U.S. ENVIRONMENTAL PROTECTION AGENCY
UNDERGROUND INJECTION CONTROL PERMIT
CLASS I COMMERCIAL NONHAZARDOUS
PERMIT NUMBER MI-017-1I-C003
Deep Blu Logistics, LLC
St. Clair, Michigan

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

U.S. ENVIRONMENTAL PROTECTION AGENCY UNDERGROUND INJECTION CONTROL PERMIT:CLASS I COMMERCIAL NON-HAZARDOUS

Permit Number: MI-017-1I-C003

Well Name: PCDW #1

Pursuant to the Underground Injection Control regulations of the U.S. Environmental Protection Agency codified at Title 40 of the Code of Federal Regulations (40 CFR), Parts 124, 144, 146, and 147,

Deep Blu Logistics, LLC of St. Clair, Michigan

is hereby authorized to operate a commercial Class I non-hazardous injection well located in Michigan, Bay County, T17N, R4E, Section 23, SW Quarter Section, for injection into the Sylvania Sandstone at depths between 4845 feet and 4950 feet upon the express condition that the permittee meet the restrictions set forth herein.

All references to Title 40 of the Code of Federal Regulations are to all regulations that are in effect on the date that this permit becomes effective. The following attachments are incorporated into this permit: A, B, C, D, E, F, G, and H.

This permit shall become effective on _____ and shall remain in full force and effect during the life of the permit, unless this permit is revoked, terminated, modified or reissued pursuant to 40 CFR 144.39, 144.40 or 144.41.

This permit and authorization to inject shall expire at midnight on _____ , unless terminated prior to the expiration date.

Signed and Dated: **DRAFT**

Thomas R. Short Jr.
Acting Director, Water Division

PART I

GENERAL PERMIT COMPLIANCE

A. EFFECT OF PERMIT

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. Notwithstanding any other provisions of this permit, the permittee authorized by this permit shall not construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of injection, annulus or formation fluids into underground sources of drinking water (USDWs). The objective of this permit is to prevent the introduction of contaminants into USDWs if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 141 or may otherwise adversely affect the health of persons. Any underground injection activity not specifically authorized in this permit is prohibited. For purposes of enforcement, compliance with this permit during its term constitutes compliance, with Part C of the Safe Drinking Water Act (SDWA). Such compliance does not constitute a defense to any action brought under Section 1431 of the SDWA, or any other common or statutory law other than Part C of the SDWA. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Nothing in this permit shall be construed to relieve the permittee of any duties under applicable regulations.

B. PERMIT ACTIONS

1. **Modification, Revocation, Reissuance and Termination** - The Director of the Water Division of the United States Environmental Protection Agency (EPA), hereinafter, the Director, may, for cause or upon request from the permittee, modify, revoke and reissue, or terminate this permit in accordance with 40 CFR 144.12, 144.39, and 144.40. Also, the permit is subject to minor modifications for cause as specified in 40 CFR 144.41. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes, or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition.

2. **Transfer of Permits** - This permit is not transferable to any person except in accordance with 40 CFR 144.38.

C. SEVERABILITY

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

D. CONFIDENTIALITY

In accordance with 40 CFR Part 2 and Section 144.5, any information submitted to EPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 CFR Part 2 (Public Information). Claims of confidentiality for the following information will be denied:

1. The name and address of the permittee; and

2. Information which deals with the existence, absence or level of contaminants in drinking water.

E. DUTIES AND REQUIREMENTS

1. **Duty to Comply** - The permittee shall comply with all applicable Underground Injection Control (UIC) Program regulations and conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit issued in accordance with 40 CFR 144.34. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application.

2. **Penalties for Violations of Permit Conditions** - Any person who violates a permit requirement may be subject to civil penalties, fines and other enforcement action under the SDWA. Any person who willfully violates permit conditions may be subject to criminal prosecution.

3. **Continuation of Expiring Permits**

   (a) **Duty to Reapply** - If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must submit a complete application for a new permit at least 180 calendar days before this permit expires.

   (b) **Permit Extensions** - The conditions of an expired permit may continue in force in accordance with 5 U.S.C. 558(c) and 40 CFR 144.37.

   (c) **Effect** - Permits continued under 5 U.S.C. 558(c) and 40 CFR 144.37 remain fully effective and enforceable.

   (d) **Enforcement** - When the permittee is not in compliance with the conditions of the expiring or expired permit, the Director may choose to do any or all of the following:

(1) Initiate enforcement action based upon the permit which has been continued;

(2) Issue a notice of intent to deny the new permit in which case, the owner or operator would then be required to cease the activities authorized by the continued permit or be subject to enforcement action for operation without a permit;

(3) Issue a new permit under 40 CFR Part 124 with appropriate conditions; or

(4) Take other actions authorized by the UIC regulations.

(e) **State Continuation** - An EPA-issued permit does not continue in force beyond its expiration date under Federal law if at that time a State has primary enforcement responsibility under the SDWA. A State authorized to administer the UIC program may continue either EPA or State-issued permits until the effective date of the new permits, if State law allows. Otherwise, the facility or activity is operating without a permit from the time of expiration of the old permit to the effective date of the State-issued new permit. Furthermore, if the State does not continue the EPA permit upon obtaining primary enforcement responsibility, the permittee must obtain a new State permit or be authorized to inject by State rule. Failure to do so while continuing to operate the well constitutes unauthorized injection and is a violation subject to enforcement action.

4. **Need to Halt or Reduce Activity Not a Defense** - It shall not be a defense for the permittee in an enforcement action to claim that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

5. **Duty to Mitigate** - The permittee shall take all timely and reasonable steps necessary to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

6. **Proper Operation and Maintenance** - The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control and related appurtenances which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

7. **Duty to Provide Information** - The permittee shall furnish to the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this

permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

8. **Inspection and Entry** - The permittee shall allow the Director or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

   (a) Enter, at reasonable times, upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;

   (b) Have access to and copy, at reasonable times, any records that are kept under the conditions of this permit;

   (c) Inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

   (d) Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the SDWA, any substances or parameters at any facilities, equipment or operations regulated or required under this permit.

9. **Records**

   (a) The permittee shall retain records and all monitoring information, including all calibration and maintenance records and all original chart recordings for continuous monitoring instrumentation and copies of all reports required by this permit for a period of at least three (3) years from the date of the sample, measurement or report, unless these materials are submitted to the Director as part of reporting requirements under this permit.

   (b) The permittee shall maintain records of all data required to complete the permit application form for this permit and any supplemental information submitted under 40 CFR 144.27, 144.28, and 144.31 for a period of at least three (3) years from the date the application was signed.

   (c) The permittee shall retain records concerning the nature and composition of all injected fluids until three (3) years after the completion of plugging and abandonment of this injection well.

   (d) The retention period specified in Part I(E)(9)(a) through (c) of this permit may be extended by request of the Director at any time. The permittee shall continue to retain records after the retention period specified in Part I(E)(9)(a) through (c) of this permit or any requested extension thereof

expires unless the permittee delivers the records to the Director or obtains written approval from the Director to discard the records.

(e) Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;

(2) The name(s) of individual(s) who performed the sampling or measurements;

(3) A precise description of both sampling methodology and the handling of samples;

(4) The date(s) analyses were performed;

(5) The name(s) of individual(s) who performed the analyses;

(6) The analytical techniques or methods used; and

(7) The results of such analyses.

10. **Monitoring** - Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The permittee shall use the methods described in the most recent update of "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (Publication SW-846, available from Solid Waste Information, EPA, 26 W. St. Claire St., Cincinnati, Ohio 45268), or equivalent methods approved by the Director, to take representative samples. Monitoring results shall be reported at the intervals contained in Part II(D)(1) through (4) and Part III(A) of this permit.

(a) Monitoring of the nature of injected fluids shall comply with applicable analytical methods cited and described in Table I of 40 CFR 136.3, or in EPA Publication SW-846, "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods". In certain circumstances, monitoring of the nature of injected fluids may be accomplished by other methods that have been approved by the Director.

(b) Sampling and analysis shall comply with the specifications of the Waste Analysis Plan required in Part II(C)(3) of this permit.

11. **Signatory Requirements** - All reports or other information, required to be submitted by this permit or requested by the Director shall be signed and certified in accordance with 40 CFR 144.32.

12. **Reporting Requirements**

(a) **Planned Changes** - The permittee shall give written notice to the Director, as soon as possible, of any planned physical alterations or

additions to the permitted facility other than minor repair/replacement maintenance activities.

(b) **Anticipated Noncompliance** - The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(c) **Compliance Schedules** - Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted by the permittee no later than thirty (30) calendar days following each schedule date.

(d) **Twenty-four Hour Reporting**

(1) The permittee shall report to the Director any permit noncompliance which may endanger health or the environment. See, e.g. Part I(G)(5) of this permit. Any information shall be provided orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances. Such reports shall include, but not be limited to the following information:

(i) Any monitoring or other information which indicates that any contaminant may cause an endangerment to an USDW; and

(ii) Any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between USDW; and

(iii) Any failure to maintain mechanical integrity.

(2) A written submission shall also be provided within five (5) working days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent recurrence of the noncompliance.

(e) **Other Noncompliance** - The permittee shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted. The reports shall contain the information listed in Part I(E)(12)(d)(2) of this permit.

(f) **Other Information** - When the permittee becomes aware of failure to submit any relevant facts in the permit application or that incorrect

information was submitted in a permit application or in any report to the Director, the permittee shall submit such facts or corrected information within ten (10) calendar days.

(g) **Report on Permit Review** - Within thirty (30) calendar days of receipt of this permit, the permittee shall certify to the Director that he or she has read and is personally familiar with all terms and conditions of this permit.

F. PLUGGING AND ABANDONMENT

1. **Notice of Plugging and Abandonment** - The permittee shall notify the Director at least sixty (60) calendar days before conversion or abandonment of the well. At the discretion of the Director, a shorter notice period may be allowed.

2. **Plugging and Abandonment** - The permittee must receive the approval of the Director before plugging the well and shall plug and abandon the well consistent with 40 CFR 144.52(a)(6) and 146.10, as provided for in the Plugging and Abandonment Plan contained in Part III(B) of this permit. Within sixty (60) calendar days after plugging a well, or at the time of the next quarterly report (whichever is shorter), the permittee shall submit a Plugging and Abandonment report to the Director. The report shall be certified as accurate by the permittee and by the person who performed the plugging operation (if other than the permittee), and shall consist of either:

   (a) A statement that the well was plugged in accordance with the Plugging and Abandonment Plan previously approved by the Director; or

   (b) If the actual plugging differed from the approved plan, a statement defining the actual plugging and explaining why the Director should approve such deviation. If the Director determines that a deviation from a previously approved plan may endanger underground sources of drinking water, the permittee shall re-plug the well as required by the Director.

3. **Temporary Abandonment** - If the permittee ceases injection into the well for twenty-four (24) consecutive months, the well is considered to be in temporary abandoned status, and the permittee shall plug and abandon the well in accordance with the approved plan and 40 CFR 144.52 (a)(6), or make another demonstration of non-endangerment (e.g., a standard annulus pressure test). During any periods of temporary abandonment or disuse, the well will be tested to ensure that it maintains mechanical integrity. Demonstrations of non-endangerment/testing will be due every two years from the last successful test (unless the permit requires more frequent demonstrations of mechanical integrity). If the well loses mechanical integrity prior to the next test due date, then the well must either be plugged or repaired and retested within 30 days of losing mechanical integrity. The permittee shall continue to comply with the conditions of this permit, including all monitoring and reporting requirements according to the frequencies outlined in the permit unless an exception to such requirements is granted, in writing, by the Director.

4. **Revision of Plugging and Abandonment Plan** - If the permittee finds it necessary to change a Plugging and Abandonment Plan, a revised plan shall be submitted to the Director for approval at the time of the next monthly report.

5. **Standards for Well Closure - Prior to plugging and abandoning the well:**

(a) The permittee shall observe and record the reservoir pressure decay for a time specified by the Director and shall report this information to the Director.

(b) The permittee shall conduct appropriate mechanical integrity testing to ensure the integrity of that portion of the long string casing and cement that will be left in the ground after closure. Testing methods must include:

(1) Pressure tests with liquid;

(2) Noise, temperature, or oxygen activation logs; and

(3) Any other test required by the Director.

(c) Prior to well closure, the well shall be flushed with a buffer fluid.

G. MECHANICAL INTEGRITY

1. **Standards** - The injection well must have and maintain mechanical integrity consistent with 40 C.F.R. § 146.8(a)(1) and (2). Mechanical integrity demonstrations must be witnessed by an authorized representative of the Director, unless the Director waives this requirement on a test-by-test basis.

2. **Periodic Mechanical Integrity Testing - The permittee shall conduct the mechanical integrity testing as follows:**

(a) Long string casing, injection tubing and annular seal shall be tested by means of an approved pressure test in accordance with 40 C.F.R. § 146.8(b)(2). This test shall be performed upon completion of this well, and at least once every twelfth month beginning with the date of the last approved demonstration and whenever there has been a well workover in which tubing is removed from the well, the packer is reset, or when loss of mechanical integrity becomes suspected during operation;

(b) An approved temperature, noise, oxygen activation, or other approved log shall be run upon completion of this well and at least once every sixty (60) months from the date of the last approved demonstration to test for movement of fluid along the bore hole. The Director may require such tests whenever the well is worked over. The permittee shall notify the Director of his or her intent to perform the tests required by this permit at least 30 calendar days prior to such activities. The permittee shall either follow the prescribed test procedures found in Part III(H) of this permit or

submit written procedures for approval at least 30 calendar days prior to the testing. If the submitted procedures are not appropriate for approval, EPA will require the permittee to submit new proposed test procedures for approval, or add appropriate conditions to the submitted procedures. At the discretion of the Director, a shorter time period may be allowed.

(c) The permittee may request the Director to use any other test approved by the Director in accordance with the procedures in 40 C.F.R §146.8(d).

3. **Prior Notice and Reporting** - The permittee shall notify the Director of his or her intent to demonstrate mechanical integrity for periodically scheduled test events at least thirty (30) calendar days prior to such demonstration. At the discretion of the Director a shorter time period may be allowed. Reports of mechanical integrity demonstrations which include logs must include an interpretation of results by a knowledgeable log analyst. The permittee shall report the results of a mechanical integrity demonstration within forty-five (45) calendar days or with the next quarterly report after completion thereof.

4. **Gauges** - The permittee shall calibrate all gauges used in mechanical integrity demonstrations to an accuracy of not less than one-half (0.5) percent of full scale, prior to each required test of mechanical integrity. A copy of the calibration certificate shall be submitted to the Director or his or her representative at the time of demonstration and every time the gauge is calibrated. The gauge shall be marked in no greater than five (5) psi increments. The Densitometer shall be calibrated using an air check or liquid check every twelve (12) months in accordance with manufacturers' recommendation.

5. **Loss of Mechanical Integrity** - If the permittee or the Director finds that the well fails to demonstrate mechanical integrity during a test, or fails to maintain mechanical integrity during operation, or that a loss of mechanical integrity as defined by 40 CFR 146.8(a)(1) and (2) is suspected during operation, the permittee shall halt the operation immediately and follow the reporting requirements as directed in Part I(E)(12) of this permit. The permittee shall not resume operation until mechanical integrity is demonstrated and the Director gives approval to recommence injection.

6. **Mechanical Integrity Testing on Request From Director** - The permittee shall demonstrate mechanical integrity at any time upon written notice from the Director.

H. FINANCIAL RESPONSIBILITY

1. **Financial Responsibility** - The permittee shall maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner consistent with 40 C.F.R. 144.52 (a)(7). The approved financial assurance mechanism is found in the administrative record for this permit.

(a) The permittee must maintain a written cost estimate, in current dollars, for the Plugging and Abandonment Plan as specified in 40 CFR 146.10. The plugging and abandonment cost estimate at any point in the life of the facility operation must equal the maximum cost of plugging and abandonment at that time.

(b) The permittee must revise the plugging and abandonment cost estimate whenever a change in the Plugging and Abandonment Plan increases the cost of plugging and abandonment. For required annual updates of the cost estimate, an inflation factor will be applied to the previous estimate or an independent estimate may be used to establish the current Plugging and Abandonment cost.

(c) If the revised plugging and abandonment estimate exceeds the current amount of the financial assurance mechanism, the permittee shall submit a revised mechanism to cover the increased cost within thirty (30) calendar days after the revision specified in Part I(H)(1)(b) of this permit.

2. **Insolvency** - The permittee must notify the Director within ten (10) calendar days of any of the following events:

(a) The bankruptcy of the trustee or issuing institution of the financial mechanism; or

(b) Suspension or revocation of the authority of the trustee institution to act as trustee; or

(c) The institution issuing the financial mechanism losing its authority to issue such an instrument.

3. **Notification** - The permittee must notify the Director by certified mail of the commencement of voluntary or involuntary proceedings under Title 11 (Bankruptcy), U.S. Code naming the owner or operator as debtor, within ten (10) calendar days after the commencement of the proceeding. A guarantor of a corporate guarantee must make such a notification if he or she is named as debtor, as required under the terms of the guarantee.

4. **Establishing Other Coverage** - The owner or operator must establish other financial assurance or liability coverage acceptable to the Director, within sixty (60) calendar days of the occurrence of the events in Part I(H)(2) or (H)(3) of this permit.

I. CORRECTIVE ACTION

1. **Compliance** - The permittee shall comply with the plan for contingency corrective action which is found in Part III (D) of this permit and with 40 CFR 144.55 and 146.7.

2. **Corrective Action Plan** - The permittee shall file a Corrective Action Plan for approval by the Director within thirty (30) days of a written determination by the Director that improperly plugged, completed, or abandoned wells, or wells for which plugging or completion information is unavailable, are present in the area of review and penetrate the confining zone of the permitted well, as defined in the administrative record for this permit.

3. **Prohibition of Movement of Fluids into USDWs** - Should upward migration of fluids through the confining zone of this permitted well be discovered within the two mile area of review, and should this migration of fluids cause the introduction of any contaminant into a USDW pursuant to 40 CFR 144.12, the permittee shall immediately cease injection into this well until the situation has been corrected and reauthorization to inject has been given by the Director.

PART II

WELL SPECIFIC CONDITIONS FOR UIC PERMITS

A. CONSTRUCTION

1. **Siting** - The injection well shall inject only into the formation and depths listed on the cover page of this permit. At no time shall injection occur into a formation which is above the lowermost formation containing, within one quarter mile of the well bore, an underground source of drinking water.

2. **Casing and Cementing** - Notwithstanding any other provisions of this permit, the permittee shall case and cement the well in such a manner so as to prevent the movement of fluids into or between USDWs for the expected life of the well. The casing and cement used in the construction of this well are shown in Part III(E) of this permit and in the administrative record for this permit. Any change shall be submitted for approval by the Director before installation.

3. **Tubing and Packer Specifications** - The permittee shall inject only through tubing with a packer set within the long string casing at a point within or below the confining zone. The tubing and packer used in the well are represented in engineering drawings contained in Part III(E) of this permit. Any change shall be submitted for approval by the Director before installation.

4. **Wellhead Specification** - The permittee shall install and maintain a female coupling and valve on the wellhead, to be used for independent injection pressure readings. Further, the permittee shall install a sampling port for waste sampling consistent with the permittee's waste sampling procedures, if applicable.

5. **Site Security** – In order to prevent any illegal dumping into the injection well, the operator must secure the facility in such a way as to preclude access of unauthorized personnel. In the event that the facility's structures or security devices appear to be damaged or tampered with, such that unauthorized access to any part of the injection well system may have occurred, this event shall be reported to EPA in accordance with Part II(D)(1)(f)(3) of this permit.

B. OPERATIONS

1. **Injection Pressure Limitation** - Except during stimulation, the permittee shall not cause or permit the injection pressure at the wellhead to exceed the maximum limitation which is specified in Part III(A) of this permit. In no case shall injection pressure initiate fractures or propagate existing fractures in the confining zone or cause the movement of injection or formation fluids into a USDW.

2. **Additional Injection Limitation** - No waste streams other than those identified in Part III(F) of this permit shall be injected. The permittee shall submit a certified statement attesting to compliance with this requirement at the time of the annual report.

3. **Annulus Fluid and Pressure** - The permittee shall fill the annulus between the tubing and the long string casing with a fluid approved by the Director and identified in the administrative record of this permit. Any change in the annulus fluid, except during workovers or times of annulus maintenance, shall be submitted by the permittee for the approval of the Director before replacement. Except during workovers, the permittee shall maintain a positive pressure on the annulus as specified in Part III(A) of this permit.

4. **Annulus/Tubing Pressure Differential** - Except during workovers or times of annulus maintenance, the permittee shall maintain, over the entire length of the tubing, a pressure differential between the tubing and annulus as specified in Part III(A) of this permit.

5. **Automatic Warning and Automatic Shut-off System** - The permittee shall continuously operate and maintain an automatic warning and shut-off system to stop injection within fifteen (15) minutes of any of the following situations:

   (a) Pressure changes in the annulus or annulus/tubing differential signifying or identifying possible deficiencies in mechanical integrity; or

   (b) Injection pressure, annulus pressure, or annulus/tubing differential pressure reaches the pressure limits as specified in Part III(A) of this permit.

   The permittee must test the automatic warning and automatic shut-off system at least once every twelfth month. This test must involve subjecting the system to simulated failure conditions and must be witnessed by the Director or his or her representative, unless alternative arrangements are approved by the Director. Unless a trained operator is present on site property who is able to perceive shut-down alarms and is able to respond to the well controls or the wellhead within fifteen (15) minutes of a compliance alarm condition at all times when the well is operating, the special permit conditions related to the remote monitoring of the well in Part (H) of this permit shall apply.

6. **Precautions to Prevent Well Blowouts** - In order to prevent the migration of fluids into underground sources of drinking water, the permittee shall maintain on the well at all times, a pressure which will prevent the unintentional return of the injection fluid to the surface. If there is gas formation in the injection zone near the well bore, such gas must be prevented from entering the casing or tubing. The well bore must be filled with a high specific gravity fluid during workovers to maintain a positive (downward) gradient and/or a plug shall be installed which can resist the pressure differential. If the potential for blowout exists, a blowout preventer must be kept in proper operational status during workovers. In cases where the injected wastes have the potential to react with the injection formation to generate gases, the permittee shall follow the procedures below to assure that a backflow or blowout does not occur:

(a) Limit the temperature, pH or acidity of the injected waste prior to a workover; and

(b) Develop procedures necessary to assure that pressure imbalances do not occur.

C. MONITORING

1. **Sampling Point** - The injection fluid samples shall be taken at the sampling location as specified in Part III(A) of this permit.

2. **Continuous Monitoring Devices** - The permittee shall maintain continuous monitoring devices and use them to monitor injection pressure, flow rate, and the pressure on the annulus between the tubing and the long string of casing. If the well is equipped with a fluid level indicator, the permittee shall monitor the fluid level daily when injection is occurring, and weekly when injection is not occurring. The monitoring results shall be submitted to the Director as specified in Part II(D) of this permit. The permittee shall maintain for EPA's inspection at the facility an appropriately scaled, continuous record of these monitoring results as well as original copies of any digitally recorded information pertaining to these operations.

3. **Waste Analysis Plan** - The permittee shall comply with the written Waste Analysis Plan which describes the procedures used to monitor the nature of injected fluids and the procedures which will be carried out to comply with Part I(E)(10) of permit. A copy of the approved plan shall also be kept at the facility.

4. **Ambient Monitoring** - The permittee shall monitor the pressure buildup in the injection zone at least once every twelfth month from the last approved demonstration, including at a minimum, a shut down of the well for a time sufficient to conduct a valid observation of the pressure fall-off curve. From this observation, the permittee shall submit a report including at least a calculation of pressure build-up in the injection zone, injection zone transmissivity, and wellbore skin factor.

5. **Temperature Monitoring** – The permittee shall monitor injectate temperature at least once daily on each day during which injection occurs. If injection occurs during more than one eight-hour period in a day, temperature must be recorded at least once every six hours. The monitoring results shall be submitted to the Director as specified in Part II(D)(1)(g) of this permit.

D. REPORTING REQUIREMENTS

The permittee shall submit all required reports to the Director at:

United States Environmental Protection Agency
77 West Jackson Boulevard (WP-16J)
Chicago, Illinois 60604-3590
ATTN: UIC Section

1. **Monthly Reports** - The permittee shall submit monthly reports of the following information no later than the end of the month following the reporting period:

   (a) Waste analysis results per the approved waste analysis plan. Laboratory reports must be submitted with the first monthly monitoring report following their receipt by the operator;

   (b) A tabulation of maximum injection pressure, a daily measurement of annulus tank fluid level, and minimum differential between simultaneous measurements of injection pressure and annulus pressure for each day of the month;

   (c) Appropriately scaled graphs showing injection pressure and flow rate and annulus tank fluid level. One graph must include, at a minimum, daily maximum injection pressure and daily average flow rate, on a single, monthly chart;

   (d) A statement of the total volumes of the fluid injected to date, in the current calendar year, and the current month;

   (e) A tabulation of the dates, amounts and types of liquid added to or removed from the annulus system during the month, and the cumulative additions and cumulative subtractions for the current month and each of the past 12 months;

   (f) Any noncompliance with conditions of this permit, including but not limited to:

      (1) Any event that exceeds operating parameters for annulus pressure or injection pressure or annulus/tubing differential as specified in the permit; or

      (2) Any event which triggers an alarm or shutdown device required in Part II(B)(5) of this permit; or

      (3) Any event in which the facility's structures or security devices appear to be damaged or tampered with, such that unauthorized access to any part of the injection well system may have occurred.

   (g) The monthly average of the measured values of injectate temperature. If temperature measurements are recorded when the well is not injecting, those measurements will not be included in calculating the monthly

average. Records of all temperature measurements must be maintained in accordance with Part I(E)(9)(a) of this permit

2. **Quarterly Reports** - The permittee shall report the following at least every Quarter (quarterly reporting periods shall begin on the first day of January, April, July, and October of each year).

   (a) Results of the injection fluid analyses specified in Parts III (A) and (F) of this permit, if applicable. Laboratory reports must be submitted with the first monthly monitoring report following the close of the quarterly reporting period.

   (b) Part III (A) of this permit specifies the method for determining reporting of sampling and analysis more frequently than quarterly.

3. **Annual Reports** - The permittee shall report the following at least every twelfth month:

   (a) Results of the injection fluid analyses specified in the approved waste analysis plan as recorded in the administrative record for this permit. This report must include statements showing that the requirements of Part I(E)(10), Part I(G)(4), Part II (B)(2), Part II (B)(5), and Part II(D)(1)(e) have been met; and

   (b) Results of ambient monitoring required by 40 CFR 146.13(d)(1) and Part II(C)(4) of this permit.

4. **Reports on Well Tests and Workovers** - Within forty-five (45) calendar days or within the next quarterly report after the activity, the permittee shall report to the Director the results of demonstrations of mechanical integrity, any well workover, or results of other tests required by this permit.

PART III

ATTACHMENTS

These attachments include, but are not limited to, permit conditions and plans concerning operating procedures, monitoring and reporting, as required by 40 CFR Parts 144 and 146. The permittee shall comply with these conditions and adhere to these plans as approved by the Director, as follows:

A. SUMMARY OF OPERATING, MONITORING AND REPORTING REQUIREMENTS (ATTACHED)

B. PLUGGING AND ABANDONMENT PLAN (ATTACHED)

C. FINANCIAL ASSURANCE MECHANISM (ATTACHED)

D. CONTINGENT CORRECTIVE ACTION (ATTACHED)

E. CONSTRUCTION DETAILS (ATTACHED)

F. SOURCE AND ANALYSIS OF WASTE (ATTACHED)

G. SPECIAL CONDITIONS RELATED TO REMOTE MONITORING (ATTACHED)

H. MECHANICAL INTEGRITY TESTING

ATTACHMENT A
SUMMARY OF OPERATING, MONITORING AND REPORTING REQUIREMENTS

CHARACTERISTICS	LIMITATION	MINIMUM MONITORING FREQUENCY	MINIMUM REPORTING FREQUENCY
Injection Pressure[1]	1318 psig maximum	continuous	monthly
Annulus Pressure	100 psig minimum	continuous	monthly
Annulus/Injection Pressure Differential	100 psig minimum	continuous	monthly
Flow Rate		continuous	monthly
Annulus Fluid Level		daily (when injecting) weekly (when not injecting)	monthly
Annulus Fluid Loss		monthly	monthly
Cumulative Volume		continuous	monthly
Temperature[2]		daily[2]	monthly
Toxicity Characteristic List (Class I fluids)		see Part III(F)	annually
Fingerprint Analysis (Class I fluids)		see Part III(F)	quarterly
Chemical Composition and Physical Characteristics of Injected Oilfield Brine[3]		see Part III(F)	annually

[1] The limitation on injection pressure will serve to prevent injection-formation fracturing. This limitation was calculated using the following formula: [{0.75 psi/ft -(0.433 psi/ft)(specific gravity)} × depth]-14.7 psi. The maximum injection pressure is dependent upon the depth and specific gravity of the injected fluid. The Sylvania Sandstone at 4845 feet was used as the depth and a specific gravity of 1.097 was used for the injected fluid. The fracture gradient (0.75 psi/ft) was determined by a 1993 step rate test.

[2] Frequency of temperature measurements will be in accordance with Section II(C)(5) of this permit. Reporting of injectate temperature will be in accordance with Section II(D)(1)(g) of this permit.

[3] As specified in Part III(F) of this permit and the Waste Analysis Plan, found in the administrative record for this permit.

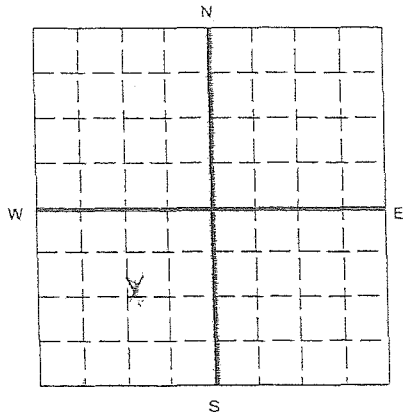
OMB No. 2040-0042 Approval Expires 12/31/2018

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
PCDW #1 122 South Water Street Pinconning, MI 48650	Deep Blu Logistics, LLC 110 S. Third St. Suite 202 St. Clair, MI 48079

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Michigan	Bay	MI-017-1I-C003

Surface Location Description
SW 1/4 of NE 1/4 of SW 1/4 of ___ 1/4 of Section 23 Township 17 Range 4E

Locate well in two directions from nearest lines of quarter section and drilling unit
Surface Location 983 ft. frm (N/S) N Line of quarter section
and 1016 ft. from (E/W) E Line of quarter section.

TYPE OF AUTHORIZATION
- ✔ Individual Permit
- | Area Permit
- | Rule

Number of Wells 1

Lease Name

WELL ACTIVITY
- ✔ CLASS I
- | CLASS II
  - | Brine Disposal
  - | Enhanced Recovery
  - | Hydrocarbon Storage
- | CLASS III

Well Number MI-017-1I-C003

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
16 "	cons pipe	17	17	20"
8-5/8	24.0	630	630	12-1/4"
5-1/2"	15.5	5090	5090	7-7/8"
2-3/8"	4.7 TBG	4798	0	5-1/2 csg.

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- ☐ The Balance Method
- The Dump Bailer Method
- ☐ The Two-Plug Method
- | Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	5-1/2"	5-1/2"					
Depth to Bottom of Tubing or Drill Pipe (ft	5000	3450					
Sacks of Cement To Be Used (each plug)	263*	390					
Slurry Volume To Be Pumped (cu. ft.)	311*	460					
Calculated Top of Plug (ft.)	3450	4					
Measured Top of Plug (if tagged ft.)							
Slurry Wt. (Lb./Gal.)	17+	17+					
Type Cement or Other Material (Class III)	A	A					

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
Perforated		4848'	4950'

Estimated Cost to Plug Wells
$36,000

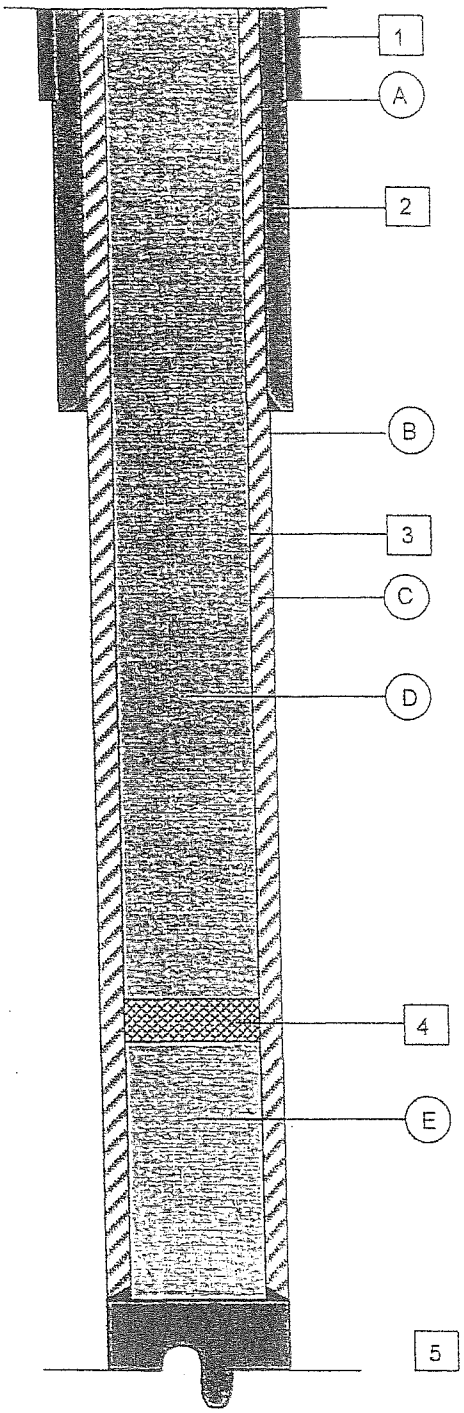
RECEIVED
SEP 20 2019
EPA

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Terry L. Blake		9-9-19

EPA Form 7520-14 (Rev. 12-11)



○ Cement, volumes, fluids and hole size
□ Tubulars and Components

(A) 20" Hole, Cemented to Surface
(B) 12 1/4" Hole, Cemented to Surface
(C) 7 7/8" Hole, Cemented to Surface
(D) Class A Cement from ± 3450' to Surface
(E) Class A Cement to Surface

[1] Conductor Casing: 16" set @ ±17'
[2] Surface Casing: 8 5/8" set @ ±630'
[3] Protection Casing: 5 1/2" set @ ±5090'
[4] Cement Retainer or Packer @ 4798'
[5] Wellbore Fill @ Approx. 5000'

Petrotek Engineering Corporation
Figure Q-1
Liquid Management, Inc. Pinconning, Michigan MI-017-1I-C003
WELL ABANDONMENT SCHEMATIC **PCDW #1**
SCALE: NONE DATE: 01/03

ATTACHMENT C
FINANCIAL ASSURANCE MECHANISM

Deep Blu Logistics, LLC has demonstrated adequate financial responsibility to properly plug and abandon their Class I non-hazardous well. A state bond in the amount of $36,800 has been established for this purpose.

ATTACHMENT D
CONTINGENCY PLAN FOR CORRECTIVE ACTION

There are no known artificial penetrations into the injection zone within the two-mile Area of Review, and one properly plugged penetration to the confining zone. Therefore, a corrective action plan is not required for any artificial penetrations within the PCDW #1 Area of Review. Should upward fluid migration be detected through the well bore of any previously unknown, improperly plugged, completed or abandoned well in the area of review due to injection of permitted fluid, injection will immediately cease, and EPA will be notified as required in Part I(E)(12)(d) of this permit. A Corrective Action Plan shall then be submitted as required in Part I(I)(2) of this permit.

Should a well failure occur in the PCDW #1 injection well, Deep Blu Logistics, LLC will shut the well in and follow the proper regulatory notification and repair procedures as required by Part I(E)(12)(d) of this Permit.

The corrective action plan that would be proposed by Deep Blu Logistics, LLC should upward fluid migration through the confining layer be detected in any well bore will include the following:

1. The PCDW #1 well will be shut-in.

2. EPA Region 5, Permits Branch, and the Michigan Department of Environment, Great Lakes, and Energy will be notified.

3. Following well shut-in, waste acceptance and/or generation will be stopped and/or will be shipped to alternative permitted facilities for off-site treatment and disposal as necessary.

4. A contingency plan will be prepared as follows:

    a. Locate well and identify present operator or owner, if any.

    b. Identify mode of failure.

    c. Prepare remedial plan outlining course of action.

    d. The remedial plan will be submitted to EPA, Region 5 UIC Section for approval.

    e. Upon authorization, the remediation plan will be implemented.

ATTACHMENT F
SOURCE AND ANALYSIS OF WASTE

1. General Requirements

Source of Waste – The Deep Blu Logistics, LLC PCDW #1 well is used to dispose of non-hazardous waste and wastes excluded from management under the Resource Conservation and Recovery Act, as specified at 40 CFR §261.4, provided the requirements regarding the new source as specified in this Attachment have been met.

Limitation - All fluids other than approved wastes entering this borehole must be approved by the Director for purposes of well testing, stimulation, workovers, or as buffer fluids.

Sampling location: The sampling location for new "sources" shall be at the site of generation. Previously approved sources may also be sampled at the site of generation or from a transport tank prior to unloading on-site. For on-site generated waste, samples will be taken out at a sampling tap after filtration and prior to injection.

Waste Analysis Plan - This plan will be entered into this record and thus becomes an integral part of this permit.

2. Proposed New Waste Source Information

The information shown in Subparts A through F of this Attachment must be submitted by the permittee initially for each proposed waste source, pursuant to Part II(B)(2) of this permit. These requirements do not apply to existing wastes generated by the on-site plant operations at the facility and otherwise documented in this permit and the applicable permit application. The permittee may incorporate the information into a form of its own, provided that all information is included, and that the same form is used for all proposed sources. The permittee, by submitting appropriate knowledge of waste, shall specify that there are no hazardous wastes as defined at 40 CFR §§ 261.30-33 present in each proposed source. Appropriate knowledge of waste may consist of any or all of the following three categories: (1) knowledge of the waste generation process, (2) detailed record-keeping, or (3) waste analysis data.

The permittee must receive written authorization from EPA prior to injecting waste from a new source. Authorization shall consist of a final minor-modified permit, which shall list this source as an approved source in this Attachment. Upon receiving the minor-modified permit, the permittee shall be authorized to inject this waste, subject to the conditions of this permit and the permittee's approved waste analysis plan. EPA will make every reasonable effort to expedite the administrative processing of minor permit modifications.

a. Permittee Information

1) Owner/Operator Name
2) Owner/Operator Address (Street, City, State, Zip Code)
3) Facility contact name and telephone number
4) Well Location (Township, Range, Section, Quarter Section, footage NSL, EWL)
5) EPA UIC Permit Number
6) State Permit Number (if applicable)
7) Well Name

b. Proposed Generator ("Source") Information

1) Information required of all requested sources:

a) Source Identification number (a unique number assigned to the waste generator at the site specified)
b) Generator Name
c) Generator Address (Street, City, State, Zip Code)
d) Generator Contact Name and telephone number
e) EPA Identification numbers (if applicable)

2) Oilfield waste sources must also include:

a) Oilfield Name
b) Location (Township, Range, and Section)
c) Geologic Formation

c. Waste Transporter Information

1) Transporter name
2) Transporter Address (Street, City, State, Zip Code)
3) Transporter Contact Name
4) Transporter Contact phone number
5) EPA Identification numbers (if applicable)

d. Waste Source Characterization (required of industrial waste)

1) Sample analysis results, which include:

a) Corrosivity
b) Reactivity (as applicable to sample matrix)
c) Ignitability
d) Toxicity
e) Conductivity
f) Specific Gravity
g) Temperature

h) All other constituents which are indicated by the generator as constituting a major portion of the waste stream (i.e., greater than 0.01 percent by mass).

The test for toxicity shall follow the Toxicity Characteristic Leaching Procedure and should include all appropriate constituents from the complete toxicity parameter list (which are listed at 40 CFR §261.24). Consistent with 40 CFR §262.11, the permittee may request a waiver from testing for corrosivity, reactivity, ignitability, or any of the constituents found at 40 CFR §261.24, based on knowledge of the hazard characteristic of the waste. In order to substitute "knowledge of waste" for testing, the permittee must submit a statement that describes how the materials and/or processes involved in the generation of the waste preclude the presence of the untested parameter(s).

2) Any appropriate analytical results necessary to identify waste constituents which may indicate a listed hazardous waste as defined at 40 CFR §§ 261.31, 261.32, 261.33, or 261.34.

3) Sampling and Analysis Description

a) The following information must be specified for each sampling event:
(i) Sample collector, title, and employer
(ii) Sample collection method and preservation technique
(iii) Sample collection point

b) The following information must be specified for each parameter:
(i) Analytical method for parameter detection/quantification
(ii) Analytical method accuracy
(iii) Upper and lower analytical method quantification limits

c) For parameters that were not analyzed for one or more hazard characteristics, a statement from the permittee which describes how the waste was determined to be nonhazardous.

e. Quality Assurance and Quality Control (QA/QC). A description of the following QA/QC Protocol followed:

1) Equipment cleaning blanks (if any)
2) Trip blanks (if any)
3) Sample duplicates (if any)
4) Chain of custody
5) Equipment calibration
6) Data reduction and validation

These requirements are specified in the QA/QC portion of the permittee's waste analysis plan.

f. Historical background of facility

Historical background of the facility, including a detailed description of the process involved in generating the waste, how it is collected and stored. Indicate whether the proposed waste source is a one-time source. The description should identify any periodic changes in facility operations which would be expected to alter the composition of the waste stream. The purpose of this information shall be to assure that the monitoring frequency applied to each source accounts for changes in the nature of the waste due to changes in facility operations. If a change in operations causes a change in the waste stream, the permittee must require monitoring which is representative of ongoing operations. Monitoring data supplied by the facility must be representative of the waste being generated for the entire period between sampling events.

3. Periodic Monitoring of Approved Sources

a. Nonhazardous industrial wastes

1) Toxicity Characteristic List (40 CFR §261.24). Fluid sampling constituents and frequencies shall be determined on a case-specific basis. Each source shall be sampled and analyzed according to the table in Subsection 4 below.

2) Fingerprint Analysis. All wastes that require fingerprint analysis as specified in Part III(G) of this permit shall, at a minimum, be subject to tests for the following:

Specific Gravity, pH, Flashpoint, Total Suspended Solids, Conductivity, and any other analyses deemed appropriate for characterizing the injected waste.

b. Oilfield Brine Wastes

1) All approved oilfield brine wastes shall be monitored at a minimum for the following parameters:

Sodium, Calcium, Magnesium, Barium, Total Iron, Chloride, Sulfate, Carbonate, Bicarbonate, Sulfide, Total Dissolved Solids, pH, Resistivity (ohm-meters @ 75°F), and Specific Gravity.

4. List of Presently-Approved Sources

a. Nonhazardous industrial waste fluids

Currently there are fourteen approved sources of industrial waste fluid being disposed of into the PCDW #1 well. Additional industrial waste sources, as approved by the Director, will be identified in the table below by identification number, company name,

location, as well as sampling frequency and analytical parameters. Certain waste sources may require more stringent sampling and analysis, which will be specified in this table.

Source ID Number	Source Name	Location (Address)	Waste Analysis Parameters	Waste Sampling Frequency
1-CL1	LMI Pinconning Cheese Production Plant	Liquid Management, Inc. 122 South Water St. Pinconning, MI 48650	Toxicity Characteristic List Fingerprint	Annually Monthly
2-CL1	MDEQ remediation waste – Osceola Refinery, West Branch, MI	MDEQ Saginaw Bay District 503 N. Euclid Ave Bay City, MI 48706	Toxicity Characteristic List Fingerprint	Annually Monthly
3-CL1	Waste Management Northern Oaks RDF leachate, Harrison, MI	Waste Management Inc., 513 County Farm Road, Harrison, MI 48625	Toxicity Characteristic List Fingerprint	Annually Monthly
4-CL1	MDEQ UST clean-up, Sheperd, MI	MDEQ Saginaw Bay District 503 N. Euclid Ave Bay City, MI 48706	Toxicity Characteristic List Fingerprint	One time One time
5-CL1	Whitefeather Landfill leachate, RSM 1V, LLC	Whitefeather Landfill 2401 E. Whitefeather Road, Pinconnining, MI 48650	Toxicity Characteristic List Fingerprint	Annually Quarterly
6-CL1	Taymouth Landfill leachate, RSM IV, LLC	Taymouth Landfill 4532 Rathbun Road Birch Run, MI 48415	Toxicity Characteristic List Fingerprint	Annually Monthly
7-CL1	CES steel/metal finishing rinse water, Dearborn, MI	Comprehensive Environmental Services, Inc. 6011 Wyoming Ave, Dearborn, MI 48126	Toxicity Characteristic List Fingerprint	Annually Quarterly
8-CL1	Peoples Landfill, Inc., a Waste Management Company	Peoples Landfill, Inc. 4143 Rathbun Road Burch Run, MI 48415	Toxicity Characteristic List Fingerprint	Annually Monthly
9-CL1	Waters Landfill, a Waste Management Company	Waters Landfill 11375 Sherman Road Frederic, MI 49733	Toxicity Characteristic List Fingerprint	Annually Monthly

Source ID Number	Source Name	Location (Address)	Waste Analysis Parameters	Waste Sampling Frequency
10-CL1	Saginaw Valley Landfill	Saginaw Valley Landfill 2145 S. Miller Road Saginaw, MI 48609	Toxicity Characteristic List Fingerprint	Annually Monthly
11-CL1	Republic Services Citizens Disposal	Republic Services Citizens Disposal 2361 W. Grand Blanc Road Grand Blanc, MI 48439	Toxicity Characteristic List Fingerprint	Annually Monthly
12-CL1	Waste Management Tri-City Recycling and Disposal	Waste Management Tri-City Recycling and Disposal 426 North Ruth Road Carsonville, MI 48419	Toxicity Characteristic List Fingerprint	Annually Monthly
13-CL1	Waste Management Pine Tree Acres Landfill	Waste Management Pine Tree Acres Landfill 36600 29 Mile Road Lenox, MI 48048	Toxicity Characteristic List Fingerprint	Annually Monthly
14-CL1	Envirosolids, LLC Treated waste water from oil reclamation	Envirosolids, LLC 6011 Wyoming Dearborn, MI 48126	Toxicity Characteristic List Fingerprint	Annually Quarterly

b. Oil Field Brines

Currently there are zero proposed sources of oil field brine to be disposed of into the PCDW #1 injection well. Future oilfield brine sources, as approved by the Director, will be identified in the table below by identification number, field name, location, as well as sampling frequency and analytical parameters.

Source ID Number	Field Name	Location	Geologic Formation	Waste Sampling Frequency
				Annually

ATTACHMENT G
SPECIAL CONDITIONS RELATED TO REMOTE MONITORING

If this well is monitored remotely, the following special conditions shall be applicable:

For the purpose of this permit, remote monitoring is defined as injection into the well when a trained operator is not present on-site and able to perceive shut-down alarms and able to physically respond to the well controls or the wellhead within 15 minutes of a compliance alarm condition.

1. Local operating system and remote monitoring system: If remote monitoring is to be used to operate the well, an operating system and programmable logic controller shall be on-site and shall have a back-up power supply and an automatic pager designed to alert designated on-call, off-site personnel in the event of a well alarm or shut-in. The off-site operator shall be able to remotely access the operating system to verify well conditions and alarm status.

2. Response to alarms and automatic shut-ins: Alarm conditions related to permit compliance conditions of the well under Part II (B) (5) shall be investigated on-site by a trained operator within one (1) hour of pager notification of the occurrence.

3. Loss of power to the computer: In the event of a power failure beyond the capability of the back-up power supply shuts down the computer, the well shall be automatically shut-in.

4. Loss of dial tone: If the automatic pager cannot get a dial tone for 15 minutes, the well shall automatically be shut-in.

5. Restart of the well after an automatic shut-in: Restart of the well after an automatic shut-in related to a permit condition alarm (including, but not limited to, injection pressure, annulus differential pressure, loss of dial tone for more than 15 minutes or computer power failure) shall require the physical presence of the operator on-site before the well can be restarted.

6. Restart of the well after non-permit condition related or scheduled shut-ins: If the well is shut-in for more than 48 hours for circumstances unrelated to permit conditions, restart of the well shall require the physical presence of the operator on-site.

7. Weekly operator inspections: If fluid injection occurs during the period of any week and the well is being monitored remotely, a trained operator shall physically visit the site to inspect the facility at a minimum frequency of not less than once per week. This inspection shall verify the correct operation of the remote monitoring system by review of items such as, but not limited to, a comparison of the values shown on mechanical gauges with those reported by the remote operating system.

8. When not in use by a trained well operator, offloading connections shall be locked at the valves leading to waste water tanks so that access is restricted to trained well operators.

Offloading of waste from offsite sources can only occur with a trained operator physically present on site. An offsite waste related bound log book will be maintained documenting that a trained well operator allowed offsite waste to be unloaded. At a minimum, offsite waste log book entries are to include operator name, date, time, generator identification, approximate volume, and approved waste source identification number from the effective permit. The bound offsite waste log book(s) will be considered part of the plant monitoring records regarding the injection wells.

ATTACHMENT H
MECHANICAL INTEGRITY TESTING

Standard Annulus Pressure Test

1. Ensure the packer is set within 100 feet of the top of the injection zone. Packers not set within 100 feet of the top of the injection zone will be evaluated by EPA on a case-by-case basis. Note any approved deviations from previously reported well construction.
2. Document the test using a mechanical or digital device or a service company job record which records the value of the parameters of interest as measured during the test.
    a. Submit along with the test results a gauge calibration certificate for the mechanical or digital device used to record test parameters. All calibration (for new or recalibrated gauges) must have been performed within a year prior to the test.
    b. Place a gauge on the wellhead to measure pressure. If a recording device is used, the recording device serves to verify the data witnessed on the wellhead gauge.
    c. Use an appropriately scaled mechanical gauge which has a measurement range that is 1.2 – 2 times the maximum pressure measured or a 1 psi resolution digital gauge with sufficient full scale.
    d. Measure and document pressure using a gauge and/or a digital record and/or a chart record that can be read with sufficient accuracy to identify pressure change which would result in a failure of the test and to record accurate values during the test interval. For example, if the test pressure is 300 psig, the gauge and/or chart record should be marked in increments of 5 psi or less.
3. Verify that the tubing/casing annulus is full of liquid. No unapproved fluids that may affect test outcomes are allowed. Measure and report the volume of liquid added to the annulus during pressurization (if any). If an annulus tank is pressurized with nitrogen to pressurize the well, record the liquid displaced from the tank into the well annulus.
4. Stabilize the temperature of the well and the annulus liquid, either by ceasing injection or injecting at a constant fixed rate. Ensure that the wellhead injection tubing pressure is at least 100 psi different from the annulus test pressure.
5. Pressurize the annulus to the greater of 300 psig or the maximum permitted injection pressure plus 100 psi. A positive pressure differential of greater than 100 psi should be maintained between the annulus and the injection tubing. If EPA does not approve any deviations from this criteria prior to testing, the test results might not be considered a sufficient demonstration of mechanical integrity and a new test would then be needed. A net gain or loss of more than 3% during the test indicates the well does not have mechanical integrity. Following pressurization, isolate the annular system from its pressure source and, if present, the sealpot or surge tank being sure to prevent any leaking across the shut-off valves.
6. Test for at least 60 minutes. Note the time, the annulus pressure, and the injection/tubing pressure at the start of the test and measure and note these same parameters at least every 10 minutes thereafter up to the end of the required test duration.
7. Send a report of the testing including any other data or documents available at the conclusion of the test which support the test results, such as gauge calibration certification, third-party service ticket, and/or original chart/digital recordings, to EPA per the reporting requirements of the permit.

8. If the tested well was reworked in association with the test, submit a rework record.
9. Include the certification statement and signature on the transmittal letter or on the individual MIT results form and, if submitted, the rework record to comply with the requirements of 40 CFR § 144.32(b).

Fall-Off Test

1. Injection of normal injectate at the normal rate is preferred.
2. The injection period should be at least 50% longer than the planned shut-in time, or at minimum as long as operationally possible. During this time injection at a constant rate (+/- 10%) should be attempted.
3. The pressure gauge utilized for the pressure transient test shall have been calibrated no more than one year prior to the test date.
4. Place the pressure gauge downhole at approximately the top of the permitted injection zone at least one hour prior to ceasing injection.
5. Following at least one hour of pressure data collection during injection, shut-in the well as quickly as possible.
6. Collect data at a frequency of at least one data point every 10 seconds for at least the first five minutes after shut-in; between five and 30 minutes at no less than one reading every 30 seconds; and the operator can reduce frequency as required after 30 minutes.
7. End pressure measurements when pressure is relatively stable, when operational necessity dictates, when sufficient radial flow dominated data has been collected to allow evaluation of kh and extrapolation of pressure to infinite shut-in time is possible, or if boundary effects are observed.
8. The test shall include a written report by a knowledgeable well test analyst. Such report must explain any anomalies shown in the results.
9. The test report shall include an up-to-date well schematic, a copy of the dated calibration certificate for the gauge utilized, and digital pressure data on CD/flash drive/email in a spreadsheet format.
10. The test report shall include a tabulation of values for the following background parameters: EPA permit number, porosity, net thickness (ft), viscosity (cp), formation compressibility (per psi), long string casing inner diameter (in), open hole diameter (in), and Kelly bushing elevation (ft). The test report shall also include a tabulation of values for the following test specific parameters: test start date/time, test end date/time, test length (hr), depth reference (Kelly bushing or ground level), specific gravity of test fluid, test fluid compressibility (per psi), gauge depth (ft), gauge calibration date, pressure required to maintain tubing fluid to the surface (psi), final tubing fluid level (ft), final flow rate immediately prior to shut-in (gpm), cumulative volume injected since last pressure equalization (gal), permeability-thickness (md-ft), skin factor, radius of investigation (ft), final measured flowing pressure (psi), final measured shut-in pressure (psi), and p* pressure (psi). Pressure gauge units (psia or psig) shall be specified.
11. The test must conclusively demonstrate its objectives and satisfy the Director to be considered a completed test.

Radioactive Tracer Survey

1. The tool shall be calibrated by recording the tool response to rock formations of lithology known to produce a low reading, and to lithology known to produce a high reading.
2. Set the scaling at the same level for all phases. 40 counts per second per inch is usually effective.
3. Record a base log before any radioactive material is released in the well.
4. Use slugs large enough to ensure the maximum height of deflection caused by the slug is 50 times higher than the background.
5. Inject at the highest practicable rate during the slug tracking test, but at low enough velocity to allow the slug to be followed effectively.
6. If the slug moves upward outside of the tubing or splits during the tracking test, follow the slug upward to determine the limit of its upward movement.
7. Inject at the highest practicable rate during the stationary test.
8. Set the tool with the bottom detector within five feet above the end of the tail pipe, the casing shoe or the top perforation (whichever is deeper) during the stationary test; or if the slug moved upward during the tracking test, place the top detector above and the bottom detector below the highest level of upward movement detected during the tracking test. If the slug passes both detectors during the stationary test, move the tool up in steps to find the shallowest extent of movement.
9. The stationary test must be run for a minimum of 30 minutes and must be run long enough to be able to detect upward flow of 2 feet per minute.
10. Run a final base log after testing.
11. The test shall include a written report by a knowledgeable analyst. Such report must explain any anomalies shown in the results.
12. The test report shall include an up-to-date well schematic; digital logging data on CD/flash drive/email in a spreadsheet format; description or illustration of the logging tool with measurements of detector and ejector placement relative to the tool bottom; and plots of the logging activity including merged and unmerged slug tracking records, stationary test plot, initial base log, final base log, and superimposed initial and final base logs.
13. The test report shall include a tabulation of values for the following background parameters: EPA permit number, long string casing inner diameter (in), long string casing length (ft), tubing inner diameter (in), tubing length (ft), depth to top of packer (ft), depth to bottom of packer (ft), tail pipe inner diameter (in), tail pipe length (ft), tail pipe lowermost depth (ft), top of open hole or uppermost perforation (ft), open hole diameter (in), well total depth (ft), plugged back total depth or top of fill depth (ft), Kelly bushing elevation (ft), and as applicable depth to top of confining zone (ft), depth to top of permitted injection zone (ft), and depth to top of injection interval (ft). The test report shall also include a tabulation of values for the following test specific parameters: test date, depth reference (Kelly bushing or ground level), and injection rate for each test (gpm).
14. The test must conclusively demonstrate its objectives and satisfy the Director to be considered a completed test.

Temperature Log

1. To conduct a static temperature log, the well must be shut in for at least 36 hours, or longer if temperature stabilization based on previous logs requires more time.

2. If the well cannot be shut in for 36 hours, shut in for as long as possible and run two logs at least six hours apart.
3. Calibrate the temperature tool in a bucket of ambient temperature water and a bucket of ice water immediately prior to conducting the test.
4. Log from the top of the well to the bottom, recording both temperature and natural gamma ray activity.
5. Record log data at least once per foot.
6. Logging speed shall not exceed 30 feet per minute. Reduce speed to 20 feet per minute in air-filled well bores.
7. The test shall include a written report by a knowledgeable log analyst. Such report must explain any anomalies shown in the results.
8. The test report shall include an up-to-date well schematic, digital logging data on CD/flash drive/email in a spreadsheet format, and a plot of the logging activity.
9. The test report shall include a tabulation of values for the following background parameters: EPA permit number, long string casing length (ft), tubing and/or tail pipe lowermost depth (ft), top of open hole or uppermost perforation (ft), well total depth (ft), plugged back total depth or top of fill depth (ft), Kelly bushing elevation (ft), depth to top of confining zone (ft), and depth to top of permitted injection zone (ft). The test report shall also include a tabulation of values for the following test specific parameters: test date, depth reference (Kelly bushing or ground level), date of last injection, temperature of last injected fluid (F), elapsed time since last injection (hr), volume injected into the well in the past year (gal), names and depths of any other injection formations used at the site, temperatures logged by the tool and thermometer during calibration (F), depth to liquid level in the tubing (ft), depth to top of receptive strata (ft), and depth to bottom of receptive strata (ft).
10. The test must conclusively demonstrate its objectives and satisfy the Director to be considered a completed test.

WASTE ANALYSIS PLAN

UIC Re-Permit Application

Deep Blu Logistics, LLC
Class INon-Hazardous Deep well USEPA Permit # MI-017-1I-C003
MDEQ Permit # M-392

April 2019

Pinconning, Michigan Facility
PCDW No. 1
T17N, R4E Section 23
Bay County

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1.0 INTRODUCTION

1.A. Background

The purpose of this Waste Analysis Plan (WAP) is to characterize any non-hazardous industrial waste water generated off-site that is injected into the Deep Blu Logistics, LLC (DBL) PCDW No. 1 at the Pinconning, Michigan facility. DBL will be responsible for ensuring this WAP is implemented. The well is currently permitted to operate as non- hazardous commercial Class I industrial disposal well. This Waste Analysis Plan document will be implemented with regard to future minor modification requests related to the injection of off-site non-hazardous waste streams as defined under applicable RCRA regulation. "Off-site wastes" are to be considered any injected waste fluid that is not generated by adjacent Pinconning Cheese Plant operations or decommissioning and that are brought to the facility in transports and disposed of by DBL in return for compensation.

The well is permitted for injection of waste waters and other fluids necessary for well testing, stimulation, work-over or buffer fluid may also be injected. In addition, after minor modification of the permit by adding waste sources to the applIcable permit attachment, the existing permit approval authorizes the injection of multiple off-site non-hazardous waste streams (Class I waste) as defined by applicable federal and state regulations on a commercial basis and wastes from the upstream oil and gas industry (Class II waste) as defined by the Subtitle C exploration and production exemption from RCRA.

DBL will operate the well under this waste analysis plan in accordance with Title 40 of the Code of Federal Regulations (40 CFR), Section 146.13 which requires operators Class I underground injection wells to monitor and analyze the fluids injected into the well "to yield representative data of their characteristics." This waste analysis plan has been prepared to fulfill the specifications of 40 CFR 146.68 such that the plan presents parameters for which the waste will be analyzed, methods that will be used to test for these parameters, and methods that will be used to obtain a representative samples of the waste to be analyzed.

1.B. Sources

Sources for Class I non-hazardous waste to be injected into PCDW No. 1 under this waste analysis plan include production process, wash water and decommissioning wastes generated from the cleaning and sanitizing of milk and cheese processing equipment at the Pinconning, Michigan cheese production plant. Although the cheese plant is not currently operational, continued approval of these streams is requested under the re-permit application. Injection of such fluids will remain permitted for any future re-start of the plant or decommissioning of the facility.

Off-site sources of Class I wastes to be accepted for injection in the DBL well will include, but not be limited to: storm-water run-off from a variety of facilities and industrial sites that may be first stored in lagoons or containment areas, run-off or contaminated waters from construction sites, wash water from truck and car washes, non-hazardous pit water from oilfield wash pits, reclaimed water associated with the removal of underground storage tanks, non-hazardous leachate from landfills, certain liquids generated as by-products of industrial processes, water from groundwater purging or remediation operations, wash water from county and/or state road salt, transportation yard and equipment maintenance facilities, water from oilfield wash, drilling or production pits, well completion fluids, used treatment and stimulation fluids, cooling tower blow-down, gas plant dehydration waters, pipeline pigging waste water, and produced brine from crude oil and natural gas production wells.

New sources of Class I waste will have analytical tests performed to demonstrate the non-hazardous nature of the waste prior to DBL injection of the waste in either well or the mixture of such fluids with any waste waters generated and stored on site. In addition, DBL will require any off-site waste generator to certify the non-hazardous nature of each waste stream being shipped to the DBL disposal well site.

It is anticipated that Class I and Class II fluids will be brought to the facility in various size tank truck transports. For Class I fluid transport, each tank truck will have a single manifest. At this time, no facilities for handling drums or barrels of waste are anticipated, only bulk deliveries are to be accepted for disposal.

Specific waste sources for off-site Class I wastes have been identified and contracted and are attached to this permit. Upon submittal of waste approval requests, it is the understanding of the permittee that US EPA will review pre-approval characterization data and approve new waste sources with associated waste-specific requirements for analytical test parameters for any future disposal of off-site fluids on a case-by-case basis. Waste analysis will be required for each approved source on a twice per year or a once per quarter basis unless a different frequency is specified in the approval letter issued by EPA that serves to add the waste to the minor-modified list which shall be known as Part III (F) of the permit. Upon inclusion in Part III (F) of the permit, new sources with associated testing requirements will then be explicitly listed in this permit as an enforceable condition.

1.C. Summary

Major portions of the DBL waste characterization and monitoring program related to the acceptance and injection of off-site fluids consist of:

Volume Monitoring
Generator Certification
Sampling and Analysis

Quality Assurance/Quality Control

The WAP may be reviewed and, if necessary, revised as new sources are added to the approved waste stream. Revisions to the WAP, upon approval, will become part of the administrative record and constitute a minor modification of the permit.

Compatibility problems between the waste and the injection or confining zone lithologies or with the well construction materials that might lead to injection safety issues are not anticipated. The history of Class I injection and commercial non-hazardous injection in the state of Michigan has clearly demonstrated that a wide variety of aqueous industrial and oilfield wastes are suitable for Class I injection. No non-hazardous *waste* compatibility problems relevant to the safe operation or containment of waste in the subsurface have been identified in previous permit applications or well operations. Data appropriate to evaluate such concerns will be collected only when deemed necessary by DBL through waste specific process or characterization data. Such concerns would include the potential for corrosion due to low pH (below 4) or scale problems from wastes with high pH (above 10). If such wastes are encountered on a regular basis, periodic metal thickness monitoring via coupons or non-invasive electrical or magnetic monitoring may be implemented. Economic and well performance issues regarding well flow rate capacity and maintenance are to be addressed by utilizing settling and filtration of the waste prior to injection. It is probable that waste with more than 5% suspended solids that cannot pass a 100 micron filter test will not be pursued as primary waste sources due to the potential for increasing operating cost by fouling the surface facilities and injection formation. It should be noted that Class I and Class II wastes will initially be off-loaded into separate tanks but one set of filters, on set of flow lines and injection apparatus, a single suction tank and one set of injection pumps will be utilized to facilitate injection of both types of waste into the single Class I well at the facility.

2.0 PROCEDURES

2.A. Waste Unloading and Volume Monitoring

Offloading of waste from offsite sources will be conducted with a trained operator physically present on site. An offsite waste related bound log book will be maintained documenting that a trained well operator allowed offsite waste to be unloaded. At a minimum, offsite waste log-book entries are to include operator name, date, time, generator identification, approximate volume, and approved waste source identification number from the effective permit. The bound offsite waste log book(s) will be considered part of the plant monitoring records regarding the injection well.

As discussed in the main text of the permit re-application, a recorder will be utilized to continuously monitor injection pressure, annulus pressure, flow rate and totalized cumulative volumes. A summary of recorded data will be provided to the EPA per applicable permit requirements. Records of daily volume accepted from off-site sources will be recorded and a total monthly volume of off-site waste calculated based on records maintained in the bound "Offsite Log Book" will be noted in the monthly well reports made to EPA.

2.B. Waste Characterization

Currently Approved Wastes

At a minimum, the following composition parameters will be monitored once quarterly for any quarterly period that the disposal of currently permitted Class I injectate from the Cheese Plant is managed via the well. These parameters shall include:

- pH
- total dissolved solids
- total suspended solids
- specific gravity
- chloride
- sulfate
- bicarbonate
- ammonia
- total phosphate
- barium
- chromium
- calcium
- potassium
- magnesium
- sodium

New Class I Waste Approvals

New sources of Class I waste are to be tested to verify the non-hazardous nature of the waste and for waste specific indicator parameters prior to approval for well disposal. In addition, DBL will provide data regarding the physical source of the waste being considered for injection. This data will be submitted to the agencies (USEPA and MDEQ as applicable) as a part of a request for agency addition of the waste as an approved fluid source suitable for injection under this permit. The attached form or a suitable equivalent containing similar information will be completed as a description of these 'waste streams. This form is subject to update or revision as deemed appropriate by the permittee. A letter, on company letterhead, that indicates the non-hazardous nature of the waste will be maintained by DBL in a file pertaining to each source approval.

Basic indicator or characterization analytical parameters to be used for all offsite *waste* characterization will include:

pH
flashpoint
total suspended solids
total dissolved solids
conductivity
specific gravity

As appropriate, specifications/anions may be added to the fingerprint analyses on a case-by-case basis. BTEX and/or total organic carbon (TOC) may also be added to the fingerprint characterization list in limited cases justified by the nature of the process that generates the waste. In addition to the above analyses being conducted as part of the initial screening and approval request process, these analyses will also be conducted on either a quarterly or twice-annual basis (depending on the waste source) to satisfy characterization requirements.

All new Class I waste sources will be also be tested to demonstrate the absence of applicable hazardous characteristics as part of the approval process. Under 40 CFR Part 261, Subpart C there are four hazardous characteristics for which waste may be tested: (D001) corrosivity, (D002) ignitability, (D003) reactivity, and (4) toxicity. All wastes will be tested under fingerprinting requirements for (1) corrosivity and (2) ignitability. Testing for (3) reactivity will be conducted on a case-by-case justified basis. Testing for toxicity will also be conducted on a case-by-case basis. When applicable, testing will follow the Toxicity Characteristic Leaching Procedure (TCLP) and will include appropriate toxicity parameters defined at 40 CFR 261.24 which are likely candidates for causing a specific waste source being considered for acceptance to be classified as hazardous. Such testing data will be accompanied by an explanatory statement that justifies the testing suite selected pursuant to 40 CFR 262.11 in lieu of analytical results for any such parameters not tested. For example, a Class I waste

source from a process that does not involve the use, manufacture, or handling of pesticides, would not be tested to ensure the absence of pesticide related waste codes and a *written* explanatory statement summarizing this rationale would be provided in the waste approval request and would be considered sufficient to satisfy applicable standards. Subsequent testing and certifications would not be required to repeat this test parameter justification after approval was granted except in situations where new information becomes available regarding changes to the approved waste source.

Each initial source approval request will list the proposed list of analytical parameters and testing frequency (quarterly or twice-annual). Approval of the waste stream will include approval of the waste source-specific testing protocol.

A sample form is provided on the following pages showing an example non-hazardous generator waste manifest form (or suitable equivalent subject to permittee option) that will be required for each incoming load. An alternate form supplied by the generator or required by the state in which the waste originated may also be substituted.

New Class II Wastes

The parameters used to characterize Class II waste will be consistent with any existing approvals for injection of such waste in the State of Michigan. The following table lists the expected minimum composition parameters which will be monitored initially for produced fluids from specific Class II produced brine sources and then once annually for a grab sample from the Class II unloading tank.

Initial approval of brines from hydrocarbon production wells will require identification of the Geologic Formation, Field (where available), County, Section, Township and Range. Well or central production facility (CPF) identification *with* current operator, when available will also be supplied. No updates of any future operator status changes for the sample source for each approval will be required under the permit. Brine from drilling or work-over activities shall require no pre-approval and annual testing of the Class II reception tank shall provide data regarding composition. Loads of Class II brine brought to the well will require identification of the following:

- Well or central production facility name
- Geologic formation (of well completion)
- Field (where applicable)
- County
- Location (T-R-S)
- Operator name

Approval shall be granted for Class II produced brine sources on a county-by-county basis for produced water from a particular formation. For example, Dundee produced brine and Traverse produced brine from Bay county would require separate initial tests

and approvals, but Dundee produced brines from two (2) separate and distinct fields would not require approvals as separate sources.

Deep Blu Logistics, LLC
Class II Waste Sampling Parameters
(initial sample from Class II source tank or well for each produced brine source)

Parameter	Method	**Minimum** Monitoring Frequency	**Minimum** Reporting Frequency
Specific Gravityo	grab / Hydrometero	annuals	annuals
TDSO	grab / 160.3O	annuals	annuals
PHO	grab / 150.1O	annuals	annuals
Sodium o	Grabs	annuals	annuals
Calciumo	Grabs	annual 0	annuals
Magnesium	Grab	annual	annual
Barium o	Grabs	annuat O	annuals
Total front	Grabs	annuals	annuals
Chlorides	Grabs	annuals	annuals
Sulfateo	Grabs	annuals	annuals
Carbonates	Grabs	annual	annuals
Bicarbonates	Grabs	annuals	annuals
SulfideQ	Crabb	annual	annual

*annual refers to tank grab sample to be obtained from Class II acceptance tank in any year when Class II wastes are injected in the well.

Continuing Operations

As discussed above, Class I wastes will initially be tested for applicable general parameters and as appropriate for hazardous characteristics. For short-term or single waste loads, this testing along with generator certification will be used to characterize the injectate. No other testing will be required.

In the case of ongoing periodic injection of waste streams beyond initial disposal from an individual approved source, testing for applicable non-hazardous and potential hazardous characteristics will be completed on a quarterly or twice-annual basis. The parameters to be tested will be specific to each approved source and will be listed in

the original request for approval. If a source is not managed at the DBL well during a test sample period, no sample or analysis will be required for that approved waste stream. For the purpose of this waste analysis plan, the first quarter shall be considered the first three calendar months of the year, and the remaining quarters shall be considered subsequent divisions of the year into three month segments. If a source is not managed at the DBL *well* during a calendar year, no toxicity characteristic or annual sample or analysis will be required for that approved waste stream.

Deep Blu Logistics, LLC

122 South Water Street
Pinconning, Michigan 48650
Class I Non-Hazardous Deep well PCDW No. 1 (MDEQ Permit M-392) Permit#MI-017-1I-C003; T17N, R4E, Section 23 SW ¼,983 FNL, 1014 FWL

Sample Generator Qualification Form

WASTE

Date of Form Submittal:
DBL Part III (G) Source ID #: Source of Waste:
Description/Type of Waste:
Anticipated Disposal Volume (gallons):
One-time disposal volume or anticipated load frequency:
What methods or techniques have been used to classify the waste?
(If testing, attach results; If process knowledge; attach details)

General parameters

Sp. Gravity:_____TDS:_____TSS:_____pH:_____Flashpoint:_____
Additional analytical parameters and frequency of periodic testing of the source:

GENERATOR

Company Identification Number (if any):
US EPA and/or State Identification Numbers (if any):
Generator Name:
Generator Contact Name and Title:
Generator Contact Telephone:
Generator Mailing Address:
Physical Waste Location Generator Address:

Summary of waste generation, collection and storage process:

Analytical parameters and frequency of evaluation for hazardous characteristics:

Deep Blu Logistics, LLC
122 South Water Street
Pinconning, Michigan 48650
Class I Non-Hazardous Deepwell PCDW No. 1 (MDEQ Permit M-392)
Permit#MI-017-1I-C003; T17N, R4E, Section 23 SW , 983 FNL, 1014 FWL

Sample Non-Hazardous Class IWaste Manifest

WASTE

DBL Part III (G) Source ID
#: Source of Waste:
Type of Waste:

Proper Shipping Name of Waste (if any):
Volume (gallons): _____

Date / Time Picked up at Generator Location: _____/_____
Date / Time Arrived at Disposal Facility: _____/_____

GENERATOR

Company Identification Number (if any):
US EPA and/or State Identitcation Numbers (if any):

Generator Name:

Generator Contact Name and Title:

Generator Shipping Address:

Authorized Generator Signature : _____ Date : _____
Name and Title (type or print) : _____

TRANSPORTER

USEPA State and/or DOT Identification Numbers (if any):

Transporter Name:

Transporter Address:

Vehicle and Driver Identification:

Transporter Driver Signature : _____ Date : _____

2.C. Sampling and Analysis

DBL, generator, or contracted analytical laboratory personnel will collect necessary waste stream samples. All sampling procedures will be conducted at the direction of the selected, certified analytical laboratory and in accordance with acceptable US EPA procedures. The sampler's name, sampling point, and date sampled will be documented in chain-of-custody paperwork. Samples will be collected with the grab method.

The table included below summarizes the analytical method and sampling frequency for typical parameters that may be included in the waste sampling for a particular waste source.

Deep Blu Logistics, LLC
OFF-SITE WASTE SAMPLING METHODS

Test Parameter	Test Method	Units
Total Dissolved Solids, TDS	EPA 160.1	mg/L
Total Suspended Solids, TSS	EPA 160.2	mg/L
Specific Gravity	ASTM 2710 F	
Total Organic Carbon, TOC	415.1,415.2	mg/L
Specific Conductance	**120.1**	
Sodium	EPA 6010B	mg/L
Calcium	EPA 6010B	mg/L
Magnesium	EPA 6010B	mg/L
Bicarbonate	EPA 310.1	mg/L
Sulfate	EPA 300.0	mg/L
Chloride	EPA 325.3	mg/L
Ammonia (NH3). as N	EPA 350.2	mg/L
BTEX	EPA 5030/8020	ug/l
Iron (Fe)	EPA 200.7	mg/L

Mercury (Hg)	EPA ?'470	mg/L
Arsenic (As)	EPA6010B	mg/L
Barium (Ba)	EPA6010B	mgL
Cadmium (Cd)	EPA6010B	=g ▼
Chromium (Cr)	EPA6010B	mgL
Lead (Pb)	EPA6010B	mg/L
Selenium (Se)	EPA6010B	mg/L
Silver (Ag)	EPA6010B	mg/L
Ignitability (D001)	SW-846 1010	
Corrosivity (D002), pH	SW-846 1110,9045	pH units
Reactivity (D003) Cyanide and Sulfide	SW-846 7.3.3.2/7.3.4.1	
Applicable TCLP metals, semi-volatile organics, volatile organics, herbicides, pesticides	Per 40 CFR 261 Appendix III	mg/L or ug/L

Notes: DBL reserves the right to select use of the cited method or method with equal or greater detection limit

Samples *will* be collected at the point of generation for new sources, and results of testing submitted as part of the approval process. Subsequent to approval, samples of offsite wastes may be collected at the point of generation, or at the DBL facility from transport tanks prior to unloading wastes into the storage or injection facilities.

3.0 QUALITY ASSURANCE/QUALITY CONTROL

3.A. General Sampling and Analytical Information

The sampling protocol *will* be followed by properly trained personnel conducting the sample collection and analysis. DBL will adhere to guidelines set forth in "Test Methods for Evaluating Solid Waste", SW-846 and 'Methods for Chemical Analysis of Water and Wastes", EPA 600/4-79/020 as appropriate. Approved sample preservation techniques from 40 CFR 136.3 will be followed as appropriate. These will include preservation in plastic or glass sample containers provided by the laboratory and storage in a sample refrigerator or cooler for shipment to the laboratory. DBL has used various laboratories in Michigan to provide analysis services for waste characterization in the past. DBL reserves the option to choose alternate laboratories for testing provided equivalent QA/QC standards are met.

Standard chain of custody protocols will be followed for *waste* collection, transport and analysis. Below are summaries of the minimum sampling and analysis protocols which will be followed for each characterization parameter:

Labeling

1. DBL Waste Source Sample ID # including code or name, date and time
2. Name of sample collector; (include sampling company name if not DBL);
3. Sample collection method;
4. Sample collection point;

Reporting

1. Sample preservation technique, as appropriate;
2. Analytical method for parameter detection/quantification;
3. Analytical method accuracy and quantification limits; and
4. Field documentation of sampling.

The following are QA/QC parameters which *will* be followed to ensure the adequacy of the sampling and analytical techniques for wellhead sampling and analysis described in this plan.

3.B. Sampling Controls

1. Equipment Blanks

If possible, samples will be obtained directly from the sample tap or valve being used to

access the tank or containment vessel and not be transferred to any secondary container or device before being stored in the sample container to be shipped to the laboratory. In this case, no equipment cleaning blanks will be required. If not, equipment blanks will be taken as deemed appropriate by DBL for the purpose of detecting potential cross contamination due to improper decontamination of sampling equipment. After sampling, any secondary container or sampling device used will be decontaminated according to the sampling plan protocol. The sampling device will then be rinsed with deionized, water and the rinsate collected in a sample container for transport to the laboratory for analysis of, at a minimum, the same parameters chosen in the sampling plan above.

2. Trip Blanks

In the case of suspect analysis from any laboratory, trip blanks will be used and will be sample containers filled with Type II reagent grade water at the laboratory, sealed at the laboratory, which accompany the sample containers used throughout the sampling event. The sample containers shall be handled in the same manner as the samples. Trip blank(s) will be sent to the laboratory for analysis of, at a minimum, the same parameters chosen in the sampling plan above. A minimum of one (1) trip blank per sampling event will be utilized, if necessary.

3. Sample Duplicates

On advance written demand of EPA, duplicate samples will be taken to assess the QA/QC of the laboratory conducting the analysis. Such samples will be drawn from the same site from which primary samples are taken. Any duplicate samples will be split from the original sample in a manner to emphasize sample representativeness. The duplicate will be labeled with a sample number which will not conflict with the other samples, but will not be discernable to the laboratory as a duplicate sample. One duplicate sample per sampling event will be taken and analyzed for the same parameters listed in the sampling plan.

4. Sample Chain-of-Custody Protocol

Sample chain-of-custody will be followed at all times during the sampling and subsequent analysis. Chain-of-custody will be used to document the handling and control necessary to identify and trace a sample from collection to final analytical results.

3.C. Analytical Controls

1. Equipment Calibration

DBL will require that selected laboratories maintain QA/QC data regarding the frequency

and type of instrument calibration performed at the laboratory and in the field. Any calibration of thermometers, gauges, chromatographs, spectrometers and other meters will be conducted according to appropriate instrument manufacturer specifications and manufacturer recommended frequencies or as dictated by applicable laboratory Q/A plans.

2. Data Reduction

The process of transcription of the raw data into the reportable units will be conducted by the laboratory in accordance with that laboratories Q/A plan. Data reduction utilized in the analysis and reporting process will be presented in the reports to the US EPA for each sampling event and parameter tested by the specific laboratory used at the time. Data will be recorded on hand written work sheets which will include identification data, sample data and all data required for calculations or on computer print-outs accompanied by operator notes and summaries.

3. Data Verification

Data verification will be conducted after each sampling event by assigned laboratory personnel review of chain-of-custody forms, equipment calibration records and data completeness. Spot checks of raw data versus reported data will be performed to review math accuracy, significant numbers and reporting units. In addition, certified laboratory standard quality assurance/quality control checklists will be utilized for individual test methods such as blanks, standards, and comparisons of internal lab test duplicate results. Problems with any of these items will be indicated in the report to the agency.

4. Internal Quality Control

Certified quality control samples will be run periodically with sample batches obtained from appropriate commercial sources, or the US EPA. Internal quality control will be addressed by disclosure of the laboratory's use of blanks, blind standards, matrix spikes and matrix spike duplicates, preparation of reagents, and laboratory duplicate or replicate analyses.

3.D. Actions

1. Corrective Actions

Corrective actions will be implemented by laboratories if the analytical or sampling method does not achieve plan objectives. Actions may entail re-sampling the waste stream and/or re-analyzing the fluid for a particular parameter, re-calibrating an analytical device, or other appropriate actions. Action levels will be taken in accordance with SW 846 or other approved EPA methods.

2. Reports to USEPA Region 5 and MDEQ

Reports to USEPA and MDEQ will contain results, data and sampling descriptions regarding the accuracy, completeness and repeatability of the reported analytical results. The report will contain a table that specifies the type of sample (blank, waste, etc.), sampling date, sampling location, analytical method, method detection limit and analytical result. The results of analyses and all accompanying data, including chain-of-custody forms, will be reported to USEPA with the next monthly operating report submitted to the agency after the receipt of the final sample analysis report from the laboratory. This submittal to the agency will typically be within sixty (60) days of the sampling event, unless prior arrangements have been made with the agency due to conditions beyond the control of the operator that prohibit such reporting.