

**AUTHORIZATION FOR A NO-DISCHARGE WATER PERMIT UNDER THE  
ARKANSAS WATER AND AIR POLLUTION CONTROL ACT**

In accordance with the provisions of the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 *et seq.*) and Arkansas Pollution Control and Ecology Commission (APC&EC) Rule No. 17:

**Clean Harbors El Dorado, LLC**  
**309 American Circle**  
**El Dorado, AR 71730**

is authorized by this permit to construct one Class I hazardous waste injection well at the Clean Harbors El Dorado, LLC El Dorado Incineration Facility at the following locations in Union County, AR.

Well	Location
WDW-CH1	Section 35, Township 17 South, Range 15 West Latitude: 33° 12' 2.809" North Longitude: 92° 37' 50.271" West

Operation shall be in accordance with all conditions set forth in this permit.

Permit Effective Date: July 1, 2020

Expiration Date: June 30, 2030



Robert E. Blanz Ph.D., P.E.  
Associate Director, Office of Water Quality  
Division of Environmental Quality

6/23/2020  
Issue Date

**PART I**  
**SPECIFIC CONDITIONS**

1. This permit is for the construction of the Underground Injection Control (UIC) Class I hazardous waste injection well WDW-CH1. *[40 CFR §§ 144.31, 146.1]*
2. Waste shall not be discharged from this operation to any Waters of the State other than the permitted injection intervals or onto the land in any manner that may result in runoff to surface Waters of the State. *[40 CFR §§ 144.12 and 144.35]*
3. The waste disposal system shall be operated and maintained in accordance with the final plans and specifications as approved by the DEQ. *[40 CFR §§ 144.31 and 146.70]*
4. No extension or major modification of the system facilities may be made without the issuance of a new permit or permit modification. The DEQ shall be notified one hundred and eighty (180) days prior to any modification of the system which may require permit modification. *[40 CFR § 144.36]*
5. This permit is issued in reliance upon the statements and representations made in the application and associated documents. The DEQ has no responsibility for the proper functioning of the UIC wells. *[40 CFR § 144.31]*
6. The permittee shall at all times ensure there is no-discharge of fluids to the ground surface or to the Waters of the State other than the permitted injection interval from the UIC wells or from any related structures at this facility. Any discharge or spill of any fluids from this system is strictly prohibited. The permittee shall notify the DEQ immediately, within 24 hours in the event of the release of any fluids to the ground surface or into the waters of the State. This is a violation of the permit. *[40 CFR §§ 144.12 and 144.35]*

**CONSTRUCTION REQUIREMENTS-WDW-CH1**

**7. Approved Plans and Specifications**

- A. WDW-CH1 shall be constructed and completed to prevent the movement of fluids into or between underground sources of drinking water or into any unauthorized zones or intervals, in accordance with *40 CFR §§ 144.12, 146.65, and 146.70*.
- B. Except as specifically required in the terms of this permit, drilling and completion of the well shall be done in accordance with the plans and specifications submitted with the permit application. Any proposed changes to the plans and specifications must be submitted in writing and be approved by the DEQ prior to implementation. These changes must be equivalent to the original design criteria in providing adequate protection standards. A work plan describing in detail the drilling and completion

activities shall be submitted to the DEQ at least thirty (30) days prior to the commencement of construction. *[40 CFR §§ 144.12, 146.12, and 146.70]*

**8. Commencement of Construction**

The construction of WDW-CH1 may not commence until a permit has been issued containing construction requirements. *[40 CFR §§ 146.1, 146.65]*

**9. Requirements Prior to Commencing Injection**

The Permittee shall not commence injection of waste into WDW-CH1 until the DEQ has evaluated the Completion Report to establish optimal operational requirements and has provided the Permittee with written authorization to commence injection. *[40 CFR §§ 146.14 and 146.64]*

**10. Cores of the Injection Interval and Confining Zone**

During the drilling of WDW-CH1, whole cores shall be obtained from the proposed primary and secondary injection intervals and selected portions of the confining zone. Core analysis shall include a determination of formation properties including, but not limited to, permeability, porosity, density, and thickness for compatibility tests with the formation fluid proposed in the permit application. The results will be submitted to the DEQ as part of the Completion Report, as specified. *[40 CFR §§ 146.12(a), (e), and 146.66(b)]*

**11. Compatibility Testing**

Compatibility testing shall be performed by subjecting the core samples to a typical waste stream at representative downhole formation temperature and pressure conditions for an adequate period of time to determine if any geochemical reactions are generated that might adversely impact the proposed injection interval formation or well operations. Samples of formation fluid shall be obtained and mixed with the waste stream fluid under conditions as close to downhole conditions as possible. All results must be submitted with the Completion Report as specified in Part I. 17. of this permit. *[40 CFR §§ 146.12(a)(5) and 146.65(b)]*

**12. Well Construction Materials**

A. The cement and casing to be used in WDW-CH1 will be designed for the life expectancy and closure period of the well. The casing and cementing program shall be designed to prevent the movement of fluid into or between USDWs and to prevent potential fluid leakage from the well. *[40 CFR §§ 146.12(b) and 146.65]*

- B. All casings and connections shall have sufficient structural strength to withstand burst and collapse pressures and the maximum tensile stress that may be experienced during well construction, operation, and closure. *[40 CFR §§ 146.12(b) and 146.65(c)(5)]*
- C. A minimum of one surface casing string will be set from the surface to a depth of at least 150' into the confining formation below the base of the lowermost USDW. *[40 CFR §§ 146.12 and 146.65(c)(2)]*
- D. A minimum of one long string casing utilizing a sufficient number of centralizers will extend to the injection zone and shall be cemented to the surface in one or more stages. *[40 CFR § 146.65(c)(2)]*
- E. WDW-CH1 will be constructed with the following casing materials listed in Table 1, of at least the minimum strength, and as described in the permit application *[40 CFR §§ 146.12(b) and 146.65(3-6)]*

Table 1					
	Type	Setting Depth/ Spacing	Size/Volume	Grade	Weight
Bit Diameter		0' – 1,000' 1,000' – 5,150'	14 3/4" 9 7/8"		
Surface Casing	Carbon Steel	1,000'	10 3/4"	K-55	40.5 lb/ft
Long String Casing	Carbon Steel	5,150'	7 5/8"	L-80	29.7 lb/ft
Tubing	Fiberglass	4,350'	4 1/2"	Blue Box 2500	4.0 lb/ft
Packer	Delta P Model 12 (or equivalent)	4,350'	7 5/8" x 4 1/2"	Stainless Steel	-
Cement	Surface Long String (stage 1) Long String (stage 2)	0' – 1,000' 0' – 5,150'	120% of calculated annular volume	50/50 Poz Class H 50/50 Poz+Class H	13.3 lb/gal/16.4 lb/gal 14.4/16.4 lb/gal
Centralizers	15 (Surface) 65 (Long String)	-	-	-	-
Annulus Monitoring Instrumentation	Foxboro IGP Series or equivalent	-	-	-	-
Injection Pressure Monitoring Instrumentation	Foxboro IGP Series or equivalent	-	-	-	-
Flow Monitoring Instrumentation	Foxboro CFS Series Coriolis or equivalent	-	-	-	-

- F. Waste fluids shall be injected through tubing with a packer set immediately above the injection interval. The tubing and packer shall be designed for the expected service of the well. [40 CFR §§ 146.12(c) and 146.65(d)]. The annular fluid will consist of corrosion-inhibited brine.
- G. The surface and long string casing will be cemented from the base to the surface by circulating cement back to the surface using a minimum of 120% of the calculated volume necessary to fill the space. [40 CFR §§ 146.12 and 146.65(c)(3)]
- H. The required volume to fill the annular space must be calculated from the open-hole caliper logs plus twenty percent (20%) excess. Fifty percent (50%) excess will be required where the caliper log does not indicate wall contact. Additional cement may be required if geologic conditions or other circumstances require additional volume. It is anticipated that approximately 1,300 sacks of 50/50 Pozmix® or equivalent cement will be required. [40 CFR §§ 146.12(b) and 146.65(c)]
- I. The cement properties must be of sufficient minimum weight or compressive strength for well construction and integrity. [40 CFR §§ 146.12(b) and 146.65(c)] The cement properties described in the permit application are listed in Table 2.

Table 2	
Surface Casing	
Slurry:	
50/50 Pozmix® A (or equivalent) with 10 lb/sack gilsonite. Slurry wt. of 13.3 lb./gallon yielding ~1.48 ft <sup>3</sup> /sacks with designed coverage from 1800 ft. to surface.	
Longstring Casing	
First Stage:	Second Stage:
Standard cement (Class "H"). Slurry weight of 16.4 lb./gallon yielding 1.06 ft <sup>3</sup> /sack with designed coverage from 5,250 ft. bgl to top of stage tool at 3,300 ft. bgl.	Lead: 50/50 Pozmix® (or equivalent) standard. Slurry wt. of 14.4 lb/gal yielding 1.29 ft. <sup>3</sup> /sack with designed coverage from 2,400 .kb to surface. Followed by ~230 sacks of Class H tail cement mixed at ~16.4 lb/gal. to yield ~ 1.06 ft <sup>3</sup> /sack with designed coverage from 3,300 to 2,400 ft. kb.

kb=kelly bushing elevation; bgl=below ground level elevation

**13. Testing Requirements**

Casing pressure tests must be conducted on both the surface and longstring casing at a minimum of 1000 psi for a minimum of 60 minutes with +/- 3% deviation. These results must be submitted with the Completion Report as described in Part I. 17. of this permit. A demonstration of mechanical integrity must also be completed and submitted with the completion report prior to commencing injection in accordance with Part I, No. 14 of this permit. [40 CFR §§ 146.12(d) and 146.66]

**14. Logging Requirements**

At a minimum, the logs listed in Table 3 must be completed during drilling activities in accordance with 40 CFR § 146.66:

<b>Table 3</b>		
<b>Surface:</b>	<b>14 3/4-Inch Open Hole</b>	<b>10 3/4-Inch Cased Hole</b>
	S.P., High Resolution Induction, Gamma Ray, Caliper, Directional	Cement Bond Log/ Temperature Log/ Caliper, Radioactive Tracer, Bottomhole Pressure
<b>Long String:</b>	<b>9 7/8-Inch Open Hole</b>	<b>7-Inch Cased Hole</b>
	S.P., High Resolution Induction, Spectral Density, Dual Spaced Neutron, Fracture Finder, Gamma Ray, Caliper, Micro Imager and Directional	Cement Bond Log/ Temperature Log/ Caliper, Radioactive Tracer, Bottomhole Pressure

**15. Static Water Level Measurement**

- A. A fluid level or static water level measurement shall be obtained upon completion of the well and prior to injectivity testing to obtain a fluid gradient profile in accordance with 40 CFR §§ 146.129(e) and 146.66(a)(2).
- B. Static bottom hole pressure and temperature readings shall be obtained following perforation of the injection interval and prior to injectivity testing in accordance with 40 CFR §§ 146.12(e) and 146.66(a)(2).

**16. Wellbore Deviation**

Deviation of the wellbore will not be in excess of three (3) degrees from the vertical. Deviation checks on the hole will be performed at sufficiently frequent intervals to assure that deviation of more than three (3) degrees does not occur and that pathways for fluid migration do not occur. [40 CFR §§146.12 (d)(1) and 146.66(a)(1)]

## **COMPLETION REPORT**

17. Within ninety (90) days after the new well completion, the Permittee shall submit a Completion Report, signed by a licensed professional engineer and/or registered professional geologist to the DEQ, which will include the drilling and completion history of the well and the following: *[40 CFR §§ 146.12), 144.51 (m), and 146.70]*
- A. All casing and cementing records, copies of the logs run on the well, complete and accurate record of the depth, thickness and lithology of the penetrated formations and cross sections of the disposal area;
  - B. Adjusted pressure calculations and fluid front calculations;
  - C. Results of injectivity tests, formation fluid compatibility tests, core analysis information including porosities, permeabilities, Poisson Ratios, and other formation properties necessary to obtain a detailed analysis of the injection interval, including a discussion of the results;
  - D. Lithologic descriptions of the whole cores of the proposed injection intervals; and
  - E. Discussion and analysis of the logs and tests.
  - F. The Completion Report, upon submittal and approval by the Director, will be included by reference as a condition of this permit and subject to all provisions of this permit. **Injection shall not commence until written approval of the Completion Report is issued by the DEQ.** *[40 CFR § 144.51 (m)]*

## **OPERATIONAL REQUIREMENTS**

### **18. Reconstruction, Recompletion, or Modification**

Any reconstruction, recompletion or modification of the injection facilities shall be done in accordance with the plans and specifications submitted with the permit application and the well completion report. **Any proposed changes to the construction and operation of the well, prior to implementation, must be submitted in writing to, and approved by, the DEQ as providing protection equivalent to or greater than the existing construction and operation.** *[40 CFR §§ 144.31 and 146.70]*

### **19. Formations Permitted For Injection**

Injection shall be into a formation that is beneath the lowermost formation containing, within ¼ mile of the wellbores of proposed well WDW-CH1, an Underground Source of Drinking Water (USDW). Permitted injection shall be confined to the injection interval noted in Table 4 and as described in Section 4.6.3 of the permit application incorporated herein and made a part of this permit.



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Table 4		
Well	Formation	Depth/Injection Interval
WDW-CH1 (proposed)	Upper and Lower Hosston	4,330 ft – 5,030 ft bgl (proposed)

bgl=below ground level elevation

The actual injection interval depths for WDW-CH1 will be provided to the Permittee upon submission of the Completion Report as described in Part I, No. 17 and will be incorporated herein and made a part of this permit.

**20. Authorization of Specific Injection Intervals**

The Permittee shall receive authorization from the DEQ to inject fluids into the specific injection interval as described in Part I, No. 19 of this permit. **Fluid disposal into permitted injection intervals other than those authorized by the DEQ in Part IV.C of this permit is unauthorized and a violation of 40 CFR § 144.11 and shall subject the Permittee to possible enforcement action.** Specific intervals for WDW-CH1 will be approved after the Completion Report is submitted and approved by the DEQ. [40 CFR §§ 146.64-65]

**21. Casing and Cementing**

The well shall be cased and cemented as necessary to prevent the movement of fluids into or between USDWs, in accordance with 40 CFR §§ 144.12(a) and 146.65(c). The cement and casing used in proposed well WDW-CH1 shall be designed for the life expectancy and closure period of the well.

**22. Waste Stream**

A. The Permittee is authorized to inject the waste stream with parameters as described in the permit application and with typical analysis as listed in Part I, No. 33. B.

B. The waste stream shall consist of the waste listed in Table 5.

Table 5		
Waste	Source	Volume (gal./year) <sup>(1)</sup>
incinerator wet scrubber blowdown brine water (0-100 gpm)	on site	~52,560,000
high chloride groundwater recovered as part of ongoing groundwater remediation efforts as required by DEQ Hazardous Waste Permit No. 10H-RN2, Module XII(b) (0-20 gpm)	on site	~5,256,000
stormwater collected from sumps located near the incineration units. (0-50 gpm)	on site	~15,768,000

Note: (1) volumes are approximate and total cumulative volume will not exceed 73,584,000 gallons per year

- i. Wastes generated during closure of the well and associated facilities that are compatible with permitted wastes, reservoir, and the well. This waste stream will occur as a one-time-only waste and the volume of waste generated by this part of the waste stream will be minuscule in comparison to the other wastes injected. This will consist of final flushes of the pre-injection tanks with water, water used to flush the downhole tubulars both before and after tubing/packer removal, and annulus fluid injected prior to plugging. Non-hazardous flush water/brine will also be displaced when the well is filled with cement.
- C. The waste stream shall be filtered to at least 40 microns prior to injection.
- D. EPA Publication SW-846 shall be used as guidance in order to accurately obtain an analysis of the waste stream, with acceptable Detection Limits (DL) or Practical Quantitation Limits (PQLs).
- E. Wastes not authorized to be stored, processed, disposed, or otherwise handled as stipulated in this permit are shall not be injected into WDW-CH1.

**23. Operational Requirements**

In accordance with *40 CFR §§ 146.13(a) and 146.67*, operating requirements shall specify that the injection pressure at the wellhead shall not exceed a maximum which shall be calculated so as to assure that the pressure in the injection interval during injection does not initiate new fractures or propagate existing fractures within the injection interval.

- A. Injection shall be through tubing with packer. Injection between the casing and the wellbore is prohibited.
- B. The Permittee shall maintain a fluid-filled annulus. The fluid shall be noncorrosive, or contain a corrosion inhibitor. If nitrogen is used to pressurize the annulus on a routine basis, the permittee shall bleed off the gas in the annulus when appropriate to keep the annulus at a full, fluid-filled volume. **The annulus pressure shall be constantly maintained at a differential of at least 100 psi above the injection pressure unless the well is being worked over or in the process of mechanical integrity testing.**  
[40 CFR § 146.13 (a)(3)]
- C. The Permittee shall operate WDW-CH1 according to the following projected parameters in Table 6.

Table 6	
WDW-CH1 (proposed)*	
Proposed Maximum Surface Injection Pressure	1,000 psig
Proposed Maximum Rate of Injection	140 gpm
pH range of Injectate	6.0 s.u. to 8.0 s.u
Specific Gravity of Injectate	1.0 to 1.2/g/cm <sup>3</sup> (at 1 atm and 20° C)
Proposed Maximum Daily Disposal Volume	201,600 gpd
Proposed Maximum Monthly Disposal Volume	6,048,000 gal/30-day-month
Proposed Maximum Monthly Disposal Volume	6,249,600 gal/31-day-month
Proposed Maximum Annual Disposal Volume	73,584,000 gallons/year

\*(WDW-CH1 parameters are subject to revision contingent upon information in the Completion Report)

## 24. Instrumentation

In accordance with *40 CFR §§ 146.13(b)(2) and 146.67(f)(1)*, the Permittee shall install and use continuous monitoring devices, and shall install and use automatic alarm systems. Automatic alarm systems shall be designed to sound and shut-in the well when pressures as specified in Condition 25. A. (below) or flow rates exceed permitted operating conditions. The Permittee shall ensure that the wellhead monitoring instrumentation is properly installed and maintained at all times.

## 25. Measured Parameters

The following parameters shall be measured with the appropriate continuous recording device(s) housed in a weatherproof enclosure at or near the wellhead: [*40 CFR § 146.13(b)(2)*]

- A. Injection tubing pressure, annulus pressure, flow rate, injection volume, temperature of the injected fluids, pH; and
- B. Any other parameters as requested by the DEQ or as specified by this permit.

## TESTING REQUIREMENTS

### 26. Mechanical Integrity Testing

The Permittee shall maintain mechanical integrity of the injection well at all times in accordance with *40 CFR §§ 146.8, 146.13(b)(3), and 146.68*. An injection well has mechanical

integrity if there is no leak in the casing, tubing or packer and there is no fluid movement upward out of the injection interval into the designated confining zone or USDWs through any vertical channels adjacent to the well bore.

**27. Mechanical Integrity Requirements**

Mechanical integrity shall be demonstrated annually and shall follow the requirements for demonstration of mechanical integrity for Class I hazardous UIC wells as listed in *40 CFR §§ 146.8, 146.13(b)(3), and 146.68(d)*. The anniversary date of testing shall coincide with the initial date from drilling of the well or a DEQ-approved date. The annual test requirement may be extended upon approval by the DEQ for a maximum of 90 days past the anniversary date. All tests shall be completed prior to September 30 of the concurrent federal fiscal year. At any time after the well is shut in for more than 30 continuous days, an annulus test must be performed prior to resumption of injection. The following requirements are necessary to demonstrate mechanical integrity:

A. Annulus Pressure Test:

A yearly annulus pressure test (APT) to be witnessed by the DEQ or an authorized representative of the DEQ. An APT shall be conducted after each workover involving tubing removal and/or packer placement, and after each well shut-down in excess of thirty (30) days. [*40 CFR §§ 146.8(a)(1) and 146.68(d)(1)*]

B. Pressure Falloff Test:

A yearly measurement of the pressure buildup in the injection interval, which includes shutting-in the well for a time sufficient to allow the pressure in the injection interval to reach equilibrium; [*40 CFR §§ 146.13(d) and 146.68(d)(5)*]

C. Radioactive Tracer Test:

A radioactive tracer test (RAT) or other mechanical integrity test pursuant to *40 CFR 40 CFR §§ 146.8, 146.13(b)(3), and 146.68(d)(2)* shall be conducted once every five years for Class I UIC hazardous wells to determine the presence or absence of fluid movement behind the well casing.

D. Temperature Log or other test for fluid movement:

An approved temperature, noise, or other approved log shall be run at least once every five years to test for movement of fluid along the borehole or whenever the well is worked over. [*40 CFR § 146.69(d)(3)*]

E. Casing Inspection Logs:

Casing inspection logs shall be run whenever a workover is conducted in which the injection string is pulled. The DEQ may require that a casing inspection log be run

every five years, if information exists that the integrity of the long string casing of the well may be adversely affected by naturally-occurring or man-made events. *[40 CFR §§ 146.13(c)(iii) and 146.68(d)(4)]*

- F. Any other appropriate test, after approval by the DEQ, may be used by the Permittee to evaluate mechanical integrity. *[40 CFR §§ 146.13(c)(ii) and 146.68(d)(5)]*

The DEQ may require tests (A), (B), (C), or (E) above whenever the wells are worked over, the tubing is removed, the packer is replaced, or if any information received by the DEQ indicates such tests may be warranted. The Permittee shall notify the DEQ and obtain approval prior to conducting any workover. *[40 CFR §§ 146.13(c)(iii) and 146.68(d)(4)]*

The Permittee shall submit results of any of the above tests, including an interpretive analysis of each test, to the DEQ within sixty (60) days of the date of completion of the tests. *[40 CFR §§ 146.54 and 146.69(b)]*

The DEQ reserves the right to require changes or adjustments in testing parameters if deemed necessary in order to demonstrate mechanical integrity. *[40 CFR §§ 146.12(c)(i) and 146.68(5)]*

## **28. Loss of Mechanical Integrity**

- A. If a loss of mechanical integrity occurs, during testing or during well operations, the Permittee shall do the following: *[40 CFR §§ 144.55 (b), 146.7, and 146.67(g-h)]*
- i. Cease injection immediately;
  - ii. Take all steps necessary to determine if a release of waste into any unauthorized zones occurred;
  - iii. Notify the DEQ within 24 hours after the loss of integrity was discovered and when injection is expected to resume;
  - iv. Restore and demonstrate mechanical integrity to the satisfaction of the Director prior to resuming injection, and
  - v. Obtain approval from the DEQ prior to any workover.

- B. In accordance with Part I, 30. C. of this permit, if there is evidence of a release of waste into an unauthorized zone, the Permittee shall:
- i. Immediately cease injection of fluids;
  - ii. Notify the DEQ within 24 hours after discovery;
  - iii. Take all necessary steps to characterize the extent of the release;
  - iv. Comply with and implement the remediation plan required by the DEQ;
  - v. Where such a release is into a USDW, serving as a water supply, publish a notice into a newspaper of general circulation; and
  - vi. Where such a release is into a USDW, conduct ground water monitoring, as described in Part I.34. *[40 CFR § 146.13 (d)]*

The DEQ may allow the Permittee to resume injection prior to completing the remediation action, provided that the Permittee is able to demonstrate that the injection operation will not endanger any USDWs. *[40 CFR §§ 146.13 and 146.67(i)]*

## MONITORING AND REPORTING

### 29. Monthly Reporting Requirements

The Permittee shall compile Monthly Reports containing the following information:

A. Results of continuous monitoring, including:

- i. The monthly maximum, minimum, and average injection pressure;
- ii. The monthly maximum, minimum, and average injection flow rate;
- iii. The total injection volume for the month;
- iv. The maximum, minimum, and average annulus pressure for the month;
- v. The maximum, minimum, and average pH of the injected waste stream for the month;
- vi. The maximum, minimum, and average temperatures of the injected waste stream for the month; and
- vii. The maximum, minimum, and average daily specific gravity measurements.
- viii. The waste fluid analysis including the location, time, date of the sampling and the analyses, the analytical methods used, results of the analyses, and any other information required by the DEQ, in accordance with the Waste Analysis Plan and *40 CFR §§ 146.13(c)(1)(i) and 146.69*.

- B. The Monthly Reports shall be submitted as part of the quarterly reports to the DEQ. [*40 CFR § 146.13 (c)*].

### 30. Quarterly Reporting Requirements

- A. The Permittee shall submit Quarterly Reports to the DEQ, within 20 days after the end of each quarter, as described in *40 CFR §§ 146.13(c) and 146.69*. These Quarterly Reports shall contain the following information:

- i. The Monthly Reports specified in Part I. 29. of this permit;
- ii. Documentation of all noncompliance incidents or exceedances of operating parameters, violations, excursions, equipment malfunctions or events triggering an alarm or shut-down device, workovers, well testing, well stimulations and any other pertinent information concerning well operations during the quarter; and,
- iii. The Permittee shall analyze the injected waste stream on a quarterly basis submit the results with a report of the same frequency, i.e. quarterly analyses will be reported in quarterly reports. This analysis shall include the physical, chemical and other relevant characteristics of the injection fluids in accordance with the Waste Analysis Plan (WAP) as described in Part I. 33. of this permit. The DEQ reserves the right, at its discretion, to require the permittee to implement more frequent testing in the event information indicates changes in the waste stream.

- B. These reports may be submitted in a hard copy, electronically via e-mail, or on a CD or similar recording media. With any of these methods, the cover letter and signature pages with original signatures and professional seals shall be scanned for compliance with the signatory requirements of Part II. 24. of this permit.
- C. Any noncompliance incident, exceedance, or other violation as described in Part II. 13. of the permit shall be reported within twenty-four (24) hours and include the information required in Part II 13. B. of this permit.

**31. Annual Reporting Requirements**

The Permittee shall submit an Annual Report, due by March 1st of the following calendar year, to the DEQ that contains the following information [40 CFR §§ 144.54 (c), 146.13(c), and 146.69].

- A. Results of continuous monitoring, including:
  - i. The maximum, minimum, and yearly average of the injection pressure;
  - ii. The maximum, minimum, and yearly average of the injection flow rate;
  - iii. The maximum, minimum, and yearly average annulus pressure;
  - iv. The maximum, minimum, and yearly average for the pH of the injected waste stream; and
  - v. The total injection volume for the year and for the total lifetime injection volume for each well.
- B. Documentation of all noncompliance incidents, violations, excursions, equipment malfunctions, and/or any other pertinent information concerning well operations;
- C. A narrative covering all aspects of well operations for the year, including discussions of, and reasons for, any excursions from permitted operational parameters, any violations, and actions taken to correct the violations;
- D. Discussion of any tests done to ensure the mechanical integrity of the well during the year, including the dates and times of those tests and certification by the Permittee that the wells have demonstrated mechanical integrity;
- E. The results and dates of any other tests performed on the well such as workovers or acid stimulations;
- F. A direct measurement of bottom-hole pressure or a calculation of bottom-hole pressure using the specific gravity of the fluid in the well and the static fluid level, discussion of pressure effects of disposal operations upon the injection intervals and specific injection intervals, and a calculation of pressure build-up within the injection intervals;



- G. An estimation of the distance from the well to the front of the injected fluids;
- H. To the extent such information is reasonably available, the report shall also include:
  - i. Locations of newly constructed and discovered wells within the zone of endangering influence or cone of influence;
  - ii. Data for all newly constructed and discovered wells that penetrate, or penetrate to within, 300 feet of the top of the injection intervals that are located within a one-half (½) mile radius of WDW-CH1 (once constructed and operating);
- I. Results of corrosion monitoring, as specified in Part I. 32 of this permit (if applicable);
- J. Results of the waste stream analysis as described in Part I. 33. of this permit; and
- K. Monitoring data as described in Part I. 34. of this permit.
- L. These reports may be submitted in a hard copy, electronically via e-mail, or on a CD or similar recording media. With any of these methods, the cover letter and signature pages with original signatures and professional seals shall be scanned for compliance with the signatory requirements of Part II. 24. of this permit.

**32. Corrosion Monitoring**

Upon wellhead leak, annulus failure, casing leak, or other mechanical integrity failure that causes or has the potential to cause the well construction materials to fail, the Permittee shall prepare and submit to the DEQ a plan for corrosion monitoring of the well materials. The monitoring program shall consist of the following:

- A. The Permittee shall demonstrate that the waste stream will be compatible with the well materials in which it will be in contact and shall submit the methodology used in making that determination to the DEQ in accordance with *40 CFR §146.68(c)(2)*. For purposes of this requirement, compatibility is established if contact with the waste fluids will not cause the well materials to fail to satisfy any design requirement imposed under *40 CFR §§ 146.65(b) and 146.68(c)*.
- B. The Permittee shall be required to initiate continuous corrosion monitoring of the construction materials used in the wells. Such a test shall but not be limited to the following:

- i. Placing coupons of well construction materials in contact with the waste stream;
- ii. Routing the waste stream through a loop of well construction materials; or
- iii. Using an alternative method approved by the DEQ.

C. The Permittee shall monitor the materials for loss of mass and thickness, cracking, pitting or any other signs of corrosion on a quarterly basis to ensure the well components meet the minimum standards set forth in *40 CFR § 146.65(b)*. Results of corrosion monitoring shall be submitted to the DEQ with the Annual Reports, as described in Part I. Condition 34. of this permit.

### 33. Waste Fluid Analysis

Records of monitoring information shall include the location, time of sampling or measurements, the individual(s) who performed the sampling or measurements, the date(s) analyses were performed, the analytical techniques or methods used, the results of such analyses, and any other information required by the DEQ, in accordance with the approved Waste Analysis Plan (WAP) and *40 CFR § 146.13(b)(1)*.

#### A. Waste Analysis Plan

The Permittee shall monitor the injected waste stream on an annual basis, in accordance with a Waste Analysis Plan (WAP) that describes the procedures and methods used to obtain a representative result of the waste stream. The WAP shall be submitted to the DEQ for approval prior to implementation. The WAP should include, at a minimum:

- i. The parameters used to analyze the waste and reason for selecting these parameters; and
- ii. The test methods used for these parameters;
- iii. The sampling method used to obtain a representative sample; and
- iv. The location where the sample is to be taken.
- v. A waiver of quarterly analysis may be submitted to and approved by the DEQ. In order to obtain this waiver, the Permittee must demonstrate a consistent waste stream for two (2) years. At the end of one year and based upon the analytical results and facility processes, the permittee may request a revision of quarterly sampling to annual sampling.
- vi. The Permittee shall conduct sampling on the waste stream when a process change occurs at the plant that could result in the waste stream being altered. The Permittee shall ensure that the WAP remains current and accurate, and shall make updates or changes when the DEQ requires modification to keep the analysis representative of the waste stream.

B. The Tables 7, 8, and 9 as follows describe the physical and chemical characteristics of the waste stream.

Table 7				
Maximum Concentration Limits for Hazardous Constituents Present in Proposed Waste Stream				
WASTE CODE	WASTE DESCRIPTION	CHEMICAL CONSTITUENT	REGULATORY LEVEL <sup>1</sup> (mg/L)	MAXIMUM CONCENTRATION FOR CONSTITUENTS <sup>2</sup> (mg/L)
D004	incinerator wet scrubber blowdown water (brine)	Arsenic	5.0	800
D005	incinerator wet scrubber blowdown water (brine)	Barium	100.0	200
D018	high chloride recovered ground water	Benzene	0.5	2.0
D006	incinerator wet scrubber blowdown water (brine)	Cadmium	1.0	200
D007	incinerator wet scrubber blowdown water (brine)	Chromium	5.0	100
D008	incinerator wet scrubber blowdown water (brine)	Lead	5.0	400
D009	incinerator wet scrubber blowdown water (brine)	Mercury	0.2	5
D010	incinerator wet scrubber blowdown water (brine)	Selenium	1.0	20
D011	incinerator wet scrubber blowdown water (brine)	Silver	5.0	1

Note: 1 Maximum Concentration Limits are defined in 40 CFR 268.43 – Land Disposal Restrictions Treatment Standards

Table 8							
Historical Fluid Analyses							
Incinerator Wet Scrubber Blowdown Water							
Parameters	Lab Method	June 2013 Analysis (mg/L)*	July 2014 Analysis (mg/L)*	October 2015 Analysis (mg/L)*	August 2016 Analysis (mg/L)*	June 2017 Analysis (mg/L)*	October 2018 Analysis (mg/L)*
Arsenic	EPA-200.7	<2.5	1.82	0.87	0.91	1.06	---
Barium	EPA-200.7	100	68.7	54.5	78.0	42.2	---
Benzene	EPA-200.7	---	---	---	---	---	1.27
Cadmium	EPA-200.7	14.1	15.0	96.8	432	41.1	---
Chromium	EPA-200.7	0.689	<0.50	<0.25	12.7	<0.250	---
Lead	EPA-200.7	74.8	1.56	28.6	95.3	38.1	---
Mercury	EPA-245.1	0.285	<0.0002	0.528	0.0503	0.358	---
Selenium	EPA-200.7	<2.5	<1.3	<0.5	<0.5	0.505	---
Silver	EPA-200.7	5.19	10.2	3.6	6.68	3.21	---

Table 9							
High Chloride Recovered Ground Water							
Parameters	Lab Method	June 2013 Analysis (mg/L)*	July 2014 Analysis (mg/L)*	October 2015 Analysis (mg/L)*	August 2016 Analysis (mg/L)*	June 2017 Analysis (mg/L)*	October 2018 Analysis (mg/L)*
Benzene	EPA-601	---	---	---	---	---	1.27

**34. Ground Water Monitoring Program**

Upon annulus failure, casing leak, or other mechanical integrity failure that causes or may have caused a release into or between a USDW, the Permittee shall immediately cease injection and shall not resume injection until approved in writing by the DEQ. Prior to the resumption of injection, the Permittee shall prepare a plan for monitoring of the ground water quality in the USDW. Ground water monitoring shall be required in order to assure that injected fluids are not moving into or between any USDWs as described in *40 CFR § 146.13(b)(4)*. The monitoring program shall consist of the following:

- A. Appropriate sampling frequency, as determined by the DEQ;
- B. Monitoring parameters shall consist of the same program for waste stream analysis as described in the Waste Analysis Plan in Part I.33. A. of this permit;
- C. Newly installed monitor wells or nearby water supply wells constructed at appropriate depths may be used for this purpose; and
- D. Other conditions as may be required by the DEQ.

**CLOSURE**

WDW-CH1 shall be plugged in a manner which shall prohibit the movement of fluids into or between USDWs in accordance with *40 CFR §§ 144.51(o), 146.10, 146.71*. The Permittee shall prepare, maintain and comply with the Closure Plan (plugging and abandonment plan) as submitted with the permit application. The Closure Plan is incorporated by reference and shall be made a part of this permit. The obligation to implement the Closure Plan survives the termination of the permit or cessation of injection activities.

**35. Final Abandonment**

Upon final abandonment, the Permittee shall ensure that WDW-CH1 is plugged in accordance with the approved Closure Plan submitted with the permit application and approved by the DEQ. [*40 CFR §§ 146.10 and 146.71(a)*]

**36. Changes to the Plugging and Abandonment Plan**

The Permittee shall submit to the DEQ any modifications to the Closure Plan and must demonstrate that the changes will provide protection equivalent to or greater than the original design criteria and standards. Any change to a Closure Plan shall be treated as a minor modification of the permit in accordance with *40 CFR §§ 144.41(g) and 146.71(a)* and must be approved by the DEQ.

**37. Closure Plan**

The Closure Plan shall include the following [40 CFR §§ 146.10, 146.71-73]:

- A. Cementing plan, including stages of cement circulation and methods;
- B. Elevations of cement plugs;
- C. Type and quantity of cement and other materials to be used for plugging;
- D. Proposed tests or other measures;
- E. Amount, size and location of casing to remain in the well;
- F. Procedure to be used to meet the requirements of Part I. 40. of this permit;
- G. Estimated cost of closure; and
- H. Other information as required by the DEQ.

**38. Temporary Halt of Injection**

- A. The Permittee may temporarily cease injection into WDW-CH1 provided the Permittee has received authorization from the DEQ and has described the actions or procedures taken to ensure that WDW-CH1 7 will not endanger USDWs during the temporary period of disuse. The Permittee shall also comply with the terms and conditions of this permit during that period of disuse. [40 CFR § 144.53(b)]
- B. An Annulus Pressure Test shall be conducted after each well shut-down in excess of thirty (30) days.
- C. If WDW-CH1 has ceased operations for more than two (2) years, the Permittee shall notify the DEQ prior to resuming injection activities and shall be required to perform a demonstration of mechanical integrity as described in Part I.27. of this permit. The Permittee shall be required to implement the Closure Plan as described in Part I. 37. of this permit at the end of the two (2) years unless granted approval by the DEQ to postpone the well closure. [40 CFR § 144.52 (a)(6a)]

**39. Notice of Intent to Close**

The Permittee shall notify the DEQ sixty (60) days prior to commencement of closure. The Permittee shall give notification of the intent to plug at least seventy-two (72) hours prior to the commencement of actual plugging operations. [40 CFR §§ 144.51 (n), 146.10, 146.71(b)]

**40. Standards for Well Closure**

- A. The mechanical integrity of the well shall be verified prior to plugging according to the methods described in Part I. 37. of this permit and must be approved by the DEQ prior to commencing closure activities.
- B. The pressure decay shall be observed and recorded for a time approved by the DEQ.
- C. The well shall be flushed with a buffer fluid as approved by the DEQ.
- D. The well shall be plugged with cement in a manner that will not allow the movement of fluids into or between USDWs by circulating from total depth to surface. The cement must be tagged and pressure tested in a manner approved by the DEQ before closure is finalized. *[40 CFR §§ 146.10 (a) and 146.71]*

**41. Closure Report**

Within 60 days after closure, the Permittee shall submit a Closure Report detailing the plugging and abandonment procedures. The report shall be signed and stamped or sealed and certified as accurate by the Arkansas Licensed Engineer in good standing and/or the Arkansas Registered Professional Geologist in good standing who supervised the work performed for the closure operation and must consist of a statement that the well was closed in accordance with the plugging and abandonment plan previously submitted and approved, or when the actual closure differed from the plan, a statement specifying the differences between the plan and the actual closure activities. *[40 CFR §§ 146.10 and 146.71(c)]* The report shall include the following, at a minimum:

- A. Pressure in the injection interval prior to injection activities;
- B. Measured bottom hole pressure in the injection interval at the time of closure;
- C. Calculated position of the waste fluid front at the time of closure;
- D. Discussion of the verification of mechanical integrity; and
- E. Other information as required by the DEQ.

**42. Post-Closure Care**

The Permittee shall prepare, maintain and comply with a plan for post-closure care if corrective action as described in Part I. 28. of this permit and in *40 CFR § 146.72* is required. The obligation to implement the post-closure plan survives the termination, or cessation of injection activities. The plan shall be submitted to the DEQ with the Notice of Intent to Close, and shall be incorporated by reference and made a part of this permit upon approval by the DEQ. Any revision or modification to the post-closure care plan

must be submitted to and approved by the DEQ prior to the submission of the closure report as specified in Part I. 41. of this permit. The Permittee shall also assure financial responsibility in accordance with Part I. 46. of this permit. The plan shall include the following:

- A. Status of any corrective action required in accordance with Part I.46. of this permit;
- B. Estimated cost of the proposed post-closure care;
- C. Submission of a survey plat to the local zoning authority and the DEQ which indicates the location of WDW-CH1 relative to permanently surveyed benchmarks;
- D. Notification to the Arkansas Oil and Gas Commission, the Arkansas Water Well Commission, or other agencies that have authority over other drilling activities to enable such agency or agencies to impose conditions over such drilling activities that may penetrate WDW-CH1 injection or confining zones;
- E. Retain all records in perpetuity following closure;
- F. Record a deed notation or some other instrument that will provide any potential purchaser the information that the location has been used to manage hazardous waste fluids; and
- G. Other information as required by the DEQ.

## **FINANCIAL ASSURANCE**

The Permittee shall establish financial assurance for the plugging and abandonment of WDW-CH1 through the mechanisms described in *40 CFR § 144.52(a)(7) and 146.71(a)(4)(ix)*.

### **43. Cost Estimate**

- A. The Permittee must prepare a written present worth estimate of the cost of plugging and abandoning WDW-CH1 in accordance with the plugging and abandonment plan as specified in Part III.D of this permit. The plugging and abandonment cost estimate must equal the cost of plugging and abandonment at the point in the facility's operating life when the extent and manner of its operation would make plugging and abandonment the most expensive, as indicated by the plugging and abandonment plan.
- B. The Permittee must adjust the plugging and abandonment cost estimate for inflation within 30 days after each anniversary date on which the first plugging and abandonment cost estimate was prepared. The adjustment must be made in accordance with the requirements of *40 CFR § 144.62(b)*. The Permittee must also revise the plugging and abandonment cost estimate whenever a change in the plugging and abandonment plan increases the cost of the plugging and abandonment activities.

44. **Options for Financial Assurance**

The Permittee must establish financial assurance through the mechanisms described in *40 CFR §§ 144.63(c), 144.63(d), 144.63(f), and 146.73*.

A. **A Surety Bond**

The Permittee shall submit a surety bond guaranteeing performance of plugging and abandonment to the DEQ Director in accordance with *40 CFR § 144.63(c)(1)*. Three (3) original signed copies shall be submitted. The bond shall be effective prior to the DEQ Director granting written approval for injection to commence. The surety company must be among those listed as acceptable sureties on the Federal bonds in Circular 570 of the U.S. Department of the Treasury. The DEQ will supply the necessary copies to the Permittee for signature that follows the wording described in *40 CFR § 144.70(c)*.

B. **Plugging and Abandonment Letter of Credit**

The Permittee shall submit a letter of credit guaranteeing an amount at least equal to the current plugging and abandonment cost estimate as described in *40 CFR § 144.63(d)* and follows the wording described in *40 CFR § 144.70(d)*. A standby trust fund shall also be established, in accordance with *40 CFR 144.63(d)(3)*.

C. **Financial Test and Corporate Guarantee**

The Permittee shall pass a financial test and meet the criteria of *40 CFR §§ 144.63(f)(1)(i) or (f)(1)(ii)*. If the Permittee meets these criteria, the Permittee shall submit a letter to the DEQ Director which is signed by the Permittee's chief financial officer and worded as specified in *40 CFR § 144.70(f)* and to include the items required by *40 CFR § 144.63(f)*. The Permittee shall submit updated information within 90 days after the close of each succeeding fiscal year.

D. The Permittee shall secure and maintain in full force and effect at all times a financial assurance mechanism, in a form acceptable to the DEQ, to provide for the proper closure, plugging and abandonment of WDW-CH1 in the amounts to be determined once it has been constructed. This permit does not authorize underground injection of fluids unless the Permittee has in effect an acceptable financial assurance mechanism acceptable to the DEQ. [*40 CFR § 144.63 (d)*]



**PART II**  
**STANDARD CONDITIONS**

**1. Duty to Comply**

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.) and is grounds for civil and administrative enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

**2. Penalties for Violations of Permit Conditions**

The Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.) provides that any person who violates any provisions of a permit issued under the Act shall be guilty of a misdemeanor and upon conviction thereof shall be subject to imprisonment for not more than one (1) year, or a fine of not more than twenty-five thousand dollars (\$25,000) or both for each day of such violation. Any person who violates any provision of a permit issued under the Act may also be subject to a civil penalty not to exceed ten thousand dollars (\$10,000) for each day of such violation. The fact that any such violation may constitute a misdemeanor shall not be a bar to the maintenance of such civil action.

**3. Permit Actions**

- A. This permit may be modified, revoked and reissued, or terminated for cause including, but not limited to the following:
- i. Violation of any terms or conditions of this permit;
  - ii. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
  - iii. A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination; or
  - iv. Failure of the permittee to comply with the provisions of Arkansas Pollution Control and Ecology Commission (APC&EC) Regulation No. 9 (Permit fees).
- B. The filing of a request by the permittee for a permit modification, revocation and reissuance, termination, or a notification of planned changes or anticipated noncompliance, does not suspend any permit condition.

**4. Civil and Criminal Liability**

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Any false or materially misleading representation or

concealment of information required to be reported by the provisions of this permit or applicable state statutes or regulations which defeats the regulatory purposes of the permit may subject the permittee to criminal enforcement pursuant to the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.).

**5. Oil and Hazardous Substance Liability**

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Clean Water Act and Section 106 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

**6. State Laws**

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation.

**7. Property Rights**

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

**8. Severability**

The provisions of this permit are severable, and if any provision of this permit, or the application of any provisions 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.

**9. Permit Fees**

The permittee shall comply with all applicable permit fee requirements (i.e., including annual permit fees following the initial permit fee that will be invoiced every year the permit is active) for no-discharge permits as described in APC&EC Rule No. 9 (Permit Fee Regulations, as revised). Failure to promptly remit all required fees shall be grounds for the Director to initiate action to terminate this permit under the provisions of 40 CFR Parts 122.64 and 124.5(d), as adopted in APCEC Regulation No. 6 and the provisions of APCEC Regulation No. 8.

**10. Proper Operation and Maintenance**

- A. 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 also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
- B. The permittee shall provide an adequate and trained operating staff which is duly qualified to carry out operation, maintenance and testing functions required to insure compliance with the conditions of this permit.

**11. Duty to Mitigate**

The permittee shall take all reasonable steps to prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

**12. Removed Substances**

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering the waters of the State.

**13. Reporting of Violations and Unauthorized Discharges**

- A. Any violations to this permit must be reported to the Enforcement Branch of the DEQ immediately. Any leaks or seeps shall be reported to the DEQ and appropriately corrected. Any discharge from the fluids storage system such as an overflow, broken pipe, etc., shall be immediately reported to the DEQ.
- B. The operator shall visually monitor and report immediately (within 24 hours) to the Enforcement Branch any unauthorized discharge from any facility caused by dike or structural failure, equipment breakdown, human error, etc., and shall follow up with a written report within five (5) days of such occurrence. The written report shall contain the following:
  - i. A description of the permit violation and its cause;
  - ii. The period of the violation, including exact times and dates;
  - iii. If the violation has not been corrected, the anticipated time expected to correct the violation; and
  - iv. Steps taken or planned to reduce, eliminate, and prevent the recurrence of the violation.

C. Reports shall be submitted to the Enforcement Branch at the following address:

Arkansas Division of Environmental Quality  
Office of Water Quality, Enforcement Branch  
5301 Northshore Dr.  
North Little Rock, Arkansas 72118  
Fax (501) 682-0880

Or

[Water-enforcement-report@DEQ.state.ar.us](mailto:Water-enforcement-report@DEQ.state.ar.us)

**14. Penalties for Tampering**

The Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.) provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under the Act shall be guilty of a misdemeanor and upon conviction thereof shall be subject to imprisonment for not more than one (1) year or a fine of not more than ten thousand dollars (\$10,000) or by both such fine and imprisonment.

**15. Laboratory Analysis**

All laboratory analyses submitted to the DEQ shall be completed by a laboratory accredited by the DEQ under Ark. Code Ann. § 8-2-201 *et seq.* Analyses for the permittee's internal quality control or process control do not need to be performed by an DEQ accredited laboratory.

**16. Retention of Records**

The owner or operator shall retain records of all monitoring information, including the following:

- A. Calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, and copies of all reports required by this section, for a period of at least three years from the date of the sample, measurement, or report. This period may be extended by request of the Director at any time; and
- B. The nature and composition of all injected fluids until three years after the completion of any plugging and abandonment procedures specified under 40 CFR § 144.52(l)(6). The Director may require the owner or operator to deliver the records to the Director at the conclusion of the retention period.

**17. Record Contents**

Records and monitoring information shall include:

- A. The date, exact place, time, and methods of sampling or measurements, and preservatives used, if any;
- B. The individuals(s) who performed the sampling or measurements;
- C. The date(s) the analyses were performed;
- D. The individual(s) who performed the analyses;
- E. The analytical techniques or methods used; and
- F. The measurements and results of such analyses.

**18. 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 upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- B. Have access to and copy, at reasonable times, any records that must be 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, inspect, or monitor at reasonable times, for the purposes of assuring permit compliance any substances or parameters at any location.

**19. Planned Changes**

The permittee shall give notice and provide the necessary information to the Director for review and approval prior to any planned physical alterations or additions to the permitted facility.

**20. 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.

**21. Transfers**

The permit is nontransferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Act.

**22. Duty to Provide Information**

The permittee shall furnish to the Director, within a reasonable time, 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. Information shall be submitted in the form, manner and time frame requested by the Director.

**23. 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 apply for and obtain a new permit. The complete application shall be submitted at least 180 days before the expiration date of this permit. The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date. Conditions of this permit will continue in effect past the expiration date pending issuance of a new permit, if:

- A. The permittee has submitted a timely and complete application; and
- B. The Director, through no fault of the permittee, does not issue a new permit prior to the expiration date of the previous permit.

**24. Signatory Requirements**

- A. All applications, reports or information submitted to the Director shall be signed and certified. All permit applications shall be signed as follows:
  - i. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
    - a. A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or
    - b. The manager of one or more manufacturing, production, or operation facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including: having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
  - ii. For a partnership or sole proprietorship: by a general partner or proprietor, respectively; or

- iii. For a municipality, State, Federal, or other public agency; by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
  - a. The chief executive officer of the agency, or
  - b. A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.
- B. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
  - i. The authorization is made in writing by a person described above.
  - ii. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
  - iii. The written authorization is submitted to the Director.
- C. Any person signing a document under this section shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

**25. Availability of Reports**

Except for data determined to be confidential under the Arkansas Trade Secrets Act (Ark. Code Ann. § 4-75-601 *et seq.*), all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the DEQ of Environmental Quality. The name and address of any permit applicant or permittee, permit applications, permits, and waste data shall not be considered confidential.

**26. Penalties for Falsification of Reports**

The Arkansas Air and Water Pollution Control Act provides that any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under this

permit shall be subject to civil penalties and/or criminal penalties under the authority of the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 et seq.).

**27. Applicable Federal, State, or Local Requirements**

Permittees are responsible for compliance with all applicable terms and conditions of this permit. Receipt of this permit does not relieve any operator of the responsibility to comply with any other applicable Federal, State, or local statute, ordinance, policy, or regulation.



### PART III DEFINITIONS

**“Act”** means the Arkansas Water and Air Pollution Control Act, as amended, Ark. Code Ann. § 8-4-101 *et seq.*) as amended.

**“Applicable water quality standards”** means all water quality standards to which a discharge is subject under the federal Clean Water Act and which has been (a) approved or permitted to remain in effect by the Administrator following submission to the Administrator pursuant to Section 303 (a) of the Act, or (b) promulgated by the Director pursuant to Section 303(b) or 303(c) of the Act, and standards promulgated under APC&EC Regulation No. 2, as amended, (Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas).

**“APC&EC”** means the Arkansas Pollution Control and Ecology Commission.

**“APT”** means Annulus Pressure Test.

**“bgs”** means below ground surface.

**“bgl”** means below ground level.

**“bkb”** means below kelly bushing.

**“Brine”** means salt brines of the Smackover Formation (Oxfordian, Upper Jurassic) in south-Central Plant Arkansas. Bromine is present in extremely high concentrations in this brine.

**“casing”** means a pipe or tubing of appropriate material, of varying diameter and weight, lowered into a borehole during or after drilling in order to support the sides of the hole and prevent the walls from caving, to prevent loss of drilling mud or fluids into porous ground or to prevent water, gas, or other fluid from entering or leaving the hole.

**“cement”** means a powder consisting of alumina, silica, lime, and other substances that hardens when mixed with water. Extensively used in the oil industry to bond casing to the walls of the wellbore.

**“CFR”** means Code of Federal Regulations.

**“confining”** means a geological formation, group of formations, or part of a formation that is capable of limiting fluid movement above an injection interval.

**“core”** means a cylindrical sample taken from a formation for geological analysis.

**“DL”** means Detection Limits.

**“DEQ”** means the Arkansas Division of Environmental Quality (DEQ).

**“Director”** means the Director of the Arkansas Department of Energy and Environment.

**“gpm”** means gallons per minute.

**“Ground water”** means water below the land surface in an aquifer’s zone of saturation.

**“Halad®-322”** is a fluid-loss additive to cement to provide a better cement/casing bond.

**“Injection interval”** means a geological formation, group of formations, or part of formation receiving fluids through a well. It is part of the injection interval.

**"Injection well"** means a well into which fluids are being injected.

**"Injection zone"** means a geological formation, group of formations, or part of formation including the injection interval.

**"log"** means noun: a systematic recording of data, such as a driller's log, mud log, electrical well log, or radioactivity log. Many different logs are run in wells to discern various characteristics of downhole formation. Also, verb: to record data.

**"long string casing"** means the string of casing that is set in the injection interval.

**"Mechanical integrity"** means a condition of injection wells which exists if there is no leakage in the well's casing, tubing, or packer and if there is no fluid movement into an underground source of drinking water through vertical channels adjacent to the well bore.

**"MIT"** means Mechanical Integrity Test.

**"packer"** means a piece of downhole equipment that consists of a sealing device, a holding or setting device, and an inside passage for fluids.

**"perforation"** means a hole made in the casing, cement, and formation through which formation fluids enter a wellbore.

**"Plugging"** means the act or process of stopping the flow of water, oil, or gas into or out of a formation through a borehole or well penetrating that formation by the placement of cement plugs in the wellbore.

**"Pozmix<sup>®</sup>"** is a cement additive used in wells to help promote the cement bond.

**"PQL"** means Practical Quantitation Limits.

**"psi"** means pounds per square inch.

**"RAT"** means Radioactive Tracer Test.

**"SDWA"** means the Safe Drinking Water Act.

**"Severe property damage"** means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in products.

**"sk"** means sack.

**"s.u."** means standard units.

**"surface casing"** means the outer casing cemented in the upper portion of the well bore to protect fresh water formations from contamination.

**"sx"** means sacks.

**"TDS"** means total dissolved solids.

**"tubing"** means a relatively small-diameter pipe that is run into a well to serve as a conduit for the passage of fluids.

**"UIC"** means Underground Injection Control.

**"USDW"** means Underground Source of Drinking Water having less than ten thousand ppm total dissolved solids (TDS).

**“WDW”** means Waste Disposal Well.

**"Well"** means a bored, drilled, or driven shaft whose depth is greater than the largest surface dimension; or, a dug hole whose depth is greater than the largest surface dimension; or, an improved sinkhole; or, a subsurface fluid distribution system.

**MONTHLY:** is defined as a calendar month or any portion of a calendar month for monitoring requirement frequency of once/month or more frequently.

**QUARTERLY:** (1) is defined as a fixed calendar quarter or any part of the fixed calendar quarter for a non-seasonal effluent characteristic with a measurement frequency of once/quarter. Fixed calendar quarters are: January through March, April through June, July through September, and October through December; or (2) is defined as a fixed three (3) month period (or any part of the fixed three month period) of or dependent upon the seasons specified in the permit for a seasonal effluent characteristic with a monitoring requirement frequency of once/quarter that does not does not coincide with the fixed calendar quarter. Seasonal calendar quarters are: May through July, August through October, November through January, and February through April.

**SEMI-ANNUAL:** is defined as the fixed time periods January through June, and July through December (or any portion thereof) for an effluent characteristic with a measurement frequency of once/six (6) months or twice/year.

**ANNUAL or YEARLY:** is defined as a fixed calendar year or any portion of the fixed calendar year for an effluent characteristic or parameter with a measurement frequency of once/year. A calendar year is January through December, or any portion thereof.

## **STATEMENT OF BASIS**

This Statement of Basis is for information and justification of the permit limits only and is not enforceable. This permit decision is for the issuance of No-Discharge permit number 0025-U and AFIN (file) number 70-00098.

**1.     Permitting Authority**

Division of Environmental Quality  
Office of Water Quality, Permits Branch  
5301 Northshore Drive  
North Little Rock, Arkansas 72118-5317

**2.     Applicant**

Clean Harbors El Dorado, LLC  
309 American Circle  
El Dorado, AR 71730

**3.     Facility Location**

The Clean Harbors El Dorado, LLC El Dorado Incineration facility is located as follows: approximately 0.7 miles, at 309 American Circle, Union County, Arkansas. The facility is located at the following coordinates:

Latitude: 33.20078° North    Longitude: 92.63063° West

**4.     Receiving Stream Location**

The proposed well location for WDW-CH1 is as follows: 2,083 feet from Boggy Creek in Stream Segment 2D of the Ouachita River basin which is not listed in the 2016 DEQ 303(d) list of impaired waters.

**5.     Consultants for this Facility**

Terry Moody, AR P.G. 1945, President/Sr. Geologist  
Philip R. Grant, Senior Geologist  
Terra Dynamics, Inc.  
2300 Greenhill Dr., Suite 700  
Round Rock, TX 78664-2785  
Telephone: (512) 795-8183

**6.     Permit History**

None. This is a new permit.

## **7. Permit Activity**

A permit application for the construction of WDW-CH1 was received August 8, 2019. A revision to the application was received August 23, 2019 consisting of the following revised documents: application form, Table of Contents, Section 1.0, Section 6.0, and Table 6-4. Additional documents were received September 3, (signatory authority), September 10, (waste code tables), and September 11, 2019 (review of waste code disposal). The Waste Analysis Plan was received December 3, 2019.

### **Legal Order Review:**

There are currently no active Consent Administrative Orders (CAOs) or Notice of Violations (NOVs) for this facility.

### **Site Visits/Inspections:**

An inspection for the proposed location for this facility was conducted on July 8, 2019.

## **8. Applicant Activity**

Under the standard industrial classification (SIC) code 4953, refuse systems (establishments primarily engaged in the collection and disposal of refuse by processing destruction or in the operation of incinerators, waste treatment plants, landfills, or other sites for disposal of such materials) and NAICS code 562211 (establishments primarily engaged in the following: Operating treatment and/or disposal facilities for hazardous waste or the combined activity of collecting and/or hauling of hazardous waste materials within a local area and operating treatment or disposal facilities for hazardous waste) the applicant activities are the operation of a UIC Class I hazardous disposal well associated with scrubber water from incinerator air pollution systems, stormwater collected in sumps/basins, and ground water collected from an onsite pump and treat system.

## **9. Basis For Permit Conditions**

The Arkansas Division of Environmental Quality has made a tentative determination to issue a permit construction and operation of the no-discharge facility as described in the application and waste management plan. Permit requirements and conditions are based on regulations pursuant to the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. 8-4-101 *et seq.* and A.C.A. Sec. 8-4-201 *et seq.*) Standard Conditions have been included in this permit based on the sources listed below and generally accepted scientific knowledge, engineering practices, and the authority of the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. § 8-4-101 *et. seq.*).

**10. Point of Contact**

The following staff contributed to the preparation of this permit:

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## 11. Sources

The following Sources were used to draft the permit:

- A. Code of Federal Regulation, Title 40, §§ 144, 145, 146, 147, and 148.
- B. The Safe Drinking Water Act, 1974
- C. Arkansas Water and Air Pollution Control Act. (Ark. Code Ann. 8-4-101 *et seq.*).
- D. APC&EC Rule 1, Prevention of Pollution by Oil Field Waste, as amended.
- E. APC&EC Rule No. 2, Establishing Water Quality Standards for Surface Waters of the State of Arkansas, as amended.
- F. APC&EC Rule No. 8, Administrative Procedures, as revised.
- G. APC&EC Rule No. 9, Permit Fee Rules, as revised.
- H. APC&EC Rule No. 17, Arkansas Underground Injection Control Code, as amended.
- I. US EPA Region 5-UIC Section Regional Guidance 5: Determination of the Mechanical Integrity of Injection Wells, February 2008.  
<https://www.epa.gov/sites/production/files/2015-09/documents/r5-deepwell-guidance5-determination-mechanical-integrity-200802.pdf>
- J. US EPA Region 5-UIC Section Regional Guidance 8: Preparing a Waste Analysis Plan at Class I Injection Well Facilities, January 21, 1994.  
<https://www.epa.gov/sites/production/files/2015-09/documents/r5-deepwell-guidance8-preparing-waste-analysis-plan-class2-19940121-8pp.pdf>
- K. US EPA Region 5-UIC Section Regional Guidance 7: Determination of Maximum Injection Pressure for Class I Wells, January 1994.  
<https://www.epa.gov/sites/production/files/2015-09/documents/r5-deepwell-guidance7-determination-maximum-injection-pressure-class1-199401-9pp.pdf>
- L. DEQ 2016 303(d) list of impaired waters.
- M. USEPA Publication SW-846-Hazardous Waste Test Methods.
- N. Application for Permit No. 0025-U received August 8, 2019, with additional information received August 23, 2019 and September 3, 10, and 11, 2019.
- O. Waste Analysis Plan received December 3, 2019.

P. DEQ field inspection conducted July 8, 2019.

Q. April 2, 2020 email from Enforcement Branch, Office of Water Quality, DEQ regarding status of CAOs or other enforcement actions.

**12. Public Notice**

The public notice for the draft permit started on May 7, 2020 and ended on June 6, 2020. The OWQ did not receive any comments during the thirty (30) day comment period.