

OHIO E.P.A.

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OHIO ENVIRONMENTAL PROTECTION AGENCY  
DIVISION OF DRINKING AND GROUND WATERS  
ENTERED DIRECTOR'S JOURNAL  
UNDERGROUND INJECTION CONTROL AREA PERMIT TO DRILL AND  
AREA PERMIT TO OPERATE CLASS V INJECTION WELLS

Ohio Permit Nos. UIC 05-37-33-PTD-V  
UIC 05-37-33-PTO-V

**Applicant:** Ohio Department of Transportation

**Address:** 1980 West Broad Street  
Columbus, Ohio 43223

**Telephone:** (614) 466-7170

**Facility Name:** Nelsonville Bypass, Highway Construction Mine Grouting

**Facility Location:** Fourteen distinct areas located within the highway right of way of the Nelsonville Bypass project along US Route 33 in Hocking and Athens Counties, Nelsonville, Ohio

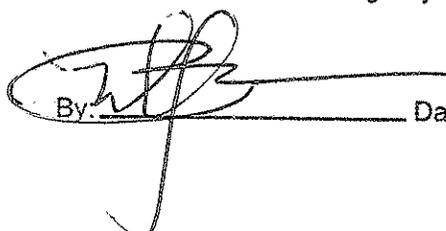
**Description:** Up to 8,000 Class V Underground Injection Wells to inject flyash/cement grout into the abandoned mine voids of the Number 5 Upper Kittanning and Number 6 Middle Kittanning coal seams to stabilize the abandoned underground mine voids for the construction of the new highway.

**Issuance Date:** June 22, 2009

**Effective Date:** June 22, 2009

**Expiration Date:** June 22, 2014

I certify this to be a true and accurate copy of the official documents as filed in the records of the Ohio Environmental Protection Agency.

By: 

Date: 6.22.09

The above named applicant is hereby ISSUED an Area Permit to Drill and an Area Permit to Operate for the above described underground injection wells pursuant to Sections 6111.043 and 6111.044 of the Ohio Revised Code and to Chapter 3745-34 of the Ohio Administrative Code. Issuance of this Area Permit to Drill and Area Permit to Operate does not constitute expressed or implied approval or agreement that, if constructed and/or modified in accordance with the specifications and/or information accompanying the permit applications, the above described activity will be in compliance with applicable State and Federal laws and rules and regulations. This Area Permit to Drill and Area Permit to Operate is issued subject to the attached conditions which are hereby incorporated and made a part hereof.

Expiration Date: This permit shall expire at midnight on the expiration date indicated above, unless terminated or modified under Chapter 3745-34 of the Ohio Administrative Code.



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Chris Korleski, Director

OHIO ENVIRONMENTAL PROTECTION AGENCY

**PART I**  
**GENERAL PERMIT COMPLIANCE**

**A. EFFECT OF PERMIT**

The permittee is authorized to engage in the operation of Class V underground injection wells in accordance with Chapter 3745-34 of the Ohio Administrative Code (OAC) and the conditions of this permit. Notwithstanding any other provisions of these permits, the permittee shall not construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of injection or formation fluids into underground sources of drinking water (USDWs) if the presence of that material may cause a violation of any primary drinking water regulation under OAC Chapter 3745-81 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, exclusively with Sections 6111.043 and 6111.044 of the Ohio Revised Code (ORC). Such compliance does not constitute a defense to any action brought under ORC Sections 6109.31, 6109.32 or 6109.33 or any other common or statutory law other than ORC Sections 6111.043 and 6111.044. 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. Nothing in this permit shall be construed to relieve the permittee of any duties under applicable state and federal law, regulations, or permits.

**B. PERMIT ACTIONS**

1. Modification, Revocation, Reissuance and Termination. The Director may, for cause or upon request from the permittee, modify, revoke and reissue, or terminate this permit in accordance with OAC Rules 3745-34-07, 3745-34-23, and 3745-34-24. Also, the permit is subject to minor modifications for cause as specified in OAC Rule 3745-34-25. 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 may be transferred to a new owner or operator pursuant to OAC Rule 3745-34-22, 3745-34-23, 3745-34-25(D) or 3745-34-26(L)(3), as may become applicable.

**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 any other circumstances and the remainder of this permit shall not be affected thereby.

#### **D. CONFIDENTIALITY**

In accordance with OAC Rule 3745-34-03 any information submitted to the Ohio EPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping words "confidential business information" on each page containing such information. If no claim is made at the time of submission, the Ohio EPA may make the information available to the public without further notice. If a claim is asserted, documentation for the claim must be tendered and the validity of the claim will be assessed in accordance with the procedures in OAC Rule 3745-34-03. If the documentation for the claim of confidentiality is not received, the Ohio EPA may deny the claim without further inquiry. Claims of confidentiality for the following information will be denied:

1. The name and address of the permittee;
2. Information which deals with the existence, absence or level of contaminants in receiving water and amounts or contents of fluids injected.

#### **E. DUTIES AND REQUIREMENTS (OAC RULE 3745-34-26)**

1. Duty to Comply. The permittee shall comply with all applicable UIC regulations and conditions of this permit. Any permit noncompliance constitutes a violation of ORC Chapter 6111. and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or denial of a permit renewal application. Such noncompliance also may be grounds for enforcement action under other applicable state and federal law.
2. Penalties for Violations of Permit Conditions. Any person who violates a requirement of this permit is subject to injunctive relief, civil penalties, fines and/or other enforcement action under ORC Chapter 6111. Any person who knowingly or recklessly violates permit conditions may be subject to criminal prosecution.
3. Continuation of Expiring Permits. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall submit a complete application for a new permit at least 180 days before expiration of this permit.
4. Need to Halt or Reduce Activity Not a Defense. It shall not be a defense, for a permittee in an enforcement action, that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

5. Duty to Mitigate. The permittee shall take all reasonable steps 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 in order to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall furnish to the Director, upon request, copies of all records required to be kept by the permittee.
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 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 required to be 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 ORC Chapter 6111. and OAC Chapter 3745-34, any substances or parameters at any location.
9. Records.
  - a. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all reports required by this permit for a

period of at least five (5) years from the date of the sample, measurement or report or for the duration of the permitted life of the well, whichever is longer.

- b. The permittee shall maintain records of all data used to complete the permit application forms and any supplemental information submitted under OAC Rule 3745-34-16 for a period of at least five (5) years from the date the applications were signed. These periods may be extended by request of the Director during that period of time.
  - c. The permittee shall retain records concerning the nature and composition of all injected fluids for three (3) years after completion of plugging and abandonment of the wells.
  - d. The permittee shall continue to retain such records after the retention period specified by paragraphs (a) to (c) above, unless he delivers the records to the Director or obtains written approval from the Director to discard the records.
  - e. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
  - f. Records of monitoring information shall include the following as applicable pursuant to OAC Rule 3745-34-26(J)(3):
    - 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. A precise description of sampling methodology;
    - iv. The date(s) analyses or measurements were performed;
    - v. The name(s) of the individual(s) who performed the analyses or measurements and the laboratory that performed the analyses or measurements;
    - vi. The analytical techniques or methods used; and
    - vii. All results of such analyses.
10. Signatory Requirements. All reports or other information, required to be submitted by these permits or requested by the Director, shall be signed and certified in accordance with OAC Rule 3745-34-17. Within thirty (30) days of the effective date of this permit, the permittee shall designate the duly authorized representative for all

submissions required under this permit, in written form to the Director, in compliance with OAC Rule 3745-34-17(B)(1)-(3).

11. Reporting Requirements.

- 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. Such notice shall be given at least ten (10) days prior to the commencement of construction or implementation of any planned change. The permittee shall include as part of such written notice to the Director justification of any planned physical alterations to the permitted well.
- 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. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of these permits shall be submitted no later than thirty (30) days following each schedule date.
- d. Twenty-four (24) Hour Reporting.
  - i. The permittee shall report to the Director any noncompliance which may endanger health or the environment. Appropriate information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. The following shall be included as information which must be reported orally within 24 hours:
    1. Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water.
    2. Any noncompliance with a permit condition, or malfunction of the injection system, which may cause unpermitted fluid migration into or between underground sources of drinking water.
  - ii. A written submission also shall be provided within five (5) business days of the time the permittee becomes aware of the circumstances of such noncompliance. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, the anticipated time it is expected to continue; and if the noncompliance has or has not been corrected, 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 paragraph (E)(11)(d) above at the time monitoring reports are submitted. The reports shall contain the information listed in permit condition 11(d)(2) above.
- f. Other Information. When the permittee becomes aware of failure to submit any relevant facts in the permit applications or that incorrect information was submitted in a permit application or in any report to the Director, the permittee shall submit such facts and corrected information within ten (10) days.
- g. If the authorization under Part I (E)(10) of this permit is no longer valid, a new authorization satisfying the requirements of OAC Rule 3745-34-17(B) and (C) shall be submitted in written form prior to or together with any reports, information or applications requiring the signature and certification of the authorized signatory.
- h. Monthly Operating Reports shall be submitted as required in Part II of this permit.

#### **F. CORRECTIVE ACTION**

1. The permittee shall develop a corrective action plan in the event that routine monitoring or any other information indicates that primary drinking water standards as defined in Chapter 3745-81 of the OAC, are or may be exceeded in any USDW as a result of injection activities.

Such plan shall include a determination of the nature, rate, and extent of the degradation. The Director may also require the plan to include appropriate remedial actions including, but not limited to discontinuance of injection operations.

2. The plan for corrective action shall be submitted to the Director within thirty (30) days of the date the permittee discovers evidence, or is notified by the Director, that an exceedance of one or more primary drinking water standards as defined in Chapter 3745-81 is resulting or may be resulting in a USDW from the injection well operation. The corrective action plan shall be subject to review and approval by Ohio EPA prior to implementation.

**PART II**  
**SPECIAL PERMIT CONDITIONS**

**A. WELL CONSTRUCTION AND COMPLETION**

All well construction and operations shall be conducted in accordance with the project plans submitted with the application for this permit. Activities conducted under this permit include, but are not limited to, the following:

1. Injection Borehole Drilling

- a. The injection boreholes shall be drilled to a minimum depth of approximately two (2) feet below the bottom of the void (Number 5 Lower Kittanning coal seam or the Number 6 Middle Kittanning coal seam).
- b. The six inch diameter boreholes shall be cased through the soil overburden with a minimum four-inch I.D. PVC or steel casing to maintain the opening until grouting is completed.

2. Injectate/Grout Mixes

- a. Barrier grout shall consist of a mix of water, Type I or Type II Portland Cement, flyash and fine aggregate.
- b. Production grout shall consist of a mix of water, Type I or Type II Portland Cement, flyash and fine aggregate.
- c. Overburden rock grout shall consist of a mix of water, Portland Cement and flyash.

3. Barrier Grout Placement

- a. If a mine void is encountered, the void shall be filled with barrier grout by inserting a tremie pipe to the mine floor. The tremie pipe shall be raised in one foot increments as barrier grout is placed until the bottom of the injection pipe is withdrawn approximately two feet into the mine roof rock.
- b. Injection of the specified grout shall be performed at a constant rate in a single stage. Placement shall be considered complete when the grout is in acceptable contact with the mine roof rock, the adjacent pillars and adjacent barriers. Grout shall extend approximately two-feet into the roof rock.

#### 4. Production Grout Placement

- a. Placement of the production grout shall be accomplished by inserting a tremie pipe to the mine floor, raising the tremie pipe in one foot increments as production grout is placed until the bottom of the injection pipe is withdrawn two-feet into the mine roof rock.
- b. Injection of the specified grout shall be performed at a constant rate in a single stage. Placement shall be considered complete when the grout is in acceptable contact with the mine roof rock. Grout shall extend approximately two feet into the roof rock.

#### 5. Overburden Rock Grouting

- a. The overburden grouting shall be accomplished by low pressure grouting the overburden rock grout through a tremie pipe placed below the top of the rock.
- b. Using a packer placed at the top of the rock elevation, grout mix shall be pumped until the grout level reaches the packer and refusal is reached.
- c. Upon grout refusal, injection shall cease and the four-inch borehole casing shall be removed from the hole concurrent with tremie grouting the borehole to the surface with production grout.

#### 6. Coal Pillar Grouting

- a. If a coal pillar exists in the mine at the injection point, the entire borehole shall be tremie grouted to the required level using production grout.
- b. Borehole casing shall be withdrawn concurrent with tremie grouting.

#### 7. Overburden Soil Grouting

Pressure grouting of soil in boreholes after removal of casing may be required. This shall be accomplished using an inflatable packer and injecting grout at an injection pressure that is not to exceed 1 psi per foot of depth as measured by a pressure gauge at the top of the borehole.

8. Details of well construction and completion, and injectate (grout) composition shall be monitored and reported as required in Part II (B) of this permit.
9. The permittee is authorized to construct and operate a total of 8,000 Class V UIC wells at the fourteen (14) locations specified in the application for, and on the cover page of this permit.

## **B. DATA TO BE COLLECTED DURING DRILLING/INSTALLATION**

1. Results of analyses of composite samples of flyash shall be submitted to Ohio EPA for approval prior to the drilling and grouting of the mine voids. Composite samples of flyash shall be by analyzed for arsenic; barium; cadmium; chromium; lead; mercury and selenium.

Flyash with chemical properties exceeding any of the following threshold concentrations shall be considered unacceptable and prohibited from use on the project:

- Arsenic - 0.03 parts per million (ppm)
  - Barium – 6.0 ppm
  - Cadmium – 0.15 ppm
  - Chromium – 3.0 ppm
  - Lead – 0.05 ppm
  - Mercury – 0.06 ppm
  - Selenium – 1.5 ppm
2. The permittee shall notify the Director of completion of activities conducted under this permit. Notification shall be:
    - a. Provided orally within 48 hours of completion; and
    - b. Provided in writing with ten (10) days of completion.
  3. A drilling and completion report shall be submitted to:

Ohio EPA - Division of Drinking and Ground Waters  
Underground Injection Control Section  
Lazarus Government Center  
50 West Town Street  
P.O. Box 1049  
Columbus, Ohio 43216-1049

within sixty (60) days of the completion of this grouting project. The following information shall be included in the report:

- a. The composition of each grout mix used including the quantities of cement, flyash, fine aggregate, coarse aggregate and water per cubic yard for each of the following:
  - i. Barrier grout;
  - ii. Production grout; and
  - iii. Overburden rock grout

- b. The report shall summarize all work completed for the drilling and grouting project and shall include a table organized by borehole designation which includes, at a minimum, the following information for each borehole:
  - i. The date drilling was completed.
  - ii. The depth to bedrock surface.
  - iii. The depth to the mined interval and condition at mined interval.
  - iv. The volume and type of grout emplaced.
  
- c. A diagram identifying the general locations of the injection wells by grout type.

### **C. GENERAL**

The wells shall be constructed in such a manner that prevents the movement of fluid into any underground source of drinking water if that fluid may cause a violation of any primary drinking water rule under Chapter 3745-81 of the Ohio Administrative Code or may otherwise adversely affect the health of persons.