AUTHORIZATION TO OPERATE AN UNDERGROUND INJECTION CONTROL (UIC) CLASS 2 INJECTION WELL PERMIT NUMBER No. 2D08701056-003

ISSUE DATE: DRAFT **EXPIRATION DATE: DRAFT**

In compliance with provisions of the West Virginia Code, Chapter 22, Article 6, Article 11, and Article 12, as well as Legislative Rules, Title 47, Series 9, Series 13, Series 55 and Series 58, and Title 35 Series 1 and Series 4,

(Non-Commercial)
Delta Helix Energy, LLC
300 Star Ave., Suite 321
Parkersburg, WV 26101

FACILITY TYPE: Waste Disposal
WELL API No.: 47-087-001056
WELL NAME: Kaufman W-19

is authorized by this permit to inject Class 2 fluids, that are brought to the surface in connection with conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection, into the Big Injun Sandstone in accordance with the conditions set forth herein. The permitted injection depth shall be 2,202 feet to 2,226 feet. The injection well is in the Smithfield District, Roane County, Spencer Quadrangle. The coordinates for this injection well are:

UTM NAD 83 (meters) Northing 42900105.2, Easting 477199
Latitude 38.75355, Longitude –81.26243

The maximum permitted wellhead injection pressure (MIP) is established as 883 psi based on step rate test of 1987. The minimum test pressure is 971 psi (883 x 1.1). The MIP may be reduced based on the most recent Pre-Operation certificate (WR-37 Form).

All references to West Virginia regulations are to those that are in effect on the date that this permit becomes effective.

Non-compliance with the terms of this permit shall be cause for revocation of Certification under the terms of Chapter 22, Article 12, and revocation of the permit under Chapter 22, Article 11 of the West Virginia Code.

This permit and its authorization to inject shall remain in effect for five (5) years from the date of issuance of the final permit provided all terms of the permit are met.

James Martin, Chief
WVDEP-Office of Oil and Gas

PART I

A. SPECIAL PERMIT CONDITIONS

1. **Injectate Samples.** The Permittee shall sample, analyze and record the nature of the injected fluid for the parameters listed in TABLE 1 (Part IV.B.12) on a twelve (12) month schedule so that sampling will be completed at least once per calendar year, or upon request of the Chief, or whenever the Permittee observes or anticipates a change in the injection fluid, to yield representative data on their physical, chemical, or other relevant characteristics. New facilities shall submit a representative sample prior to the initiation of injection operations. The Permittee shall take the sample at or before the wellhead for analysis. Samples and measurements shall be representative of the monitored activity. The Permittee shall utilize applicable analytical methods and test results shall be submitted to the WVDEP-Office of Oil and Gas with complete laboratory analysis data sheets (report). Any analysis of injectate with a specific gravity result greater than 1.2 shall be reported to the Chief within twenty-four (24) hours of the results.

PART II

A. FEES

1. **Annual Permit Fee.** Any person who holds a permit shall pay an annual permit fee in accordance with the provisions of Legislative Rule 47 CSR 9-7 each year. The annual permit fee for a Class 2 disposal well is twenty-five dollars ($25).

2. **Groundwater Protection Fee.** Any person who holds a permit shall pay an annual groundwater protection fee of seventy-five dollars ($75) each year for each Class 2D injection well in accordance with the provisions of Legislative Rule 47 CSR 55-3.

3. **Fees Paid in Full Requirement**. The permit becomes void if the annual permit fees have not been paid within one hundred and eighty (180) days of the due date. The Chief shall not reissue a permit until all annual permit fees due during prior terms have been paid in full.

PART III

A. REAPPLICATION

If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must submit an administratively complete application, along with application fee payment, for a new permit at least one hundred and eighty (180) days before this permit expires.

B. IMMEDIATE REPORTING

The Permittee shall report any noncompliance which may endanger human health or the environment immediately after becoming aware of the circumstances by using the WVDEP Emergency Spill number **800-642-3074**. Written submission shall also be provided within five (5) 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, Permittee shall provide the anticipated time it is expected to continue; and the steps taken or planned to be taken to reduce, eliminate, and prevent reoccurrence of the noncompliance. The following shall be included as information which must be reported immediately:

1. Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water (USDWs); and

2. Any non-compliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between the USDWs, or failure of mechanical integrity test demonstrations.

C. RIGHT OF APPEAL

Notice is hereby given of your right to appeal the terms and conditions of this permit by which you are aggrieved to the State Environmental Quality Board by filing a NOTICE OF APPEAL on the form prescribed by such Board for this purpose, with the Board, in accordance with the provisions of West Virginia Code, Chapter 22, Article 11, Section 21 (WV Code §22-11-21) within thirty (30) days after the date of issuance of this permit.

D. EFFECT OF PERMIT

The Permittee is allowed to engage in underground injection in accordance with the conditions of this permit based on an approved permit application. The Permittee shall not allow the underground injection activity authorized by this permit to cause or allow the movement of fluid containing any contaminant into underground sources of drinking water and may not cause a violation of any primary drinking water regulation or any health-based limit promulgated under Code of Federal Regulations, Title 40, Chapter I, Subchapter D, Part 142 (40 CFR §142) or of any water quality standard promulgated by the West Virginia Department of Environmental Protection/Division of Water and Waste Management. Any underground injection activity not authorized in this permit is prohibited. Compliance with the terms of this permit does not constitute a defense to any action brought under Part C and the imminent and substantial endangerment provisions in Part D of the Safe Drinking Water Act (SDWA) or any other common or statutory law for a breach of another applicable legal duty.

E. PERMIT ACTIONS

1. **Permit Status Change.** This permit can be modified, revoked and reissued or terminated for cause specified in West Virginia Code, Chapter 22, Article 11 (WV Code §22-11), and Chapter 22, Article 12 (WV Code §22-12), and Legislative Rule 47 CSR 13. The filing of a request by the Permittee for a permit modification, revocation and reissuance, suspension or revocation, or notification of planned changes or anticipated noncompliance, does not stay any permit condition.

2. **Transfer of Permits.** This permit is not transferable to any person unless notice is first provided to the WVDEP-Office of Oil and Gas and the Permittee complies with the requirements of Legislative Rule 47 CSR 13-13.17. The WVDEP-Office of Oil and Gas 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 SDWA.

F. SEVERABILITY

The provisions of this permit are severable, and if any condition of this permit or the Permittee's application of any provision of this permit to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of other provisions of the permit and the remainder of this permit shall not be affected.

G. DURATION OF PERMIT

This permit and the authorization to inject are issued for a period of five (5) years unless terminated under Part III.E.1 of this permit. However, when through no fault of the Permittee the WVDEP-Office of Oil and Gas does not issue a new permit with an effective date on or before the expiration date of the previous permit and the Permittee has submitted a timely administratively complete application as required in Part III.A of this permit, which is a complete application for a new permit, the expired permit shall continue to remain fully effective and enforceable.

H. GENERAL REQUIREMENTS

1. **Duty to Comply.** The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the SDWA and the State Act and is grounds for enforcement action; for permit suspension or revocation, revocation and reissuance, or modification; or for denial of a permit renewal application. (Legislative Rule 47 CSR 13-13.12.a) Copies of UIC Program regulations (WV Code §22-11) may be obtained from the West Virginia Legislature's Website http://www.legis.state.wv.us/WVCODE/Code.cfm and (Legislative Rule 47 CSR 13) may be obtained from the West Virginia Secretary of State's Website at http://www.sos.wv.gov/

2. **Duty to Reapply.** If the Permittee wishes to continue activity regulated by this permit after the expiration date of this permit, the Permittee must apply for and obtain a new permit as required in Part III.A of this permit at least one hundred and eighty (180) days before this permit expires.

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

4. **Duty to Mitigate.** The Permittee shall take all reasonable steps to minimize or correct any adverse impact on health of persons or the environment resulting from noncompliance with this permit.

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

6. **Duty to Provide Information.** The Permittee shall furnish to the Chief within a reasonable time, any information which the Chief may request to determine whether cause exists for modifying, revoking, and reissuing, or revoking this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Chief, upon request, copies of records required to be kept by this permit. If the Permittee becomes aware of any incomplete or incorrect information in the permit application or subsequent report(s), the Permittee shall promptly submit information addressing these deficiencies to the Chief.

7. **Inspection and Entry.** The Permittee shall allow the Chief, 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 or monitor, at reasonable times, for the purposes of assuring permit compliance for any substances or parameters at any location.

8. **Penalties.** Any person who violates a permit requirement is subject to civil penalties, criminal penalties, fines and other enforcement actions under WV Code §22-11 and WV Code §22-12.

9. **Signatory Requirements.** Only a duly authorized person may sign documents and reports associated with this permit.

a. All reports required by this permit and other information requested by the Chief shall be signed as follows:

i. For a corporation, by a responsible corporate officer of at least the level of vice-president;

ii. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or

iii. For a Municipality, State, Federal, or other public agency by either a principal executive or a ranking elected official.

b. A duly authorized representative of the official designated in paragraph a. above may also sign only if:

i. The authorization is made in writing by a person described in paragraph a. above;

ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity; and

iii. The written authorization is submitted to, and approved by, the Chief.

c. If an authorization under paragraph (b) of this section is no longer accurate because a different individual has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (b) of this section must be submitted to the Chief prior to or together with any reports, information or applications to be signed by an authorized representative.

d. Any person signing a document under paragraph (b) of this section shall make the following certification: (Legislative Rule 47 CSR 13-13.11.d). *"I certify under 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."*

10. Property Rights. Issuance of this permit does not convey property rights or mineral rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, any infringement of Federal, State or local law or regulations, or any exclusive privilege.

11. Permit Actions. This permit may be modified, revoked and reissued, suspended, or revoked for cause. The filing of a request by the Permittee for a permit modification, revocation and reissuance, suspension or revocation, or notification of planned changes or anticipated noncompliance, does not stay any permit condition.

12. **Confidentiality of Information.** In accordance with Legislative Rule 47 CSR 13-13.21, any information submitted to the State pursuant to this rule may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions, or in the case of other submissions, by stamping the words "CONFIDENTIAL BUSINESS INFORMATION" on each page containing such information. An affidavit or written request stating the need for requested confidential documents to remain confidential must also be submitted with the documents.

    a. If no claim is made at the time of submission, the State may make the information available to the public without further notice.

    b. Claims of confidentiality for the following information will be denied:

        i. The name and address of any permit applicant or Permittee; or

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

13. **Monitoring Reports.** Monitoring results shall be reported at the intervals specified under Part IV.B of this permit.

14. **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 no later than thirty (30) days following each schedule date.

15. **Other Information.** Where a Permittee becomes aware that he/she failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Chief, he/she shall promptly submit such facts or information.

16. **Prohibited Activity.** It shall be unlawful for any person, unless an authorization has been issued by a groundwater regulatory agency, to allow crude oil, or any petroleum product derived from crude oil, or seepage, or natural gas, or condensate, or salt water, or any chemical mixture which may impact groundwater quality to escape from any well, pump line, impoundment, storage tank, treatment unit, or storage container, or be allowed to flow onto or under the land surface or in such a manner that could impact surface or groundwater quality.

17. **State or Federal Laws.** Nothing in this permit shall be construed to preclude the institution from any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties established pursuant to any State or Federal law or regulation.

PART IV

A. RECORD RETENTION

Required Records. The Permittee shall retain all records concerning the permitted underground injection well until three (3) years after completion of any plugging and abandonment. The Chief may require the Permittee/Operator to deliver the records to the Chief at the conclusion of the retention period.

B. MONITORING REQUIREMENTS

1. **Sampling and Measurement.** Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the fluid to be analyzed and the procedure for analysis of the sample shall be in accordance with test procedures approved under 40 CFR §136.3, unless otherwise approved by the Chief. The Permittee shall identify the types of tests and methods used to generate the monitoring data.

2. **Monitoring Devices.** The Permittee shall install and maintain in good operating condition:

   a. A method or mechanism on the injection line(s) for obtaining a representative sample of injection fluids;

   b. Devices to continuously measure and record injection pressure, flow rates, injection and production volumes;

   c. Pressure gauges shall be of a design that provides a full pressure range of at least fifty (50) percent (%) greater than the anticipated operating pressure and a certified deviation accuracy of five (5) percent (%) or less throughout the operating pressure range; and

   d. Flow meters shall measure cumulative volumes and be certified for a deviation accuracy of five (5) percent (%) or less throughout the range of rates allowed by the permit.

3. **Wellhead Pressure Gauge.** A wellhead pressure gauge shall be installed and maintained on the injection tubing to facilitate inspection and ensure compliance of the maximum wellhead injection pressures as approved on WVDEP-Office of Oil and Gas WR-37 Form. A daily reading of the maximum wellhead injection pressure shall be taken and reported on WR-40 Form.

4. **Daily Monitoring.** The Permittee shall daily monitor all the casing annuli with pressure sensitive devices or with such a method as approved or required by the WVDEP-Office of Oil and Gas to allow early detection of any leaks from the packer, injection zone or casing. The Permittee shall also monitor the daily maximum injection pressure, volume, and rate daily. This information shall be reported monthly using the WVDEP-Office of Oil and Gas electronic WR-40 Form. Submittal shall be through the WVDEP Electronic Submittal System (ESS): https://apps.dep.wv.gov/eplogin.cfm

5. **Monitoring Records.** Records of monitoring information shall include:

    a. The date, exact place, and time of sampling or measurements;

    b. The individual(s) who performed the sampling or measurements;

    c. The date(s) analysis(es) were performed;

    d. Individual(s) who performed the analyses;

    e. The analytical techniques or methods used; and

    f. The results of such analyses.

6. **Injection Well Mechanical Integrity Testing (MIT).** The Permittee shall conduct a mechanical integrity test of the injection well at a minimum frequency of once every five (5) years per Legislative Rule 35 CSR 4-7.7.b. The Permittee shall notify the Chief of his or her intent to conduct a mechanical integrity test of the well no less than twenty-four (24) hours prior to such test. The maximum wellhead injection pressure is **883** psi. The pressure requirement of a mechanical integrity test on a well is a pressure of at least one hundred and ten (110) percent (%) or 1.1 times the maximum injection pressure. The minimum test pressure is **971** psi (883 x 1.1). The pressure must be held for a period of at least twenty (20) minutes with no more than five (5) percent (%) pressure loss to be approved for injection operations. The Permittee must submit a WR-37 Form with the pressure recording graph/chart as an attachment to the WVDEP-Office of Oil and Gas within thirty (30) days of each mechanical integrity test being conducted. Upon failure of a mechanical integrity test or expiration of the five (5) year mechanical integrity test regulatory period, the Permittee shall cease operation/injection and shut-in the well immediately until successfully repaired, tested, or permanently plugged and abandoned per regulation. Any MIT test that fails must be documented on a separate WR-37 Form. All repairs shall be completed by the Permittee within ninety (90) days of the failure date and approved by the WVDEP-Office of Oil and Gas prior to resuming operations. If repaired, the well must be re-tested and an updated WR-37 Form with pressure recording graph/chart must be submitted to the WVDEP-Office of Oil and Gas for approval.

7. **Pump Line Mechanical Integrity Testing (MIT).** The Permittee shall conduct a mechanical integrity test of all pump line(s) from the holding tanks to the injection well at a minimum frequency of once every five (5) years. The Operator has the option of testing the pump line simultaneously with a well or separately. The Permittee shall notify the Chief of his or her intent to conduct a mechanical integrity test of the pump line(s) no less than twenty-four (24) hours prior to such test. The pump line integrity test shall pressurize the injection pump line(s) to at least one hundred (100) psi greater than the maximum permitted wellhead injection pressure for a minimum of twenty (20) minutes, allowing for no more than five (5) percent (%) loss after completion. The minimum test pressure for the pipeline is **983** psi (883 + 100). The Permittee must submit a WR-37 Form with the pressure test recording graph/chart as an attachment to the WVDEP-Office of Oil and Gas within thirty (30) days of each mechanical integrity test being conducted. Upon failure of a mechanical integrity test or expiration of the five (5) year mechanical integrity test regulatory period, the Permittee shall cease operation/injection and shut-in the well immediately until successfully

repaired or replaced and then tested. Any MIT test that fails must be documented on a separate WR-37 Form. All repairs shall be completed by the Permittee within ninety (90) days of the failure date and approved by the WVDEP-Office of Oil and Gas prior to resuming operations. If repaired, the line must be re-tested and an updated WR-37 Form with pressure recording graph/chart must be submitted to the WVDEP-Office of Oil and Gas for approval. Any change made to the pump line fittings or piping will require integrity pressure testing. All WVDEP-Office of Oil and Gas forms, including the WR-37 Form can be found on the WVDEP-Office of Oil and Gas webpage: http://www.dep.wv.gov/oil-and-gas/GI/Forms/Pages/default.aspx

8. **Additional MIT Requirements.** In addition to the above requirement, a mechanical integrity test demonstration shall be conducted whenever protective casing or tubing is removed from the well, the packer is replaced or reseated, if a well failure is likely, or as requested by the Chief. The Permittee may continue operation only if they have successfully demonstrated to the Chief the mechanical integrity of the permitted well. The Permittee shall cease injection operations if a loss of mechanical integrity becomes evident or if mechanical integrity cannot be demonstrated. The Permittee shall notify the county inspector within 24 hours of the loss of mechanical integrity.

9. **Environmental Measurements**. All environmental measurements required by the permit, including but not limited to, measurements of pressure, temperature, mechanical, and chemical analyses shall be done in accordance with state guidance on quality assurance. All analysis must be performed by a West Virginia certified laboratory. Certified laboratories can be found on the WVDEP webpage at http://www.dep.wv.gov/WWE/Programs/lab/Pages/default.aspx

10. **Manifest Records.** The Permittee shall maintain a record (manifest) of every load of fluid received. The record shall include the hauler's name and signature, the Operator's name and signature, API number for the well the fluid was collected, the location from where the load was obtained and the volume of the load and whether the load of fluid delivered was a split load. If the load was a split load, each Operator's name and location shall be listed and, if possible, the volumes of fluid received from each Operator documented. This information shall be maintained on the WVDEP-Office of Oil & Gas approved Class 2 disposal manifest form example, as attached to this permit.

11. **Contract Haulers.** No hauler whose trucks do not belong to the UIC Operator shall be permitted without approval by the WVDEP-Office of Oil and Gas. For approval, the Permittee shall designate by letter to the WVDEP-Office of Oil and Gas, any third-party hauler proposed to be used for the transportation of fluids to the facility. The third-party hauler may not commence transportation of fluids to the facility until approved by the WVDEP-Office of Oil and Gas. All delivery manifest requirements must still be met.

12. **Injectate Samples.** The Permittee shall sample, analyze and record the nature of the injected fluid for the parameters listed in TABLE 1 (Part IV.B.12) on a twelve (12) month schedule so that sampling will be completed at least once per calendar year, or upon request of the Chief, or whenever the Permittee observes or anticipates a change in the injection fluid, to yield representative data on their physical, chemical, or other relevant characteristics. New facilities shall submit a representative sample prior to the initiation of injection operations. The Permittee shall take the sample at or before

the wellhead for analysis. Samples and measurements shall be representative of the monitored activity. The Permittee shall utilize applicable analytical methods and test results shall be submitted to the WVDEP-Office of Oil and Gas with complete laboratory analysis data sheets (report). Any analysis of injectate with a specific gravity result greater than 1.2 shall be reported to the Chief within twenty-four (24) hours of the results.

TABLE 1

Aluminum	Iron	pH
Arsenic	Manganese	Specific Gravity
Barium	Sodium	Total Dissolved Solids (TDS)
Bromide	Strontium	
Calcium	Sulfate	Radium-226 and Radium 228
Chloride		Gross Alpha and Gross Beta

C. REPORTING AND NOTIFICATION REQUIREMENTS

1. **Anticipated Noncompliance.** The Permittee shall give advance notice to the Chief of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

2. **Other Noncompliance.** The Permittee shall report all instances of noncompliance not reported under paragraphs Part III.B.1 and 2, and Part IV.C.1 of this permit, at the time monitoring reports are submitted. The report shall contain the information listed in Part III.B of this permit. The Permittee shall report all other instances of noncompliance in writing within ten (10) days of the time the Permittee becomes aware of the circumstances. The reports shall contain the information listed in this permit.

3. **Planned Changes.** The Permittee shall give notice to the Chief as soon as possible of any planned physical alterations, additions to the permitted facility, and/or any changes planned in the operation of the facility.

4. **Conversion and Abandonment Notification.** The Operator shall provide written notification to the Chief prior to conversion or abandonment of the well or in the case of area/enhanced recovery permits before closure of the project, per Legislative Rule 47 CSR 13-13.6.e. Notice should be given at least thirty (30) days prior to any conversion, abandonment or alteration. Notice shall also be given prior to the addition, reduction, or conversion of wells within an area/enhanced recovery permit.

5. **Cessation of Injection Activity.** Any well which is not in use for a period of twelve (12) consecutive months shall be presumed to have been abandoned and shall promptly be plugged by the Operator in accordance with the provisions in West Virginia Code, Chapter 22, Article 6, Section 24 (WV Code §22-6-24) unless the Operator furnishes satisfactory proof to the Chief that there is a bona fide future use for such well. All lines shall be completely drained of all fluids and the wellhead shut-in anytime injection operations cease for a period of greater than ninety (90) days. The WVDEP-Office of Oil and Gas must be contacted at least twenty-four (24) hours prior to the cessation shut-in process.

6. **Certification of Permit Review.** Within thirty (30) days of receipt of this permit, the Permittee shall report to the Chief that he or she has read and understands and accepts all terms and conditions of the permit. The Certification Document is included as an attachment of this permit, and must be signed, dated and submitted to the WVDEP-Office of Oil and Gas.

7. **Duty of Owner/Operator to Report Discharges.** The Owner or Operator or person in charge of a facility subject to this rule from which a reportable discharge, as described in Legislative Rule 35 CSR 1-3.3, occurs shall notify the WVDEP-Office of Oil and Gas by calling the Emergency Spill number **800-642-3074** immediately; but in no case, later than twenty-four (24) hours after becoming aware of the discharge.

PART V

A. OPERATING REQUIREMENTS

1. **Permit Documents On-Site.** The UIC Permit and all attachments must be kept on location at all times.

2. **Non-Commercial Permits.** The facility is permitted as a Non-Commercial operation and is limited to inject Class 2 compliant fluids sourced only from wells owned by the Permittee.

3. **Authorized Injection Fluids.** The Permittee shall not inject any hazardous substances, as defined by 40 CFR §261, or any other fluid, other than the Class 2 fluids produced solely in association with oil and gas production operations. This permit is for authorization of injection of only fluids as defined for Class 2 wells in Legislative Rule 47 CSR 13-4.2. Accepting any fluid that is not Class 2 compliant is grounds for enforcement action and/or revocation of this permit.

4. **Required Barrel Counter.** The Permittee shall install and maintain a barrel counter, or other means of flow volume metering, on the injection line. The results are to be recorded and reported on the WR-40 Form.

5. **Annulus Injection Prohibited.** Injection between the outermost casing protecting underground sources of drinking water and the wellbore is prohibited, as is injection into any USDW.

6. **Duty to Monitor or Plug Non-Cemented Wells That Penetrates the Injection Zone Within the AOR.** Any well with an inactive and/or abandoned status that penetrates the injection zone within the permitted Area of Review (AOR), that does not have cemented casing through the injection zone, shall be monitored immediately by a method approved by the WVDEP-Office of Oil and Gas or properly plug such wells as necessary.

7. **Corrective Action.** The Permittee must satisfy the requirements of the WVDEP-Office of Oil and Gas regarding any corrective action needed on all known wells penetrating the injection zone within the permitted Area of Review. This must be done in a manner which satisfies the requirements of Legislative Rule 47 CSR 13-13.9.

8. **Cement Evaluation Analysis.** After conducting a cement squeeze job in an open hole, or after any well cement repair, the Permittee shall submit cementing records and cement evaluation logs that demonstrate the isolation of the injection interval(s). The analysis shall include a spherically focused tool, run after the long-string casing is set and cemented, which enables the evaluation of the bond between cement and casing as well as of the bond between cement and formation. A written narrative report summarizing the work and interpretation of the results shall be submitted with all available records including an updated Well Operator's Report of Well Work (WR-35) well record and updated well schematic. The Permittee may not commence or recommence injection until it has received written approval from the WVDEP-Office of Oil and Gas that such a demonstration is satisfactory.

9. **Loading/Unloading Stations.** Loading and unloading stations shall have spill prevention and control facilities and procedures as well as secondary containment. Spill containment and cleanup equipment shall be readily accessible.

10. **Above Ground Storage Tanks.**

    a. The Permittee shall ensure that secondary containment for existing above ground storage tank(s) shall be adequately designed and constructed to be sufficiently impervious to prevent the released substance from penetrating the containment structure until the release can be detected and recovered, but in no case, shall that time be less than seventy-two (72) hours. The secondary containment structure shall have capacity to contain at least one hundred and ten (110) percent (%) volume of the largest tank. If tank batteries or tanks are connected in series by manifold, the combined volume of the tanks must be considered if the tanks are capable of simultaneous release. The combined capacity of the tanks connected by manifold shall be considered unless the tanks are operated in a manner that prevents fluids from flowing from one tank to another under any conditions.

    b. Above ground tanks connected in series by a manifold shall utilize a system where valves are closed and locked to isolate tanks when their combined volume exceeds the secondary containment capacity. At no time, shall the combined volume of the tanks be accessible through the manifold system exceed the capacity of the secondary containment without someone being on site to monitor.

    c. All above ground storage tanks within the floodplain, as defined by the Federal Emergency Management Agency "FEMA" 100-year floodplain map, shall be anchored significantly enough to prevent movement in the case of a high-water flood event. The Permittee should contact the county floodplain manager to confirm the floodplain status of the tank(s) location(s).

11. **Wellhead Reinforcement.** All wellheads shall be reinforced or otherwise armored to protect against accidental collisions, if so positioned where collision could be possible.

12. **Pumps and Ancillary Equipment.** Pumps and ancillary equipment (e.g. valves, flanges, filters, condensate lines, and instrumentation) handling materials that have the potential to contaminate groundwater shall be selected and installed to prevent or contain any spills or leaks.

13. **Sumps.** Sumps containing materials which have the potential to contaminate groundwater shall be designed, constructed, and operated utilizing secondary containment, or other appropriate controls that can prevent groundwater contamination.

14. **Facility Security.** All valves, water drains, containment areas, and storage areas shall be secured and locked utilizing locking devices and/or plugs. All gates and access points shall be secured and locked while no representative is at the facility.

15. **Duty to Drain Injection Pump Lines.** All lines shall be completely drained of all fluids and the wellhead shut-in anytime injection operations cease for a period of greater than ninety (90) days. The WVDEP-Office of Oil and Gas must be contacted at least twenty-four (24) hours prior to the cessation shut-in process.

B. PLUGGING AND ABANDONMENT

1. Any well which is not in use for a period of twelve (12) consecutive months shall be presumed to have been abandoned and shall promptly be plugged by the Operator in accordance with the provisions of WV Code §22-6, unless the Operator furnishes satisfactory proof to the Chief that there is a bona fide future use for such well.

2. Plugging and abandonment shall be conducted in a manner to prevent movement of fluids into or between USDWs (underground sources of drinking water).

3. Pursuant to Legislative Rule 47 CSR 13-13.7.f, the Permittee's plugging and abandonment plan shall be incorporated into the UIC permit. See Attachment 1.

4. Prior to well plugging, the Permittee shall apply for and receive a plugging permit from the WVDEP-Office of Oil and Gas to plug and abandon the well in accordance with an approved plugging and abandonment plan.

PART VI

A. SITE SPECIFIC CONDITIONS

1. Appendix A: Specific Operational Conditions / Well Construction

2. Appendix H: Groundwater Protection Plan (GPP)

3. Appendix I: Requirement for Financial Responsibility to plug/abandon an injection well

4. Attachment 1: Plugging and Abandonment Plan

5. Attachment 2: Site/Facility Diagram

6. Class 2 Manifest

7. Right of Appeal

8. UIC Certification of Review

(4/25)

API No. 4708701056

APPENDIX A
Injection Well Form

1) GEOLOGIC TARGET FORMATION Big Injun

Depth 2202 Feet (top) 2235 Feet (bottom)

2) Estimated Depth of Completed Well, (or actual depth of existing well): 2275 Feet

3) Approximate water strata depths: Fresh 200-400 Feet Salt 1245 Feet

4) Approximate coal seam depths: NONE

5) Is coal being mined in the area? Yes ☐ No ☑

6) Virgin reservoir pressure in target formation 960 psig Source Estimated

7) Estimated reservoir fracture pressure 2060 per step-rate test (1987) psig (BHFP)

8) MAXIMUM PROPOSED INJECTION OPERATIONS:

Injection rate (bbl/hour)	12
Injection volume (bbl/day)	50
Injection pressure (psig)	883
Bottom hole pressure (psig)	1966

9) DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED, INCLUDING ADDITIVES:

Produced water, bactericides, and other chemicals as may be necessary to maintain water quality.

Temperature of injected fluid: (°F) 60

10) FILTERS (IF ANY)

Cartridge filters at injection pump and well head

11) SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL

No cathodic protection is utilized at this time.

4708701056

APPENDIX A (cont.)

12. Casing and Tubing Program

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor	10 3/4	NA	NA	NA	9	9	NA
Fresh Water	8 5/8	N	H-40	28	466	466	CTS
Coal							
Intermediate 1							
Intermediate 2							
Production	4 1/2	N	J-55	9.5	2272	2272	53
Tubing	2 3/8	N	J-55	4.6	2103	2103	
Liners							

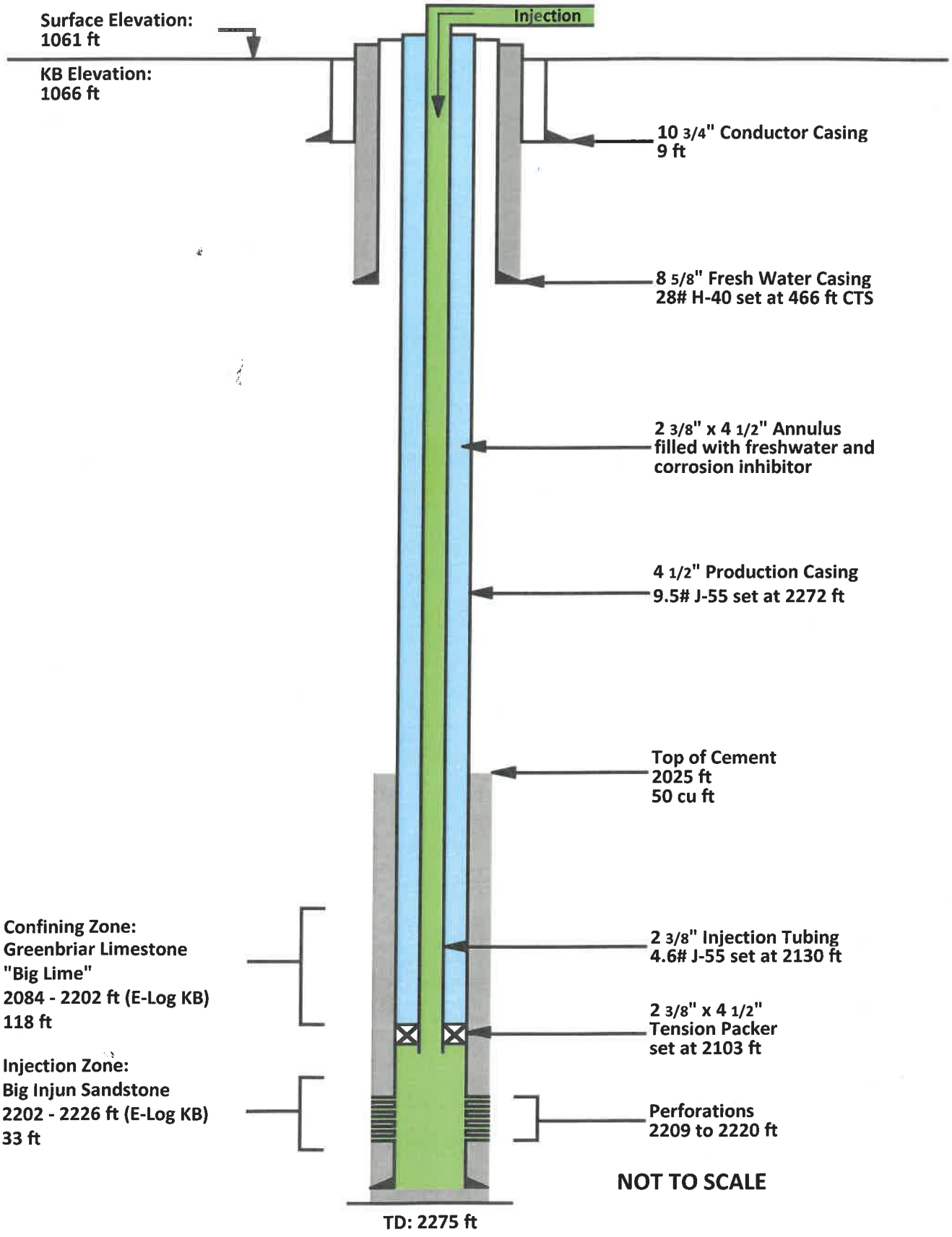
TYPE	Wellbore Diameter	Casing Size	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./sk)	Cement to Surface ? (Y or N)
Conductor	DRIVE	10 3/4	NA	NA	NA	NA	N
Fresh Water	10	8 5/8	.264	2950	Reg. Neat	1.18	Y
Coal							
Intermediate 1							
Intermediate 2							
Production	7 7/8	4 1/2	.205	4380	50/50 Poz	1.26	N
Tubing		2 3/8	.167	6770	NA	NA	N
Liners							

PACKERS	Packer #1	Packer #2	Packer #3	Packer #4
Kind:	tension			
Sizes:	4" x 2"			
Depths Set:	2103			

Well Bore Diagram

W.M. Kaufman W-19
API 47-087-01056

Delta Helix Energy, LLC
UIC 2D08701056-003



Form OG-10

4708701056

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

WELL RECORD

Quadrangle SPENCER
Permit No. ROA-1056
Oil or Gas Well Oil & Gas (KIND)

Company WOLF'S HEAD OIL REFINING COMPANY, INC.
Address P. O. Box 1588, Parkersburg, W. Va.
Farm Wm. Kaufman Acres 800
Location (waters) Millstone Run
Well No. W-19 Elev. 1060.85
District Smithfield County Roane
The surface of tract is owned in fee by Maxel Smith
Otto Route Address Spencer, W. Va.
Mineral rights are owned by Alfred M. Oppenheimer, II, et al
300 South Lang Avenue Address Pittsburgh 8, Pa.
Drilling commenced June 12, 1964
Drilling completed June 19, 1964
Date Shot From To
With
Open Flow /10ths Water in Inch
/10ths Merc. in Inch
Volume Drilled w/Rotary (Show Only) Cu. Ft.
Rock Pressure No Test lbs. hrs.
Oil bbls., 1st 24 hrs.
WELL ACIDIZED

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer Steel Shoe
13			Float Collar
10 3/4"OD	9'	9'	Guide Shoe
8 5/8"OD	466'	466'	Size of 8 5/8"
6¼			4½"OD
Liners Used 4½"OD/ Tally S.L.M.	2286' 2272'	2286' 2272'	4½"OD Depth set 454' 2248' 2272'
2 3/8"OD	2251.83'	2251.83'	Perf. top
Liners Used			Perf. bottom
			Perf. top
			Perf. bottom

CASING CEMENTED 8 5/8" SIZE 454 No. Ft. 6/13/64 Date
4½" 2272 6/20/64
COAL WAS ENCOUNTERED AT FEET INCHES
FEET INCHES FEET INCHES
FEET INCHES FEET INCHES

WELL FRACTURED 6/27/64 - Used: 1,050 Bbls. Water, 46,000 # Sand, 300 Gal. BDA Acid, 175# J-98, 350# J-84, 20 Gal. Deterger and 35 Gal. Freflo
RESULT AFTER TREATMENT Oil - 25 Bbls. Gas - 50,000 Cu. Ft.
ROCK PRESSURE AFTER TREATMENT 400 Lbs.
Fresh Water - Feet - Salt Water Feet

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
Top Soil			0	10			
Conductor				9			
Red Rock			10	20			
Slate			20	85			
Sand			85	200			
Slate			200	230			
Red Rock			230	265			
Slate			265	295			
Sand			295	395			
Slate			395	420			
Red Rock			420	430			
Sand			430	470			
Slate			470	485			
Red Rock			485	495			
Slate			495	515			
Red Rock			515	525			
Slate			525	675			
Red Rock			675	735			
Sand			735	765			
Red Rock			765	815			
Slate			815	840			
Sand			840	905			
Red Rock			905	925			
Slate			925	965			
Red Rock			965	985			
Slate			985	1245			
Sand			1245	1350			
Slate			1350	1375			
Sand			1375	1400			

(over)

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4708701056

Formation	Color	Hard or Soft	Top 10	Bottom	Oil, Gas or Water	Depth Found	Remarks
Slate			1400	1570			
Sand			1570	1620			
Slate			1620	1730			
Sand			1730	1760			
Slate			1760	1805			
Sand			1805	1920			
Slate			1920	1990			
Sand			1990	2027			Water
Little Lime			2027	2062			
Pencil Cave			2062	2078			
					Oil & Gas	2115-2120	Show Only
Big Lime			2078	2193			
Keener			2193	2202			
Big Injun			2202	2235			
Pay			2206	2216			Show
Slate			2235	2277			
4½" Casing				2272			
TOTAL DEPTH				2277			

Date July 13, 19 64

APPROVED WOLF'S HEAD OIL REFINING COMPANY, INC., Owner

By George W. Wilsman

George W. Wilsman, (Title) Agent

4708701056

APPENDIX H

GROUNDWATER PROTECTION PLAN

Facility Name: Clover Produced Water Disposal

County: Roane

Facility Location:

Postal Service Address:	Kaufman Rd, Spencer, WV 25276		
Latitude :	38 Degrees 45' 32"	Longitude:	81 Degrees 15' 45"

Contact Information:

Person:	Brad Morris
Phone Number:	681-229-1558
E-mail Address:	bmorris@topdrilling.com

Date: 12/15/24

1. A list of all operations that may contaminate the groundwater.

Tank failure / leak
Pipeline failure / leak
Fluids (bactericide, corrosion inhibitor, etc) transfer
Stuffing box failure
well completion / work over activities

2. A description of procedures and facilities used to protect groundwater quality from the list of potential contaminant sources above.

Secondary containment is installed around tanks adequate to hold the volume of the largest tank. Pipelines are routinely monitored and patrolled for leaks. Pipelines are registered with the WV 811 to minimize possibility of being damaged by others. Pressure monitoring - Shut down controls on pump. Work over fluids are properly contained and disposed of. The injection well is monitored for mechanical integrity failures and pressure tested ever five years.

3. List procedures to be used when designing and adding new equipment or operations.

Non corrosive materials are utilized as much as possible. Shut down controls installed on injection pump.

4708701056

4. Summarize all activities at your facility that are already regulated for groundwater protection.

This facility is currently covered by an existing UIC permit No. 2D0871056. Storage tanks are registered under WV Tank regulations. Any Spills or leaks are reported to WVDEP / EPA.

5. Discuss any existing groundwater quality data for your facility or an adjacent property.

There are no known ground water quality issues in this area. Only two of the residences with in the AOR utilize water wells for domestic use. The analytical results from these two wells are enclosed with this application.

6. Provide a statement that no waste material will be used for deicing or fill material on the property unless allowed by another rule.

No waste material is or will be used for deicing or fill material.

7. Describe the groundwater protection instruction and training to be provided to the employees. Job procedures shall provide direction on how to prevent groundwater contamination.

The operators of this facility are instructed to routinely monitor tank conditions, secondary containment conditions, and patrol injection lines. They are trained yearly regarding ground water protection. Part of this training involves prevention of oil & chemical spills and the prompt clean up / remediation of any spills. Prior to the release of any storm water from secondary containment it is tested t assure that it meets guidelines for discharge.

4708701056

8. Include provisions for inspections of all GPP elements and equipment. Inspections must be made quarterly at a minimum.

Secondary containment, pipelines, and injection equipment are inspected and documented a minimum of every 90 days. The injection well and producing wells are visited several times weekly. The wellheads are inspected for any indication of mechanical integrity. Any issues are addressed when discovered. The majority of the production piplines and the injection lines are located parallel to roadways which are traveled several times weekly.

Signature: Brad J Yoder

Date: 12/15/24

APPENDIX I

Requirement for Financial Responsibility to Plug/Abandon an Injection Well

In accordance with WV Code 47CSR13.13.7.g, all UIC permits shall require the permittee to maintain financial responsibility and resources to close, plug, and abandon underground injection wells in a manner prescribed by the Chief. The permittee must show evidence of financial responsibility to the Chief by submission of a surety bond, or other adequate assurance, such as a financial statement or other material acceptable to the Chief. This certification must be signed by one of the following:

1. For a corporation: by a principle corporate officer of at least the level of vice-president;
2. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
3. For a municipality, State, Federal, or other public agency: by either a principle executive officer or ranking elected official;
4. Or a duly authorized representative in accordance with 47CSR13.13.11.b.
   (A person may be duly authorized by one of the primary entities (1-3) listed above by submitting a written authorization to the Chief of the WVDEP Office of Oil and Gas designating 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.)

Delta Helix Energy, LLC

(Company Name)

2D0871056-002

(UIC Permit Number)

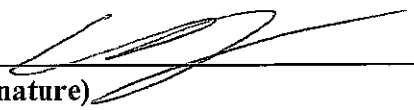
I certify in accordance with 47CSR13.13.7.g., that the company/permit holder cited above will maintain financial responsibility and resources to close, plug, and abandon underground injection wells(s) in a manner prescribed by the Chief of the Office of Oil and Gas and that documents to support this requirement are on record with the same.

B Douglas Haught

(Print Name)

CEO

(Print Title)



(Signature)

12-16-24

(Date)

4708701056
Plugging Plan

Section No. 12

This injection well has surface casing set at 466' and cemented to surface. The 4 ½" casing is set at 2272' and cemented to approximately 2025'. See schematic – Fig No. 4. The well will be plugged to the standards set by WVDEP at the time it is plugged. If this well was to be plugged today it would be plugged as follows:

Plug No. 1- 2200'-2100'

Free point, cut, & POH w/ 4 1/2" casing – est 1975'

Plug No. 2 -2025'-1925' (adjusted for casing cut above)

Plug No. 3 -1110'-1010'

Plug No. 4 – 515'-415' (base of surface casing)

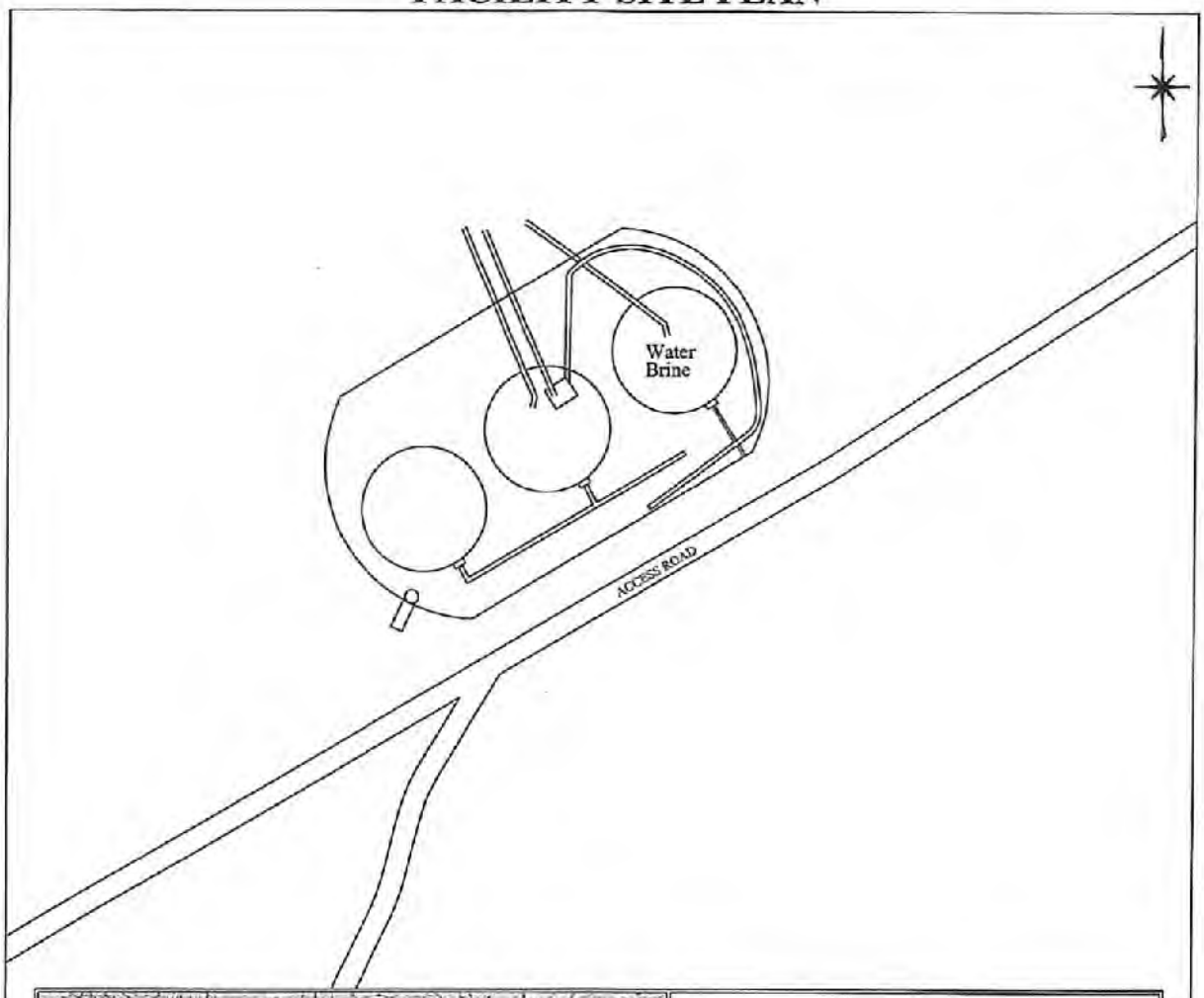
Plug No. 5 – 100'-0'

6 % gel between cement plugs.

4708701056

Fig No 1

FACILITY SITE PLAN



HG ENERGY, LLC
SPCC PLAN

Drawn By KAB
File Name Clover Area
Scale
Date 11-6-14
Point No.

Facility Name: Kaufman, Wm. W-5, W-6, W-8, W-12, W-13, W-17, W-18, W-20, W-21, 5, 605 & 606

State: WV

County: Roane

District: Smithfield

Name of Nearest Stream: Millstone Run

Direction & Distance from Facility: 185° @ 300'

~STORAGE TANKS~

No. 3

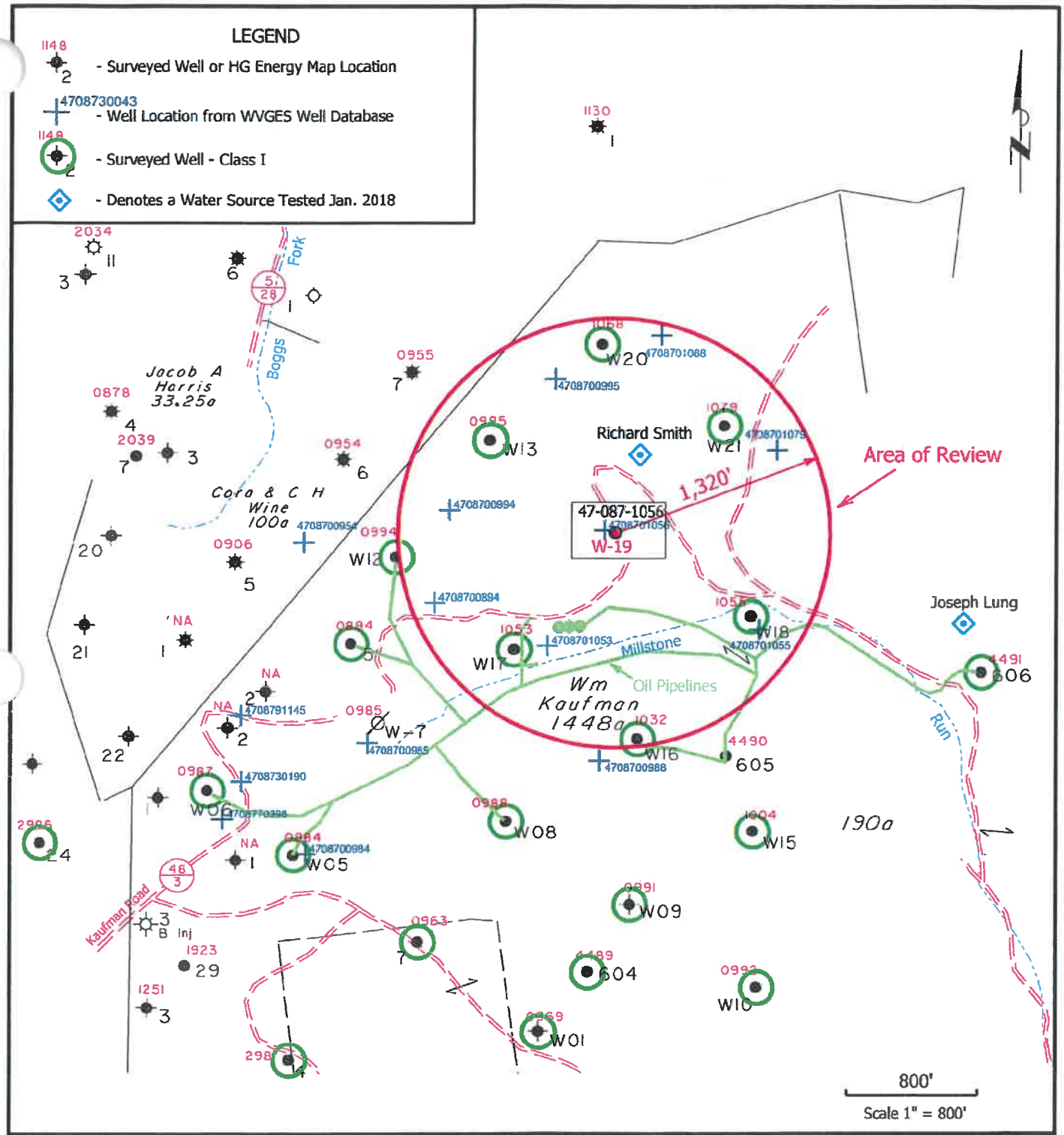
Volume bbl: 210

Tank #'s: 321-323

Dike Dimensions: 150' peri. X 2.2' depth

Calculated Capacity: 471 bbl

4708701056



- CLOVER FIELD -
Injection Well

Wm. Kaufman No.W-19 (47-087-01056)

ROANE CO., WV

Map Showing All Known Wells
Within the Quarter-Mile AOR
& WVGES Well Data Spots

8/15/2018

RECEIVED
Office of Oil and Gas
JUL 11 2019
WV Department of
Environmental Protection

HG ENERGY LLC

Page ___ of___

Class II Manifest

UIC # _____

*I hereby certify that the contents of this shipment are Class II fluids that were brought to the surface in connection with oil or natural gas production.

Hauler' Name	*Signature	Receiver's Name	*Signature	API or Other	Volume of Load (Barrels)	Was the Load Split (Y/N)	Date

Attachment 3

Make as many copies of the document as necessary to comply with the UIC permit.
Page numbers should be maintained sequentially to provide an adequate record.

RIGHT OF APPEAL

Notice is hereby given of your right to appeal the terms and conditions of this permit of which you are aggrieved to the Environmental Quality Board by filing a NOTICE OF APPEAL, on the form prescribed by such Board for this purpose, in accordance with the provisions of Section 21, Article 11, Chapter 22 of the Code of West Virginia within thirty (30) days after the date of receipt of this permit.

Underground Injection Control Permit

PERMIT CERTIFICATION DOCUMENT

West Virginia Department of Environmental Protection
Office of Oil and Gas

Permit ID No.: **2D08701056-003**
-

Permit Name: **Delta Helix Energy, LLC**

In accordance with Part 2, Reporting and Notification Requirements, I hereby certify that I have read and personally familiar with all the terms and conditions of this permit.

I understand that the underground injection of any waste streams other than those provided for in this permit is strictly prohibited. I understand that failure to pay the Annual Permit Fee or any other associated fees required by West Virginia Code, Chapter 22, Articles 11 and 12 shall be cause for revocation of this Permit. I further understand that reporting is required, and noncompliance with the terms of this permit will be cause for revocation of the permit and subject me to significant penalties including the possibility of fines and imprisonment.

_____
Signature

_____
Name and Title (Type or Print)

_____
Date