UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

U.S. ENVIRONMENTAL PROTECTION AGENCY
UNDERGROUND INJECTION CONTROL MINOR PERMIT MODIFICATION
CLASS I HAZARDOUS

Permit Number: IN-127-1W-0001
Well Name: Spent Pickle Liquor #1

Pursuant to the Underground Injection Control regulations of the U.S. Environmental Protection Agency codified at Title 40 of the Code of Federal Regulations (40 CFR), Parts 124, 144, 146, 147, and 148,

ArcelorMittal Burns Harbor, LLC of Burns Harbor, Indiana

the permittee, is hereby authorized to operate an existing Class I hazardous waste injection well located in Indiana, Porter County, T37N, R6W, Section 28, NW Quarter Section subject to the conditions of this permit. The injection zone, or zone which will contain the hazardous constituents, for this well is the lower Eau Claire Formation, the Mt. Simon Sandstone and the upper portion of the Precambrian rocks between the depths of 2173 and 4285 feet below ground surface. Injection is permitted into the interval of the lower Mt. Simon Sandstone and the upper portion of the Precambrian rocks between the depths of 2723 and 4285 feet below ground surface upon the express condition that the permittee meet the restrictions set forth herein. The designated confining zone for this injection well is the upper Eau Claire Formation.

The permittee is authorized to inject spent pickle liquor from any ArcelorMittal USA facility provided that characteristics and concentrations of injected waste do not exceed any limits listed in Part III(A) or Part III(D) of this permit.

All references to 40 CFR are to all regulations that are in effect on the date that this permit becomes effective. The following attachments are incorporated into this permit: A, B, C, D, E, F, G and H.

This permit is a minor modification of an existing permit, which was signed on September 30, 2010. This permit shall become effective on MAR 10 2015 and shall remain in full force and effect during the life of the permit, unless: 1) the statutory provisions of Section 3004(f), (g) or (m) of the Resource Conservation and Recovery Act ban or otherwise condition the authorization in this permit; 2) the Agency promulgates rules pursuant to these sections which withdraw or otherwise condition the authorization in this permit; or 3) this permit is otherwise revoked, terminated, modified or reissued pursuant to 40 CFR §§ 144.39, 144.40, or 144.41. This permit and the authorization to inject shall expire at midnight, October 30, 2020, unless terminated.

Signed and dated: March 10, 2015

for Tinka G. Hyde
Director, Water Division

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PART I

GENERAL PERMIT COMPLIANCE

A EFFECT OF PERMIT

1. The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. Notwithstanding any other provisions of this permit, the permittee 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 injection, annulus or formation fluids into underground sources of drinking water (USDW). The objective of this permit is to prevent the introduction of contaminants into a USDW if the presence of that contaminant may cause a violation of any primary drinking water regulation under 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. Compliance with this permit during its term constitutes compliance, for purposes of enforcement, with Part C of the Safe Drinking Water Act (SDWA). Such compliance does not constitute a defense to any action brought under Section 1431 of the SDWA, or any other common or statutory law other than Part C of the SDWA. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it 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 the permittee of any duties under applicable regulations.

2. This permit does not relieve owners and operators of hazardous waste injection wells of their obligation to comply with any additional regulations or requirements under the Resource Conservation and Recovery Act (RCRA). This permit does not authorize any above ground generating, handling, storage, treatment or disposal facilities. Such activities must receive authorization under the regulations promulgated pursuant to Subtitle C of RCRA, if required. Requirements to follow RCRA corrective action under this permit are authorized under 40 CFR Sections 124.1 (General program purpose and scope) and 270.60 (RCRA permit-by-rule).

B PERMIT ACTIONS

1. **Modification, Revocation, Reissuance and Termination** - The Director of the Water Division of United States Environmental Protection Agency (USEPA), Region 5 (the Director), may modify, revoke and reissue, or terminate this permit in accordance with 40 CFR Sections144.39, 144.40, and 144.41 upon request from any interested person (including the permittee) or upon the Director's initiative. The permit is also subject to minor modifications for cause as specified in 40 CFR Section 144.41. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes, or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition.

2. **Transfer of Permits** - This permit is not transferable to any person except in accordance with 40 CFR 144.38.

C SEVERABILITY

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

D CONFIDENTIALITY

In accordance with 40 CFR Part 2, Public Information and Section 144.5, any information submitted to the USEPA 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, USEPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 CFR Part 2. Claims of confidentiality for the following information will be denied:

1. The name and address of the permittee; and

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

E DUTIES AND REQUIREMENTS

1. **Duty to Comply** - The permittee shall comply with all applicable Underground Injection Control (UIC) Program regulations and conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit issued in accordance with 40 CFR Section 144.34. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application. Such noncompliance may also be grounds for enforcement action under RCRA.

2. **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 SDWA and may be subject to such actions pursuant to the RCRA. Any person who willfully violates permit conditions may be subject to criminal prosecution.

3. Continuation of Expiring Permits

(a) 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 a complete application for a new permit at least 180 calendar days before this permit expires.

(b) Permit Extensions - The conditions of an expired permit may continue in force in accordance with 5 U.S.C. 558(c) and 40 CFR Section 144.37.

(c) Effect - Permits continued under 5 U.S.C. 558(c) and 40 CFR Section 144.37 remain fully effective and enforceable.

(d) Enforcement - When the permittee is not in compliance with the conditions of the expiring or expired permit, the Director may choose to do any or all of the following:

(i) Initiate enforcement action based upon the permit which has been continued;

(ii) Issue a notice of intent to deny the new permit. If the permit application is denied, the owner or operator would then be required to cease the activities authorized by the continued permit or be subject to enforcement action for operation without a permit;

(iii) Issue a new permit under 40 CFR Part 124 with appropriate conditions; or

(iv) Take other actions authorized by the UIC regulations.

(e) State Continuation - A USEPA-issued permit does not continue in force beyond its expiration date under Federal law if at that time a State has primary enforcement responsibility under the SDWA. A State authorized to administer the UIC program may continue either USEPA- or State-issued permits until the effective date of the new permits, if State law allows. Otherwise, the facility or activity is operating without a permit from the time of expiration of the old permit to the effective date of the State-issued new permit. Furthermore, if the State does not continue the expired USEPA permit upon obtaining primary enforcement responsibility, the permittee must obtain a new State permit or be authorized to inject by State rule and failure to do so will result in unauthorized injection.

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

5. **Duty to Mitigate** - The permittee shall take all timely and reasonable steps necessary to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

6. **Proper Operation and Maintenance** - The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control and related

appurtenances which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

7. **Duty to Provide Information** - The permittee 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 reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request within a time specified, copies of records required to be kept by this permit.

8. **Inspection and Entry** - The permittee shall allow the Director or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

   (a) Enter, at reasonable times, upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are 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, any substances or parameters at any facilities, equipment or operations regulated or required under this permit.

9. **Records**

   (a) The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original chart recordings or electronic data for continuous monitoring instrumentation and copies of all reports required by this permit for a period of at least three (3) years from the date of the sample, measurement or report, unless these materials are submitted to the Director as part of reporting requirements under this permit. This period may be extended by the request of the Director at any time. For purposes of this section, an "original" chart recording shall be deemed to include an exact electronic version (such as one made through Adobe Acrobat) of a paper recording.

   (b) As required by 40 CFR 144.31(f), the permittee shall maintain records of all data required to complete the permit application form for this permit and any supplemental information submitted under 40 CFR Section 144.31 for a period of at least three (3)

years from the date the application was signed. This period may be extended by the request of the Director at any time.

(c) The permittee shall retain records concerning the nature and composition of all injected fluids until three (3) years after the completion of plugging and abandonment. This retention period may be extended by request of the Director at any time. The permittee shall continue to retain records after the three-year retention period or any requested extension thereof expires unless the permittee delivers the records to the Director or obtains written approval from the Director to discard the records.

(d) Records of monitoring information shall include:

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

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

(iii)The date(s) analyses were performed;

(iv)The name(s) of individual(s) who performed the analyses;

(v) The analytical techniques or methods used; and

(vi)The results of such analyses.

10. **Monitoring** - Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The permittee shall use the methods identified in the approved Waste Analysis Plan found in Part III(D) of this permit. Monitoring results shall be reported at the intervals contained in Part II(D)(1) through (4) and Parts III(A) and (E) of this permit.

(a) Monitoring of the nature of injected fluids shall comply with applicable analytical methods cited and described in Table I of 40 CFR Section 136.3 or in Appendix III of Part 261 or in certain circumstances by other methods that have been approved by the Director.

(b) Sampling and analysis shall comply with the specifications of the Waste Analysis Plan required in Part II(C)(3) of this permit.

11. **Signatory Requirements** - All reports required by the permit and other information when so requested by the Director shall be signed and certified in accordance with 40 CFR Section 144.32.

12. **Reporting Requirements** - In accordance with 5 CFR Section 1320.5(b)(2)(i), the permittee is not required to comply with the reporting requirements of a collection of information unless a valid OMB Control Number is printed on the collection of information. A valid OMB Control Number appears on the cover page of this permit.

(a) Planned Changes - The permittee shall give written notice to the Director, as soon as possible, of any planned physical alterations or additions to the permitted facility other than minor repair/replacement maintenance activities.

(b) Anticipated Noncompliance - The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(c) Compliance Schedules (Section 144.53) - The permittee shall submit reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit no later than 30 calendar days following each schedule date.

(d) Twenty-four Hour Reporting

(i) The permittee shall report to the Director any permit noncompliance which may endanger health or the environment. See, e.g. Part I(H)(5) of this permit. Any information shall be provided orally within twenty-four hours from the time the permittee becomes aware of the circumstances. Such reports shall include, but not be limited to the following information:

1) Any monitoring or other information which indicates that any contaminant may cause an endangerment to an USDW; and

2) Any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between USDWs; and

3) Any failure to maintain mechanical integrity.

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

(e) Other Noncompliance - The permittee shall report all other instances of noncompliance not otherwise reported under Part I(E)12)(c) and (d) of this permit at the time monitoring reports are submitted. The reports shall contain the information listed in Part I(E)(12)(d)(ii) of this permit.

(f) Other Information - When the permittee becomes aware of failure to submit any relevant facts in the permit application or that incorrect information was submitted in a permit application or in any report to the Director, the permittee shall submit such facts or corrected information within ten calendar days, unless a longer time period is approved by the Director.

(g) Report on Permit Review - Within thirty calendar days of receipt of this permit, the permittee shall certify to the Director that he or she has read and is personally familiar with all terms and conditions of this permit.

F CLOSURE

1. **Closure Plan** - A plan for closure of the well that includes assurance of financial responsibility as required in Section 144.52(a)(7), and includes the information, relating to plugging and abandonment, required under Section 146.71(a)(4), is found in Part III(B) of this permit. The implementation of the Closure Plan is a condition of this permit; however, the permittee must receive the approval of the Director to proceed before implementing this plan. The obligation to implement the Closure Plan survives the termination of this permit or the cessation of injection activities.

2. **Revision of Closure Plan** - The permittee shall submit any proposed significant revision to the method of closure reflected in the Closure Plan for approval by the Director no later than sixty calendar days before closure, unless a shorter time period is approved by the Director.

3. **Notice of Intent to Close** - The permittee shall notify the Director at least sixty calendar days before closure of the well, unless a shorter notice period is approved by the Director.

4. **Temporary Disuse** - A permittee who wishes to cease injection for longer than 24 months may keep the well open only if he or she:

   (a) Has received authorization from the Director; and

   (b) Has described actions or procedures, satisfactory to the Director, that he or she will take to ensure that the well will not endanger USDWs during this period. These actions or procedures shall include compliance with the technical requirements applicable to active injection wells unless waived by the Director.

5. **Closure Report** - The permittee shall submit a closure report to the Director which meets the requirements of Section 146.71(c), within the time frame specified in Section 146.71(c).

6. **Standards for Well Closure** - Prior to closing the well, the permittee shall:

   (a) Observe and record the pressure decay for a time specified by the Director and report this information to the Director;

   (b) Conduct mechanical integrity tests as requested by the Director to ensure integrity of that portion of the long string casing and cement that will be left in the ground after closure. Required testing methods may include any or all of those listed in Section 146.71(d)(2); and

(c) Flush the well with a buffer fluid.

G POST-CLOSURE CARE

The permittee shall comply with the requirements for post-closure care and financial responsibility for post-closure care found at 40 CFR Sections 146.72 and 146.73.

1. **Post-Closure Plan** - The permittee has submitted a plan for post-closure maintenance and monitoring, which is included in Part III(B) of this permit. This plan includes the information required by Section 146.72(a) and demonstrates how each of the applicable requirements of Section 146.72(b) will be met. The obligation to implement the post-closure plan survives the termination of this permit or the cessation of injection activities.

2. **Duration of Post-Closure Period** - The Post-Closure Care Period shall continue at least until all of the requirements of the approved post-closure plan and of 40 CFR Section 146.72 have been met. Prior to the time that the post-closure care period is due to expire, the Director may extend the post-closure care period if he or she finds that the extended period is necessary to protect the health of persons or to protect a USDW.

3. **Post-Closure Corrective Action** - The permittee shall continue and complete any cleanup action required under Section 146.64.

4. **Post-Closure Groundwater Monitoring** - The permittee shall continue to conduct any groundwater monitoring required under this permit until pressure in the injection zone decays to the point that the well's cone of influence no longer intersects the base of the lowermost USDW, as identified in the Administrative Record for this permit. The permittee has estimated the time for pressure in the injection zone to decay to this point, which is included in the Post-Closure Plan. The Director may extend the period of post-closure monitoring if he or she determines that it is necessary to protect the health of persons or to protect a USDW.

5. **Survey Plat** - The permittee shall submit a survey plat to the local zoning authority designated by the Director as required by Section 146.72(b)(3) and submit a copy to the USEPA Region 5 Regional Administrator.

6. **Notification to State and Local Authority** - The permittee shall provide notification and information to State and local authorities as required by Section 146.72(b)(4).

7. **Retention of Records** - The permittee shall retain the records specified by Section 146.72(b)(5) for a period of three years following well closure and shall deliver those records to the Director at the end of the retention period.

8. **Notice in Deed to Property** - In accordance with State law, the permittee must record a notation on the deed to the facility property or on some other instrument which is normally examined during title search, that will in perpetuity provide any potential purchaser of the property with the information listed in Section 146.72(c).

9. **Financial Responsibility for Post-Closure Care** - The permittee has submitted, and shall continue to submit, a demonstration of financial responsibility for post-closure care, as required in Section 146.73, at the time of the each annual update of the financial assurance mechanism after the effective date of this permit, for approval by the Director. The obligation to maintain financial responsibility for post-closure care survives the termination of this permit or the cessation of injection.

H MECHANICAL INTEGRITY

1. **Standards** - The injection well must have and maintain mechanical integrity consistent with 40 CFR Section 146.8(a)(1) and (2). To meet these requirements, mechanical integrity demonstrations must be witnessed by an authorized representative of the Director unless it proves impossible to resolve scheduling conflicts between the operator and the agency. In order to conduct testing without a USEPA representative, the following procedures must be followed.

   (a) The owner/operator must submit proposed procedures including the information that no USEPA representative is available, and receive permission from the Direct Implementation Section of the UIC Branch to proceed;

   (b) The test must be documented using either a mechanical or digital device which records the value of the parameter of interest, or by a service company job record;

   (c) A report of the testing including all data available at the conclusion of the test and a certification of accuracy which is signed by an authorized representative of the company must be submitted to the Direct Implementation Section within ten calendar days of the completion of testing; and

   (d) A final report including any additional interpretation necessary for evaluation of the testing must be submitted within thirty calendar days after the activity or with the next quarterly report, whichever comes later.

2. **Periodic Mechanical Integrity Testing** - The permittee shall conduct the mechanical integrity testing as follows:

   (a) In accordance with 40 CFR Section 146.68(d)(1), the long string casing, injection tubing and annular seal shall be tested by means of an approved pressure test at least once every twelve months beginning with the date of the last approved demonstration and whenever there has been a well workover in which tubing is removed from the well, the packer is reset, or when loss of mechanical integrity becomes suspected during operation;

(b) In accordance with 40 CFR 146.68(d)(2), the bottom-hole cement shall be tested by means of an approved radioactive tracer survey at least once every twelve months beginning with the date of the last approved demonstration. The permittee must submit logging procedures to the Director for approval before running logs for the purpose of meeting this requirement;

(c) In accordance with 40 CFR Section 146.68(d)(3), an approved temperature, noise, or other approved log, shall be run at least once every sixty months beginning with the date of the last such log. The Director may require such tests whenever the well is worked over. The permittee must submit logging procedures to the Director for approval before running logs for the purpose of meeting this requirement;

(d) In accordance with 40 CFR Section 146.68(d)(4), an approved casing inspection log shall be run whenever the owner or operator conducts a workover in which the injection string is pulled, unless the Director waives this requirement because a casing inspection log has been run in the well within the past 60 months. The Director may require that a casing inspection log be run every five years if the Director has reason to believe that the integrity of the long string casing of the well may be adversely affected by naturally-occurring or man-made events.

(e) The permittee may use any other test approved by the Director in accordance with the procedures in Section 146.8(d).

3. **Prior Notice and Reporting** - The permittee shall notify the Director of his or her intent to demonstrate mechanical integrity at least thirty calendar days prior to such demonstration. At the discretion of the Director a shorter time period may be allowed. Reports of mechanical integrity demonstrations which include logs must include an interpretation of results by a knowledgeable log analyst. The permittee shall report the results of a mechanical integrity demonstration within the time period specified in Part II(D) of this permit.

4. **Gauges** - The permittee shall calibrate all gauges used in mechanical integrity demonstrations to an accuracy of not less than one-half (0.5) percent of full scale, prior to each required test of mechanical integrity. A copy of the calibration certificate shall be submitted to the Director or his or her representative at the time of demonstration and every time the gauge is calibrated. The gauge shall be marked in no greater than five (5) psi increments.

5. **Loss of Mechanical Integrity** – If the permittee or the Director finds that the well fails to demonstrate mechanical integrity as defined by 40 CFR Section 146.8(a)(1) or (2) during a test, or fails to maintain mechanical integrity during operation, the permittee shall halt the operation immediately and follow the reporting requirements as directed in Part I(E)(12) of this permit. The permittee shall not resume operation until mechanical integrity is demonstrated and the Director gives written approval to recommence injection. If a loss of mechanical integrity is suspected, the permittee shall halt the operation immediately and determine whether mechanical integrity has in fact been lost.

6. **Mechanical Integrity Testing on Request From Director** - The permittee shall demonstrate mechanical integrity at any time upon written notice from the Director whenever the Director has reason to believe, pursuant to 40 CFR Section 146.8(f), that the well may have lost mechanical integrity, as authorized by 40 CFR Section 144.17.

I FINANCIAL RESPONSIBILITY

1. **Financial Responsibility** - The permittee shall maintain financial responsibility and resources to comply with the plugging and abandonment (closure) and post-closure care requirements of this permit, in a manner consistent with 40 CFR Sections 144.52(a)(7), 144.60 through 144.70, and 146.73. The permittee must establish financial assurance by selecting a mechanism or a combination of more than one mechanism as specified in 40 CFR Section 144.63, paragraphs (a) through (g). The plan used to calculate the amount of financial assurance necessary for closure costs is found in Part III(B) of this permit. The permittee shall update the plugging and abandonment costs annually to adjust for inflation, in accordance with 40 CFR Section 144.62(b). When the permittee updates these costs, the permittee shall also demonstrate that the requirement to maintain financial responsibility to comply with the plugging and abandonment (closure) and post-closure care as required by 40 CFR 144.52(a)(7) has been met (the value of the financial assurance mechanism(s) is greater than the adjusted costs).

   (a) Pursuant to 40 CFR Sections 144.62(a) and 146.73, the permittee must maintain a written cost estimate, in current dollars, for the Closure Plan and Post-Closure Plan as specified in 40 CFR Sections 146.10 and 146.72. The closure and post-closure cost estimate at any point in the life of the facility operation must equal the maximum cost of closure and post-closure at that time.

   (b) Pursuant to 40 CFR Sections 144.62(b) and 146.73, the permittee must adjust the cost estimate of closure and post-closure for inflation within thirty calendar days after each anniversary of the first estimate. The inflation factor is prescribed in Section 144.62(b).

   (c) The permittee must revise the closure and post-closure cost estimate whenever a change in the Closure Plan or Post-Closure Plan increases the cost of closure.

   (d) If the revised closure and post-closure cost estimate exceeds the current amount of the financial assurance mechanism, the permittee shall submit a revised mechanism to cover the increased cost within ninety calendar days after the revision specified in Part I(I)(1)(b) and (c) of this permit.

   (e) The permittee must keep on file at the facility a copy of the latest closure and post-closure cost estimate prepared in accordance with 40 CFR Section 144.62, during the operating life of the facility.

2. **Insolvency** - The permittee must notify the Director within ten business days of any of the following events:

(a) The bankruptcy of the trustee or issuing institution of the financial mechanism; or

(b) Suspension or revocation of the authority of the trustee institution to act as trustee; or

(c) The institution issuing the financial mechanism losing its authority to issue such an instrument.

3. **Notification** - The permittee must notify the Director by certified mail of the commencement of voluntary or involuntary proceedings under Title 11 (Bankruptcy), U.S. Code, naming the permittee as debtor, within ten business days after the commencement of the proceeding. A guarantor of a corporate guarantee must make such a notification if he or she is named as debtor, as required under the terms of the guarantee.

4. **Establishing Other Coverage** - The permittee must establish other financial assurance or liability coverage acceptable to the Director, within sixty calendar days of the occurrence of the events in Part I(I)(2) or Part I(I)(3) of this permit.

J CORRECTIVE ACTION

1. **Corrective Action under 40 CFR Section 146.64** - A plan for corrective action under 40 CFR 146.64 is not necessary at this time because no improperly plugged, completed, or abandoned wells are known to be present in the Area of Review (AOR). The permittee shall file a Corrective Action Plan for approval by the Director within sixty days of a written determination by the Director that improperly plugged, completed, or abandoned wells are present in the AOR. The AOR is specified in the administrative record for this permit.

2. **Prohibition of Movement of Fluids into USDWs (Section 144.12)** - Should upward migration of fluids through the confining zone of this permitted well be discovered within the area of review for this well, which is recorded in the administrative record, and should this migration of fluids cause the introduction of any contaminant into a USDW pursuant to 40 CFR 144.12, the permittee shall immediately cease injection into this well until the situation has been corrected and reauthorization to inject has been given by the Director.

3. **Corrective action under the Resource Conservation and Recovery Act** - The permittee shall comply with corrective action requirements for all solid waste management units at this facility, as required by the Resource Conservation and Recovery Act permit-by-rule at 40 CFR Section 270.60. Specific corrective action requirements are found in Part III(F) of this permit.

K INJECTION OF RESTRICTED HAZARDOUS WASTES

1. **Compliance** - The permittee shall comply with all regulations set forth under 40 CFR Part 148. The permittee may continue to inject the restricted hazardous wastes specified in Part III(D) of this permit as long as all other requirements of this permit and applicable regulations are met and at least one of the following remains in effect:

   (a) an extension from the effective date of a prohibition has been granted pursuant to 40 CFR Section 148.4 with respect to such waste; or

   (b) the exemption granted in response to a petition filed under Section 148.20 to allow injection of restricted wastes, with respect to those wastes and wells covered by the exemption, remains in effect, and all conditions of the exemption are met.

2. Injection Limitations

   (a) Characteristics and concentrations of hazardous constituents of injected waste shall not exceed any limits listed in Part III(A) or Part III(D) of this permit.

   (b) The monthly average injection rate for the permitted well shall not exceed the limitation listed in Part III(A) of this permit.

3. Petition Update and Amendment

The permittee may inject restricted wastes other than those listed in Part III(D) of this permit or wastes in concentrations in excess of those listed in Part III(D) of this permit only after he or she has (1) submitted a modified petition to the Director and received a final Agency approval of the modification(s), and (2) this permit has been modified accordingly.

The permittee shall notify the Director within 48 hours upon obtaining knowledge that information submitted in support of a petition in accordance with 40 CFR Section 148.20 is false, inaccurate, or incomplete.

4. Petition Termination

Upon written notification from the Director that an exemption granted under 40 CFR Section 148.20 has been terminated, the permittee shall immediately cease injection of all prohibited hazardous wastes.

5. Petition Review (Section 148.23)

When considering whether to reissue this permit upon expiration, the Director may require a new or updated petition demonstration if information shows that the basis for granting the exemption may no longer be valid.

PART II

WELL SPECIFIC CONDITIONS FOR UIC PERMITS

A. CONSTRUCTION (Sections 146.62 and 146.65)

1. **Siting** - The injection well shall inject only into the formation and depths listed on the cover page of this permit. At no time shall injection occur into a formation which is, or is above, the lowermost formation containing an underground source of drinking water within one quarter mile of the well bore.

2. **Casing and Cementing** - Notwithstanding any other provisions of this permit, the permittee shall case and cement the well in such a manner so as to prevent the movement of fluids into or between USDWs for the expected life of the well. The casing and cement used in the construction of this well are shown in Part III(C) of this permit.

3. **Tubing and Packer Specifications** - The permittee shall inject only through tubing with a packer set within the long string casing at a point within or below the confining zone. The tubing and packer used in the well are represented in engineering drawings contained in Part III(C) of this permit.

4. **Wellhead Specification** - The permittee shall maintain female couplings and valves on the wellhead, to be used for independent injection and annulus pressure readings.

B. OPERATIONS (Section 146.67)

1. **Injection Pressure Limitation** - Except during stimulation, the permittee shall not cause or permit the injection pressure at the wellhead to exceed the maximum limitation which is specified in Part III(A) of this permit. In no case, shall injection pressure initiate fractures or propagate existing fractures in the confining zone or cause the movement of injection or formation fluids into a USDW. The determination of the fracture pressure may be performed in conjunction with the drilling of a new disposal well. Once a site-specific value for the fracture pressure of the lower Mt. Simon Sandstone injection zone has been determined, it will be used in the equation below to calculate a revised value for the maximum injection pressure. If, after twenty-four months from the effective date of this permit, the fracture pressure of the lower Mt. Simon Sandstone has not been determined to the Director's satisfaction, then the maximum instantaneous injection pressure shall be limited to a default minimum established according to the following formula:

$$[(FG - 0.433 \text{ psi./ft.} \times SG) \times \text{Depth} - 14.7 \text{ psi}]$$

where FG is the lowest fracture gradient (0.72 psi/ft) measured in Indiana for the Mt. Simon Sandstone, SG is the value for the specific gravity is the highest measured specific gravity of the injectate in the past four years and Depth is the depth below ground level in feet to the top of the injection interval identified on page 1 of this permit.

2. **Additional Injection Limitation** - No substances other than those identified in Part III(D) of this permit shall be injected.

3. **Annulus Fluid and Pressure** - The permittee shall fill the annulus between the tubing and the long string casing with a fluid approved by the Director and identified in the administrative record of this permit. Any change in the annulus fluid shall be submitted by the permittee for the approval of the Director before replacement. The permittee shall maintain a positive pressure on the annulus as specified in Part III(A) of this permit, except during workovers or times of annulus maintenance.

4. **Annulus/Tubing Pressure Differential** - Except during workovers or times of annulus maintenance, the permittee shall maintain a pressure differential between the tubing and annulus as specified in Part III(A) of this permit over the entire length of the tubing.

5. **Warning and Shut-off System** - The permittee shall continuously operate and maintain automatic alarm and automatic shut-off systems to stop injection within thirty minutes of either of the following situations:

   (a) Pressure changes in the annulus or annulus/tubing differential signifying possible deficiencies in mechanical integrity; or

   (b) Injection pressure, annulus pressure, or annulus/tubing pressure differential reaches the limits specified in Part III(A) of this permit.

   A person trained to handle emergency situations must be on site and investigate and identify as expeditiously as possible the cause of the alarm or shutoff. The permittee must test the warning system and shut-off system at least once every twelve months after the last such demonstration. These tests must involve subjecting the system to simulated failure conditions and must be witnessed by the Director or his or her representative during a regularly scheduled inspection unless it proves impossible to resolve scheduling conflicts between the operator and the agency.

6. **Precautions to Prevent Well Blowouts**

   (a) The permittee shall maintain on the well at all times a pressure which will prevent the return of the injection fluid to the surface and shall take all necessary precautions to assure that pressure imbalances which might cause a backflow or blowout do not occur. A blowout preventer must be kept in proper operational status during workovers which involve tubing or packer removal.

(b) In cases where the injected wastes have the potential to react with the injection formation to generate gases, the permittee shall follow the procedures below to assure that a backflow or blowout does not occur:

(i) Limit the temperature, pH or acidity of the injected waste; and

(ii) Develop procedures necessary to assure that pressure imbalances do not occur.

C. MONITORING (Section 146.68)

1. **Sampling Point** - The injection fluid samples shall be taken at the sampling location as specified in the Waste Analysis Plan, which is included as Part III(D) of this permit.

2. **Continuous Monitoring Devices** - The permittee shall install continuous monitoring devices and use them to monitor injection pressure, flow rate and the pressure on the annulus between the tubing and the long string casing. The monitoring results shall be submitted to the Director as specified in Part II(D) of this permit. "Continuous" shall mean a minimum sampling frequency of once every five seconds and a minimum recording frequency of once every five minutes of the average of all five-second readings during the previous recording interval.

3. **Waste Analysis Plan** - The permittee shall comply with the Waste Analysis Plan which is included in this permit as Part III(D).

4. **Ground Water Monitoring** - The permittee shall comply with the Ground Water Monitoring Plan which is found in Part III(E) of this permit. The permittee shall use fluid sampling methods, and sample and data analyses which provide reliable ground water monitoring results.

5. **Ambient Monitoring** - Pursuant to 40 CFR Section 146.68(e), the permittee shall monitor the pressure buildup in the injection interval, including, at a minimum, a shut down of the well for a time sufficient to conduct a valid observation of the pressure fall-off curve at least every twelve months. The permittee shall use the results of each test to calculate, at a minimum, reservoir transmissivity, wellbore skin, and static reservoir pressure. For each test occasion, the permittee may elect to conduct this test in one of the permittee's wells on a rotational basis.

6. **Compatibility of Well Material** – A plan for monitoring corrosion as required by 40 CFR Section 146.68(c)(2) is found in Part III(H) of this permit. The implementation of the corrosion monitoring plan is a condition of this permit. Continuous corrosion monitoring shall be operational within ninety days of the effective date of this permit. At a minimum, the permittee shall report loss of mass, thickness, cracking, pitting and other signs of corrosion at least quarterly.

D. REPORTING REQUIREMENTS (Section 146.69)

The permittee shall submit all required reports to the Director at the following address, no later than the end of the month following the reporting period:

United States Environmental Protection Agency
77 West Jackson Boulevard (WU-16J)
Chicago, Illinois 60604-3590
ATTN: Direct Implementation Section

In all reports, actual values for reporting parameters shall be provided. It shall not be acceptable to report "NA" or other non-data values where data is actually available. Tubing pressure and injection pressure shall be synonymous.

1. **Monthly Reports**. The permittee shall submit monthly reports of the following information:

   (a) Results of the injection fluid analyses specified in the approved Waste Analysis Plan, as provided in Part III(D) of this permit. In reporting fluid analyses, the permittee shall identify the waste components of the waste stream as described in the approved Waste Analysis Plan.

   (b) A tabulation of (1) monthly average flow rate, (2) monthly average temperature, (3) monthly minimum pH, (4) monthly maximum specific gravity and (5) monthly volume. Average monthly values of flow rate shall be calculated as follows:

   $$\frac{\text{Total monthly flow of Spent Pickle Liquor (gallons)}}{\text{1440 minutes/day * number of days in the month}}$$

   (c) A tabulation of (1) daily maximum injection pressure, (2) daily minimum annulus pressure, (3) daily minimum value of the difference between simultaneous measurements of annulus and injection pressure, (4) daily volume; (5) daily minimum temperature, (6) daily maximum temperature and (7) daily average temperature;

   (d) A graph or chart representation of the continuous monitoring as required in Part II(C)(2) of this permit or the daily average values of these parameters. The injection pressure, flow rate, and annulus pressure shall be submitted on a single graph, using contrasting symbols or colors, or in another manner approved by the Director;

   (e) Total volume of fluid injected, (i) in the reporting month, (ii) in the current calendar year, and (iii) to date since operation of the well began. For these three periods, the permittee shall specify separately: the volume of waste injected and the volume of make-up water, if known;

(f) A tabulation of monthly volumes of annulus liquid loss and/or gain, including additions by the permittee, (1) in the reporting month, and (2) in each of the previous 12 reporting months;

(g) Results of Galesville Formation pressure monitoring as specified in Part III(E)(5) of this permit;

(h) Any noncompliance with conditions of this permit, including but not limited to any event that exceeds operating parameters for annulus pressure or injection pressure or annulus/tubing differential as specified in the permit; and

(i) Any event which triggers an alarm or shutdown device required in Part II(B)(5) of this permit.

2. **Quarterly Reports** - The permittee shall submit quarterly reports. The reports are due by the last day of the month following the end of the quarter and shall contain results of the following activities conducted during the quarter:

(a) Results of the continuous corrosion monitoring as required by Part II(C)(6) of this permit and described in Part III(H).

(b) Results of Galesville Formation chemistry monitoring as specified in Part III(E) of this permit;

(c) Results of any other test of the injection well required by the Director that are not included elsewhere.

3. **Annual Reports** - The permittee shall report the following at least every twelve months:

(a) Update of the plugging and abandonment (closure) cost estimate and post-closure cost estimate to adjust for inflation as required by Section I(I)(1)(b);

(b) Update of the plugging and abandonment cost estimate of the Galesville Monitoring Well as required by Part III(E)(8).

(c) When the permittee updates these costs, the permittee shall also demonstrate that the requirement to maintain financial responsibility to comply with the plugging and abandonment (closure) and post-closure care as required by 40 CFR 144.52(a)(7) has been met (the value of the financial assurance mechanism(s) is greater than the adjusted costs) as required by Section I(I)

4. **Reports on Well Tests** - Within thirty calendar days after the activity or with the next quarterly report, whichever comes later, the permittee shall report to the Director the results of demonstrations of mechanical integrity, any well workover, or results of any other tests required by this permit such as the pressure fall-off testing required by 40 CFR Section 146.68(e) and Part II(C)(5) of this permit or required by the Director and the Galesville monitoring required by section III(E)(7) of this permit.

PART III

ATTACHMENTS

These attachments include, but are not limited to, permit conditions and plans concerning operating procedures, monitoring and reporting, as required by 40 CFR Parts 144, 146 and 148. The permittee shall comply with these conditions and adhere to these plans as approved by the Director, as follows:

A. SUMMARY OF OPERATING, MONITORING AND REPORTING REQUIREMENTS

B. CLOSURE PLAN

C. CONSTRUCTION DETAILS

D. WASTE ANALYSIS PLAN

E. GROUNDWATER MONITORING REQUIREMENTS FOR THE GALESVILLE SANDSTONE GROUNDWATER MONITORING WELL

F. CORRECTIVE ACTION UNDER THE RESOURCE CONSERVATION AND RECOVERY ACT

G. WASTE MINIMIZATION AND PRACTICABILITY CERTIFICATIONS

H. SPENT PICKLE LIQUOR CORROSION MONITORING PLAN AND COMPLIANCE SCHEDULE

ATTACHMENT A

PARTIAL SUMMARY OF OPERATING, MONITORING AND REPORTING REQUIREMENTS

CHARACTERISTIC	LIMITATION	MINIMUM MONITORING FREQUENCY	MINIMUM REPORTING FREQUENCY
Maximum Injection Pressure[1]	200 psig	Continuous	Monthly
Annulus Pressure	100 psig minimum	Continuous	Monthly
Annulus/Tubing Pressure Differential	100 psig over injection pressure minimum	Continuous	Monthly
Injection Rate (on a monthly average)[2]	175 gallons per minute	Continuous	Monthly
Cumulative Injected Volume		Continuous	Monthly
Annulus Fluid Loss or Gain		Monthly	Monthly
Chemical and Physical Characteristics of Injected Fluid[3]		Monthly	Monthly
Chromium[4]	133 mg/l	Monthly	Monthly
Nickel[4]	50 mg/l	Monthly	Monthly
pH[4]	0 (minimum)	Monthly	Monthly

[1] The Maximum Injection Pressure has been limited to 200 psig based on a request from the permittee to allow Standard Annulus Pressure Tests at 300 psig. This is well below the value that would be computed based on a fracture gradient calculation.

[2] The SPL rate limit is based on the modeling presented in the *Petition for an Exemption to the Hazardous Waste Injection Restriction Program* dated August 1988. The same rate is used in the modeling presented in the *2007 Petition for Renewal of Exemption from the Land Disposal Restrictions* dated February 28, 2007.

[3] As specified in the Waste Analysis Plan, which is Part III(D) of this permit.

[4] Concentration limit will apply if the 2007 Petition for Renewal of Exemption from the Land Disposal Restrictions, dated Feb. 28, 2007, is approved.

U.S. Environmental Protection Agency

Underground Injection Control Permit

Class I Hazardous

Permit Number IN-127-1W-0001

ArcelorMittal Burns Harbor, LLC

Burns Harbor, Indiana

Attachment B

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
ISG Burns Harbor, LLC
250 West US Highway 12
Burns Harbor, Indiana 46304

Name and Address of Owner/Operator
ISG Burns Harbor, LLC
250 West US Highway 12
Burns Harbor, Indiana 46304

Locate Well and Outline Unit on Section Plat - 640 Acres

N

State	County	Permit Number
Indiana	Porter	IN-127-1W-0001

Surface Location Description
__ 1/4 of SW 1/4 of NE 1/4 of NW 1/4 of Section 28 Township 37N Range 6W

Locate well in two directions from nearest lines of quarter section and drilling unit
Surface Location 1,250 ft. From (N/S) N Line of Quarter Section
And 1,600 ft. From (E/W) W Line of Quarter Section

TYPE OF AUTHORIZATION
- [x] Individual Permit
- [ ] Area Permit
- [ ] Rule

Number of Wells _____

Lease Name _____

WELL ACTIVITY
- [x] Class I
  - [x] Hazardous
  - [ ] Nonhazardous
- [ ] Class II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [ ] Class III

Well Number Spent Pickle Liquor No. 1

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
10-3/4	32.75	384	384	14-3/4
7	26	2204	2204	9-7/8
5 & 5-1/2	18 & 6.3 FRP	2677	2677	6-1/2
5	26.64 & 18	58 ft from 2677 to 2735	58 ft from 2677 to 2735	6-1/2

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] Balance Method
- [ ] Dump Bailer Method
- [ ] Two Plug Method
- [x] Other

CEMENT TO PLUG AND ABANDON DATA:

	Plug #1	Plug #2	Plug #3	Plug#4	Plug #5	Plug #6	Plug #7
Size of Hole or Pipe in Which Plug Will Be Placed (inches)	6-1/2 & 5 Csg	5-1/2 & 5 Csg	5 Csg	5 Csg			
Depth to Bottom of Tubing or Drill Pipe (ft)	2700	2600	1600	800			
Sacks of Cement To Be Used (each plug)		94	68	68			
Slurry Volume To Be Pumped (cu. Ft.)	41.5	111	80	80			
Calculated Top of Plug (ft.)	2600	1600	800	surface			
Measured Top of Plug (if tagged, ft.)							
Slurry Weight (Lb./Gal.)		15.6	15.6	15.6			
Type of Cement or Other Material (Class III)	Epoxy Resin	Class A	Class A	Class A			

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

	From	To	From	To
6-1/2" Open Hole	2735	4297		

Set cement retainer in 5" Hastelloy casing at ±2700' and squeeze 29.4 ft^3 of epoxy resin through the retainer. Pull the tubing out of the retainer and spot an 11.2 ft^3 balanced epoxy resin cement plug in the 5" casing from 2,700' to 2,600'.
Calculated epoxy resin cement plug from 2,900' to 2,600'.

Estimated Cost to Plug Well

Cementing Services	$200,000	Cement Retainer	$5,000
Logging Services	$20,000	Trucking and Misc.	$25,000
Service Rig	$40,000	Engineering Services	$30,000
Rental Tools	$10,000		

Estimated Total Cost $330,000

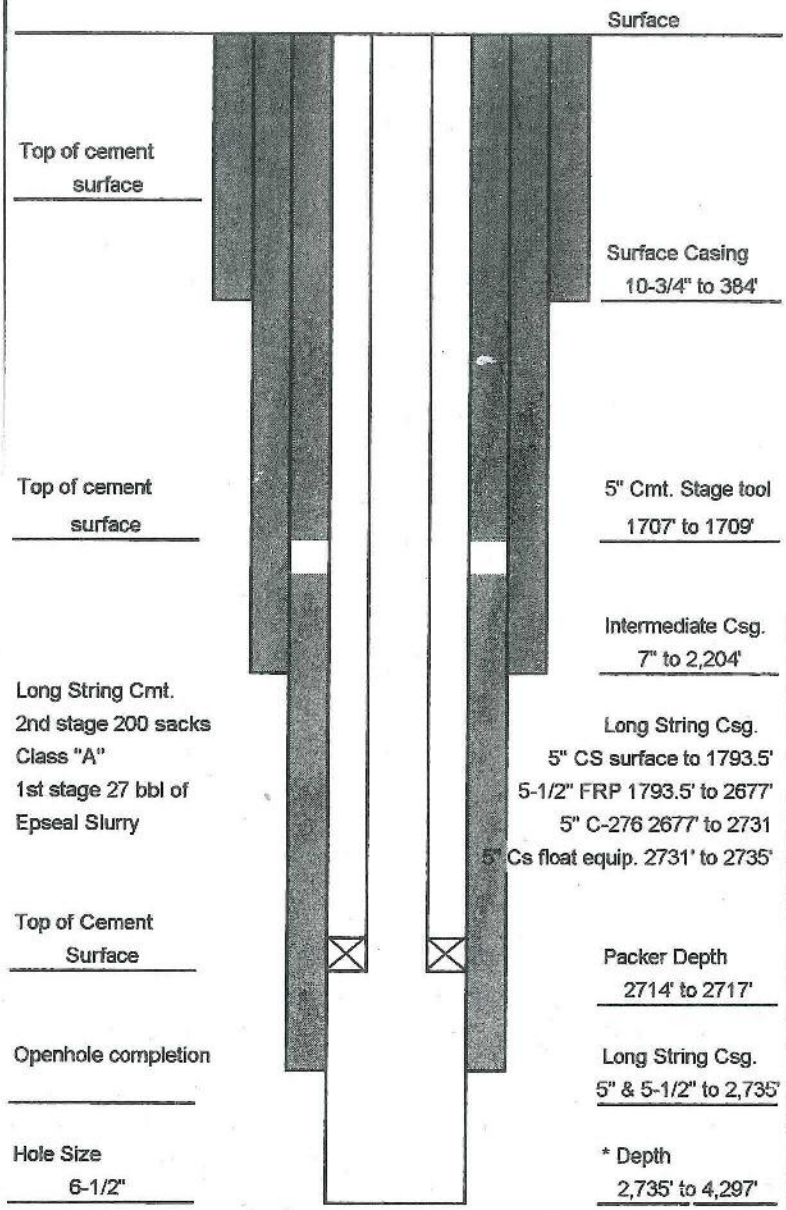
CERTIFICATION

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

Name and Official Title (Please type or print)	Signature	Date Signed
Madhu Ranade, Vice President & Gen. Mgr.	M Ranade	4/9/07

ORIGINAL WELL CONSTRUCTION DU[illegible]G OPERATION

ISG Burns Harbor, LLC
Spent Pickle Liquor Well No. 1
UIC Permit No. IN-127-1W-0001



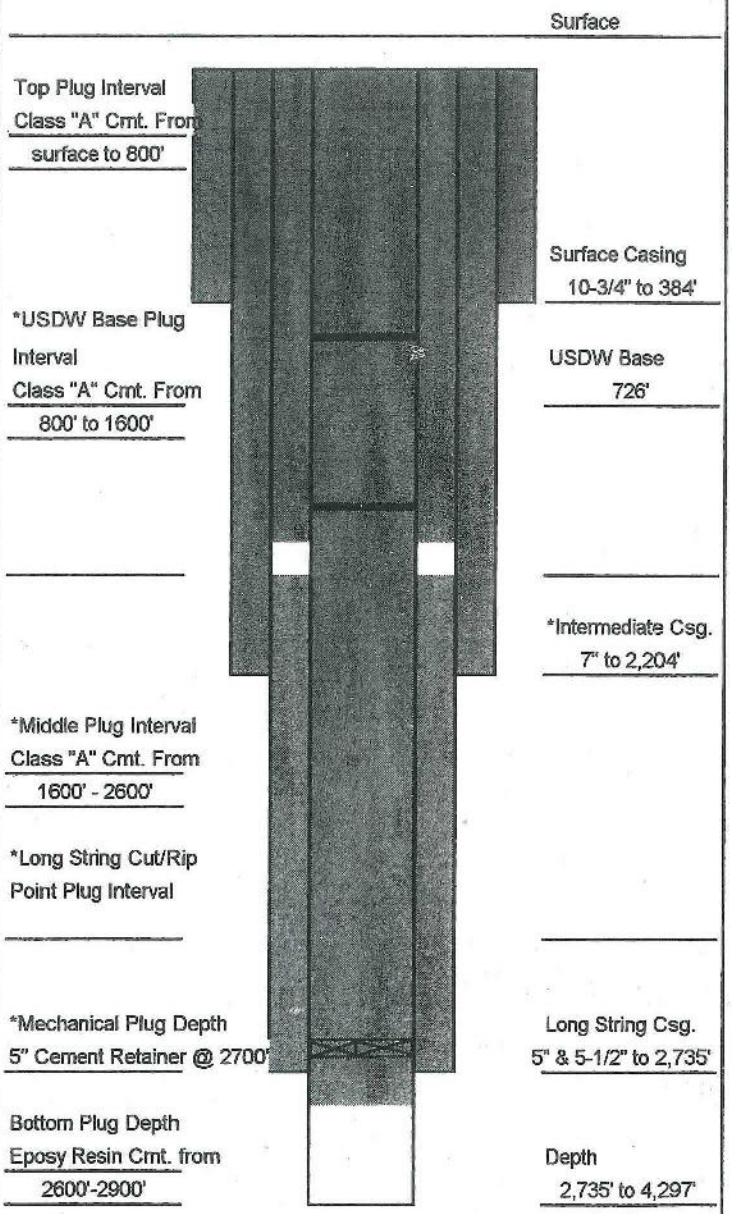
** Add Any Additional Information

* May not Apply

PLUGGING A[illegible]ABANDONMENT CONSTRUCTION

ISG Burns Harbor, LLC
Spent Pickle Liquor Well No. 1
UIC Permit No. IN-127-1W-0001

IN-127-1W-0001
Page B-2 of 6



** Add Any Additional Information

* May not Apply

LIST OF ALL OPEN AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED

Specify Open Hole/ Perforations/ Varied Casing	From	To	Formation Name
Open Hole Interval	2,735'	4,297'	Mt. Simon Sandstone

PLUGGING AND ABANDONMENT/POST CLOSURE CARE PLANS

40 CFR 144.52(a)(7) requires the permittee to demonstrate adequate financial responsibility and resources to close and abandon the underground injection operation in a manner prescribed by the Director. During the permit application review process, the permittee provided documentation of the financial assurance to plug and abandon this well and provide adequate post-closure care by means of its financial statement (40 CFR144.63(f)). The permittee may provide alternate financial assurance if approved by the Director as described in Part I(H)(1). The permittee has acknowledged that the obligation to maintain financial responsibility for post-closure care survives the termination of this permit and the cessation of injection.

The plugging and abandonment plan for the SPL-1 well is as follows.

1. Obtain approval from the regulatory agency prior to commencing operations. Conduct the required mechanical integrity testing and ambient monitoring testing and submit the test data to the regulatory agency.

2. Move in and rig up a workover rig.

3. Flush the wellbore with water. The total flush volume will be a minimum of three wellbore volumes.

4. Dismantle the wellhead and install blowout preventers.

5. Remove the injection tubing and seal assembly.

6. Set a cement retainer in the 5 inch Hastelloy casing at approximately 2,700 feet and pressure test the retainer

7. Squeeze 29.4 cubic feet of epoxy resin through the retainer. Pull the tubing out of the retainer and spot 11.2 cubic feet balanced epoxy resin cement plug in the 5 inch casing from 2,700 to 2,600 feet.

8. Fill the remainder of the 5 inch casing from the top of the resin with Class "A" cement. This top plug will be pumped in 500-1,000 feet stages and balanced in place. An appropriate length of the workstring will be pulled and laid down. The workstring will be reverse-circulated to confirm that it is still in cement from the previous stage and the process will be repeated until the cement is 3 feet below the surface.

9. Rig down and move out the workover equipment.

10. Wait on cement for at least eight hours.

11. Cut off the casing 3 feet below ground level. Weld a steel plate on top of the casing. The steel plate should be inscribed with the following information:

ArcelorMittal Burns Harbor, LLC
Spent Pickle Liquor Well No. 1
Permit No. IN-127-1W-0001
P& A ____.

COST ESTIMATE FOR PLUGGING AND ABANDONMENT OF SPL-1
The estimated cost for plugging and abandoning SPL #1 well is $330,000.

POST CLOSURE CARE PLAN
The procedures for post closure care described herein are to be initiated upon permanent cessation of injection, and closure (plugging and abandonment) of ArcelorMittal Burns Harbor, LLC, SPL-1, at the Burns Harbor in northern Indiana. This procedure is in accordance with the requirements of Title 40 of the Code of Federal Regulations (40 CFR) Section 146.72 regarding post-closure. Any proposed significant revisions to this plan over the life of the well will be submitted not latter than the date of the closure report required under 40 CFR 146.71 (a) (7) (c).

The following information is a required part of the post closure plan:

1) Pressure in the injection zone before injection began:

   In order to develop a better estimate of initial conditions in the lower Mt. Simon Injection Interval, original measured lower Mt. Simon pressures from the Indiana Department of Transportation well near Valparaiso and the Midco Superfund well near Gary were evaluated. The original formation pressure measured in the Indiana Department of Transportation well (July 1999) was 1,433.6 pounds per square inch (psi) at a depth of 3,500 feet, and the original formation pressure measured in the Midco Superfund well (September 1993) was 1,024.46 psi at a depth of 2,462 feet. These pressures are equivalent to an initial gradient of approximately 0.41 psi/ft in the lower Mt. Simon Sandstone. Note that this gradient value is slightly lower than the 0.42 psi/ft used in the original modeling. However, the 0.41 psi/ft gradient is based on more recent, high-quality bottomhole pressure data that was not available at the time of the original exemption. Using this revised formation pressure of 0.41 psi/ft and the model reference depth of 2,751 feet results in a calculated initial pressure of 1,127.9 psi for the lower Mt. Simon Injection Interval. Subsequent static pressures at the Midco site have ranged from 0.41 psi/ft to 0.42 psi/ft, confirming the validity of the original measured value. Therefore, a value of 1,127.9 psi was assigned as the "zero" pressure at the reference model depth of 2,751 feet.

2) Anticipated pressure in the injection zone at the time of closure:

   Modeling performed for the ArcelorMittal Burns Harbor, LLC land ban demonstration was based on average monthly injection rates for year 2006 through year-end 2027 of 300 gallons per minute (gpm) for the waste ammonia wells, 175 gpm for the spent pickle liquor well, and 100 gpm for the United States Steel Waste Pickle Liquor No. 2 well.

Incremental model pressure buildup at the Waste Ammonia Liquor Well No. 1 well is 771.4 psi (reservoir pressure of 1,899.3 psi at 2,751 feet). Incremental model pressure buildup at the Waste Ammonia Liquor Well No. 2 well is 772.6 psi (reservoir pressure of 1,900.5 psi at 2,751 feet). Incremental model pressure buildup at the Spent Pickle Liquor Well No. 1 well is 572.4 psi (reservoir pressure of 1,700.3 psi at 2,751 feet).

3) The predicted time until pressure in the injection zone decays to the point that the well's cone of influence no longer intersects the base of the lowermost underground source of drinking water:

Pressure recovery is the ability of a formation to return to near-original formation pressure once injection has ceased. The *DuPont Multilayer Pressure Model* prediction of the post-injection pressure decay for all three wells is shown in figures in Attachment Q of the permit application, which is part of the Administrative Record for this permit. The graphs show the modeled pressure increase over the historical injection period (through year-end 2005), the modeled maximum injection period (2006 through 2027), and the pressure recovery over a modeled 30-year period, assuming that injection ceases at year end 2027.

Pressure recovery begins immediately after injection ceases and continues to recover over the modeled 30-year period. The pressure in the lower Mt. Simon Injection Interval will equilibrate rapidly, and the driving force needed for vertical permeation of formation brines and waste from the lower Mt. Simon Sandstone into the overlying "B" Cap Shale layer at all locations will dissipate. <u>There will be no Cone of Influence within 3 years of closure.</u> Asymptotic pressure recovery to the initial formation pressure will continue over the 10,000-year time frame. Since pressure recovery in the injection intervals is rapid, the injection-induced driving force for waste movement also diminishes rapidly.

4) Predicted position of the waste front at closure:

The predicted position of the waste front at the time of well closure (the year 2027 in the ArcelorMittal Burns Harbor, LLC land ban demonstration) is approximately 5,500 feet from the Waste Ammonia Liquor wells and 4,800 feet from the Spent Pickle Liquor No. 1.

5) Status of any cleanups required under 40 CFR 146.64:

The cited regulation concerns corrective actions for wells within the area-of-review. No corrective actions are currently underway or planned within the ArcelorMittal Burns Harbor area-of-review.

6) Estimated costs of post closure care:

The estimated costs of post closure care are $2,500.

Upon closure of any of ArcelorMittal Burns Harbor, LLC injection wells, ArcelorMittal shall:

1) Continue and complete any cleanup action required under 40 CFR 146.64, if applicable.

2) Continue post closure maintenance and monitoring of any ground water monitoring wells required under the applicable permits until pressure in the injection zone decays to the point that the injection well's cone of influence no longer intersects the base of the lowermost underground source of drinking water (top of the Maquoketa Shale). [Note: Projected to be a period of 3 years after closure of all wells.]

3) Submit a survey plat map to the local zoning authority designated by the Director, and to the Regional Administrator of the Region 5 EPA office. The survey plat map shall indicate the location of the closed well relative to permanently surveyed benchmarks.

4) Provide appropriate notification and information to state and local authorities that have cognizance over drilling activities to enable them to impose such appropriate conditions on subsequent drilling activities that may penetrate the well's confining or injection zone.

5) Retain, for a period of three years following well closure, records reflecting the nature, composition and volume of all injected fluids. The Director shall require ArcelorMittal Burns Harbor, LLC to deliver the records to the Director at the conclusion of the retention period, and the records shall thereafter be retained at a location designated by the Director for that purpose.

6) Upon closure of the well in accordance with the approved closure plan, ArcelorMittal Burns Harbor, LLC shall record a notation on the deed to the facility property, or on some other instrument that is normally examined during title search, that will in perpetuity provide any potential purchaser of the property with the following information:

   a) The fact that the land has been used to manage and dispose hazardous waste(s) in deep wells,

   b) The name(s) of the state agencies and/or local authorities with which the survey plat map was filed, and the address of the regional EPA office to which it was submitted.

   c) The type and volume of waste injected, the injection interval or intervals into which it was injected, the name(s) of the generator(s) of the waste and the time period over which the injection occurred.

ArcelorMittal Burns Harbor, LLC shall comply with the post closure financial assurance requirements of 40 CFR 146.73, and acknowledges that the obligation to maintain financial responsibility for post closure care survives the termination of the UIC Permit(s) or the cessation of injection.

U.S. Environmental Protection Agency

Underground Injection Control Permit

Class I Hazardous

Permit Number IN-127-1W-0001

ArcelorMittal Burns Harbor, LLC

Burns Harbor, Indiana

Attachment C

ISG Burns Harbor, LLC
Spent Pickle Liquor Well No. 1
UIC Permit #IN-127-1W-0001
Well Schematic
Status: Active

KB = 6.5'
All depths RKB

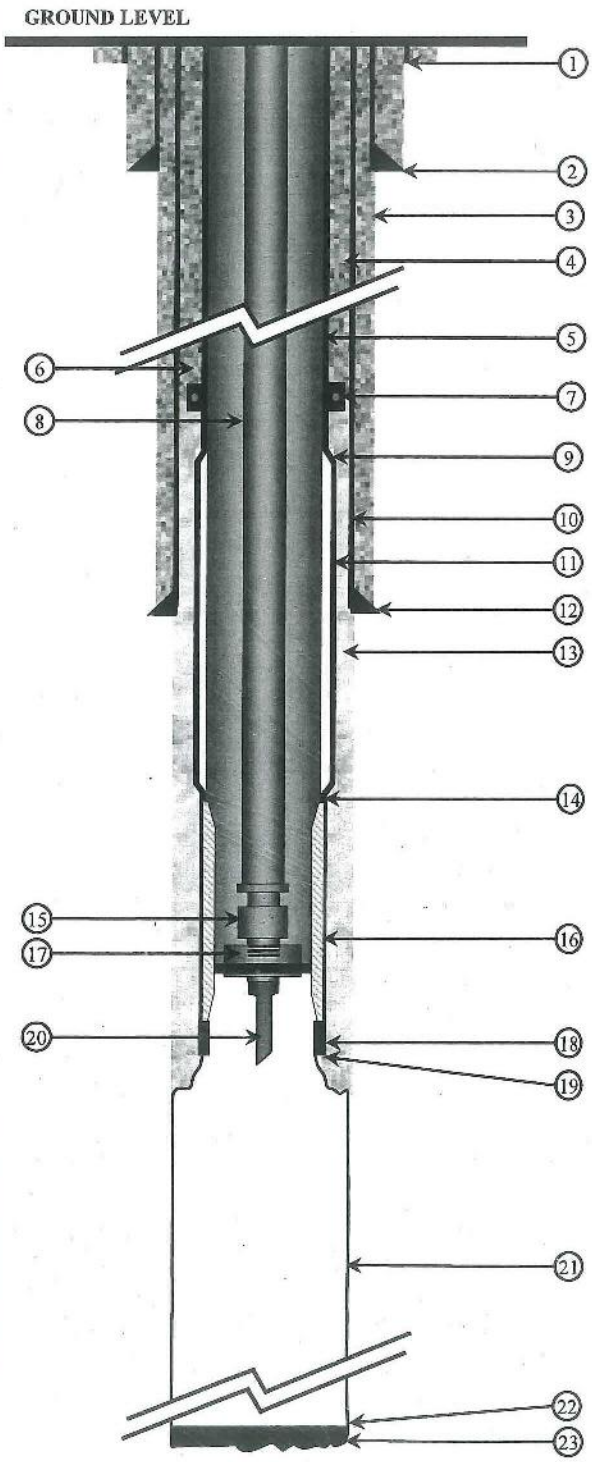


Figure 1: SPL1 Well Completion Schematic

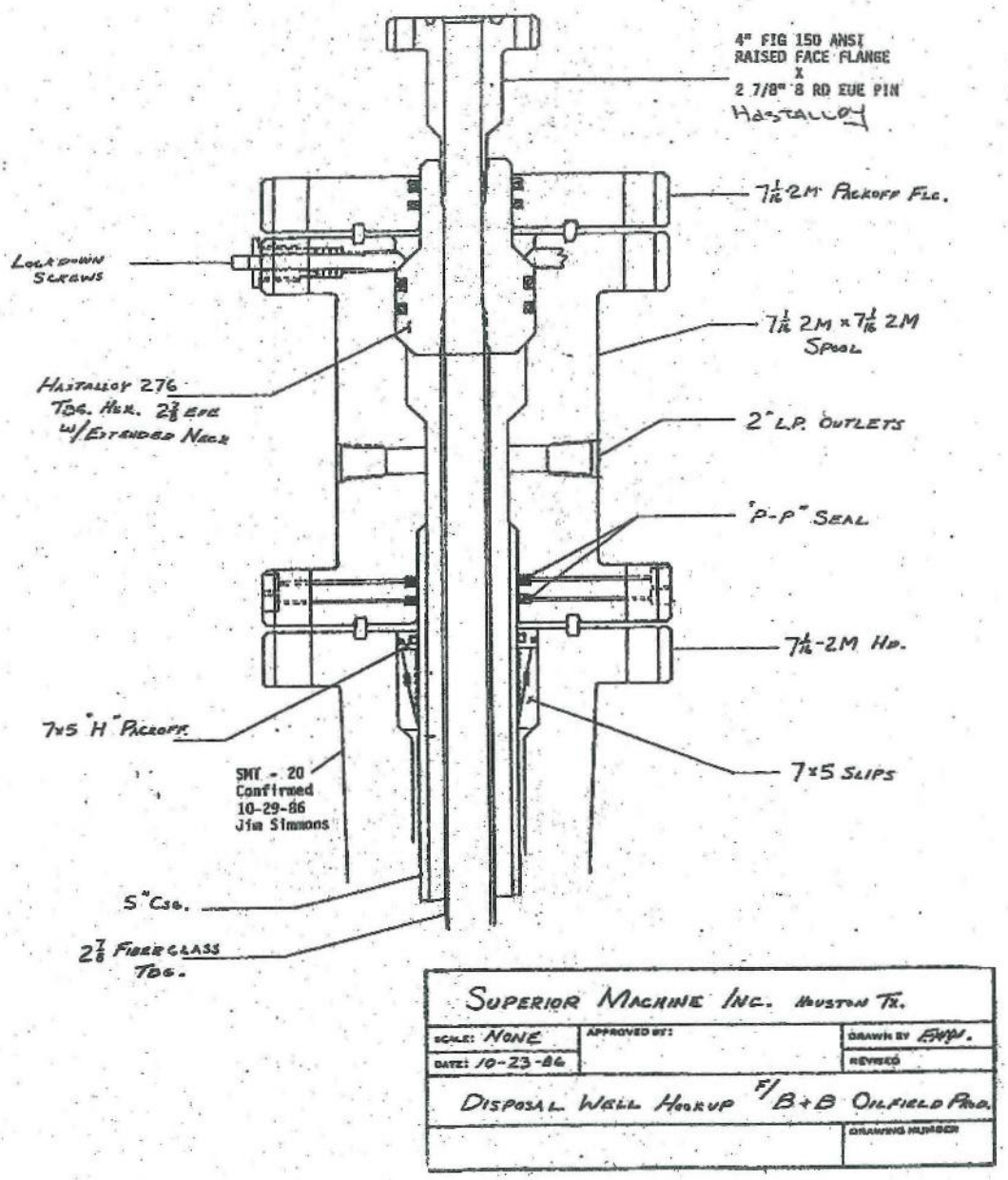
COMPLETION DETAIL

1. Conductor Pipe: 20", set from surface to 20', cement to Surface.
2. Surface Casing: 10-3/4", set from surface to 384', cemented to surface.
3. Base of USDW: 726'.
4. Intermediate Casing: 7", Set from Surface to 2204', 26-ppf, N-80, cemented w/600 sx Pozmix Cement. Window milled from 2020' to 2069' and filled w/Class A cement during 1986 workover.
5. 5", 18 ppf, J-55, LTC casing from surface to 1,792', 4.286" ID, 4.151" Drift
6. Cemented w/ Lead of 150 sacks of class "A" cement w/ 2% $CaCl_2$ and Tail of 50 sx class "A" cement w/ 5 lb. sack Cal seal and 18% Salt
7. 5", 18 ppf cementing stage tool from 1706.9' to 1709.3'
8. 2 7/8", Red Box 2000 Fiberglass tubing from surface to 2702'
9. 1793.5' – Transition from 5" steel to 5-1/2" fiberglass casing
10. 7", 26 ppf, J-55, casing set to 2204'
11. 5½", Red Box 2500, Fiberglass casing from 1793.5' to 2677'
12. Intermediate casing shoe @ 2204'
13. Cemented w/ 27 bbl of 12.5 ppg EPSEAL Cement Slurry
14. Top of Hastelloy C-276 casing @ 2677'
15. Delta "P" Model 12 Hastelloy C-276 expansion joint from 2702' to 2714'
16. 5", 26.64 ppf, Hastelloy C-276 casing from 2677' to 2731'
17. Delta "P" Model 12 Disposal Packer w/ Hastelloy C-276 wetted surfaces from 2714' to 2717'
18. 5", 18 ppf carbon steel crossover, float collar, & float shoe from 2731' to 2735'
19. Protection casing shoe at 2735'
20. 2 7/8", Red Box 2000 Fiberglass Mule Shoe joint from 2717' to 2746'
21. 6-1/2" Openhole from 2735' to 4297'
22. 4284' – Top of Fill in Openhole (11/08/06)
23. 4297' – Total Depth

Sandia Technologies, LLC
6731 Theall Road Houston, TX 77066 USA
Tel: (832) 286-0471 Fax: (832) 286-0477

Drawn by: EAM & ESJ	Date: 1/23/2007	*Drawing not to scale*
Revision 4a		

ISG Burns Harbor Inc.
Spent Pickle Liquor Well No. 1
UIC Permit #IN-127-1W-0001
Wellhead Schematic
Status: Active



Sandia Technologies, LLC
140 Cypress Station Drive, Suite 130 Houston, TX 77090
Tel: (281) 586-5860 Fax: (281) 586-5870

Drawn by: WHA	Date: 08/20/2003	*Drawing not to scale*

FIGURE 2: SPL1 Wellhead Schematic

ATTACHMENT D

SOURCE AND ANALYSIS OF WASTE AND WASTE ANALYSIS PLAN

The permittee is allowed to inject waste into this well limited to the following:

1. Spent Pickle Liquor, a listed hazardous waste bearing the RCRA Hazardous waste code K062,
2. Fresh water (during well tests and when the system is switched between waste streams),
3. A buffer fluid (during well tests and during well abandonment only);
4. Formation water from the Galesville Sandstone formation that is collected during sampling or workovers;
5. Formation water from the Mt. Simon Sandstone formation that is captured during well stimulations or workovers; and
6. Rain water that is collected in spill containment and directed to the tar decanters or that is collected in the sluice pits.

The waste may be generated by any facility owned by ArcelorMittal Burns Harbor's parent company, ArcelorMittal USA, Inc.

The concentrations of key constituents of the waste stream shall be limited as shown in Attachment A.

The text of the ArcelorMittal Burns Harbor Waste Analysis Plan is included below, though the attachments and appendices to the Plan are not. They are found in the Administrative Record for this permit.

ARCELORMITTAL BURNS HARBOR, LLC.

WASTE ANALYSIS PLAN
FOR
UIC PERMIT NOS. IN-127-1W-0001, 0003, 0004 AND 0007

EFFECTIVE: February 2009

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Table 1 - Historic Waste Analytical Results

Table 2 - Analytical Methods

Table 3 - Estimated Quantitation Limits (EQL's) for Targeted Parameters in Milligrams per Liter (mg/L) or as noted

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Attachments: Note: These attachments are in the Administrative Record for this Permit

Attachment 1 – Facility Map

Attachment 2 – Waste Ammonia Liquor Appendix IX Analysis

Attachment 3 – Spent Pickle Liquor Appendix IX Analysis

Attachment 4 – Sample Label, Sample Seal and Chain of Custody Form

Appendices
Appendix 1 – Laboratory Standard Operating Procedures

A. Metals Using Inductively Coupled Plasma Emission Spectroscopy
B. Preparation of Aqueous Samples and Extracts for Total, Total Recoverable or Dissolved Metals Analysis by Inductively Coupled Plasma Spectroscopy
C. Volatile Organic Compounds and Volatile Petroleum Hydrocarbons Using EPA Method 624 and SW-846 Method 8260B
D. Semi-Volatile Organic Compounds (SVOA) by EPA Method 625 and SW-846 Method 8270 C
E. Preparation of Aqueous Samples Using Manual Liquid-Liquid Extraction
F. Specific Gravity Using SM Method 2710 F and Density Using a Modified SM Method 2710 F
G. Electrometric Determination of pH
H. Acidity Using SM Method 2310 B and EPA Method 305.1
I. Ammonia-Nitrogen by Automated Phenate Colorimetry using EPA Method 350.1 and SM Method 4500-NH3 G
J. Chloride (Silver Nitrate Titration) Using Standard Methods Method 4500-Cl B and SW-846 Method 9253
K. Cyanide, Total, Amenable, and Weak Acid Dissociable by Midi Distillation and Automated Colorimetry
L. Phenolics, Total Recoverable Using Automated Colorimetry
M. Sulfate by EPA Method 375.4 and SW-846 Method 9038
N. Total and Recoverable Sulfide

SECTION I - SCOPE AND APPLICABILITY

As required by Federal Regulation 40 CFR 146.13(b)(1) and 146.68(a), this waste analysis plan describes the wastes that are disposed via deepwell injection as well as the procedures that will be periodically followed to obtain a detailed chemical and physical analysis of the waste streams.

SECTION II - RESPONSIBLE CHARGE AND PLAN ADMINISTRATION

The Manager of the Environmental Management Department is in charge of this Waste Analysis Plan (WAP). His responsibilities, which may be carried out by qualified persons under his supervision, include the following:

1. Periodic review of the WAP in order to ensure its continued applicability.
2. Ensure that all required analyses are performed.
3. Record keeping of analytical results and quality assurance.

SECTION III - DESCRIPTION OF WASTE STREAMS

ArcelorMittal Burns Harbor currently operates three Class I deepwells for the disposal of two hazardous waste streams. Two of the wells (Permit Nos. IN-127-1W-0003 and IN-127-1W-0004) dispose of Waste Ammonia Liquor (WAL), which is characteristically hazardous (toxicity characteristic) for the constituents selenium, benzene and pyridine. One of the wells (Permit No. IN-127-1W-0001) disposes of Spent Pickle Liquor, which is a listed hazardous waste (K062). A new well (Permit No. IN-127-1W-0007) will be designed to also dispose of WAL. The following provides a description of how each waste stream is generated, stored and transported prior to disposal.

A. Waste Ammonia Liquor (WAL)

WAL is generated at the Coke Oven Coal Chemical plant, which is located in the southwest corner of the Burns Harbor (See Attachment 1 - Facility Map). WAL from coking operations (a coal carbonization process) is a wastewater that is generated from the ". . . extraction, beneficiation and processing of ores and minerals (including coal)" [40 CFR 261.4(b) (7)]. WAL primarily consists of water (roughly 99%) that contains high concentrations of organic contaminants. The primary contaminant, as the waste name implies, is ammonia (2003 average concentration of 4,138 milligrams per liter). The WAL also contains phenols (2003 average concentration of 1128 mg/L), cyanide (2003 average concentration of 53 mg/L), and several other organic contaminants, such as aniline, benzene and naphthalene, at lesser concentrations.

Coal is the principal input into the coking operation and coke, coal tar and coke oven gas are the principal outputs. Ammonia liquor is recirculated in a closed-loop recycle system to cool and cleanse the coke oven gas produced by the coking process. The water, tars and solids are scrubbed from the gas flow to one of three decanters where phase separation is allowed to occur. The water phase (ammonia liquor) floats on top of the coal tar and overflows a fixed weir that discharges to a holding tank. The majority of ammonia liquor is recirculated from the holding tank to

the coke oven gas main as flushing liquor for further gas cooling and cleansing. Excess water is introduced into the closed-loop system primarily as a result of the liberation of moisture, which is contained within the coal, during the coking process. In order to maintain proper liquid equilibrium within the closed-loop system, the excess or waste ammonia liquor (WAL) is discharged to the WAL system for processing and disposal.

The WAL is initially processed through the WAL Clarifier for tar and sediment removal through gravimetric settling. The overflow from the clarifier is discharged to spiral cooler heat exchangers in order to lower the temperature of the WAL. After cooling, the WAL is pumped to one of three pressure filters for initial filtration. Following this initial filtration, the WAL is directed to one of four polishing filters for the removal of fine particulates. After final filtering, the WAL is directed to one of the two injection wells for final disposal.

B. Spent Pickle Liquor (SPL)

SPL is generated as a by-product of the steel sheet pickling operation, which is located in about the center of Burns Harbor (see Attachment 1 - Facility Map). The continuous pickling operation uses a hydrochloric acid solution in a cascading (e.g., counter-current flow) system to remove scale and rust from the steel strip in preparation for further processing in the cold mill. The SPL is primarily water (about 87%), hydrochloric acid (2003 average free acid concentration of 0. 4 percent), and iron (2003 average concentration of 12 percent) as ferrous chloride. The SPL will also contain minor concentrations (i.e., <100 mg/L) of other metals (e.g., chromium, nickel) that are typically present in the steel processed.

The hydrochloric acid solution is maintained at a concentration of approximately 6 percent in tank number 3 and is heated using steam. The acid flows toward tank number 1 as it loses strength. The acid in tank number 1 typically contains less than 1.0 percent of free acid and overflows to a 35,000-gallon storage tank, at which point it is considered to be SPL. The SPL from this tank can be transferred to Burns Harbor's Secondary Wastewater Treatment Plant or to a railroad tank car/truck loading facility for use as a substitute for a commercial chemical product. SPL that cannot be used in this manner is transferred to the SPL well system for processing and disposal by deepwell injection. If the SPL is to be deep well injected, the SPL from the storage tank is pumped using the filter feed pumps to a pressure filtration system for solids removal. The SPL then flows through a heat exchanger for temperature adjustment prior to flowing to the deep well for disposal.

SECTION IV – Description of Groundwater Monitoring Well

On August 1, 1990, the United States Environmental Protection Agency granted Burns Harbor a Final exemption for Continued Injection of Hazardous Waste Subject to the Land Disposal Restrictions of the Hazardous and Solid Waste Amendments of 1984. This exemption, which was subsequently modified on March 17 and April 7, 1998, required Burns Harbor to install a groundwater monitoring well in the Galesville Sandstone Formation, which is the lower most formation located immediately above the confinement formation for deepwell injection activities.

The operational plan for this well requires continuous pressure monitoring to confirm that the pressurization of the subsurface formations is consistent with the no-migration model simulation submitted in support of the exemption as well as to provide early detection of anomalous activity within the injection zone. In addition, the well is periodically sampled and the groundwater is analyzed in order to confirm that waste is not migrating out of the injection zone.

SECTION V - WASTE CHARACTERIZATION

A. Waste Ammonia Liquor (WAL)

Attachment 2 contains a copy of an Appendix IX analysis performed on WAL in October 1993 and August 2004. Based on this analysis as well as other hazardous waste analyses performed, WAL periodically exceeds the Toxicity Characteristic Leaching Procedure (TCLP) maximum concentration specified in 40 CFR 261.24, Table 1 for Selenium, Benzene and Pyridine. In addition, the WAL injected contains less than one percent suspended solids. Therefore, under the TCLP procedure, the WAL is analyzed on a total constituent basis. Based on this information and EPA's Regional Guidance #8 for "Preparing a Waste Analysis Plan at Class I Injection Well Facilities" (January 21, 1994), the following parameters will be analyzed under this WAP at the frequency indicated.

Parameter	Frequency of Analysis
Selenium, Total	Monthly
Benzene, Total	Monthly
Pyridine, Total	Monthly
Toluene	Monthly*
Phenols (4AAP)	Monthly
Nitrogen-Ammonia	Monthly
Specific Gravity	Monthly
Total Cyanide	Monthly
Naphthalene	Monthly
pH	Continuous**
Temperature	Continuous**
Sulfide	Monthly

* This constituent has been added to the list because it was present in the waste analysis provided in Attachment 2 at a concentration greater than 0.01%. After one year of sampling for this constituent, Burns Harbor may petition to remove this constituent from the monthly monitoring list if it is not consistently present above this 0.01% threshold.

**Temperature and pH are monitored continuously, except during periods of instrument maintenance and calibration, and recorded on strip chart recorders at the Waste Ammonia Liquor Pump Station. Grab samples are obtained five days per week (i.e., Monday through Friday) to verify calibration of the instruments.

B. Spent Pickle Liquor (SPL)

Attachment 3 contains a copy of an Appendix IX analysis that was performed on SPL during October, 1993 and August, 2004. When SPL is disposed as a waste, it is a listed hazardous waste with an EPA hazardous waste number K062. Based on

the waste code inventory found at 40 CFR 268.43 and EPA's Regional Guidance #8 for "Preparing a Waste Analysis Plan at Class I Injection Well Facilities" (January 21, 1994), the following parameters will be analyzed under this WAP at the frequency indicated.

Parameter	Frequency of Analysis
Chromium, Total	Monthly
Iron, Total	Monthly
Free Acid	Monthly
Specific Gravity	Monthly
Nickel, Total	Monthly
pH	Monthly
Temperature	Continuous*

*Temperature is monitored continuously, except during periods of instrument maintenance and calibration, and recorded on strip chart recorders at the Spent Pickle Liquor Pump Station.

SECTION VI – GROUNDWATER CHARACTERIZATION

As of February 2008, Burns Harbor has sampled the Galesville formation 57 times. The following lists the constituents that will continue to be sampled under this WAP. A brief rationale why the constituent will be sampled is also provided.

Parameter	Frequency of Analysis	Rationale
Acidity	Quarterly	Historical*, Waste Character**
Ammonia as N	Quarterly	Historical, Waste Character
Chloride	Quarterly	Historical, Waste Character, Guidance***
Cyanide	Quarterly	Historical, Waste Character
Phenols (4AAP)	Quarterly	Historical, Waste Character
Sulfate	Quarterly	Historical, Guidance
Iron, Total	Quarterly	Historical, Waste Character
Sodium	Quarterly	Historical, Guidance
Calcium	Quarterly	Historical, Guidance

* Historical constituents are those constituents that have been analyzed for during each of the 57 previous sample events.
**Waste Character constituents are those constituents in the waste streams that are either known to be present or routinely analyzed under this WAP.
***Guidance constituents are those constituents in groundwater that EPA's regional guidance specifies be analyzed.

SECTION VII - WASTE ANALYSIS PLAN QUALITY ASSURANCE/QUALITY CONTROL

A. Description of Sampling
   1. Sampling Methods for Waste Ammonia Liquor (WAL)

Samples of WAL will be obtained at the frequency specified in Section V of this WAP. Samples will be obtained from the sample tap located at the Waste Ammonia Liquor Pump Station. This line taps off of the main injection line after all filter devices and immediately prior to the valve that directs the WAL to one of the two well heads for injection.

The samples will be collected into clean, pre-preserved, labeled sample bottles supplied by the analytical laboratory. In order to obtain the samples, the sample collector will open the sample tap and allow WAL to flow from the tap for at least 30 seconds. He will fill each of the supplied sample bottles with WAL without immersing the sample tap line into the sample. When each bottle is full, the sample collector will seal that bottle, place it into the sample cooler, and begin to fill the next bottle. This will continue until all of the sample bottles have been filled. Upon completion of the sampling event, the sample collector will record the sample date, time, and his initials on each sample bottle's label, complete a sample bottle seal and place it on each sample bottle and complete the chain of custody form (See Attachment 4 for examples of the sample label, sample seal and chain of custody form). The sample collector will then place ice and the completed chain of custody form (sealed in a plastic bag) into the cooler, and transport the cooler to the designated pick-up location for the analytical laboratory.

2. Sampling Methods for Spent Pickle Liquor (SPL)

Samples of SPL will be obtained at the frequency specified in Section V of this WAP. Samples will be obtained from the drain valve of the 35,000-gallon spent pickle liquor storage tank located west of the spent pickle liquor deepwell control room. SPL contains a very small amount of suspended solids and is injected intermittently because Burns Harbor continues to pursue recycling options. Therefore, this sample location allows for the collection of SPL samples that are representative of the material that may be injected. In addition, this sample location provides a reliable and readily available sampling point for SPL.

The samples will be collected from the drainpipe using a dedicated long-handled polyethylene dipper. The sample collector will open the drain valve and allow SPL to flow from the drain line for at least 30 seconds. He will then rinse the dipper at least three times with the SPL flowing from the drain lines. After rinsing, he will collect the sample and transfer it from the dipper into clean, pre-preserved, labeled sample bottles supplied by the analytical laboratory. When each sample bottle is full, the sample collector will seal that bottle, place it into the sample cooler and begin to fill the next bottle. This will continue until all sample bottles have been filled. Upon completion of sampling events, the sample collector will record the sample date, time, and his initials on each sample bottle's label; complete a sample bottle seal and place on each sample bottle and complete the chain of custody form (see Attachment 4 for examples of the sample label, sample seal and chain of custody form). The sample collector will then place ice and the completed chain of custody form (sealed in a plastic bag) into the cooler, and transport the cooler to a designated pickup location for the analytical laboratory.

3. Sampling Methods for Galesville Sandstone Groundwater

Samples of the groundwater in the Galesville Sandstone Formation will be obtained at the frequency specified in Section VI of this WAP. Samples will be obtained from the well using the dedicated pump system.

In accordance with the "Drilling, Testing and Operational Plan" for the Galesville Sandstone Groundwater Monitoring Well (February, 1991), the sampler will arrive at the well site and determine the static water level within the well. Upon obtaining the static water level, the sampler will turn on the dedicated pump. The sampler will continue pumping, with periodic monitoring for flow rate, pH, temperature, reduction/oxidation potential and conductivity, until a minimum of three well volumes have been evacuated from the well. Once three well volumes have been evacuated and at least three of the four monitored parameters (pH, temperature, reduction/oxidation potential and conductivity) have stabilized, he will begin to collect the samples by directing the pump discharge into clean, pre-preserved, labeled sample bottles supplied by the analytical laboratory. When each sample bottle is full, the sample collector will seal that bottle, place it into the sample cooler and begin to fill the next bottle. This will continue until all sample bottles have been filled. Upon completion of sampling, the sample collector will record the sample date, time, and his initials on each sample bottle's label; complete a sample bottle seal and place on each sample bottle and complete the chain of custody form (see Attachment 4 for examples of the sample label, sample seal and chain of custody form). The sample collector will then place ice and the completed chain of custody form (sealed in a plastic bag) into the cooler, and transport the cooler to a designated pickup location for the analytical laboratory.

Results of analyses performed in accordance with this plan will be kept on file by the Environmental Management Department for a minimum of five (5) years.

4. Sampling Information Summary

i. Sample Collector – ArcelorMittal Burns Harbor Representative or contract employee.
ii. Sample Collection Method - Refer to Sections VII.A.1, 2 & 3
iii. Sample Collection Point - Refer to Sections VII.A.1, 2 & 3
iv. Sample Preservation - Parameter specific. To be provided by the analytical laboratory, as needed.
v. Sample Frequency - Refer to Sections V & VI.
vi. Analytical Method for Parameter Detection/Quantification - Refer to Table 2
vii. Anticipated Analytical Method Accuracy - Refer to Table 1
viii. Anticipated Analytical Method Quantification Limit - Refer to Table 3
ix. Field Documentation of Sampling - Refer to Section VII.B.4.

B. Description of Analytical Methods

1. Equipment Cleaning Blanks

The WAL samples will be collected directly from a sample tap into clean, pre-preserved and labeled sample bottles supplied by the analytical laboratory. The SPL will be collected from a drainpipe using a dedicated long handled polyethylene dipper. The Galesville groundwater will be collected

from the pump discharge that is dedicated to this well. Therefore, cross-contamination is eliminated and decontamination of the sampling equipment is not necessary.

2. Trip Blanks

Each time a group of sample bottles is prepared for volatile organics analysis (e.g., benzene and toluene analysis) during a sampling event at the WAL or Galesville well, a 40- millilter Volatile Organics Analysis (VOA) trip blank bottle will be included in each shipping container that contains VOA sample bottles. The VOA trip blank bottles are filled with deionized analyte free water by the laboratory. The trip blanks will be transported to the sampling location and returned (unopened) to the laboratory in a manner identical to the handling procedure used for the environmental samples. These trip blanks will be analyzed for the same VOA parameters identified in Sections V and VI. If contaminants are found in the blanks, the source of the contamination will be identified and corrective action will be initiated.

3. Duplicate Samples and Field Blanks

•Duplicate Analysis: Duplicate samples will be obtained during each quarterly sampling event of the Galesville groundwater monitoring well. One duplicate sample of either the WAL or SPL during each monthly sampling event will be collected. The duplicate samples will be analyzed for the same source-specific parameters identified in Sections V and VI.

•Field Blanks: Field blanks will be obtained during each quarterly sampling event of the Galesville groundwater monitoring well. These blanks will be analyzed for the same constituents as the groundwater samples. Field blanks will not be obtained during the routine sampling of the waste streams due to the potential for contamination.

4. Sample Chain of Custody Protocol

Samples will be collected following the above sampling procedures. The sampling times and dates, sample description, volume and number of containers will be noted. Sample identification will be assigned prior to sample collection.

Samples will be accompanied by a properly completed chain of custody form. The sample identification and locations will be listed on the chain of custody form. When transferring the possession of samples, the individuals relinquishing and receiving will sign, date and note the time on the record.

Samples will be properly packaged for shipment and dispatched to the appropriate laboratory for analysis, with a signed chain of custody record enclosed in each sample box or cooler.

5. Equipment Calibration

Calibration of laboratory equipment will be based on written procedures. Records of calibration, repairs, or replacement will be filed and maintained by laboratory personnel performing quality control activities. These records will be filed at the location where the work is performed. For all instruments, the

laboratory will maintain a factory trained repair staff with in-house spare parts or will maintain service contracts with vendors.

Calibration of the field instruments at the Galesville sample station will be evaluated quarterly by on-site instrument personnel. The field sampler will verify calibration of the instruments prior to beginning the sample event and will note the results in the field logbook.

6. Data Reduction/Data Validation

The laboratory will perform analytical data reduction and validation under the direction of the Laboratory QA Officer. The Laboratory QA officer is responsible for assessing data quality and advising of any data which were rated "preliminary" or "unacceptable" or other notations which would caution the data user of possible unreliability. Data reduction, validation, and reporting by the laboratory will be conducted following the general procedures below, although internal laboratory procedural documentation will take precedence.

- Raw data produced by the analyst is turned over to the respective area supervisor.
- The area supervisor reviews the data for attainment of quality control criteria as outlined in the project guidelines and/or established U.S. EPA methods, and for overall reasonableness.
- Upon acceptance of the raw data by the area supervisor, a computerized report is generated and sent to the Laboratory QA Officer.
- The Laboratory QA Officer will complete an audit of reports at a frequency of at least one in twenty, and an audit of every report for consistency.
- The QA officer and area supervisors will decide whether any sample reanalysis is required.
- Upon acceptance of the preliminary reports by the QA Officer, final reports will be generated.

Data reduction reporting procedures will be those specified in the SW-846 method for inorganic and organic analyses.

The laboratory will prepare and retain full analytical and QC documentation. Such documentation need not be hard (paper) copy, but may be in other storage media (e.g. magnetic tape). As needed, the laboratory will supply a hard copy of the retained information.

Laboratory detection limits and/or quantitation limits for analytical data produced are contained in Table 3. Data on reporting limits and method detection limits can be found in the individual Standard Operating Procedures (SOPs) in Appendix 1. The reporting limit for each chemical parameter will also be indicated on the analytical reports provided to Burns Harbor and regulatory agencies by the laboratory conducting the analysis. The data in

Table 3 assumes that there are no severe interferences, and that sample dilutions are not required due to excessive concentrations of target analytes.

7. Internal Quality Control

There will be two types of quality assurance used to ensure the production of analytical data of known documented usable quality: program quality assurance and analytical method quality control.

The analytical laboratory will have a written Quality Assurance / Quality Control program, which provides rules and guidelines to ensure the reliability and validity of work conducted at the laboratory. Compliance with the QA/QC program will be coordinated and monitored by the laboratory's Quality Assurance Department, which is independent of the operating departments.

The objectives of the laboratory QA/QC program are to:

- Ensure that all procedures are documented, including any changes in administrative and/or technical procedures.
- Ensure that all analytical procedures are conducted according to sound scientific principles and have been validated.
- Monitor the performance of the laboratory by a systemic inspection program and provide for corrective action as necessary.
- Collaborate with other laboratories in establishing quality levels, as appropriate.
- Ensure that all data are properly recorded and archived.

All procedures are documented in writing as either Standard Operating Procedures (SOPs) or Methods of Procedures (MP) which are audited and controlled by the QA Department. Internal quality control procedures for analytical services will be conducted by the laboratory in accordance with their SOP and the individual method requirements in a manner consistent with appropriate SW-846, 40 CFR Part 136, or other validated analytical methods. These specifications include the types of audits required (sample spikes, surrogate spikes, reference samples, controls, blanks), the frequency of each audit, the compounds to be used for sample spikes and surrogate spikes, and the quality control acceptance criteria for these audits.

The laboratory will document, in each data package provided, that both initial and ongoing instrument and analytical QC functions have been met. Any samples analyzed in non-conformance with the QC criteria will be reanalyzed by the laboratory, if sufficient sample volume is available.

8. Laboratory Audits

The QA Manager will perform internal laboratory audits. The system audits will include an examination of laboratory documentation on sample receiving, sample log-in, sample storage, chain of custody procedures, sample preparation and analysis, instrument operating records, etc. The performance will be conducted on an annual basis.

9. Corrective Actions

Corrective actions will be implemented when any aspect of the analytical or sampling method does not achieve the project objectives. This may entail re-sampling and/or reanalyzing (for a particular parameter) the waste streams, re-calibrating an analytical device, or any such action. The action level for each such process will be shown in tabular form.

Table 1 – Historic Waste Analytical Results

CONSTITUENTS	WASTE	MINIMUM	MAXIMUM	UNITS
Chromium	SPL	59.8	89.7	mg/L
Lead	SPL	0.0	22.5	mg/L
Selenium	WAL	0.80	3.03	mg/L
Benzene	WAL	3	21.7	Mg/L
Pyridine	WAL	0.0	31.2	mg/L
Specific Conductivity	SPL	90,000	328,000	Umhos
Specific Gravity	SPL/WAL	1.09/1.00	1.33/1.01	G/cc
TDS	SPL	38,710	395,100	mg/L
TOC	SPL/WAL	150/1060	150/1060	mg/L
Sulfide	WAL	72	76	mg/L

Table 2 – Analytical Methods▲

Constituent	Waste Ammonia Liquor Analytical Method	Spent Pickle Liquor Analytical Method	Galesville Sandstone Groundwater Analytical Method
Total Selenium	E200.7	NA	NA
Total Benzene	SW8260B	NA	NA
Total Pyridine	SW8270C	NA	NA
Toluene	SW8260B	NA	NA
Specific Gravity	M2710 F	M2710 F	NA
pH	SW4500-H B	SW4500-H B	NA
Temperature	NA	NA	NA
Total Chromium	NA	E200.7	NA
Acidity	NA	E305.1MOD*	E305.1
Ammonia as N	E350.2	NA	E350.2
Chloride	NA	NA	M4500-C1 B
Cyanide	E335.2	NA	SW9012
Phenol (4AAP)	E420.2	NA	SW9066
Sulfate	NA	NA	E375.4
Total Iron	NA	E200.7	SW6010B
Sodium	NA	NA	SW6010B
Calcium	NA	NA	SW6010B
Naphthalene	SW8270C	NA	NA
Sulfide	E376.2	NA	NA
Nickel	NA	E200.7	NA

Notes:

▲ = Analytical methods used will be the most recent version of EPA approved methods from SW-846, Methods for Chemical Analysis of Water and Wastes, Standard Methods for the Examination of Water and Wastewater and ASTM standards.

SW = Analytical Method specified in SW-846

E = Analytical Method specified in Methods for Chemical Analysis of Water and Wastes.

M = Analytical Method specified in Standard Methods for the Examination of Water and Wastewater.

D = Analytical Method specified by the American Society for Testing and Materials (ASTM)

* Procedure is modified to deal with concentrations significantly higher than the analytical method is designed for.

Table 3 -
Estimated Quantitation Limits (EQL's) for Targeted Parameters in Milligrams per Liter (mg/l) or as noted

Constituent	Waste Ammonia Liquor EQL (mg/l)	Spent Pickle Liquor EQL (mg/l)	Galesville Sandstone Groundwater EQL (mg/l)
Total Selenium	0.005	NA	NA
Total Benzene	0.005	NA	NA
Total Pyridine	0.010	NA	NA
Toluene	0.005	NA	NA
Specific Gravity	0.001 T/4C	0.001 T/4C	NA
pH	0.02 pH units	0.02 pH units	NA
Temperature	2 ^{0}F	2 ^{0}F	NA
Total Chromium	NA	0.01	NA
Acidity	NA	2	2
Ammonia as N	0.1	NA	0.1
Chloride	NA	NA	50
Cyanide	0.005	NA	0.005
Phenol (4AAP)	0.05	NA	0.05
Sulfate	NA	NA	200
Total Iron	NA	1	1
Sodium	NA	NA	40
Calcium	NA	NA	20
Naphthalene	0.01	NA	NA
Sulfide	1	NA	NA
Nickel	NA	0.50	NA

Note: Data in this table assumes no sample dilutions have been performed.

ATTACHMENT E

GROUNDWATER MONITORING REQUIREMENTS for the GALESVILLE SANDSTONE GROUNDWATER MONITORING WELL

1. Galesville Sandstone Groundwater Monitoring Well

Operation of the Galesville Sandstone Groundwater Monitoring Well (Galesville well) is a condition (Condition #3) of the existing exemption from the land disposal restrictions of the 1984 Hazardous and Solid Waste Amendments to the Resource Conservation and Recovery Act. The initial exemption was issued on August 1, 1990, and was subsequently modified on March 17, 1998 and April 7, 1998. As long as the exemption condition remains in force, the requirement for the permittee to operate and monitor the Galesville well continues.

The Galesville Sandstone Groundwater Monitoring Well (Galesville well) is located approximately 100 feet west of the Waste Ammonia Liquor Injection Well #2 (U.S. EPA Permit #IN-127-1W-0004). The Galesville well monitors the Galesville Sandstone formation, the first aquifer overlying the injection zone, between the depths of 1921 and 1947 feet below Kelly Bushing (KB). The KB is approximately 20 feet above ground surface.

The purpose of the Galesville well is to provide assurance that no upward migration of injected hazardous waste occurs. Monitoring includes recording pressure measurements of the Galesville Sandstone formation and collection of connate water samples from the Galesville Sandstone formation for chemical analysis. The specific monitoring and reporting requirements for the Galesville well are described in Parts III(E)(2) through (6) of this permit.

2. Galesville Sandstone Formation Water Sampling

Each quarter, the permittee shall collect water from the Galesville well for the purpose of chemical analysis. The permittee shall analyze the water samples for all the parameters specified in the Waste Analysis Plan (Part III(D) of this permit). During any sample collection event, the EPA or its representatives will have an opportunity to obtain split samples.

a. Establishment of baseline

All of the analytical data gathered since the well was first sampled in 1995 plus the first eight, independent, and statistically valid analytical results for each parameter obtained after the effective date of this permit shall be used to establish the chemical baseline of the Galesville Formation water for that parameter. The baseline shall be determined as the average of these analytical results, while at the same time calculating both Upper and Lower Tolerance Limits as available from Shewart CUSUM control charts. The permittee shall use the boundaries of the Upper and Lower Tolerance Limits to establish the permissible amount of variance that subsequent results may exhibit without falling outside the baseline.

b. On-going monitoring

After establishment of a baseline value for each parameter shown in the Waste Analysis Plan (Part III(D)), the permittee may either (1) elect to discontinue sampling for a parameter (if all eight baseline values show non-detections at the specified sample minimum detection threshold), or (2) continue to sample for each parameter. The continued sampling for each parameter detected during establishment of the baseline shall take place at least quarterly. The minimum detection threshold values in the Waste Analysis Plan will continue to apply.

If a sample result falls outside the baseline Upper and Lower Tolerance Limits, then the permittee may elect to either (1) engage in trend analysis to determine if the out-of-range value represents real change, or (2) re-sample the Galesville well to determine if the out-of-range result is reliable. For either method elected by the permittee to investigate an out-of-range value, the third consecutive value of any single parameter that is outside the limits established under the Shewart CUSUM tables shall be considered a possible breach of the confining zone defined by this permit, initiating the need for dialogue between the Director and the permittee, calling into question the reasonable degree of certainty that all hazardous wastes injected by the permittee shall remain confined in the injection zone for a period of at least 10,000 years.

3. Reporting Water Analysis Results

The permittee shall report the results of water samples analyzed quarterly as specified in Part II(D)(2) of this permit. Each report shall include graphical illustration of the parameter values as a function of sample date, showing all samples taken during the life of the Galesville well. Upon written request from the Director, the permittee shall provide laboratory records of analyses which may include electronic tapes with spectral files to independently verify the analytical results of samples taken for organic chemistry, or other standard laboratory records.

4. Pressure Sampling

The Galesville well shall maintain a capability to measure pressure in the Galesville Sandstone Formation. Formation pressure shall be continuously monitored and shall be recorded at least once every four hours. Formation pressure shall be measured by dedicated equipment capable of a precision of at least 0.1 psi. The permittee shall correct each recorded formation pressure value for changes in simultaneous barometric pressure values. To make this correction, the permittee may either directly measure the barometric pressure at the Galesville well, or obtain a barometric pressure value from a nearby source at the time of the Galesville Sandstone Formation pressure recording.

The permittee shall calibrate all gauges in use for pressure measurements at the Galesville well at least annually. The calibration shall ensure that the precision value of 0.1 psi is maintained.

5. Reporting Pressure Data

The permittee shall report values of Galesville Formation pressure data each month as specified in Part II(D)(1). Each report shall include a tabulation and graphical representation of the daily maximum values for the Galesville Formation pressure, the barometric pressure, and the maximum injection pressure recorded from any well injecting waste ammonia liquor on that day. Each report shall also include a graph showing the daily Galesville Formation pressures recorded at six hour intervals (i.e., four data points per day) and the maximum injection pressures (recorded at the same intervals) from any well injecting waste ammonia liquor on that day. The six-hour graph axes must be scaled in increments small enough to indicate fluctuations in the Galesville Formation pressure and the injection pressure(s) clearly.

6. Mechanical Integrity

The Galesville well shall maintain mechanical integrity to ensure that chemical and pressure samples taken from the well are representative of the Galesville Sandstone Formation. In order to determine that the well maintains mechanical integrity, the permittee shall conduct a standard annulus pressure test at least once every twelve months. The standard annulus pressure test must be witnessed by an authorized representative of the Director unless it proves impossible to resolve scheduling conflicts between the operator and the agency. In order to conduct testing without a USEPA representative, the procedures discussed in Section I(H)(1) must be followed. The minimum annulus test pressure shall be 300 psi and the duration shall be at least one hour. No more than 3% change in the test pressure is permissible during the standard annulus pressure test. If the Galesville well fails a standard annulus pressure test, then an oral report of such failure shall be made to the Director within 24 hours of the failure and a written report of the failure shall be submitted to the Director within 30 days of the failure. The permittee shall make attempts to restore the well's mechanical integrity as soon after a failure as practical. During a time when the well lacks mechanical integrity, the well's condition shall be noted on any written monitoring reports submitted to the Director.

7. Galesville Well Workovers

The permittee shall submit any plan to workover the Galesville well to the Director for approval at least 30 days in advance of the scheduled date to commence the well workover. Each workover shall conclude with a demonstration of mechanical integrity as specified in Part III(E)(6) of this permit. Reports of the workover shall be submitted to the Director within the time frame specified in Part II(D)(4).

8. Plugging and Abandonment

The Galesville well shall remain active until the highest pressure in the injection zone declines to a value insufficient to cause fluid to move to the base of the lowermost underground source of drinking water (USDW), as identified in the administrative record for this permit, unless the Director determines that additional ground water monitoring is required to protect USDWs. The current Closure Plan to plug and abandon the Galesville

well is part of this attachment. The permittee shall submit any proposed significant revision to the method of closure reflected in the Closure Plan for approval by the Director no later than sixty calendar days before closure, unless a shorter time period is approved by the Director. Final plugging of the well shall include installation of a permanent marker to identify the well. The permittee shall maintain an adequate financial mechanism to properly plug and abandon the Galesville well, until the well has been completely plugged and abandoned. The estimate of the cost to properly plug and abandon the Galesville well shall be updated at least once every twelve months, and the financial mechanism to meet or exceed the estimated cost shall be adjusted as needed each year. The permittee shall, within 45 days of its completion, submit a report of the plugging and abandonment of the Galesville well.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility
Galesville Sandstone Groundwater Monitoring Well
ArcelorMittal Burns Harbor, LLC.
250 West U. S. Highway 12
Burns Harbor, Indiana 46304

Name and Address of Owner/Operator
ArcelorMittal Burns Harbor, LLC.
250 West U. S. Highway 12
Burns Harbor, Indiana 46304
219-787-2712

Locate Well and Outline Unit on Section Plat - 640 Acres

N

State	County	Permit Number
Indiana	Porter	NA

Surface Location Description
1/4 of NW 1/4 of NW 1/4 of SW 1/4 of Section 29 Township 37W Range 6W

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

Surface Location 2200 ft. From (N/S) S Line of Quarter Section
And 380 ft. From (E/W) W Line of Quarter Section

TYPE OF AUTHORIZATION
- ☐ Individual Permit
- ☐ Area Permit
- ☐ Rule

Number of Wells _____

Lease Name _____

WELL ACTIVITY
- ☐ Class I
  - ☐ Hazardous
  - ☐ Nonhazardous
- ☐ Class II
  - ☐ Brine Disposal
  - ☐ Enhanced Recovery
  - ☐ Hydrocarbon Storage
- ☐ Class III

Well Number Galesville Groundwater Monitoring Well

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
10.75"	40.5	963	963	14.75"
7"	23	1920	1920	9.875"
5.5"	15.5	548' from 891' to 1439'	548' from 891' to 1439'	7" Csg
5.5"	15.5	358 from 1563' to 1921'	358 from 1563' to 1921'	6.25"

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- ☑ Balance Method
- ☐ Dump Bailer Method
- ☐ Two Plug Method
- ☑ Other

CEMENT TO PLUG AND ABANDON DATA:

	Plug #1	Plug #2	Plug #3	Plug#4	Plug #5	Plug #6	Plug #7
Size of Hole or Pipe in Which Plug Will Be Placed (inches)	6.25, 5.5, & 7	5.5 & 7	7				
Depth to Bottom of Tubing or Drill Pipe (ft)	1,947	1570	800				
Sacks of Cement To Be Used (each plug)	50	105	150				
Slurry Volume To Be Pumped (cu. Ft.)	59	123	177				
Calculated Top of Plug (ft.)	1570	800	Surface				
Measured Top of Plug (if tagged, ft.)							
Slurry Weight (Lb./Gal.)	15.6	15.6	15.6				
Type of Cement or Other Material (Class III)	Class A	Class A	Class A				

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

	From	To	From	To
Open Hole	1921	1947		

Set a cement retainer in the 5.5" liner at approximately 1,570 feet and squeeze 50 sacks of Class A cement into the interval below the retainer.

Spot a balanced 113 sack Class A cement plug in the 5.5" and 7" casing from 1,570 feet to 800 feet and spot a second balanced 177 sack Class A cement plug in the 7" casing from 800 feet to surface.

Estimated Cost to Plug Wells

Cement	$25,000	Cement Retainer	$7,500
Logging	$13,000	Rental Tools and Miscellaneous	$45,000
Rig or Pulling Unit	$35,000		
		Est. Total	$125,500

CERTIFICATION

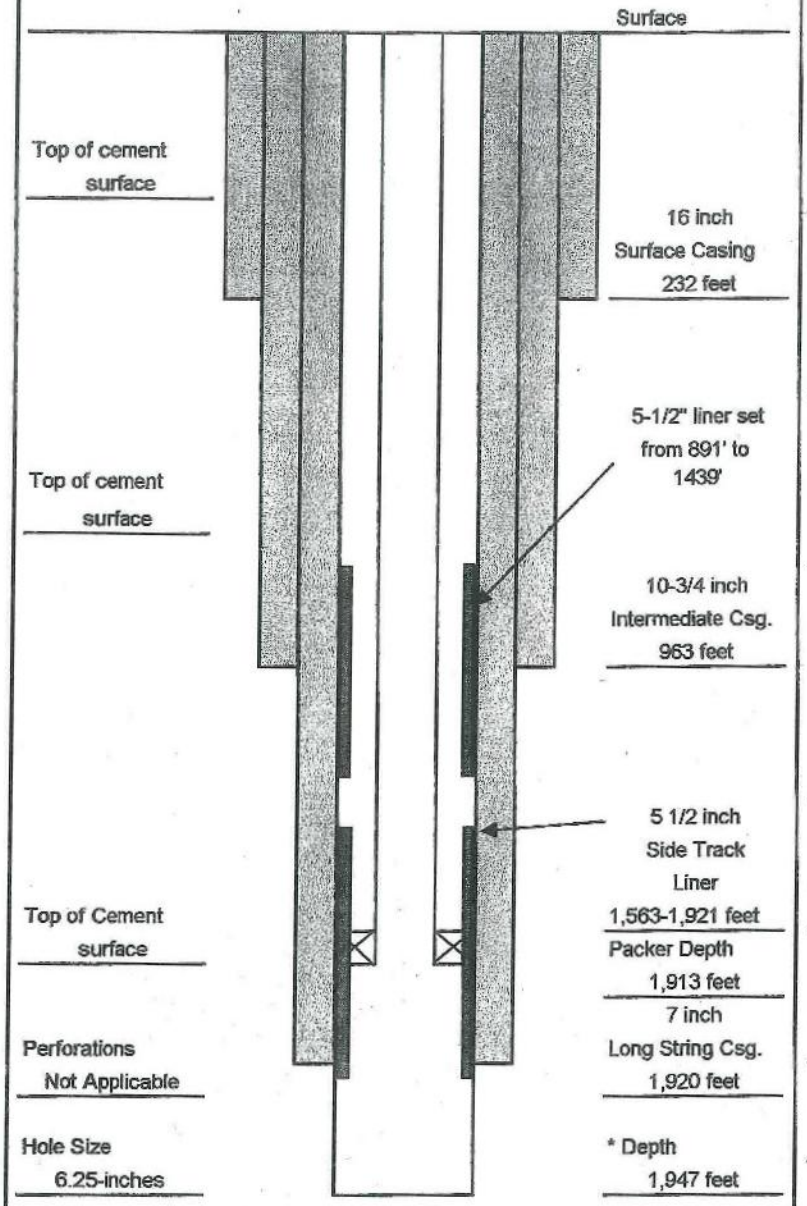
I certify under the penalty of law that I have examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete.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

Name and Official Title (Please type or print)	Signature	Date Signed
Madhu Ranade, Vice President & Gen. Mgr.	MRanade	5/7/08

ORIGINAL WELL CONSTRUCTION DU[illegible]G OPERATION

ISG Burns Harbor, LLC.

Galesville Sandstone Groundwater Monitoring Well



** Add Any Additional Information

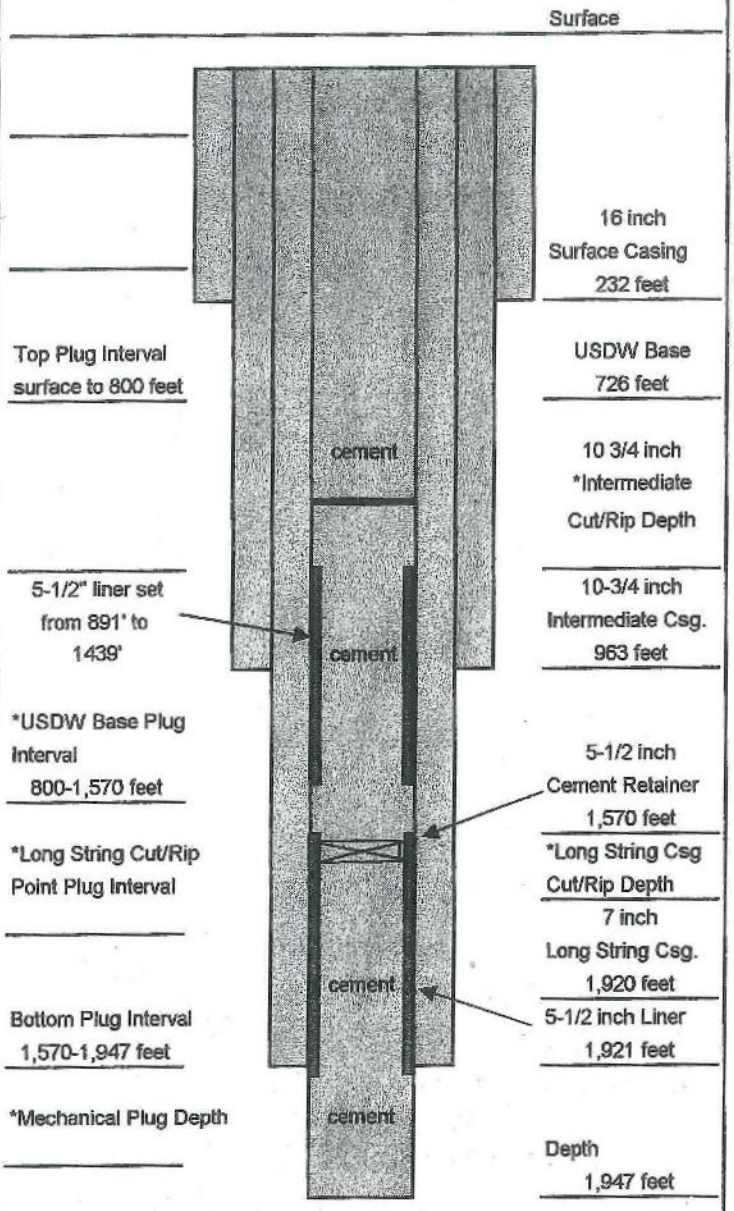
* May not Apply

PLUGGING A[illegible]ABANDONMENT CONSTRUCTION

ISG Burns Harbor, LLC.

Galesville Sandstone Groundwater Monitoring Well

IN-127-1W-0001
Page E-6 of 6



** Add Any Additional Information

* May not Apply

LIST OF ALL OPEN AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED

Specify Open Hole/ Perforations/ Varied Casing	From	To	Formation Name
Openhole	1,947 feet	1,920 feet	Galesville Sandstone

ATTACHMENT F

CORRECTIVE ACTION AT THE FACILITY UNDER SECTION 3004(U) OF THE RESOURCE CONSERVATION AND RECOVERY ACT

A. CORRECTIVE ACTION AT THE FACILITY

In accordance with Section 3004(u) of Resource Conservation and Recovery Act (RCRA) and the regulations promulgated pursuant to that Section, you must institute Corrective Action as necessary to protect human health and the environment for all releases of hazardous waste(s) or hazardous constituent(s) from any solid waste management units (SWMUs) at the facility, regardless of the time at which waste was placed in such units.

B. CORRECTIVE ACTION BEYOND THE FACILITY BOUNDARY

In accordance with Section 3004(v) of RCRA and the regulations promulgated pursuant to that Section, you must implement Corrective Action(s) beyond the facility property boundary, where necessary to protect human health and the environment, unless you demonstrate to the satisfaction of the Regional Administrator that, despite your best efforts, you were unable to obtain the necessary permission to undertake such actions. You are not relieved of any responsibility to clean up a release that has migrated beyond the facility boundary where offsite access is denied.

C. CORRECTIVE MEASURES IMPLEMENTATION

1. The permittee submitted a Corrective Measures Implementation (CMI) Workplan to EPA for approval. This workplan describes the groundwater monitoring program that will be used to evaluate the plume stability demonstration at north facility location IA-1 and the performance of monitored natural attenuation at north facility location IA-3, as described in the Corrective Measures Proposal. The Workplan addressed the existing and future groundwater monitoring network, constituents for analysis, sampling and reporting schedule, and criteria for termination of the program. Procedural, quality control and administrative functions were also addressed in the Workplan as well as a schedule for implementation of the groundwater monitoring program. The Workplan was approved by EPA on November 14, 2006. The permittee shall implement the work required under the approved CMI Workplan in accordance with its approved schedule.

2. The permittee submitted institutional controls to restrict land use and groundwater use within the property boundaries described in Figure 1 for the north and south facilities to EPA for approval. For the south facility, corrective action is regarded as "complete with controls," and the outlined conditions represent the necessary controls. Permittee shall comply with the following conditions:

(a) On-site land use shall be limited to industrial purposes until the permittee can demonstrate that levels of contaminants in soil are protective for other land uses;

(b) Groundwater underlying the Facility within the shallow aquifer shall not be used for consumptive purposes unless levels of contaminants are stable and below appropriate screening levels and shall not be used for direct contact purposes unless levels of contaminants are below industrial screening levels;

(c) The permittee submitted a notice to be filed in the office of the Porter County Recorder for all successors-in-title that the Facility is subject to the conditions of this permit for EPA review and approval. The notice summarizes the contamination remaining on the Facility, the potential hazards to human health and the environment from such contaminants and the manner in which persons may obtain further information from EPA.

(d) Permittee intends to reserve in any future conveyance by permittee of an interest in all or part of the property the right to enforce the restrictions and covenants in the restrictive covenant for ArcelorMittal Burns Harbor, LLC and EPA and its authorized representatives as a third party beneficiary.

(e) The permittee has indicated that it intends to transfer ownership of a portion of the south facility known as the "Little Calumet Restoration Area" for environmental education, wildlife habitat and appropriate recreational purposes. Prior to any such transfer, deed restrictions (including a restrictive covenant) shall be created and recorded that are specific to the designated parcel. The deed restrictions shall provide that excavation and/or movement of any material in waste piles shall not be permitted unless done in accordance with a health and safety plan approved by EPA. The transferee would assume primary responsibility for maintaining the required institutional controls in accordance with the restrictive covenants set forth in the deed.

3. The permittee shall conduct regular cap inspections and perform a maintenance program at IA-3 following a schedule, procedures and corrective measures as described in the CMI Work Plan.

4. The permittee has provided financial assurance in the amount specified by the Regional Administrator for necessary corrective measures activities, based on cost estimates and other relevant information, as required by 40 CFR 264.101(b) and (c).

D. NEWLY IDENTIFIED SWMUs OR RELEASES

The permittee must notify the Regional Administrator of any new SWMU identified at the facility within 30 days of discovery in accordance with 40 CFR 270.14(d). The permittee must also submit all available information pertaining to any release of hazardous waste(s) or hazardous constituent(s) from any new or existing SWMU to the Regional Administrator within 30 days of discovery.

E. CORRECTIVE ACTION FOR NEWLY IDENTIFIED SWMUs AND RELEASES

The Regional Administrator will review the information provided in the above condition and may as necessary require further investigations or corrective measures. The permittee must submit a written RCRA Facility Investigation Work Plan to the Regional Administrator within 90 days after written notification by the Regional Administrator that further investigation is necessary.

F. DISPUTE RESOLUTION

1. If the permittee disagrees, in whole or in part, with EPA's disapproval or modification of any submission required by this Section of the permit, the permittee must notify the EPA of its objections by providing the Regional Administrator a written statement of position within 14 days of receipt of EPA's disapproval or modification. The permittee's statement of position must set forth the specific matters in dispute, and the position that the permittee asserts should be consistent with the requirements of this permit. The permittee's position statement must provide the basis for its position, and must include all supporting documentation.

2. The permittee will have an additional 14 days from EPA's receipt of its position statement to meet or confer with EPA to attempt to resolve the dispute. If agreement is reached, the permittee must submit a revised submission, if necessary, and implement the submission in accordance with the agreement.

3. If the permittee is not able to reach agreement with EPA within the 14-day period, the Regional Administrator or his or her delegate will issue a written decision resolving the dispute. That written decision will become an enforceable condition of this permit, and the permittee must comply with the terms and conditions of EPA's decision resolving the dispute.

4. Not withstanding the invocation of this dispute resolution procedure, the permittee must proceed to take any action required by those portions of the modified and approved submission that EPA determines are not substantially affected by the dispute. This action must follow the schedule contained in the submission.

ATTACHMENT G

Spent Pickle Liquor Waste Minimization and Practicability Certification

Spent Pickle Liquor (SPL) is generated as a by-product of the steel sheet pickling operation. The continuous pickling operation used a hydrochloric acid solution, in a cascading (e.g., counter-current flow) system, to remove scale and rust from the steel strip prior to further finishing.

SPL is a listed hazardous waste (40 CFR 261, Code K062) when disposed. The SPL contains a high percentage of iron, some trace metals consistent with the composition of the steel being pickled, chloride salts and some free hydrochloric acid. The SPL has a relatively high specific gravity (typically 1.20 to 1.30).

The Burns Harbor division generates a very clean SPL with very low concentrations of trace metals. This makes the material ideally suited as a substitute for commercial products that are used at municipal wastewater treatment plants for sludge conditioning and phosphorous removal.

Bethlehem Steel continues to actively pursue the sale of this by-product to municipal wastewater treatment plants. Only that portion of the SPL that cannot be marketed as a by-product is injected into the deepwell.

This Waste Minimization Certification was submitted September 18, 2001.

ATTACHMENT H

SPENT PICKLE LIQUOR CORROSION MONITORING PLAN and COMPLIANCE SCHEDULE

1. Two sealed access panels with screw-on caps will be installed on the injection line downstream of the injection pumps.

2. Two (2) screw cap assemblies with coupons permanently affixed to the caps will be prepared. One will have a fiberglass-reinforced plastic (Red Box 2000) coupon and one will have a Hastelloy C-276 coupon.

3. The new coupon assemblies will be processed using the following procedure before installation.

   (a) Rinse coupon and cap with distilled water.
   (b) Dry in a 103° C oven for at least 2 hours.
   (c) Remove from oven and allow to cool to room temperature in a dessicator.
   (d) Weigh the coupon on a certified scale to ±0.01 grams.

4. The coupon assemblies will be installed in the access panels using the screw-on caps. (Note: insure that the injection pumps are off and flagged out during installation.)

5. Once per calendar quarter, the coupons will be removed, visually inspected for cracking are any other physical abnormalities and subjected to the processing outlined in step 3 above.

6. Report the results of the inspection and processing to EPA.

This Corrosion Monitoring Plan is to be implemented within 90 days of the effective date of this permit.

Index to the Administrative Record

ArcelorMittal Burns Harbor, LLC Minor Permit Modifications

Doc	Date of doc	Date receiv	Time	Title/Description/Subject	Author/sender	Addressee
				I. Modified Permit Administrative Record (40 C.F.R. § 124.18(b)		
1	9/30/2010			Underground Injection Control Permit IN-127-1W-0001, modified 11/21/14		
2	9/30/2010			Underground Injection Control Permit IN-127-1W-0003, modified 1/3/13 and 11/21/14		
3	9/30/2010			Underground Injection Control Permit IN-127-1W-0004, modified 11/21/14		
4	9/30/2010			Underground Injection Control Permit IN-127-1W-0007, modified 1/3/13 and		
5	11/23/1963			Laterolog-Gamma Ray-Neutron Log for Spent Pickel Liquor #1 Well	Schlumberger	
6	3/22/1968			Nuclear Log for Waste Ammonia Liquor Well #2	Birdwell	
7	6/3/2013	6/5/2013		Completion Report - Waste Ammonia Liquor Well #3 Underground Injection Control Permit No. IN-127-1W-0007	R.A. Maciel, AMBH	Tinka Hyde, EPA
8	10/30/2014			Proposed Land Ban Reissuance Decision Document	Tinka Hyde	NA
9	*			Underground Injection Control Permit IN-127-1W-0001		
10	*			Underground Injection Control Permit IN-127-1W-0003		
11	*			Underground Injection Control Permit IN-127-1W-0004		
12	*			Underground Injection Control Permit IN-127-1W-0007		
13	*			Transmittal of Final Land Ban Exemption and four minor-modified permits	Tinka Hyde	R,.A. Maciel

* Date to be filled in after decision is signed by the Division Director

I, Stephen Roy, permit writer for the Underground Injection Control Branch, Region 5, U.S. EPA, certify that the administrative record for these final minor permit modifications was complete on March 6, 2015. The administrative record includes, to the best of my knowledge, all documents required under 40 CFR § 124.18. The above Administrative Record Index references all documents in the administrative record for these minor permit modifications.

_____

Stephen Roy, Permit Writer
Underground Injection Control Branch, U.S. EPA Region 5

_____

Date

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

U.S. ENVIRONMENTAL PROTECTION AGENCY
UNDERGROUND INJECTION CONTROL MINOR PERMIT MODIFICATION
CLASS I HAZARDOUS

Permit Number: IN-127-1W-0001
Well Name: Spent Pickle Liquor #1

Pursuant to the Underground Injection Control regulations of the U.S. Environmental Protection Agency codified at Title 40 of the Code of Federal Regulations (40 CFR), Parts 124, 144, 146, 147, and 148,

ArcelorMittal Burns Harbor, LLC of Burns Harbor, Indiana

the permittee, is hereby authorized to operate an existing Class I hazardous waste injection well located in Indiana, Porter County, T37N, R6W, Section 28, NW Quarter Section subject to the conditions of this permit. The injection zone, or zone which will contain the hazardous constituents, for this well is the Mt. Simon Sandstone and the lower Eau Claire Formation between the depths of 2173 and 4285 feet below ground surface. Injection is permitted into the interval of the lower Mt. Simon Sandstone rocks between the depths of 2723 and 4285 feet below ground surface upon the express condition that the permittee meet the restrictions set forth herein. The designated confining zone for this injection well is the upper Eau Claire Formation.

The facility is authorized to inject spent pickle liquor from any ArcelorMittal USA facility provided that characteristics and concentrations of injected waste do not exceed any limits listed in Part III(A) or Part III(D) of this permit.

All references to 40 CFR are to all regulations that are in effect on the date that this permit becomes effective. The following attachments are incorporated into this permit: A, B, C, D, E, F, G and H.

This permit is a minor modification of an existing permit, which was signed on September 30, 2010. This permit shall become effective on NOV 21 2014 and shall remain in full force and effect during the life of the permit, unless: 1) the statutory provisions of Section 3004(f), (g) or (m) of the Resource Conservation and Recovery Act ban or otherwise condition the authorization in this permit; 2) the Agency promulgates rules pursuant to these sections which withdraw or otherwise condition the authorization in this permit; or 3) this permit is otherwise revoked, terminated, modified or reissued pursuant to 40 CFR 144.39, 144.40, or 144.41. This permit and the authorization to inject shall expire at midnight, October 30, 2020, unless terminated.

Signed and dated: November 21, 14

Tinka G. Hyde

Tinka G. Hyde
Director, Water Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

U.S. ENVIRONMENTAL PROTECTION AGENCY
UNDERGROUND INJECTION CONTROL PERMIT: CLASS I HAZARDOUS

Permit Number: IN-127-1W-0001

Well Name: Spent Pickle Liquor #1

Pursuant to the Underground Injection Control regulations of the U.S. Environmental Protection Agency codified at Title 40 of the Code of Federal Regulations (40 CFR), Parts 124, 144, 146, 147, and 148,

ArcelorMittal Burns Harbor, LLC of Burns Harbor, Indiana

the permittee, is hereby authorized to operate an existing Class I hazardous waste injection well located in Indiana, Porter County, T37N, R6W, Section 28, NW Quarter Section subject to the conditions of this permit. The injection zone, or zone which will contain the hazardous constituents, for this well is the Mt. Simon Sandstone and lower Eau Claire Formation between the depths of 2173 and 4285 feet below ground surface. Injection is permitted into the interval of the lower Mt. Simon Sandstone between the depths of 2723 and 4285 feet below ground surface upon the express condition that the permittee meet the restrictions set forth herein. The designated confining zone for this injection well is the upper Eau Claire Formation.

The facility is authorized to inject spent pickle liquor from any ArcelorMittal USA facility provided that characteristics and concentrations of injected waste do not exceed any limits listed in Part III(A) or Part III(D) of this permit.

All references to 40 CFR are to all regulations that are in effect on the date that this permit becomes effective. The following attachments are incorporated into this permit: A, B, C, D, E, F, G and H.

This permit shall become effective on OCT 30 2010 and shall remain in full force and effect during the life of the permit, unless: 1) the statutory provisions of Section 3004(f), (g) or (m) of the Resource Conservation and Recovery Act ban or otherwise condition the authorization in this permit; 2) the Agency promulgates rules pursuant to these sections which withdraw or otherwise condition the authorization in this permit; or 3) this permit is otherwise revoked, terminated, modified or reissued pursuant to 40 CFR 144.39, 144.40, or 144.41. This permit and the authorization to inject shall expire at midnight, October 30, 2020, unless terminated.

Signed and dated: 30 September 2010

Tinka G. Hyde
Director, Water Division

Table 2 – Analytical Methods

Constituent	Waste Ammonia Liquor Analytical Method	Spent Pickle Liquor Analytical Method	Galesville Sandstone Groundwater Analytical Method
Total Selenium	E200.7	NA	NA
Total Benzene	SW8260B	NA	NA
Total Pyridine	SW8270C	NA	NA
Toluene	SW8260B	NA	NA
Specific Gravity	M2710 F	M2710 F	NA
pH	SW4500-H B	SW4500-H B	NA
Temperature	NA	NA	NA
Total Chromium	NA	E200.7	NA
Acidity	NA	E305.1MOD*	E305.1
Ammonia as N	E350.2	NA	E350.2
Chloride	NA	NA	M4500-C1 B
Cyanide	E335.2	NA	SW9012
Phenol (4AAP)	E420.2	NA	SW9066
Sulfate	NA	NA	E375.4
Total Iron	NA	E200.7	SW6010B
Sodium	NA	NA	SW6010B
Calcium	NA	NA	SW6010B
Naphthalene	SW8270C	NA	NA
Sulfide	E376.2	NA	NA

Notes:

SW = Analytical Method specified in SW-846

E = Analytical Method specified in Methods for Chemical Analysis of Water and Wastes.

M = Analytical Method specified in Standard Methods for the Examination of Water and Wastewater.

D = Analytical Method specified by the American Society for Testing and Materials (ASTM)

* Procedure is modified to deal with concentrations significantly higher than the analytical method is designed for.

Table 3 -
Estimated Quantitation Limits (EQL's) for Targeted Parameters in Milligrams per Liter (mg/l) or as noted

Constituent	**Waste Ammonia Liquor EQL (mg/l)**	**Spent Pickle Liquor EQL (mg/l)**	**Galesville Sandstone Groundwater EQL (mg/l)**
Total Selenium	0.005	NA	NA
Total Benzene	0.005	NA	NA
Total Pyridine	0.010	NA	NA
Toluene	0.005	NA	NA
Specific Gravity	0.001 T/4C	0.001 T/4C	NA
pH	0.02 pH units	0.02 pH units	NA
Temperature	2 ^{0}F	2 ^{0}F	NA
Total Chromium	NA	0.01	NA
Acidity	NA	2	2
Ammonia as N	0.1	NA	0.1
Chloride	NA	NA	50
Cyanide	0.005	NA	0.005
Phenol (4AAP)	0.05	NA	0.05
Sulfate	NA	NA	200
Total Iron	NA	1	1
Sodium	NA	NA	40
Calcium	NA	NA	20
Naphthalene	0.01	NA	NA
Sulfide	1	NA	NA

Note: Data in this table assumes no sample dilutions have been performed.