STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF MINING AND RECLAMATION

CLASS 5, TYPE 5X13 UNDERGROUND INJECTION CONTROL (UIC) PERMIT APPLICATION

For Coal Mines Slurry Injection

Applicant:

Permit Number:		Date Assigned:
	GENERAL INFOR	MATION
WVDEP and the Division of Mi within the regulatory framework state and federal mining regulati information, sparse or misleading	of West Virginia Code ons. All information recommendation of information all of the application. Act	gather detailed and technical information the requires to make sound permitting decisions, of State Regulations and all other applicable quested is mandatory. Omission of required ation, will slow the review of this application; dditional information may be requested at any
I. Applicant Information		
City, State, Zip:		
Facility Name:		
Address (Physical location of facility):		
County:	Quadrangle:	District:
Nearest Town:		
Description of Operation:		

III. Operator Information

IV. Other Permit Information	on the state of th
Article 3(4) Permit Number(s):	
NPDES Permit number(s):	
	ssociated with this site: Yes No No te of issuance:
Other Permits associated with this site	e (list all):
B. Dredge or Fill Permits:	Administration (MSHA):
C. Other Relevant Permits: _	
V. Contact Information	
Company Name:	
Address:	
	E-mail (Required):
Consultant Name:	

VI. T	Type of UIC Permit Requested (Pick One):		
	Site Permit – One Injection Point Area Permit – More than one Injection Point		
To	otal Number of Injection Points:		
VII. F	Receiving Void Information		
Α.	Name of Formation/Coal Seam:		
В.	Name of Mine Void:		
C.	Height of Coal Void (in feet):		
	Disposal Rate (gpd): Proposed Average:		1:
E.	Water Elevation in receiving void: (at present):		<u> </u>
F.	Is the receiving void Up Dip of other mine workings?	Yes	☐ No
	If Yes, What Mine(s) lie Down Dip?		
VIII.	Material to be Injected:		
	Fine Coal Slurry		
	Other (Explain):		

PROJECT DETAILS

Provide the requested information below or attach additional worksheets as needed.

IX. Site Specific Details

A. Provide a General Description of this Proposed Project:

В.	List and provide a <u>detailed</u> description of all waste streams <u>proposed</u> for injection, including source, percent solids and percent liquids of the waste stream.
С.	Provide general chemistry characteristics of source water (slurry).
D.	Describe how waste streams are <u>currently</u> managed; type of fluid, description of injectate source, current disposal method, handling features, associated permits, and NPDES outlet numbers that discharge receiving mine pool water.
Е.	Provide details of the proposed injection system, including: collection methods, conveyance methods (pipe size, pumped/gravity flow, injectate source(s), flow rates, etc.), number of boreholes and type of boreholes (drilled wells (dia.), shafts, drift openings, etc.), permit numbers and NPDES permit/outlet numbers.
F.	Describe any treatment of waste prior to injection.

G. Provide **details** on the expected frequency of use (hrs/day; days/week) and **expected** quantities to be injected: average and maximum (in gallons per day).

H. Describe estimated line pressure from the slurry discharge pump to the injection site(s).

I. <u>Chemicals</u>: Provide a <u>list</u> of <u>all</u> chemicals expected to be used during this Permit period. UIC Permit application review procedures require that all chemicals, whether currently approved or proposed, must be presented and evaluated for use in this application. Provide copies of Material Safety Data Sheets (MSDS) or Safety Data Sheets (SDS) for <u>each</u> of the chemicals currently approved or proposed for use in operations producing the injectate, and any chemical used in any part of waste generation process.

In addition to providing MSDS or SDS, the following information addressing Maximum Contaminant Levels (MCLs) must be addressed.

"The permittee has the burden of proof to demonstrate that human health effects will not occur related to the chemical components of the product and its usage will not affect any underground sources of drinking water.

For parameters with existing MCLs published by US EPA: This information will be reviewed to determine whether monitoring requirements and/or effluent limitations for those parameter(s) are required to be placed in the permit.

For parameters with no existing MCLs published by US EPA: The permittee must provide information from any other source regarding effects on human health, including but not limited to Integrated Risk Information System (IRIS), World Health Organization, US PEA risk-based criteria (RBCs), ATSDR, and/or OSHA. This information will be reviewed to determine whether monitoring requirements and/or effluent limitations for those parameter(s) are required to be placed in the permit.

The permittee may also provide usage rates, flows, and calculations to demonstrate the expected maximum concentration of the parameters in the injectate, which can be used for comparison with MCLs or other published literature regarding effects on human health. If this information is not provided, then WVDEP must assume that the maximum concentration

in the injectate is equal to the concentration or content set forth in the SDS provided with the UIC application".

NOTE: Addition of chemicals after the permit is issued will require a permit modification.

<u>NOTE</u>: A permit WILL NOT be issued to an operation using diesel fuel, kerosene, or any other substance listed or having a component(s) listed as a Hazardous Waste by Toxicity under RCRA. An exception to this may be the use of pH adjusting chemicals such as sodium hydroxide, which may require additional waste characteristic sampling and monitoring, upon request.

J. Injection Point Locations:

Injection Point Number*	Constructed (Y/N)	Injecting (Y/N)	Latitude (deg/min/sec)	Longitude (deg/min/sec)	Surface Elevation (feet)	Datum (NAD27/NAD83/WGS84)
	_				_	

^{*} Begin numbering injections points as 201, continue sequentially. (Attach additional sheets as necessary)

K. Groundwater Monitoring Points Locations (GWM):

Groundwater Monitoring Point (GWM#)	Constructed (Y/N)	Latitude (deg/min/sec)	Longitude (deg/min/sec)	Surface Elevation (feet)	Datum (NAD27/NAD83/WGS84)

L. Receiving Mine Pool Monitoring Locations (MPM):

Mine Pool	Constructed	Latitude	Longitude	Surface	Datum
Monitoring	(Y/N)	(deg/min/sec)	(deg/min/sec)	Elevation (feet)	(NAD27/NAD83/WGS84)
Point (MPM#)					

X.

M. Receiving Mine Pool Dewatering Site Locations (MPD):

Mine Pool	Pumped (P)	Constructed	Latitude	Longitude	Surface	Datum
Dewatering	or	(Y/N)	(deg/min/sec)	(deg/min/sec)	Elevation (feet)	(NAD27/NAD83/
Site (MPD#)	Gravity (G)					WGS84)

N.	<u>Waste Baseline Characterization:</u> Provide results of a baseline waste characterization sample, as described by list of parameters in <u>Section XV</u> , "Waste Characterization Analysis". (Attach certified lab report and fill in all results on supplied table.)
О.	Does the facility have one or more bath houses? Yes No If yes, how many? Also, indicate whether the discharge is to the surface or subsurface of each
Ge	cologic and Receiving Mine Void Details
Δ	Provide a detailed description of receiving mine void(s), is mine name, seem name

A. Provide a <u>detailed</u> description of receiving mine void(s), ie; mine name, seam name, elevation range, above or below drainage mine, mining history of receiving void, mining method, current status (active/abandoned), any special geologic structural features (synclines/anticlines), direction of strike/dip, Article 3 and NPDES permit numbers:

B. Provide <u>details</u> of <u>current</u> water levels in receiving void, <u>expected</u> water levels while injecting, <u>maximum</u> water levels while injecting, and <u>post-injection</u> water level.

attachment.

C.	Provide <u>details</u> on fate of mine water should maximum water level be exceeded while injection activities are occurring, i.e., discharge location(s), treatment options, outlets, NPDES permit numbers and actions to be taken to reduce mine pool level.
D.	Provide <u>details</u> of geologic strata above and below receiving void, including coal seams or voids that will be influenced by, or have an influence on, the receiving void. Also, how will fluids in mine void interact with surrounding strata?
Е.	Provide <u>details</u> on the effects of subsidence, current and potential future, on the receiving void, from both below and above receiving void.
F.	Provide <u>details</u> on the general depth of cover from receiving void to surface, emphasizing

areas of low cover and high hydraulic head where surface or surrounding shallow

groundwater could be influenced by injected fluid. Include "Depth of Cover Map" as an

G.	Provide original volume of receiving void and the percentage of receiving void that is expected to be filled during the proposed 5 year permitting cycle based on normal operation of the facility.
н.	Provide <u>details</u> of in-place coal barriers around receiving void, emphasizing whether above or below drainage, include widths and identify widths on mapping.
I.	If above drainage, provide details of barrier analysis, maximum hydraulic head on barriers, and seepage analysis. Provide barrier calculations. If below drainage, state "N/A – receiving void is below drainage".
J.	If above drainage, provide a detailed map of potential areas for blow outs and contingency plans for blow outs. Show thicknesses of outcrop barriers, per "Rule of Thumb". Provide outcrop barrier calculations. If below drainage, state "N/A – receiving void is below drainage".

K.	Provide <u>details</u> of any active mine works, adjacent, overlying or underlying, in the area surrounding receiving void. If none, state "N/A - There are no active mine works in the area surrounding receiving void".
L.	Provide <u>details</u> of how this injection project could affect surrounding mining and potential future mining of coal reserves in the area?
М.	Provide <u>details</u> of any <u>existing</u> underground mine seals and how they affect this project.
N.	Provide <u>details</u> of any <u>proposed</u> mine seals (underground or surface) and how they affect this project.
0.	Provide <u>details</u> of how mine pool water in receiving void will be managed, including; methods of controlling water elevation, locations of surface discharges, (either gravity or pumped), associated NPDES permit numbers, outlet numbers, general water chemistry, and treatment methods.

Р.	Provide <u>details</u> of mine water fate, quantities in/out/water balance and address elements
	associated with Probable Hydrological Consequences (PHC). Please identify the Article 3
	and NPDES permitting actions that address this slurry injection activity and PHC.

Q. Provide any additional comments or information the applicant feels is pertinent or noteworthy concerning this proposed project and is relevant to application review.

XI. Monitoring Plan

UIC Permits are required to monitor water quality <u>within</u> the receiving mine void, surrounding groundwater <u>outside</u> the mine void, and if needed, surface water.

A. Identify in Section IX - L, and on mapping, the locations of permanent receiving mine pool water quality monitoring sites (MPM). These locations will be down dip of injection point. Mine dewatering pumps often are good locations for monitoring mine water quality while injecting. Site specific conditions may require installation of permanent monitoring wells.

B. Identify in Section IX – K, and on mapping, the locations of hydrologically pertinent **groundwater monitoring** sites (GWM) **outside** the receiving mine void area. These monitoring points should be in locations that could be hydrologically influenced by the receiving mine pool water. An acceptable location could be an existing groundwater well, or the plan may require the drilling of a dedicated groundwater monitoring well(s). The use of an existing groundwater monitoring location will be dependent on it being in a hydrologically influenced location and the details of the existing well must be known.

C.	Identify in this section and on mapping, <u>surface water</u> monitoring locations that could be expected to be impacted by receiving mine pool water. Surface water monitoring sites will consist of one upstream and one downstream location of a receiving stream. The need for surface water monitoring will be dependent on site-specific conditions.
D.	Analysis of monitored water will be dependent on type of material injected. For instance: Slurry will require at a minimum; heavy metals (NPDES Table IV C) and standard baseline chemistry for coal mining.
Е.	Frequency of monitoring and reporting: groundwater levels will be observed monthly and reported quarterly. Water quality monitoring will also be conducted quarterly and reported quarterly. Please state where monitoring results will be reported.
F.	Baseline Monitoring. Provide the original six-month baseline groundwater survey for the

mine pool to receive injection and include it as an attachment in the application.

XII. Groundwater User Survey

Applicant is required to submit a survey of all groundwater users within a ½-mile radius of the receiving mine void. This survey will include all private and public users of groundwater. The availability of a municipal or privately supplied water source from a utility does not eliminate the requirement of conducting a groundwater user survey.

A. A survey of all groundwater users within a ½ -mile radius of the <u>receiving mine void</u> is required. This information must be provided as an attachment. If there are no groundwater users within ½ -mile, state "**None**".

B. A one-time water sample for all groundwater users is required. Analysis will consist of: TPH (Total Petroleum Hydrocarbons), GRO (Gasoline Range Organics), DRO (Diesel Range Organics), and ORO (Oil/Grease Range Organics), heavy metals (NPDES Table IV C) and standard baseline general chemistry for coal mining. This information must be provided as an attachment.

C. Collect information sufficient to interpret whether any neighboring groundwater user sources will, or have the potential to be, impacted by water quality changes associated with injection activities. This impact assessment will consider present and post-injection groundwater conditions.

XIII. Abandonment Plan

A.	Provide <u>details</u> of expected life, or length of time of this proposed injection activity.
В.	Provide <u>details</u> of expected post-injection mine pool water elevations.
C.	Provide <u>details</u> of expected <u>post-injection</u> mine pool surface discharges, locations of discharges, pumped or gravity controlled, associated NPDES permit numbers, outlet numbers, treatment methods and expected general water chemistry characteristics.
D.	Plugging and Abandonment of wells: Submit a description of the plan for the plugging and abandonment of each injection point, according to Title 47 CSR 13.13.7.f (Underground Injection Control).

XIV. Required Documentation

A. Map Documentation - Note: <u>All maps MUST be P.E. certified.</u> Submit a general site map (1" = 2000' [1:24,000] is acceptable); topographic map(s) providing the following:

Mine Maps must provide the following:

- 1. Show the extent of all adjacent/underlying/overlying, active/abandoned mine works within a 1-mile radius of the receiving mine void. Include company name, mine name and permit numbers. If NONE, state so.
- 2. Legibly show structural coal seam contours of receiving mine void.
- 3. Identify **current** and **maximum** mine pool elevations.
- 4. Identify all <u>Class 5 Type 5X13</u> injection points identified in Section IX J.
- 5. Show flow direction arrows in receiving mine pool.
- 6. Identify all **Groundwater Monitoring** Points identified in Section IX K.
- 7. Identify all **Receiving Mine Pool Monitoring Site** locations identified in Section IX L.
- 8. Identify all Receiving Mine Pool Dewatering Site locations identified in Section IX M.
- 9. Identify all underground mine seals.
- 10. Identify mine barrier thicknesses between receiving mine void and adjacent mine voids on mapping.
- 11. Provide "Depth of Cover Map" with contour lines showing distance between receiving mine void and the surface.
- 12. Identify <u>all</u> surface and underground piping associated with the proposed injection activity.
- 13. Identify ½ -mile radius from each existing and proposed injection well.
- 14. Identify all groundwater supply sources within a radius of ½ -mile around the receiving mine void (include public and private drinking water wells, springs, and seeps). If NONE, state so.
- 15. Identify all applicable details, including surface water features and NPDES outlets and permit numbers associated with this permitting activity.
- 16. Identify the locations of current mine discharge points, future mine discharge points, portals, shafts, access points. Include surface elevation and status (proposed, existing, abandoned, sealed).
- 17. Include the local strike and dip on each map.
- 18. Include any other pertinent feature that will influence operations of injection activities.

B. Flow Chart – Submit the following:

1. A Flow Chart that details <u>all</u> elements of the existing and proposed underground injection activity. Drawing should include identification of injectate source, treatment sites, injection sites, dewatering sites, monitoring sites, receiving mine void(s), elevations, pipe diameters, flow direction, gravity or pumped flow, max flow rates, sample ports (with coordinates), mine void discharge sites, receiving streams, NPDES and Article 3 permit numbers.

C. Construction Details – Submit the following:

- 1. A representative geologic cross-section of the proposed injection activity area. Identification of subsurface layers, all aquifers, and designating the receiving void.
- 2. Provide a detail drawing of each injection well including piping to the well head, sample port with coordinates, all valves and controls necessary to manage the injection flow rate, borehole and pipe dimensions, surface and mine void elevations, materials and details of the construction.

3. If the injection point is other than a well (i.e. fan shaft, portal, etc.), describe the method by which the injectate will be conveyed in the receiving void. Include details such as dimensions of pipelines, materials, etc.

D. Drilling Plugging and Abandonment: Provide the following documents if applicable.

- 1. Well Installation Document.
- 2. Pre-Closure Notification Document.
- 3. Closure Notification Document.
- 4. Safety precautions for drilling into mine voids.

E. Baseline Chemistry Details:

1. Provide analyses (performed by a laboratory certified by the State of West Virginia) of all parameters on the Waste Characterization Analysis form (Section XV) for <u>each</u> injectate source <u>and</u> include certified lab sheets for each analysis.

F. Submit a complete copy of the Groundwater Protection Plan (GPP)

If no GPP exists, please complete one in accordance with Title 38 CSR 2F of the Code of West Virginia. The GPP much include all UIC approved chemicals currently on site. **This application will not be processed without the** <u>current</u>, <u>approved</u> GPP.

G. Legal Right to Inject:

Please present copies of signed and notarized documents showing that, should this permit be issued, applicant has the legal right to inject into the proposed mine void including any, and all down dip workings likely to receive water from the target void. This document should provide specific approval from the mineral owner to allow the proposed injection activity to occur. **Without proper documentation, application will be denied.**

XV. Waste Characterization Analysis

General Chemistry		Sample Sou	rce ID:		
Acidity			mg/1 CaCo3		
Alkalinity			mg/1 CaCo3		
BOD			mg/1		
Bicarbonate	Total:		mg/1	Dissolved:	 mg/1
Calcium	Total:		mg/1	Dissolved:	 mg/1
Chloride	Total:		mg/1	Dissolved:	mg/1
COD			mg/1		
Iron	Total:		mg/1	Dissolved: _	 mg/1
Magnesium	Total:		mg/1	Dissolved: _	 mg/1
Nitrate	Total:		mg/1	Dissolved: _	 mg/1
Nitrite	Total:		mg/1	Dissolved:	 mg/1
Potassium	Total:		mg/1	Dissolved:	 mg/1
PH			s.u.		
Sodium			mg/1		
Specific Conductivity			Umhos/cm3		
Sulfate	Total:		mg/1	Dissolved:	 mg/1
Total Dissolved Solids			mg/1		
Total Suspended Solids			mg/1		
Organics - Baseline					
01 g 00 200000					
Acrylamide			mg/1		
(BTEX) Benzene			mg/1		
Toluene			mg/1		
Ethylbenzene			mg/1		
Xylene			mg/1		
Cumene (Isopropyl Benz	zene)		mg/1		
Ethylene Glycol			mg/1		
Benzo [A] Pyrene			mg/1		
Phenols			mg/1		
(TPH) GRO			mg/1		
DRO			mg/1		
ORO			mg/1		
TOC			mg/1		
Vinyl Chloride			mg/1		

Inorganics - Baseline

Aluminum	Total:	mg/1	Dissolved:	mg/1
Antimony	Total:	mg/1	Dissolved:	mg/1
Arsenic	Total:	mg/1	Dissolved:	mg/1
Barium	Total:	mg/1	Dissolved:	mg/1
Beryllium	Total:	mg/1	Dissolved:	mg/1
Boron	Total:	mg/1	Dissolved:	mg/1
Cadmium	Total:	mg/1	Dissolved:	mg/1
Chromium	Total:	mg/1	Dissolved:	mg/1
Copper	Total:	mg/1	Dissolved:	mg/1
Cyanide	Total:	mg/1	Dissolved:	mg/1
Fluoride	Total:	mg/1	Dissolved:	mg/1
Lead	Total:	mg/1	Dissolved:	mg/1
Manganese	Total:	mg/1	Dissolved:	mg/1
Mercury	Total:	mg/1	Dissolved:	mg/1
Nickel	Total:	mg/1	Dissolved:	mg/1
Selenium	Total:	mg/1	Dissolved:	mg/1
Silver	Total:	mg/1	Dissolved:	mg/1
Thallium	Total:	mg/1	Dissolved:	mg/1
Zinc	Total:	mg/1	Dissolved:	mg/1

XVI. Permit Application Fee & Annual Fee Calculations

Complete this Permit Application Fee Worksheet and return it with the completed Permit Application and a check for the **Actual Permit Application Fee** amount. The minimum Permit Application Fee is \$25.00, and the maximum Permit Application Fee is \$1,500.00. **Note:** Permits are in effect for a period of five years during which an Annual Permit Fee is due on each anniversary of the issuance of the Permit. The minimum Annual Permit Fee is \$25.00, and the maximum Annual Permit Fee is \$500.00.

A. Permit Application Fee Calculation – For New Permit Application Only.

Formula for calculation of Permit Application Fee: Volume Fee (Table A) x Treatment Factor (Table B = 3 for Type 5X13 wells) x Well Type Factor (3 for Type 5X13 wells) = Fee

Table A	A - V	⁷ olume	e Fees
---------	-------	--------------------	--------

Volume (gallons per day)	Fee
<250	\$ 50.00
250 – 500	\$ 75.00
501 – 1000	\$150.00
1001 - 5000	\$200.00
5001 - 50,000	\$400.00
50,001 - 100,000	\$600.00
>100,001	\$850.00

Table B – Treatment Factors

Level of Treatment	Factor
No Treatment	3
Primary Treatment	2.5
Secondary Treatment	2
Tertiary Treatment	1.5
>Tertiary Treatment	1

	Calculat	e the Permit Applic	ation fee for this fac	cility below:		
\$	X	X		= \$ (Calculated Permit Fee)		
	(Table A)	(Table B)	(Well Type Factor)	(Calculated Permit Fee)		
	Note: If the Calculated Fee is less than \$25.00, the Actual Fee is \$25.00; if the Calculated Fee is greater than \$1500.00, the Actual Fee is \$1500.00.					
	Actual Permi	t Application Fe	e for this Facility	:\$		
Form		Annual Permit Fee:				
		\$		X 0.333=\$ (Calculated Fee)		
Note:	\$500.00, the Annu after issuance. Do	ee is less than \$25.00, al Fee is \$500.00. The not pay this amount n	the Annual Fee is \$25 is fee will be billed on	.00. If it is greater than the anniversary date of permit		

Please be advised that, in accordance with the Code of West Virginia, Title 47 Series 55, Groundwater Protection Act Fee Schedule, Section 3.5.17, a <u>Groundwater Protection Fee</u> of \$15.00 per year will be assessed for every Class 5 injection well permit. This is a separate fee and is in addition to the Annual Permit Fee.

XVII. Certification

All permit applications must be signed by an authorized signatory authority, i.e.: a corporate officer for a corporation, a general partner for a partnership, the proprietor of a sole proprietorship, a principal executive or ranking elected official for a public agency, or any person who has been granted signatory authority by an existing signatory authority.

Α.	Name and Title of authorized signatory auth	ority:				
		(Please type/print)				
В.	Signature and Date: "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information. I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and/or imprisonment."					
	(Signature)	(Date)				
XVIII.	Financial Responsibility					
Α.	Name and title of person(s) who will:					
	 Assume financial responsibility in the event of environment contamination. Maintain resources necessary for proper closure of injection point(s). 					
-	Name (Type or Print)	Title				
-	Name (Type or Print)	Title				
В.	Signature(s) and date:					
	Signature	Date				
-	Signature					

Please submit one (1) complete <u>Original</u> Paper Application along with a CD containing the complete application with all attachments and the appropriate fee to:

West Virginia Department of Environmental Protection Division of Mining and Reclamation UIC Mining Program 601 57th Street SE Charleston, WV 25304-2345

Also

Please send Two (2) complete copies of this Application to appropriate MSHA office:

Trease send 1 wo (2) complete copies of this h	ipplication to appropriate MBILL office.
Carlos Mosley, District Manager	Brian Dotson, District Manager
District 3, MSHA	District 12, MSHA
604 Cheat Road	4499 Appalachian Hwy.
Morgantown, WV 26508	Pineville, WV 24874
David (Scott) Mandeville, District Manager District 4, MSHA 1293 Airport Road Beaver, WV 25813	