PUBLIC NOTICE
U.S. Environmental Protection Agency - Region 4
Water Division – Safe Drinking Water Branch
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303

PUBLIC NOTICE: KY20UIC001 OCTOBER 09, 2020

NOTICE OF INTENT TO ISSUE UNDERGROUND INJECTION CONTROL (UIC) PERMIT
PERMIT NUMBER KYI1061

The U.S. Environmental Protection Agency (EPA) intends to issue one (1) Underground Injection Control (UIC) Class I – Non-Hazardous Disposal Well Permit (Permit) under the authority of Title 40 the Code of Federal Regulations at (40 CFR) Parts 124, 144, 146, and 147 to:

Applicant:	Sterling Ventures, LLC
Address:	376 South Broadway, Lexington, Kentucky 40508
UIC Permit Application:	KYI1061

The proposed Permit will authorize the construction, operation, plugging and abandonment of the following well located in the in Gallatin County, Kentucky:

Sterling Materials UIC - 1 – 38.830004°North, 84.759794°West

If permitted, the well can be used to inject fluids, in the form of a slurry of residual solids from municipal drinking water plant produced from Norther Kentucky Water District reservoirs and Lime stabilized waste pickle liquor sludge from steel manufacturing plants in Gallatin County, Kentucky. Such fluids would be injected into a mined cavity in the Tyrone formation approximately 480 to 525 feet below land surface.

The EPA's development of its proposed decision was based on a detailed technical review of the applicant's submittals and supporting documentation. The proposed Permit was drafted in accordance with the provisions of the Safe Drinking Water Act as amended (42 U.S.C. 300f *et seq*., commonly known as SDWA) and other lawful standards and regulations. The Permit conditions are tentative and open to comment from the public.

A final decision to issue the Permit or draft decision to deny the application will be made after the close of the public comment period, which ends at the close of business on November 08, 2020.

All persons, including the applicant, who wish to comment on the proposed decision may do so by submitting comments along with their name and address to the EPA address given below. The public notice number and the UIC permit number should be included in the first page of comments. All written comments must be postmarked or emailed no later than November 08, 2020, to be considered in formulating a final decision. All comments received during the public notice period will be made a part of the administrative record of this Permit and will be available for public review.

The EPA is not required to hold a public hearing but may do so if there is sufficient public interest in the proposed decision. Any person desiring such a hearing must submit a written request, postmarked by

November 08, 2020, which identifies the proposed issue(s) for discussion at the hearing to the EPA address given below. If a public hearing is deemed necessary, the EPA will issue a public notice of the hearing at least 30 days prior to the scheduled date.

After consideration of all timely written comments, SDWA requirements, appropriate regulations and policies, and all comments presented at a public hearing, if any was held, the EPA Regional Administrator or designee will make final determinations regarding issuance of the Permit. If the final determinations are substantially unchanged from the tentative determinations outlined above, the EPA Regional Administrator or designee will so notify all persons who submitted written comments or participated in the hearing, if any was held. If the final determinations are substantially changed, the EPA Regional Administrator or designee will issue a public notice indicating the revised determinations.

Within 30 days after the Regional Administrator serves notice of the above final permit decision, any person who filed comments or participated in the public hearing, if any, may petition the Environmental Appeals Board (EAB) to review the permit decision or any condition therein. Any person who failed to file comments or failed to participate in the public hearing, if any, may petition for administrative review only to the extent of the changes from the draft to the final permit decision.

Relevant public comment and public hearing procedures may be found in 40 CFR § 124.10 – § 124.12. The EPA will notify the applicant and each person who has submitted written comments of the final decision regarding the petition. A petition to the EAB under 40 CFR § 124.19 is a prerequisite to the seeking of judicial review of the final permit decision.

Written comments and requests for information regarding the Agency's proposed decision regarding the Application should be sent to the U.S. Environmental Protection Agency, Region 4, Water Division, Safe Drinking Water Branch, Ground Water, UIC and GIS Section at EPA Region 4-WD/SDWB; ATTN: Khurram Rafi; 61 Forsyth Street SW, 9T25; Atlanta, Georgia 30303-8960, or via email to R4GWUIC@EPA.GOV.

Additional information regarding administrative review is available in 40 CFR § 124.19 or by contacting Mr. Stephen Smith of the Office of Regional Counsel at the above address or telephone number (404) 562-9554. Information regarding the Agency's decision may also be obtained by contacting Mr. Khurram Rafi of the Ground Water, UIC, and GIS Section at (404) 562-9283 or R4GWUIC@EPA.GOV.

The administrative record including the application, statement of basis, draft permit, comments received, and additional information on hearing procedures is available by writing to the EPA at the above address or E-mail.

Digital copies of this notice and the EPA's statement of basis for this decision, which includes a draft of the proposed Permit, may be found at the following web address: https://www.epa.gov/aboutepa/about-epa-region-4-southeast.

Please bring the preceding information to the attention of anyone who may be interested in this matter.

STATEMENT OF BASIS FOR

NOTICE OF INTENT TO ISSUE
UNDERGROUND INJECTION CONTROL (UIC) PERMIT
PERMIT NUMBER KYI1061

Associated Public Notice: KY20UIC001 October 09, 2020

1. Summary of Proposed Action [40 CFR § 124.8(b)(1)]

The U.S. Environmental Protection Agency (EPA), Region 4 intends to issue an Underground Injection Control (UIC) permit (Permit Number KYI1061) for Class I – Nonhazardous (Draft Permit) under the authority of Title 40 the Code of Federal Regulations at (40 CFR) Parts 124, 144, 146, and 147 to Sterling Materials (the Applicant), authorizing the UIC - 1 (the Well) as a UIC Facility. The Well would be authorized to inject residual solids from municipal drinking water plants and lime stabilized waste pickle liquor sludge from steel manufacturing plants. Injection would only be authorized to take place in accordance with the terms and conditions of the Draft Permit.

2. Purpose of this Document [40 CFR § 124.8(a)]

This Statement of Basis provides the principal facts and the significant factual, legal, methodological and policy questions considered in the decision to issue this permit and briefly describes the derivation and reason for the conditions of the Draft Permit. Referenced sections and conditions correspond to sections and conditions in the Draft Permit.

The EPA issues UIC permits in order to regulate the injection of fluids into underground injection wells so that any injection will not endanger underground sources of drinking water (USDW). Permit conditions are based upon the authorities set forth in regulatory provisions at 40 CFR §§ 124, 144, 146 and 147, and address potential impacts to USDW. Issuance of an UIC permit does not convey any property rights of any sort or any exclusive privilege, nor does it authorize injury to persons or property or invasion of other private rights, or any infringement of other federal, state or local laws or regulations [See 40 CFR § 144.35]. Certain conditions apply to all UIC Permits and may be incorporated either expressly or by reference. General permit conditions for which the content is mandatory and not subject to site-specific differences [See 40 CFR §§ 124, 144, 146 and 147] are not discussed in this document.

3. Applicant Information

Applicant:	Sterling Ventures, LLC
Applicant Address:	100 Sierra Drive, Verona, Kentucky 41092

4. Facility Location [40 CFR § 124.8(b)(1)]

Well:	UIC - 1 38.830004°North, 84.759794°West Gallatin County, Kentucky

5. The Public's Ability to Comment and Participate [40 CFR § 124.8(b)(6)]

The public comment period begins on October 09, 2020. The public comment period on this permitting action will close thirty (30) days after that date on November 08, 2020, unless otherwise extended. A final decision to issue the permit or draft decision to deny the application will be made after the close of the public comment period.

All persons, including the applicant, who object to any condition of the draft permit or the EPA's decision to prepare a draft permit must raise all reasonably ascertainable issues and submit all reasonable arguments supporting their position which must be submitted by or postmarked no later than November 08, 2020.

A public hearing may be held if the EPA receives written comments of substantial public interest concerning a hearing on this draft permit. Public notice of such a hearing will be placed in local publications or other media and mailed to interested parties.

After the conclusion of the public comment period and any public meeting described above, the EPA may revise the conditions of the permit based on such public comment. The administrative record, including application, statement of basis, draft permit, comments received and additional information on hearing procedures is available by writing to the EPA using the address below, or for review and copying at: Atlanta Federal Center, 61 Forsyth Street, SW, Suite 9T25, Atlanta, Georgia, 30303-8960, between the hours of 8:15 a.m. and 4:30 p.m., Monday through Friday.

The draft permit, statement of basis, and permit application are also available at the EPA

Region 4 web page: https://www.epa.gov/aboutepa/about-epa-region-4-southeast#r4-publicnotices

EPA Contact Information [40 CFR §§ 124.8(b)(6)(i) & 124.8(b)(7)]
During the public comment period, all written comments on the draft permit can be mailed or emailed to Mr. Khurram Rafi who is also available by phone or e-mail for any informational questions regarding the Draft Permits conditions or Procedures for Commenting.

EPA Permit Writer:	Mr. Khurram Rafi
EPA Street Address:	U.S. Environmental Protection Agency - Region 4 Water Division – Safe Drinking Water Branch Sam Nunn Atlanta Federal Center 61 Forsyth Street, Southwest Atlanta, Georgia 30303
EPA Mailing Address:	EPA Region 4 – WD/SDWB ATTN: Khurram Rafi Sam Nunn Atlanta Federal Center 61 Forsyth Street, SW, 9T25 Atlanta, Georgia 30303-8960
EPA Phone Number:	(404) 562-9283
EPA Email Address:	R4GWUIC@EPA.GOV

6. Statutory Basis for Requiring/Issuing Permit [40 CFR §§ 144, 145 & 147(s)]
The EPA has permitting jurisdiction under the authority Part C of the Safe Drinking Water Act (SDWA) [Title 42 of the United States Code (USC) 300f et seq.], and the rules adopted thereunder. Under 40 CFR § 144.31 & 147.901, the EPA Region 4 Water Division Director has authority to issue permits for underground injection activities for the commonwealth of Kentucky where the commonwealth has not received primacy for the UIC program under 40 CFR § 145(d). This project meets the description of

Class I Injection in 40 CFR § 144.6(a) and as such is not exempt from permitting procedures. The EPA has determined that a permit is required for the project.

7. Reasons why this Draft Permit was Issued [40 CFR § 124.6]
Based on the EPA's review of the operational standards, monitoring requirements and existing geologic setting, the EPA believes the activities allowed under the proposed draft permit are protective of USDW as required under the SDWA.

7.1. Area of Review and Corrective Action [40 CFR §§ 144.55, 146.6, & 146.7]
The area of review is given as a one quarter (1/4) mile distance around the proposed injection zone. This is the area surrounding the well or project which the applicant must research, examine and develop a program to address, with a corrective action plan, wells which penetrate the injection zones that are improperly sealed, completed or abandoned and may therefore provide a conduit for fluid migration. Wells, holes and openings penetrating the confining zone were located on a map and the well information was listed within Appendix A Section. E. 4. No corrective actions for wells or features located in the Area of Review have been identified.

7.2. Underground Sources of Drinking Water (USDW) [40 CFR § 146.12(a)]
USDW are defined as aquifers or the portions thereof which (1) currently supply any public water system or (2) contains a sufficient quantity of groundwater to supply a public water system and currently supplies drinking water for human consumption or contain fewer than 10,000 mg/l total dissolved solids (TDS), and is not an exempted aquifer. See 40 CFR § 144.3. The lowermost USDW that has been identified in the Area of Review is the Surficial Aquifer. No USDWs were identified below the injection zone.

7.3. Confinement [40 CFR § 146.14(a)]
A confining zone means a geological formation, group of formations, or part of a formation that limits fluid movement from an injection zone into overlying or underlying zones. Tyrone formation, the geologic unit above the injection zone is dominated by white, micro grained and laminated limestones. This limestone formation provides an effective confinement of the injection zone. In addition, within the Tyrone formation there are two (2) bentonite layers which are also effective confining layers and are identified as follows:

Confining Zone Name	Approximate Top (ft bgs)	Approximate Bottom (ft bgs)	Approximate Unit Thickness (ft)
Mud Cave Bentonite Seam	384	386	2
Pencil Cave Bentonite Seam	403	404	1

7.4. Geological Faults [40 CFR § 146.14(a)]
No geological faults were identified within the Area of Review.

8. Brief Summary of Specific Permit Conditions

8.1. Mechanical Integrity [40 CFR § 146.8]

The permittee shall maintain mechanical integrity of the injection well(s) at all times and Mechanical Integrity Testing (MIT) will be conducted prior to initial injection and once every five (5) years to demonstrate that there is no leak in the casing, and that fluid movement into or between underground sources of drinking water is not occurring.

8.2. Monitoring Plan [40 CFR § 146.13(b)]

Monitoring requirements during construction and testing of the proposed wells are contained in the draft permit. Monitoring parameters for during operation will include injection volume for each specified fluid source, flow rate and wellhead pressure. Samples of the injection fluid will be taken annually and analyzed for following parameters:

Injectate: Residual Solids	**Injectate: Lime Stabilized Waste Pickle Liquor Sludge**
1. pH	1. pH
2. Chromium	2. Sulfate
3. Arsenic, As	3. Arsenic, As
4. Barium, Ba	4. Barium, Ba
5. Cadmium, Cd	5. Cadmium, Cd
6. Lead, Pb	6. Lead, Pb
7. Mercury, Hg	7. Mercury, Hg
8. Selenium, Se	8. Selenium, Se
9. Silver, Ag	9. Silver, Ag
10. Total Dissolved Solids	10. Total Dissolved Solids
11. Specific Gravity or Fluid Density	11. Specific Gravity or Fluid Density

8.3. Injection Well Construction [40 CFR § 146.14]

The construction of the well will be completed by installing and cementing in place a 10-inch casing string to a depth of approximately 485 feet below ground surface (ft bgs). Once the 10-inch casing string has been installed, a cement bond log will be run to verify adequate cementation. Once the cement behind the casing has been determined to be adequate, a maximum 8-inch diameter tubing will be installed inside the 10-inch casing. A fluid seal as an alternate to a packer has been approved since the underground injection area is an active underground mine and there is access available to the location where the well is drilled through the roof of the mine.

8.4. Injection Zone [40 CFR § 146.14]

An injection zone is defined as a geological formation, group of formations, or part of a formation receiving fluids through a well. See 40 CFR 144.3. The injection zone authorized by this Permit shall be limited to the worked-out portions of the Sterling Ventures, LLC mine in the Tyrone and Camp Nelson formations approximately 480 ft. bgs to 525 ft. bgs. See Appendix A in the draft permit.

8.5. Injection Fluid [40 CFR § 146.14]

For the well authorized by this Permit, the injectate will consist of only the fluid or fluids specifically authorized, unless approved in advance by the Director. The injected fluid is limited to:

a. Residual Solids from municipal drinking water plant(s):
b. Lime stabilized waste pickle liquor sludge from steel manufacturing plant(s).

The descriptions of injection fluids and information regarding any additives to the injection fluids can be found in Appendix D of the draft permit.

8.6. Maximum Allowable Injection Pressure [40 CFR § 146.13]
Injection pressures must not initiate new fractures or propagate existing fractures in the confining zone adjacent to USDW; significantly alter the fluid movement capabilities of the confining zone; or cause the movement of injection or formation fluids into an USDW or into an essential monitoring zone or between USDW. The integrity of the well structure must be protected; hence, total pressure must not exceed the maximum allowable stress of the materials used to construct the well. Unless following approved well stimulation procedures, the Permittee is limited to an injection pressure of 400 pounds per square inch gauge as measured at the surface, which has been determined to meet the above requirements.

8.7. Injection Operation [40 CFR § 146.13]
A flow meter and pressure gauge will be connected to the injection well to allow the operator to monitor the injection process.

8.8. Monitoring and Reporting Requirements [40 CFR § 146.13]
In accordance with 40 CFR §144.54 and 146.13, the applicant will be responsible for monitoring injection pressure and flow rate on a weekly basis, cumulative volume on a monthly basis and reporting monitoring results to the EPA on a quarterly basis. The applicant is also required to conduct and pass a mechanical integrity test (MIT), in accordance with 40 CFR §146.8, once after the well is complete and once every five (5) years thereafter. These tests will provide the EPA with an evaluation of the integrity of the tubular goods (casing, tubing, and packer if applicable).

8.9. Plugging and Abandonment [40 CFR § 146.10]
In accordance with 40 CFR §§ 146.10 and 146.14(c), the permit includes a plugging and abandonment plan that will result in environmentally protective well closure at the time of cessation of operations. The applicant has also made a demonstration of financial responsibility, in accordance with 40 CFR §§ 144.52(a) and 146.14(a), which ensures that adequate resources will be available for well closure and will preclude the possibility of abandonment without proper plugging.

8.10. Term of Permit [40 CFR § 144.36]
Upon the effective date assigned when it is issued, a UIC permit authorizes the construction and operation of injection well or wells so that the injection does not endanger USDW. The Permit is issued for 10 years unless terminated for reasonable cause under 40 CFR § 144.40 and can be modified or revoked and reissued under 40 CFR § 144.39 or § 144.41. The Permit is subject to EPA review at least once every five (5) years to determine if action is required under 40 CFR § 144.36(a).

The Permit will expire upon delegation of primary enforcement responsibility (primacy) for applicable portions of the UIC Program to an approved state or tribal program, unless the delegated agency has the authority and chooses to adopt and enforce this Permit as a state permit.

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
REGION 4
UNDERGROUND INJECTION CONTROL (UIC) PROGRAM

CLASS I NONHAZARDOUS – WELL PERMIT
PERMIT NUMBER: KYI1061
VERSION: DRAFT – AUGUST 14, 2020

COVERING:
EPA WELL ID: KYS0770001

LOCATED:
STERLING MATERIALS
100 SIERRA DRIVE
VERONA, KENTUCKY 41092

ISSUED TO:
STERLING VENTURES, LLC D/B/A STERLING MATERIALS
376 SOUTH BROADWAY
LEXINGTON, KENTUCKY 40508

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Permit Authorization to Construct, Operate and Plug and Abandon One (1) Underground Injection Control (UIC) Class I Nonhazardous – Well

Permittee:	Sterling Ventures, LLC
Street Address:	376 South Broadway, Lexington, Kentucky 40508
Mailing Address:	376 South Broadway, Lexington, Kentucky 40508

Under the authority of the Safe Drinking Water Act (SDWA) and UIC Program regulations codified at Title 40 of the Code of Federal Regulations (40 CFR) Parts 124, 144, 146 and 147, the Permittee referenced above is authorized to construct, operate and plug and abandon under all applicable laws and the terms of this UIC Class I - Nonhazardous Well Permit (Permit) for the following injection well(s) located in the Gallatin County, Kentucky:

EPA ID #	Well Name	Latitude	Longitude
KYS0770001	UIC - 1	38.830004°N	84.759794°W

This Permit is based on representations made by the Permittee and on other information contained in the administrative record. Misrepresentation of information or failure to fully disclose all relevant information may be cause for termination, revocation and reissuance, or modification of this Permit and/or formal enforcement action. It is the Permittee's responsibility to read and understand all provisions of this Permit.

This authorization is in accordance with the limitations, monitoring requirements and other conditions set forth herein. All references to 40 CFR are for regulations that are in effect on the date that this Permit becomes effective.

This Permit will become effective on DRAFT.

Permit Term: This Permit will remain in full force and effect for ten (10) years after the effective date, unless this Permit is otherwise modified, revoked and reissued, terminated, or a minor modification is made as provided at 40 CFR §§ 124.5, 144.39, 144.40 and 144.41.

This Permit will expire on DRAFT.

DRAFT
Issuance Date

DRAFT
Jeaneanne M. Gettle, Director
Water Division
U.S. Environmental Protection Agency
Region 4

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Table of Contents

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List of Definitions, Abbreviations and Acronyms used by this Permit

All terms used in this Permit not specifically defined in this Permit, are defined at 40 CFR §§ 124, 144, 145, 146 and 147 or have the meaning given by their appropriate acts, laws or regulations.

AOR – Area of Review, the area around the UIC facility which was reviewed for features that might potentially endanger USDWs.

CFR – Code of Federal Regulations (42 USC 300f *et seq.)*

bbl – Barrel or Blue Barrel, a unit of volume equivalent to 42-US gallons.

Corrective Action – Such steps or modifications as are necessary to prevent movement of fluid into underground sources of drinking water

Closure – The permanent removal of the well from UIC operations through conversion or P&A

Compliance Schedule – a schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (for example, actions, operations or milestone events) leading to compliance with the appropriate act and regulations.

Director – For the purposes of this Permit, the term "Director" refers to the Director of the Water Division of the EPA Region 4;

EPA – Environmental Protection Agency

FR – Financial Responsibility

ft bgs – feet below ground surface

MAIP – Maximum Allowable Injection Pressure

MI – Mechanical Integrity

MIT – Mechanical Integrity Test, a demonstration of MI

P&A – Plugging and Abandonment

P&Aed – Plugged and Abandoned

psig - pounds per square inch gauge

RCRA – Resource Conservation and Recovery Act (42 USC 6901 *et seq.)*

SDWA – The Safe Drinking Water Act

TA – Temporarily Abandoned

TDS – Total Dissolved Solids

TENORM –Technologically Enhanced Naturally Occurring Radioactive Material

UIC – Underground Injection Control

USDW – Underground Source of Drinking Water

USDWs – Underground Sources of Drinking Water

USC – Code of Laws of the United States of America

Part I. UIC Project Description

Section A. Project Summary

The UIC project authorized by this Permit involves: the construction of one UIC Class I well (the Well); the proper operation and maintenance of the Well and the existing decant well, and the eventual closure of this UIC project, through either conversion of the Well to another type of well or through proper P&A of the Well. The conversion, operation and closure of this well may only be performed with the written approval of the Director as contained in this Permit, and must be performed according to all applicable laws, regulations, permit requirements (such as those in Part II) and any subsequent plans as approved by the Director.

The Well to be constructed is the UIC - 1, in Gallatin County, Kentucky. The well site (the Site) is an active underground limestone mine located within the Tyrone and Camp Nelson Limestone Formations. The Site contains: an access road; equipment and buildings related to limestone mining operations. See Appendix A. Section A for additional information regarding well location and well site including maps.

All Class I wells must be sited in such a fashion that they inject into a formation which is beneath the lowermost formation containing an USDW within one quarter mile of the well bore. See 40 CFR § 146.12(a). Based on the TDS analysis, there are no USDWs below the injection zone.

The lowermost USDW in the AOR has been identified as the Surficial Aquifer (Appendix A. Section B) above the injection zone. No USDWs were identified below the injection zone. Two (2) potassium bentonite layers within the Tyrone formation separate the injection zone from the surficial aquifer zone above (Appendix A. Section C). The Injection Zone is identified as the base of Tyrone and top of the Camp Nelson Formations in the open mine voids resulting from mining the first level of the Sterling limestone mine.

A Decant Well and other openings were identified in the AOR. The Decant Well is authorized by a Kentucky Department of Environmental Protection permit (KPDES No.: KYG840219) and is part of the limestone mining operations at the facility. The other openings in the AOR include air shafts, primary and secondary mine slopes for entry into the mine and the Injection Zone, and an electric power hole. All these openings are part of regular mining operations at the facility. As such, the well and openings are part of an existing mining operation and no corrective actions regarding the AOR are required at the time of issuance. The Permittee is required to notify the Director if new wells are drilled within the AOR, or new or additional information comes to light about features in the AOR. See Appendix A. Section E.

The Class I UIC Well will be constructed using the procedures laid out it in Appendix B. The configuration of the well after the construction is complete must meet the requirements and specifications of Appendix B. Prior to commencing initial injection, the Permittee must meet the requirements of Part III. Section A, which include demonstrating MI.

When in operation, the Well will dispose of residual solids from municipal drinking water plant(s) (Injectate 1) and lime stabilized waste pickle liquor sludge from steel manufacturing plant(s) (Injectate 2). The Injectates will be transported to the well site by either 1.) Tandem or tri-axel trucks, 2.) Semi-trailer end dump or roll off containers, which must meet all applicable, federal, state and local transportation regulations. The Injectate, will be pumped to the wellhead from tanker trucks at a MAIP of 400 psig. See Appendix D for more operational requirements.

During the operational life of the Well and in addition to the other reporting requirements in this Permit, the Permittee is responsible for regular monitoring and reporting as required by Appendix E.

At the end of the life as a Class I UIC well, closure of the Well will be performed under the requirements in Part V, by either the conversion to a different type of well or through P&A (see Appendix F).

Section B. List of Well(s) Authorized by This Permit
Construction, operation, and the P&A of a Class I UIC may only be performed with the written approval of the Director as contained in this permit, and must be performed according to all applicable laws, regulations, permit requirements and plans as approved by the Director. The well(s) approved by this Permit are as follows:

EPA ID #	Well Name	Latitude	Longitude
KYS0770001	UIC - 1	38.830004°N	84.759794°W

Section C. Compliance Schedule
As of the date of issuance, the permitted facilities are not subject to any compliance schedules related to an enforcement action under the SDWA. See 40 CFR § 144.53.

Part II. Permittee Duties and Responsibilities

Section A. Duty to Comply
The Permittee must comply with all conditions of this Permit. Noncompliance of this permit constitutes a violation of the SDWA and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application; except that the Permittee need not comply with the provisions of this Permit to the extent and for the duration such noncompliance is authorized in an emergency permit under 40 CFR § 144.34. See 40 CFR § 144.51(a).

1. Penalties for Violations of Permit Conditions
   Any person who violates a permit requirement is subject to civil penalties and other enforcement actions under the SDWA, which may include criminal prosecution. See 40 CFR § 144.51(a).

2. Need to Halt or Reduce Activity not a Defense
   The Permittee may not use as a defense in any enforcement action related to the terms of this permit that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the permit conditions. See 40 CFR § 144.51(c).

Section B. Duty to Provide Information
The Permittee must furnish to the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittee must also furnish to the Director, upon request, copies of records required to be kept by this Permit. See 40 CFR § 144.51(h).

1. Contacting the Director
   Unless otherwise specified, copies of all requests, notifications and reports required by this Permit must be submitted to the Director using the following address:

US EPA Region 4 – Water Division
ATTN: UIC Program
Atlanta Federal Center
61 Forsyth Street SW, 9T25
Atlanta, Georgia 30303-8960

Items received by the Director will be date stamped when received.

Informal notification and inquires can be directed to the appropriate assigned UIC program staff as listed at:
https://www.epa.gov/uic/underground-injection-control-epa-region-4-al-fl-ga-ky-ms-nc-sc-and-tn.

2. Signatory Requirements
All reports or other information submitted to the Director must be signed and certified in accordance with 40 CFR § 144.32. See 40 CFR § 144.51(k).

For Class I wells, signatory requirements for all applications and reports are as follows:

a. For a Corporation:
All applications must be submitted by a responsible corporate officer. For the purpose of this Permit, a responsible corporate officer means one of the following:

i. 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-making or decision-making functions for the corporation. See 40 CFR § 144.32(a)(1).

ii. The manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporation procedures. See 40 CFR § 144.32(a)(2).

All reports must be submitted by a responsible corporate officer as described in Part II. Section B.2.a or by a duly authorized representative of such corporate officer according to Part II. Section B.2.d. See 40 CFR § 144.32(b).

b. For a Partnership or Sole Proprietorship:
All applications must be submitted by a general partner or the proprietor, respectively. See 40 CFR § 144.32(a)(2).

All reports must be submitted by a general partner or the proprietor, respectively or by their duly authorized representative according to Part II. Section B.2.d. See 40 CFR § 144.32(a)(2) and 40 CFR § 144.32(b).

c. For a municipality, State, federal, or other public agency:
All applications must be submitted by either a principal executive officer or ranking elected official. See 40 CFR §§ 144.32(a)(3).

All reports must be submitted by either a principal executive officer or ranking elected official; or their duly authorized representative according to Part II. Section B.2.d. See 40 CFR § 144.32(a)(3) and 40 CFR § 144.32(b).

d. Duly Authorized Representatives
A person is a duly authorized representative only if:

i. The written authorization is submitted to the Director. See 40 CFR § 144.32(b)(3).

ii. The authorization is made in writing by a person described in items a, b or c above. See 40 CFR § 144.32(b)(1).

iii. The authorization specifies 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. See 40 CFR § 144.32(b)(2).

iv. If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of this section must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative. See 40 CFR § 144.32(c).

e. Certification Statement
Any person signing a document must make the certification below. See 40 CFR § 144.32(d).

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.

3. Reporting Planned Changes.
The Permittee must give written notice to the Director, as soon as possible, of any planned physical alterations or additions to the permitted facility. See 40 CFR § 144.51(l)(1).

4. Monitoring Reports
Monitoring results must be reported at the intervals specified in Part III, Part IV and Appendix E. See 40 CFR § 144.51(l)(4).

5. Reporting of Other or New Information.
When the Permittee becomes aware that it failed to submit any relevant facts in the permit application or submitted incorrect information in a permit application or in any report to the Director, the Permittee is to submit such facts or correct information within two (2) weeks of the time such facts or information becomes known. See 40 CFR § 144.51(l)(8).

6. Reporting to Meet Compliance Schedule Requirements
Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Permit must be submitted no later than 30 calendar days following each scheduled date. Any compliance schedules associated with this permit may be found in Appendix G. See 40 CFR § 144.51(l)(5).

7. Reporting Notice of Anticipated Noncompliance
   The Permittee must give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. See 40 CFR § 144.51(l)(2).

8. Reporting Other Noncompliance
   The Permittee must report all instances of noncompliance not reported on monitoring reports or compliance schedules at the time monitoring reports are submitted. Such reports must also contain the information listed in Part II. Section D. See 40 CFR § 144.51(l)(7).

9. Allowing Shorter Notice Periods
   Where the Permittee is required to provide notice to the Director, the Director may allow a shorter notice period upon written request of the Permittee.

Section C. Duty to Protect USDWs

The Permittee must not construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into an USDW, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR § 142 or may otherwise adversely affect the health of persons. See 40 CFR § 144.12.

Section D. Duty to Report Any Noncompliance Which May Endanger Health or The Environment within 24-Hours

THE PERMITTEE MUST REPORT ANY NONCOMPLIANCE WHICH MAY ENDANGER HEALTH OR THE ENVIRONMENT WITHIN 24 -HOURS TO 1-800-424-8802.

This includes but is not limited to the following types of noncompliance:

1. Any monitoring or other information which indicates that any contaminant may cause endangerment to an USDW. See 40 CFR § 144.51(l)(6)(i).

2. Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between USDWs. See 40 CFR § 144.51(l)(6)(ii).

The Permittee must report any information regarding any such noncompliance within 24 hours from the time the Permittee becomes aware of the noncompliance. The Permittee must report such information over the phone either directly or through leaving a voice message at EPA's National Response Center at 1-800-424-8802. See 40 CFR § 144.51(l)(6).

In addition, a follow-up written report must be provided to the Director within five (5) calendar days of the time the Permittee becomes aware of the circumstances. The written submission must contain a description of the noncompliance and its cause, the period of noncompliance including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate and prevent recurrence of the noncompliance. See 40 CFR § 144.51(l)(6).

Section E. Duty to Mitigate
The Permittee must take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Permit. See 40 CFR § 144.51(d).

Section F. Duty to Allow Inspection and Entry
The Permittee must allow the Director, or an authorized representative, to perform the following activities:

1. To 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. See 40 CFR § 144.51(i)(1).

2. To have access to and copy, at reasonable times, any records that must be kept under the conditions of this Permit. See 40 CFR § 144.51(i)(2).

3. To inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit. See 40 CFR § 144.51(i)(3).

4. To sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by SDWA, any substances or parameters at any location. See 40 CFR § 144.51(i)(4).

The Director or their authorized representative must present credentials and other documents as may be required by law. See 40 CFR § 144.51(i).

Section G. Duty to Properly Operate and Maintain
The Permittee must, 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 include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Permit. See 40 CFR § 144.51(e).

All monitoring and recording equipment required to meet the terms of this Permit must be calibrated and maintained on a regular basis to ensure their proper working order.

Section H. Duty to Establish and Maintain MI
The owner or operator of a Class I well must establish MI prior to commencing injection or on a schedule determined by the Director. Thereafter the owner or operator of a Class I well must maintain MI as defined in 40 CFR §146.8 and Appendix C. For EPA-administered programs, the Director may require by written notice that the owner or operator comply with a schedule describing when MI demonstrations will be made. See 40 CFR § 144.51(q)(1).

Section I. Duty to Demonstrate and Maintain FR
To protect USDW, owners or operators are required to maintain FR for all classes of permit-authorized wells. Financial responsibility requires owners or operators to set aside financial resources sufficient to maintain and P&A wells consistent with approved closure plans.

1. Duration of FR Demonstration and Maintenance
   The Permittee, including a transferor of a permit, is required to demonstrate and maintain FR and resources to close, plug and abandon the underground injection operation in a manner prescribed by the Director until one (1) of the following:

   a. The well has been P&Aed in accordance with an approved P&A plan pursuant to 40 CFR §§ 144.51(o) & 146.10, and a P&A report has been submitted pursuant to 40 CFR § 144.51(p). See 40 CFR § 144.52(a)(7)(i)(A).

   b. The well has been converted to a production or decant well in compliance with the requirements of 40 CFR § 144.51(n) and Part V. See 40 CFR § 144.52(a)(7)(i)(B).

   c. The transferor of a permit has received notice from the Director that the owner or operator receiving transfer of the permit, the new Permittee, has demonstrated FR for the well. See 40 CFR § 144.52(a)(7)(i)(C). For more information on transferring this Permit, see Part VII. Section E.

2. FR Demonstration Options
   The Permittee must show evidence of such FR to the Director by the submission of a surety bond, or other adequate assurance, such as a financial statement or other materials acceptable to the Director. For more information regarding which methods have been approved by the Director for this Permit, contact the Region 4 UIC Program. See 40 CFR § 144.52(a)(7)(ii).

3. Bankruptcy and/or Insolvency of the Permittee
   The Permittee must notify the Director by certified mail of the commencement of voluntary or involuntary proceedings under Title 11 (Bankruptcy), U.S. Code naming the owner or operator as debtor, within ten (10) business days after commencement of the proceeding. A guarantor of a corporate guarantee must make such a notification if he is named as debtor, as required under the terms of the guarantee. See 40 CFR §§ 144.28(d)(5) & 144.64(a).

4. Bankruptcy, Insolvency, Suspension or Loss of Authority of an Issuing Financial Institution
   In the event of insolvency or bankruptcy of the trustee or issuing institution of the financial mechanism; the suspension or revocation of the authority of the trustee institution to act as trustee; or the issuing institution's losing its authority to issue such an instrument, the Permittee must notify the Director, within ten (10) business days of the Permittee's receiving notice of such event by certified mail. See 40 CFR §§ 144.28(d)(5) & 144.64(a).

   An owner or operator who obtains a letter of credit, surety bond or insurance policy will be deemed to be without the required FR or liability coverage in the event of bankruptcy, insolvency, or a suspension or revocation of the license or charter of the issuing institution. The owner or operator must establish other FR or liability coverage acceptable to the Director, within 60 calendar days after such an event. See 40 CFR §§ 144.28(d)(6) & 144.64(b).

Section J. 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 Permittee must follow the procedures presented in Part VII. Section G. See 40 CFR § 144.51(b).

Part III. Requirements Prior to Commencing Initial Injection

Section A. Reporting and Monitoring Prior to Commencing Initial Injection

1. Notification Prior to and During Construction
   The Permittee is required to notify the Director prior to commencing construction activities detailed in Appendix B. This notification should include a tentative schedule of when construction is complete.

   The Permittee is required to notify and report during construction or conversion activities as detailed in Appendix B.

2. Monitoring Reports Prior to Commencing Initial Injection
   The Permittee is required to submit monitoring reports on the schedule(s) presented in Appendix E, even if no injection took place during the reporting period.

Section B. Prohibition on Commencing Injection without Authorization

The Permittee must not commence injection activity after the effective date of this Permit, unless the Permittee has made all demonstrations as required under this part and followed the procedures in Part III. Section F.

Section C. Demonstration of Completion of AOR Corrective Actions

The Permittee must demonstrate that they have met any and all required corrective actions as provided in Appendix A. Section E. 5. To demonstrate this, the Permittee must submit the following to the Director:

1. All reports on corrective actions as required in in Appendix A. Section E. 5

Section D. Demonstration of Completion of Construction

The Permittee must demonstrate that they have met the requirements for construction as provided in Appendix B.

To demonstrate this, the Permittee must submit all the following to the Director:

1. All reports as required in Appendix B.

2. A properly completed "Form 7520-18 - Completion Report for Injection Wells"

Section E. Initial Demonstration of MI

Within 90 calendar days, of the completion of construction of an UIC well, the Permittee must establish and demonstrate that the well authorized by this Permit has MI in accordance with 40 CFR § 146.8 and Appendix C. The Permittee must receive a written notice from the Director that such demonstration is satisfactory, prior to commencing injection.

Section F. Procedures for Commencing Injection

The Permittee must provide written notice to the Director that the Permittee believes they have completed all construction requirements above with regard to the specified well and are ready for inspection. See 40 CFR § 144.51(m)(1).

Once the permittee has provided written notice, the Director will provide notice of EPA's intent to inspect the well, within a reasonable time period. If after 13 calendar days of the notice provided by the Permittee as evidenced by certified mail return receipts, the Permittee has not received notice from the

Director of EPA's intent to inspect or otherwise review the new injection well, prior inspection or review is waived and the Permittee may commence injection. See 40 CFR § 144.51(m)(2)(ii).

If the Director inspects or otherwise reviews the new injection well and finds that it complies with the conditions of the permit, the Director will provide written notice that the Permittee is Authorized to commence injection operations at the well. See 40 CFR § 144.51(m)(2)(i).

Part IV. Requirements During the Operational Life of the Project

Section A. Recordkeeping Requirements

1. Record Retention Requirements
   The Permittee must retain records of all monitoring information, including the following for the specified retention periods:

   a. Retained a Minimum of Five (5) Years
      The following items must be retained for a period of at least five (5) years from the date of the sample, measurement, report, or application. This period may be extended by request of the Director at any time. See 40 CFR § 144.51(j)(2)(i).

      i. Instrument calibration records

      ii. Maintenance records

      iii. All original strip charts or other recordings for continuous monitoring instrumentation

      iv. Copies of all reports required by this Permit

      v. Records of all data used to complete the application for this Permit

      vi. Fluid Pressure records

      vii. The volumes, nature and composition of all injected fluids

      viii. Records and results of MITs or any other tests required by the EPA

      ix. Other records related to the construction, operation, and closure of a well.

   b. Retained Until Three (3) Years after Closure of a Well
      The following items must be retained until Three (3) years after the completion of any procedures specified under Part V. The Director may require the owner or operator to deliver the records to the Director at the conclusion of the retention period. The owner or operator must continue to retain the records after the Three (3) year retention period unless he delivers the records to the Director or obtains written approval from the Director to discard the records. See 40 CFR § 144.51(j)(2)(ii).

      i. The volumes, nature and composition of all injected fluids

2. Required Information for Monitoring Records
   Records of monitoring information must include:

   a. The date, exact place and time of sampling or measurements. See 40 CFR § 144.51(j)(3)(i).

b. The individual(s) who performed the sampling or measurements. See 40 CFR § 144.51(j)(3)(ii).

c. The date(s) analyses were performed. See 40 CFR § 144.51(j)(3)(iii).

d. The individual(s) who performed the analyses. See 40 CFR § 144.51(j)(3)(iv).

e. The analytical techniques or methods used. See 40 CFR § 144.51(j)(3)(v).

f. The results of such analyses. See 40 CFR § 144.51(j)(3)(vi).

Section B. Monitoring

Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity. See 40 CFR § 144.51(j)(1).

The Permittee must follow the monitoring requirements as specified in Appendix E

Section C. Monitoring Reports

Monitoring results must be reported at the intervals specified in Appendix E. See 40 CFR § 144.51(l)(4).

Section D. Other Reporting Requirements

1. Reports on Well Tests not Required Under this Permit
   The Permittee must report the results of any MITs, logging and other well tests, performed on this well which reveal downhole conditions within 90 calendar days after the completion of the activity, even if that diagnostic activity was not required by the terms of this Permit.

2. Reporting of New or Previously Unknown Wells (or Other Features) Within the AoR
   If the Permittee discovers the existence of any of the below within the AOR that were not disclosed in the original permit application, the Permittee must notify the Director within ten (10) calendar days from the date of discovery. The Permittee must report such information to the Director and confirm the receipt of such information. These items include:

   a. Existing Unknown Wells or New Wells that penetrate (or may potentially penetrate) the confining zone;

   b. The plugging of an existing known well;

   c. Any well that needs corrective action;

   d. Faults or joint/fracture systems; or

   e. Other features that may allow for a failure of the confining zone to protect USDW.

   The Director may terminate the Permit or require corrective action under 40 C.F.R. § 144.40(a)(3), if the presence of such features will not protect USDWs from contamination or continued injection may endanger human health or the environment.

Section E. Well Maintenance, Workovers, Logging, Alterations and Stimulation

Workovers, alterations and well stimulation must meet all conditions of the Permit.

1. Workovers, Logging and Maintenance not Requiring a Loss of MI
   a. Notice
      The Permittee is not required to give written notice or obtain the approval of the Director of any workovers, logging or maintenance activity that does not involve unseating the injection well's tubing and packer or otherwise cause a temporary loss of MI.

   b. Required Reporting
      Once completed the Permittee must record and submit the results of this work on an "EPA Form 7520-19 - Well Rework Record, Plugging and Abandonment Plan, or Plugging and Abandonment Affidavit", and include any necessary additional reports or logs as needed. Reports are required within 90 calendar days after the completion of the activity.

2. Workovers, Logging and Maintenance Requiring a Loss of MI
   a. Request
      The Permittee must request approval at least 30 calendar days in advance via written request to the Director describing any maintenance or workover that would involve unseating the injection well's tubing and packer, or otherwise cause a temporary loss of MI. The Director will review submitted plans and provide notification of approval, request additional information or deny the request. The Director may allow a shorter notice period upon written request.

   b. Required Reporting
      Once completed the Permittee must record and submit the results of this work on a "EPA Form 7520-19 - Well Rework Record, Plugging and Abandonment Plan, or Plugging and Abandonment Affidavit", and include any necessary additional reports or logs as needed. Reports and results must be submitted no later than 60 calendar days after the initial loss of MI unless written approval of an alternate time period has been given by the Director.

   c. Requirement to reestablish MI
      In addition, a demonstration of MI pursuant to 40 CFR § 146.8 and in accordance with the conditions found in Appendix C is required. MI must be reestablished within 90 calendar days of the initial loss of MI unless written approval of an alternate time period has been given by the Director.

   d. Obtaining Authorization to Resume Injection Operations
      Once the submission and demonstration have been made, the Director will review this information and reissue authorization to inject if it is sufficient. Authorization to resume injection will be given in writing.

3. Alterations
   These are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the inclusion of permit conditions that are different from or absent in the existing Permit. For the purposes of this Permit, alterations include any activity that changes the design of the well, from that shown in Appendix B. Examples of alterations include changes to the seating depth of the packer and adding additional perforations.

   All alterations must be approved by the Director prior to being performed. Substantial alterations may also be cause for modification to the Permit.

a. Request for Alterations
The Permittee must request approval at least 30 calendar days in advance via written request to the Director describing any alterations. The Permittee may request such an alteration at any time. This request must include:

i. A description of the proposed alterations;

ii. Schematics showing changes to the current completion of the well; and

iii. A time frame for completing the proposed alteration, once approval is given.

If approved, the Director will notify the Permittee and provide the time frame for completion of the alterations.

b. Schedule of Approved Alterations
Once approved the Permittee must complete any well workover or alteration which affects the tubing, packer, or casing within 90 calendar days of the time frame provided. If the Permittee is unable to complete work within the specified time period, the Permittee may request an alternative schedule and must obtain the Director's written approval prior to commencing alterations. Once the alternative schedule is approved, any well workover or alteration must be complete within the approved timeframe.

c. Required Reporting
Once completed the Permittee must record and submit the results of this work on a "Form 752--18-Completion Report for Injection Wells" and include any necessary additional reports or logs as needed. Reports and results must be submitted no later than 60 calendar days after the initial loss of MI unless an alternative schedule has been approved under item b, above.

d. Requirement to reestablish MI
In addition, a demonstration of MI pursuant to 40 CFR § 146.8 and in accordance with the conditions found in Appendix C is required. MI must be reestablished within 90 calendar days of the initial loss of MI unless an alternative schedule has been approved under item b, above.

e. Obtaining Authorization to Resume Injection Operations
Once the submission and demonstration have been made, the Director will review this information, and reissue authorization to inject if it is sufficient. Authorization to resume injection will be given in writing. The Permittee may not inject until such authorization is received.

4. Well Stimulation
The Permittee should follow the procedures laid out in Part IV. Section E. 3 to obtain approval for well stimulation. In addition, the description of the work to be completed must also include, at a minimum:

a. A list of all products to be used and their chemical composition

b. Estimated treatment pressures

c. Injected volume of fluids

d. Plans for disposal of recovered chemicals post treatment.

Section F. Inactive Injection Well(s)

1. Requirement to Monitor and Report During Inactivity
   The Permittee must perform and meet all monitoring requirements (Part IV. Section B) and reporting requirements (Part IV. Section C) even during periods of no injection.

2. Requirement to P&A Wells after 24 Months of Inactivity
   If at any time there has been no injection into an UIC well authorized by this Permit for a period of 24 consecutive months, the Permittee must P&A the well in accordance with the requirements in Part V. See 40 CFR § 144.52(a)(6).

   Failure to P&A an UIC well authorized by this Permit after 24 consecutive months of inactivity may lead to the well being considered abandoned.

3. Requirements for Requests for TA Status
   The Permittee may request exemption from the requirement of Part IV. Section F. 2. This request to place the well into a TA Status should be in writing and must be sent at any time before the 24 consecutive months of inactivity has passed. See 40 CFR § 144.52(a)(6)(i).

   This request should describe any actions or procedures, which the Permittee will take to ensure that the well will not endanger USDWs during the period of inactivity. These actions must include compliance with the technical and reporting requirements applicable to active injection wells as laid out in this Permit unless waived, in writing, by the Director. See 40 CFR § 144.52(a)(6)(ii).

   These actions and procedures may include, but are not limited to:

   a. A new demonstration of MI and/or more frequent schedules of MI, per the requirements in Appendix C.

   b. A new demonstration of FR, per the requirements in Part II. Section I.

   c. Any necessary plans for maintenance, workovers or alterations, per the requirements of Part IV. Section E

4. Review of Requests for TA Status
   During the review of the request to TA an UIC well authorized by this Permit, the well will not be considered abandoned. The Permittee is required to comply with the terms of this Permit as though it were an active injection well.

5. Approval, Conditional Approval, or Denial of Requests for TA Status
   The Director will approve or deny the request for TA status as submitted or may conditionally approve of the request and require more stringent requirements than proposed. The Director will notify the Permittee in writing of the decision.

   The decision will establish a compliance schedule for the Permittee to begin following an approved set of TA status procedures or actions and/or P&A the well.

   This Permit may be modified to incorporate approved TA status requirements as a minor modification under 40 CFR § 144.41.

6. Resuming Injection after TA Status
   The Permittee of any well that is resuming operation after having been under TA Status under Part IV. Section F. 5, must notify and receive approval from the Director prior to resuming operation of the well. Depending on the circumstances, the Director may request additional information necessary to ensure that the well can be operated safely.

Part V. Requirements Regarding the Closure of the Project

Section A. Closure of an UIC Project or Well

The permitted UIC project will be considered closed, when the well authorized by this Permit has been closed. A well authorized by this Permit may be removed from coverage of this Permit in one of the following ways:

1. Conversion to a Different Type of Well
   Conversion of the permitted well(s) to another type of UIC or non-UIC well, must be performed according to a plan that has been approved by the Director. The well must be converted in a manner which will not allow the movement of fluids either into or between USDWs.

   It is the Permittee's responsibility to ensure that any conversion meets all other federal, state and local requirements.

2. P&A of a Permitted Well by Approved Methods
   P&A must be performed according to a plan that has been approved by the Director. The well must be plugged with cement in a manner which will not allow the movement of fluids either into or between USDWs. See 40 CFR § 146.10(a)(1).

   It is the Permittee's responsibility to ensure that any P&A meets all other federal, state and local requirements.

Section B. Technologically Enhanced Naturally Occurring Radioactive Material (TENORM)

During the operating life of the permitted well, this injection facility may be screened for TENORM by the EPA or other authorized party. If the Permittee is notified by a party other than the EPA, or becomes aware at any time that elevated levels of TENORM have been detected at this injection facility, the Permittee must notify the EPA in writing of that fact no later than 45 calendar days prior to the Permittee's intended date to P&A the well. The EPA may require the Permittee to revise the P&A plan to ensure the safe disposal and proper management of elevated levels of TENORM waste(s).

Section C. Required Procedures for Closure of a Well

The Permittee must complete the following the steps for closure of a well authorized by this Permit.

1. Provide Prior Notice of Intent to Close a Well
   The Permittee must notify the Director no later than 45 calendar days before a planned conversion or P&A of any well authorized by this Permit. The Director may allow a shorter notice period upon written request. See 40 CFR § 144.51(n).

   The Director will review the submitted request and included information and may request additional information or specify requirements, before approving the request. Any deviation from a previously approved plan may be cause for the Director to require the Permittee to re-plug the well or may subject the Permittee to enforcement action. See 40 CFR § 144.28(k)(2).

   The minimum requirements for each type of notice are below.

a. Notice of Intent to Convert a Well Authorized by this Permit
If the Permittee intends to convert this well to another type of UIC or non-UIC well, the notice must include:

i. The type of well the authorized well will be converted to;

ii. The name of the agency or department which has regulatory authority over the proposed type of well;

iii. A description of any needed remedial construction or workover procedures required before this well can be permitted or authorized by the new regulatory authority (the Permittee is required to ensure that any proposed plan meets the requirements and approval of the new regulatory authority); and

iv. A timeline for completing work identified under item iii, above and receiving any required permits from the new regulatory authority.

b. Notice of Intent to P&A a Well Authorized by this Permit
If the Permittee intends to P&A a well authorized by this Permit, the notice must include:

i. Either a statement that the Permittee wishes to use the P&A plan included in Appendix F or a new P&A plan that meets the requirements laid out in Part V. Section D and

ii. A timeline for completing any work required by the chosen P&A plan.

2. Perform any Required Work
The Permittee must have written authorization from the Director to begin any work requested in Part V. Section C. 1. a. The Director may require an inspection or witnessing of the work by a designee during performance of this work.

3. Submission of Final Reports
Within 60 calendar days after closure of a well, or at the time of the next quarterly report (whichever is less), the owner or operator must submit a report to the Director. If the quarterly report is due less than 15 calendar days before completion of plugging, then the report must be submitted within 60 calendar days after closure of a well. The report must be certified as accurate by the person who performed the plugging operation. See 40 CFR § 144.51(p).

a. If the well was closed in accordance with the plan previously approved by the Director per Part V. Section C. 1, the report must consist of a completed "EPA Form 7520 19 - Well Rework Record, Plugging and Abandonment Plan, or Plugging and Abandonment Affidavit". See 40 CFR § 144.51(p)(1).

b. If the actual closure of the well differed from the approved plan in Part V. Section C. 1, the report must consist of:

i. A statement defining the actual plugging process, including an updated version of the plan on an "EPA Form 7520 19 - Well Rework Record, Plugging and Abandonment Plan, or Plugging and Abandonment Affidavit," specifying any differences, or changes from the approved plan.

ii. The reasoning behind why the deviation was necessary, and how the deviated construction or procedures were protective of USDWs

iii. A stated reason why the Director should approve such deviation.

Any deviation from a previously approved plan may be cause for the Director to require the owner or operator to re-plug the well. See 40 CFR §§ 144.28(k)(2) & 144.51(p)(1).

Section D. P&A Plan Requirements

Any plan submitted by the Permittee to the Director, must meet the applicable requirements of 40 CFR § 146.10 and Appendix F, and ensure that P&A of the well will not allow the movement of fluids into or between USDWs. Where the plan meets the requirements of 40 CFR § 146.10, the Director may incorporate the plan into the Permit as a permit condition. See 40 CFR §§ 144.28(c)(2) & 144.51(o).

Where the Director's review of a P&A plan indicates that the plan is inadequate, the Director may require the Permittee to revise the plan and/or prescribe conditions to meet any applicable requirements. See 40 CFR § 144.51(o).

Section E. Revisions to a P&A Plan

Revisions to the P&A Plan must be submitted to the Director no less than 45 calendar days prior to the P&A. The Director must approve the revision prior to the start of plugging operations. See 40 CFR § 144.28(c)(2)(ii)

Part VI. Effect of Permit

Section A. Effect of Permit

The Permittee, as specified in Part I, is permitted to engage in underground injection in accordance with the conditions of this permit. Any underground injection activity not specifically authorized by permit or by rule is prohibited. See 40 CFR § 144.11

Compliance with this Permit does not constitute a defense to any action brought under the SDWA, or any other common or statutory law or regulation. See 40 CFR § 144.35(a).

This Permit does not convey property rights of any sort or any exclusive privilege. See 40 CFR §§ 144.35(b) & 144.51(g).

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations. Nothing in this Permit may be construed to relieve the Permittee of any duties under applicable regulations or laws. See 40 CFR § 144.35(c).

Section B. Duration of Permit

Permits for Class I UIC wells are effective for a fixed term not to exceed 10 years. The Director may issue or modify any permit for a duration that is less than the full allowable term of said permit. See 40 CFR § 144.36.

This Permit has been issued for a term as specified on page iii. This Permit will remain in effect until: the end of this term, until it is terminated under Part VII. Section G, or until all wells authorized under this Permit have been P&Aed or Converted under Part V of this Permit.

Section C. Severability
The provisions of this Permit are severable, and if any provision of this Permit or the application of any provision of this Permit to any circumstances is held invalid, the application of such provision to other circumstances and the remainder of this Permit will not be affected thereby.

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

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

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

Part VII. Permitting Actions

This Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition. See 40 CFR § 144.51(f).

Section A. Requests for Modification, Revocation and Reissuance, or Termination
Permits may be modified, revoked and reissued, or terminated either at the request of any interested person (including the Permittee) or upon the Director's initiative. All requests must be in writing and must contain facts or reasons supporting the request. The submittal of an updated application may be required prior to the Director's granting a request for permit modification or revocation and reissuance. See 40 CFR § 124.5(a).

If the Director decides the request is not justified, the requester will be sent a brief written response giving the reason for the decision. See 40 CFR § 124.5(b).

Denials of requests for modification, revocation and reissuance, or termination are not subject to public notice, comment, or hearings. Denials by the Director may be informally appealed to the Environmental Appeals Board (EAB) by a letter briefly setting forth the relevant facts. The EAB may direct the Director to begin modification, revocation and reissuance, or termination proceedings under paragraph (c) of this section. The appeal will be considered denied if the EAB takes no action on the letter within 60 calendar days after receiving it. This informal appeal is, under 5 USC 704, a prerequisite to seeking judicial review of EPA action in denying a request for modification, revocation and reissuance, or termination. See 40 CFR § 124.5(b).

Section B. Causes for Modification, Revocation and Reissuance, or Termination
Other than requests for modification, permits may only be modified, revoked and reissued, or terminated for the reasons specified below. See 40 CFR §§ 124.5(a), 144.12, 144.39, 144.40 & 144.41.

1. Alterations
   There are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the inclusion of permit conditions that are different from or absent in the existing permit. See 40 CFR § 144.39(a)(1).

2. Information
   The Director has received information which was not available at the time of permit issuance (other than revised regulations, guidance or test methods) and which would have justified the application of different permit conditions at the time of issuance. For UIC area permits, this may include any information indicating that cumulative effects on the environment are unacceptable. See 40 CFR § 144.39(a)(2).

3. New Regulations
   The standards or regulations on which the permit is based have been changed by promulgation of newer or amended standards or regulations or by judicial decision after the permit is issued. See 40 CFR § 144.39(a)(3).

4. Compliance Schedules
   The Director determines that good cause exists for modification of a compliance schedule, such as an act of God, strike, flood, or material shortage or other events over which the Permittee has little or no control and for which there is no reasonably available remedy. See 40 CFR § 144.39(a)(4).

5. Proposed Transfer
   The Director receives notification of a proposed transfer of the permit. See 40 CFR § 144.38 § 144.39(b)(2) & § 144.41(d).

6. Noncompliance
   Noncompliance by the Permittee with any condition of the permit. See 40 CFR § 144.40(a)(1).

7. Failure to Disclose Relevant Facts
   The Permittee's failure in the application or during the permit issuance process to disclose fully all relevant facts, or the Permittee's misrepresentation of any relevant facts at any time. See 40 CFR § 144.40(a)(2).

8. Endangerment
   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. See 40 CFR § 144.40(a)(3).

Section C. Modification

Modification of permit terms and conditions not covered under Part VII. Section D, are subject to the draft permit and public notice procedures of 40 CFR § 124. When a permit is modified, only the conditions subject to modification are reopened when a new draft permit is prepared. All other aspects of the existing permit will remain in effect for the duration of the unmodified permit. See 40 CFR §§ 124.5 & 144.39.

Section D. Minor Modification

Upon the consent of the Permittee, the Director may modify a permit to make the corrections or allowances for changes in the permitted activity listed in this section (minor modifications) without following the draft permit and public notice procedures of 40 CFR § 124. See 40 CFR § 144.41.

Minor modifications may only be performed for the following reasons:

1. Correction of typographical errors;

2. Requiring more frequent monitoring or reporting by the Permittee;

3. Changing an interim compliance date in a compliance schedule, provided the new date is not more than 120 calendar days after the date specified in the existing permit and does not interfere with attainment of the final compliance date requirement;

4. To change ownership or operational control of a facility where the Director determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee(s) has been submitted to the Director.

5. To change quantities or types of fluids injected which are within the capacity of the facility as permitted and, in the judgment of the Director, would not interfere with the operation of the facility or its ability to meet conditions described in the permit and would not change its classification.

6. To change construction requirements approved by the Director pursuant to 40 CFR § 144.52(a)(1) (establishing UIC permit conditions), Any such alteration must comply with the requirements of this 40 CFR §§ 144 and 146; or

7. To amend a P&A plan which has been updated under 40 CFR § 144.52(a)(6).

8. The Permittee may request, in writing, a higher injection pressure, provided they can demonstrate that higher pressures will not violate the items below. Any approval granted by the Director for increased injection pressure that is substantiated by step-rate testing shall be made part of this permit by minor modification procedures (see 40 C.F.R. §144.41). Any approval granted by the Director for increased injection pressure that is substantiated by other means shall require a major modification to this permit requiring public notice (see 40 C.F.R. §144.39)

Section E. Transfer of Permits

This Permit is not transferable 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 SDWA. See 40 CFR § 144.38. In some cases, modification or revocation and reissuance is mandatory. See 40 CFR § 144.51(l)(3).

This Permit may be transferred to a new owner or operator by minor modification according to Part VII. Section D. 4, if:

1. The Director determines that no other change in the permit is necessary;

2. A written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee has been submitted to the Director; and

3. The Director has determined that the new owner or operator has submitted adequate FR per Part II. Section I of this Permit.

Section F. Revocation and Reissuance

The Director may determine that the scope of changes or duration of the permit requires that all permit conditions be reopened for public comment. When a permit is revoked and reissued, the entire permit is reopened just as if the permit had expired and was being reissued. During any revocation and reissuance proceeding the Permittee must comply with all conditions of the existing permit until a new final permit is reissued. See 40 CFR §§ 124.5 & 144.39.

Section G. Renewal of an Expiring Permit

The Permittee should notify the Director, in writing, 60 calendar days prior to the expiration date (if given) of this Permit as indicated on page iii. The notification should indicate whether the Permittee intends to reapply or begin closure of the UIC facilities identified in this Permit.

1. The Permittee has submitted a timely renewal application
   Due to the need for current information in the application process, applications for renewal should be submitted no earlier than 180 calendar days before the expiration date given on page iii. To ensure the application is a complete application per 40 CFR § 124.3, applications should be submitted no later than 30 calendar days prior to the expiration date given in the authorization page. See 40 CFR § 124.3 and § 144.37(a)(1).

2. The Permittee has submitted a complete application
   Any application for renewal must have been determined to be complete per 40 CFR § 124.3, by the expiration date of the existing permit to be renewed. See 40 CFR § 144.37(a)(1).

Section H. Continuation of an Expiring Permit

1. Conditions for allowing the Continuation of an Expiring Permit
   The Director may allow the conditions and effect of an expired permit to continue in force under 5 USC 558(c) until the effective date of a new permit if the conditions below are met. See 40 CFR § 144.37(a).

   a. The Permittee has met the requirements for renewal of a permit
      The permittee has met the requirements found in Part VII. Section G.

   b. The new permit application has not been denied
      The application for renewal has not been denied under 40 CFR § 124.15, or in the case of a denial, it has been appealed and final agency action has not occurred in accordance with 40 CFR § 124.19(f)(1).

   c. No new permit covering this UIC activity has been issued
      The Director, through no fault of the Permittee, has not issued a new permit with an effective date on or before the expiration date of the previous permit. See 40 CFR § 144.37(a)(2).

2. Effect of a Continued Permit
   Permits continued under 5 USC § 558(c) remain fully effective and enforceable. However, no new wells may be constructed under an area permit during the continuance of the expired permit. See 40 CFR § 144.37(b).

3. Enforcement of Continued Permits
   When the Permittee is not in compliance with the conditions of the expiring or expired permit, the Director may choose to do any of the following:

a. Initiate enforcement action based upon the permit which has been continued. See 40 CFR § 144.37(c)(1).

b. Issue a notice of intent to deny the new permit. If the permit is denied, the owner or operator would then be required to cease the activities authorized by the continued permit or be subject to enforcement action for operating without a permit. See 40 CFR § 144.37(c)(2).

c. Issue a new permit under 40 CFR § 124 with appropriate conditions See 40 CFR § 144.37(c)(3).

d. Take other actions authorized by UIC regulations. See 40 CFR § 144.37(c)(4).

4. State or Tribal Continuation
An EPA issued permit does not continue in force beyond its expiration date under Federal law if at that time a State or Tribe has primary enforcement authority. A State or Tribe authorized to administer the UIC program may continue the EPA issued permit or permits they have issued until the effective date of the new permits, if applicable law allows. Otherwise, the facility or activity is operating without a permit from the time of expiration of the old permit to the effective date of a new permit issued by the State or Tribe. See 40 CFR § 144.37(d).

Section I. Termination

The Director may terminate a permit during its term or deny a permit renewal application for the following causes: noncompliance (Part VII. Section B. 6); failure to disclose relevant facts (Part VII. Section B. 7); or endangerment of human health or the environment (Part VII. Section B. 8).

Appendix A. Location, Geology and Area of Review

Section A. Project Location
The project consists of an UIC well, UIC - 1 (EPA ID: KYS0770001). The well is located at 38.830004°N 84.759794°W in Gallatin County, Kentucky.

The well site (the Site) is an active underground limestone mine located within the Tyrone and Camp Nelson Limestone Formations. The Site contains: an access road; equipment and buildings related to limestone mining operations.

Section B. USDWs
USDWs are defined as aquifers or the portions thereof which (1) currently supply any public water system or (2) contains a sufficient quantity of groundwater to supply a public water system and currently supplies drinking water for human consumption or contain fewer than 10,000 mg/l TDS, and is not an exempted aquifer. See 40 CFR § 144.3.

The lowermost USDW that has been identified in the project area is the Surficial Aquifer Zone. The base of this zone is approximately 200 ft. bgs.

Section C. Confining Zone(s)
A confining zone means a geological formation, group of formations, or part of a formation that limits fluid movement from an injection zone into overlying or underlying zones. Tyrone formation, the geologic unit above the injection zone is dominated by white, micro grained, laminated limestones. This limestone formation provides an effective confinement of the injection zone. In addition, within the Tyrone formation there are two (2) bentonite layers which are also effective confining layers and are identified as follows:

Confining Zone Name	Approximate Top (ft bgs)	Approximate Bottom (ft bgs)	Approximate Unit Thickness (ft)
Mud Cave Bentonite Seam	384	386	2
Pencil Cave Bentonite Seam	403	404	1

Section D. Injection Zone(s)
An injection zone is defined as a geological formation, group of formations, or part of a formation receiving fluid(s) through a well. See 40 CFR 144.3. The Injection authorized by this Permit is only allowed within the approved interval of the injection zone specified in Appendix B. Section G.5. The injection zone(s) identified in the project area are as follows:

The injection zone is the open mine voids resulting from mining the first level of the Sterling mine in the Tyrone and Camp Nelson formations. At the Sterling mine the Tyrone formation is designated as the First Level or Level 1. A cross-section running with the east-west direction of the mine through the mine backfill area is provided in Appendix A. Section F.

A sandy layer between 904 to 976 ft. bgs composed primarily of well-sorted, medium-grained quartz, with a maximum porosity of 10 percent may be the only water bearing zone below the injection zone within 3,000 ft. bgs. Based on the analysis of this layer at 10 percent porosity the TDS is 12,000 or higher therefore there are no USDWs below the injection zone.

Section E. AOR

1. Definition of the AOR

   The AOR is the area around the well which was reviewed to determine the potential for the proposed injection project to impact USDWs.

   For this Permit, the AOR has been defined as a one-quarter (0.25) mile radius from the borehole of the injection well. See 40 CFR § 146.6.

2. Maps of the AOR

   Maps showing the location of the permitted well and its associated AOR have been included at the end of this appendix.

3. Faults and Open Fractures and Other Features.

   As of the date of issuance, no faults or open fractures which penetrate the confining zone have been identified.

4. List of Wells Penetrating the Confining Zone(s) within the AOR

   Wells, holes, and openings penetrating the confining zone are shown in the map in Item A2.

Table 1: Core Holes, Shafts and Openings Within AOR

Hole Number	Description/Completion Record	Latitude	Longitude	Collar Elevation, ft	Depth Below Ground Surface, ft	Terminal Elevation, ft	Within Storage Area
SM-97-01	Core Hole, fully grouted	38.83225	84.76729	521.9	685	-163.1	NO
SM-97-02	Core Hole, fully grouted	38.844859	84.770578	467.0	654	-187.0	NO
SM-08-01	Core Hole, fully grouted	38.838859	84.767934	487.7	592	-104.3	NO
SM-08-02	Core Hole, fully grouted	38.830591	84.752218	493.0	632	-139.0	NO
SM-08-03	Core Hole, fully grouted	38.837738	84.782692	635.0	826	-191.0	NO
Air Shaft No. 3	Ventilation Shaft, 6.5ft steel lined and grouted for 110ft, 8ft unlined for 350 ft. Surface to level 1.	38.835766	84.760765	615.0	460	155, Level 1 mine.	NO
Air Shaft No. 2	Ventilation Shaft, 13 ft dia x 380ft. No lining. Surface to level 1. Surface fan exhausting.	38.831841	84.764364	532.0	380	152, Level 1 mine.	NO
Air Shaft No. 1	Ventilation shaft to the original ventilation tunnel, no longer used. 18ft diameter unlined.	38.831486	84.753121	510.0	250	260, upper ventilation drift	NO
Primary Mine	Portal--Decline into mine, primary entrance	38.832567	84.753957	397.0			NO
Secondary Mine Slope	Portal--Decline into mine, secondary entrance, belt slope	38.832458	84.754038	397.0			NO
Electric Power Hole	Bore hole from surface to level 1. In this hole is the electrical power cable supplying power for mine operations. Hole drilled 8 3/4" diameter for 21 ft with 6 5/8" steel surface casing. Remainder of hole 6 1/8" no lining into the mine.	38.83206	84.75996	646.0	479	167, Level 1 mine	NO
MLC Water Discharge	This bore hole from surface contains the pipe used to discharge water from the mine. Hole drilled 8 3/4" diameter for 20 ft with 8" PVC surface casing. Remainder of hole 6 1/8" with 4" SDR-7 HDPE-4710 pipe fully grouted into the mine.	38.834968	84.763277	539.5	385	155, Level 1 mine.	NO
UIC -1 (proposed)	UIC Well No. 1 Residual Solids & LSWPLS	38.830004	84.759794	650.0	484	165.7	NO

Table 1: Core Holes, Shafts and Openings Within AOR

5. Required Corrective Action(s) for wells in the AOR

   On the date of issuance, of this Permit, no corrective actions for wells or features located in the AOR have been identified. See 40 CFR §§ 144.52(a)(2), 144.55 & 146.7. As such, the Permit is not subjected to a Compliance Schedule related to any corrective actions. See 40 CFR § 144.53.

Section F. List and Descriptions of Items Included in This Appendix.

Item A1 – Topographic Map 1-Mile Radius Map

This is a topographic map, displaying the location of the permitted well UIC - 1. This map also shows relevant features within a 1-mile radius of the borehole, and the 0.25-mile AOR.

Source: Revised Application, Received June 03, 2020 - Section A, Part III Maps, Map 4.

Size: One (1) page, 8.5 inches by 11 inches.

Item A2 – Well Site Diagram

This is a topographic map, displaying the location of all existing and proposed Wells, Holes, and Openings Penetrating the Confining Zone(s) within the AOR.

Source: Revised Application, Received June 03, 2020 - Map 6 Mine Openings.

Size: One (1) page, 8.5 inches by 11 inches.

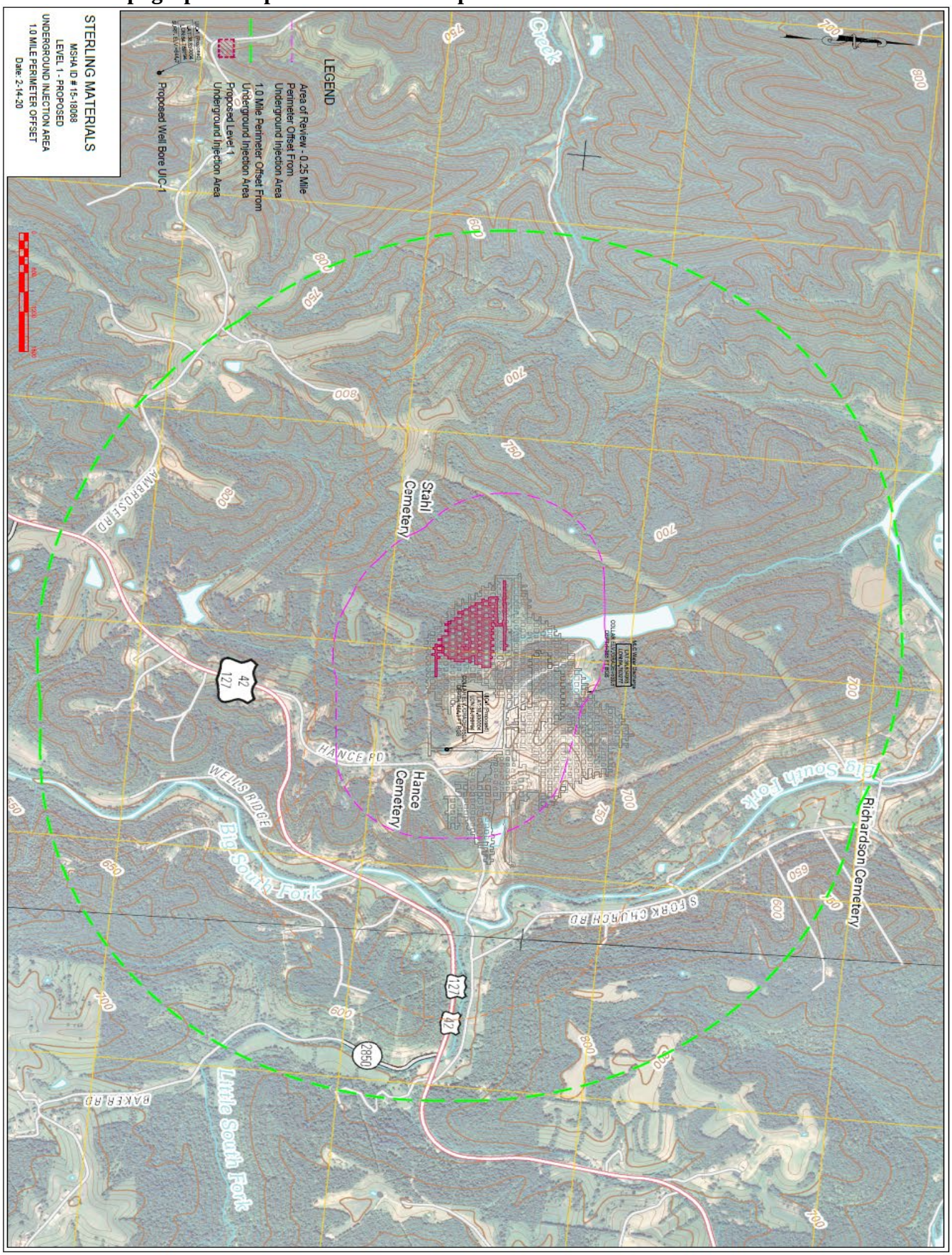
Item A3 – Cross Section Diagram

This is a topographic map displaying A – A' cross-section line and the geologic stratigraphic column on that cross-section line.

Source: Revised Application, Received June 03, 2020 - Map 4 Geologic Section with Mine b.

Size: One (1) page, 8.5 inches by 11 inches.

Item A1 – Topographic Map 1-Mile Radius Map



Item A2 – Wells, Holes, and Openings Penetrating the Confining Zone(s) within the AOR

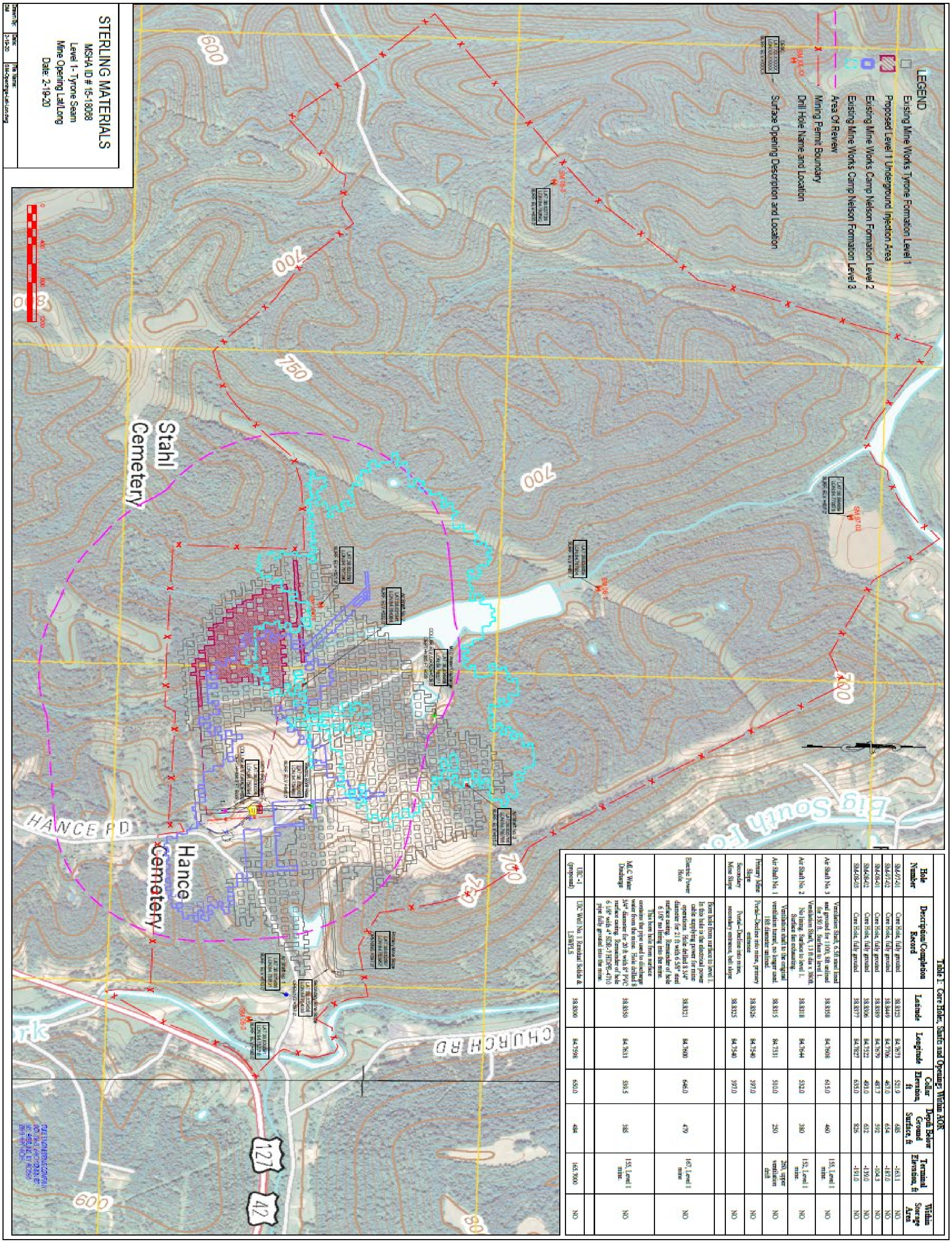


Table 1: Core Holes, Shafts and Openings Within AOR

Hole Number	Description/Completion Record	Latitude	Longitude	Collar Elevation, ft	Depth Below Ground Surface, ft	Terminal Elevation, ft	Within Storage Area
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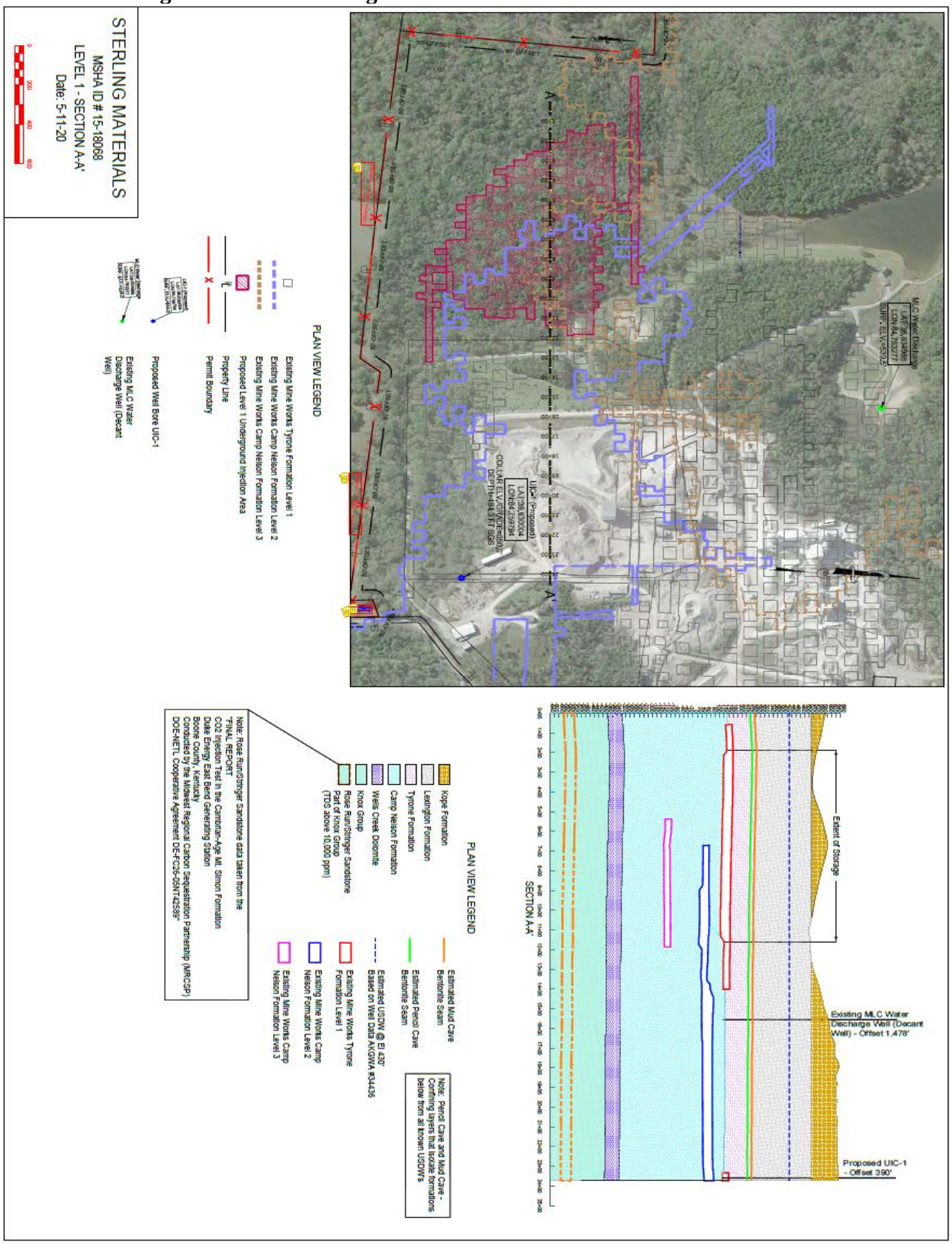
SM-97-02	Core Hole, fully grouted	38.8449	84.7706	467.0	654	-187.0	NO
SM-08-01	Core Hole, fully grouted	38.8389	84.7679	487.7	592	-104.3	NO
SM-08-02	Core Hole, fully grouted	38.8306	84.7522	493.0	632	-139.0	NO
SM-08-03	Core Hole, fully grouted	38.8377	84.7827	635.0	826	-191.0	NO
Air Shaft No. 3	Ventilation Shaft, 6.5ft steel lined and grouted for 110ft, 8ft unlined for 350 ft. Surface to level 1.	38.8358	84.7608	615.0	460	155, Level 1 mine.	NO
Air Shaft No. 2	Ventilation Shaft, 13 ft dia x 380ft. No lining. Surface to level 1. Surface fan exhausting.	38.8318	84.7644	532.0	380	152, Level 1 mine.	NO
Air Shaft No. 1	Ventilation shaft to the original ventilation tunnel, no longer used. 18ft diameter unlined.	38.8315	84.7531	510.0	250	260, upper ventilation drift	NO
Primary Mine Slope	Portal--Decline into mine, primary entrance	38.8326	84.7540	397.0			NO
Secondary Mine Slope	Portal--Decline into mine, secondary entrance, belt slope	38.8325	84.7540	397.0			NO
Electric Power Hole	Bore hole from surface to level 1. In this hole is the electrical power cable supplying power for mine operations. Hole drilled 8 3/4" diameter for 21 ft with 6 5/8" steel surface casing. Remainder of hole 6 1/8" no lining into the mine.	38.8321	84.7600	646.0	479	167, Level 1 mine	NO
MLC Water Discharge	This bore hole from surface contains the pipe used to discharge water from the mine. Hole drilled 8 3/4" diameter for 20 ft with 8" PVC surface casing. Remainder of hole 6 1/8" with 4" SDR-7 HDPE-4710 pipe fully grouted into the mine.	38.8350	84.7633	539.5	385	155, Level 1 mine.	NO
UIC -1 (proposed)	UIC Well No. 1 Residual Solids & LSWPLS	38.8300	84.7598	650.0	484	165.7000	NO

Item A3 – Geologic Cross-Section Diagram



Appendix B. Well Construction Requirements and Specifications

Section A. Responsibility to Maintain Well Construction as Specified in the Permit

All Class I wells must be cased and cemented to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well. See 40 CFR § 146.12(b)(1).

The Permittee is responsible for ensuring that once construction is complete, the Well meets the requirements of this appendix. After construction, the Permittee is responsible for maintaining the well in a manner that ensures that these requirements are met, until the Well is closed per the requirements of Part V.

Section B. Postponement of Construction

The Permittee must begin work on this project within one (1) year of the Effective Date of the Permit. Authorization to construct an injection well will expire if the work has not been started within one (1) year of the Effective Date of the Permit, unless the Permittee has notified the Director and requested an extension. Notification must be in writing and must state the reasons for the delay and provide estimated dates of construction commencement and completion.

Once the authorization to construct has expired under this part or should the delay in construction be deemed extensive, the Director may request additional information from the Permittee. If upon submittal of additional information, the Director determines that there are substantial changes in the information supporting the permit or the conditions at the facility, then a new permit may be required. This process would include an opportunity for public comment prior and would have to be completed prior to any construction.

Should there be a failure to provide requested information or inform the Director of the need for an extension, this Permit may be terminated under 40 CFR §144.40,

Section C. Cementing Requirements

Prior to any cementing, borehole(s) and casing(s) must be prepared to allow sufficient bonding of the cement to the casing and to the formation and to prevent channeling. During cementing, adequate pressure differentials must be maintained between the annulus and the casing to prevent collapse or distortion of the casing.

1. Cementing Specifications
   The Permittee must consider and determine the appropriate quality and characteristics of any cement to be used in meeting conditions in and around the well. The Permittee must consider integrity, containment, corrosion protection, and structural strength of the cement, and ensure these characteristics are not affected to a point where they can no longer meet the design parameters set forth in this Permit. The Permittee must determine the appropriate use of cement additives, water/cement ratio, and the type of water used for mixing. All cement must be compatible with the injected fluid, native fluids and the formation.

   The Permittee must request, as needed, any cement other than the default cement specifications as provided in Appendix B. Section C. 2.

2. Default Cementing Specification
   Unless otherwise requested and approved by the Director, the Permittee must use American Petroleum Institute (API) Class A or American Society of Testing and Materials (AST) Specification C150, Type I cement for any required cementing.

Section D. Deviations from the Approved Construction Plan
Changes to the approved plan that may occur during construction must be approved prior to being physically incorporated.

1. Major Changes
   Major changes necessitate a detailed review by the Director and may lead to changes in operating parameters or corrective action requirements. Major changes include changes in the injection formation and material changes in the setting depth or cementing of the surface casing (casings which are set to protect USDW). The Director must approve a written description of these changes prior to the changes being physically incorporated into the well.

2. Minor Changes
   Minor changes include all other changes. These changes may be approved by the permit writer via email.

   These changes include but are not limited to:

   a. Changes in the number of casing strings or liners;

   b. Changes in the specifications for any casing or liners which are not the outermost casing in an USDW;

   c. Changes in the completion of the well;

   d. Changes in the exact setting of open hole intervals or injection intervals within the permitted injection formation; and

   e. Changes in the type of cement used.

3. Report of Summary of Changes
   Once construction is completed, a written summary of all changes in the construction plan, both major and minor must be submitted to the Director as part of the completion report required in Part III. Section D.

Section E. Remedial Construction Measures
Remedial construction measures may be required if the well is unable to demonstrate MI as described in Appendix C.

Section F. Post Construction Logs and Testing
The Permittee must perform the following logs and tests:

1. A Cement Bond Log after the 10-inch Casing String is cemented in place; and

2. Other tests or documentation as needed for the Permittee to determine or calculate the following information concerning the injection formation:

   a. Fluid pressure (See 40 CFR § 146.12(e)(1));

   b. Estimated fracture pressure (See 40 CFR § 146.12(e)(3));

   c. Physical and chemical characteristics of the injection zone (See 40 CFR § 146.12(g)(5)); and

d. Deviation checks on all holes constructed by first drilling a pilot hole and then enlarging the pilot hole by reaming or another method. Such checks shall be at sufficiently frequent intervals to assure that vertical avenues for fluid migration in the form of diverging holes are not created during drilling. See 40 CFR 146.12(d)(1)

A descriptive report interpreting the results of these logs and tests must be prepared by a knowledgeable log analyst and submitted to the Director as part of the completion report. See 40 CFR § 146.12(d).

Section G. Well Specific Construction Details and Specifications

1. Casing Requirements

   The number, thickness, type of materials and length of casing must be sufficient to protect the quality of drinking water resources, the integrity of the well and the confining strata. Exact setting depths of all casings will be determined in the field based on all available information. Additionally, all casings must be centralized where possible to facilitate uniform cementing.

   The UIC - 1 consists of the following casing strings:

   a. 24 Inch Surface Casing from 0 to approximately 10 ft. bgs
      Proposed. This will be a low strength concrete through which the hole for injection casing will be drilled.

   b. 10 Inch Casing from 0 ft. bgs to approximately 485 ft. bgs
      Proposed. This will be the production string of casing for the well. Nominal 12.25-inch borehole to be cemented to surface. The 10-inch casing pipe will extend a minimum of 12” below the level of the mine roof. a maximum 8-inch diameter tubing will be installed inside the 10-inch casing. A steel plate will also be placed around the casing pipe and bolted to the mine roof at the base of the injection hole. After the seal plate is bolted to the mine roof it is welded to the 10” casing.

   c. Transport pipe within the injection zone
      At the base of the injection well the tubing will be connected to a high-density polyethylene pipe (HDPE), within the mine backfill area. The HDPE pipe will be relocated and extended as needed to fully fill the designated mine backfill area. Within the mine backfill area rock berms may be used to control and contain the injectate.

2. Remedial Cementing Specifications

   For all remedial cementing that this well requires, the Permittee must consider and determine the appropriate quality and characteristics of any cement to be used in meeting conditions in and around the well. The Permittee must consider integrity, containment, corrosion protection and structural strength of the cement and ensure these characteristics are not affected to a point where they can no longer meet the designed parameters laid out in this Permit. The Permittee must determine the appropriate use of cement additives, water/cement ratio and the type of water used for mixing. All cement must be compatible with the injected fluid, native fluids and the formation.

   The Permittee must request, as needed any cement other than the default cement specifications as provided in Appendix B. Section C.2.

3. Injection Tubing and Packer

   All Class I injection wells, except those municipal wells injecting non-corrosive wastes, shall inject fluids through tubing with a packer set immediately above the injection zone, or tubing with an

approved fluid seal as an alternative. The use of other alternatives to a packer may be allowed with the written approval of the Director. See 40 CFR § 146.12(c)(1).

4. Alternate to Injection Tubing and Packer
   The Permittee has requested a steel plate seal at the wellhead as an alternate to a packer. The underground injection area is an active underground mine and access is available to the location where the well is drilled through the roof of the mine. Therefore, the annular area between the tubing and the casing will be left open without a packer at the base of the well as there will be no fluid in the annular area. The annular area will be sealed at the surface around the wellhead using a steel plate so no foreign objects may enter the annular area. Permittee is required to inspect the annular area from the base of well daily to ensure no movement of fluids is occurring in the annular area.

   The tubing and fluid seal must be maintained in a manner which is compatible with the injection operation as specified in this Permit and which prevents the movement of fluids into or between any USDW.

   Tubing
   Proposed. The injection tubing is specified as up to a maximum of 8-inch in diameter.

5. Injection Interval
   Injection shall be limited to the worked-out portions of the Sterling mine in the Tyrone and Camp Nelson formations approximately 480 ft. bgs to 525 ft. bgs.

6. Safety Device(s)
   At a minimum, the operator must maintain in good operating condition a pressure actuated shut-off device attached to the injection flow line set to shut-off the injection pump when or before the MAIP is reached at the wellhead.

7. Monitoring Devices
   At a minimum, the operator must maintain devices to measure and record the following parameters in good operating condition:

   a. the injection pressure at which the injectate is being injected;

   b. the flow rate at which the injectate is being injected; and

   c. cumulative injection volumes.

8. Well Security
   At a minimum, the operator must maintain the following in good operating condition, a lock or other system(s) as needed to prevent tampering with the well.

Section H. List and Descriptions of Items Included in This Appendix.

Item B1 – UIC - 1 Proposed Well Diagram

This is a diagram showing pertinent construction details of the Well after the proposed Construction.

Source: Revised Application, Received June 03, 2020 - Drawing 1 Injection Well b.

Size: One (1) page, 8.5 inches by 11 inches.

Item B2 – UIC - 1 Existing Decant Well Diagram

This is a diagram showing pertinent construction details of the Decant Well located at the Sterling mine.

Source: Revised Application, Received June 03, 2020 - Drawing 2 Decant Well b.

Size: One (1) page, 8.5 inches by 11 inches.

Item B3 – UIC - 1 Proposed Injection Process

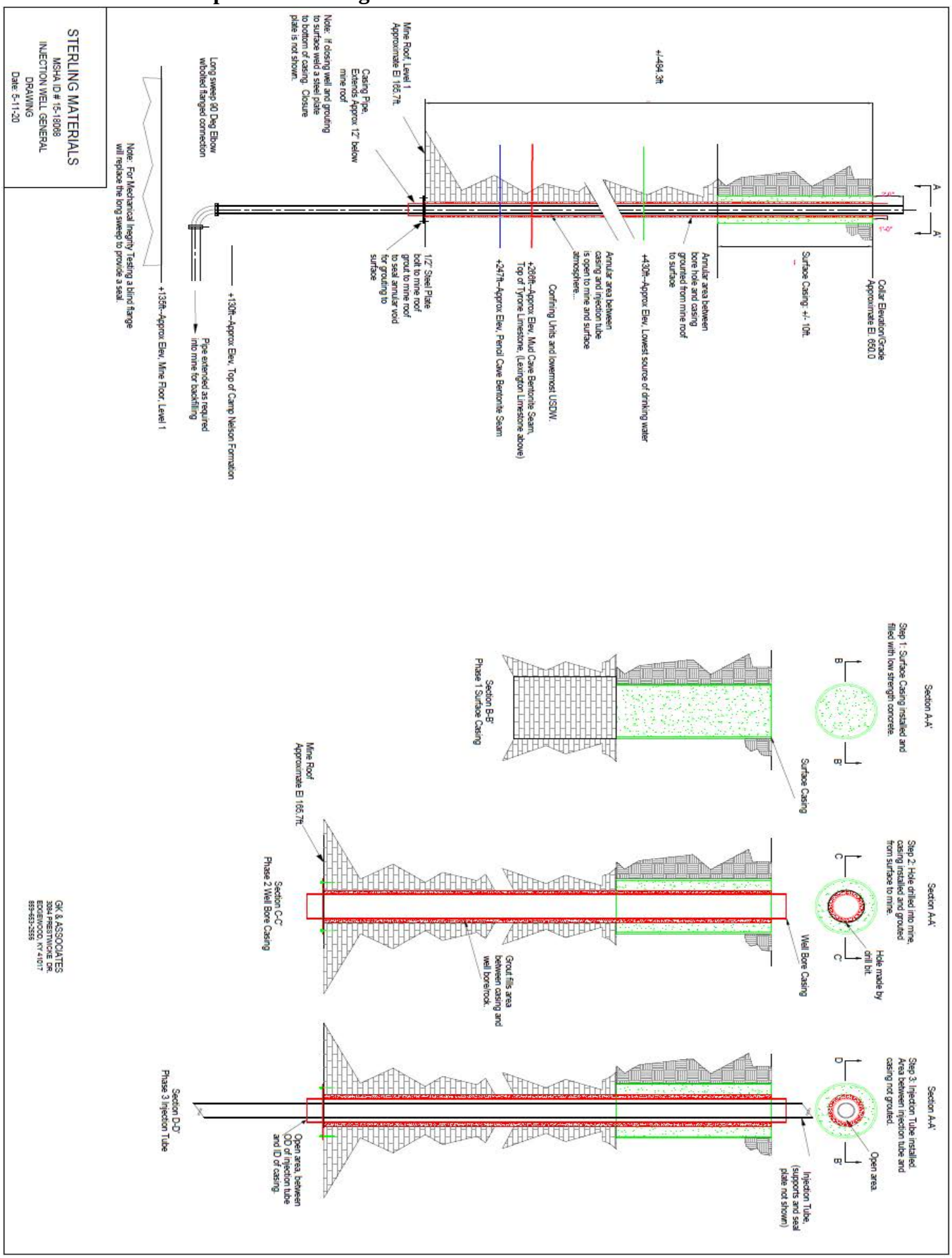
This is a diagram showing pertinent details of the process through which the injectate will be brought to the Wellhead.

Source: Revised Application, Received June 03, 2020 - Drawing 3 Injection Process_Injection Process.

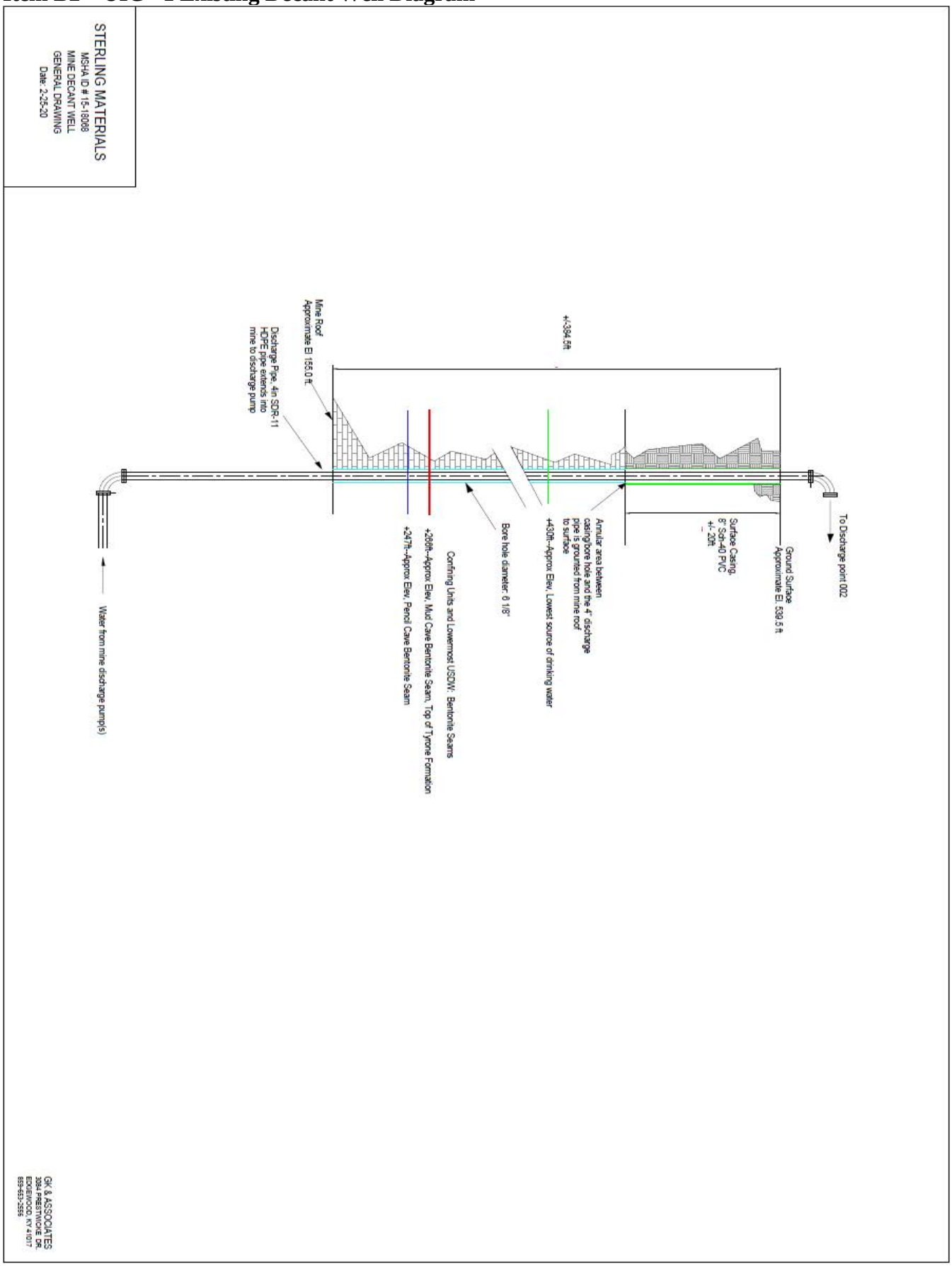
Size: One (1) page, 8.5 inches by 11 inches.

This appendix must be updated to include documentation showing the well post-construction.

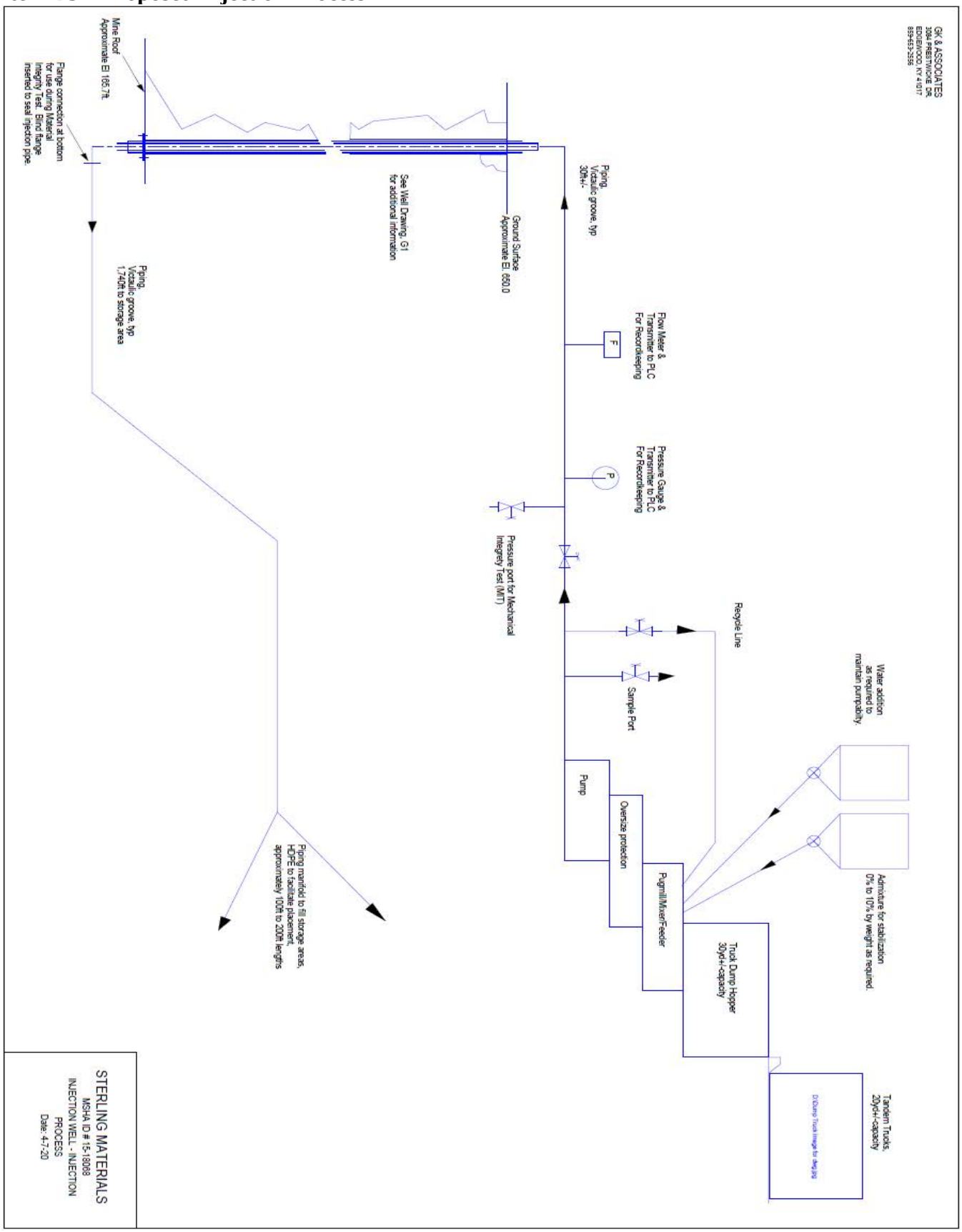
Item B1 – UIC - 1 Proposed Well Diagram



Item B2 – UIC - 1 Existing Decant Well Diagram



Item B3 – Proposed Injection Process



Appendix C. Mechanical Integrity (MI) Requirements

Section A. Duty to establish and maintain MI.

The Permittee must establish MI, as defined by Appendix C, prior to commencing injection. Thereafter the Permittee must maintain MI as defined in 40 CFR § 146.8. See 40 CFR § 144.51(q)(1).

Section B. Definition of MI

An injection well has MI if it can demonstrate both:

1. Internal MI
   There is no significant leak in the injection tubing.

2. External MI
   There is no significant fluid movement into a USDW through vertical channels adjacent to the injection well bore.

Section C. Prohibition Without Demonstration of MI

The Permittee must not commence injection activity after the effective date of this Permit unless the Permittee has demonstrated that the well covered by this Permit has MI in accordance with 40 CFR § 146.8 and the Permittee has received written notice from the Director that such demonstration is satisfactory. See 40 CFR §§ 144.51(q)(2) and 144.52(a)(8).

The Permittee must not resume injection activity after the loss of MI for any reason unless the Permittee has demonstrated that the well covered by this Permit has MI in accordance with 40 CFR § 146.8 and the Permittee has received written notice from the Director that such demonstration is satisfactory. See 40 CFR §§ 144.51(q)(2) and 144.52(a)(8).

The Director may authorize the Permittee of a well which lacks MI pursuant to 40 CFR § 146.8(a)(1) to continue or resume injection, if the owner or operator has made a satisfactory demonstration that there is no movement of fluid into or between USDW. Such authorization must be given in writing. See 40 CFR §§ 144.51(q)(2) and 144.51(q)(3).

Section D. Lack of MI

A well is considered to Lack MI under the following circumstances:

1. Prior to Establishing MI Before Injection Activity Commences
   A well lacks MI before the initial demonstration of MI has been approved by the Director

2. Notice of Lack of MI by the Director
   When the Director determines a well lacks MI, written notice of the determination will be given to the Permittee. Unless the Director requires immediate cessation of injection, the owner or operator must cease injection into the well within 48 hours of receipt of the Director's determination. See 40 CFR § 144.51(q)(2).

   The Director may allow plugging of the well pursuant to the requirements of this Permit or require the Permittee to perform such additional construction, operation, monitoring, reporting and corrective action as is necessary to prevent the movement of fluid into or between USDW caused by the lack of MI. The owner or operator may resume injection upon written notification from the Director that the owner or operator has demonstrated MI pursuant to 40 CFR §146.8 of this chapter. See 40 CFR § 144.51(q)(2).

3. After Failure to Meet a MI Deadline
   A permittee is required to demonstrate MI no later than 60 months from the date of the last approved demonstration, or on a more frequent schedule as required by the Director. Failure to demonstrate MI within the required time frame, is consider a loss of MI. See 40 CFR 144.28(g)(2)(iv)(A).

4. Loss of MI During Operation
   The Permittee must cease injection if a loss of MI as defined at 40 CFR § 146.8 becomes evident during a test or operation. The Permittee must notify the Director within 24-hours of determining there was a loss of MI. Injection operations must not be resumed until the Permittee has complied with the provisions of this Permit regarding MI demonstration and testing.

   Within five (5) calendar days, the Permittee must submit a follow-up written report that documents circumstances that resulted in the MI loss and how it was addressed. If the MI loss has not been resolved, the Permittee must provide a report with the proposed plan and schedule to reestablish MI.

Section E. Schedule of MI Demonstrations
The Permittee must at a minimum demonstrate MI on the following schedule unless another schedule is required by a written notice from the Director. See 40 CFR §§ 144.51(q)(1) & 144.51(q)(2).

1. Prior to Commencing Initial Injection. See 40 CFR §§ 144.51(q)(2) and 144.52(a)(8).

2. Regularly, no longer than 60 months from the date of the last approved demonstration. See 40 CFR 144.28(g)(2)(iv)(A).

3. After any workover, where MI is lost, such as those that require unseating the tubing or resetting the packer. MI must be reestablished within 90 calendar days of any loss of MI unless written approval of an alternate time period has been given by the Director.

4. MI must be reestablished within 90 calendar days of any loss of MI unless written approval of an alternate time period has been given by the Director.

5. When requested by the Director.

Section F. Notification Prior to Performing an MIT
The Permittee must notify the Director at least 30 calendar days prior to any MIT. The Director may allow a shorter notification period if it would be sufficient to enable EPA or a designated representative to witness the MIT or EPA declines to witness the test, see Part II. Section B. 9. Notification may be in the form of a yearly or quarterly schedule of planned MITs, or it may be on an individual basis. See 40 CFR §144.28(g)(2)(c).

Either with this notification or at least 30 calendar days prior to the MIT, the Permittee must submit a work plan outlining the methods and timetable for performing the MIT. If the Permittee chooses to use methods not listed within this Permit, the plan must be submitted at least 60 calendar days prior to the proposed MIT date. The Director may allow a shorter time period if it would be sufficient to enable the EPA to adequately respond, pursuant to Part II. Section B. 9. See 40 CFR § 146.8(d).

Section G. Approved MIT Methods
The methods for demonstrating MI are as specified below. The Director may stipulate specific test methods and criteria best suited for a specific well construction and injection operation. In conducting and evaluating the tests enumerated in this subsection, or others to be allowed by the Director, the Permittee must apply methods and standards generally accepted in the industry.

1. Internal MI
   The following methods have been approved by the Director and may be used to evaluate the absence of tubing leaks for this well:

   a. Pressure testing of inner casing or tubing
      The demonstration will consist of a pressure test on the tubing-casing annulus to at least 450 psig with not more than three (3) percent pressure change over at least 30 minutes or a previously approved alternative MIT method.

2. External MI
   The following methods have been approved by the Director and may be used to evaluate the absence of movement:

   a. Cementing Records;

   b. Temperature Log;

   c. Noise Log; and

   d. Radioactive Tracer Surveys

3. Additional Testing
   The Director may require additional or alternative tests if the results presented by the operator are not satisfactory to the Director to demonstrate there is no movement of fluid into or between USDW resulting from the injection activity.

4. Alternate Methods
   A Permittee may propose other logs and tests as specified in 40 CFR § 146.8 or as published in the Federal Register. The plan must also propose standards that will be used for evaluating the results of logging and testing. MI will be confirmed if the well logs and test data meet or exceed the standards approved as a result of the Director's review of the plan.

Section H. Reporting Results of MITs

When the Permittee reports the results of MITs, the Permittee must include a description of the test(s) and the method used. Monitoring and other test data submitted since the previous evaluation will be assessed and reviewed. Results of MITs required by this Permit must be submitted to the Director as soon as possible but no later than 90 calendar days after the test is complete. Results are to be submitted to the Director in accordance with Part II. Section B.

Appendix D. Injection Operation Requirements

Section A. Injection Operation

For a well authorized by this Permit, beginning on the date that Initial Injection is approved by the Director until the closure of the well has been approved by the Director, the Permittee, alone, is authorized to inject only those fluids as described in identified in this permit and only in a manner consistent with the conditions set forth in this permit. All other injection activity is prohibited. See 40 CFR § 144.11.

Injection is prohibited:

1. Injection is prohibited between the outermost casing protecting the USDW and the well bore. See 40 CFR § 144.28(f)(1).

2. Injection is prohibited if the well lacks MI. See Appendix C.

Section B. Injection Zone

For the well authorized by this Permit, injection must be limited to the specific zone(s) and interval(s) identified in Appendix B. Section G. 5.

Section C. Injection Fluid

For each well authorized by this Permit, the injectate will consist of only the fluid or fluids specifically authorized in this section, unless approved in advance by the Director.

1. Specified Injection Fluid(s)
   The injected fluid is limited to:

   a. Residual Solids from municipal drinking water plant(s):
      Residual solids are the result of the settling of the very fine particulates in the water storage reservoirs owned and maintained by the Northern Kentucky Water District, https://www.nkywater.org/. The water contained in the reservoirs is pumped from the Ohio River. The water in the reservoirs serves as the water input to the treatment plants where the water is further treated for distribution to the residents of northern Kentucky. The fine particles that settle out have accumulated over 30 plus years and now occupy space in the reservoirs needed for water storage. The excavated residual solids will be transported to the injection site utilizing tandem or tri-axel trucks or semi-trailer end dumps. Permittee may include additional water treatment facilities as sources after a minor modification to this permit.

   b. Lime stabilized waste pickle liquor sludge from steel manufacturing plant(s).
      Lime Stabilized Pickling Liquor Sludge, or LSWPLS, is the final waste product from pickling or cleaning steel during the steel manufacturing process. Pickle liquor from the steel manufacturing process is neutralized with lime and thickened into a sludge or paste. The thickened and neutralized sludge is non-hazardous. Appendix 7, Federal Register, June 5, 1984 defines LSWPLS as nonhazardous. Permittee may include additional steel manufacturing facilities as sources after requesting and approval of a minor modification to this permit.

2. Additional Specified Injection Fluid(s)
   The Permittee must seek a minor modification and receive approval from the Director before disposing of fluids of other types and sources into the well.

3. Additives and Treatments to the Injectate Stream
   The Permittee must provide to the Director, 30 calendar days prior to injection, a list of any additives to the injectate and their chemical composition, including any inhibitors used to prevent scaling, corrosion, or bacterial growth. These lists should also indicate the brand name of the product(s) where appropriate and their manufacturer.

4. Well Stimulation Fluids
   During the performance of Well Stimulation, the Permittee is required to follow the procedures approved by the Director, pursuant to Part IV. Section E. 4.

Section D. Injection Pressure Limitations

1. Injection must Preserve the Integrity of Geologic Formations
   Injection pressures must not initiate new fractures or propagate existing fractures in the confining zone adjacent to USDW; significantly alter the fluid movement capabilities of the confining zone; or cause the movement of injection or formation fluids into an USDW or into an essential monitoring zone or between USDW. See 40 CFR § 144.28(f)(6)(i).

2. Injection must Preserve the MI of the Well
   The integrity of the well structure must be protected; hence, total pressure must not exceed the maximum allowable stress of the materials used to construct the well.

3. Injection during Well Stimulation
   During the performance of Well Stimulation, the Permittee is required to follow the procedures approved by the Director. Part IV. Section E. 4

4. MAIP
   Except during stimulation, the owner or operator shall not exceed an injection pressure at the wellhead which shall be calculated so as to assure that the pressure during injection does not initiate new fractures or propagate existing fractures in the injection zone; and the owner or operator shall not inject at a pressure which will initiate fractures in the confining zone or cause the movement of injection or formation fluids into an underground source of drinking water. See 40 CFR § 144.11.

   Unless following approved well stimulation procedures, the Permittee is limited to 400 psig injection pressures as measured at the surface. At the injection site, the injectate is being spread in void space which is accessible below ground surface and risk of formation fracture is low.

Section E. Injection Rate Limitations

There are no Injection Rate or Volume Limitations, as long as injection does not exceed the requirements of the injection pressure limitations as found in Section D, above.

Section F. Injection Velocity Limitations

There are no Injection Velocity Limitations, as long as injection meets the requirements of the injection pressure limitations as found in Section D, above.

Section G. Tubing-Casing Annulus Operation

The annular area is the area between the outside diameter, of the injection tube and the inside diameter of the casing. A seal plate seals this annular area at the surface but otherwise is open down into the mine. The annular area is not filled with fluid other than air. This annular area is open down into the mine. If any leakage occurs from the injection tube it will drain down into the mine and will be visible where the casing protrudes from the mine roof. This area will be inspected daily when the system is operating. A

record of the inspections will be kept and submitted with the quarterly report. A leak detected in Tubing-Casing Annulus will result in a loss of MI and Permittee will be required to establish MI according to Appendix C prior to resuming injection.

Section H. Inability to Comply

In the event the Permittee is temporarily unable to comply with any of the criteria outlined in this Permit, due to breakdown of equipment, power outages, destruction by hazard of fire, wind, or by other cause, the Permittee must notify the EPA. Notification must be made to the Director within 24 hours of breakdown or malfunction - in person, by telephone, or by e-mail.

Appendix E. Additional Monitoring and Reporting Requirements

Section A. Monitored Parameters and Frequency of Monitoring

1. Injection Operation Monitoring Parameters

   At a minimum, the Permittee must monitor the following parameters at a minimum frequency as given in the corresponding entry below.

   a. Tubing-Casing Annulus

      The Permittee must visibly monitor the Tubing-Casing Annulus where the casing protrudes from the mine roof daily to ensure no fluid movement occurs.

   b. Injection Tubing Pressure (psig)

      i. The Permittee must monitor injection tubing pressure continuously at the well head during injection operations.

      ii. The Permittee must monitor injection tubing pressure at least once a month at the well head during periods of inactivity. See 40 CFR § 146.13(b)(2).

      iii. A quarterly report submitted to the EPA will include the pressure data summarized by month. The monthly pressure data will include:

      - Maximum pressure, psi;
      - Minimum pressure, psi;
      - Average pressure, psi.

   c. Flow Rate

      i. A quarterly report submitted to the EPA will include the flow rate into the injection zone summarized by month. The monthly cumulative flow data will be reported as:

      - Maximum flow, gallons per minute;
      - Minimum flow, gallons per minute;
      - Average flow, gallons per minute.

   d. Fluid Volume Injected (bbls)

      i. The Permittee must record the volume of fluid source, separately for each specified fluid source, continuously during injection operations.

   e. Cumulative Fluid Volume Injected (since injection began) (bbls)

      i. The Permittee must monitor the cumulative volume of fluid injected at least once a week. See 40 CFR § 146.13(b)(2).

2. Injection Fluid Analysis

   On an annual basis, the Permittee must submit a chemical analysis of each specified injection fluid which the Permittee plans to inject in the following year. The Permittee must not inject fluids for which an annual submittal of fluid analysis has not been made. Injected fluid analyses must include the following parameters:

Injectate: Residual Solids	Injectate: Lime Stabilized Waste Pickle Liquor Sludge
1. pH	1. pH
2. Chromium	2. Sulfate
3. Arsenic, As	3. Arsenic, As
4. Barium, Ba	4. Barium, Ba
5. Cadmium, Cd	5. Cadmium, Cd
6. Lead, Pb	6. Lead, Pb
7. Mercury, Hg	7. Mercury, Hg
8. Selenium, Se	8. Selenium, Se
9. Silver, Ag	9. Silver, Ag
10. Total Dissolved Solids	10. Total Dissolved Solids
11. Specific Gravity or Fluid Density	11. Specific Gravity or Fluid Density

Section B. Monitoring Methods

The Permittee must identify the types of tests and methods used to generate all monitoring data. Monitoring observations, measurements, samples and any other source of data used for the purpose of complying with these requirements must be representative of the activity or condition being monitored.

1. Analytical Methods

   The analytic methods used to monitor the nature of the injected fluids must comply with analytical methods cited and described in Appendix F, Table 1 of 40 CFR § 136.3 or Appendix III of 40 CFR Part 261, or by other methods that have been approved in writing by the Director. The Permittee may make a request to the Director in writing for the approval of alternative methods other than those listed above. See 40 CFR § 144.52(a)(5).

   All analytical methods must be performed at laboratories with EPA or a state certification for the methods used.

2. Operational Monitoring Methods

   Injection pressure, injection rate, and cumulative injected volume must be observed and recorded at the wellhead and all parameters must be observed simultaneously to provide a clear depiction of well operation.

   a. Pressures are to be measured in pounds per square inch (psi) or pounds per square inch gauge (psig), as appropriate.

   b. Fluid volumes are to be measured in units of standard gallons (G), 42-gallon barrels (bbl), thousand standard cubic feet (Mcf or Mscf), or in millions of gallons (MG), as appropriate.

   c. Injection rates are to be measured in gallons per minute (GPM), barrels per day (BPD or bbls/Day), thousand standard cubic feet per day (Mcf/d or Mscf/d), or millions of gallons per day (MGD).

Section C. Monitoring Report Requirements

1. Monitoring Report Schedule

   The Permittee must submit reports as shown below:

Monitoring Report	Reporting Period	Due Date
1st Quarter Monitoring Report	January 1 to March 31	April 30
2nd Quarter Monitoring Report	April 1 to June 30	July 31
3rd Quarter Monitoring Report	July 1 to September 30	October 31
4th Quarter Monitoring Report	October 1 to December 31	Following January 31

2. Quarterly Monitoring Report

   A Quarterly Monitoring Report must be submitted every quarter, this includes the calendar quarter this Permit becomes effective and any quarter where there was no injection activity. The Quarterly Monitoring Report for each quarter is due on the last day of the month following the end of the reporting period.

   The Quarterly Monitoring Report must contain the following items:

   a. Owner or Operator Quarterly Injection Well Monitoring Report - EPA Form 7520-8
      The Permittee must submit a separate form for each specified fluid source.

   b. Injection Fluid Analysis
      The Permittee must submit a separate analysis for each specified fluid source. The Permittee must note any major changes in characteristics of injected fluid. Previously submitted information may be included by reference.

   c. Well Stimulation and Treatment Chemicals
      On an annual basis, the Permittee must submit:

      i. a list of all chemicals and their composition used for any well stimulation during that reporting period unless previously submitted as part of a well stimulation report; and,

      ii. a list of any additives used and their chemical composition, including any inhibitors used to prevent scaling, corrosion, or bacterial growth.

      These lists should indicate the brand name of the product (if applicable) and the manufacturer.

Appendix F. Plugging and Abandonment (P&A) Plan

Section A. P&A Plans

The Permittee must update this information as required by Part V and must follow any additional requirements in this appendix.

Section B. P&A Requirements

Prior to abandonment, a well must be plugged with cement in a manner which will not allow the movement of any fluids into a USDW or between two (2) or more USDWs, and which isolates the injected fluid in the injection formation. See 40 CFR § 146.10(a).

Section C. Required P&A Methods

Prior to the placement of a cement plug, the well must be in a state of static equilibrium, with the mud weight equalized from top to bottom, either by circulating the mud in the well at least once or by a comparable approved method. See 40 CFR § 146.10(a)(3).

In addition, placement of the plugging material must be accomplished by one of the following methods:

1. The Balance method;

2. The Dump Bailer method;

3. The Two-Plug method; or

4. Any other recognized method as effective or more effective than the above which has been approved by the Director in this well's P&A plan. See 40 CFR § 146.10(a)(2).

Section D. List and Descriptions of Items Included in This Appendix.

Item F1 – UIC - 1 P&A Plan 7520-19

Dated February 26, 2020, this is the most recently submitted EPA Form 7520-19 for the UIC – 1 well covered by this Permit.

Source: Revised Permit Application, Received June 03, 2020

Size: One (1) page, 8.5 inches by 11 inches.

Item F2 – UIC – 1 Decant Well P&A Plan 7520-19

Dated February 26, 2020, this is the most recently submitted EPA Form 7520-19 for the UIC – 1 Decant Well covered by this Permit.

Source: Revised Permit Application, Received June 03, 2020

Size: One (1) page, 8.5 inches by 11 inches.

Item F3 – UIC - 1 Detailed P&A Procedures

This is the most recently submitted detailed description of the P&A procedures for this well.

Source: Revised Permit Application, Received June 03, 2020

Size: One (1) page, 8.5 inches by 11 inches.

Item F4 – UIC – 1 Diagram Showing Proposed P&A Plan

This is the most recent well diagram detailing the results of the proposed P&A procedures for this well. One (1) Page.

Source: Revised Attachment Q, Received August 09, 2019

Size: One (1) page, 8.5 inches by 11 inches.

Item F1 – UIC - 1 P&A Plan 7520-19

OMB No. 2040-0042 Approval Expires 4/30/2022

United States Environmental Protection Agency

EPA

WELL REWORK RECORD, PLUGGING AND ABANDONMENT PLAN, OR PLUGGING AND ABANDONMENT AFFIDAVIT

Name and Address, Phone Number and/or Email of Permittee

Sterling Materials LLC
376 S. Broadway
Lexington, KY 40508
Tim Stout, President
(859) 707-5951

Permit or EPA ID Number	API Number	Full Well Name
		Well #1 Mine Backfill

State	County
Kentucky	Gallatin

Locate well in two directions from nearest lines of quarter section and drilling unit

Latitude 38.830004

Surface Location

1/4 of 1/4 of Section Township Range

Longitude 84.759794

ft. from (N/S) Line of quarter section

ft. from (E/W) Line of quarter section.

Well Class	Timing of Action (pick one)	Type of Action (pick one)
✓ Class I	✓ Notice Prior to Work	☐ Well Rework
☐ Class II	Date Expected to Commence Permit Document	✓ Plugging and Abandonment
☐ Class III	☐ Report After Work	☐ Conversion to a Non-Injection Well
☐ Class V	Date Work Ended	

Provide a narrative description of the work planned to be performed, or that was performed. Use additional pages as necessary. See instructions.

At the termination of the mine backfilling operation the well will be plugged from the bottom up using the tremie method, completely filling the well bore with a Portland Class II cement, ASTM C150. Type II cement has a good performance history for grouting wells due to its moderate sulfate resistance. First, the injection tube will be removed from the well. After removal of the injection tube a steel plate will be welded to the well casing where it extends below the mine roof. Next, a tremie pipe is lowered to the bottom of the well casing and the flow of grout commences. The tremie pipe is slowly retracted as the grout is placed in the hole. Care is taken to keep the end of the tremie pipe below the surface of the rising grout. This is achieved by comparing the volume of grout injected with the equivalent length of pipe filled with grout. Once grout exits the well at the surface the tremie pipe can be removed and cleaned for reuse.

Certification

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

Name and Official Title *(Please type or print)*	Signature	Date Signed
Timothy E. Stout, President	T. E. Stout	2/26/2020

EPA Form 7520-19 (Rev. 4-19)

Item F1 – UIC - 1 Decant Well P&A Plan 7520-19

OMB No. 2040-0042 Approval Expires 4/30/2022

United States Environmental Protection Agency

EPA

WELL REWORK RECORD, PLUGGING AND ABANDONMENT PLAN, OR PLUGGING AND ABANDONMENT AFFIDAVIT

Name and Address, Phone Number and/or Email of Permittee

Sterling Materials LLC
376 S. Broadway
Lexington, KY 40508
Tim Stout, President
(859) 707-5951

Permit or EPA ID Number	API Number	Full Well Name
		Decant Well

State	County
Kentucky	Gallatin

Locate well in two directions from nearest lines of quarter section and drilling unit

Latitude 38.834968

Surface Location

1/4 of 1/4 of Section Township Range

Longitude 84.763277

ft. from (N/S) Line of quarter section

ft. from (E/W) Line of quarter section.

Well Class	Timing of Action (pick one)	Type of Action (pick one)
✓ Class I	✓ Notice Prior to Work	Well Rework
Class II	Date Expected to Commence Permit Document	Plugging and Abandonment
Class III	Report After Work	✓ Conversion to a Non-Injection Well
Class V	Date Work Ended	

Provide a narrative description of the work planned to be performed, or that was performed. Use additional pages as necessary. See instructions.

Upon cessation of UIC injection activities this well will continue to function as a discharge for mine dewatering.

Prior to UIC injection activites this well/borehole/pipe served as the well for mine dewatering.

There is no work or rework required to the well at the end of UIC activities for the well to resume functioning as a mine dewatering well.

Certification

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

Name and Official Title *(Please type or print)*	Signature	Date Signed
Timothy E. Stout, President	T E Stout	2/26/2020

EPA Form 7520-19 (Rev. 4-19)

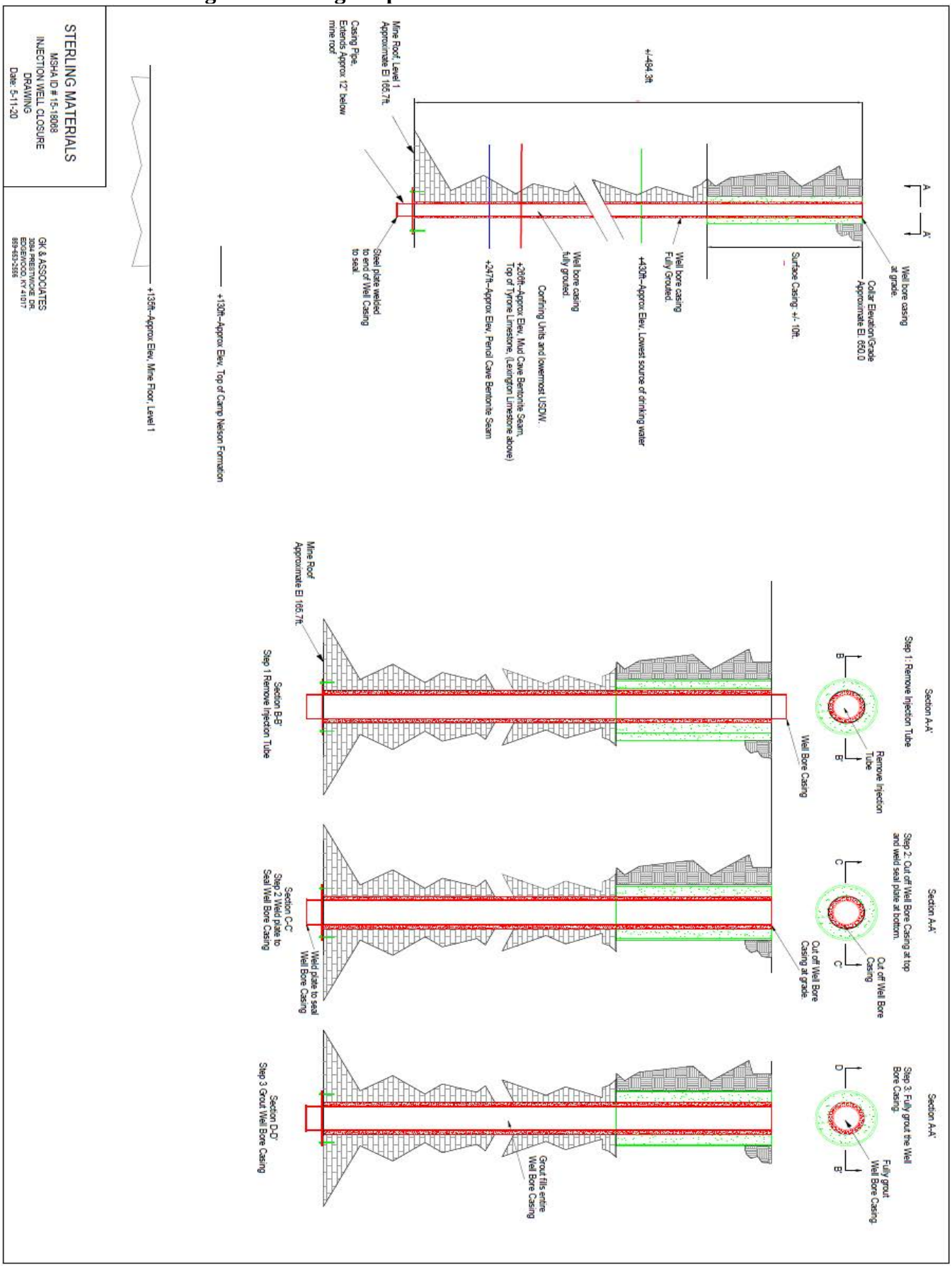
Item F3 – UIC - 1 Detailed P&A Procedures

At the termination of the mine backfilling operation the injection well will be plugged from the bottom up using the tremie method, completely filling the well bore with a Portland Class II cement, ASTM C150. First, the injection tube will be removed from the well. After removal of the injection tube a steel plate will be welded to the well casing where it extends below the mine roof in the injection zone. Next, a tremie pipe is lowered to the bottom of the well casing and the flow of grout commences. The tremie pipe is slowly retracted as the grout is placed in the hole. Care is taken to keep the end of the tremie pipe below the surface of the rising grout. This is achieved by comparing the volume of grout injected with the equivalent length of pipe filled with grout. Once grout exits the well at the surface the tremie pipe can be removed and cleaned for reuse.

Approximately 241.6 bags of cement are required to fully grout the 485.3 ft of 10” Sch- 40 well casing. This is based on a yield of 1.1 cu-ft. of grout for each 94 lbs. bag of cement when mixed with 6 gallons of water to produce a pumpable grout. Approximately 1,500 gallons of water are required.

The decant well will return to service as the mine dewatering well. If complete closure of the facility occurs and the decant well will be P&Aed using the same procedure as the injection well as described above.

Item F4 – UIC -1 Diagram Showing Proposed P&A Plan



Appendix G. Compliance Schedules

On the permit effective date of this Permit as found on page iii, there are currently no compliance schedules associated with this permit.

Section A. Modification to include Compliance Schedules

This permit may be modified to specify a compliance schedule leading to compliance with the SDWA. See 40 CFR § 144.53(a).

Section B. Time Period for Compliance

Any compliance schedules must require compliance as soon as possible, and in no case later than 3 years after the effective date of the permit. See 40 CFR § 144.53(a)(1).

1. Interim Dates
   If a permit establishes a compliance schedule which exceeds 1 year from the date of permit issuance, the schedule must set forth interim requirements and the dates for their achievement. See 40 CFR § 144.53(a)(2). The time between interim dates must not exceed 1 year.

   If the time necessary for completion of any interim requirement is more than 1 year and is not readily divisible into stages for completion, the permit must specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.

Section C. Compliance Schedule Reporting.

All reports and progress reports be submitted no later than 30 days following each interim date and the final date of compliance. See 40 CFR § 144.53(a)(3).

Section D. Alternative schedules of compliance.

Rather than continue to operate and meet existing compliance schedule requirements, a permittee may cease conducting regulated activities through P&A of all covered wells under the terms of this Permit contained in Part V and Appendix F. See 40 CFR § 144.53(b).

This may be done as follows:

1. If the permittee decides to cease conducting regulated activities at a given time within the term of a permit which has already been issued:

   a. The permit may be modified to contain a new or additional schedule leading to timely cessation of activities; or

   b. The permittee shall cease conducting permitted activities before noncompliance with any interim or final compliance schedule requirement already specified in the permit. See 40 CFR § 144.53(b)(1).

2. If the permittee is undecided whether to cease conducting regulated activities, the Director may issue or modify a permit to contain two (2) schedules as follows:

   a. Both schedules must contain an identical interim deadline requiring a final decision on whether to cease conducting regulated activities no later than a date which ensures sufficient time to comply with applicable requirements in a timely manner if the decision is to continue conducting regulated activities;

b. One (1) schedule will lead to timely compliance with applicable requirements;

c. The second schedule will lead to cessation of regulated activities by a date which will ensure timely compliance with applicable requirements;

d. Each permit containing two (2) schedules must include a requirement that after the permittee has made a final decision regarding which schedule to follow the permittee must follow the schedule leading to compliance if the decision is to continue conducting regulated activities, and follow the schedule leading to termination if the decision is to cease conducting regulated activities. See 40 CFR § 144.53(b)(3).

3. The Permittee's decision to cease conducting regulated activities must be evidenced by a firm public commitment satisfactory to the Director, such as a resolution of the board of directors of a corporation. See 40 CFR § 144.53(b)(4).