ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
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JB PRITZKER, GOVERNOR JAMES JENNINGS, ACTING DIRECTOR

217/524-3301

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

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AUG 15 2025

Sugar Camp Energy, LLC
Attention: Mr. Anthony Webb
11351 North Thompsonville Road
Macedonia, Illinois 63860-1175

Re: 0554645002 – Franklin County
Sugar Camp Mine
Permit No. UIC-016-SCM
Log No. UIC-212-M-2
Well Nos. UIC#1 and UIC#2
UIC Administrative Record File – 23A
Permit Approval

Dear Mr. Webb:

Enclosed is a modified Underground Injection Control (UIC) Area Permit (UIC permit) for the above-referenced facility located at 11351 North Thompsonville Road, Macedonia, Illinois. The contents of the administrative record are described in Title 35 Illinois Administrative Code (35 Ill. Adm. Code) 705.211. Please read the permit carefully. Failure to meet any portion of the permit could result in civil and/or criminal penalties.

Comments on the draft UIC permit were received from Sugar Camp Energy, LLC on April 30, 2025 and the Sierra Club – Illinois Chapter on April 30,2025. A copy of the Illinois EPA's response to significant comments on the draft UIC permit will be mailed under separate cover to the Sierra Club. The Illinois EPA's response to the public comments and changes made to the draft permit, Log No. UIC-212-M-2, in response to these comments are provided in the attachment to this cover letter titled, Response to Facility Comments and Revisions Made to the Draft Permit.

In accordance with 35 Ill. Adm. Code 705.201, the attached permit will become effective thirty-five days after the date of this letter. This UIC permit authorizes the operation of the modified annulus protection systems for wells UIC#1 and UIC#2 as described in the permit modification request and in accordance with the conditions of this Permit. Well UIC#1 is authorized to resume injection in accordance with the conditions of this Permit.

Well UIC#2 is not authorized for injection, as the well has failed to demonstrate that it has mechanical integrity as required by Permit Condition H.26. Pursuant to Permit Conditions B.10 and B.11, the Permittee must address the investigation, repair, and requirements that must be met before well UIC#2 may resume operation.

This action shall constitute the Illinois EPA's final action on the subject submittal. The applicant may appeal this final decision to the Illinois Pollution Control Board pursuant to Section 40 of the Illinois Environmental Protection Act by filing a petition for a hearing within thirty-five (35) days after the date of issuance of the final decision. However, the 35-day period may be extended for a period of time not to exceed ninety (90) days by written notice from the applicant and the Illinois EPA within the initial 35-day appeal period. If the owner or operator wishes to receive a 90-day extension, a written request that includes a statement of the date the final decision was received, along with a copy of this decision, must be sent to the Illinois EPA as soon as possible.

For information regarding the request for an extension, please contact:

Illinois Environmental Protection Agency
Division of Legal Counsel
2520 West Iles Avenue
Post Office Box 19276
Springfield, IL 62794-9276
217/782-5544

For information regarding the filing of an appeal, please contact:

Illinois Pollution Control Board, Clerk
60 East Van Buren St. Suite 630
Chicago, IL 60605
312/814-3620

Question regarding this permit may be directed to Takako Halteman, P.E., by phone at 217/524-3274 or by email at Takako.Halteman@Illinois.gov. For any future submittals for this facility, please contact Keegan MacDonna, P.E., by phone at 217/524-3336 or by email at Keegan.MacDonna@Illinois.gov.

Sincerely,

Joshua L. Rhoades, P.G.
Permit Section Manager
Bureau of Land

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Attachments: Response to Public Comments and Revisions Made to the Draft Permit
Modified Underground Injection Control Area Permit

cc: James Miller – Sugar Camp Energy, LLC
David Castellano – Foresight Energy
Roger Dennison – Foresight Energy
Stephen Jann, UIC Branch Chief – U.S. EPA Region V

ATTACHMENT

ILLINOIS EPA'S RESPONSE TO PUBLIC COMMENTS AND
REVISIONS MADE TO THE DRAFT PERMIT

Sugar Camp Mine
Draft Underground Injection Control Area Permit
Dated March 25, 2025
Log No. UIC-212-M-2

The Illinois EPA Bureau of Land (BOL) issued an Underground Injection Control (UIC) Area Permit to Sugar Camp Energy, LLC (SCE), on May 20, 2015, authorizing the operation of two injection wells (UIC#1 and UIC#2) and the construction of two additional injection wells in the future.

A draft modified Underground Injection Control (UIC) Area Permit (draft permit) was issued by the BOL on March 25, 2025. The draft permit was prepared in response to Sugar Camp's permit modification request titled, Permit Modification Request for Authorization to Operate, Modified APS (Annulus Protection System) Construction Report, Contingency Plan.

The final modified UIC Area Permit (final permit) allows the operation of the modified APS, well UIC#1, the investigation and repair of well UIC#2 in accordance with the conditions of the permit, and the resumption of injection of wastewater following a demonstration that the wastewaters, identified in the final permit do not contain per- and polyfluoroalkyl substances (PFAS). Conditions of the final permit that have been changed from the draft permit are identified below.

Comments received during the public comment period have become part of the Illinois EPA Administrative Record and were considered in the final permit decision-making process. Public comments for the draft permit were received from the (1) Sierra Club – Illinois Chapter, dated April 30, 2025, and received via email by the Illinois EPA on April 30, 2025 and (2) Sugar Camp Energy, LLC (Permittee), dated April 30, 2025.

The administration of the Illinois EPA's UIC program is being transferred from the Bureau of Land, Permit Section to the Bureau of Water, Permit Section. Future question regarding this process may be directed to Keegan MacDonna, P.E. by phone 217/524-3336 or by email at Keegan.MacDonna@Illinois.gov.

The Illinois EPA, BOL, appreciates the comments provided by the Sierra Club – Illinois Chapter (Sierra Club) and Sugar Camp Energy, LLC. The following summarize comments and questions proposed and the Illinois EPA's responses to them. All "Condition(s)" and "Section(s)" in **Illinois EPA Response** are reference to the specified condition(s) and sections(s) of this modified UIC permit.

I. Illinois EPA's Responses to Comments Provided by Sierra Club – Illinois Chapter, dated April 30, 2025.

Sierra Club has the following comments and questions based on the draft permit and the documents produced pursuant to a FOIA request made by one of the counsel for Sierra Club in Illinois v. Sugar Camp Energy:

1. *Special Condition I.2. "Revised Material Analysis Plan," includes, 'The Permittee must submit a revised written Material Analysis Plan. The current Material Analysis Plan (Waste Sampling and Analysis Plan) is located in Form 4e. Permit Item I of the approved permit application. This revised plan shall address changes necessary to the plan to prevent the injection of PFAS contaminated wastewater which could result from the migration of PFAS contaminated wastewaters into non-PFAS contaminated waters which will be disposed in permitted injection wells. The revised Material Analysis Plan shall be submitted within sixty (60) days of the effective date of this permit (Log No. UIC-212-M-2).'*

   Please clarify if this plan resolves our questions below:

   a) *The "Review Notes Modifications to Draft Permit Language" Special PFAS conditions starting on page 17 of the document, indicates that Sugar Camp Energy can "demonstrate that PFAS are not present in the fluids to be injected into the wells UIC#1 and UIC#2... by submitting previously collected analytical data." To our knowledge, we have no previously collected data on PFAS in RO concentrate. If it exists, please explain the frequency and results so that information is available before any approval of the current modifications as proposed.*

Illinois EPA Response to Comment 1 and 1(a)

The condition referenced in Comment 1 is Condition I.3, instead of Condition I.2.

General response to Comments 1 (a) though (c) concerning the management of wastewater containing PFAS. The management of wastewater containing PFAS is overseen by the Illinois EPA Bureau of Water (BOW). Any information regarding the current treatment and management of PFAS containing wastewater permitted under BOW must be obtained through a Freedom of Information Act (FOIA) request to the Illinois EPA.

In response to Comment 1(a), as Illinois EPA BOL became aware of the potential for PFAS to be present in certain wastewaters managed at the facility, Condition B.4.c.iii explicitly prohibits wastewater and native groundwater containing PFAS for injection. A revised Waste Analysis Plan (WAP) required in Condition I.3 ensures the compliance with Condition B.4.c.iii.

b) *"Attachment G (January12, 2022) Temporary GAC Treatment System Block Flow Diagram" indicates that the effluent proceeds through the existing RO units, to a clean well concentrate tank and discharges to either the UIC wells or to RDA-1. The Attachment G supplemental permit application (for the Temporary Granular Activated Carbon Treatment System) includes a list of chemical constituents (page 16) cited directly from the SCE existing discharge permit without any suggestion to include PFAS limits or even "monitor and report" PFAS. Are PFAS limits, including monitoring time lines and reporting requirements specified in the "Revised Material Analysis Plan" and what protections are in place through the 60 days after the modifications approval which the mine has to provide this Plan?*

Illinois EPA Response to Comment 1(b)

In accordance with Condition B.4.c.iii, wastewater containing PFAS is not allowed to be injected. The purpose of the revised WAP is to prevent the injection of PFAS contaminated wastewater on an on-going basis. The revised WAP must include the collection and analysis of wastewater samples from appropriate locations and at a frequency appropriate to limit the potential for the unknown injection of PFAS. Monitoring requirements, WAP requirements, and Monthly Reporting Requirements are included in Conditions B.5, B.6, and B.8 of the final Permit.

c) *Is the mine PFAS treatment system considered temporary? Will details including a time limit be in the "Revised Material Analysis Plan" and are regular inspections included? What assurances are there that there will be ongoing consideration to the presence of PFAS in RO concentrate to the UIC? How often will the RO concentrate to the UIC be tested for PFAS?*

Illinois EPA Response to Comment 1(c)

The operation of the mine PFAS treatment system is regulated by the BOW and is outside of the scope of the final permit. Please see Comment 1 general response above.

As discussed in the Illinois EPA Response to Comment 1(b) above, the purpose of the revised WAP is to prevent the injection of PFAS contaminated wastewater on an on-going basis, including RO concentrate.

Major changes to the wastewater treatment system, such as removal or modification of the wastewater PFAS treatment unit would be cause for additional sampling of the sources of injectate that may be impacted by the modification of the wastewater treatment system. Also please see response to Comment 1(b) above.

d) *Did Sugar Camp Energy provide sampling of their temporary treatment system since October 2023? Was information provided since then about how the treatment solids are disposed? Were there any concerns in that interim within IEPA regarding noncompliance?*

Illinois EPA Response to Comment 1(d)

Please see general responses to Comment 1 and Comment 1(c) regarding PFAS treatment system and the current compliance status, which may need to be requested through the Office of the Illinois Attorney General.

2. *Is Sugar Camp Mine operating on a 2016 NPDES permit (with a minor modification in 2021 for an address change)? If not, what is the date for the current NPDES or has SCE submitted a renewal application for their NPDES?*

Illinois EPA Response to Comment 2

The National Pollutant Discharge Elimination System (NPDES) permit is administered by the BOW and is not within the scope of this final permit modification. Please also see general response to Comment 1

3. *There were problems with both UIC wells very early in their use at this mine. Is there any provision for SCE supplying an alternative if the UIC wells have future problems? Will the discharge water go through RO treatment if it has to be discharged to an existing mine RDA?*

Illinois EPA Response to Comment 3

These questions are outside of the scope of the modified final permit; however, the Illinois EPA offers the following responses.

SCE indicated in its initial UIC application that short-term disruptions in the operation of the UIC injection wells would not impact operations as excess storage capacity is available in RDA-1.

The management and treatment of wastewater, prior to it reaching the injection wells is regulated by the BOW and is outside of the boundaries of this final permit modification. Please also see general response to Comment 1.

4. *Does the mine report how much of the RO treated excess water is used onsite for mine processes? Is there any point at which IEPA will not continue permitting for this mine? Does the extent of groundwater issues raise any concerns with IEPA regarding what removal of all this groundwater might cause if continued indeterminably? Can the mine be required to assess any area impacts from the*

continued pumping? The 2016 NPDES permit "Antidegradation Assessment for Big Muddy River mixing," has, "An aquifer above the coal seam has caused an influx in water into the Mine. The infiltrating groundwater is from a saline aquifer, with a chloride content of approximately 10,000 to 12,000 mg/L. Presently, the mine is removing 2.6 MGD of this high-chloride groundwater from the active mine. An anticipated maximum rate of removal is 3.5 MGD. It is necessary to remove the water from the mine to protect the health and safety of the workforce, as well as, the overall mining operation."

Illinois EPA Response to Comment 4

The management and treatment of the wastewater prior to injection, concerns regarding the removal of groundwater entering the mine, and the NPDES permit are outside of the scope of the UIC permitting program and this modified final permit. Please also see general response to Comment 1.

5. *Does the IEPA see operation of the injection wells as a viable solution for managing the RO concentrate water, considering the history of SCE previous UIC wells operations? The two wells initially were able to handle the reject stream, however, within weeks, the amount of reject water that was accepted by the second injection well began to decrease so that the total RO concentrate water generated was not able to be disposed in the injection wells. Will the injection wells be able to operate continuously or predictably under the proposed modifications? Is there a limit to how much use can be made of the UIC wells? Will the installation of additional injection wells in the nearby vicinity be injecting into the same limited confining zone? We refer to the report from SCS Aquaterra which demonstrated the limits of underground injection (March 23, 2015, Memorandum from SCS Aquaterra, Sugar Camp Mine #1 – Deep Injection Well Feasibility Analysis).*

Illinois EPA Response to Comment 5

Some of the questions are outside of the scope of the modified final permit; however, the Illinois EPA offers the following responses.

Additional treatment may improve the injectability of the RO concentrate or alternate management of the RO concentrate may be required. SCE is allowed to inject fluids approved in the UIC permit, including fluids that may degrade the capacity of an injection well. The modifications to the APS approved in the final permit is intended to improve the overall operation of the injection wells. However, the modified APS will not change the ability of the wells to accept RO concentrate. Injection of RO concentrate, and other wastewater are permitted in accordance with all of the conditions of the final permit. Condition B.4 specifies the operation requirements of the injection well UIC #1. SCE may install two additional injection wells as

described in Section A of the final permit. These additional wells will inject fluids into the same injection zone as the existing wells.

II. Illinois EPA's Responses to Comments Provided by Sugar Camp Energy, LLC, dated April 30, 2025.

Comment to Paragraph 13. Revised Condition B.4.c (page 3 of Attachment 1):

The first bullet point under paragraph 13. Revised Condition B.4.c, subparagraph (i.) of the draft modified UIC Permit reads as follows:

- *Wastewater from the mine is pumped to the Rock Disposal Area I (RDA-I) Impoundment for storage prior to being pumped to the injection wells.*

Sugar Camp notes that subparagraph (i) should be revised to clarify that wastewater from the mine is pumped into both Refuse Disposal Area 1 (RDA-1) and Refuse Disposal Area 2 (RDA-2). The mine utilizes both RDA-1 and RDA-2 impoundments for storage of wastewater. Sugar Camp proposes that subparagraph (i.) be revised as set forth below:

- *Wastewater from the mine is pumped to the ~~Rock~~ Refuse Disposal Area 1 (RDA- 1) and Refuse Disposal Area 2 (RDA-2) Impoundments for storage prior to being pumped to the injection wells.*

Illinois EPA Response Comment on Condition B.4(c)(i)

SCE's initial March 2014 UIC permit application, Revised May 2014, Form 4c, page 5 identifies the second source of fluid to be injected as:

> "the second is from the mine to the rock disposal area (RDA) Impoundment to the injection wells and surface pumping facility at each well;"

The text uses a singular rather than plural term for the RDA. The RDA is identified as having a total capacity of 600 million gallons of water.

The Illinois EPA is not aware of the submission of a UIC permit modification request to add Refuse Disposal Area 2 (RDF-2) as a source of water to be injected under the current UIC permit for SCE. If SCE wishes to dispose of wastewater from RDA-2, SCE must submit a UIC permit modification request to add RDA-2 as a source of wastewater to be injected. This modification must include an appropriate characterize of the wastewater in RDA-2. If the permit modification to add RDA-2 as a source of injectate meets the requirements of 35 IAG 704.264(e), the modification request may be processed as a minor modification.

As requested, the previous reference to the RDA-1 will be revised from "Rock Disposal Area 1" to "Refuse Disposal Area 1".

Revised Condition B.4(c)(i)

i. This wastewater is managed in one or more the following scenarios prior to injection.

- Wastewater from the mine is pumped to the ~~Rock~~ Refuse Disposal Area 1 (RDA-1) Impoundment for storage prior to being pumped to the injection wells.

Comment to Paragraph 14. Revised Condition B.4.d (page 4 of Attachment 1):

Revised Condition B.4.d to the draft modified UIC Permit reads, in part, that "pressure within the annular space between the injection tubing and the long string casing (the "annulus") shall be maintained at 2,750 to 3,500 psi. at all times." Sugar Camp notes that this paragraph should be revised to clarify that the annulus pressure need not be maintained at 2,750 to 3,500 psi. when injection is not occurring. Sugar Camp proposes that Revised Condition B.4.d be modified as follows:

Annulus Protection. The pressure within the annular space between the injection tubing and the long string casing (the "annulus") shall be maintained at 2,750 to 3,500 psi. at all times while injecting. The annulus pressure will be maintained at no less than a 200-psi differential in excess of tubing pressure whenever not injecting.

Illinois EPA Response to Comment on Condition B.4(d)

Condition B.4(d) was developed based on the information provided in Sugar Camp's permit modification applications, Log No. UIC-212-M-1 and UIC-212-M-2. The operation of the annulus below 2,750 psi is not supported by the description of the operation of the Annulus Protection System (APS) or the approved contingency plan (revised January 24, 2024, copy included as Attachment G of the final permit) provide by SCE in these modifications.

SCE's August 2, 2017, permit modification request (Log No. UIC-212-M-1), page 3, under the heading Proposed Modification to Annulus Protection System, includes the following language:

To this end, ***the annulus is proposed to be maintained at a range of 2,750 and 3,250 psi. This proposed operating range will ensure a minimum 200 psi pressure differential*** *between the maximum injection pressure of 2,525 psi* ***and the minimum annulus pressure of 2,750 psi.***

- and -

The annulus pressure will be maintained through pressure control settings programmed for the peristaltic pump, described in the following:

- ***The pump will engage a positive displacement action as the annulus pressure decreases to or below 2,750 psi,*** *delivering annulus fluid into the annular space and thereby increasing the pressure.*

- ***As the annulus pressure increases to or above 3,500 psi****, a pressure relief valve will release annulus fluid from the annular space, decreasing the pressure and will close at 3,250 psi to maintain the specified pressure range in the annulus.*

Nearly identical language is included in the June 2, 2023, Modified Annulus Protection Skid Construction Report in the sixth paragraph of the page 1 of the report, states,

> ***As the annulus pressure increases to 3,500 psi****, a pressure relief valve will release annulus fluid from the annular space, decreasing the pressure and will close at* ***3,250 psi to maintain the specified pressure range in the annulus.***

SCE's Contingency Plan, revised January 22, 2024, (copy included as Attachment G of the draft permit and also the final permit) under the heading, Alarm System Description, states,

> *An alarm will be activated when any of the following conditions are recognized:*
>
> *3. Annulus Pressure Low-Level Warning* ***when annulus pressure is less than 2,750 psi***

As described in the contingency plan when annulus pressure is less than 2,750 psi an alarm for "Annulus Pressure Low-Level Warning" will sound. No provisions are provided in the contingency plan to operate the annulus at a pressure below 2,750 psi.

The proposal to maintain the annulus at no less than a 200-psi differential in excess of tubing pressure when not injecting, is not acceptable as this represents a change to the operation of the injection wells and also requires changes to the injection well contingency plan as outlined above. To modify the operation of the injection wells, SCE must submit a permit modification request to alter the operation of the APS when injection is not occurring. This permit modification request would also need to include a modified contingency plan to account for the change in operation of the APS.

Comment to Section I. Special Conditions, paragraphs 2a. and 4.a.i (pages 10-11 of Attachment 1):

> *Under Section I. Special Conditions, paragraphs 2 and 4, Sugar Camp is required to demonstrate that PFAS are not present in the wastewater to be injected into the wells UIC#l and UIC#2 by submitting previously collected analytical data and/or obtaining additional analytical data. The draft modified*

UIC permit mandates that sampling be collected and analyzed in accordance with USEPA Method 1633.

Sugar Camp notes that the current approved Amended Work Plan under the Agreed Interim Order between it and the State of Illinois requires sampling to be collected and analyzed in accordance with USEPA Method 1633. However, the original approved Work Plan under the Agreed Interim Order called for the use of USEPA Method 533. Accordingly, some historical sampling under the Agreed Interim Order was collected and analyzed under USEPA Method 533. To clarify that Sugar Camp is permitted to submit and rely on previously collected analytical data obtained in accordance with the Agreed Interim Order, Sugar Camp proposes the following modifications to paragraph 2a. and paragraph 4.a.i:

2a. Representative samples collected from all sources of PFAS contaminated wastewater to be injected prior to the commencement of injection. The fluid samples must be collected and analyzed for PFAS in accordance with SW-846 Method 1633 of the U.S. EPA's Test Methods for Evaluating Solid Wastes, Physical /Chemical Methods, Third Edition (SW-846) and finalized updates or in accordance with the methodology set forth in an approved work plan at the time of the sampling event under the Agreed Interim Order between the State of Illinois and Sugar Camp Energy LLC.

4.a.i. Representative samples collected from all sources of PFAS contaminated wastewater to be injected. The fluid samples must be collected and analyzed for PFAS in accordance with SW-846 Method 1633 of the U.S. EPA's Test Methods for Evaluating Solid Wastes, Physical /Chemical Methods, Third Edition (SW-846) and finalized updates or in accordance with the methodology set forth in an approved work plan at the time of the sampling event under the Agreed Interim Order between the State of Illinois and Sugar Camp Energy LLC. This may be accomplished by submitting previously collected analytical data and/or obtaining additional analytical data.

Illinois EPA Response to Comment on Condition I.2(a) and Condition I.4(a)(i)

Data regarding the presence of PFAS in wastewaters at the facility has not been provided to the Illinois EPA BOL for evaluation to determine which sources of wastewater are contaminated with PFAS. Therefore, the request to modify Condition 2(a) to requires collection of representative samples from "PFAS contaminated wastewater" is not acceptable at this time. However, if any previously obtained analytical data is submitted as part of a demonstration that sources of wastewater do not contain PFAS, such demonstration will be evaluated to determine if it is adequate to determine that a source of wastewater does not contain PFAS.

The language contained in Condition I.2(a) and Condition I.4(a)(i) of the permit has been modified as follows to clarify the use of previously obtained analytical data.

Revised Condition I.2(a)

a. Representative samples must be collected from all sources of wastewater to be injected prior to the commencement of injection. The fluid samples, acquired after the effective date of this permit, must be collected and analyzed for PFAS in accordance with SW-846 Method 1633 of the U.S.EPA's Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, Third Edition (SW-846) and finalized updates. Previously collected analytical data submitted for this demonstration not analyzed using SW-846 Method 1633 will be evaluated to determine if the data is adequate to demonstrate that PFAS are not present in a given wastewater.

Revised Condition I.4(a)(i)

i. Representative samples must be collected from all sources of PFAS contaminated wastewater to be injected. The fluid samples, acquired after the effective date of this permit, must be collected and analyzed for PFAS in accordance with SW-846 Method 1633 of the U.S.EPA's Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, Third Edition (SW-846) and finalized updates. This may be accomplished by submitting previously collected analytical data and/or obtaining additional analytical data. Previously collected analytical data submitted for this demonstration not analyzed using SW-846 Method 1633 will be evaluated to determine if the data is adequate to demonstrate that PFAS are not present in a given wastewater.

Comment to Attachment F: Mechanical Integrity Test During Service Life of Well (pages 57-58 of 63)

Based on the results of a 2017 mechanical stress evaluation conducted by Liberty Engineering, LLC, Sugar Camp has concern that the specified procedure in Attachment F for internal mechanical integrity testing when the well is "shut-in" could unnecessarily burden and compromise the injection tubing. Applying maximum annulus pressure of 3,500 psi. to the injection tubing in a shut-in condition risks creating a differential annulus pressure that could potentially collapse the injection tubing, which would permanently compromise the well and potentially create environmental hazards. In 2017, Liberty Engineering conducted a mechanical stress evaluation of the well components associated with the annulus monitoring system. A summary of that evaluation was provided to IEPA with the Permit Modification Request submitted December 7, 2022, and Addendum 1 to the Stress Evaluation Summary provided by Liberty Engineering was submitted as supplemental information to the Modification request on June 2, 2023. Liberty

Engineering calculated the estimated maximum allowable differential annulus pressure to be 3,210 psi. Thus, testing the system at the maximum annulus pressure of 3,500 psi. while in a "shut-in" condition, when the injection tubing has only nominal pressure, could risk reaching or exceeding the maximum allowable differential annulus pressure of 3,210 psi.

To minimize this risk, Sugar Camp proposes adopting a two-step testing procedure that involves testing the system in both the "shut-in" condition and during injection. For testing in the shut-in condition, Sugar Camp proposes implementing the requirements of the USEPA's standard annular pressure test. The USEPA's testing requirements specify that the annulus pressure for Class I wells should be tested at the greater of 300 psig or 100 psi above the maximum permitted injection pressure. The maximum allowable injection pressure under the draft modified UIC Permit is 2,525 psi. Thus, under the USEPA's standard annular pressure test procedures, the tubing-to-casing annulus should be pressurized to 2,625 psi. during internal mechanical integrity testing in the shut-in condition. After the testing is completed in the shut-in condition, Sugar Camp proposes testing the system during injection. For the injection phase of the test, Sugar Camp would inject up to the maximum allowable injection pressure of 2,525 psi., then run the annulus pressure up to the maximum annulus pressure of 3,500 psi. This would allow testing the system up to the maximum annulus pressure of 3,500 psi while minimizing the risk of creating a large differential annulus pressure that could collapse the injection tubing.

Sugar Camp proposes modifying the procedure in Attachment F as follows:
Procedure:

1. *The well will be shut-in for at least 24-hours prior to the internal MIT (annular pressure test) so the well will be in thermal equilibrium before commencing the test. The tubing-to-casing annulus will be pressurized by accepted methods of the Illinois EPA specified to approximately <u>2,625</u> psi. to demonstrate annulus hydrostatic pressure exceeds the tubing hydrostatic pressure.*

[Paragraphs 2-10 remain unchanged.]

11. *<u>After a satisfactory test is obtained in the shut-in condition, a second phase of testing will occur to test the well during injection conditions. During this phase of internal MIT, personnel will increase the annulus pressure beyond the 2,625 psi applied during the shut-in condition up to a maximum of approximately 3,500 psi while injection commences. The annulus pressure will be maintained at no less than a 200- psi differential in excess of tubing pressure. This process</u>*

will demonstrate annulus hydrostatic pressure exceeds the maximum tubing hydrostatic pressure.

12. *The pressure test shall be for one (1) hour.*

13. *The pressure loss or gain shall not exceed 3% of the initial test pressure. A pressure variance greater than the allowable may indicate either a lack of integrity that would require repair or may indicate that the well has not reached thermal equilibrium.*

14. *The liquid in the annulus will be returned from the valve, either captured in a container or the seal pot system. The liquid returns will be observed and measured to ensure that the liquid returns recovered is proportional to the volume of the annulus and the amount of pressurization. The liquid return test will serve as an indication as to whether the full length of the annulus was free of blockage and properly tested. Alternatively, the amount of liquid needed to increase the annulus pressure may be measured.*

15. *If a satisfactory test is not obtained, the well will be placed out of service and remain so until corrective action has been taken and a satisfactory test performed.*

16. *The remedial options for well repair in the external MIT procedures details possible procedures that would be followed should the well fail the MIT.*

17. *Results of the test will be reported on the USEPA STANDARD ANNULAR TEST FORM and submitted to IEPA within 30 days of testing.*

If the well should not pass either portion to the two part Mechanical Integrity Test, the well will remain shut in until remedial action has been completed and an acceptable MIT has been taken.

Illinois EPA Response to Comments on Attachment F Regarding Modification of Mechanical Integrity Tests

The proposal to modify the mechanical integrity test found in Attachment F of the permit cannot be made in response to SCE's comments on a draft permit as such information provided in SCE's comments were not included in the subject permit modification request application. To make the proposed modifications SCE must submit a permit modification request application for review and approval by the Illinois EPA.

SCE's proposal identified below is not acceptable due to the non-typical operation of the APS as explained below.

Sugar Camp proposes implementing the requirements of the USEPA's standard annular pressure test. The USEPA's testing requirements specify that the annulus pressure for Class I wells should be tested at the greater of 300 psig or 100 psi above the maximum permitted injection pressure.

USEPA Region 5's guidance[1] for the Standard Annulus Pressure Test (SAPT), states,

" . . . the basis for the selection of the SAPT as the primary means to determine if a well's casing, tubing, packer, and wellhead (the annulus system) are liquid tight."

This is consistent with the requirements found in 35 IAC 730.108(a) which states,

a. The owner or operator must demonstrate mechanical integrity when required by other Sections. An injection well has mechanical integrity if both of the following conditions are fulfilled:

1) There is no significant leak in the casing, tubing, or packer; and

The Region 5 SAPT guidance documents statement, "The annuluses of Class I wells should be pressurized to the greater of 300 psig or a pressure which exceeds the maximum allowable injection pressure by 100 psi," is applicable to typical Class I injection wells in Region 5. Class I non-hazardous waste UIC wells typically operate with an annulus pressure below the injection pressure and generally less than 300 psi. Typical Class I wells injecting hazardous waste must maintain an annulus pressure that exceeds the operating injection pressure, generally by 100 psi. SCE's injection wells operating annulus pressures are not typical, the annulus pressure varies with injection pressure with a maximum annulus pressure of 3,500 psi which is 975 psi greater than the maximum injection pressure of 2,525 psi.

To determine there is no significant leak in the casing, tubing, or packer the Annulus Pressure Test (APT) must be conducted at the maximum pressure the annulus (casing, tubing, packer, and wellhead) is subject to during operation. The maximum allowable annulus pressure is 3,500 psi. Therefore, it is not acceptable to conduct the APT at a pressure below 3,500 psi.

SCE's proposal to conduct part of the APT while injecting at maximum injection pressure and increasing the annulus pressure to 3,500 psi, is generally not acceptable as the process of injecting fluid imparts temperature changes to the annulus fluid. This

[1] Determination of the Mechanical Integrity of Injection Wells, USEPA, Region 5 -- Underground Injection Control (UIC) Branch, Regional Guidance #5, Revised February 2008

change in temperature will cause the pressure in the annulus to change causing the results of the test to be unreliable.

Illinois EPA Response to Comments on Attachment F Regarding Maximum Annulus Pressure

Based on SCE's comments concerning the potential impact on the injection tubing when conducting the Internal Mechanical Integrity Test, the maximum allowable annulus pressure may need to be reduced. Please also see the Illinois EPA Response to Comment on Condition B.4(d) above.

During the review of the mechanical stress evaluation conducted by Liberty Engineering, LLC, it was noted that the stress evaluation did not include an evaluation of the equivalent external tubing pressure at the packer with the annulus pressure at the maximum permitted value of 3,500 psi and with the well shut in, i.e. zero injection pressure. Such an evaluation would be helpful in establishing annulus pressure operating limits.
Due to the new information identified by the Permittee, prior to resuming injection the Permittee must submit a permit modification request application to address required and/or desired changes to the operation of each injection well related to annulus pressure levels.

Condition I.5 has been added to the permit to address this comment.

5. Permit Modification Request - Annulus Pressure. Prior to resuming injection, the Permittee must submit a permit modification request application to address required and/or desired changes to the operation of each injection well related to annulus pressure levels. These issues were identified in the Permittee's comments on the draft permit for Log No. UIC-212-M-2, specifically:

    - Comment to Paragraph 14. Revised Condition B.4.d (page 4 of Attachment 1); and
    - Comment to Attachment F: Mechanical Integrity Test During Service Life of Well (pages 57-58 of 63)

    The permit modification request should include, as necessary, a description detailing the operation of the injection wells, a revised contingency plan, a revised Mechanical Integrity Test During Service Life of Well, and proposed changes to the language of the permit. The application should address various modes of operation, including when injection is occurring, injection is not occurring, during the performance of required mechanical integrity testing, etc.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

2520 WEST ILES AVENUE, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397

JB PRITZKER, GOVERNOR JAMES JENNINGS, ACTING DIRECTOR

Non-Hazardous Class I
Underground Injection Control Area Permit

Operator: Sugar Camp Energy, LLC
Attention: Mr. Anthony Webb
11351 North Thompsonville Road
Macedonia, Illinois 63860-1175

Owner: Sugar Camp Energy, LLC
Attention: Mr. Anthony Webb
11351 North Thompsonville Road
Macedonia, Illinois 63860-1175

Re: 0554645002 – Franklin County
Sugar Camp Mine
Permit No. UIC-016-SCM
Log No. UIC-212-M-2
Well Nos. UIC #1 and UIC #2
UIC Administrative Record File

Issue Date: AUG 15 2025
Effective Date: SEP 19 2025
Expiration Date: May 20, 2024

A modified Class I Underground Injection Control (UIC) Area Permit is hereby granted, pursuant to Title 35 Illinois Administrative Code (35 IAC) Parts 702, 704, 705, and 730, and the Illinois Environmental Protection Act to the above-referenced operator and owner for two (2) non-hazardous waste Class I Underground Injection Control wells, known as well UIC#1 and well UIC#2.This Class 1 UIC Area Permit also allows for future construction of two (2) additional non-hazardous waste Class I Underground Injection Control wells at the facility, located at 11351 N. Thompsonville Road, Macedonia, Illinois.

This permit consists of the conditions contained herein (including those in any attachments and appendices) and applicable regulations contained in the Illinois Environmental Protection Act and Title 35 IAC Parts 702, 704, 705, and 730. The Environmental Protection Act 415 ILCS 5/1 et seq. grants the Illinois Environmental Protection Agency (Illinois EPA) the authority to impose conditions on permits which it issues.

This modified permit is issued, based on the information submitted in the approved permit application identified in Attachment A of this permit and any subsequent amendments (hereafter referred to as the approved permit application). Any inaccuracies found in this information may be grounds for the termination or modification of this permit (see 35 IAC 702.187 and 702.186) and potential enforcement action.

Joshua L. Rhoades, P.G.
Permit Section Manager
Bureau of Land

JLR:KL:0554645002-UIC-UIC212M2-FINAL.docx

2125 S. First Street, Champaign, IL 61820 (217) 278-5800
115 S. LaSalle Street, Suite 2203, Chicago, IL 60603
1101 Eastport Plaza Dr., Suite 100, Collinsville, IL 62234 (618) 346-5120
9511 Harrison Street, Des Plaines, IL 60016 (847) 294-4000
595 S. State Street, Elgin, IL 60123 (847) 608-3131
2309 W. Main Street, Suite 116, Marion, IL 62959 (618) 993-7200
412 SW Washington Street, Suite D, Peoria, IL 61602 (309) 671-3022
4302 N. Main Street, Rockford, IL 61103 (815) 987-7760

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H. DUTIES AND REQUIREMENTS

I. SPECIAL CONDITIONS

A. AUTHORIZATION FOR CONSTRUCTION

1. Completed Wells. The Permittee has constructed two (2) Class I non-hazardous waste injection wells, identified as well UIC#1 and well UIC#2, in accordance with Permit No. UIC-016-SCM, Log No. UIC-212-TE, issued on May 20, 2014, and subsequent approved permit modifications identified in Attachment A. The purpose of the injection wells is to inject fluids and will be used to dispose of groundwater collected from within Sugar Camp Mine No. 1. These waters contain high levels of chlorides at levels up to 12,700 mg/L and total dissolved solids of up to 22,538 mg/L.

2. Authorization for Construction. Construction of additional injection wells UIC#3 and UIC#4 may not proceed until the following items are submitted and approved by the Illinois EPA:

    a. A revised Step Rate Test procedure or propose alternate methods to obtain a more accurate assessment of the formation parting pressure of the upper injection zone.

    b. The material safety data sheets (MSDS) for the biocide and other conditioners added at the well site prior to injection. A brief description of their purpose of each component should also be included.

    Once the final construction procedures described above are approved the wells must be constructed in accordance with the conditions of this permit, the approved permit application identified in Attachment A, the Illinois Environmental Protection Act and Title 35 Illinois Administrative Code (35 IAC) Parts 702, 704, 705 and 730. In the event of a conflict between the conditions of this permit and the approved permit application, the conditions/requirements of the permit shall supersede the application.

3. Application and Plans. Construction, and if later authorized operation, of wells UIC#3 and UIC#4 and associated monitoring systems shall be conducted in accordance with the terms and conditions of this permit, the approved permit application, and subsequent approved modifications. The approved permit application is identified in Attachment A of this permit.

4. Well Locations (35 IAC 704.162(b)). Area Permit Boundary is defined as the area in which the approved injection wells may be constructed. This area is identified in Form 4, Figure 4-2 of the approved permit application. A portion of this figure is included in Attachment C of this permit. The coordinates of the approximate center of this area are:

    Latitude: 38.02864° Longitude: -88.75412°

5. Notification of Construction (35 IAC 704.162). The Permittee must notify the Illinois EPA in writing at least 30 days prior to the date of the planned physical construction of well UIC#3 or UIC#4. The written notification must state that the injection well will be constructed in accordance with the requirements of the Permittee's UIC Area Permit and

include a map that includes the approximate location of the injection well to be constructed, any existing injection wells, and the Area Permit Boundaries. A completed Illinois EPA General Application for Permit (Form LPC-PA1) form must accompany the notification. This form can be found within the Illinois EPA's website.

6. Injection and Confining Layers. The wastewater will be injected into an injection zone that is located from a depth of approximately 7,500 to 12,900 feet below ground surface (ft-bgs) at the facility. The injection zone is comprised of the geologic formations designated as the St. Peter Sandstone, the Knox Group and the Mt. Simon Sandstone. The water in the injection zone has been found to be highly mineralized with concentrations of total dissolved solids greater than 150,000 mg/L.

   The confining layer located above the injection zone is present at a depth of approximately 6,400 to 6,600 ft-bgs and is comprised of the Maquoketa Shale. This formation has a thickness of approximately 160 feet in the vicinity of the facility. The Maquoketa Shale is a formation with low permeability and uniform thickness making it an effective upper confining unit that will limit the upward movement of any injected wastewater.

7. Injection Well Construction Details (35 IAC 730.112(b)). The construction details for the to be constructed wells, identified as well UIC#3 and well UIC#4, are provided in Attachment B which contains:

   - Injection well schematics;
   - Details of the casing strings used in the construction of each well;
   - Specification for the cementing of each of the casing strings;
   - Tubing and packer specifications;
   - Injection well pumps; and
   - Annulus Protection System Details

8. Well Completion Report. The Permittee shall submit a Well Completion Report (Attachment E) once a well and all ancillary equipment have been constructed. The report must also include the following:

   a. A description of construction of the well, including driller's log, materials used (i.e., tubing and casing tallies), cement (and other) volumes, appropriate logs and other tests conducted during the drilling and construction.

   b. Test and Logs during Construction. At a minimum, during drilling and construction of wells UIC#3 and UIC#4, all tests and geophysical logs listed

under 35 IAC 730.112(d) shall be performed. Additional tests and geophysical logs identified in the approved permit application or required as a condition elsewhere in this permit shall be performed. The results from logs and tests including appropriate evaluations and interpretations of the results shall be included in the Well Completion Report. A descriptive report interpreting the results of the logs and tests that has been prepared by a knowledgeable log analyst shall be included. Reports prepared by log analysts must be signed by the analyst and include his/her phone number.

c. A revised Contingency Plan shall be submitted, if necessary, due to any change made during installation of an injection well. The Well Completion Report for wells UIC#3 and UIC#4 shall include a revised contingency plan based on the as-built injection well system. The revised plan must include, at a minimum, the following:

   i. A description of the alarm system, including the values for tubing pressure, flow rate and annulus pressure that will trigger alarms;

   ii. The action personnel will take in response to alarm conditions;

   iii. A description of how operators and other appropriate personnel will be notified of system alarms;

   iv. A description of the automatic shutdown of the injection pumps, including the annulus pressure, injection pressure and flow rate that will trigger pumps shut down;

   v. Procedures to be followed in the event of injection well or equipment failure; and

   vi. A list of the persons designated to oversee well operations in the event of an emergency. Phone numbers and qualifications should be included.

9. Reporting During Well Construction. During drilling and construction of an injection well, a weekly report shall be submitted to the Illinois EPA. The reports should describe the construction completed during the past week and the construction to be completed the following week at the well site. This report should include a list of all tests and logs performed or to be performed on the well. In addition, a daily update shall be submitted that identifies activities that will be occurring and changes to the scheduled activities. These reports should be submitted electronically to: Keegan.MacDonna@illinois.gov, and Joe.Stitely@illinois.gov. These reports are exempt from the signatory requirement in Condition H.11.

10. Change During Construction (35 IAC 704.183). Changes in construction plans during construction must be approved by the Illinois EPA prior to being physically incorporated into construction of the well. In accordance with 35 IAC 704.264, these changes may be approved as minor modifications.

11. Authorization for Injection. The Permittee shall not commence operation of well UIC#3 or UIC#4 until receiving writing authorization from the Illinois EPA. Authorization to begin operation of an injection well shall not be granted until:

    a. The Permittee has submitted a Well Completion Report, which includes a permit modification request for authorization to operate the injection well, and other information as required demonstrating that the well has been constructed in accordance with the approved permit.

    b. The Illinois EPA Field Operations Section has conducted an inspection of the newly constructed injection well systems to verify the completion of the injection well.

    c. The Illinois EPA has conducted a review of the Well Completion Report and other information as required by this permit and has determined that the report is complete (i.e., all of the required testing, logging, evaluations and inspections have been conducted in accordance with the approved permit).

    d. The information provided demonstrates that the construction and operation of the injection well meets the requirements of the Illinois Environmental Protection Act and 35 IAC Parts 702, 704, 705 and 730.

    e. The Permittee has established financial resources to close, plug, and abandon the underground injection well(s) at this facility, as required in Condition H.16 of this permit and pursuant to 35 IAC 704.189. The amount of financial assurance to be provided is $593,838.37 per well in 2024 dollars.

B. OPERATING, MONITORING AND REPORTING REQUIREMENTS

1. Authorized Injection.

    a. Well UIC#1. Injection of wastewater into well UIC#1 for the purpose of disposal is authorized in accordance with the conditions of this permit.

    The Permittee has constructed a Class I non-hazardous waste injection well, identified as well UIC#1, in accordance with Permit No. UIC-016-SCM issued on May 20, 2014. The initial operation of well UIC#1 was approved on August 28, 2014 (Permit No. UIC-016-SCM, Log No. UIC-212-TE-M2).

Injection well UIC#1 is located in the Southwest 1/4 of the Southwest 1/4 of the Northeast 1/4 corner of Section 4, Township 6 South, Range 4 East, Third Principal Meridian, Franklin County, Illinois.

Coordinate location: Latitude: 38° 01' 52.87" Longitude: 88° 46' 06.68"

b. Well UIC#2. Injection of wastewater for the purpose of disposal using well UIC#2 is prohibited at this time. The Permittee shall not resume the injection of wastewater at well UIC#2 prior to receiving written authorization from the Illinois EPA. Authorization to resume injection at well UIC#2 will not be issued until the Permittee demonstrates that well UIC#2 has mechanical integrity as required by Condition H.26 and the requirements of Conditions B.10 and B.11 have been satisfied.

Injection wells that are not actively injecting fluids or that have ceased injection of fluids for extended periods must continue to comply with the conditions of this permit, including maintenance of annulus pressure, mechanical integrity testing, continuous monitoring, and monthly reporting.

The Permittee has constructed a Class I non-hazardous waste injection well, identified as well UIC#2, in accordance with Permit No. UIC-016-SCM issued on May 20, 2014. The initial operation of well UIC#2 was approved on January 28, 2015 (Permit No. UIC-016-SCM, Log No. UIC-212-TE-M5).

Injection well UIC #2 is located in the Southeast 1/4 of the Southwest 1/4 of the Northwest 1/4 corner of Section 3, Township 6 South, Range 4 East, Third Principal Meridian, Franklin County, Illinois.

Coordinate location: Latitude: 38° 01' 25.53" Longitude: 88° 45' 25.58"

2. Application and Plans. The applications and plans associated with the construction of injection wells UIC#1 and UIC#2, and associated monitoring systems, are contained within the approved permit application and subsequent approved modifications. The approved permit application is identified in Attachment A of this permit.

3. Injection Well Construction Details (35 IAC 730.112(b)). The well construction details for well UIC#1 and well UIC#2 are provided in Attachment B which contains:

- Injection well schematics;
- Details of the casing strings used in the construction of each well;
- Specification for the cementing of each of the casing strings;
- Tubing and packer specifications;

- Injection well pumps; and
- Annulus Protection System Details

4. Operating Requirements (35 IAC 730.113(a), 704.185).

   a. Maximum injection pressure. The Permittee must ensure that the injection pressure at the wellhead of well UIC#1 and well UIC#2 does not exceed 2,525 pounds per square inch (psi).

   b. Maximum injection rate. The maximum injection rate for each well is 1,500,000 gallons per day.

   c. Injection Fluid. The wastewaters injected into well UIC#1 and well UIC#2 shall be limited to native groundwater that migrates into the Sugar Camp No. 1 Mine and any reverse osmosis (RO) concentrate generated by the treatment of this groundwater. The source of this native groundwater is the Trivoli Sandstone Formation. The groundwater in this formation has been found to contain chlorides at levels up to 12,700 mg/L and total dissolved solids of 22,538 mg/L, making it unusable as a source of drinking water.

      i. This wastewater is managed in one or more the following scenarios prior to injection.

         - Wastewater from the mine is pumped to the Refuse Disposal Area 1 (RDA-1) Impoundment for storage prior to being pumped to the injection wells.
         - Wastewater from the mine is pumped to a RO treatment system. This system produces a RO concentrate for injection.
         - Wastewater from the mine is pumped directly into the injection wells for disposal.

      ii. The specific gravity of the injection fluid shall not exceed 1.05.

      iii. Wastewater and native groundwater containing per- and polyfluoroalkyl substances (PFAS) are not approved for injection into well UIC#1 and well UIC#2.

   d. Annulus Protection. The pressure within the annular space between the injection tubing and the long string casing (the "annulus") shall be maintained at 2,750 to 3,500 psi. at all times. The following procedures shall be used to limit the potential for any unpermitted fluid movement into or out of the annulus:

i. The annulus between the injection tubing and the long string casing shall be filled with a packer fluid consisting of a mix of fresh water and NALCO EC1385A. NALCO EC1385A contains both corrosion inhibitor and biocide. The fresh water/packer fluid ratio shall be mixed in accordance with the manufacturer's recommendation resulting in a density equal to water.

The specification sheet for NALCO EC1385A packer fluid is located in Appendix IX-A of the October 8, 2015 Well Completion Report for well UIC#2. The narrative on page 4h - 16, incorrectly references Appendix XI-A.

ii. The annulus fluid storage tank of the annulus protection system shall be filled with a mineral oil in order to assure proper operation of the annulus protection system during freezing conditions.

iii. Any changes to the composition of annular fluid shall be reported in the next monthly report submitted to the Permit Section, Division of Land Pollution Control.

iv. The annulus pressure shall be monitored continuously.

e. Annulus injection prohibition. Injection between the outer most well casing protecting the underground sources of drinking water and the well bore is prohibited.

f. Prohibition of excessive pressure. The Permittee shall not use excessive injection pressure or volumes and cause:

i. new fractures or propagation of existing fractures in the injection zone (except during stimulation);

ii. initiation of fractures in the confining zone;

iii. migration of injected fluids into any underground source of drinking water;

iv. displacement of formation fluid into any underground source of drinking water; or

v. non-compliance with 35 IAC Part 730 operating requirements.

g. Injection Zone Stimulation. The Permittee must notify the Illinois EPA at least thirty (30) days before stimulating the injection zone. The injection zone

stimulation notification shall include the procedures that will be used for the controlled stimulation.

5. Monitoring Requirements (35 IAC 730.113(b)).

   a. Sampling. Grab samples of the injection fluid shall be collected in accordance with Condition B.6.

   b. Continuous Recording Devices. Continuous recording devices, or their equivalents shall be installed and used to monitor the injection pressure, flow rate, volume, temperature, pH and annulus pressure. Information from the following continuous recording devices and manually read gauges/devices shall be utilized to monitor the operation of each injection well:

      i. Injection pressure gauges - Yokogawa EJA530E-JDS4N-012EL/FU1/D1 (or equivalent) gauge pressure transmitter. Reotemp, Model PT45P1A2P32-D-T-EC manual pressure gauge;

      ii. Casing-tubing annulus pressure gauges – Yokogawa EJA530E-JDS4N-012EL/FU1/D1 (or equivalent) absolute pressure transmitter;

      iii. Injection fluid flow meters - two (2) ADM 5107 Single Channel Water Flowmeters each equipped with two (2) ultrasonic flow transducers Models M5L7 to monitor injection flow rate and volume,

      iv. Injection volume – Volume is measured and recorded with equipment identified in item iii above;

      v. pH – (2 locations) Yokogawa Models FU24- 10-TI -NPT Universal pH/Temperature Sensors with Yokogawa pH/Temperature Analyzers, Models PH45OGA-U/UMISCT;

      vi. Temperature – Temperature is monitored with pH/Temperature units identified in item v above;

      vii. Annulus fluid storage tank fluid level - Dwyer 628-01-GH-P1-E1-S1. A sight glass level is present on the storage tank for visual monitoring. The Permittee shall record the volume of fluid added or removed from the annulus storage tank, as described in the approved permit application; and

      viii. Annulus fluid flowmeter - Flexim Fluxus F721 ultrasonic flowmeter.

   c. Range of Recording Device and Gauges. All recording devices and gauges shall be capable of recording or reporting values that exceed maximum permitted operating range by a minimum of 20%.

6. Waste Analysis Plan (35 IAC 704.187). The Permittee shall follow the written Waste Sampling and Analysis Plan, Form 4e, Permit Item I of the approved permit application, as modified by this permit. A copy of the plan shall be kept at the facility. The Permittee shall collect and analyze the injection fluid in a manner consistent with the US EPA publications SW-846, and "Handbook for Sampling and Sample Preservation of Water and Wastewater," U.S. Environmental Protection Agency EPA-600/4-82-029.

7. Ambient Monitoring (35 IAC 730.113(d)). The Permittee shall conduct an Ambient Pressure Monitoring Test annually in accordance with the procedures outlined in Form 4e, Permit Item III of the approved permit application.

8. Monthly Reporting Requirements.

    a. Report submittal date. Monthly monitoring reports are due by the 15th day of the month immediately following a reporting period. A reporting period is defined as a calendar month.

    b. Contents of monthly reports. The monthly reports shall include:

        i. Daily value for total volume injected, net change in well annulus fluid volume, and net change in volume in annulus fluid storage tank (V001) Daily maximum, and minimum values for annulus pressure, injection pressure, and flow rate;

        ii. Weekly averages for annulus pressures, injection pressure and flow rate;

        iii. The number of well startups during each day;

        iv. Total hours of injection each day;

        v. Total volume injected to date;

        vi. Monthly summary of:

            a) maximum, minimum, and average values for annulus pressures, injection pressure, and flow rate;

            b) total gallons of fluid injected;

            c) total number of well startups; and

            d) net change in well annulus fluid volume and net change in volume in annulus fluid storage tank (V001).

        vii. A copy of the operating charts for the month for:

a) annulus pressure system including:

1. Annulus pressure;

2. Annulus meter flow rates into and out of well annulus; and

3. Annulus meter total flow into and out of well annulus.

b) injection pressure; and

c) injection flow rate.

viii. Results of chemical analyses required by this permit.

c. Other information in monthly reports. The results of any of the following tests or work shall be reported with the second monthly report after completion of the test or work:

i. Periodic tests of mechanical integrity.

ii. Copies of any logs run on the well, submitted with a log analysis.

iii. Any other test of the injection well conducted by the Permittee.

iv. Any well work over.

v. Maintenance performed on monitoring devices or well components.

vi. Changes of gauges, pipes, and other well components and monitoring devices.

vii. Changes in the type of annulus fluid.

viii. Addition or removal of annulus fluid.

ix. Summary of annular fluid level fluctuations.

x. Ambient pressure monitoring results.

d. Illegible reports will be returned to the Permittee and deemed not filed. All graphs and charts must be labeled appropriately.

Charts and other information generated from digital/computer data shall provide an accurate representation of the operating condition of the well. The Illinois EPA reserves the right to require submittal of tabular paper copies of data, changes in the format and resolution of representative graph(s), and the submittal

of digital data to Field Operations staff and Permit Section staff for review. The electronic data submitted must be in a usable format, such as tab or comma delimited CSV format or Microsoft Excel format.

e. Report submittal addresses. The cover letter for the monthly report will indicate a copy of the report was submitted to each of the following addresses:

i. Illinois Environmental Protection Agency
Division of Land Pollution Control - #33
Permit Section
2520 West Iles Avenue
P.O. Box 19276
Springfield, Illinois 62794-9276

ii. Illinois Environmental Protection Agency
Division of Land Pollution Control
Field Operations Section
2009 Mall Street
1101 Eastport Plaza Dr., Suite 100
Collinsville, IL 62234

iii. Illinois Environmental Protection Agency
Division of Land Pollution Control
Field Operations Section
2309 West Main Street
Marion, IL 62595

9. Groundwater Monitoring Plan (35 IAC 730.113) – Based on information submitted by the Permittee, the Illinois EPA approves the request for a waiver from groundwater monitoring at this time. The approval of this waiver request may be terminated if the Illinois EPA acquires new information regarding the geology in the vicinity of the facility or if new regulations which require groundwater monitoring are promulgated. If the Illinois EPA terminates the approval of the waiver from groundwater monitoring, based on acquisition of new geologic information or promulgation of new regulations, the modification procedures of 35 IAC Part 702 will be followed.

10. Well UIC#2 Investigation and Repair.

a. The Permittee shall provide the following information related to the investigation and repair of well UIC#2 within thirty (30) days of the effective date of permit modification Log No. UIC-212-M-2:

i. A report of the investigation conducted to date into the cause(s) of the failed annulus pressure test (well failure). Include a description of the

steps taken to determine the cause of the failure and to ensure the protection of Underground Sources of Drinking Water (USDW).

ii. A description of additional investigation(s) to be performed to determine the cause of the well failure.

iii. Schedules for the additional investigation(s) and the repair of well UIC#2.

b. The Permittee shall provide a weekly status report regarding the investigation and repair of well UIC#2, beginning within thirty (30) days of the effective date of permit modification Log No. UIC-212-M-2. This status report must include activities completed during the previous week and activities scheduled for the coming week. These reports must be submitted electronically to Keegan.MacDonna@illinois.gov, and Joe.Stitely@illinois.gov. These reports are exempt from the signatory requirement in Condition H.11.

c. After the cause of the well failure has been identified, the Permittee must develop a written Well Workover Plan. The written Well Workover Plan must include planned repairs to the well and a schedule of the work to be performed. The Well Workover Plan must be submitted to the Illinois EPA in accordance with the following.

i. Repairs to the well's casing, such as installation of casing liners and remedial cement jobs to repair casing leaks, would require a Well Workover Plan to be submitted as a permit modification and must be approved by the Illinois EPA prior to implementation.

ii. Well Workover Plans that do not require permit modifications include:

a) Repair or replacement of the wellhead, surface fittings and/or valves with components that have been previously approved by the Illinois EPA for use in the well.

b) Pulling of the injection tubing and packer for inspection.

c) Run casing scraper to clean scale or other substances from the casing.

d) Pressure test of the tubing and/or casing.

e) Replacement of the well packer, injection tubing joints, or other removable down hole equipment with components that have been previously approved by the Illinois EPA for use in the well.

11. Well UIC#2 Well Workover Report and Resumption of Operation. Following the repair of well UIC#2, the Permittee shall submit a permit modification request which must include a Well Workover Report and a request to resume injection. This permit modification request will be administered as a minor modification, requiring written Illinois EPA permit modification approval to authorize resumption of operation of well UIC#2.

    a. This modification request must include:

        i. A Well Workover Report including:

            a) A narrative description of all repairs performed on the well;

            b) A list of all equipment and components replaced or repaired;

            c) Documentation that the equipment or components replaced or repaired meet the specification required in the approved permit;

            d) Documentation that well UIC#2 has met the mechanical integrity as required by Condition H.26; and

            e) Any changes to operating parameters and/or revisions to the contingency plan related to well UIC#2; and

        ii. A request to resume injection at well UIC#2.

    b. The Illinois EPA will not issue a modified UIC Permit authorizing the resumption of injection until:

        i. The Illinois EPA Field Operations Section has conducted an inspection of the injection well and verified the well is in working order and all required equipment is in place.

        ii. The Illinois EPA has completed a review of the Well Workover Report and other information required by this permit and determined that the report is complete, (i.e., all required testing, logging, evaluations, and inspections have been completed in accordance with the approved permit).

        iii. The information provided to the Illinois EPA demonstrates the construction and operation of injection well UIC#2 meets the requirements of the Illinois Environmental Protection Act and 35 IAC Parts 702, 704, 705 and 730.

C. EFFECT OF PERMIT

The existence of a UIC permit shall not constitute a defense to a violation of the Environmental Protection Act or 35 IAC Subtitle G except for prohibitions against development, modification, or operation without a permit. Issuance of this permit does not convey property rights or any exclusive privilege. Issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or infringement of state or local law or regulations (35 IAC 702.181).

The activity authorized by this permit shall not allow the movement of fluid containing any contaminant into underground sources of drinking water if, the presence of that contaminant may cause a violation of a primary drinking water regulation under 40 CFR Part 142 or may otherwise adversely affect the health of persons or the environment. Any underground injection activity not authorized in this permit or otherwise authorized by permit is prohibited. (35 IAC 704.122)

Compliance with the terms of this permit does not constitute a defense to any action brought under Section 1431 of the Safe Drinking Water Act (SDWA) or any other law governing protection of public health or the environment for any imminent and substantial endangerment to human health, or the environment. In the case of disagreement between the conditions of this permit and the application, the permit conditions shall govern.

D. PERMIT ACTIONS

This permit may be modified, reissued or revoked during its term for cause set forth in 35 IAC 702.183 through 702.186. The filing of a request by the Permittee for a permit modification or reissuance, or a notification of planned changes or anticipated noncompliance on the part of the Permittee, does not stay the applicability or enforceability of any permit condition. (35 IAC 702.146)

E. SEVERABILITY

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

F. CONFIDENTIALITY

In accordance with Section 7 of the Illinois Environmental Protection Act and Title 2 Illinois Administrative Code (2 Ill. Adm. Code), Part 1828 allows certain information submitted to the Illinois EPA that 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. In addition, justification for the claim must also be made and all requirements of 2 Ill. Adm. Code 1828 must be

followed. If no claim is made at the time of submission, the Illinois 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 Board and Illinois EPA procedures. (35 IAC Part 130) (2 Ill. Adm. Code Part 1828) Claims of confidentiality for the following information will not be approved:

a. The name and address of any permit applicant or permittee;

b. The identity of substances being placed or to be placed in landfills or hazardous waste treatment, storage or disposal facilities (including injection wells); and

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

G. PENALTIES FOR VIOLATIONS OF PERMIT CONDITIONS

Any person who violates a permit requirement is subject to civil penalties, fines, and other enforcement action under the Safe Drinking Water Act (SDWA) and the Environmental Protection Act.

H. DUTIES AND REQUIREMENTS

1. Duty to Comply. The Permittee shall comply with all applicable UIC program regulations and conditions of this permit, except to the extent and for the duration such noncompliance is authorized by a temporary emergency permit under 35 IAC 704.163. Any permit noncompliance constitutes a violation of the Illinois Environmental Protection Act and is grounds for enforcement action, permit revocation, modification, or denial of a permit renewal application. Such noncompliance may also be grounds for enforcement action under the Resource Conservation and Recovery Act (RCRA). (35 IAC 702.141 and 35 IAC 704.181(a)).

2. Duty to Reapply. If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must submit an application for a new permit at least 180 days before this permit expires. (35 IAC 702.142)

3. Need to Halt or Reduce Activity. It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (35 IAC 702.143)

4. Duty to Mitigate. The Permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from non-compliance with this permit. (35 IAC 702.144)

5. Proper Operation and Maintenance. The Permittee shall at all times properly operate and maintain all facilities, systems of treatment, and controls (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, adequate laboratory and process controls, and appropriate quality assurance procedures. This provision requires the operation of backups, auxiliary facilities, or similar systems used only when necessary to achieve compliance with the condition of the permit. (35 IAC 702.145)

6. Property Rights. Issuance of this permit does not convey any property rights of any sort, or any exclusive privilege. (35 IAC 702.147)

7. Duty to Provide Information. The Permittee shall also furnish to the Illinois EPA, within the specified times, any information which the Illinois EPA may request to determine whether cause exists for modifying, revoking and reissuing, terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Illinois EPA, upon request, copies of records required to be kept by this permit. (35 IAC 702.148)

8. Inspection and Entry (35 IAC 702.149). The Permittee must allow an authorized representative of the Illinois EPA, upon the presentation of credentials and other documents, as may be required by law, and at reasonable times, to:

    a. Enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

    b. Have access to and copy any records that must be kept under the conditions of this permit;

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

    d. Sample or monitor for the purposes of assuring permit compliance or as otherwise authorized by the appropriate Act, any substances or parameters at any location; and

    e. Have access to witness the running of any logs or tests.

9. Monitoring. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (35 IAC 702.150(a))

10. Records (35 IAC 702.150(b), (c) & 704.181(b))

    a. The Permittee shall retain records of all monitoring information, including all calibration, maintenance records, original chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of the Illinois EPA at any time.

    b. Retention of records. The Permittee shall retain records concerning the nature and composition of all injected fluids until three (3) years after the completion of any plugging and abandonment procedures specified under 35 IAC 704.188 or under Subpart G of 35 IAC Part 730, as appropriate. The Owner or Operator shall continue to retain the records after the three-year retention period, unless the Owner or Operator delivers the records to the Illinois EPA or obtains written approval from the Illinois EPA to discard the records.

    c. Records of monitoring information shall include:

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

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

        iii. A precise description sampling methodology and handling, including chain of custody procedures;

        iv. The date(s) analyses were performed;

        v. The individual(s) who performed the analyses;

        vi. The analytical techniques or methods used; and

        vii. The results of such analyses.

11. Signatory Requirements. All reports, application, or information submitted to the Illinois EPA shall be signed and certified as required in 35 IAC 702.126. (35 IAC 702.151)

12. Reporting Requirements.

    a. Planned changes. The Permittee shall give written notice to the Permit Section, Division of Land Pollution Control within fifteen (15) days of any planned physical alterations or additions as to the permitted facility. (35 IAC 702.152(a))

    b. Anticipated noncompliance. The Permittee shall give advance notice to the Permit Section, Division of Land Pollution Control, of any planned changes in the

permitted facility or activity which may result in noncompliance with permit requirements. (35 IAC 702.152(b)).

c. Other noncompliance. The Permittee shall report all instances of noncompliance not reported under 35 IAC 702.152 paragraphs (d), (e) and (f) at the time monitoring reports are submitted. The reports shall contain the information required in 35 IAC 704.181(d) (2). (35 IAC 702.152(g))

d. A summary of the reporting dates can be found in Attachment D for information required by this permit. This summary is provided as a convenience and is not necessarily complete, nor is it to be construed as a substitute for actual permit conditions.

13. Corrective Action Requirements. (35 IAC 704.190, 704.193 and 730.107)

a. The Permittee shall notify the Permit Section, Division of Land Pollution Control, in accordance with the notification procedures in Condition H.14, and the injection well(s) shall be immediately shut-in upon:

i. the discovery of upward fluid migration occurring through a previously unknown well bore or other improperly sealed, completed, or abandoned well in the area of review, due to injection of fluid into the Permittee's well(s), and/or;

ii. the discovery of the loss of mechanical integrity of an injection well or;

iii. the inability of the Permittee to properly monitor and operate an injection well, as required by the permit, due to the malfunction of equipment or the failure of other well components.

b. In the event of the discovery of a well or wells described in item (a)(i) above, the Permittee must prepare a permit modification request consisting of a corrective action plan describing such steps to be taken to properly plug or seal the wells and/or other actions necessary to prevent movement of fluid into USDWs. A copy of the plugging affidavit(s) filed with the Illinois Department of Public Health and the Illinois Department of Natural Resources, Office of Mines and Minerals, Division of Oil and Gas for wells that are subsequently properly plugged and abandoned must be submitted to the Permit Section, Division of Land Pollution Control.

c. In case of an injection well failure, the Permittee shall implement the contingency plan developed for the injection well. An investigation of the well failure and plan of action to eliminate the problem must be conducted and remedial work performed.

The Permittee may be required to submit a permit modification request for review and approval by the Illinois EPA prior to implementation of work to investigate and/or repair a well. Remedial work that would likely require the submittal a permit modification request for review and approval prior to implementation includes:

- Alterations to the design of the injection well system; and/or
- Procedures used to investigate and/or repair a well failure that may affect the mechanical integrity of the well.

If a well failure results in an imminent and substantial threat to the health of persons, the Illinois EPA may issue a temporary emergency permit in response to a modification request which describes the steps to be taken to address this threat pursuant to 35 IAC 704.163.

14. Twenty-four Hour Reporting. (35 IAC 702.152(f))

a. The Permittee shall report to the Permit Section, Division of Land Pollution Control, any noncompliance or well activity which may endanger health or the environment including but not limited to the following.

i. Any monitoring or other information which indicates any contaminant my cause an endangerment to underground sources of drinking water.

ii. Any noncompliance with a permit condition or malfunction of the injection well system which may cause fluid migration into or between underground sources of drinking water.

Any information shall be provided orally within 24 hours from the time the Permittee becomes aware of the circumstances.

b. A written submission must also be provided to the Permit Section, Division of Land Pollution Control, within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission must contain:

i. a description of the noncompliance problem and its cause;

ii. the period of noncompliance including exact dates and times;

iii. if the noncompliance problem has not been corrected, the anticipated time it is expected to continue; and

iv. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance problem.

15. Transfer of Permit.

    a. Transfers. This permit is not transferable to any person except after notice to the Illinois EPA. The Illinois EPA may require modification of the permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the appropriate Act. (35 IAC 702.152(c))

    b. Transfer by modification. A permit may be transferred by the Permittee to a new owner or operator only if the permit has been modified or reissued (under 35 IAC 704.261 through 704.264) to identify the new Permittee and incorporate such other requirements as may be necessary under the appropriate Act. The new owner or operator to whom the permit is transferred must comply with all the terms and conditions specified in such permit. (35 IAC 704.260(a))

    c. Automatic transfers. (35 IAC 704.260(b)) As an alternative to transfers under Condition 15(b), a UIC Permit for a well not injecting hazardous waste may be automatically transferred to a new Permittee if each of the following conditions are fulfilled:

        i. The current Permittee notifies the Illinois EPA at least thirty (30) days in advance of the proposed transfer date, described in Condition 15(c)(ii) of this section;

        ii. The notice includes a written agreement between the existing and new Permittees containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new Permittees;

        iii. The notice demonstrates that the financial responsibility requirements of 35 IAC 704.189 will be met by the new Permittee and that the new Permittee agrees to comply with all the terms and conditions specified in the permit to be transferred under automatic transfer conditions; and

        iv. The Illinois EPA does not notify the existing Permittee and the proposed new Permittee of its intent to modify the permit. A modification under this subparagraph may also be a minor modification under 35 IAC 704.264. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in Condition 15(c)(ii).

16. Financial Responsibility. (35 IAC 704.189) The Permittee shall maintain financial responsibility and resources to close, plug, and abandon all the underground injection wells, injection zone monitoring wells, and groundwater monitoring wells at this facility in a manner prescribed by the Illinois EPA, and Condition H.23 of this permit.

a. The Permittee must show evidence of financial responsibility to the Illinois EPA by the submission of a surety bond, other adequate assurance such as financial statements, or other materials acceptable to the Illinois EPA.

b. The financial documents submitted must be revised and maintained as specified in 35 IAC Part 704 and 40 CFR 144.

c. Construction and/or operation of any injection well(s), injection zone monitoring well(s) and groundwater monitoring well(s) is prohibited unless the Permittee has adequate financial assurance as described in subpart (a) of this condition.

17. Cost Estimates for Plugging and Abandonment. (35 IAC 702.160; 704.212)

a. The Owner or Operator must prepare a written estimate, in current dollars, of the cost of plugging the injection well in accordance with the plugging and abandonment plan as identified in Condition H.23. The cost estimate must equal the cost of plugging and abandonment at the point in the facility's operating life when the extent and manner of its operation would make plugging and abandonment the most expensive. The currently approved cost estimate for plugging and abandonment of <u>each</u> injection well is $593,838.37 (2024 dollars).

b. The Owner or Operator must adjust the cost estimate for inflation within thirty (30) days after each anniversary of the date on which the first cost estimate was prepared. The adjustment must be made as specified in paragraphs (i) and (ii) of this condition, using an inflation factor derived from the annual Oil and Gas Field Equipment Cost Index. The inflation factor is the result of dividing the latest published annual Index by the Index for the previous years.

   i. The first adjustment is made by multiplying the cost estimate by the inflation factor. The result is the adjusted cost estimate.

   ii. Subsequent adjustments are made by multiplying the latest adjusted cost estimate by the latest inflation factor.

c. The Owner or Operator must review the cost estimate whenever a change in the plan increases the cost of plugging and abandonment. The revised cost estimate must be adjusted for inflation as specified in paragraph (b) of this condition.

d. The Owner or Operator must keep the following at the facility during the operating life of the facility:

   i. the latest cost estimate prepared in accordance with paragraphs (a) and (c) of this condition and,

ii. the latest adjusted cost estimate prepared in accordance with paragraph (b) of this condition.

18. Incapacity. (35 IAC 702.160; 704.230)

a. An owner or operator shall notify the Material Management and Compliance Section, Division of Land Pollution Control, by certified mail of the commencement of a voluntary or involuntary proceeding under 11 U.S.C. (Bankruptcy), naming the owner or operator as debtor, within ten (10) business days after the commencement of the proceeding. A guarantor of a corporate guarantee as specified in 35 IAC 704.219 must make such a notification if the guarantor is named as debtor, as required under the terms of guarantee in 35 IAC 704.240.

b. An owner or operator who fulfills the requirements of 35 IAC 704.213 by obtaining a letter of credit, surety bond or insurance policy will be deemed to be without the required financial assurance 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 financial assurance within sixty (60) days after such an event.

19. Revocation of Permits. (35 IAC 702.186) The Illinois Pollution Control Board will revoke a permit during its term in accordance with Title VIII of the Illinois Environmental Protection Act or the Illinois EPA will deny permit renewal for the following causes:

a. The Permittee's violation of the Environmental Protection Act or regulations adopted thereunder;

b. Noncompliance by the Permittee with any condition of the permit;

c. 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; or

d. A determination the permitted activity endangers human health, or the environment and can only be regulated to acceptable levels by permit modification, reissuance, or revocation.

20. State Mining Board Permits. Issuance of this permit does not relieve the Permittee of the responsibility of complying with the provisions of Illinois State Mining Board Rules and Regulations and an Act in Relation to Oil, Gas, Coal, and Other Surface and Underground Resources. (Rule II, Illinois Department of Natural Resources, Office of Mines and Minerals, Division of Oil and Gas, Rules and Regulations)

21. False or Omitted Information.

    a. The Permittee shall not make any false statement, representation, or certification in any application, record, report, plan, or other document submitted to the Illinois EPA, the United States Environmental Protection Agency (USEPA), or required to be maintained under this permit.

    b. If, or when, the Permittee becomes aware of a failure to submit any relevant facts in a permit application or incorrect information was submitted in a permit application or in any report to the Illinois EPA, the Permittee shall promptly submit such facts or correct information to the Permit Section, Division of Land Pollution Control within ten (10) days. (35 IAC 702.152(h))

22. Restriction on Unpermitted Waste. Injection of waste other than those specified in the approved permit application is prohibited. Other fluids may be injected for short periods for purposes of well testing, well stimulation, or for the purposes of formation testing, provided the Permittee provides notice to the Illinois EPA of these tests in accordance with Condition H.26 (e).

23. Plugging and Abandonment.

    a. The Permittee shall notify the Permit Section, Division of Land Pollution Control, sixty (60) days prior to abandonment of a well. The Permittee must submit significant changes to the plans for plugging and abandonment 180 days prior to abandonment. (35 IAC 704.181(e))

    b. The Permittee shall plug and abandon the injection well as provided in 35 IAC 704.188 and 730.110 and in accordance with the schedule and provisions of the approved plugging and abandonment plan. The approved plan is contained in Form 4g, Plugging and Abandonment of the approved permit application, herein incorporated by reference and as modified by conditions of this permit. (35 IAC 704.188).

    c. No later than sixty (60) days after plugging and abandonment of any injection or monitoring well, the Permittee shall submit a plugging report, as required by 35 IAC 704.181(g), to the Permit Section, Division of Land Pollution Control.

       The report shall be certified as accurate by the person who performed the plugging operation, and shall consist of:

       i. A statement that the well was plugged in accordance with the plan most recently submitted to the Illinois EPA; or

       ii. A statement defining the actual plugging and explaining why the Illinois EPA should approve such deviation, if the actual plugging differed from

the approved plan. Any deviation from a previously approved plan which may endanger underground sources of drinking water is cause for the Illinois EPA to require the operator to re-plug the well; and

iii. A copy of the well plugging affidavit submitted to the Illinois Department of Natural Resources, Office of Mines and Minerals, Division of Oil and Gas; and the Illinois Department of Public Health.

iv. If the approved plugging and abandonment plan requires a change, a revised plan shall be submitted to the Permit Section, Division of Land Pollution Control for approval. If approved, the revised plugging and abandonment plan shall be incorporated into the approved permit application as a permit modification.

24. Conversion of Wells (35 IAC 704.181(e)). The Permittee shall notify the Permit Section, Division of Land Pollution Control, forty-five (45) days prior to conversion of any well. Plans for conversion must be submitted 180 days prior to actual conversion or abandonment. Injection into converted wells shall not be conducted until the Permittee receives written authorization for injection from the Illinois EPA.

25. Inactive Wells. (35 IAC 704.188). After cessation of injection for two (2) years, the Permittee shall plug and abandon the well in accordance with Condition H.23 of this permit and 35 IAC 730.110, unless the Permittee has:

    a. Provided notice to the Permit Section, Division of Land Pollution Control; and

    b. Described actions or procedures, which are deemed satisfactory to the Illinois EPA, to ensure the well will not endanger underground sources of drinking water during the period of temporary abandonment. These actions and procedures shall include compliance with the technical requirements applicable to active injection wells, including mechanical integrity testing, unless waived by the Illinois EPA in writing.

26. Duty to Establish and Maintain Mechanical Integrity (35 IAC 704.181(h) and 704.190).

    a. The Permittee shall establish mechanical integrity as defined in 35 IAC 730.108 prior to commencing injection.

    b. A demonstration of mechanical integrity in accordance with Attachment F – Mechanical Integrity Tests During Service Life of Well of this permit shall be conducted to ensure each well has integrity during the life of this permit. A descriptive report interpreting the results of all geophysical logs and tests must be prepared by a knowledgeable log analyst and submitted to the Permit Section, Division of Land Pollution Control. This report shall be signed by the analyst and shall include his/her phone number.

c. The Permittee shall demonstrate the absence of significant leaks in the casing, injection tubing, and packer by use of an annulus pressure test to be conducted annually. The annulus pressure test shall be conducted in accordance with procedures contained in Attachment F – Mechanical Integrity Tests During Service Life of Well of this permit, and the following conditions:

   i. The annular space must be completely filled with annular fluid.

   ii. The annulus shall be pressurized to no more than 3,500 psi, as specified in Form 4c, Section I.B.8 of the approved permit application.

   iii. A pressure differential between the pressure in the annular space and the injection tubing pressure of at least 100 psi shall be maintained throughout the entire annular space.

   iv. Measurements of pressure should be taken at a minimum of every ten minutes.

   v. The well will be deemed to have failed the annulus pressure test if a pressure change of greater than 3% occurs over a one-hour period.

d. The Permittee shall demonstrate the absence of significant fluid movement into an underground source of drinking water through vertical channels adjacent to the injection well bore through the performance of a temperature survey. These tests shall be performed in accordance with the procedures contained in Attachment F - Mechanical Integrity Tests During Service Life of Well of this permit and as follows:

   i. Well UIC#1: Following resumption of injection at well UIC#1, pursuant to permit modification Log No. UIC-212-M-2, the Permittee shall perform a temperature survey of well UIC#1 within ninety (90) days of resuming injection at well UIC#1. Thereafter, a temperature survey shall be performed every two (2) years.

   ii. Well UIC#2: The Permittee shall perform a temperature survey of well UIC#2 within ninety (90) days, but no earlier than forty-five (45) days, after commencing injection at well UIC#2. Thereafter, a temperature survey shall be performed every 6 months. The frequency of the testing may be reduced based upon the results of the testing.

e. The Permittee will inform the Permit Section, Division of Land Pollution Control, of its intent to conduct pressure test(s), and temperature log(s), plus any additional mechanical tests, logs, or inspections, at least thirty (30) days prior to the demonstration of mechanical integrity. The notice must include the type of test to be conducted, any fluid that will be injected as part of the test, and a

demonstration that the fluid will be compatible with the injection well materials and formation that may come into contact with the testing fluid. If a demonstration of this compatibility has previously been submitted, the Permittee may reference the previous submittal.

f. The Permittee shall cease injection if an apparent loss of mechanical integrity, as defined by 35 IAC 730.108, becomes evident during operation or at the time of the mechanical integrity demonstration. Operation shall not be resumed until the Permittee has complied with the provisions of this permit, and applicable regulations, regarding mechanical integrity demonstration and testing.

g. All gauges used in mechanical integrity demonstrations or in daily operations shall be calibrated according to the procedures of the National Bureau of Standards, initially and at least annually thereafter. A copy of the calibration certificate shall be submitted to the Permit Section, Division of Land Pollution Control on January 15 of each year. In addition, recording devices are to be time synchronized at least quarterly.

h. In addition to the mechanical integrity demonstration required by this permit, the Illinois EPA has the authority to require the Permittee to conduct a demonstration of mechanical integrity of the well at any time well operations or other information leads the Illinois EPA to decide an additional mechanical integrity demonstration is necessary. The notice requiring the mechanical integrity demonstration shall be in writing and contain justification for requiring the additional testing.

27. Contingency Plan.

a. The Permittee shall implement the contingency plan in accordance with the plans and methods described in the most recent plan.

b. The Permittee shall submit a revised contingency plan to the Illinois EPA within thirty (30) days of changes at the facility which necessitate changes to the existing contingency plan.

28. 39i Certification.

a. The Permittee shall submit a 39i certification and supporting documentation with all applications for a permit, including permit modification request applications and permit renewal applications.

b. The Permittee shall submit a 39i certification and supporting documentation within thirty (30) days of any of the following events:

i. the owner or operator, officer of the owner or operator, or any employee who has control over operating decisions regarding the facility has violated federal, State, or local laws, regulations, standards, or ordinances in the operation of waste management facilities or sites; or

ii. the owner or operator, or officer of the owner or operator, or any employee who has control over operating decisions regarding the facility has been convicted in this or another State of any crime which is a felony under the laws of this State, or conviction of a felony in a federal court; or

iii. the owner or operator, or officer of the owner or operator, or any employee who has control over operating decisions regarding the facility has committed an act of gross carelessness or incompetence in handling, storing, processing, transporting or disposing of waste.

iv. a new person associated with the owner or operator who can sign the application or who has control over operating decisions regarding the facility, such as a cooperate officer or a delegated employee.

The certification shall describe the violation(s), convictions, carelessness or incompetence as outlined in item b above and must include the date that a new person as described in d above began employment with the applicant.

The 39i certification and supporting documentation shall be submitted to the address specified below:

Illinois Environmental Protection Agency
Bureau of Land - #33
Permit Section
39(i) Certification
2520 West Iles Avenue
Post Office Box 19276
Springfield, Illinois 62794-9276

29. Other Permitting Requirements.

a. The issuance of this UIC Permit does not relieve the Permittee of the responsibility for obtaining other permits or authorizations required by the Illinois EPA Bureau of Water, Illinois EPA Bureau of Air, Illinois Department of Natural Resources or other federal, state, or local agencies.

b. Due to the presence of naturally occurring radioactive material (NORM) in the groundwater, radium residue or sludge may be generated during the processing and treatment of the groundwater at the facility. As the reverse osmosis system will tend to concentrate the NORM present in the groundwater, careful attention

should be given to any residue or sludge generated in and downstream of the reverse osmosis system. Should radium residue or sludge be generated from the processing and treatment of the groundwater the Permittee must follow the requirements of 32 Illinois Administrative Code 330.40(d). If you have any question concerning these requirements, you may contact the Illinois Emergency Management Agency, Office of Nuclear Safety at 217/558-5135.

I. SPECIAL CONDITIONS

1. PFAS Contaminated Wastewater. Firefighting foam was introduced into a portion of the underground mine works to combat a thermal event which occurred in August of 2021. The firefighting foam contained per- and polyfluoroalkyl substances (PFAS) which contaminated portions of the native groundwater present in the mine. PFAS contaminated groundwater was subsequently managed in the above ground surface impoundment known as RDA-1. The underground mine works and RDA-1 are sources of wastewater injected for disposal at the facility. As noted in Condition B.4.c, PFAS contaminated wastewater are not approved for injection into well UIC#1 and well UIC#2.

2. Demonstration Regarding PFAS. Prior to resuming injection, the Permittee must demonstrate that PFAS are not present in the wastewater to be injected into the wells UIC#1 and UIC#2. This may be accomplished by submitting previously collected analytical data and/or obtaining additional analytical data. This demonstration must include the following.

    a. Representative samples must be collected from all sources of wastewater to be injected prior to the commencement of injection. The fluid samples, acquired after the effective date of this permit, must be collected and analyzed for PFAS in accordance with SW-846 Method 1633 of the U.S.EPA's Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, Third Edition (SW-846) and finalized updates. Previously collected analytical data submitted for this demonstration not analyzed using SW-846 Method 1633 will be evaluated to determine if the data is adequate to demonstrate that PFAS are not present in a given wastewater.

    b. A sampling and analysis report shall be submitted to the Illinois EPA within fourteen (14) days of the facility receiving the newly acquired analytical results from a sampling event.

    c. The sampling and analysis report shall include:

        i. A facility map of appropriate scale identifying the sample locations;

        ii. A narrative description of each of the sampling locations and the rational for selecting each location;

iii. Summary tables of the results;

iv. Laboratory reports including QA/QC documentation;

v. A discussion of the results of the investigation; and

vi. Identification of sources of wastewater to be injected that do not contain PFAS based on the sampling event(s).

3. Revised Waste Analysis Plan. The Permittee must submit a revised written Waste Analysis Plan. The current Waste Analysis Plan (Waste Sampling and Analysis Plan) is located in Form 4e, Permit Item I of the approved permit application. This revised plan shall address changes necessary to the plan to prevent the injection of PFAS contaminated wastewater which could result from the migration of PFAS contaminated wastewaters into non-PFAS contaminated waters which will be disposed in permitted injection wells. The revised Waste Analysis Plan shall be submitted within sixty (60) days of the effective date of this permit (Log No. UIC-212-M-2).

4. Permit Modification Request to Inject PFAS. To inject PFAS contaminated groundwater described in Condition I.1 above and to modify Condition B.4.c (Injection Fluid), which identify the specification of injection fluid allowed to inject under this permit, the Permittee must submit a permit modification request in accordance with 35 IAC 704.261 through 704.264 for the Illinois EPA's review and approval. This permit modification request must include the following:

   a. Characterization of PFAS contaminated wastewater to be injected into the permitted UIC wells at the facility under this permit.

      i. Representative samples must be collected from all sources of PFAS contaminated wastewater to be injected. The fluid samples, acquired after the effective date of this permit, must be collected and analyzed for PFAS in accordance with SW-846 Method 1633 of the U.S.EPA's Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, Third Edition (SW-846) and finalized updates. This may be accomplished by submitting previously collected analytical data and/or obtaining additional analytical data. Previously collected analytical data submitted for this demonstration not analyzed using SW-846 Method 1633 will be evaluated to determine if the data is adequate to demonstrate that PFAS are not present in a given wastewater.

      ii. The sampling and analysis report shall include:

         1. A facility map of appropriate scale identifying the sample locations;

2. A narrative description of each of the sampling locations and the rational for selecting each location;

3. Summary tables of the results;

4. Laboratory reports including QA/QC documentation;

5. A discussion of the results of the investigation; and

6. Identification of sources of wastewater to be injected containing PFAS based on the sampling event(s).

b. Revised Waste Analysis Plan. The Permittee must submit a revised written Waste Analysis Plan. The current Waste Analysis Plan (Waste Sampling and Analysis Plan) is located in Form 4e, Permit Item I of the approved permit application. This revised plan shall address changes necessary to the plan to characterize the concentration of PFAS contaminates present in the wastewater on a quarterly basis.

c. Any UIC permit modification request must be accompanied by a 39i Certification Form and a UIC Form 1, General UIC Program Requirements. These documents can be found within the Illinois EPA's website.

d. This permit modification request may be processed in accordance with 35 IAC 704.264(e) as a minor modification, if the Permittee can demonstrate, the addition of the wastewater containing PFAS (i.e., PFAS contaminated groundwater): (1) is within the disposal capacity of the facility as permitted; (2) would not interfere with the operation of the permitted injection wells or its ability to meet conditions of the approved UIC permit; and (3) would not change the classification of the well.

5. Permit Modification Request - Annulus Pressure. Prior to resuming injection, the Permittee must submit a permit modification request to address required and/or desired changes to the operation of each injection well related to annulus pressure levels. These issues were identified in the Permittee's comments on the draft permit for Log No. UIC-212-M-2, specifically:

- Comment to Paragraph 14. Revised Condition B.4.d (page 4 of Attachment 1); and

- Comment to Attachment F: Mechanical Integrity Test During Service Life of Well (pages 57-58 of 63).

The permit modification request should include, as necessary, a description detailing the operation of the injection wells, a revised contingency plan, a revised Mechanical

Integrity Test During Service Life of Well, and proposed changes to the language of the permit. The application should address various modes of operation, including when injection is occurring, injection is not occurring, during the performance of required mechanical integrity testing, etc.

JLR:KL:0554645002-UIC-UIC212M2-FINAL.docx

ATTACHMENT A
APPROVED PERMIT APPLICATION

ATTACHMENT A

APPROVED PERMIT APPLICATION

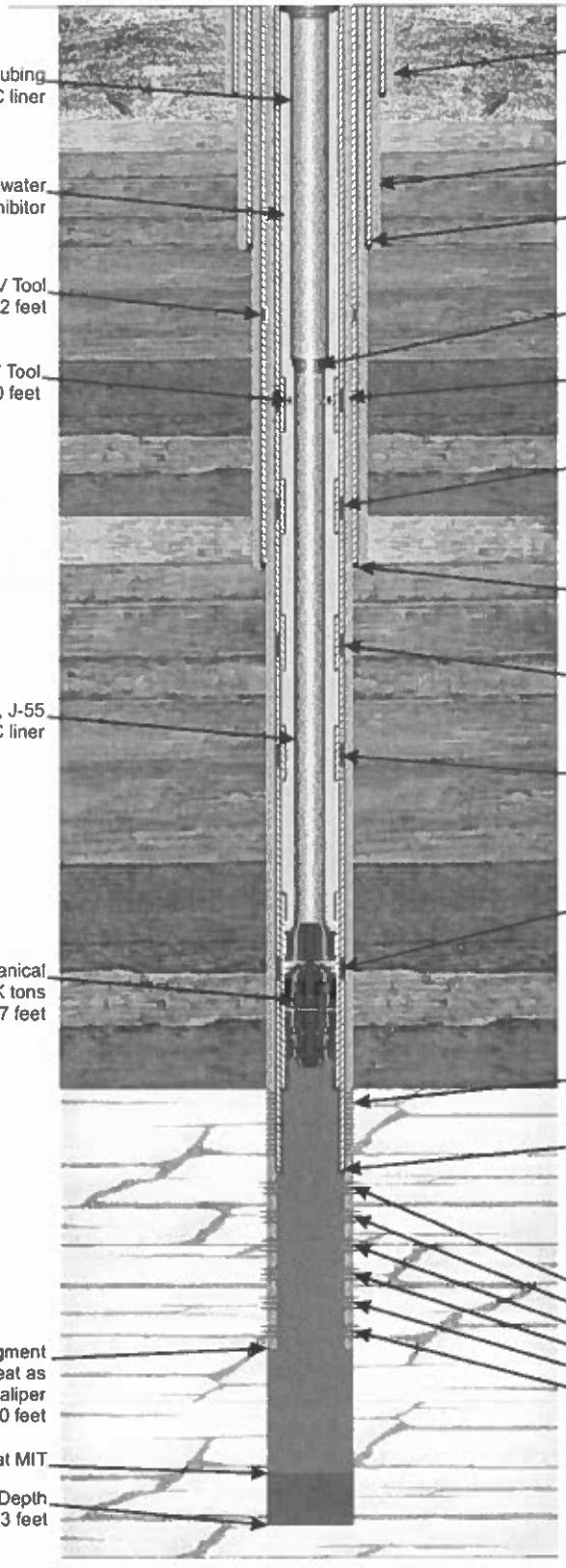
Document	Dated	Received
Initial Permit Application - Log No. UIC-212	March 21, 2014	March 21, 2014
Revisions to initial application	May 12, 2014	May 15, 2014
Temporary Emergency Permit Request – Log No. UIC-212-TE		
	May 2, 2014	May 16, 2014
UIC#1 Completion Report - Log No. UIC-212-TE-M2		
Initial Permit Modification Request	July 29, 2014	July 30, 2014
Certification Forms	July 31, 2014	August 1, 2014
Revised Appendix X-R (MIT-APT)	August 6, 2014	August 6, 2014
Well UIC#2 Well Workover - Log No. UIC-212-TE-M1		
Initial Permit Modification Request	July 8, 2014	July 16, 2014
Revised Well UIC#2 Schematic	September 24, 2014	September 24, 2014
Well UIC#1 Well Workover - Log No. UIC-212-TE-M3		
Initial Permit Modification Request	September 15, 2014	September 16, 2014
Revisions to initial application	September 17, 2014	September 18, 2014
Well UIC#1 Well Workover - Log No. UIC-212-TE-M4		
Initial Permit Modification Request	October 14, 2014	October 16, 2014
Certification Forms	October 24, 2014	October 24, 2014
Revisions to initial application	October 28, 2014	October 31, 2014
Well UIC#1 Report on Step Rate Test - Log No. UIC-212-TE-M6		
Initial Permit Modification Request	November 24, 2014	November 25, 2014
Certification Forms	December 11, 2014	December 15, 2014
Certification Forms	December 12, 2014	December 16, 2014
UIC#2 Completion Report - Log No. UIC-212-TE-M5		
Initial Permit Modification Request	October 8, 2014	October 8, 2014
Revisions/Supplemental Information	January 16, 2015	January 20, 2015

Document	Dated	Received
Request to modify compliance date (Cond. B.2.h)	January 26, 2015	January 26, 2015
Request to Extend Expiration Date of Emergency Permit - Log No. UIC-212-TE-M7		
Initial Permit Modification Request	March 2, 2015	March 3, 2015
Request to Extend Expiration Date of Emergency Permit - Log No. UIC-212-TE-M8		
Initial Permit Modification Request	November 16, 2015	November 20, 2015
Request to Extend Expiration Date of Emergency Permit - Log No. UIC-212-TE-M11		
Initial Permit Modification Request	November 7, 2016	November 14, 2016
Modification of APS and change in frequency of MIT Log No. UIC-212-M-1		
Initial Permit Modification Request	August 2, 2017	August 3, 2017
Supplemental Information	February 19, 2018	March 9, 2018
Revisions/Supplemental Information	February 19, 2019	February 21, 2019
Temporary Emergency Permit Request – Log No. UIC-212-TE		
Temporary Emergency Permit Request for Log No. UIC-21-M-1 Approved April 25, 2019, Expired on August 24, 2019	April 3, 2019	April 5, 2019
APS Construction Report and Contingency Plan – Log No. UIC-212-M-2		
Permit Mod. Request for Authorization to Operate Modified APS Construction Report, Contingency Plan	December 7, 2022	December 9, 2022
Additional Information - UIC Form-1	December 14, 2022	December 19, 2022
Revised Permit Modification Request	January 27, 2023	January 30, 2023
Revised APS Construction Report Additional information – Equipment Specifications	June 2, 2023	June 6, 2023
Additional Information – Results of August 2023 Annulus Pressure Test for wells UIC#1 and UIC#2	August 31, 2023	September 5, 2023
Revised Contingency Plan (Attachment D)	January 22, 2024	January 25, 2024

ATTACHMENT B
INJECTION WELL CONSTRUCTION DETAILS FOR
UNDERGROUND INJECTION WELLS UIC #1 AND UIC #2 AND
TO BE CONSTRUCTED WELLS UIC#3 AND UIC#4

Sugar Camp Energy, LLC
Franklin County, Illinois
September 2014

UIC Well 1 Schematic
(As Built)



5 ½", 20.3 #/ft, L-80 tubing with CPVC liner

Annulus filled with water and corrosion inhibitor

9 ⅝" DV Tool at ± 2,602 feet

7" DV Tool at ± 4,590 feet

4 ½", 11.6 #/ft, J-55 tubing with PVC liner

6" x 2.38", D&L ASI-X Mechanical Packer set in 22K tons of compression at ~7,497 feet

Base of cemented segment below casing seat as determined by 6 Arm Caliper log @ 8,450 feet

Total Depth ±12,508 feet at MIT

Total Drilled Depth ±12,733 feet

26" borehole w/ 22" galvanized steel culvert for conductor casing set at 42 feet, cemented from bottom to surface

17 ½" borehole to ± 895 feet

Surface Casing: 13⅜", 54#/ft, set at 895 feet, cemented from bottom to surface

5 ½" to 4 ½" crossover swedge at 4,498 feet

DV Tool perforation @ 4,585 -4,610, 50' patch from 4,570 feet to 4,620 feet

Perforation @ 4,665 -4,675, 30' patch from 4,655 feet to 4,685 feet

Intermediate Casing: 9 ⅝", 40#/ft, L-80 STC, 8rd, set at ± 4,890 feet, cemented from bottom to surface

Perforation @ 6,590 feet - 6,600 feet, 30' patch from 6,585 feet to 6,615 feet

Perforation @ 6,733 feet - 6,743 feet, 30' patch from 6,720 feet to 6,750 feet

Perforation @ 7,410 feet - 7,420 feet 150' anchor patch from 7,340 feet to 7,490 feet

Perforation in casing from 7,490 feet to 7,590 feet

Long String Casing: 7", 26#/ft, L-80, set at ± 7,610 feet, cemented from bottom to surface in two stages

Perforation zones in cement below casing:

From (feet)	To (feet)
7,615	7,675
7,700	7,710
7,740	7,750
7,835	7,845
7,890	7,915
7,980	7,990

SCS AQUATERRA

Construction Details for Underground Injection Well UIC #1

Surface Casing

13 ⅜ inch diameter, LS-65 steel casing with a weight of 54.5 lb/ft.

Casing was cemented to surface with 575 sacks of Class A Cement with Calcium Chloride and 2 sacks of Poly Flake, and 1 can of Poly Plus or equivalent.

Intermediate Casing

9 ⅝" OD (outer diameter), L-80, LTC casing with a weight of 40 lb/ft.

Casing cemented to surface in two stages with a DV tool within the 9 ⅝" casing string at 2,602 feet.

Cementing:

- Stage one: 750 sack s of ESC 10-10 latex cement with Gilsonite and Poly Flake.
- Stage two: 360 sacks of 65-35-8 cement followed by a tail slurry of 200 sacks of ESC 10-10 latex cement.

Long String Casing

7 inch diameter, L-80, LTC casing with a weight 26 lb/ft.

Weatherford MetalSkin Cased-Hole Liner - 5½" OD 16.89 lb/ft. casing liners are installed over the spans identified in the well schematic located on the previous page.

Casing cemented to surface in two stages with a DV tool within the 7" casing string at 4,555 feet. Cementing:

- Stage one: 810 sacks of ESC 10-10 latex cement with Gilsonite and Poly Flake.
- Stage two: 190 sacks of 65-35-10 blend cement followed by a tail slurry: 200 sacks of ESC 10-10 latex cement with a tail slurry of 200 sacks (8.75 cubic yards) of ESC 10-10 Latex Cement with Poly Flake
- In September 2014 cement was squeezed over the intervals identified in the well schematic.

Tubing and Packer Specifications

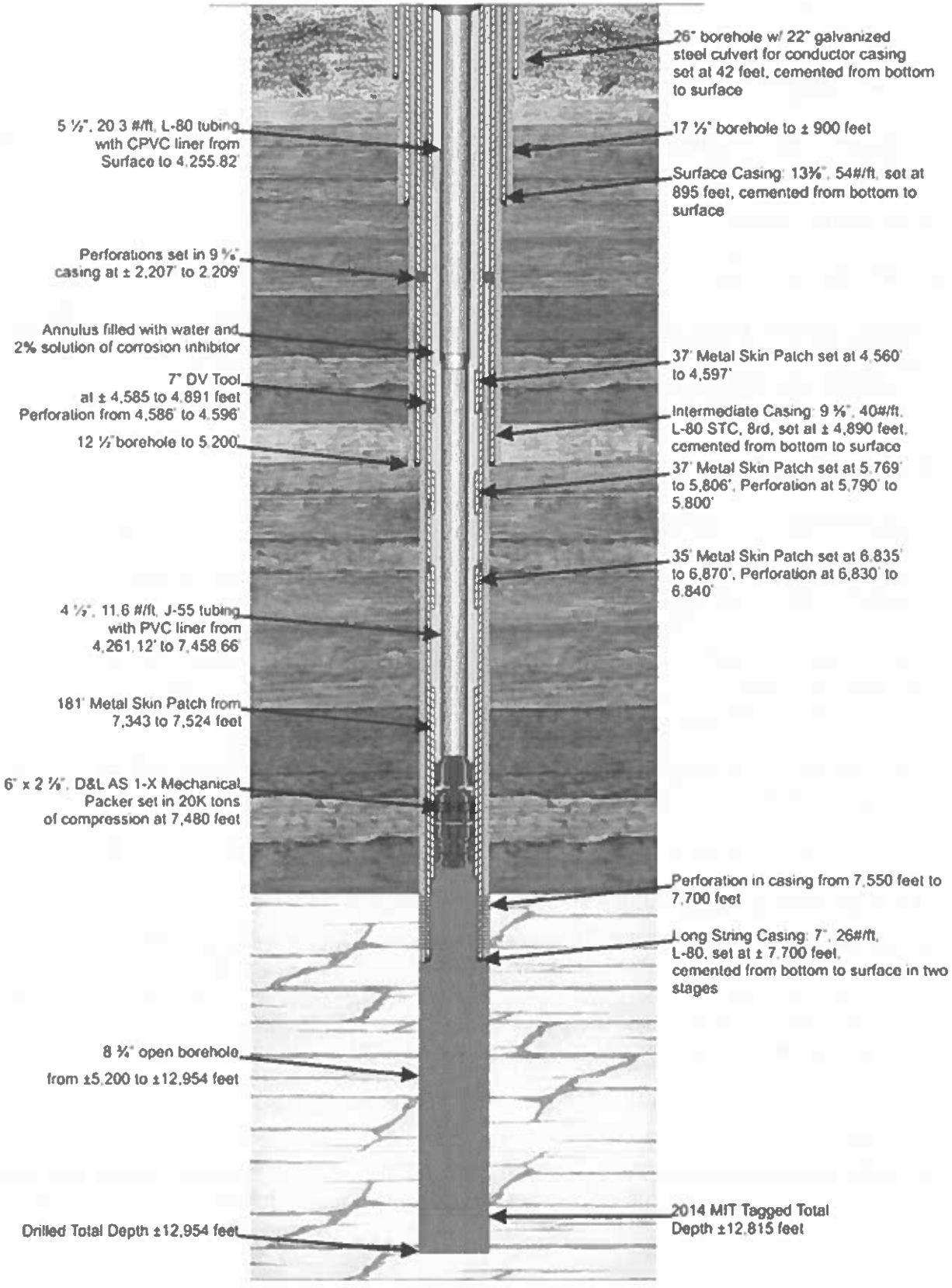
The injection tubing is a 5½" OD L-80 grade steel piping with a Sealtite CPVC tubing liner to a depth of above 4,498 feet with a crossover joint to 4½" OD J-55 tubing with a PVC liner. The packer is a nickel-plated D&L ASI-X compression packer (Part No. 60360).

Wellhead

The wellhead is manufactured by Great Lakes Wellhead, Inc. and includes three EE rated gate valves coated with a Xylan corrosion inhibitor. Other major components such as the free cap and cross piece are also Xylan coated. 410 stainless steel flanges are bolted the horizontal gate valves for connection of flow lines from the surge tanks.

Sugar Camp Energy, LLC
Franklin County, Illinois
October 2014

UIC Well 2 Schematic
(As Built)



Construction Details for Underground Injection Well UIC #2

Surface Casing

13 ⅜ inch diameter, LS-65 steel casing with a weight of 54.5 lb/ft.

Casing was cemented to surface with 705 sacks of Class A Cement with Calcium Chloride and 2 sacks of Poly Flake, and 1 can of Poly Plus or equivalent.

Intermediate Casing

9 ⅝ inch diameter, L-80 LTC casing with a weight of 40 lb/ft.

Casing cemented to surface in two stages with a DV tool within the 9 ⅝" casing string at 2,200 feet. Cementing procedure:

- Stage one: 1075 sacks of ESC 10-10 latex cement.
- Stage two: 690 sacks of 65-35-8 followed by a tail slurry: 375 sacks of ESC 10-10 cement.

Long String Casing

7 inch, L-80, LTC casing with a weight 26 lb/ft.

Weatherford MetalSkin Cased-Hole Liner - 5½" OD 16.89lb/ft. casing liners are installed over the spans identified in the well schematic.

Casing cemented to surface in two stages with a DV tool within the 7" casing string at 4,633 feet. Cementing procedure:

- Stage one: 700 sacks of ESC 10-10 latex cement.
- Stage two: 190 sacks of 65-35-10 blend cement followed by a tail slurry: 200 sacks of ESC 10-10 latex cement.
- In July 2014 cement was squeezed over the intervals identified in the well schematic.

Tubing and Packer Specifications

The injection tubing is a 5½" OD 20 lb/ft. L-80 grade steel piping with a Sealtite CPVC tubing liner to a depth of approximately 4,256 feet with a crossover joint to 4½"OD 11.6 lb/ft. J-55 8rd LTC tubing with a CPVC liner. The packer is a D&L ASI-X compression packer (Part No. 60361). The specification sheet for the D&L ASI-X compression packer is located in Appendix IX-B of the October 8, 2015 Well Completion Report for well UIC#2. The narrative on page 4h – 16, incorrectly references Appendix XI-B.

Wellhead

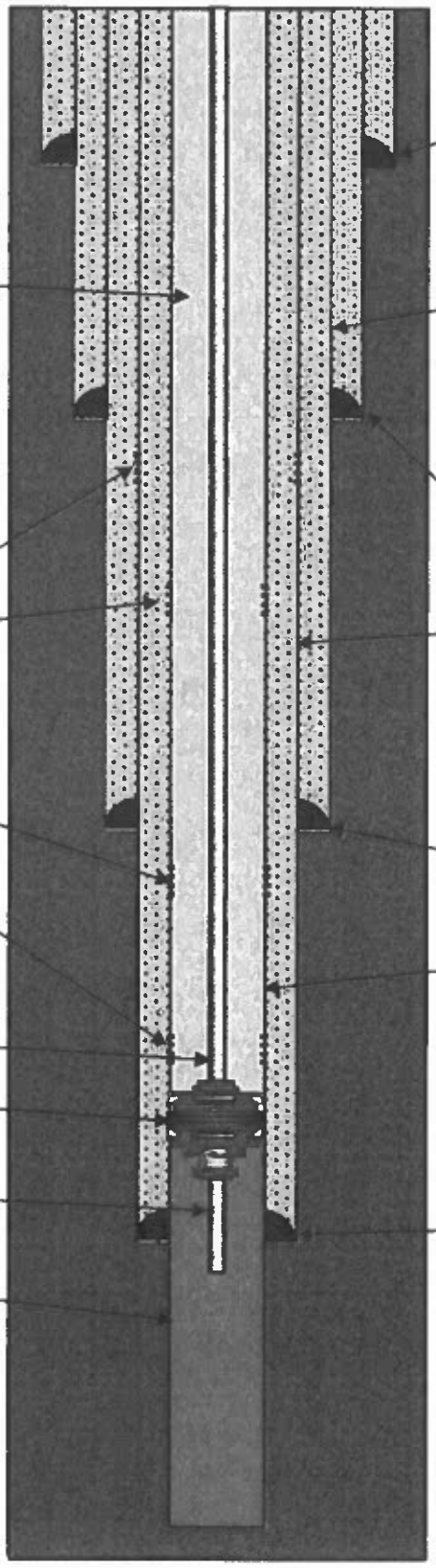
The wellhead is manufactured by Great Lakes Wellhead, Inc. and includes three EE rated gate valves coated with a Xylan corrosion inhibitor. Other major components such as the free cap and cross piece are

also Xylan coated. 410 stainless steel flanges are bolted the horizontal gate valves for connection of flow lines from the surge tanks. Appendix VIII-B of the October 8, 2015 Well Completion Report for well UIC#2 contains a schematic of the wellhead.

Well UIC#3 and Well UIC#4

UIC Permit Application
Franklin County, Illinois
March, 2014

Proposed Well Schematic



9 ⅝" x 5 ½" annulus filled with fresh water and corrosion inhibitor

13 ⅜" DV Tool @ ± 2,000 feet

9 ⅝" DV Tool @ ± 2,500 feet

9 ⅝" DV Tool @ ± 5,000 feet

9 ⅝" Flow Collar @ ± 7,300 feet

5½" 17#/ft N-80 disposal tubing

9⅝" x 7" Casing packer set on compression at ±7,300 ft

~90' of 5½" tailpipe below packer to +/- 7,400'

7⅞" hole from ± 7,550 ft to ± 12,800 ft

Estimated TD @ ±12,800 ft

36" hole w/ 30" galvanize steel culvert for Conductor set at +/- 50 feet Cemented from bottom to surface w/ trimme pipe

Surface Casing: 20" 94#/ft J-55 with Buttress threads Casing set at ±500 feet, Cemented from bottom to surface

26" hole to ± 500 feet

Intermediate Casing: 13⅜", 61 #/ft, K-55 STC, 8rd casing set at ± 3,250 ft, Cemented From bottom to surface

17½" hole to ± 3,250 ft

Long String Casing 9⅝",36#/ft, K-55, STC, 8rd casing cemented from bottom to surface

12½" hole to ± 7,400 ft

Proposed Construction Details for Underground Injection Wells UIC #3 and Well UIC#4

Surface Casing

20 inch diameter case, 94 lb/ft, J-55 steel with Buttress threads, set to approximately 500 feet Below Ground Surface (BGS)

Casing will be cemented with lead slurry of 575 sacks of Class A Cement, prehydrated.

Intermediate Casing

13 ⅜ inch diameter casing, 61 lb/ft, K-55 STC, 8rd, set to approximately 3,250 feet.

Casing will be cemented in two stages with a DV tool within the 13 ⅜" casing string at ±2,000 feet.

Stage one:	Lead slurry of 360 sks of Super Lite + 3 % Calcium Chloride
	Tail slurry of 400 sks of Standard Cement + 0.1% R-1
Stage two:	Lead slurry of 920 sks of Super Lite + 3 % Calcium Chloride
	Tail slurry of 50 sks of Standard Cement + 0.1% R01Tail slurry.

Long String Casing

9 ⅝ inch diameter, 36 lb/ft, K-55, STC, set to approximately 7,400 feet.

The 9 ⅝ inch casing will be in three stages DV tools will be installed in the 9 ⅝ inch casing at ± 2,500 feet & ± 5,000 feet.

Stage one:	Lead slurry of 370 sks of 50/50 Pozmix of premium Class "H" cement with 18% salt, 4% bentonite, and 0.25% Air-Out (defoamer) with a a density of 14.00 lbs. per gallon
	Tail slurry of 490 sks of premium Class "H" cement with 3% KCl with a density of 16.50 lbs. per gallon.
Stage two:	Slurry of 605 sks of of Super Lite Cement with a density of 13.10 lbs. per gallon
Stage three:	Slurry of 600 sacks of Super Lite Cement with a density of 13.10 lbs. per gallon.

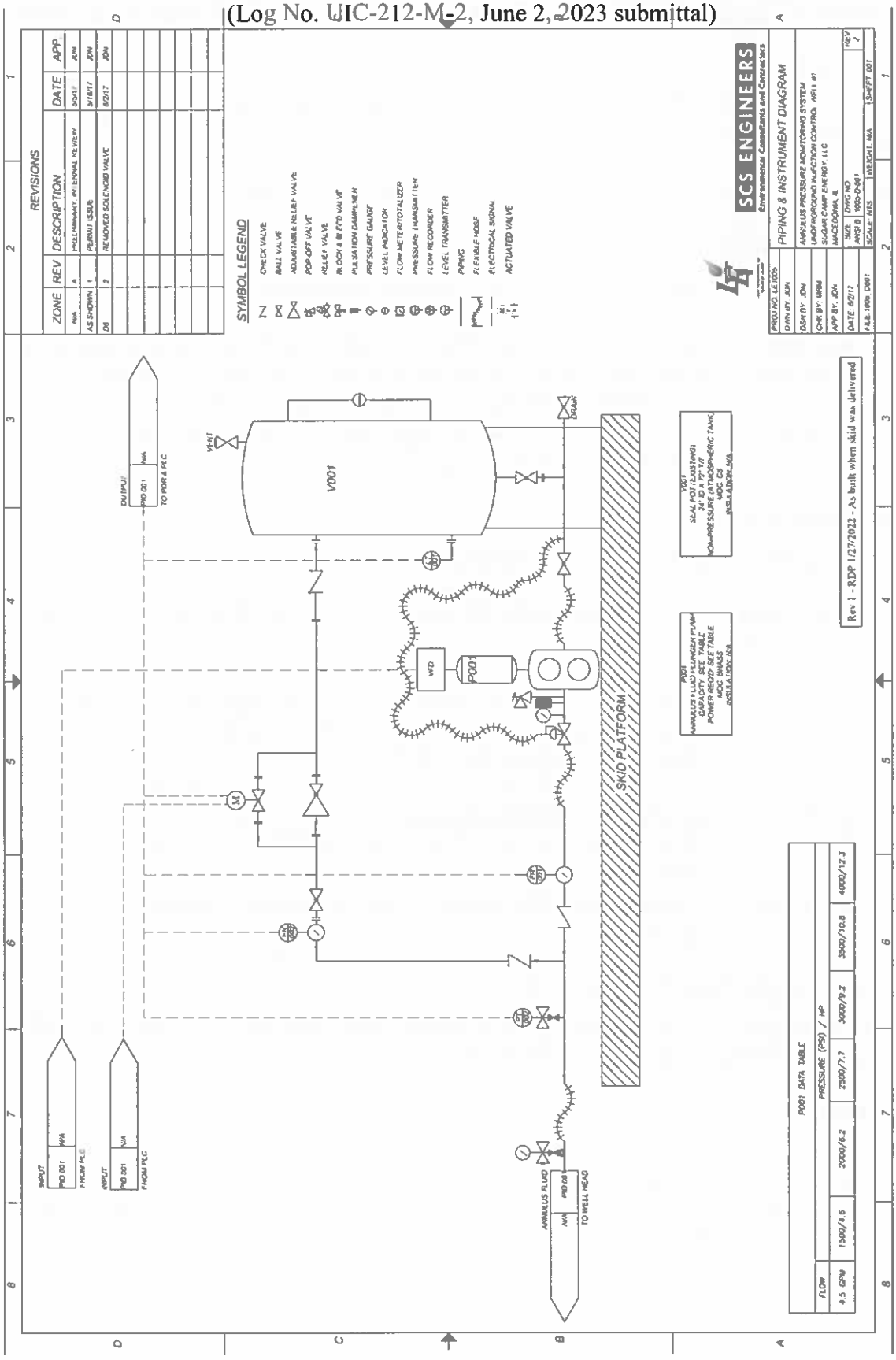
Tubing and Packer Specifications

The injection tubing is a 5-1/2 inch diameter 17.0 lb/ft, N80, LTC, 8rd EUE tube. The packer is a 9⅝ inch nickel plated D&L ASI-X compression packer.

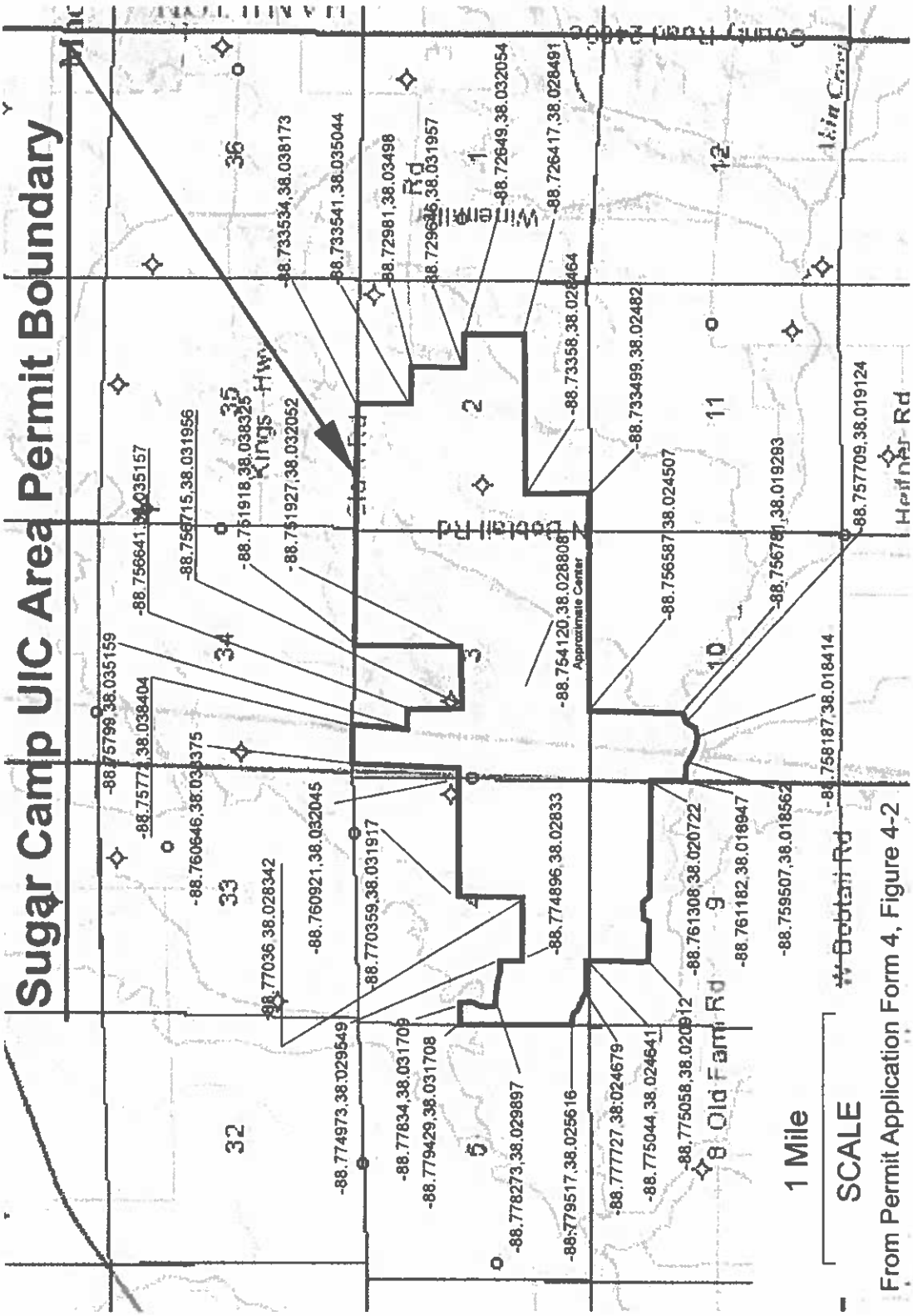
Wellhead

The wellhead is manufactured by Great Lakes Wellhead, Inc. and includes three EE rated gate valves coated with a Xylan corrosion inhibitor. Other major components such as the free cap and cross piece are also Xylan coated. 410 stainless steel flanges are bolted the horizontal gate valves for connection of flow lines from the surge tanks.

Annulus Protection System Piping and Instrument Diagram
(Log No. UIC-212-M-2, June 2, 2023 submittal)



ATTACHMENT C
UIC AREA PERMIT BOUNDARY MAP


Sugar Camp UIC Area Permit Boundary
-88.775798,38.035159
-88.75772,38.038404
-88.760646,38.033375
-88.77036,38.028342
-88.774973,38.029549
-88.77834,38.031709
-88.779429,38.031708
-88.778273,38.029897
-88.779517,38.025616
-88.777727,38.024679
-88.775044,38.024641
-88.775058,38.020912
-88.761308,38.020722
-88.761182,38.018947
-88.759507,38.018562
-88.758187,38.018414
-88.757709,38.019124
-88.756781,38.019283
-88.756587,38.024507
-88.754120,38.028808
Approximate Center
-88.733499,38.02482
-88.73358,38.028464
-88.726417,38.028491
-88.726496,38.032054
-88.729636,38.031957
-88.72981,38.03498
-88.733541,38.035044
-88.733534,38.038173
-88.751927,38.032052
-88.751918,38.038325
-88.756715,38.031956
-88.756641,38.035157
-88.760921,38.032045
-88.770359,38.031917
-88.774896,38.02833
Old Farm Rd
Kings Hwy
Stout Rd
Phillips Rd
Heffner Rd
Mt Brobtari Rd
1 Mile
SCALE
From Permit Application Form 4, Figure 4-2

ATTACHMENT D
SUMMARY OF SUBMITTAL DATES

ATTACHMENT D

SUMMARY OF SUBMITTAL DATES

The following is a summary of submittal dates for data required by this permit. This summary is provided to highlight some of the submittals required by this permit. The referenced condition must be consulted for complete details.

Condition	Submittal	Date Due
B. 4(d)(iii)	Changes to composition of annular fluid used	Next monthly report
B. 4(g)	Procedures for controlled stimulation	30 days prior
B.8(a)	Monthly Operation Reports	15th each month
B.8(c)	Results of test, maintenance, and changes of equipment	Second monthly report after completion
B.10(a)	Information regarding well UIC #2	Within thirty (30) days of the effective date of modified permit, Log No. UIC-212-M-2
B10(b)	Weekly status report for well UIC#2 Investigation of Repair	Weekly
B.10(c)	Well Workover Plan for well UIC #2	Prior to implementation of repair for Illinois EPA's approval
B.11	Well Workover Report for well UIC#2	Prior to resuming injection for Illinois EPA's approval
H.2	Duty to Reapply	180 days prior to expiration
H. 12(a)	Planned Changes	15 days prior to planned changes
H. 14(a)	Corrective Action Requirements by Telephone	24 hours after the discovery
H. 14(b)	Corrective Action Notification by Letter	5 days after the discovery
H. 14(a)	Oral Notification of Endangerment of Environmental	Within 24 hours of time of endangerment
H.14(b)	Notification by letter of Endangerment of Environmental	Within 5 days of endangerment

Condition	Submittal	Date Due
H. 21(b)	Submit any relevant facts or information not previously submitted	Within 10 days of becoming aware
H. 23(a)	Notice of well abandonment	60 days prior to abandonment
H. 23(c)	Certification of Plugging and Abandonment	60 days after plugging
H. 24	Plans for Conversion	180 days prior to actual conversion
H. 24	Notify before Conversion or Abandonment	45 days prior to conversion or abandonment
H. 26(d)(i)	Conduct a Temperature Survey on well UIC#1	Within 90 days of commencing injection pursuant to permit modification Log No. UIC-212-M-2, and thereafter every 2 years
H. 26(d)(ii)	Conduct a Temperature Survey on well UIC#2	Within 90 days, but no earlier than forty-five (45) days, of commencing injection pursuant to permit modification Log No. UIC-212-M-2, and thereafter every 6 months
H. 26(e)	Mechanical Integrity Testing	30 days prior to demonstration
H. 26(g)	Gauge calibration	January 15 of each year
H. 27(b)	Revised Contingency Plan	Within 30 days of changes at facility that require revisions to plan.
H. 28	39i Certification	Within 30 days of any event described in Condition H.28
I. 2(b)	Sampling and analysis report	Within 14 days after receipt of analytical results to demonstrate that injectate does not contain PFAS
I. 3	Revised Waste Analysis Plan	Within sixty (60) days of the effective date of modified permit, Log No. UIC-212-M-2

ATTACHMENT E
WELL COMPLETION REPORT INSTRUCTION AND UIC FORM 4H

FORM 4h - WELL COMPLETION REPORT INSTRUCTIONS

Use the space provided to indicate the location of each item in the application. The source of all data shall be referenced in the report.

Item I

Indicate the type of permit as either an individual or area permit, including whether it is an emergency, new or renewal request. For renewal requests, provide the permit number of the existing permit. Requests for area permits should indicate the well number and the name of the field in addition to the above information.

Item II

The location of the well is to be provided in the Township-Range-Section System of the Bureau of Land Management of the US Government, Latitude and Longitude coordinates (degrees, minutes, seconds). In addition, include the closest municipality name and county.

Items III, IV and V

Provide the surface elevation, referenced to mean sea level, in both feet and meters.
Provide the depth of the well in both feet and meters.
Provide the static water level, referenced to mean sea level, in both and meters.

Item VI

Provide the demonstrated fracturing pressure, if applicable, in psi or kg/cm2. In addition, include information on the type of test used to determine the fracturing pressure.

Item VII

Indicate whether the well was completed as an open hole, fully cased and perforated, screen and gravel pack or other. If other, please specify.

Item VIII

Attach a schematic or other appropriate drawing of the surface and subsurface details of the well. If the schematic is not attached, please explain.

Item IX. A

Provide the depth interval, in feet, and the corresponding diameter, in inches, of the hole.

Item IX. B

For the annulus protection system, provide the following information:

1. Annular space(s), including the inner and outer diameter;

2. Type of annular fluid;
3. Specific gravity of annular fluid;
4. Coefficient of annual fluid;
5. Packer(s), including;
   - type
   - name and model
   - setting depth, in both feet and meters
6. Indicate if fluid was spotted under the packer, including the type, frequency and quantity
7. Well driller information should include the following information:
   - data on the drilling firm, including name, address and contact person
   - drilling method

Item X

Include copies of all logs unless the logs have previously been submitted to the Agency. If the logs have been previously submitted, indicate the date(s) the logs were submitted.

Item XI. A

Provide the following information for each of the casing strings used:

- depth interval in feet
- outside diameter in inches
- inside diameter in inches
- weight in pounds per foot
- grade, API
- design coupling
- coupling outside diameter in inches
- thermal conductivity BTU, ft.hr.degrees F

Item XI. B

Provide the following information for the injection tubing:

- type/grade, API
- outside diameter in inches
- inside diameter in inches
- weight in pounds per foot
- joint specification
- depth interval in feet
- thermal conductivity BTU, ft.hr. Degrees F
- maximum allowable suspended weight based on joint strengths of injection tubing
- weight of injection tubing string (axial load) in air

Item XI. C

Provide the following cementing information for each casing string:

- depth interval in feet
- type/grade
- additives
- quantity in cubic yards
- circulated, yes or no
- thermal conductivity BTU

Item XII

Provide the following information for all filters and injection pumps:

- location
- type
- name
- model number
- capacity (g.p.m.)
- pore size in microns

Item XIII

Revised copies of the form(s) are required following construction to account for any changes from the proposed well construction using actual data obtained during construction.

Item XIV

Provide the results of detailed testing on the compatibility of the injection fluid with each of the listed items at expected bottom hole pressures and temperatures. Include a discussion on corrosiveness, reactivity and by products of the injection fluid and formation fluids and minerals and well components expected to come in contact with the injected fluids.

Item XV

Attach a list of any changes in recording devices, specifying the location, name and model, mechanical or electrical if applicable, continuous or non-recording, and whether the gauge exceeds the maximum operating range by 20% from the devices approved in the approved permit, including:

- injection pressure gauges
- casing-tubing annulus pressure gauges
- flow meters
- pH recording devices
- temperature

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
UNDERGROUND INJECTION CONTROL PERMIT APPLICATION

FORM 4h - WELL COMPLETION REPORT

USEPA ID NUMBER _____
IEPA ID NUMBER _____
WELL NUMBER _____

I. Type of Permit
Individual: _____
Emergency _____
New _____
Renewal _____
Permit Number _____
Area: _____
Number of well _____
Name of Field _____
Emergency _____
New _____
Renewal _____
Permit Number _____

Location in Application

_____ II. Location, see instructions
_____ A. Township-Range-Section
_____ B. Latitude/Longitude
_____ C. Closest Municipality
_____ III. Surface Elevation
_____ IV. Well Depth
_____ V. Static Water Level
_____ VI. Demonstrated Fracturing Pressure, if applicable
_____ VII. Injection Well Completion
_____ VIII. Well schematic or other appropriate drawing of surface and subsurface construction details
_____ IX. Well Design and Construction
_____ A. Well hole diameters and corresponding depth intervals
_____ B. Annulus Protection System
_____ 1. Annular space, ID and OD
_____ 2. Type of annular fluid(s)
_____ 3. Specific gravity of annular fluid
_____ 4. Coefficient of annular fluid
_____ 5. Packer(s)
_____ a. Setting depth

b. Type
c. Name and model
6. Description of fluid spotting frequency, type and quantity
7. Information on well driller used for construction of this well

X. Tests and Logs
A. During Drilling
B. During and after casing installation
C. Demonstrate mechanical integrity prior to operation
D. Copies of logs and tests listed above
E. Description of well stimulation

XI. Well Design and Construction
A. Casings, see instructions
1. Conductive casing
2. Surface casing
3. Intermediate casing(s)
4. Long string casing
5. Other casing
B. Injection Tubing, see instructions
1. Maximum allowable suspended weight based on joint strength
2. Weight of injection tubing string (axial load) in air
C. Cement, see instructions
1. Conductive casing
2. Surface casing(s)
3. Intermediate casing
4. Long string casing
5. Other casing

XII. Surface Facilities, see instructions
A. Filters(s)
B. Injection pump(s)

XIII. Hydrogeologic Information
A. Revised UIC Form 4a
B. Revised UIC Form 4d using actual data on injection formation
C. Revised UIC Form 4g
D. Copy of well completion report submitted to the Department of Natural Resources (Formerly Mines and Minerals)
E. Copy of any plugging affidavits on injection well filed with Department of Natural Resources

XIV. Injection Fluid Compatibility, see instructions
A. Compatibility with injection zones fluid
B. Compatibility with minerals in the injection zone
C. Compatibility with minerals in confining zone
D. Compatibility with injection well components
1. Injection tubing

_____ 2. Long string casing
_____ 3. Cement
_____ 4. Annular fluid
_____ 5. Packer(s)
_____ 6. Well head equipment
_____ 7. Holding tank(s) and flow lines
_____ E. Full description of compatibility of injection fluid with items A through D

_____ XV. Monitoring Program, see instructions
_____ A. Injection pressure gauge(s)
_____ B. Casing-tubing annular pressure gauge(s)
_____ C. Flow meter(s)
_____ D. pH recording device(s)
_____ E. Temperature

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who managed 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.

_____ _____
Name & Official Title Phone Number

_____ _____
Signature Date Signed

ATTACHMENT F
MECHANICAL INTEGRITY TESTS DURING SERVICE LIFE OF WELL

ATTACHMENT F:
MECHANICAL INTEGRITY TESTS DURING SERVICE LIFE OF WELL

I. Internal Mechanical Integrity Test - Annulus Pressure Test

An internal mechanical integrity test will be performed to check for possible leaks within the tubing string, production casing, wellhead, and/or the production packer. This test entails applying a pressure greater than the injection pressure to monitor the casing/tubing annulus. Once the pressure is applied, it will be blocked in. Using a calibrated pressure gauge with 1 to 2 psi increments or a digital pressure gauge, the pressure will be recorded for a duration of one (1) hour, recording a pressure reading every 10-minutes. A pressure loss or gain of 3 % or less from the initial pressure reading is determined to be an acceptable test.

Procedure:

1. The well will be shut-in for at least 24 hours prior to the internal MIT (annular pressure test) so the well will be in thermal equilibrium before commencing the test. The tubing-to-casing annulus will be pressurized by accepted methods of the Illinois EPA specified to approximately 3,500 psi. to demonstrate annulus hydrostatic pressure exceeds the tubing hydrostatic pressure.

2. The annulus will be isolated from all external artificial sources that could introduce pressure to the annulus.

3. The well will be static during the test.

4. A calibrated gauge will then be installed on the annulus to conduct the internal MIT pressure test. The pressure gauge to be used will have been calibrated within the current year of testing. If the gauge is an analog type, it should have increments of at least 2 psig per division. A copy of the current year gauge calibration and accuracy test sheet will be provided to the Illinois EPA representative at the time of the test.

5. The pressure test shall be for one (1) hour.

6. The pressure loss or gain shall not exceed 3% of the initial test pressure. A pressure variance greater than the allowable may indicate either a lack of integrity that would require repair or may indicate that the well has not reached thermal equilibrium.

7. The liquid in the annulus will be returned from the valve, either captured in a container or the seal pot system. The liquid returns will be observed and measured to ensure that the liquid returns recovered is proportional to the volume of the annulus and the amount of pressurization. The liquid return test will serve as an indication as to whether the full length of the annulus was free of blockage and properly tested. Alternatively, the amount of liquid needed to increase the annulus pressure may be measured.

8. If a satisfactory test is not obtained, the well will remain out of service until corrective action has been taken and a satisfactory test performed.

9. The remedial options for well repair in the external MIT procedures details possible procedures that would be followed should the well fail the MIT.

10. Results of the test will be reported on the USEPA STANDARD ANNULAR TEST FORM and submitted to the IEPA within 30 days of testing.

    If the well should not pass either portion to the two part Mechanical Integrity Test, the well will remain shut in until remedial action has been completed and an acceptable MIT has been taken.

II. External Mechanical Integrity Test - Temperature Survey

Temperature survey procedure:

1. The temperature survey will be conducted down the ±7,400' of 5 Y2" disposal string with a packer, after the referenced Class I disposal well has been shut in for a minimum of 24 hours (more time if necessary). The well will be shut in fora minimum of 24 hours prior to running the temperature surveys to allow the well to reach static conditions.

2. A temperature range of 2°F to 3°F per division (8°F to 12°F per inch) will give reliable data without recording shifts.

3. The temperature tool will be sensitive to temperature changes of at least 0.1°F.

4. The temperature log will be conducted in tandem with a collar locator tog and a gamma ray log. A differential temperature curve will also be included.

5. The temperature log will be run going into the well at a speed between 20 and 35 feet per minute. The logging speed will be kept constant for all sequential passes. The logging tool will not be stopped during a log run.

6. The beginning and ending clock time will be recorded on each log pass.

7. The initial base log will be run from surface to well total depth after the 24 hour shut-in period. Once the base log has reached total depth the logging tool will be pulled to a depth of 300 feet above the base of the longstring casing shoe and secured for injection.

8. The flow meter will be recorded prior to commencing injection. Once injection is commenced, temperature of the injected fluid will be recorded before and during injection. This information will be provided with the final report.

9. Inject the greater of either three well volumes or one barrel of fluid per each foot of disposal interval. The well volume is to be calculated using the volume of the longstring casing plus the open hole interval, if applicable. The minimum amount of water to be injected during the external phase of the two part MIT test for well UIC#1 and UIC#2 is 5,400 bbls or 227,000 gallons.

   The best results are obtained when the difference between the injected fluid temperature and the wellbore temperature at the zone of interest is at least 35°F, especially if the temperature log is conducted through the tubing. In no case shall the temperature difference be less than 10°F. Even minor variations in the temperature of the injection water can adversely influence the results; thus, a source of water with a uniform temperature should be used. The injection rate used should be at a normal operational injection rate and, if feasible, the maximum permitted injection rate. The fluid will be at least 15° cooler or warmer than the wellbore temperature at the disposal zone. The injection rate will be at or above normal operational injection rate.

10. After injection ceases, intermediate temperature surveys will be run from +7,000 feet to +8,200 feet or approximately 1,200 feet. The first intermediate survey will be run one hour after injection was shut off, the second survey will be run after two hours, and the third and final intermediate survey will be run after four hour. Running the temperature log through this interval following injection will determine if there is any movement of fluid below the tubing packer in the vicinity of the longstring casing seat.

11. With the completion of the one hour, two hour and four hour intermediate surveys the temperature logging tool will be pulled to the surface, then re-run as the final survey from surface to total depth.

12. A complete set of temperature logs (hard copy and digital files) will be submitted to IEPA along with a final written report. Each log will show the time the log was run, the well conditions, scales, and logging speed.

13. The final written report will describe the logging procedure, the volume and rate of fluid injected, the injection pressure, and all pertinent well condition details the shut in period and any variations from the approved testing plan. The report will also contain a description and interpretation of the temperature logs.

14. The well remedial options details possible procedures that would be followed should the well fail the MIT. Should any of these procedures become necessary, a workover procedure will be submitted to the IEPA. Upon IEPA approval of the proposed remedial action plan the workover procedure will be implemented. Potential remedial actions include:

    - Repair or replace the surface fittings and/or valves.
    - Pull tubing and packer for inspection.

- Run casing scraper to clean scale or other substance material from casing.
- Pressure test the tubing.
- Replace defective or corroded tubing joints.
- Pressure test the casing.
- Squeeze casing leak or leaks with cement.
- Run in and cement liner.

ATTACHMENT G
CONTINGNECY PLAN

Contingency Plan
January 22, 2024

Alarm System Description

An alarm will be activated when any of the following conditions are recognized:

1. Injection Tubing High-Level Warning when injection pressure is greater than 2,500 psi
2. Annulus Pressure High-Level Warning when annulus pressure is greater than 3,250 psi
3. Annulus Pressure Low-Level Warning when annulus pressure is less than 2,750 psi
4. Seal Pot Low-Level Warning when annulus fluid level is less than 10% of capacity
5. Seal Pot High-Level Warning when annulus fluid level is greater than 90% of capacity

Actions Taken by Personnel in Response to Alarm Conditions

Personnel will identify which of the conditions listed above activated the alarm. Personnel will monitor whether the condition continues or has discontinued. Corrective actions will be made to return the system to within specification limits. Analysis will be performed to understand root cause of the alarm condition and to prevent reoccurrence.

Description of Operator/Personnel Alarm Notification

Control systems at the Water Processing Plant and at the Mine will prominently display active alarm condition. Alarms will continue until acknowledged by an operator or appropriate personnel. Personnel acknowledging the alarm will properly document the alarm condition and report to a supervisor or responsible person.

Description of Automatic Shutdown of Annulus Pumps and Injection Pumps

The annulus pressure pump will automatically shutdown when either of the following conditions occur:

1. Annulus pressure greater than 3,500 psi
2. Seal pot level less than 5% of capacity

The injection pressure pump will automatically shutdown when either of the following conditions occur:

1. Injection Pressure greater than 2,525 psi
2. Injection Pressure greater than Annulus Pressure

Following automatic shutdown, the annulus pressure pump will remain inactive until the pressure has decreased to within specification limits. Annulus pressure will be reduced using both the adjustable relief valve and the redundant PLC actuated valve installed in parallel as depicted in the "As-Built" Piping & Instrument Diagram (Drawing No. 1005-D-601) in Attachment D. The actuated valve will function in normally closed position and will only open based on the condition described. Following automatic shutdown of the injection pressure pump, operation will not resume until physically restarted. An operator

or personnel will observe that shutdown has occurred safely and will notify the Water Processing Plant Manager/Supervisor of the event, either by phone or in person. Corrective action instructions will ensure the system is safe for restart. System pressures will be closely monitored throughout the shutdown, corrective action, and restart processes.

Procedures Followed in the Event of Injection Well or Equipment Failure

An operator will notify the Water Processing Plant Manager/Supervisor in the event of failure of the injection well or equipment, either by phone or in person. The injection pump and ancillary booster system will be locked-out/tagged-out until Water Processing Plant Manager/Supervisor observation is completed. Upon complete Water Processing Plant Manager/Supervisor observation, corrective actions will be performed as necessary.

List of the Persons Designated to Oversee Well Emergency Operations

Personnel may be reached through the M-Class directory (618)-435-2491. Notification list is as follows:

1. Water Processing Plant Manager/Supervisor
2. Environmental / Engineering
3. Prep Plant Control Room (if previous personnel is unavailable)

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