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UTAH DIVISION OF WATER QUALITY

CLASS III AREA PERMIT

UNDERGROUND INJECTION CONTROL (UIC) PROGRAM

UIC Permit Number: UTU-37-AP-5D5F693

Lisbon Valley Mine
San Juan County, Utah

Permit Issued to:

Lisbon Valley Mining Company, L.L.C.

October, 2020

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PND DRAFT

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- Attachment B - Map of the UIC Area of Review including the Project Area
- Attachment C - Corrective Action Plan for Artificial Penetrations into Injection Zone within Area of Review
- Attachment D - Injection Well Construction Plan with Injection Well Construction Details
- Attachment E - Injection Well Operating Plan and Procedures
- Attachment F - Monitoring, Recording, and Reporting Plan
- Attachment G - Contingency Plan for Well Shut-ins or Well Failures
- Attachment H - Groundwater Restoration Plan
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- Attachment J - Financial Responsibility
- Attachment K - Expected Changes Due to Injection
- Attachment L - Mechanical Integrity Demonstration Protocols
- Attachment M - Aquifer Exemption Request

PART I. AUTHORIZATION TO CONSTRUCT AND INJECT

Pursuant to the Utah Underground Injection Control (UIC) Program Regulations codified in the Utah Administrative Code (UAC) R317-7,

Lisbon Valley Mining Company, LLC
(Hereafter referred to as Lisbon Valley)
PO Box 400
Moab, Utah 84532

Lisbon Valley Mining Company (Lisbon Valley) is hereby authorized to construct and operate Class III in-situ copper recovery injection wells in south central San Juan County, Utah to extract copper from the mineralized ore within the Burro Canyon Aquifer which includes the Dakota and Burro Canyon Formations. A general location map is included as Attachment A.

The legal description of the area to be included in the UIC area permit follows:

Township 31 South, Range 26 East, SLB&M

Section 4: All
Section 5: All
Section 6: All
Section 7: All
Section 8: All
Section 9: All
Section 10: All
Section 11: All
Section 14: All
Section 15: All
Section 16: All
Section 17: All

Township 30 South, Range 26 East, SLB&M

Section 31: All
Section 32: All

Township 30 South, Range 25 East, SLB&M

Section 36: All

Township 31 South, Range 25 East, SLB&M

Section 1: All

Containing 4803 acres
San Juan Counties, Utah

A map showing the area of review including the existing and proposed Class III in-situ copper recovery wells and the project area is included as Attachment B.

Whereas the Burro Canyon Aquifer must be exempted as an Underground Source of Drinking Water (USDW) according to UAC R317-7-4 and Title 40 of the Code of Federal Regulations (40 CFR) 144.7 and 146.4 within the permitted area before this permit becomes effective, the conditions in this permit are designed to ensure protection of the Navajo Aquifer and any USDWs that may be identified in the future.

Injection is explicitly limited to the Burro Canyon Aquifer, including the Dakota and Burro Canyon Formations, in the area of the facility from the top of the formation in contact with the Mancos Shale Formation or 100 ft below ground surface whichever is greater, to the depth where it contacts the Morrison Formation, upon the express conditions that the Lisbon Valley meets the conditions set forth herein. Injection into new wells shall not commence until the operator has fulfilled all applicable conditions of this permit and has received written authorization from the Director of the Division of Water Quality (hereafter referred to as ‘the Director’) to inject.

It is typical of copper recovery mining operations to use production wells and injection wells interchangeably for at least some period of time. Therefore, this permit will cover both production wells and injection wells.

All references to UAC R315-2-3, UAC R317-7, and to 40 CFR are to all regulations that are in effect on the date this permit becomes effective. The following are incorporated as enforceable attachments to this permit:

- Attachment A - General Location Map of the Lisbon Valley Mine, San Juan County.
- Attachment B - Map of the UIC Area of Review including the Class III In-situ copper recovery Injection Wells and the Project Area
- Attachment C - Corrective Action Plan for Artificial Penetrations into Injection Zone within Area of Review
- Attachment D - Injection Well Construction Plan with Injection Well Construction Details
- Attachment E - Injection Well Operating Plan and Procedures
- Attachment F - Monitoring, Recording, and Reporting Plan
- Attachment G - Contingency Plan for Well Shut-ins or Well Failures
- Attachment H - Groundwater Restoration Plan
- Attachment I - Plugging and Abandonment Plan
- Attachment J - Financial Responsibility
- Attachment K - Expected Changes Due to Injection
- Attachment L - Mechanical Integrity Demonstration Protocols
- Attachment M - Aquifer Exemption Request

This permit is based upon representations made by the Lisbon Valley and other information contained in the administrative record. **It is the responsibility of the Lisbon Valley to read and understand all provisions of this permit.**

Any person who violates the Utah Water Quality Act (UWQA), or any permit, rule, or order adopted under it, is subject to the provisions of section UCA 19-5-115 of the UWQA governing violations.

This permit shall become effective _____, 2020.

This permit and the authorization to inject shall be issued for 5 years as described in Part III A – Duration of Permit of this permit unless terminated prior to the expiration date or renewed.

Erica Brown Gaddis, PhD
Director
Utah Division of Water Quality

DWQ-2020-020464

PART II. GENERAL PERMIT CONDITIONS

A. EFFECT OF PERMIT

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. Lisbon Valley, authorized by this permit, shall not construct, operate, maintain, convert, plug, abandon or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water (USDW), if the presence of that contaminant may cause a violation of any primary drinking water standard under the Utah Public Drinking Water Administrative Rules, UAC R309-200 and 40 CFR Part 141, or may otherwise adversely affect the health of persons. Any underground injection activity not specifically authorized in this permit is prohibited unless otherwise authorized-by-rule or by another UIC permit. Compliance with this permit does not constitute a defense to any action brought under the Utah Water Quality Act (UWQA) Title 19, Chapter 5 Utah Code Annotated 1953, or any other common or statutory law or regulation. Issuance of this permit does not authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Nothing in this permit shall be construed to relieve Lisbon Valley of any duties under applicable regulations.

B. SEVERABILITY

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

C. CONFIDENTIALITY

In accordance with Utah Code 19-1-306 (Records of the Department of Environmental Quality), Utah Code 63G-2-309 (Confidentiality Claims), and Utah Code 19-5-113 (DWQ Records and Reports Required by Owners/Operators) any information deemed by Lisbon Valley to be entitled to trade secret protection submitted to the DWQ pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "Confidential Business Information" on each page containing such information. If no claim is made at the time of submission, the DWQ may make the information available to the public without further notice. Claims of confidentiality may be denied by the DWQ according to the procedures detailed in Utah Code 63G-2 and the federal Freedom of Information Act (FOIA). Claims of confidentiality for the following information will be denied as per UAC R317-7-9.7:

1. The name and address of the permittee.
2. Information that deals with the existence, absence or level of contaminants in drinking water.

D. CONDITIONS APPLICABLE TO ALL UIC PERMITS (40 CFR 144.51)¹

The following conditions are required for all Class III permits. Specific requirements for implementing these conditions are included in Part III of this permit, as necessary.

1. Duty to Comply (40 CFR 144.51(a))

Lisbon Valley shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Safe Drinking Water Act and the UWQA and is grounds for enforcement action, permit termination, revocation and re-issuance, modification; or for denial of a permit renewal application; except that Lisbon Valley need not comply with the provisions of this permit to the extent and for the duration such noncompliance is authorized in an emergency permit issued in accordance with UAC R317-7-8 (40 CFR 144.34). Such noncompliance may also be grounds for enforcement action under the Utah Solid and Hazardous Waste Act (USHWA), Title 19, Chapter 6, Utah Code Annotated 1979.

2. Duty to Reapply (40 CFR 144.51(b))

If the Lisbon Valley wishes to continue an activity regulated by this permit after the expiration date of this permit, the Lisbon Valley must apply for and obtain a new permit. Lisbon Valley shall submit a complete permit renewal application at least 180 days before this permit expires. Class III well permits are subject to renewal by the Director at least once every five years to determine whether it should be modified, revoked and reissued, or terminated.

3. Need to Halt or Reduce Activity Not a Defense (40 CFR 144.51(c))

It shall not be a defense for Lisbon Valley in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. Duty to Mitigate (40 CFR 144.51(d))

Lisbon Valley shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

5. Proper Operation and Maintenance (40 CFR 144.51(e))

Lisbon Valley shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by Lisbon Valley to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate

¹ Parenthetical references to the Code of Federal Regulations (CFR) and / or the Utah Administrative Code (UAC) for the UIC Program indicate the requirement for inclusion in the permit.

laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

6. Permit Actions

(40 CFR 144.51(f), 40 CFR 124.5, 40 CFR 144.38, 40 CFR 144.39, 40 CFR 144.40, 40 CFR 144.41)

This permit may be modified, revoked and reissued, or terminated either at the request of any interested person (including Lisbon Valley) or upon the Director's initiative. However, permits may only be modified, revoked and reissued, or terminated for the reasons specified in sections a) and b) below. All requests shall be in writing and shall contain facts or reasons supporting the request. The filing of a request for a permit modification, revocation and re-issuance, or termination on the part of Lisbon Valley, does not stay any permit condition. This permit may be transferred according to the procedures given in section d).

a) Modify or Revoke and Re-Issue Permits

When the Director receives any information (for example, inspects the facility, receives information submitted by Lisbon Valley as required in the permit, receives a request for modification or revocation and reissuance, or conducts a review of the permit file), the Director may determine whether or not one or more of the causes listed in paragraphs (1) and (2) of this section for modification or revocation and reissuance or both exist. If cause exists, the Director may modify or revoke and reissue the permit accordingly, subject to the limitations of paragraph (3) of this section, and may request an updated application if necessary. When a permit is modified, only the conditions subject to modification are reopened. If a permit is revoked and reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term. If cause does not exist under this section a) or under section c) for minor modifications, the Director shall not modify or revoke and reissue the permit. If a permit modification satisfies the criteria for minor modifications in section c) the permit may be modified without a draft permit or public review. Otherwise, a draft permit must be prepared and other procedures in 40 CFR 124, incorporated by reference into the Utah UIC Program rules (hereafter referred to as '40 CFR 124'), must be followed.

- (1) Causes for modification. For Class III wells the following may be causes for revocation and reissuance as well as modification.
- i. Alterations. There are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit.

- ii. Information. The Director has received information. For UIC area permits, this cause shall include any information indicating that cumulative effects on the environment are unacceptable.
 - iii. New regulations. The standards or regulations on which the permit was based have been changed by promulgation of new or amended standards or regulations or by judicial decision after the permit was issued.
 - iv. Compliance schedules. The Director determines good cause exists for modification of a compliance schedule, such as an act of God, strike, flood, or materials shortage or other events over which Lisbon Valley has little or no control and for which there is no reasonably available remedy. See also paragraph (3) under section c) – Minor Modification of Permit).
- (2) Causes for modification or revocation and reissuance. The following are causes to modify or, alternatively, revoke and reissue a permit:
- i. Cause exists for termination under section b), and the Director determines that modification or revocation and reissuance is appropriate.
 - ii. The Director has received notification (as required in the permit, see paragraph (4) under section c) – Minor Modification of Permit) of a proposed transfer of the permit. A permit also may be modified to reflect a transfer after the effective date of an automatic transfer (see paragraph (2) of section d) – Transfer of Permit) but will not be revoked and reissued after the effective date of the transfer except upon the request of the new Lisbon Valley.
 - iii. A determination that the waste being injected is a hazardous waste as defined in 40 CFR 261.3 either because the definition has been revised, or because a previous determination has been changed.
- (3) Facility siting. Suitability of the facility location will not be considered at the time of permit modification or revocation and reissuance unless new information or standards indicate that a threat to human health or the environment exists which was unknown at the time of permit issuance.

b) Termination of Permit

- (1) The Director may terminate a permit during its term, or deny a permit renewal application for the following causes:
- i. Noncompliance by the Lisbon Valley with any condition of the permit;
 - ii. The Lisbon Valley's failure in the application or during the permit issuance process to disclose fully all relevant facts, or the Lisbon Valley's misrepresentation of any relevant facts at any time; or

iii. A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination;

(2) The Director shall follow the applicable procedures in 40 CFR 124 in terminating any permit under this section.

c) Minor Modification of Permit

Upon the consent of the Lisbon Valley, the Director may modify a permit to make the corrections or allowances for changes in the permitted activity listed in this section, without following the procedures of 40 CFR 124. Any permit modification not processed as a minor modification under this section must be made for cause and with 40 CFR 124 draft permit and public notice as required in section a). Minor modifications may only:

- (1) Correct typographical errors;
- (2) Require more frequent monitoring or reporting by the Lisbon Valley;
- (3) Change an interim compliance date in a schedule of compliance, provided the new date is not more than 120 days after the date specified in the existing permit and does not interfere with attainment of the final compliance date requirement; or
- (4) Allow for a change in ownership or operational control of a facility where the Director determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new Lisbon Valley has been submitted to the Director.
- (5) Change quantities or types of fluids injected which are within the capacity of the facility as permitted and, in the judgment of the Director, would not interfere with the operation of the facility or its ability to meet conditions described in the permit and would not change its classification.
- (6) Change construction requirements approved by the Director pursuant to 40 CFR 144.52(a)(1) (establishing UIC permit conditions), provided that any such alteration shall comply with the requirements of 40 CFR 144 and 40 CFR 146.
- (7) Amend a plugging and abandonment plan which has been updated.

d) Transfer of Permit

- (1) Transfers by Modification. Except as provided in paragraph (2) of this section, a permit may be transferred by Lisbon Valley to a new owner or operator only if the permit has been modified or revoked and reissued (under paragraph (2)(ii) under section a)), or a minor modification made (under paragraph (4) of section c)) to identify the new owner and incorporate such other requirements as may be necessary under the Safe Drinking Water Act.

(2) Automatic Transfers. As an alternative to transfers under paragraph (1) of this section, any UIC permit for a well not injecting hazardous waste or injecting carbon dioxide for geologic sequestration may be automatically transferred to a new owner if:

- i. The current owner notifies the Director at least 30 days in advance of the proposed transfer date referred to in paragraph (2)(ii) of this section;
- ii. The notice includes a written agreement between the existing and new owners containing a specific date for transfer of permit responsibility, coverage, and liability between them, and the notice demonstrates that the following financial responsibility requirements of 40 CFR 144.52(a)(7) will be met by the new owner:

The owner, including the transferor of a permit, is required to demonstrate and maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner prescribed by the Director until:

(A) The well has been plugged and abandoned in accordance with an approved plugging and abandonment plan and submitted a plugging and abandonment report; or

(B) The well has been converted; or

(C) The transferor of a permit has received notice from the Director that the owner or operator receiving transfer of the permit, the new Lisbon Valley, has demonstrated financial responsibility for the well.

The owner shall show evidence of such financial responsibility to the Director by the submission of a surety bond, or other adequate assurance, such as a financial statement or other materials acceptable to the Director.

- iii. The Director does not notify the existing owner and the proposed new owner of intent to modify or revoke and reissue the permit. A modification under this paragraph may also be a minor modification under section c) – Minor Modification of Permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph (2)(ii) of this section.

7. Property Rights (40 CFR 144.51(g))

This permit does not convey any property rights of any sort, or any exclusive privilege.

8. Duty to Provide Information (40 CFR 144.51(h))

Lisbon Valley shall furnish to the Director within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and re-issuing, or terminating this permit, or to determine compliance with this permit. The Lisbon Valley shall also furnish to the Director upon request, copies of records required to be kept by this permit.

9. Inspection and Entry (40 CFR 144.51(i))

Lisbon Valley shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by the law, to:

- a) Enter upon the Lisbon Valley's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- b) Have access to and copy, at reasonable times, any records that are kept under the conditions of this permit;
- c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the SDWA and / or UWQA any substances or parameters at any location.

10. Monitoring and Records (40 CFR 144.51(j))

- a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
 - b) Lisbon Valley shall retain records of all monitoring information, including the following:
 - (1) Calibration and maintenance records and all original strip 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 Director at any time; and
 - (2) The nature and composition of all injected fluids until three years after the completion of any plugging and abandonment as appropriate. The Director may require the owner or operator to deliver the records to the Director at the conclusion of the retention period.
 - c) Records of monitoring information shall include:
 - (1) The date, exact place, and time of sampling or measurements;
 - (2) The individual(s) who performed the sampling or measurements;
-

- (3) The date(s) analyses were performed;
- (4) The names of individual(s) who performed the analyses;
- (5) The analytical techniques or methods used; and
- (6) The results of such analyses.

11. Signatory Requirements (40 CFR 144.51(k))

All reports or other information, submitted as required by this permit or requested by the Director, shall be signed and certified as follows:

a) Applications. All permit applications shall be signed as follows:

- (1) For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
 - i. A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or
 - ii. the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

Note:

The Division of Water Quality does not require specific assignments or delegations of authority to responsible corporate officers identified in 40 CFR 144.32(a)(1)(i). Therefore, the Division of Water Quality will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the Director to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate positions under 40 CFR 144.32(a)(1)(ii) rather than to specific individuals.

- (2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
- (3) For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes: (i) The chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

b) Reports. All reports required by permits and other information requested by the Director shall be signed by a person described in section a), or by a duly

authorized representative of that person. A person is a duly authorized representative only if:

- (1) The authorization is made in writing by a person described in paragraph a) of this section;
 - (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 - (3) The written authorization is submitted to the Director.
- c) Changes to authorization. If an authorization under section b) is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of section b) must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.
- d) Certification. Any person signing a document under section a) or b) shall make the following certification:

“I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OF 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.”

12. Reporting Requirements (40 CFR 144.51(l))

All requirements for reporting the following items are specified in Part III (H) of the permit.

a) Planned Changes

Lisbon Valley shall give written notice to the Director, as soon as possible, of any planned physical alterations or additions to the UIC-permitted facility. Notification of planned changes on the part of Lisbon Valley does not stay any permit condition.

b) Anticipated Noncompliance

Lisbon Valley shall give advance notice to the Director of any planned changes in the permitted facility or activity that may result in noncompliance

with permit requirements. Notification of anticipated noncompliance on the part of Lisbon Valley does not stay any permit condition.

c) Permit Transfers

This permit is not transferable to any person except in accordance with section d) of Permit Actions – Transfer of Permit. The Director may require modification or revocation and re-issuance of the permit to change the name of Lisbon Valley and incorporate such other requirements as may be necessary under the Safe Drinking Water Act and / or the UWQA.

d) Monitoring

All reporting requirements of monitoring results shall be reported at the intervals specified in Part III (H) of this permit.

e) Compliance Schedule

All reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule specified in Part III (B) of this permit shall be submitted no later than 30 days following each schedule date as specified in Part III (H) of this permit.

f) Endangering Noncompliance

Lisbon Valley shall report to the Director any noncompliance that may endanger health or the environment, as follows:

(1) Twenty-four Hour Reporting

Endangering noncompliance information shall be provided orally within 24 hours from the time Lisbon Valley becomes aware of the circumstances. Such reports shall include, but not be limited to, the following information:

- i. Any monitoring or other information that indicates any contaminant may cause an endangerment to a USDW, or
- ii. Any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between USDWs.

(2) Five-day Reporting

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

g) Other Noncompliance

Lisbon Valley shall report all instances of noncompliance not reported under 12d) (Monitoring Reports), 12e) (Compliance Schedule Reports), or 12f) (Endangering Noncompliance Monitoring) of this section in the next

Monitoring Report. The reports shall contain a description of the noncompliance and its cause, the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

h) Other Information

When Lisbon Valley becomes aware of a failure to submit any relevant facts in the permit application or submitted incorrect information in a permit application or in any report to the Director, Lisbon Valley shall submit such facts or information within 10 days after becoming aware of the failure to submit relevant facts.

13. Requirements Prior to Commencing Injection (40 CFR 144.51(m))

a) For any new injection well authorized by individual permit, a new injection well may not commence injection until construction is complete, and

(1) Lisbon Valley has submitted notice of completion of construction to the Director; and

(2) Either of the following:

i. The Director has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the permit; or

ii. Lisbon Valley has not received notice from the Director of his or her intent to inspect or otherwise review the new injection well within 13 days of the date of the notice in section a), in which case prior inspection or review is waived and Lisbon Valley may commence injection. The Director shall include in his notice a reasonable time period in which he shall inspect the well.

b) For new injection wells authorized by an area permit under UAC R317-7-7 (40 CFR 144.33), all requirements prior to commencing injection are specified in Part III (E) of the permit.

14. Notification Prior to Conversion or Abandonment. (40 CFR 144.51(n))

Lisbon Valley shall notify the Director at such times as the permit requires before conversion or abandonment of the well or in the case of area permits before closure of the projects.

15. Plugging and Abandonment Requirements. (40 CFR 144.51(o))

A Class III permit shall include, conditions for developing a plugging and abandonment plan that meets the applicable requirements of UAC R317-7 to ensure that plugging and abandonment of the well will not allow the movement of fluids into or between USDWs. If the plan meets the plugging and abandonment requirements of UAC R317-7, the Director shall incorporate it into the permit as a permit condition. Where the review of the plan submitted in the permit

application indicates the plan is inadequate, the Director may require the applicant to revise the plan, prescribe conditions meeting the requirements of this paragraph, or deny the permit. For purposes of this paragraph, temporary or intermittent cessation of injection operations is not abandonment. All requirements for implementing the approved plugging and abandonment plan are specified in Part III (J) of this permit.

16. Plugging and Abandonment Report. (40 CFR 144.51(p))

All requirements for submitting a plugging and abandonment report are specified in Part III (H) of this permit.

17. Duty to Establish and Maintain Mechanical Integrity. (40 CFR 144.51(q))

- a) The owner or operator of a Class III well shall establish mechanical integrity prior to commencing injection or on a schedule determined by the Director, and thereafter maintain mechanical integrity as defined in 40 CFR 146.8.
- b) When the Director determines that a Class III well lacks mechanical integrity pursuant to 40 CFR 146.8, written notice of this determination shall be given to the owner or operator. Unless the Director requires immediate cessation, the owner or operator shall cease injection into the well within 48 hours of receipt of the Director's determination. The Director may allow plugging of the well pursuant to the requirements of UAC R317-7 or require Lisbon Valley to perform such additional construction, operation, monitoring, reporting and corrective action as is necessary to prevent the movement of fluid into or between USDWs caused by the lack of mechanical integrity. The owner or operator may resume injection upon written notification from the Director that the owner or operator has demonstrated mechanical integrity pursuant to 40 CFR 146.8.
- c) The Director may allow the owner/operator of a well which lacks internal mechanical integrity pursuant to Part III (I)(1)(a) of this permit to continue or resume injection, if the owner or operator has made a satisfactory demonstration that there is no movement of fluid into or between USDWs.

PART III. SPECIFIC PERMIT CONDITIONS

A. DURATION OF PERMIT
(R317-7-9.5 and 40 CFR 144.36)

This UIC Class III In-situ copper recovery permit shall be issued for five years unless terminated sooner according to Part II(D)(6)(b) of this permit. The Director shall review permit renewal requests submitted by the Lisbon Valley once every five (5) years to determine whether it should be modified, revoked and re-issued, terminated, or undergo minor modification according to the requirements of Part II (D)(6) of this permit.

B. COMPLIANCE SCHEDULE
(40 CFR 144.53)

Lisbon Valley must address each of the following conditions within the time period indicated for each item. Failure to do so may result in the termination of the permit according to Part II(D)(6)(b) of this permit.

1. Construction Plan

Lisbon Valley shall submit for the Director's approval a Construction Plan, which meets the requirements of Part III (D) of this permit, for all Class III injection wells, any production well that may be used for injection, and any stratigraphic test well. The Plan shall be submitted within 90 days of the effective date of this permit and before construction of any new injection well.

2. Operating Plan

Lisbon Valley shall submit for the Director's approval an Operating Plan which meets the requirements of Part III (F) of this permit, for all injection wells including production wells that may be used for injection. The Plan shall be submitted within 90 days of the effective date of this permit and before the construction of any new injection well.

3. Monitoring, Recording and Reporting Plan

Lisbon Valley shall submit for the Director's approval a Monitoring, Recording and Reporting Plan, which meets the requirements of Part III (G and H) of this permit, for all injection wells including production wells that may be used for injection. The Plan shall be submitted within 90 days of the effective date of this permit and before construction of any new injection well.

Lisbon Valley shall include with the monitoring, recording and reporting plan a piping and instrumentation diagram (P&ID) for all fluid movement into and out of the wells, sampling points, valves, etc.

4. Plugging and Abandonment Plan

Lisbon Valley shall submit for the Director's approval a Plugging and Abandonment Plan, which meets the requirements of Part III (J) of this permit, to include all injection wells, production wells that may be used for injection. The Plan shall be submitted within 90 days of the effective date of this permit but before plugging and abandonment

5. Installation of Continuous Monitoring System

Lisbon Valley shall install a continuous monitoring system to collect injection pressure, injection rate, injection volume, injection temperature, injection conductivity, extraction rate, extraction volume, extraction temperature, and extraction conductivity for **all wells**.

a) Monitoring Equipment Installation

Lisbon Valley shall have the monitoring equipment of the continuous monitoring system installed no later than 1 year after the effective date of this permit. A report of the achievement of this interim task shall be submitted to the Director no later than 30 days after deadline for completing this task.

b) Continuous Data Logging

Lisbon Valley shall have the database of the continuous monitoring system operational and be collecting continuous data no later than 2 years after the effective date of this permit. A report of the achievement of this interim task shall be submitted to the Director no later than 30 days after deadline for completing this task.

C. CORRECTIVE ACTION

(40 CFR 144.52(2), 40 CFR 144.55, 40 CFR 146.7)

Lisbon Valley shall identify all artificial penetrations into the permitted injection zones for the in-situ copper recovery operation that lie within the 2-mile radius area of review of the project area. For such wells which are improperly sealed, completed, or abandoned, Lisbon Valley shall submit a Corrective Action Plan consisting of such steps or modifications as are necessary to prevent movement of fluid into underground sources of drinking water (USDWs) and/or into the Colorado River. The approved and enforceable Corrective Action Plan, if required, is included as Attachment C of this permit.

D. CONSTRUCTION REQUIREMENTS
(R317-7-10.1(B) and 40 CFR 146.32)

1. Class III Injection Well Construction Standards

Each well shall be constructed according to the requirements for Class III wells set forth in R317-7-10.1(B) and 40 CFR146.32 details of which are included in the following permit conditions.

2. Construction Plan

The approved and enforceable Construction Plan is included as Attachment D of this permit.

3. Changes to the Construction Plan

Changes to the approved Construction Plan must be approved by the Director as a minor modification of the permit according to Part II (D)(6)(c)(6) of this permit. No such changes may be physically incorporated into construction of the wells or wellfield prior to approval of the modification by the Director. All changes must comply with UAC R317-7 and those sections of 40 CFR144 and 40 CFR146 incorporated by reference in the state rule.

4. Casing and Cement

Regulatory Reference: All new Class III wells shall be cased and cemented to prevent the migration of fluids into or between underground sources of drinking water. The Director may waive the cementing requirement for new wells in existing projects or portions of existing projects where there is substantial evidence that no contamination of underground sources of drinking water would result. It is Lisbon Valley's responsibility to provide such evidence to the Director. The casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well. Lisbon Valley shall consider the following factors in designing a casing and cementing program for the well:

- (1) Depth to the injection zone;
- (2) Injection pressure, external pressure, internal pressure, axial loading, etc.;
- (3) Hole size;
- (4) Size and grade of all casing strings (wall thickness, diameter, nominal weight, length, joint specification, and construction material);
- (5) Corrosiveness of injected fluids and formation fluids;
- (6) Lithology of injection and confining zones; and
- (7) Type and grade of cement.

The following requirements pertaining to the cement and casing shall apply:

- a) Only new casing shall be installed.
- b) Surface and intermediate casing strings shall be used to protect USDWs above the uppermost mine.
- c) All casings shall be cemented to protect USDWs and other subsurface resources.
- d) A minimum of one cemented casing shall be set across all formations.
- e) Appropriate cement shall be used for cementing within acidized formations as a result of in-situ copper recovery operations.
- f) Centralizers shall be used on all cemented casing strings and shall be placed to optimize the proper placement of cement in casing-borehole annulus.
- g) Boreholes shall be conditioned prior to running cement.

5. Tubing / Packer

All wells operated in pressurized mode shall be constructed to inject/extract through a screened interval in the casing string or tubing connected to a packer set at the top of the ore zone in the Burro Canyon Aquifer or lower but not lower than the contact with the Morrison Formation.

6. Logging and Testing

Regulatory Reference: Appropriate logs and other tests shall be conducted during the drilling and construction of new Class III wells. A descriptive report interpreting the results of such logs and tests shall be prepared by a knowledgeable log analyst and submitted to the Director. The logs and tests appropriate to each type of Class III well shall be determined based on the intended function, depth, construction and other characteristics of the well, availability of similar data in the area of the drilling site and the need for additional information that may arise from time to time as the construction of the well progresses. Deviation checks shall be conducted on all holes where pilot holes and reaming are used, unless the hole will be cased and cemented by circulating cement to the surface. Where deviation checks are necessary they shall be conducted at sufficiently frequent intervals to assure that vertical avenues for fluid migration in the form of diverging holes are not created during drillings.

All logging and test results must be made available to DWQ upon request.

The following geophysical logs and tests must be performed during construction of each Class III injection well:

- a) Casing Pressure Test according to Part III(I)(9)(a) of this permit.

7. Injection Zone Characterization

- a) Where the injection zone is a formation which is naturally water-bearing the following information concerning the injection zone shall be determined or calculated for new Class III wells or projects:
 - (1) Fluid pressure;
 - (2) Fracture pressure; and
 - (3) Physical and chemical characteristics of the formation fluids.
- b) Where the injection formation is not a water-bearing formation, only the fracture pressure must be submitted.
- c) The approved and enforceable Formation Testing Program is included in the Construction Plan in Attachment D of this permit.

8. Well Stimulation Program

If Lisbon Valley intends to stimulate the well or clean the well bore, enlarge fractures, and increase pore space in the interval to be injected thereby enhancing the injectivity of the well, a Well Stimulation Program must be prepared for the Director's approval and included in the Construction Plan in Attachment D of this permit. Well stimulation commonly refers to hydraulic fracturing, acid fracturing, and matrix acidification. Well stimulation does not include the process of in-situ copper recovery by leaching soluble copper minerals and other incidental reactions of the injectate with the ore and host rock. The expected changes due to injection are described in Attachment K.

9. Monitoring Wells

Attachments B and F provides the locations and design of proposed point of compliance monitoring wells that are required by this permit that must be constructed according to standards set forth in ASTM D5092 / D5092M – 16.

10. Additional Construction Requirements

- a) New Well Construction Plan - No less than 30 days prior to the planned construction of a new well, the Lisbon Valley shall submit individual plans, which meet the requirements of this section, for each new well to be constructed, for review and approval by the Director. Well construction may begin only after receipt of written approval from the Director.
- b) New Mine Workings - No less than 90 days prior to the creation of new conventional mine workings such as shafts etc., Lisbon Valley shall submit for the Director's approval a new hydrogeologic analysis of the mine site in the area of the proposed mine workings and revised construction, operating, monitoring and plugging and abandonment plans to address the potential effect of new mine workings on in situ copper recovery operations.

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- c) New Stratigraphic Wells (Core Holes) – No less than 30 days prior to the planned construction of a new stratigraphic well, Lisbon Valley shall submit individual plans, which meet the requirements of this section, for each new stratigraphic well to be constructed, for review and approval by the Director. Stratigraphic well construction may begin only after receipt of written approval from the Director.

E. REQUIREMENTS PRIOR TO IN-SITU COPPER RECOVERY
(40 CFR 146.34(b))

In accordance with Part II (D)(13) of this permit, the following requirements must be met prior to the commencement of in-situ copper recovery:

1. Aquifer Exemption for USDWs and Aquifer Restoration Plan

- a) Hydrologic data documenting the presence or absence of a USDW(s);
- b) Aquifer Exemption for the Burro Canyon Aquifer (Attachment M) according to the requirements of 40 CFR 144.7 and 40 CFR 146.4;
- c) Pursuant to 40 CFR Parts 146.10 and 144.12, the Permittee shall comply with the Groundwater Restoration Plan in Attachment H and the Plugging and Abandonment Plans in Attachment I in accordance with the schedule for aquifer restoration, groundwater monitoring, and plugging and abandonment activities to ensure adequate protection of USDWs. The Permittee shall also comply with the conditions at I.1 and I.2 below. Where any conflict or inconsistency exists between the plans in Attachments H and I, the permit conditions shall supersede the language in these Attachments.

2. Well Completion Report

The operator shall submit for the Director's review an injection well completion report consisting of:

- a) All available logging and testing data on the well that is relevant to mechanical integrity of the well (casing pressure test data, casing inspection logs, cement evaluation logs, radioactive tracer test logs, spontaneous potential logs, downhole fluid tester data, etc.);
- b) Results of mechanical integrity testing for each new well;
- c) Actual maximum injection pressure and injection flow rate;
- d) Results of the formation testing program;
- e) Actual in-situ copper recovery procedures;
- f) Status of all wells requiring corrective action within the area of review, if applicable;
- g) Detailed 'As-Built' Well Schematic including:
 - (1) Casing details including size, weight, grade and setting depths,

- (2) Cement details including type, special formulations, calculated volumes, actual pumped volumes, and yield (cubic feet / sack),
 - (3) Formation horizons, and
 - (4) Groundwater horizons.
- h) Explanation and justification for any deviations from approved plan.

3. Director's Approval to Commence In-situ copper recovery

Within 14 days after receipt of the well completion report, the Director shall provide written notice denying or granting approval to commence in-situ copper recovery.

F. OPERATING REQUIREMENTS
(R317-7-10.2(A))

1. Class III Injection Well Operation Standards

Operating requirements for the drilling and in-situ copper recovery of each well are set forth in R317-7-10.2(A) details of which are included in the following permit conditions.

2. Operating Plan

The approved and enforceable Operating Plan that meets all the operating requirements of this section is included as Attachment E of this permit.

3. Maximum Allowable Surface Injection Pressure (MASIP)

The maximum allowable surface injection pressure (MASIP) at the wellhead shall be calculated:

- a) to ensure that pressure in the injection zone does not initiate new fractures or propagate existing fractures in the confining zones; and
- b) to ensure that pressures do not cause migration of injectate or formation fluids into an USDW; and
- c) to ensure that pressure in the Burro Canyon Aquifer does not cause migration of injectate or other fluids to the surface.

4. Borehole – Casing Annulus Injection Prohibited

Injection between the outermost casing protecting USDW's and the well bore is prohibited.

5. Additional Operating Requirements

- a) Injection Formations - Injection shall be limited to well screen intervals allowed from the top of the ore zone within the Burro Canyon Aquifer to the

base of the Burro Canyon Aquifer where it contacts the Top of the Morrison Formation.

- b) Injectate Fluid Limitations – Injection fluid is limited to:
- (1) Raffinate from the Solvent Extraction Electrowinning (SXEW) facility
 - (2) Makeup water or acid solution from other sources after disclosure and Director approval of composition and any new additives or conditioners etc. to enhance the in-situ recovery process
- c) Fluid Levels in Burro Canyon Aquifer – The fluid level in the Burro Canyon Aquifer shall be maintained below the ground surface at all times where the injection zone is unconfined. To this end, the depth of the fluid level in injection, recovery and monitor wells in the operational wellfield as measured from the casing collar shall not be less than 50 feet.
- d) If the ore zone in the Burro Canyon Aquifer is confined by the Mancos Shale Formation the MASIP will not cause the fracture pressure of the Mancos Formation, calculated to be 0.6 pound per square inch per foot of depth, to be exceeded at any depth.
- e) The MASIP will not cause fluid pressures at any depth to exceed the manufacturer-specified maximum operating pressure of the injection piping and fittings. This pressure will not initiate new fractures or propagate existing fractures in the injection or confining zone or cause the migration of lixiviant into any USDW in accordance with 40 CFR § 144.28(f)(6)(i).
- f) Hydraulic isolation from of historical mine workings has been demonstrated by pressure transducer monitoring in the workings (footwall) and in the Project Area (hanging wall). ISR operations target GTO ore will not have any operational relationship with the GTO pit or existing open pit operations. If fluid migrations are detected within existing mine workings, injection activities will be halted until the source and compositions of detected fluids is determined and mitigation of injectate migration to these workings is complete
- g) Injection / Extraction Ratios – To maintain an inward hydraulic gradient, the injection flow will range from 1% to 5% less than the extraction flow depending upon local hydrogeologic conditions and operational variability and the injection and recovery rates will be monitored according to Part III (G) of this permit.

G. MONITORING AND RECORDING REQUIREMENTS
(R317-7-10.3(B), 40 CFR 144.54, and 40 CFR 146.34)

1. Class III Injection Well Monitoring and Recording Standards

Monitoring and recording requirements for the drilling and in-situ copper recovery of each well are set forth in R317-7-10.3(B) and 40 CFR144.54 details of which are included in the following permit conditions.

2. Utah UIC Quality Assurance Project Plan (QAPP)

All monitoring, recording, and reporting of environmental data for the UIC Program shall comply with the most current revision of the Utah UIC QAPP.

3. Monitoring, Recording and Reporting Plan

The approved and enforceable Monitoring, Recording and Reporting Plan that meets all the monitoring and recording requirements of this section is included as Attachment F of this permit.

4. Monitoring Equipment and Methods

Regulatory Reference: All monitoring equipment shall be properly selected, installed, used, and maintained according to the manufacturer's specifications so as to yield data which are representative of the monitored activity. All monitoring methods shall be properly selected and implemented at appropriate intervals and frequency so as to yield data which are representative of the monitored activity. Documentation verifying, if applicable, the proper selection, installation, use, and maintenance of monitoring equipment and the proper implementation of monitoring methods shall be made available to the Director upon request.

5. Injectate Characterization

Regulatory Reference: Lisbon Valley shall monitor the nature of injected fluids with sufficient frequency to yield representative data on its characteristics. Lisbon Valley shall provide qualitative analysis and ranges in concentrations of all monitored constituents, listed below, of injected fluids. Whenever the injection fluid is modified to the extent that this analysis is incorrect or incomplete, a new analysis shall be provided to the Director. Lisbon Valley may request confidentiality in accordance with Part II C of this permit. If the information is proprietary then Lisbon Valley may, in lieu of the ranges in concentrations, choose to submit maximum concentrations which shall not be exceeded. In such a case, Lisbon Valley shall retain records of the undisclosed concentrations and provide them upon request to the Director as part of any enforcement investigation.

Lisbon Valley shall monitor the water quality of the injectate at least quarterly or more frequently if the source of the injectate changes. The water quality of the injectate shall be analyzed for the following constituents:

- a) Inorganics: Sulfate, Acidity
- b) Acid Soluble Metals (unfiltered sample): Iron, Copper
- c) Field Measurements: pH, Temperature, Eh, Specific Conductivity

6. Injection Pressure, Injection Rate, and Injection Volume

Regulatory Reference: The Lisbon Valley shall monitor the injection pressure and either the injection rate or injection volume semi-monthly, or metering and daily recording of injected and produced fluid volumes as appropriate.

Lisbon Valley shall continuously monitor the injection pressure, injection rate, injection volume, injection temperature, injection conductivity, extraction rate, extraction volume, extraction temperature, and extraction conductivity for all wells and wellfields.

7. Mechanical Integrity Test (MIT)

Mechanical integrity testing shall be conducted according to Part III (I) of this permit.

8. Injection Zone Fluid Level

Regulatory Reference: The Lisbon Valley shall monitor the fluid level in the injection zone no less frequently than semi-monthly, where appropriate. Injection zone fluid level monitoring shall be representative of the level during normal operations.

9. Manifold Monitoring

Regulatory Reference: Lisbon Valley may monitor its Class III injection wells on a field or project basis rather than an individual well basis by manifold monitoring. Manifold monitoring may be used in cases of facilities consisting of more than one injection well, operating with a common manifold. Separate monitoring systems for each well are not required provided the owner/operator demonstrates that manifold monitoring is comparable to individual well monitoring.

10. Additional Monitoring and Recording Requirements

As of the effective date of this permit or the date the permit was last reviewed, additional permit conditions for monitoring and recording were not required.

H. REPORTING REQUIREMENTS
(R317-7-10.4(B) and 40 CFR 144.54)

1. Quarterly Monitoring Reports

a) Schedule for Submitting Quarterly Monitoring Report

<u>Quarter</u>		<u>Report Due On:</u>
1 st Quarter	Jan 1 – Mar 31	Apr 15
2 nd Quarter	Apr 1 – Jun 30	July 15
3 rd Quarter	Jul 1 – Sep 30	Oct 15
4 th Quarter	Oct 1 – Dec 31	Jan 15

b) Content of Quarterly Monitoring Reports

Monitoring data for the following shall be included in the quarterly monitoring reports:

- (1) Injectate Characterization
- (2) Injection Pressure - daily average
- (3) Injection and Extraction Rates, Volumes, Temperature and Conductivity - daily average
- (4) Injection Zone Fluid Level - daily average
- (5) Monitoring Wells according to Attachment F
- (6) Manifold Monitoring, if applicable
- (7) Noncompliance Not Previously Reported – Such reports shall contain a description of the noncompliance and its cause, the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.
- (8) Other Required Monitoring

2. Endangering Noncompliance Reporting

Lisbon Valley shall report to the Director any noncompliance that may endanger health or the environment, as follows:

a) Twenty-four Hour Reporting

Endangering noncompliance information shall be provided orally within 24 hours from the time Lisbon Valley becomes aware of the circumstances. Such reports shall include, but not be limited to, the following information:

- (1) Any monitoring or other information that indicates any contaminant may cause an endangerment to a USDW, or
- (2) Any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between USDWs.

b) Five-day Reporting

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

3. Planned Changes

Lisbon Valley shall give written notice to the Director, as soon as possible, of any planned physical alterations or additions to the UIC-permitted facility. Notification of planned changes on the part of Lisbon Valley, does not stay any permit condition.

4. Anticipated Noncompliance

Lisbon Valley shall give advance notice to the Director of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements. Notification of anticipated noncompliance on the part of Lisbon Valley, does not stay any permit condition.

5. Permit Transfers

This permit is not transferable to any person except in accordance with Part II (D)(6)(d) of this permit. Lisbon Valley shall notify the Director at least 30 days in advance of the proposed transfer date. Notification shall comply with the requirements in Part II(D)(6)(d) of this permit.

6. Compliance Schedule Reporting

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule specified in Part III B of this permit shall be submitted no later than 30 days following each schedule date.

7. Mechanical Integrity Reporting

a) Mechanical Integrity Demonstration - Lisbon Valley shall submit the results of any MI demonstration within 60 days after completion of the test. Lisbon Valley shall include in the report, a detailed description of the tests and the methods used to demonstrate MI. In the case of MI failure, Lisbon Valley shall also describe in detail what and when steps were taken to reestablish MI.

b) Loss of Mechanical Integrity –

(1) In the event of a mechanical integrity failure which may potentially endanger an USDW, report to the Director verbally within 24 hours followed by submission of a written report within 5 days.

(2) Within 15 days after loss of MI, submit to the Director a schedule indicating what will be done to restore MI to the well, or if it will be plugged.

8. Plugging and Abandonment (“As-Plugged”) Report

Within 60 days after permanently or temporarily plugging and abandoning a well, Lisbon Valley shall submit a Plugging and Abandonment Report to the Director. The report shall be certified as accurate by the person who performed the plugging operation, and shall consist of either:

- a) A statement that the well was plugged in accordance with the P&A Plan(s) previously submitted to, and all conditions of approval provided by, the Director; or
- b) If the actual plugging differed from the approved plan(s), a statement and diagrams defining the actual plugging and why the Director should approve such deviation. Any deviation from the previously approved individual plugging and abandonment plans required by this permit which may endanger waters of the State of Utah, including USDWs, is cause for the Director to require the operator to re-plug the well.

9. Additional Reporting Requirements

a) Permit Review Report

Within 30 days after effective date of this permit, Lisbon Valley shall report to the Director that the person(s) responsible for implementing this permit has read and is personally familiar with all terms and conditions of this permit.

b) Electronic Reporting

In addition to submittal of the hard copy data, Lisbon Valley shall submit the required monitoring data in an Excel spreadsheet.

I. MECHANICAL INTEGRITY
(R317-7-10.3(B) and 40 CFR 146.8)

1. Class III Injection Well Mechanical Integrity Standards

Mechanical integrity testing requirements for each Class III well are set forth in 40 CFR 146.8 details of which are included in the following permit conditions:

An injection well has mechanical integrity (MI) if there is:

- a) No significant leak in casing, tubing, or packer (internal MI), and
- b) No significant fluid movement into an USDW through vertical channels adjacent to the injection well bore (external MI).

2. Mechanical Integrity Testing (MIT) Methods

The following methods are allowed for demonstrating internal and external mechanical integrity of Class III injection wells:

a) Internal MI

- (1) **Standard Annulus Pressure Test (SAPT)** - For Wells Equipped with Tubing and Packer: Following an initial casing pressure test (see Part III(I)(9)(a) – Casing Pressure Tests below), monitoring of the tubing-casing annulus pressure with sufficient frequency to be representative, as determined by the Director, while maintaining an annulus pressure different from atmospheric pressure measured at the surface;

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- (2) **Standard Annulus Monitoring Test (SAMT)** – For Wells Equipped with Tubing and Packer.
 - (3) **Radioactive Tracer Survey (RTS)** – Allowed by Federal Register Notice Volume 52, No. 181; Friday, September 18, 1987; Pages 35324 to 35326 and as revised by Federal Register Notice Volume 52, No. 237; Thursday, December 10, 1987; Pages 35324 to 35326. The timed-run method of running the RTS is the only method approved by EPA to demonstrate MI. The velocity-shot method is not.
 - (4) **“ADA” Pressure Test**
- b) External MI
- (1) **Temperature Survey**
 - (2) **Noise Log**
 - (3) **Oxygen Activation Method (OAL)** – Final approval for use in Federal Register Notice Volume 56, Number 22; Friday, February 1, 1991, Pages 4063 to 4065.
 - (4) **Radioactive Tracer Survey (RTS)** - Allowed by Federal Register Notice Volume 52, No. 181; Friday, September 18, 1987; Pages 35324 to 35326 and as revised by Federal Register Notice Volume 52, No. 237; Thursday, December 10, 1987; Pages 35324 to 35326. The timed-run method of running the RTS is the only method approved by EPA to demonstrate MI. The velocity-shot method is not. The RTS may only be used to demonstrate external MI when the USDW is directly above the injection zone but separated from it by an impermeable confining zone.
 - (5) **Cementing Records and Monitoring Program** – If the nature of the casing precludes the use of the logging methods above, then cementing records may be used to demonstrate external MI provided the monitoring program required by Part III (G) of this permit is designed to verify the absence of significant fluid movement into an underground source of drinking water through vertical channels adjacent to the injection well bore.
- c) The Director may allow the use of a test to demonstrate mechanical integrity other than those listed in a) and b) above with the written approval of the EPA Region 8 Administrator (Administrator). To obtain approval, the Director shall submit a written request to the Administrator, which shall set forth the proposed test and all technical data supporting its use. The Administrator shall approve the request if it will reliably demonstrate the mechanical integrity of wells for which its use is proposed. Any alternate method approved by the Administrator shall be published in the **Federal Register** and may be used in all States unless its use is restricted at the time of approval by the Administrator.
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- d) In conducting and evaluating the tests enumerated in this section or others to be allowed by the Director, the owner or operator and the Director shall apply methods and standards generally accepted in the industry. When the owner or operator reports the results of mechanical integrity tests to the Director, he shall include a description of the test(s) and the method(s) used. In evaluating the MIT results, the Director shall review monitoring and other test data submitted since the previous evaluation.
 - e) The Director may require additional or alternative tests if the results presented by the owner or operator under d) above are not satisfactory to the Director to demonstrate that there is no movement of fluid into or between USDWs resulting from the injection activity.

3. Mechanical Integrity Demonstration Plan

The Lisbon Valley shall prepare a detailed plan to demonstrate MI to be included in the approved and enforceable Monitoring, Recording and Reporting Plan in Attachment F of the permit. In preparing a plan, which includes MI tests or demonstration methods allowed by the Director, Lisbon Valley shall apply methods and standards generally accepted in the industry for conducting and evaluating the tests (40 CFR 146.8(e)).

4. Mechanical Integrity Demonstration Frequency

Lisbon Valley shall demonstrate MI for each injection well according to Part III (J)(2) above:

- a) Before in-situ copper recovery commences;
- b) Once every 5 years after the initial demonstration,
- c) Following any repair or workover of a well involving the cemented casings, prior to placing it back into operation.

5. Prohibition Without Demonstration

Lisbon Valley shall not commence injection operation of any new well without:

- a) Prior demonstration of MI, and
- b) Receipt of Director written approval of the MI demonstration.

6. Loss of Mechanical Integrity

If Lisbon Valley or the Director determines that a well fails to demonstrate MI Lisbon Valley shall:

- a) Cease operation of the well immediately, and
- b) Take steps to prevent losses of solution into USDWs or the surface, and

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- c) If the mechanical integrity failure may potentially endanger an USDW and/or the surface, report to the Director verbally within 24 hours and submit a written report within 5 days according to Part III (H)(2) of this permit, and
 - d) Within 15 days after loss of mechanical integrity, submit to the Director a schedule indicating what will be done to restore mechanical integrity to the well, or if it will be plugged, and
 - e) Within 90 days after loss of MI, restore MI or plug and abandon the well in accordance with a plugging and abandonment plan approved by the Director, and
 - f) Lisbon Valley may resume operation of the well after demonstration of MI and receiving written approval from the Director.

7. Mechanical Integrity Demonstration Requests

With just cause, the Director may at any time require, by written notice, Lisbon Valley to demonstrate MI of a well.

8. Mechanical Integrity Demonstration Inspections

Lisbon Valley shall allow the Director, or his representative, to observe any or all MI demonstrations. Lisbon Valley shall notify the Director, in writing, of its intent to demonstrate MI, no less than 30 days prior to the intended demonstration.

9. Additional MIT Requirements

a) Casing Pressure Test

To determine the integrity of casing strings set in the well, the operator shall perform a hydrostatic pressure test before drilling out any casing string, before suspending drilling operations, or before completing the well, to the lesser of

- (1) the maximum anticipated pressure to be contained at the surface,
- (2) one psi/ft of the last casing string depth, or
- (3) 70% of the minimum internal yield pressure of any casing subject to the hydrostatic pressure test.

b) Internal Mechanical Integrity Exception

According to 40 CFR 144.51(q)(3), the Director may allow the owner/operator of a well which lacks internal mechanical integrity (Part III (I) (1) (a) of this permit) to continue or resume injection, if the owner or operator has made a satisfactory demonstration of external mechanical integrity (that is, that there is no movement of fluid into or between USDWs.) Such proposals of satisfactory demonstration shall be reviewed and approved or denied on an individual basis.

J. GROUNDWATER RESTORATION REQUIREMENTS

1. Requirement for Groundwater Restoration Plan

Pursuant to 40 CFR Parts 146.10 and 144.12, the Permittee shall comply with the groundwater restoration in Attachment H in accordance with the schedule for aquifer restoration and groundwater monitoring to ensure adequate protection of USDWs. The Permittee shall also comply with the conditions at M below.

K. PLUGGING AND ABANDONMENT REQUIREMENTS
(40 CFR 146.10 and R317-7-10.5)

1. Requirement for Plugging and Abandonment Plan

Lisbon Valley shall develop a plugging and abandonment plan (hereafter, the P&A Plan) for the Class III in-situ copper recovery wells as required by Part II D(15) of this permit. The approved P&A Plan shall become a permit condition of this permit and be incorporated into the permit as Attachment I.

2. Notice of Plugging and Abandonment

Lisbon Valley shall notify the Director in writing no later than 45 days before planned conversion or abandonment of the well(s). This notice shall also include:

a) Well Condition Report

Te Lisbon Valley shall provide a report on the current condition of the well in order to update, supplement or complete any information in the existing P&A Plan. This report shall discuss in detail and evaluate:

- (1) The results of the well's most recent mechanical integrity test,
- (2) The location of any leaks or perforations in the casing,
- (3) The location of any vertical migration of fluids behind the casing, and
- (4) The adequacy of casing cement bonding across the rock formations, as determined from cement bond logs run at the time of well construction or just prior to well abandonment.
- (5) Any supporting data or test results supporting the conclusions of the well condition report shall be attached to the report.

b) Individual Plugging and Abandonment Plan

Lisbon Valley shall also submit an individual P&A Plan for each well to be plugged and abandoned. In coordination with the Well Condition Report, this individual P&A Plan shall modify and supersede previous P&A Plans, as necessary, to ensure adequate plugging and abandonment of the well.

The plugging and abandonment of the well shall be subject to prior Director approval of the individual plugging and abandonment plan. The Director

reserves the right to grant conditional approval of any individual plugging and abandonment plan to ensure adequate plugging of a well.

3. Emergency Well Conversion or Plugging and Abandonment

Emergency conversion or abandonment of wells is allowed by this permit, conditional upon the following requirements:

- a) Lisbon Valley will seek oral approval from the Director for emergency well conversion or abandonment no less than 24 hours prior to the emergency action.
 - b) Lisbon Valley will subsequently submit a written request for Director approval of emergency well conversion or abandonment, with appropriate justification, within five (5) working days after receiving oral approval.
 - c) The Director reserves the right to modify any oral approval for emergency action, subsequent to review of the written request.
 - d) Oral or written approval from the Director for emergency well conversion or abandonment will not waive or absolve Lisbon Valley from its responsibility to comply with the conditions of this permit, including requirements of the P&A Plan.
4. Plugging and Abandonment

Lisbon Valley shall plug and abandon the well(s) consistent with R317-7-10.5, as provided for in the P&A Plan, and any conditions issued by the Director in approval of the individual P&A Plans required by this permit.

5. Inactive or Temporarily Plugged Wells

a) Inactive Wells

After cessation of operation of a well(s) for two years Lisbon Valley shall plug and abandon the well(s), unless Lisbon Valley requests and receives a variance from this requirement from the Director prior to the end of the two year cessation period, based on:

- (1) A demonstration that the well will be used in the future; and
- (2) A satisfactory description of actions or procedures that Lisbon Valley will take to ensure that the well will not endanger an USDW during the period of temporary abandonment. These actions and procedures shall include compliance with technical requirements applicable to active injection wells unless waived by the Director.

b) Temporary Plugging of a Well

Temporary plugging of a well shall consist of:

- (1) Submittal of a notice of well conversion.

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- (2) Submittal of a well condition report and an individual plugging plan, for Director approval.
 - (3) Submittal of an "As-Plugged" Report as required by this permit.
- c) Temporarily plugged or inactive wells may be reactivated at the discretion of Lisbon Valley after:
- (1) Submitting a written notification of intent to reactivate to the Director, and
 - (2) Demonstration of mechanical integrity to the Director, as required by this permit, and
 - (3) Receipt of Director written approval of mechanical integrity demonstration and approval to reactivate the well.

L. FINANCIAL RESPONSIBILITY
(R317-7-9.1(24) and 40 CFR 144.52)

1. Demonstration of Financial Responsibility

Lisbon Valley is required to maintain financial responsibility and resources (Attachment J) for groundwater restoration (Attachment H) and to close, plug, and abandon all wells referenced in the approved Plugging and Abandonment Plan (Attachment I), not already plugged and abandoned at the time of issuance of this permit. Satisfaction of this requirement is demonstrated by a Financial Guarantee Bond and Standby Trust Agreement and their associated schedules and exhibits that will be included in Attachment J of this permit prior to the Director's authorization to inject.

2. Renewal of Financial Responsibility

Every five (5) years, Lisbon Valley shall demonstrate the adequacy of the financial assurance instrument to close, plug and abandon all wells not permanently plugged and abandoned by Lisbon Valley in compliance with the plugging and abandonment requirements of this permit.

3. Insolvency Financial Responsibility

Lisbon Valley must submit an alternate demonstration of financial responsibility acceptable to the Director within 60 days after any of the following events occurs:

- a) The institution issuing the trust or financial assurance instrument files for bankruptcy; or
- b) The authority of the trustee institution to act as trustee, or the authority of the institution issuing the financial assurance instrument is suspended or revoked.

M. ADDITIONAL CONDITIONS (40 CFR 144.52)

The Director shall impose on a case-by-case basis such additional conditions as are necessary to prevent the migration of fluids into underground sources of drinking water.

As of the effective date of this permit or the date the permit was last reviewed, additional permit conditions were not required.

N. ATTACHMENTS

PND DRAFT

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Attachment A

General Location Map of the Lisbon Valley Mine,
San Juan County

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Attachment B

**Map of the UIC Area of Review including the Class III In-Situ
Copper Recovery Injection Wells and the Project Area**

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Attachment C

Corrective Action Plan for Artificial Penetrations into Injection
Zone within Area of Review

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Attachment D

Injection Well Construction Plan with
Injection Well Construction Details

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Attachment E
Injection Well Operating Plan and Procedures

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Attachment F
Monitoring, Recording, and Reporting Plan

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Attachment G
Contingency Plan for Well Shut-ins or Well Failures

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Attachment H
Groundwater Restoration Plan

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Attachment I
Plugging and Abandonment Plan

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Attachment J

Financial Responsibility

The Standby Trust Agreement along with Schedule A and the Associated Financial Guarantee Bond will be approved and delivered to the DEQ's Office of Support Services prior to Director Authorization to Inject.

These documents shall be updated every five years from the effective date of this permit renewal:

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Attachment K

Expected Changes Due to Injection

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Attachment L

Mechanical Integrity Demonstration Protocols

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Attachment M
Aquifer Exemption Request

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