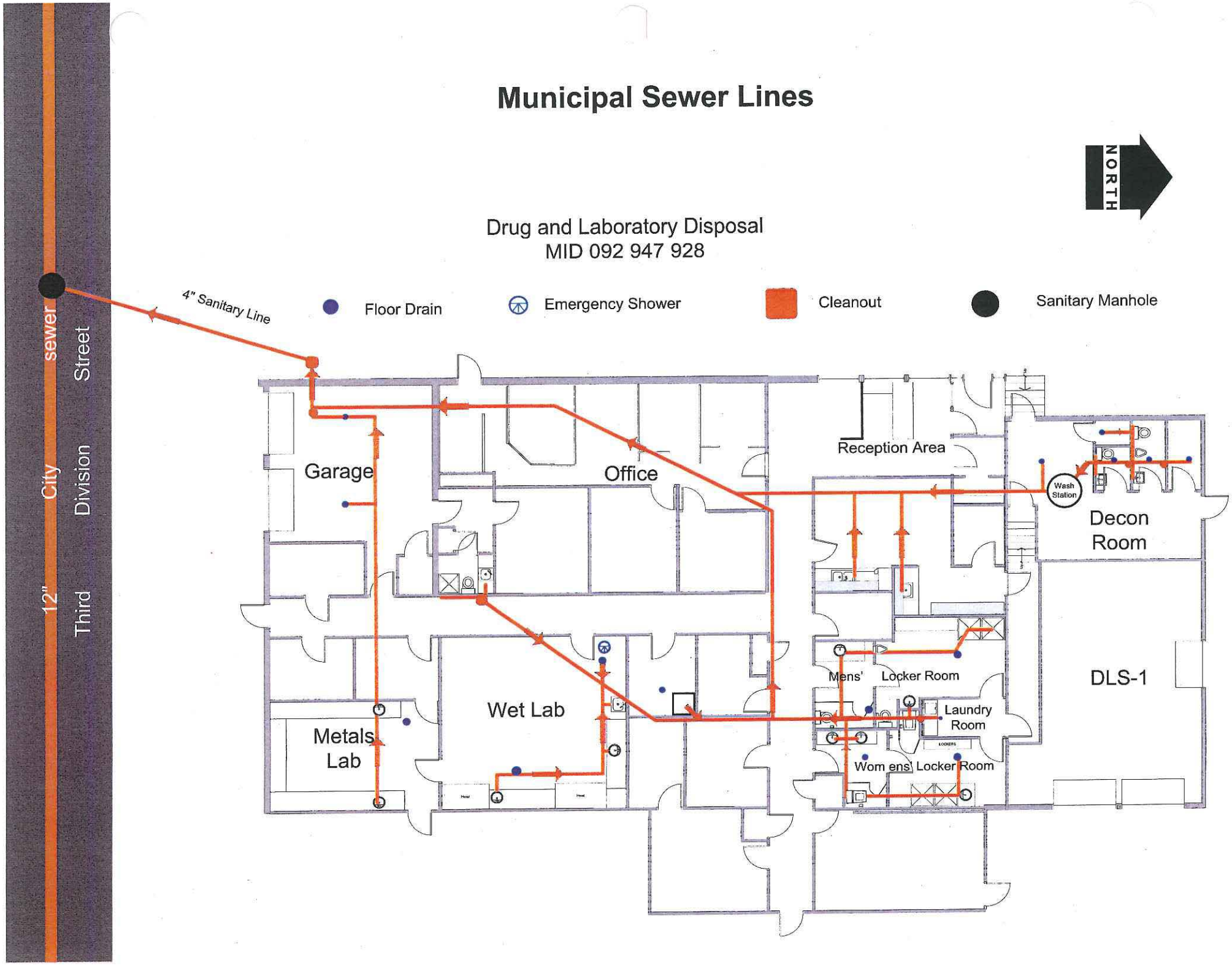
Point #2. Facility Overview

DLD is constructed with no catch basins. All processing and storage, as well as loading and unloading actions are located under a roof. Sewer lines have only one point of attachment to the facility (See Attachment #1). Attachment #2 Shows DLD's location to our nearest body of water, the Kalamazoo River.

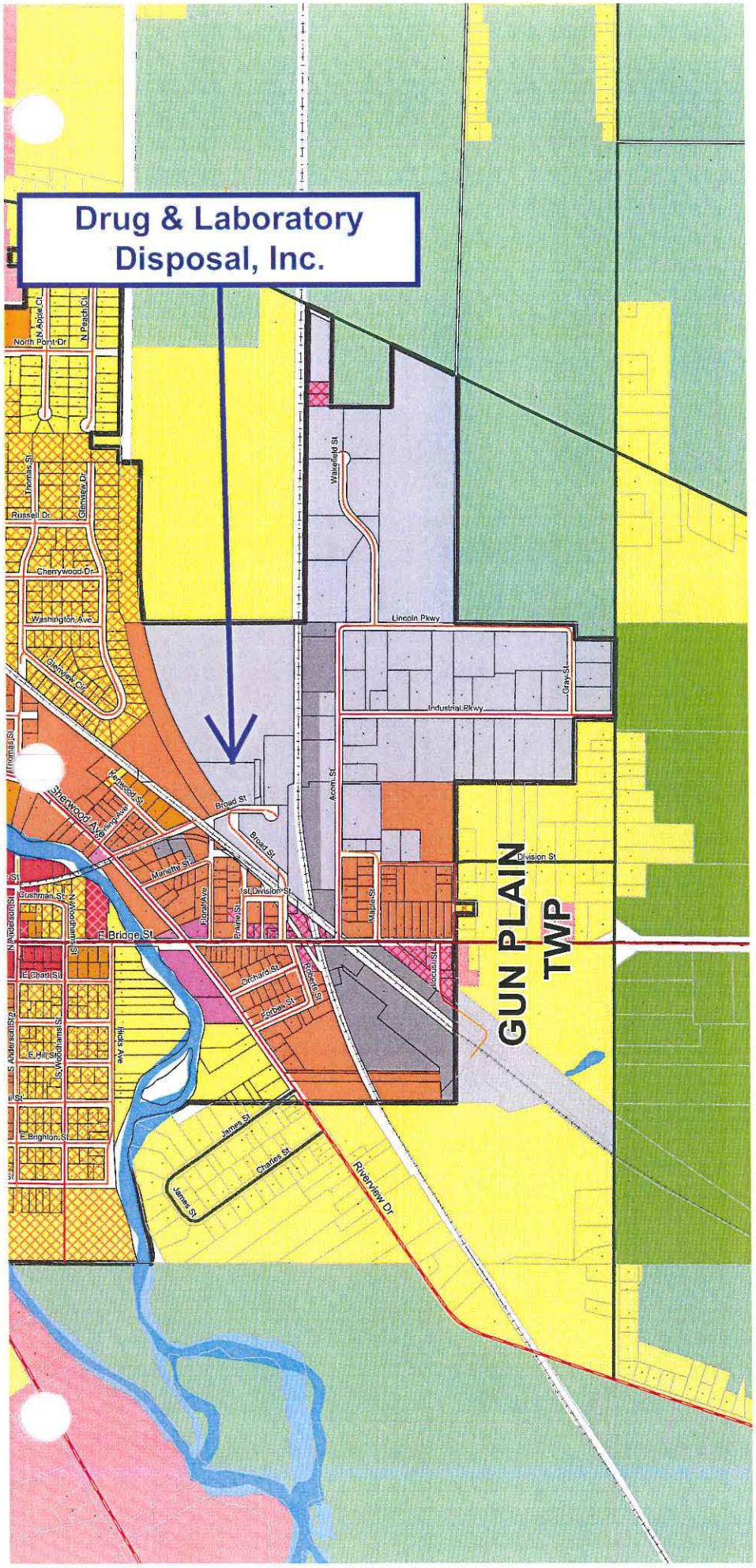
Attachment 1

Municipal Sewer Lines

Drug and Laboratory Disposal
MID 092 947 928



Attachment A1-4



Attachment A1-2

Plainwell City

Official ZONING MAP

As amended through 12/16/2008

ALLEGAN COUNTY, MICHIGAN

1/4 MILE

All Zoning Maps are subject to change.
Check with local unit for updates.

Zoning Legend

LABEL	ZONING DISTRICT	ACREAGE	% AREA
C-1	Local Commercial	8.1	.8
C-2	General Commercial	54.3	5.3
CBD	Central Business District	18.1	1.8
CS	Community Service	24.0	2.3
M-1	Restricted Manufacturing	165.4	16.0
M-2	General Manufacturing	29.1	2.8
R-1A	Single Family Residential	248.7	24.1
R-1B	Single Family Residential	254.9	24.7
R-1C	Single And Two-family Residential	173.0	16.8
R-2	Multi-family Residential	38.2	3.7
RMH	Planned Mobile Home	16.0	1.5
SB	Service Business District	2.0	.2
		1,031.8	

Generalized Zoning Legend for Adjacent Jurisdictions

- Agricultural
- Commercial
- Government
- Industrial
- Open Space
- Residential
- Right of Way
- Rural
- Water

Zoning Overlay District Legend

- Planned Unit Development

This is to certify the Zoning Map dated 12/16/2008 to which the to which the signature is attached is the official Plainwell City Zoning Map developed pursuant to the Michigan Zoning Enabling Act, being Act 110 of the Public Acts of 2006 as amended and as approved by the Plainwell City Council, with the following revisions:

REF. #	SEC. #	FROM ZONE	TO ZONE	REVISION DATE

Certified by: _____, Plainwell City Clerk

N
W E
S

Allegan County Land Information Services

Allegan County Land Information Services assumes no liability for results or conclusions drawn from the use of this data.
Map Printed: 12/16/2008

Point #3: Employee Qualifications

Attachment #1 includes the Job descriptions for the dock personnel involved with handling the PCB material. Attachment #2 includes the training Plans for DLD Personnel.

Attachment 1

Drug & Laboratory Disposal, Inc.

JOB DESCRIPTION

Position: Hazardous Waste Assistant Name: _____
Department: Waste Processing

This full-time position exists to perform non-technical processing of waste.

Major Responsibilities & Duties

- Process waste, including government contract waste
- Label and stores waste
- Maintain equipment and work area
- Participate in tank and tanker cleanouts
- Participate in Household Hazardous Waste (HHW) collections

Qualifications

- Ability to maneuver significant weight as 55 gallon drums of liquid waste are routinely moved
- Ability to work in extreme temperatures (both hot and cold)
- Must posses time management skills
- Comply with all safety and work rules and regulations
- Ability to work in a team environment
- Ability to obtain government security clearance

Education and Experience

- Basic reading, writing and mathematic skills

Continuing Education/Training: Persons filling this position must undergo an introductory training program to ensure that they are able to respond effectively to emergencies by being familiar with emergency procedures, emergency equipment, and emergency systems. Personnel must participate in an annual review of this training program.

The above statements are intended to provide a general overview of the duties the Hazardous Waste Assistant will be responsible for. This is not an exhaustive list of responsibilities.

This position requires government security clearance as a contingency of employment.

DLD IS AN AT-WILL EMPLOYER.

_____ _____

Signature Date

Drug & Laboratory Disposal, Inc.

Drug & Laboratory Disposal, Inc.
Job Description

Job Title: Hazardous Waste Chemist
Department: Waste Processing
Reports To: Hazardous Waste Coordinator

FLSA Status: Non-exempt
Revision Date: 9/7/2012

Summary Conducts research, analysis, synthesis, and experimentation on substances, for such purposes as product and process development and application, quantitative and qualitative analysis, and improvement of analytical methodologies by performing the following duties.

Essential Duties and Responsibilities include the following. Other duties may be assigned.

- Performs chemical and physical analysis to isolate, identify, and quantify components of hazardous waste
- Analyzes and tests hazardous substances to identify their properties and characteristics
- Analyzes organic and inorganic compounds to determine chemical and physical properties
- Processes, labels and stores waste
- Conducts sampling
- Performs inspections
- Maintains equipment and work areas
- Participates in chemical waste removals for government contract
- Participates in Household Hazardous Waste (HHW) collections
- Train new Hazardous Waste Chemists
- Participates in tank and tanker cleanouts

Supervisory Responsibilities This job has no supervisory responsibilities.

Qualifications To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Education and/or Experience Bachelor's degree (B. S.) in a related field from four-year college or university; or equivalent experience and/or training.

Competencies To perform the job successfully, an individual should demonstrate the following competencies :

Analytical - Synthesizes complex or diverse information; Collects and researches data; Uses intuition and experience to complement data.

Problem Solving - Gathers and analyzes information skillfully.

Technical Skills - Shares expertise with others.

Customer Service - Responds to requests for service and assistance; Meets commitments.

Job Title: Hazardous Waste Chemist

Interpersonal Skills - Maintains confidentiality.

Oral Communication - Responds well to questions.

Written Communication - Writes clearly and informatively; Able to read and interpret written information.

Teamwork - Gives and welcomes feedback; Contributes to building a positive team spirit; Supports everyone's efforts to succeed.

Visionary Leadership - Displays passion and optimism.

Leadership - Exhibits confidence in self and others; Accepts feedback from others.

Quality Management - Looks for ways to improve and promote quality; Demonstrates accuracy and thoroughness.

Cost Consciousness - Conserves organizational resources.

Diversity - Shows respect and sensitivity for cultural differences; Promotes a harassment-free environment.

Ethics - Treats people with respect; Keeps commitments; Inspires the trust of others; Works with integrity and ethically; Upholds organizational values.

Organizational Support - Follows policies and procedures; Completes administrative tasks correctly and on time; Supports organization's goals and values.

Judgment - Displays willingness to make decisions; Exhibits sound and accurate judgment; Supports and explains reasoning for decisions; Includes appropriate people in decision-making process; Makes timely decisions.

Motivation - Measures self against standard of excellence.

Planning/Organizing - Uses time efficiently.

Professionalism - Approaches others in a tactful manner; Reacts well under pressure; Treats others with respect and consideration regardless of their status or position; Accepts responsibility for own actions; Follows through on commitments.

Quality - Demonstrates accuracy and thoroughness; Looks for ways to improve and promote quality; Applies feedback to improve performance; Monitors own work to ensure quality.

Quantity - Meets productivity standards; Completes work in timely manner; Strives to increase productivity; Works quickly.

Safety and Security - Observes safety and security procedures; Determines appropriate action beyond guidelines; Reports potentially unsafe conditions ; Uses equipment and materials properly.

Job Title: Hazardous Waste Chemist

Adaptability - Adapts to changes in the work environment; Manages competing demands; Changes approach or method to best fit the situation; Able to deal with frequent change, delays, or unexpected events.

Attendance/Punctuality - Is consistently at work and on time.

Dependability - Follows instructions, responds to management direction; Takes responsibility for own actions; Keeps commitments.

Initiative - Volunteers readily; Asks for and offers help when needed.

Innovation - Generates suggestions for improving work.

Reasoning Ability Ability to define problems, collect data, establish facts, and draw valid conclusions. Ability to interpret an extensive variety of technical instructions in mathematical or diagram form and deal with several abstract and concrete variables.

Physical Demands The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this Job, the employee is regularly required to stand; walk; use hands to finger, handle, or feel; reach with hands and arms; stoop, kneel, crouch, or crawl and talk or hear. The employee is occasionally required to sit and climb or balance. The employee must occasionally lift and/or move up to 50 pounds. Specific vision abilities required by this job include close vision, color vision, peripheral vision, depth perception and ability to adjust focus.

Work Environment The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

While performing the duties of this Job the employee is regularly exposed to wet and/or humid conditions; fumes or airborne particles; toxic or caustic chemicals; outside weather conditions; extreme cold; extreme heat and explosives. The noise level in the work environment is usually loud.

PPE Personal protective equipment required in the performance of this position include:

- Respirator
- Particulate Mask
- Safety Glasses/Goggles
- Face Shield
- Steel Toe Shoes
- Hard Hat
- Chemical Resistant Gloves
- Tyvek Coveral

Hearing Conservation Program This position is included in the Hearing Conservation Program.

Security This position requirements DEA security clearance for public trust positions.

_____

Employee Name *(Please Print)*

_____ _____

Employee Signature Date

Hazardous Waste Chemist

Initial Training Program Schedule

WEEK ONE

DAY {1}

- ☐ Contingency Plan & Emergency Education (Including Facility Tour) **[Online & In-Person]**
- ☐ Introduction to DLD **[Online]**
- ☐ Bloodborne Pathogens **[Online]**
- ☐ Hazard Communication **[Online]**
- ☐ Respiratory Protection **[Online]**
- ☐ Hearing Conservation **[Online]**

DAY {2}

- ☐ Overview of Regulations that Impact DLD Operations **[In-Person]**
- ☐ TSDF Regulations **[In-Person]**
- ☐ Medical Surveillance Plan **[Online]**
- ☐ Decontamination **[Online]**
- ☐ Fire Safety **[Online]**

DAY {3}

- ☐ Drum & Container Handling **[Online]**
- ☐ Perchlorethelyne Safety **[Online]**
- ☐ Lockout/Tagout **[Online]**
- ☐ Confined Space **[Online]**
- ☐ Powered Industrial Truck Safety **[Online]**

DAY {4}

- ☐ DOT General Awareness **[Online]**
- ☐ DOT Security Awareness **[Online]**
- ☐ DOT Safety Awareness **[Online]**

DAY {5}

- ☐ Shipping Paper Descriptions & Retention **[Online]**
- ☐ Container Closure **[Online]**
- ☐ DOT Special Permits **[Online]**

WEEK TWO

DAYS {1 – 5}

- ☐ 40-Hour HAZWOPER **[Online]**

DUE BEFORE 90 DAYS

- ☐ In-Depth DOT Security Training **[On-the-Job]**
- ☐ Function Specific DOT Training **[On-the-Job]**

DUE BEFORE 180 DAYS

- ☐ Hazardous Waste Management Procedures Checklist **[On-the-Job]**
- ☐ TSCA (PCB) Regulation **[In-Person]**

Hazardous Waste Assistant

Initial Training Program Schedule

WEEK ONE

DAY {1}

- ☐ Contingency Plan & Emergency Education (Including Facility Tour) **[Online & In-Person]**
- ☐ Introduction to DLD **[Online]**
- ☐ Bloodborne Pathogens **[Online]**
- ☐ Hazard Communication **[Online]**
- ☐ Respiratory Protection **[Online]**
- ☐ Hearing Conservation **[Online]**

DAY {2}

- ☐ Overview of Regulations that Impact DLD Operations **[In-Person]**
- ☐ TSDF Regulations **[In-Person]**
- ☐ Medical Surveillance Plan **[Online]**
- ☐ Decontamination **[Online]**
- ☐ Fire Safety **[Online]**

DAY {3}

- ☐ Drum & Container Handling **[Online]**
- ☐ Perchlorethelyne Safety **[Online]**
- ☐ Lockout/Tagout **[Online]**
- ☐ Confined Space **[Online]**
- ☐ Powered Industrial Truck Safety **[Online]**

DAY {4}

- ☐ DOT General Awareness **[Online]**
- ☐ DOT Security Awareness **[Online]**
- ☐ DOT Safety Awareness **[Online]**

DAY {5}

- ☐ Shipping Paper Descriptions & Retention **[Online]**
- ☐ Container Closure **[Online]**
- ☐ DOT Special Permits **[Online]**

WEEK TWO

DAYS {1 – 5}

- ☐ 24-Hour HAZWOPER **[Online]**

DUE BEFORE 90 DAYS

- ☐ In-Depth DOT Security Training **[On-the-Job]**
- ☐ Function Specific DOT Training **[On-the-Job]**

DUE BEFORE 180 DAYS

- ☐ Hazardous Waste Management Procedures Checklist **[On-the-Job]**
- ☐ TSCA (PCB) Regulation **[In-Person]**

Point 4: Storage Areas

-Dimensions of each storage area can be found on the diagrams provided. Attachment 1 is the drawings for DLD-1. Attachment 2 holds the drawings for DLD-3. Attachment 3 contains the drawings from DLS-5.

PCB Storage Areas

	DLS-1	**DLS-3 (Process Area)**	**DLS-3 (Tank 3)**	**DLS-5**
Secondary containment	2,893 gallons	54,894 including vault area		41,805 gallons
Maximum storage capacity	550 gallons or 3000 kg.	1000 gallons or 4000 kg.	5000 gallons	1320 gallons or 6000 kg.
Maximum Inventory	550 gallons or 3000 kg.	1000 gallons or 4000 kg.	5000 gallons	1320 gallons or 6000 kg.

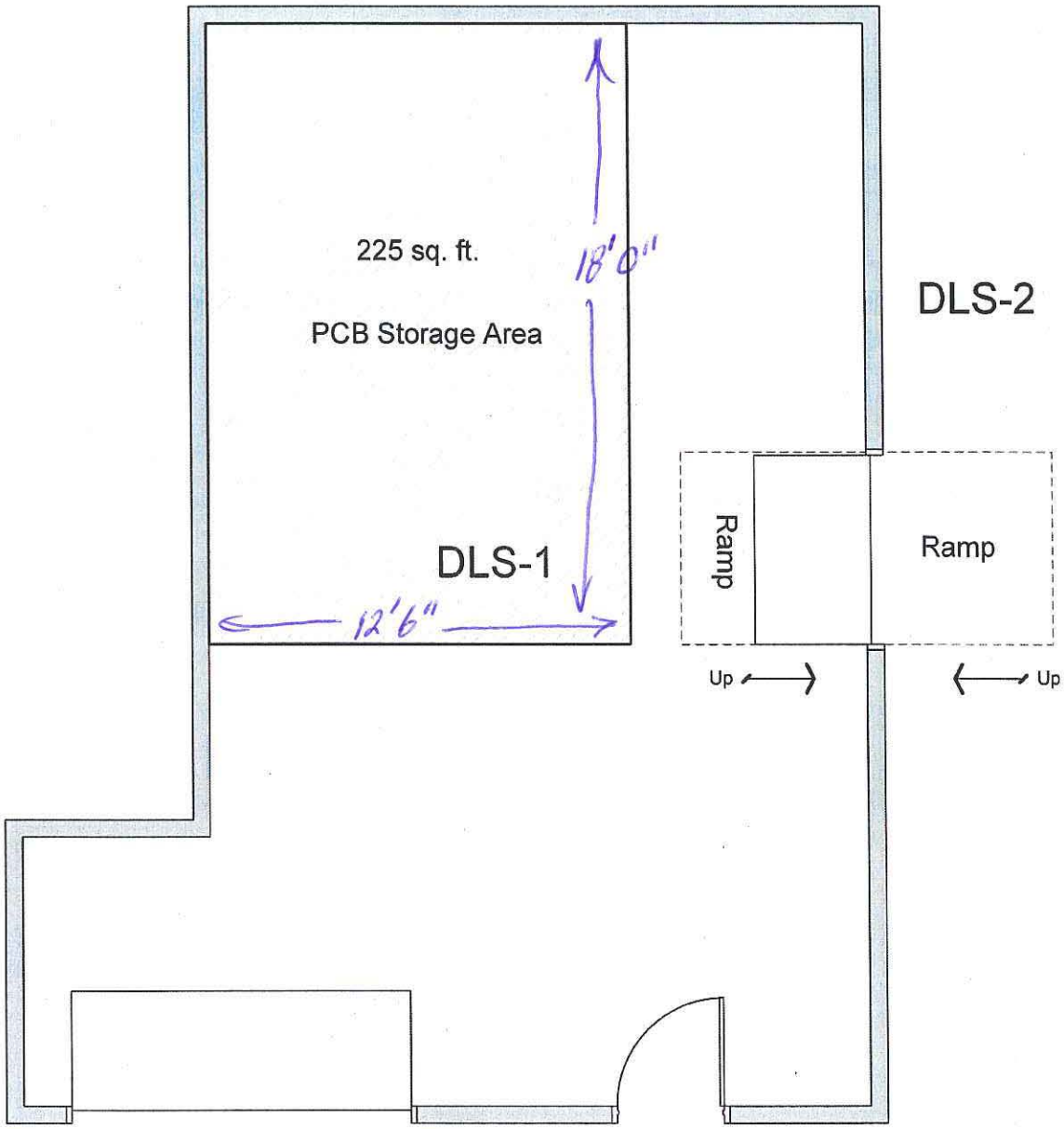
-None of the three PCB storage areas are totally dedicated to the storage of PCBs. PCB waste is a small waste stream compared to DLD's total volume, thus we will store many different types of waste in the PCB storage areas when they are empty. DLS-1, DLS-3 and DLS-5 are regulated under DLD's RCRA Part B processing and storage permit. A copy of the 2012 Part B permit will be electronically submitted independently of this document.

-All of DLD's processing areas are designed for the storage of containers o hazardous waste. Containment areas consist of concrete floors sloped to blind collection sumps on appropriate foundations with six inch curbing, walls or ramps surrounding each area. No drain valves, floor drains except to sumps, sewer lines or other openings exist. Expansion joints in DLS-1are sealed with a waterproof, petroleum base sealer. The walls and floor of the tank portion of DLS-3 have been sealed with a two-part epoxy sealant.
To prevent seepage of liquid through the floor or floor joints, the concrete floors in DLS-3 and DLS-5 was formulated using calcium stearate as a hydrophobic additive ato 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 addition to being insoluble in water, calcium stearate is resistant to chemical attack and is insoluble in most solvents.

-Attachment 4 is from the FEMA website that indicates Plainwell is Zone C.

PCB Storage – DLS-1

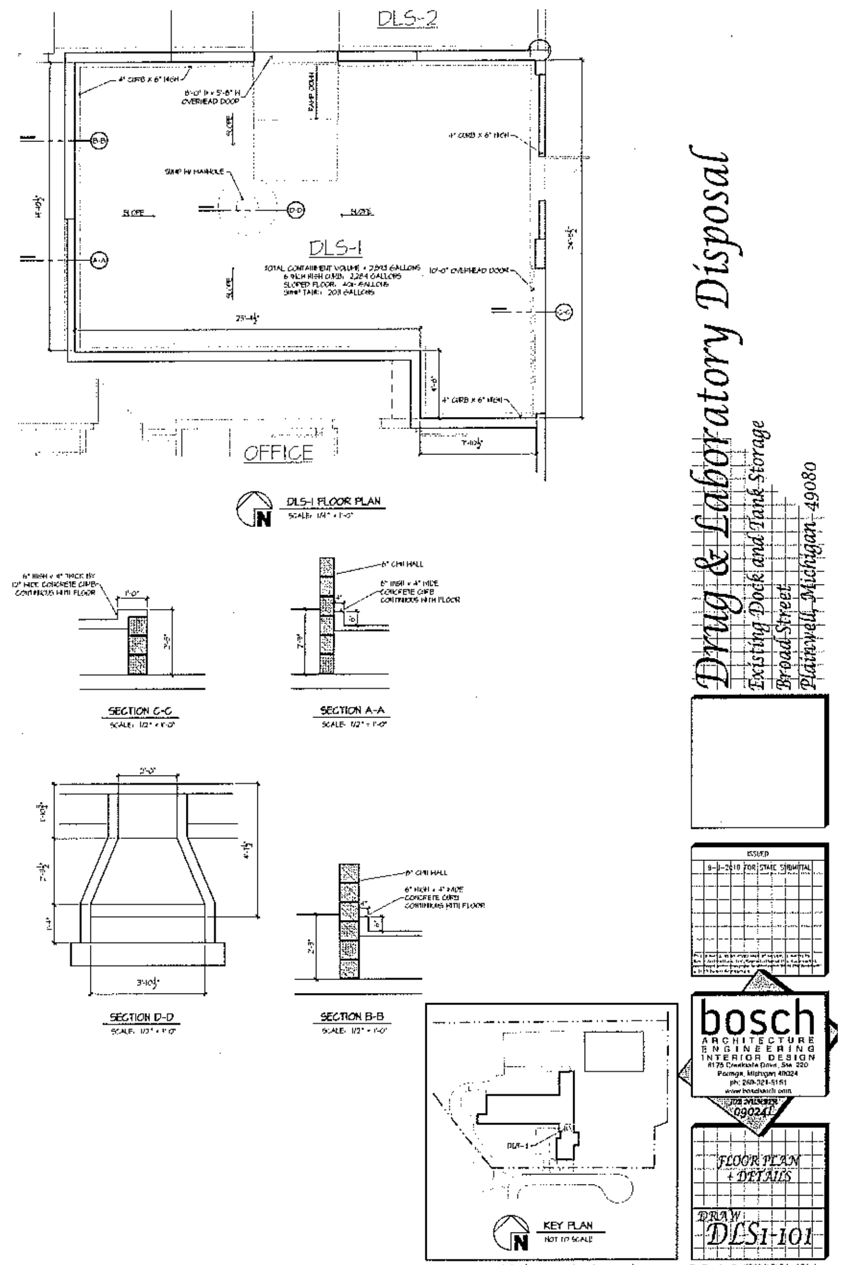
Site ID No. MID 092 947 928



DLS-1 PCB Storage

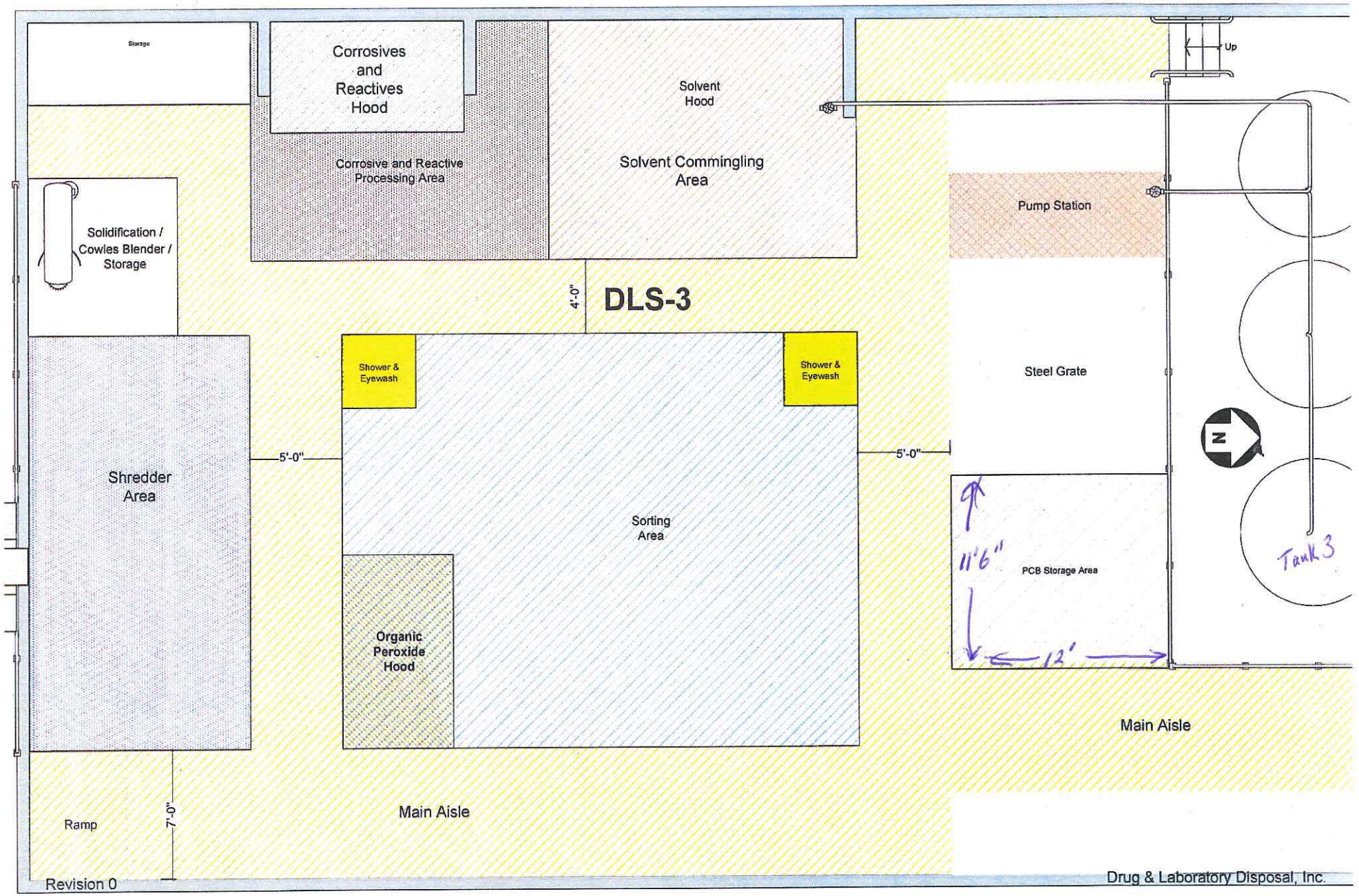
Revision 0

Drug & Laboratory Disposal, Inc.


DLS-2
DLS-1
OFFICE
DLS-1 FLOOR PLAN
SECTION C-C
SECTION A-A
SECTION D-D
SECTION B-B
KEY PLAN
NOT TO SCALE
Drug & Laboratory Disposal
Existing Dock and Tank Storage
Broad Street
Plainwell, Michigan 49080
ISSUED
bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN
090241
FLOOR PLAN + DETAILS
DRAW:
DLS1-101

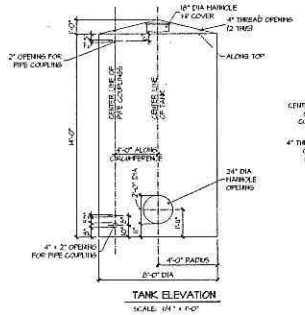
PCB Storage – DLS-3

Site ID No. MID 092 947 928

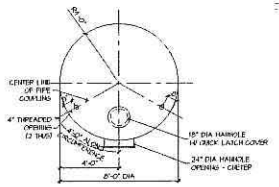


Revision 0

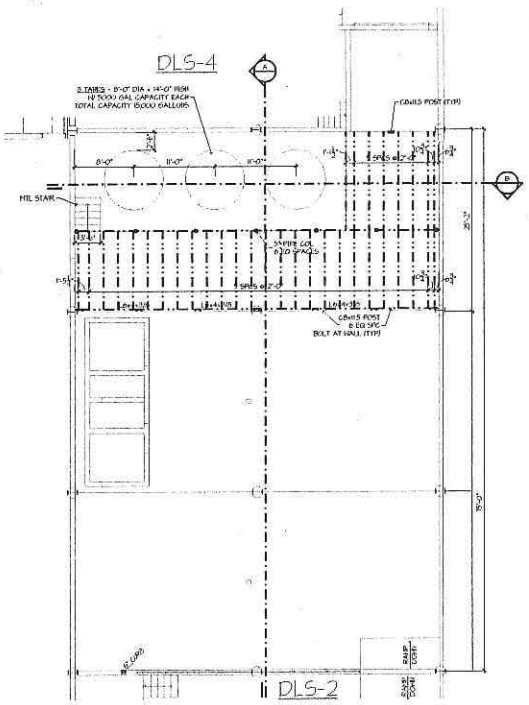
Drug & Laboratory Disposal, Inc.



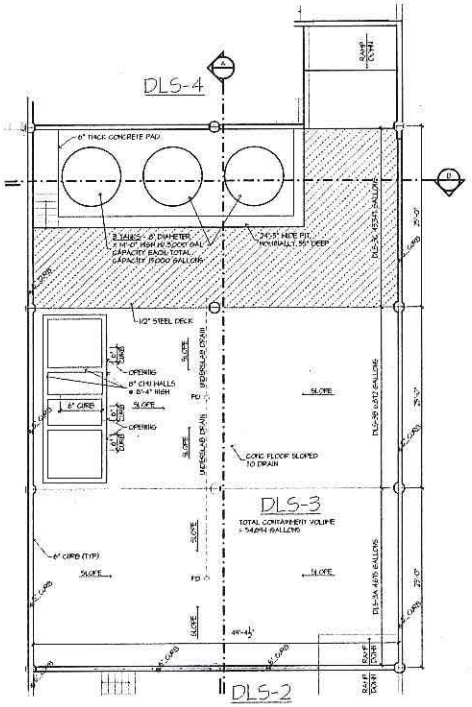
TANK ELEVATION
SCALE: 1/4" = 1'-0"



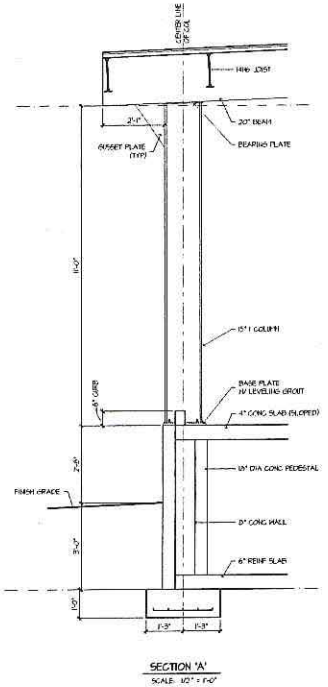
TOP VIEW
SCALE: 1/4" = 1'-0"
NOMINAL CONTAINMENT = 30 GALLON PER INCH



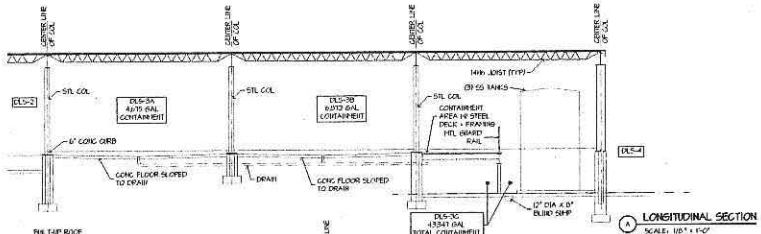
FRAMING PLAN FOR CONTAINMENT AREA STEEL DECK
SCALE: 1/8" = 1'-0"



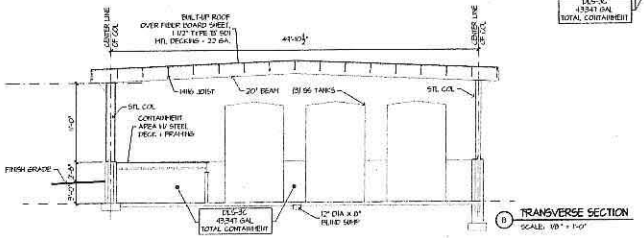
DLS-3 FLOOR PLAN
SCALE: 1/8" = 1'-0"



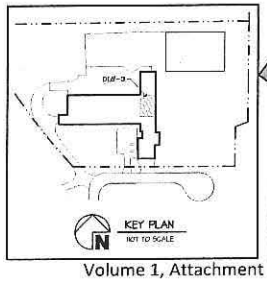
SECTION 'A'
SCALE: 1/2" = 1'-0"



LONGITUDINAL SECTION
SCALE: 1/8" = 1'-0"



TRANSVERSE SECTION
SCALE: 1/8" = 1'-0"



Drug & Laboratory Disposal

Existing Dock and Tank Storage
Broad Street
Plainwell, Michigan 49080

ISSUED
9-8-2010 FOR STATE SUBMITTAL

bosch
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN
8175 Clairedale Drive, Ste 200
Portage, Michigan 49024
ph: 269.321.5151
www.boschmich.com

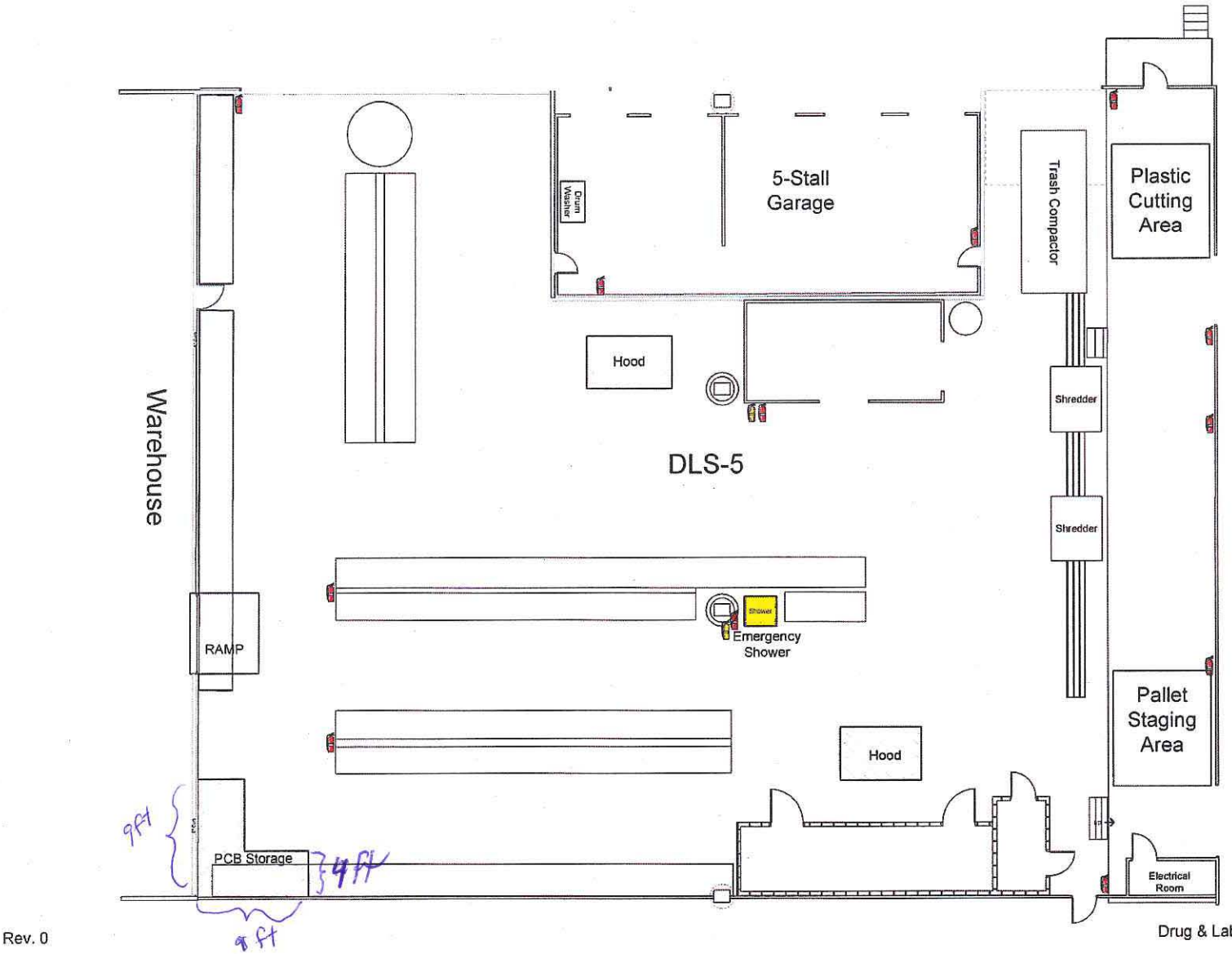
JOB NUMBER
09024L

FLOOR PLAN, FLOOR FRAMING, BLDG SECTION + DETAILS

DRAW.
DLS3-101

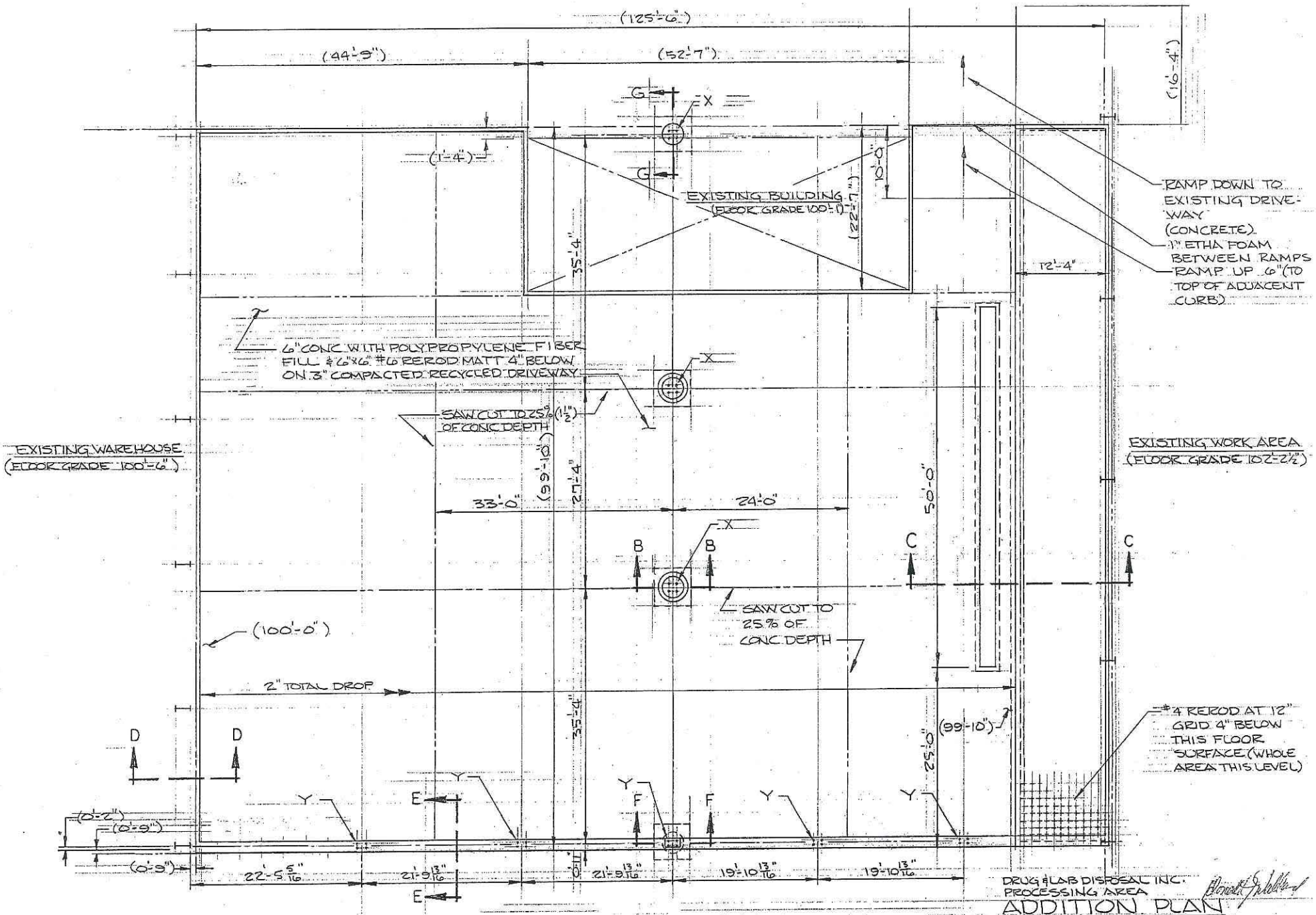
PCB Storage -- DLS-5

Site ID No. MID 092 947 928



Rev. 0

Drug & Laboratory Disposal, Inc.



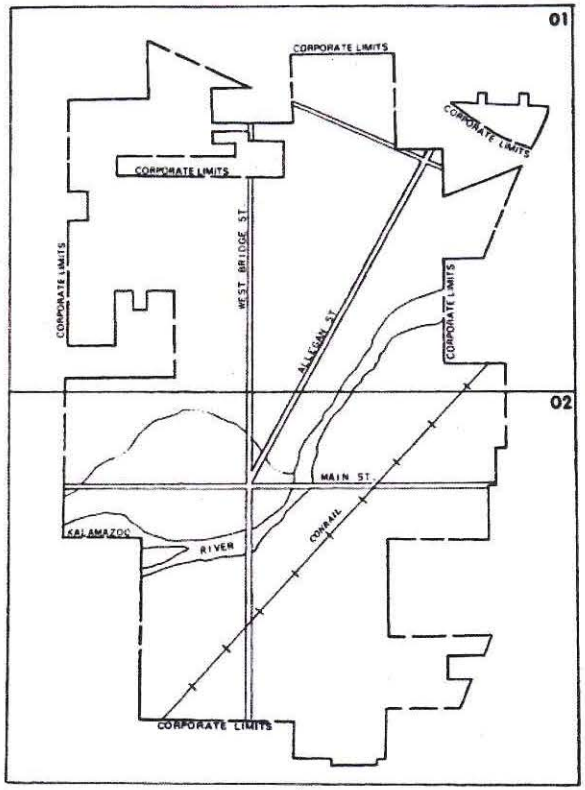
NOTES:
- CONC CUTS REQUIRED PRIOR TO CONST. WILL BE DONE BY DRUG & LAB.
- ( ) IS REFERENCE INFORMATION.
- REF STEEL STRUCTURE DWG JOB# 3951 05-3 P&R STEEL
- TOP OF ALL CURBS AT 100'-6"

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

FEMA Page: 1 of 3 Info Scale: 21 % LOMC: 1

Help

Zoom Win Pan Zoom In Zoom Out 1:1 Zoom In MAX Zoom Out Make a FIRMette



KEY TO MAP

ZONE DESIGNATIONS*

ZONE C

ZONE A

ZONE C

513

(EL 987)

RM7X

*M1.5

*EXPLANATION OF ZONE DESIGNATIONS

A flood insurance map displays the zone designations for a community according to areas of designated flood hazards. The zone designations used by FEMA are

ZONE	EXPLANATION
A	Areas of 100-year flood base flood elevations and flood hazard factors not determined
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined
A1-A30	Areas of 100-year flood, base flood elevations and flood hazard factors determined
AR	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood (Medium shading)
C	Areas of minimal flooding (No shading)
D	Areas of undetermined, but possible flood hazards
V	Areas of 100-year coastal flood with velocity (wave action), base flood elevations and flood hazard factors not determined
V1-V30	Areas of 100-year coastal flood with velocity (wave action), base flood elevations and flood hazard factors determined

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

To determine if flood insurance is available in this community contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

INITIAL IDENTIFICATION: MAY 17, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS: AUGUST 6, 1976

FLOOD INSURANCE RATE MAP EFFECTIVE: JULY 19, 1985

FLOOD INSURANCE RATE MAP REVISIONS:

FEDERAL EMERGENCY MANAGEMENT AGENCY

FIRM

FLOOD INSURANCE RATE MAP 01-02
MAP INDEX
CITY OF PLAINWELL, MI
ALLEGAN COUNTY
COMMUNITY NUMBER 260008 B

Point #5: Tank construction

The question about tank construction can be best answered by excerpts from our 1999 license (Attachment 1) and our 2012 license (Attachment 2). If drawings and or diagrams are needed, please ask and they will be mailed.

Attachment 1

TECHNICAL INFORMATION, TANKS
40 CFR 270.16

Assessment of Existing Tank System's Integrity.

The DLD tank systems consist of six 5,000-gallon 304 stainless steel tanks placed in specially designed concrete vaults. These vaults or containment areas are designated DLS-3 and DLS-4. There are three tanks in each area. The piping and valves for the systems are all located within containment areas. 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 of 40 CFR 264 Subpart J, specifically 264.193(e)(2)(iii). 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 following Section 5 as Appendix A5-2.

Since the DLS-3 containment vault was constructed using a design similar to present requirements to prevent escape of hazardous waste, and since the system was constructed two years prior to the current regulations 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.

The construction of 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.

Design of Tanks (40 CFR 264.191).

Three of the existing tanks were constructed in 1984 and placed in service in 1986 (refer to Appendix A21-1, Tank Detail, for construction details and specifications). These tanks are regularly inspected, repaired, and maintained and 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. Tanks were internally inspected as outlined by the above mentioned engineer's report in 1990 and are inspected annually by an outside professional engineer. These reports are on file at DLD with documentation that recommendations in each report have been implemented. Inspection of internal cathodic corrosion protection components are included in these inspections and written reports.

In 1995, the manways of these tanks were enlarged so as to comply with new OSHA requirements. The lower manways of these tanks now have the same structural dimensions as the tanks described in Appendix A21-2.

Three additional tanks have been placed in the DLS-4 containment area constructed in 1990 (refer to Appendix A21-2, Tank Detail, for tank details and specifications). Please refer to Section 19, Appendix A19-3, Drawing 103, existing/as-built DLS-4 containment area. DLS-4 is not exposed to hydraulic pressure (refer to 40CFR 264.193(e)(2)(vi)); however, as a precaution, chemical resistant water stops were placed in all joints. Photographs taken at the time of construction which document this construction technique are available for inspection. To meet the requirement of 40 CFR 264.193(e)(2)(iv), DLS-4 has been coated with a two-part epoxy coating on the floor and side walls.

General Operating Requirements (40 CFR 264.192).

Protection from accelerated corrosion is afforded through the use of type 304 stainless steel for construction of each tank. Materials incompatible with this construction are not placed in the tanks.

Filling of tanks is a manual operation requiring a Hazardous Waste Chemist to open the valve to an individual tank. There are no safety cutoff or bypass mechanisms. All valves are normally in a closed position except those for the tank being filled. Overfilling of tanks is prevented by the presence of a high level warning alarm on each tank. This alarm is a loud audio signal that is audible to the person operating the manual filling equipment and is activated whenever a tank becomes full. Manual filling equipment refers to a compressed air powered diaphragm pump used to transfer commingled liquids into the selected tank. DLD does not operate an automatic fill system. When a tank is full and the audio alarm has sounded for 20 seconds, a red light remains lit until the tank is no longer full.

All tanks are top fill and are independent, free standing tanks. Manifolds below maximum liquid fill levels have not been installed so as to prevent the emptying of all three tanks in the event of a rupture or leak in only one tank. Additionally, siphoning cannot occur due to pressure equalizing vents connecting all tanks. This vent system is also used to capture and return vapors to the tank system when transferring liquid from a tank into a tanker truck. A second vent system consists of charcoal contained in an 85 gallon overpack plumbed so as to require all air movement from within the tank to be passed through the charcoal that is attached to each tank. An air sample taken from each unit is analyzed every 180 days to assure that the charcoal is absorbing fugitive emissions which may exit the tanks. Refer to Appendix A5-1 (Inspection Check Sheet) for documentation of this procedure.

The liquid level in each tank is visually examined and physically measured daily and noted on the Inspection Check Sheet (refer to Appendix A5-1). When a tank is emptied for shipment off site a residual amount of eight inches of depth will remain in the tank. This is because the stand pipe, permanently attached to the interior of the tank and used to remove waste, does not extend to the floor of the tank. Since these tanks always contain listed waste requiring management under the land disposal restriction regulations, this listed waste residue in the bottom eight inches, when removed, will be identified with the listed waste codes of the last three tank fillings. The addition of incompatible materials or dissimilar waste types does not occur because the commingling process, which is done in a smaller container, results in a waste that is similar and compatible with the eight-inch residual. All six tanks are used to store high and low BTU waste. Since both high and low BTU waste streams are a DOT flammable liquid hazard class and the NFPA marking for the tanks do not change between tank fillings, the presence of residues from the previous tank contents does not appreciably effect the BTU level of the next tank filling. In actual practice, the DLD Hazardous Waste Chemist separates waste into high and low BTU waste streams and, at any one time, one tank will be receiving high BTU waste and another tank will be receiving low BTU waste. High BTU waste consists of solvents and petroleum products that are not heavily contaminated with water. Representative waste would be benzene, fuel oil, toluene, and ethyl benzene. Low BTU waste is solvents and petroleum waste that have water content so as to lower the BTU content. Representative samples of this waste would be alcohols, hexane, and water with gasoline. Low BTU waste contains less than 5,000 BTUs per pound. High BTU waste will contain from 5,000 BTUs per pound up to 20,000 BTU per pound. Both of these waste streams are compatible in all proportions with each other but are separated to meet the requirements of off-site receiving facilities.

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	

DLD
Drug & Laboratory Disposal, Inc.

Certification Statement

Certification of Compliance with Facility Design and Construction Standards
40 CFR 761.65(b) and 40 CFR 761.65(c)(7)

Under the civil and criminal penalties of law for the making or submission of false or fraudulent statements of representation (18 U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified sections of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate and complete.

Sharon I. Joles, Environmental Director — Date 05/15/19

Point #7: Cost Closure Plan

As allowed in 40 CFR 761.65(e)(3), DLD is submitting the Cost Closure Plan from its 2012 RCRA Permit Part B in lieu of a new plan.

Attachment 1

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	4,020 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	3,300 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

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	4,020 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	3,300 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)]

DLD will notify the director, in writing, not less than 60 days before the date on which DLD expects to begin partial or final closure of any or all hazardous waste management units at the facility. 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. 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 of 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, soils will be tested as described below for those metals processed by DLD, including, but not limited to mercury, lead, and arsenic.

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.

Certification Statement

Certification of Compliance with Cost Closure Estimate
40 CFR 761.65(f)

Under the civil and criminal penalties of law for the making or submission of false or fraudulent statements of representation (18 U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified sections of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate and complete.

Sharon L. Joles 05-15-19

Sharon Joles, Environmental Director Date

Point #9: Verification of Costs in the Cost Closure Plan

DLD has requested prices lists from its venders to support the costs listed in the CCE. DLD was promised they would arrive by May 16. To date we have not received them. Enclosed is an old price sheet.

Attachment 1

Safety-Kleen, Inc.

profile #	waste description	Approval Date/$	waste codes	shipping name
HO	Household Labpacks - dioxins?	$225/DF + $70/DF transportation $7.50/lb	NC	varies (dioxins)
PDDNL-007 **6100886**	drum sludges with chlordane (no trans on pallets) # top and side	$1.325/lb	D001, D004, D006, D007, D008, D009, D018, D035, F001, F002, F003, F005, D020	Waste Flammable liquid, n.o.s., 3, UN 1993, pgII
PDDNL-006 **6100885**	liquid pesticides (no trans on pallets) # top and side	$220/55 gallon DM	D004, D006, D008, D010, D012, D013, D014, D015, D016, D020, D027, D031	Waste Pesticides, liquid, toxic, n.o.s., 6.1, UN2902 (chlordane, lindane)
~~HO-57961-14~~ OUTS2981 PDDNL-001 **6000574**	PCB ballasts/small capacitors	$1.50/lb $1.40/lb (11-97) ($325/55min)		
~~HO-55971-40~~ OUTS2971 PDDNL-002 **6000575**	PCB liquids	$350/dm $1.40/lb (11-97) ($325/55min)		
~~HO-56104-48~~ OUTS4941 PDDNL-003 **6000576**	PCB debris	$1.50/lb $1.40/lb (11-97) ($325/55min)		
~~HO-75267-40~~ OUTS219H PDDNL-004 **6000577**	PCB paints (EPA hazardous)	$350/55 drum $1.65/lb (11-97) ($325/55min)	D001, D007, D008, D009, D035	Waste Paint Related Material, n.o.s. UN1263
PDDNL-004A **6000578**	PCB paints (EPA hazardous) (chlordane) - tight head drum?	$350/55 drum $1.65/lb (11-97) ($325/55min)	D001, D007, D008, D009, D035, **D020**	Waste Paint Related Material, n.o.s. UN1263
~~HO-58736-74~~ OUTS219H	PCB liquids (EPA hazardous)	$450/dm ✓ profile # $1.40/lb (11-97) ($325/55min)	D001, U002, U213, U220, U239, D008, D009	Waste Flammable Liquid,n.o.s. UN1993
~~HO-73742-40~~ OUTS219H	PCB liquids (lead)	$1.40/lb (11-97) ($325/55min)	D008	Hazardous Waste Liquid, n.o.s. NA3082
~~HO-82582-74~~ OUTS219H	PCB liquids (EPA hazardous)	$1.40/lb $1.40/lb (11-97)	D001, D004, D006, D007, D008, D009, D010, D011,	Waste Flammable Liquid, n.o.s. UN1993

		($325/55min)	F003	
HO-? OUTS495H	PCB debris (EPA hazardous)	$1.65/lb (11-97) ($325/55min)	D007, D008	Hazardous Waste Solid, n.o.s. NA3077
HO-55866-39 OUTS2981 PDDNL-005 **6032272**	PCB capacitors (large)	$1.5/lb $1.50/lb (11-97) ($325/55min)		
if hazardous OUTS801H	aerosol "non flammable (freons)	$1.25/lb (11-97)		
HO-69979-18 OUTS8011 if hazardous OUTS801H	aerosol "non flammable/poisonous" [E](pesticides)	$265/dm $1.25/lb (11-97)	D001, D014, D020, D027	Waste Aerosols
HO-69978-18 OUTS8011 if hazardous OUTS801H	aerosol "flammable" [D] (household products/cleaners and paints)	$265/dm $.70/lb (11-97)	D001	
HO-69980-18 OUTS8011 if hazardous OUTS801H	aerosol "adhesive" [C]	$265/dm $.70/lb (11-97)		
L-34595	shredded plastic	$195/55-gallon DF		150 pound limit
L-34596	shredded plastic w/pills	$195/55 gallon DF		150 pound limit
L-33925	hospital waste	$210/55 gallon DF 1-99 $300/55 gallon		150 pound limit
	transportation	$100/dm (Texas)		

Transportation	Drummed Material	$35.00/55,30,20,15 gallon drum $11.67/5,10 gallon pail