

the location of all known wells within the injection well's area of review which penetrate the injection zone. For such wells which are improperly sealed, completed, or abandoned, the applicant shall also submit a plan consisting of such steps or modifications as are necessary to prevent movement of fluid into underground sources of drinking water. Where the plan is adequate, the Chief shall incorporate it into the permit as a condition. Where the Chief's review of an application indicates that the permittee's plan is inadequate, he or she shall require the applicant to revise the plan, prescribe a plan for corrective action as a condition of the permit, or deny the application.

Any permit issued for an existing injection well requiring corrective action shall include a compliance schedule requiring any corrective action accepted or prescribed to be completed as soon as possible. No permit for a new injection well may authorize injection until all required corrective action has been taken. The Chief may require as a permit condition that injection pressure be limited so that the pressure in the injection zone does not exceed hydrostatic pressure at the site of any improperly completed or abandoned well within the area of review. This pressure limitation shall satisfy the corrective action requirement. Alternatively, such injection pressure limitation can be part of a compliance schedule and last until all other required corrective action has been taken.

When setting corrective action requirements for Class III wells only, the Chief shall consider the overall effect of the project on the hydraulic gradient in potentially affected USDWs and the corresponding changes in potentiometric surface(s) and flow direction(s) rather than the discrete effect of each well. If a decision is made that corrective action is not necessary based on the determinations above, the monitoring program shall

be designed to verify the validity of such determinations.

In determining the adequacy of corrective action proposed by the applicant and in determining the additional steps needed to prevent fluid migration into underground sources of drinking water, the Chief shall consider the following criteria and factors:

1. Nature and volume of injected fluid;
2. Nature of native fluids or by-products of injection;
3. Geology;
4. Hydrology;
5. History of the injection operation;
6. Completion and plugging reports;
7. Abandonment procedures in effect at the time the well was abandoned;
8. Hydraulic connections with underground sources of drinking water; and
9. Potentially affected population.

E. Mechanical Integrity Requirements (State UIC Regulating Sections 6.02, 8.04 and 10.04)

An injection well has mechanical integrity if there is no significant leak in the casing, tubing or packer, and there is no significant fluid movement into an underground source of drinking water through vertical channels adjacent to the injection well bore. Evaluation of the absence of significant leaks in the casing, tubing or packer must be determined either by monitoring the annulus pressure or by performing a liquid or gas pressure test. The absence of significant fluid movement through vertical channels adjacent to the injection well bore may be demonstrated by:

1. The results of a temperature or noise log;
2. For Class III wells where the nature of the casing precludes the use of logging techniques, cementing records demonstrating the presence of adequate cement to prevent such migration;

3. For Class III wells where the Chief elects to rely on cementing records to demonstrate the absence of significant fluid movement, the monitoring program shall be designed to verify the absence of significant fluid movement.

The Chief may allow the use of a test to demonstrate mechanical integrity (other than those described above) with the written approval of the Administrator of the U.S. Environmental Protection Agency.

In conducting and evaluating the tests enumerated here or others to be allowed by the Chief, the owner or operator and the Chief shall apply methods and standards generally accepted in the industry. When the owner or operator reports the results of mechanical integrity tests to the Chief, he shall include a description of the test(s) and the method(s) used. In making an evaluation, the Chief shall review the monitoring and other test data submitted since the previous evaluation.

Mechanical integrity must be demonstrated at least every five years during the life of the well. The Administrator of the Office of Oil and Gas of the Department of Mines will review the results of the mechanical integrity tests and forward the information to the Chief. At least twenty-five percent of the Class II mechanical integrity tests will be witnessed by Office of Oil and Gas personnel. The DWR must be notified sufficiently in advance of any mechanical integrity test to enable an inspector to witness such tests for Class I and Class III wells.

F. Plugging and Abandonment Requirements (State UIC Regulations, Sections 8.03, 10.03 and 13.07(f))

Any Class I or III permit shall include conditions to ensure that plugging and abandonment of the well will not allow the movement of fluids either into an underground source of drinking water or from one underground source of drinking water to another. Any applicant for a UIC permit shall

be required to submit a plan for plugging and abandonment. Where the plan meets the requirements stated here, the Chief shall incorporate it into the permit as a condition. Where the Chief's review of an application indicates that the permittee's plan is inadequate, the Chief shall require the applicant to revise the plan, prescribe conditions meeting the requirements, or deny the application. Temporary intermittent cessation of injection operations is not abandonment.

At a minimum, the well shall be plugged with cement in a manner which will not allow the movement of fluids either into or between underground sources of drinking water. Placement of the cement plugs shall be accomplished by one of the following:

1. The Balance Method;
2. The Dump Bailer Method;
3. The Two-Plug Method; or
4. An alternative method approved by the Chief which will reliably provide a comparable level of protection to USDW's (The Chief may allow Class III wells to use other plugging materials if he is satisfied that such materials will prevent movement of fluids into or between underground sources of drinking water).

The well to be abandoned shall be in a state of static equilibrium with the mud weight equalized top to bottom, either by circulating the mud in the well at least once or a comparable method prescribed by the Chief, prior to the placement of the cement plug(s). The owner or operator shall assure, through a performance bond or other appropriate means, the availability of resources necessary for the proper abandonment of the well.

The plugging and abandonment plan for a Class III project which underlies or is in an aquifer which has been exempted must also demonstrate adequate protection of USDWs. The Chief shall prescribe aquifer cleanup

and monitoring where he deems it necessary and feasible to insure adequate protection of USDWs.

G. Information to be Considered (State UIC Regulations, Sections 8.05 and 10.05)

Prior to the issuance of a permit for an existing or new Class I or Class III well, the Chief shall consider the following information. For an existing Class I or Class III well the Chief may rely on the existing State permit file for those items of information listed below which are current and accurate in the State file. For a new Class I or Class III well, the Chief shall require the submission of all the information listed below.

1. Information considered for both Class I and Class III wells:

- a. A map showing the injection well(s) for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, mines (surface and subsurface), quarries, water wells and other pertinent surface features including residences and roads. The map should also show faults, if known or suspected. Only information of public record is required to be included on this map;
- b. Maps and cross sections indicating the vertical and lateral limits of all underground sources of drinking water within the area of review, their position relative to the injection formation, and the direction of water movement, where known, in every underground source of drinking water which may be affected by the proposed injection;
- c. Maps and cross sections detailing the geologic structure of the local area;

- d. Generalized maps and cross sections illustrating the regional geologic setting;
 - e. The anticipated average and maximum pressure and flow rate at which the permittee will operate;
 - f. Stimulation program;
 - g. Injection procedure;
 - h. Schematic or other appropriate drawings of the surface and subsurface construction details of the well;
 - i. Contingency plans to cope with all shut-ins or well failures so as to prevent the migration of contaminating fluids into underground sources of drinking water;
 - j. All available logging and testing data on the well;
 - k. Plans (including maps) for meeting the monitoring requirements;
 - l. A certificate that the applicant has assured, through a performance bond or other appropriate means, the resources necessary to close, plug or abandon the well;
 - m. Prior to granting approval for the plugging and abandonment or a Class III well the Chief shall consider the following information:
 - (i) The type and number of plugs to be used;
 - (ii) The placement of each plug including the elevation of the top and bottom;
 - (iii) The type, grade and quantity of cement to be used;
 - (iv) The method of placement of the plugs; and
 - (v) The procedure to be used to meet the plugging and abandonment requirements.
2. Information considered for Class I wells only:
- a. A tabulation of data on all wells within the area of review which penetrate into the proposed injection zone. Such data shall include

- a description of each well's type, location, depth, record of plugging and/or completion, and any additional information on these wells as the Chief may require;
- b. The source and an analysis of the chemical, physical, radiological and biological characteristics of injection fluids;
 - c. Formation testing program to obtain an analysis of the chemical, physical, and radiological characteristics of and other information on the receiving formation;
 - d. For wells within the area of review which penetrate the injection zone but are not properly completed or plugged, the corrective action proposed to be taken;
 - e. Construction procedures including a cementing and casing program, logging procedures, directional survey, and a drilling, testing, and coring program;
 - f. Feasibility of monitoring permeable strata located between the injection zone and underground sources of drinking water;
 - g. Compatibility of injected waste with fluids in the injection zone and minerals in both the injection zone and the confining strata;
 - h. A satisfactory demonstration of mechanical integrity;
 - i. Such other information as the Chief may reasonably require.
3. Information considered for Class III wells only:
- a. A tabulation of data reasonably available from public records or otherwise known to the applicant on all wells within the area of review included on the map which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of plugging and completion, and any additional information the Chief

may require. In cases where the information would be repetitive and the wells are of similar age, type, and construction the Chief may elect to only require data on a representative number of wells;

b. Qualitative analysis and ranges in concentrations of all constituents of injected fluids. The applicant may request confidentiality. If the information is proprietary an applicant may, in lieu of the ranges in concentrations, choose to submit maximum concentrations which shall not be exceeded. In such a case the applicant shall retain records of the undisclosed concentrations and provide them upon the request to the Chief as part of any enforcement investigation;

c. An analysis of the physical and chemical characteristics of the formation;

d. Formation testing program;

e. Expected changes in pressure, native fluid displacement, direction of movement of injection fluid;

f. The corrective action proposed to be taken;

g. A satisfactory demonstration of mechanical integrity for all new wells and for all existing salt solution wells.

H. Requirements for Wells Injecting Hazardous Waste (State UIC Regulations, Sections 7.00, 8.00, 10.00, 13.02(a)(3), and 13.17(b))

This section describes the requirements for Class I wells injecting hazardous waste. The technical requirements pertaining to Class IV wells are explained in Section IV,F of this Program Description.

Wells which inject hazardous waste are of the greatest concern to the State. They have been selected as the group of wells which have the highest priority for detailed reevaluation of existing permits and close scrutiny of new permit applications. The State UIC Regulations specifically address wells which inject hazardous wastes. For example, Section 13.17(b)

prohibits automatic transfer of ownership for wells injecting hazardous waste.

The technical requirements for Class I wells were promulgated to assure protection of USDW's. The intent of the regulations is to prevent upward migration of fluids into USDW's through any confining layers. The permittee must shoulder the burden of proof that injected hazardous waste remains where it is emplaced. Limited remedial action can be taken to stop migration of hazardous waste into a USDW once it begins, and complete removal from a USDW can prove to be impossible. The technical requirements seek to guarantee that injection is as safe as possible before any hazardous waste is injected and to prevent any migration of the hazardous waste from the injection zone.

Coring, logging, and reports by appropriately qualified analysts will be required to determine the suitability of the injection zone will help determine its ability to be an acceptable reservoir for the hazardous waste. Analysis of the data from the proposed confining layer will help determine its ability to act as an impermeable barrier against upward migration of the hazardous waste.

Critical evaluation of well construction and mechanical integrity is necessary to determine if a well will transport the hazardous waste to the injection zone reservoir without leaks. For example, the State UIC Regulations require that all parts of a Class I well which will come into contact with corrosive fluids shall be constructed of corrosion resistant material. This requirement seeks to prevent loss of mechanical integrity and thus prevent the escape of hazardous waste into USDW's.

The monitoring and reporting requirements of the regulations compel the permittee to supply continuing assurance that hazardous waste injection remains safe. The monitoring of injection well head pressure documents

that the bottom hole pressure does not exceed the fracture pressure of the injection zone, thereby preventing the development of vertical fractures. These fractures could serve as a conduit for upward migration of the hazardous waste into USDW's. A network of monitoring wells that penetrate the USDW will be required to detect failure of the injection system to protect the USDW. A network of monitoring wells that penetrate to immediately above the confining layer will be required to detect failure of the confining layer to act as an impermeable barrier against upward migration.

The State will stress a strong permit review process to assure, before underground injection begins, that hazardous waste will remain where it is placed. The State will also require intensive surveillance once underground injection begins in order to detect any upward migration of hazardous waste as early as possible, if it should occur. Both of these strategies will protect the integrity of USDW's.

1. New Class I Wells

All owners and operators of new Class I hazardous waste injection wells must comply with the location standards of Section 7.04. These location standards prohibit the siting of new Class I hazardous waste disposal wells in areas of seismic risk. Earthquakes in Zone Two area of a magnitude such that the casing or the injection tubing may be sheared or damaged and the cement which seals the out casing to the formations may be damaged, thus creating routes for migration of these wastes into underground sources of drinking water. The boundaries of Zone Two were mapped by Algermission (1969) and by Lessing (1974). The portions of West Virginia in Seismic Risk Zone Two (according to Lessing) include the following counties: Jefferson, Berkeley, Morgan (east of Cacapon District), Hampshire (Bloomery, Capon Districts), Hardy (Capon, Lost River Districts), Pendleton (Bethel, Sugar Grove Districts), Pocahontas (south of Green Bank District), Greenbrier, Monroe, Summers, Mercer, Raleigh (Slab Fork, Shady Spring, and

Richmond Districts), and McDowell, Wyoming (south of Oceana District).

The location standards prohibit the borehole of any new hazardous waste injection well from passing through cavities created by subsurface mining or by solution of carbonate rock. They also prohibit locating this type of well in designated wetlands and where inundation from dam failure or a 100-year return period flood could occur.

2. Existing Class I Wells

Section 7.00 of the State UIC Regulations requires that all generators of hazardous waste and the owners or operators of all hazardous waste management facilities who use any Class I well to inject hazardous waste apply for authorization to inject (within six months after the State receives program authorization from EPA). In addition to compliance with applicable requirements of Section 8.00 of the State UIC Regulations, Section 7.00 requires that the owner or operator must comply with the following requirements of Series XV of the West Virginia Administrative Regulations, Chapter 20, Article 5E, the Hazardous Waste Management Act:

- (1) Notification (Section 4.00);
- (2) Identification Number (Section 8.02.02);
- (3) Manifest system record keeping and reporting requirements as applicable (Section 8.05.02);
- (4) Manifest discrepancies (Section 8.05.03);
- (5) Operating record (Section 8.05.04(a), (b)(1) and (b)(2));
- (6) Annual report (Section 8.05.06);
- (7) Unmanifested waste report (Section 8.05.07); and Section 8.02.07);
- (8) Personnel training (Section 8.02.07).

When abandonment of an existing Class I well which has injected hazardous waste is completed, the owner or operator must submit (to the Chief) certification by the owner or operator and certification by an independent registered professional engineer that the facility has been closed in

accordance with the specifications in Section 13.07 of the State UIC Regulations.

IX. PUBLIC PARTICIPATION

This section describes the public participation activities which are required of the Division of Water Resources during the permitting process. Neither the Office of Oil and Gas of the Department of Mines nor the Oil and Gas Conservation Commission have statutes or regulations which provide for these EPA required activities. The only possible exception may be the hearing set up by the Commissioner for field unitization (Section K, Section 1425 Application for Program Authorization for Class II Wells). The Division of Water Resources has incorporated the Office of Oil and Gas permit (Form IV-3) into the DWR permit in order to fulfill the Section 1425 public participation requirements.

Section 13.32 of the State UIC Regulations requires that once an application is complete, the Chief shall tentatively decide whether to prepare a draft permit or to deny the application. If the Chief decides to prepare a draft permit, it shall contain the following information:

- (1) All conditions under Sections 13.06, 13.07, and 13.12;
- (2) All compliance schedules; and
- (3) All monitoring requirements.

After the draft permit is prepared the public participation process described in the rest of this section will be implemented.

As described in Section 13.23 of the State UIC Regulations, any records, reports or information and any permits, permit applications, and related documentation shall be available to the public for inspection and copying in accordance with Series VIII, West Virginia Administrative Regulations (Freedom of Information Act). However, upon a satisfactory showing to the Chief that such records, reports, permit documentation, or information (other than that listed in Section 13.21(b)), would, if made public,

divulge methods or processes entitled to protection as trade secrets, the Chief shall consider, treat and protect such records as confidential.

A. Fact Sheet

As described in Section 13.31 of the State UIC Regulations, a fact sheet will be prepared for every draft permit for a major* facility or activity and for every draft permit which the Chief finds is the subject of widespread public interest or raises major issues. The fact sheet will briefly set forth the principal facts and the significant factual, legal, methodological and policy questions considered in preparing the draft permit. The Chief will send this fact sheet to the applicant and, on request, to any other person and to the persons required under Section 13.24(c)(1)(i), (ii), and (iii). The fact sheet will include, when applicable:

- (1) A brief description of the type of facility or activity which is the subject of the draft permit;
- (2) The type and quantity of fluids, which are proposed to be or are being injected;
- (3) A brief summary of the basis for the draft permit conditions including references to applicable statutory or regulatory provisions;
- (4) A description of the procedures for reaching a final decision on the draft permit including:
 - (i) The beginning and ending dates of the public comment period and the address where comments will be received;
 - (ii) Procedures for requesting a hearing and the nature of that hearing; and
 - (iii) Any other procedures by which the public may participate in the final decision.

*As defined in the Attachments to the State-EPA MOA.

(5) Name and telephone number of a person to contact for additional information.

B. Public Notices

As described in Section 13.24 of the State UIC Regulations, public notice will be given when a draft permit has been prepared or when a public hearing has been scheduled. The duration of the public notice of the preparation of a draft permit will allow at least 30 days for public comment. Public notice of a public hearing shall be given at least 30 days before the hearing.

Public notice will be given by the following methods:

(1) By mailing a copy of a notice to the following persons (any person entitled to receive notice may waive the right to receive notice for any classes and categories of permits):

- (i) The applicant;
- (ii) Any other agency including EPA which the Chief knows has issued or is required to issue a RCRA, UIC, PSD, NPDES permit for the same facility or activity;
- (iii) Federal, State and interstate agencies with jurisdiction over fish and wildlife resources, public health, the State Historic Preservation Unit of the Department of Culture and History, and other appropriate government authorities, including any affected states;
- (iv) Persons on a mailing list developed by:
 - (A) Including those who request in writing to be on the list;
 - (B) Soliciting persons for "area lists" from participants in past permit proceedings in that area; and
 - (C) Notifying the public of the opportunity to be put on the mailing list through periodic publication in the public press and in appropriate publications of the State.

(v) By mailing a copy to each agency having authority under State law with respect to the construction or operation of such facility;

(2) For any permit, the Chief shall send the public notice to the applicant, who shall be responsible for publication of a Class I legal advertisement by a date and in a paper specified by the Chief. Upon publication, the applicant shall send the Chief a copy of the certificate of publication. The costs of publication shall be borne by the applicant; and

(3) Any other method reasonably calculated to give actual notice of the action in question to the persons potentially affected by it, including press releases or any other forum or medium to elicit public participation.

C. Contents of a Public Notice

Section 13.25 of the State UIC Regulations requires that all public notices issued shall contain the following minimum information:

- (1) Name and address of the office processing the permit action for which notice is being given;
- (2) Name and address of the permittee or permit applicant and, if different, of the facility or activity regulated by the permit;
- (3) A brief description of the business conducted at the facility characterized in the permit application or the draft permit;
- (4) The name, address and telephone number of a person from whom interested persons may obtain further information, including copies of the draft permit or fact sheet, and the application;
- (5) A brief description of the comment procedures required by Sections 13.26 and 13.27 and the time and place of any hearing that will be held, including a statement of procedures to request a hearing unless already scheduled, and other procedures by which the

public may participate in the final permit decision.

In addition to the items contained in the general public notice described above, the public notice of a hearing shall contain the following information:

- (1) Reference to the date of previous public notices relating to the permit;
- (2) Date, time, and place of the hearing;
- (3) A brief description of the nature and purpose of the hearing, including the applicable rules and procedures.

In addition to the general public notice, all persons identified in Section 13.24(c)(1)(i), (ii) and (iii) shall be mailed a copy of the fact sheet, the permit application and the draft permit.

D. Public Comment and Requests for Public Hearings

Section 13.26 of the State UIC Regulations indicates that during the public comment period provided, any interested person may submit written comments on the draft permit and may request a public hearing if no hearing has already been scheduled. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. All comments shall be considered in making the final decision and shall be answered as provided in Section 13.30.

E. Public Hearings

As described in Section 13.27 of the State UIC Regulations, the Chief shall hold a public hearing whenever he or she finds, on the basis of requests, a significant degree of public interest of issues relevant to the draft permit(s). The Chief also may hold a public hearing at his or her discretion, whenever, for instance, such a hearing might clarify one or more issues involved in the permit decision.

Any person may submit oral or written statements and data concerning

the draft permit. Reasonable limits may be set upon the time allowed for oral statements, and the submission of statements in writing may be required. The public comment period under Section 13.24(b)(1) shall automatically be extended to 10 days after the close of any public hearing held under Section 13.27.

A tape recording or written transcript of the hearing shall be made available to the public upon request (for the standard cost of such materials).

F. Obligation to Raise Issues and Provide Information During the Public Comment Period

All persons, including applicants, who believe any condition of a draft permit is inappropriate or that the Chief's tentative decision to prepare a draft permit is inappropriate, shall raise all reasonably ascertainable issues and submit all reasonably available arguments and factual grounds supporting their position, including all supporting material, by the close of the public comment period. All supporting materials shall be included in full and not be incorporated by reference, unless they are already part of the administrative record in the same proceeding, or consist of State or Federal statutes and regulations, documents of general applicability, or other generally available reference materials. Submitters of comments shall make supporting material not already included in the administrative record available to the State as directed by the Chief (Section 13.28, State UIC Regulations).

G. Reopening of the Public Comment Period

If any data, information or arguments submitted during the public comment period appear to raise substantial new questions concerning a permit, the Chief may take one or more of the following actions as described in Section 13.29 of the State UIC Regulations:

- (1) Prepare a new draft permit, appropriately modified;
- (2) Prepare a revised fact sheet and reopen the comment period under this section; or
- (3) Reopen or extend the comment period to give interested persons an opportunity to comment on the information or arguments submitted.

Comments filed during the reopened comment period shall be limited to the substantial new questions that caused its reopening. The public notice shall define the scope of the reopening.

H. Response to Comments

Whenever a final permit is issued, the Chief shall prepare a response to comments. The response to comments shall be available to the public.

This response shall:

- (1) Specify which provisions, if any, of the draft permit have been changed in the final permit decision, and the reasons for the change; and
- (2) Briefly describe and respond to all significant comments on the draft permit raised during the public comment period, or during any hearing.

X. PROGRAM REPORTING

The State is required to submit to the EPA certain information which will enable the EPA to properly oversee the implementation of the State UIC Program and to assess progress and completion of grant funded activity. The DWR, as lead agency, has this reporting responsibility. This is mentioned in Sections IA and V of the State-EPA Memorandum of Agreement (MOA).

The MOU between the State agencies involved in the implementation of the UIC Program acknowledges this reporting responsibility of DWR. The other agencies agree to supply DWR with the appropriate information for this purpose according to the timetable of MOU Attachment B (Appendix D). The timetable for DWR reporting to EPA is found in Appendix K.

A. Program Reports

Program reports will be submitted to the Regional Administrator of EPA in accordance with 40 CFR 122.18. These reports include:

(1) Noncompliance to be reported quarterly for major* facilities shall include the following categories:

- (a) Failure to complete construction elements
- (b) Modifications to compliance schedules
- (c) Failure to submit progress report, monitoring report
- (d) Reports found to be inappropriate to determine compliance
- (e) Violation, pattern of noncompliance, or significant noncompliance with permit requirements

The report will follow the format as described in Section 122.18(a)(1).

(2) Noncompliance for nonmajor* UIC permittees shall be reported annually and indicate the following:

- (a) Total number of permits reviewed
- (b) Number of noncompliances found
- (c) Number of enforcement actions
- (d) Number of permit modifications extending compliance deadlines

*As defined in the Attachments to the State-EPA MOA.

(3) Annual program report must consist of a detailed description of the States' implementation of its program, suggested changes to the permit issuance schedule, and an updated inventory of active underground injection operations in the State.

B. Mid-Course Evaluation Requirements

Reporting under the mid-course evaluation requirements applies to Class I and III wells in accordance with 40 CFR Sections 146.15, and 146.35, respectively. The State shall report the data as required in these two sections (Appendix K).

For Class II wells submitted under Section 1425 (SDWA) guidance, and in lieu of the former special reporting requirement of 40 CFR 146.25, additional requirements are added to the State's annual report to EPA for the operation of its Class II program. The minimum reporting items for the annual report should contain (Section 1425 guidance, Par. 6.2 and 6.3):

(1) An updated inventory;

(2) A summary of surveillance programs, including the results of monitoring and mechanical integrity testing, the number of inspections, and corrective actions ordered and witnessed;

(3) An account of all complaints reviewed by the State and the actions taken;

(4) An account of the results of the review of existing wells made during the year; and

(5) A summary of enforcement actions taken.

The State anticipates that specific guidance on mid-course evaluation will be supplied by EPA in the future.

C. Class V Report

Upon completion of the inventory and assessment of Class V wells, the State will submit to the Regional Administrator a report as required in

40 CFR 146.52 containing the following:

- (1) Construction features of the wells;
- (2) Nature and volume of the injected fluids;
- (3) Assessment of the contamination potential of wells using hydrogeological data;
- (4) Assessment of alternatives to correct the potential for contamination, and the environmental and economic consequences; and
- (5) Recommendations for the most appropriate regulatory approaches and any remedial actions where appropriate.

D. State Forms

Appendix L contains copies of the forms the State will utilize to implement the UIC Program. This is in addition to the Class I and Class III well permit application (Appendix H), the Class II well permit application (Appendix I), and the Class II well permit (Appendix J).

The forms in Appendix L include Form IV-37. This is the Pre-Operation Certificate used by the Department of Mines, Office of Oil and Gas for Class II wells. The permittee uses this form to report any changes in the well construction from the proposed work order. It also serves as the form for documentation of the Mechanical Integrity Test.

Appendix L also includes a copy of the cover letter which is sent to applicants to notify them to place the Class I legal advertisement in the appropriate newspaper to open the public notice period. The Public Notice Form which contains the information which must be placed in the advertisement is also in Appendix L.

The final two State forms in Appendix L are the UIC Water Pollution Control Permit and the UIC Well Monitoring Report Form. These forms will be used for all wells permitted except for Class II. Additional forms used by the Office of Oil and Gas of the Department of Mines and the Oil and Gas Conservation Commission to implement the Class II portion of the UIC

Program may be found attached to the Application for Program Authorization for Class II Wells Under Section 1425 of the Safe Drinking Water Act.

The State will use a Federal form for the well inventory. This form is OMB No. 158-R0170, Inventory of Injection Wells. It is also included in Appendix L.

The next two forms in Appendix L are the State forms which will be used for applications to renew the UIC Permits. They include a section for the required mechanical integrity test.

The last form in Appendix L is to be used when applying for a permit modification.

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APPENDIX A

LETTER TO EPA FROM THE GOVERNOR



STATE OF WEST VIRGINIA
OFFICE OF THE GOVERNOR
CHARLESTON 25305

JOHN D. ROCKEFELLER IV
GOVERNOR

November 21, 1979

RECEIVED
DEPT. OF NATURAL RESOURCES
NOV 27 1979
OFFICE OF DIRECTOR

Dear Jack,

The State of West Virginia is developing the Underground Injection Control Program under the Safe Drinking Water Act with the intent of assuming primacy of this program by April 24, 1981.

The Department of Natural Resources, Water Resources Division, as my designated agency, will develop the necessary management plans and promulgate regulations for program implementation and enforcement within West Virginia.

Sincerely,

A handwritten signature in black ink, appearing to read "John D. Rockefeller IV".

John D. Rockefeller IV

Mr. Jack L. Schramm
Regional Administrator
U. S. Environmental
Protection Agency
Region III
Sixth and Walnut Streets
Philadelphia, Pennsylvania 19106

bcc: Dave Callaghan

APPENDIX B
Physiographic Provinces

APPENDIX C
UIÇ GRANT FUNDING TRANSFER

UIC GRANT FUNDING TRANSFER

UIC grant funds are forwarded from the Department of Natural Resources, Division of Water Resources to Federal, State, and other agencies or departments involved in the implementation of the UIC Program by the following procedure:

1. A standardized contract stating the services to be performed and the costs of these services is drawn up by the Hazardous Waste, Ground Water Branch, UIC staff.
2. This contract is reviewed by the Attorney General's Office in order to verify its correctness and efficacy.
3. It is then examined by the UIC Program's accountant in the Division of Water Resources to ensure that budgeted funds are available for the contracted services.
4. The contract is signed by the responsible party of the agency or department performing the contracted services.
5. The contract is returned to the UIC Program accountant who prepares a Purchasing Requisition Agreement (PRA).
6. Both contract and PRA are signed by the Chief of the Division of Water Resources.
7. The contract and PRA proceed to the Procurement Officer of the Department of Natural Resources (DNR), who circulates them for approval to various personnel as required by State law. Ultimately, they are signed by the Director of DNR.
8. The contract and PRA are then sent to the Department of Finance and Administration (F & A) for approval. When approved, the Commissioner and Director of Purchases of F & A sign, funds are encumbered, and a purchase order is prepared.
9. The contract, PRA and purchase order must then be approved and signed by the Attorney General.

10. Upon approval by the Attorney General, they are returned to F & A. A copy of the purchase order is released to the contracted agency or department performing the services and a copy is sent to the Division of Water Resources.
11. At this point, the contracted State or Federal agency or department invoices the Division of Water Resources and the encumbered funds may be released to their account.
12. For contractual services involving outside vendors other than State or Federal, the above procedures are utilized with the exception that the approved vendor must bill the Division of Water Resources and be paid through normal State procedures after the service is performed.

APPENDIX D
MEMORANDUM OF UNDERSTANDING

MEMORANDUM OF UNDERSTANDING BETWEEN
THE DIVISION OF WATER RESOURCES,
WEST VIRGINIA DEPARTMENT OF NATURAL RESOURCES,

THE OFFICE OF OIL AND GAS
WEST VIRGINIA DEPARTMENT OF MINES,

AND

THE WEST VIRGINIA OIL AND GAS CONSERVATION COMMISSION

MEMORANDUM OF UNDERSTANDING BETWEEN
THE DIVISION OF WATER RESOURCES
WEST VIRGINIA DEPARTMENT OF NATURAL RESOURCES
THE OFFICE OF OIL AND GAS
WEST VIRGINIA DEPARTMENT OF MINES

AND

THE WEST VIRGINIA OIL AND GAS CONSERVATION COMMISSION

Relating to the joint development and implementation of the Underground Injection Control Program - Part C - of the Safe Drinking Water Act (Public Law 93-523, as amended) (hereafter "program") and the administration of the laws of the State of West Virginia to protect the environment and the public health from the adverse effects of the subsurface disposal or emplacement of fluids or wastes by well injection.

I. Preamble

The Division of Water Resources, Department of Natural Resources as the designated lead agency for the State (hereafter "Chief"), the Office of Oil and Gas, Department of Mines (hereafter "Administrator") and the Oil and Gas Conservation Commission (hereafter "Commissioner") enter into this Memorandum of Understanding (hereafter "MOU"). The agencies listed above shall be referred to collectively as the "participating agencies". This MOU is to serve as an instrument for the development and implementation of an effective and approvable program in the State. This MOU will assure efficient distribution of grant funds and will minimize duplication of effort among the participating agencies.

II. Authority and Responsibility

The Chief has the authority to enter into this MOU pursuant to Section 4 of Chapter 20, Article 5A of the Code of West Virginia for the purpose of receiving grant funds and coordinating with other agencies and interested parties to secure the benefits of federal legislation. The Administrator has the authority under Chapter 22, Article 4, Section 1, et seq. The Commissioner has the authority under Chapter 22, Article 4A, Section 1, et seq.

It is understood that the Chief retains ultimate responsibility for program development and implementation and shall retain oversight of all activities related to such implementation and development.

Such oversight, in general, shall include:

1. Approval of all workplans to be funded by the pass through of federal grant funds to participating agencies.
2. Review and approval of all reports and submissions required by this MOU and in relation to the expenditure of grant funds.

3. Approval of all contractual agreements entered into by the participating agencies when federal grant funds are utilized in part or in full for such agreements.

III. Substantive and Procedural Arrangement

A. Division of Water Resources Department of Natural Resources

1. The Chief shall apply for and receive grant funds at a level based on an approved work plan negotiated with the U. S. Environmental Protection Agency.
2. The Chief shall provide pass through grant funds to the Administrator and the Commissioner for program development work eligible under such grant, upon submission of an approvable work plan and estimated budget to the Chief.
3. The Chief shall issue construction and operational permits or authorize by rule for Class I, Class II, Class III, Class IV, and Class V injection wells with limitations on the depth of the injection interval, the nature and quantity of the injected waste and injection pressures.
4. The Chief shall receive monitoring reports submitted by the operators of Class I, existing Class II brine disposal, Class III, Class IV, and Class V wells and shall review these monitoring reports to verify compliance with permit conditions.
5. The Chief shall forward to the Administrator copies of all monitoring forms and reports received from existing Class II brine disposal well installations. (New and re-permitted Class II brine disposal wells will send monitoring forms and reports to the Administrator as required.) These copies shall be forwarded immediately upon receipt of the monitoring forms and/or reports.
6. The Chief will insure compliance with the provisions of all the well permits issued through inspections, fines, criminal proceedings, and any other enforcement remedies available.
7. The Chief shall review existing permits for Class I wells against the criteria established under operational requirements listed in Sections 7.00 and 8.00 of the West Virginia Administrative Regulations of the State Water Resources Board, Chapter 20-5A, 1982 (Series IX).
8. The Chief shall review existing permits for Class I wells against the criteria established under operational requirements listed in Section 10.00 of the West Virginia Administrative Regulations of the State Water Resources Board, Chapter 20-5A, 1982 (Series IX).
9. The Chief shall establish priorities for the re-permitting of Class I and Class III wells based on the information supplied through his review and that provided by the Administrator and the Commissioner.
10. In coordination with the Administrator and the Commissioner, the Chief shall review existing permits for Class II wells against the criteria established under Section 9.00 of the West Virginia Administrative Regulations of the State Water Resources Board, Chapter 20-5A, 1982 (Series IX).

11. The Chief shall cooperate with the Administrator and the Commissioner in the establishment of priorities for the repermitting of Class II wells based on the information supplied through his review and that provided by the Administrator and the Commissioner.
12. The Chief shall review Class II well permit applications against the criteria established under Section 9.00 of the West Virginia Administrative Regulations of the State Water Resources Board, Chapter 20-5A, 1982 (Series IX), to insure adequate protection of underground sources of drinking water. The Chief shall issue Underground Injection Control Permits to Class II wells which adequately protect underground sources of drinking water. It is unlawful to inject without either this permit or authorization by rule. Comments regarding applications for this permit shall be submitted in writing to the Administrator within thirty (30) days of the date upon which the Administrator receives the application.
13. The Chief will follow the procedure outlined in the Flow Chart for Processing Class II Injection Well Permit Applications found in Section IV of this MOU (page 7).
14. In order to avoid duplicative public hearings, the Chief will notify the Administrator and the Commissioner prior to scheduling any public hearing which involves injection wells which are within the jurisdiction of the Administrator and the Commissioner.
15. The Chief shall determine which aquifers in the State qualify for exempted aquifer status as defined in Section 3.00 of the West Virginia Administrative Regulations of the State Water Resources Board, Chapter 20-5A, 1982 (Series IX).
16. The Chief shall review monitoring reports and forms for Class II wells and take appropriate enforcement action after coordination with the Administrator and the Commissioner.
17. The Chief shall coordinate the inspection and enforcement of Class II well permits with the Administrator and the Commissioner.
18. The Chief shall cooperate with the Administrator and the Commissioner in responding to and investigating citizen complaints.

B. Office of Oil and Gas
Department of Mines

1. The Administrator will issue all well drilling permits within his jurisdiction and will insure the mechanical integrity of the well through a proper casing and cementing program to protect groundwater and a posted bond and plan for well abandonment.
2. The Administrator will insure compliance with the provisions of all well permits issued under his authority through inspections, fines, criminal proceedings, and other enforcement remedies available.
3. The Administrator shall review Class I, Class II and Class III wells for mechanical integrity and forward that information to the Chief.
4. In recognition of the authority vested in him by Chapter 22, Article 4 and 7 of the West Virginia Code, 1931, as amended, the Administrator

- shall retain jurisdiction over wells utilized in the underground storage of natural gas.
5. The Administrator will follow the procedure outlined in the Flow Chart for processing Class II Injection Well Permit Applications found in Section IV of this MOU (page 7).
 6. For each injection well permitted, the Administrator shall forward a copy of the Pre-Injection Certificate (Form IV-37) and a copy of the Well Record (Form IV-35) to the Chief. These copies shall be forwarded immediately upon receipt of the originals by the Administrator.
 7. The Administrator shall cooperate with the Chief in the establishment of priorities for the re-permitting of existing Class II wells.
 8. The Administrator shall forward to the Chief copies of all monitoring forms and reports received from Class II well installations. These copies shall be forwarded immediately upon receipt of the monitoring forms and/or reports.
 9. When implementing the Underground Injection Control Program, the Administrator defines "Underground Source of Drinking Water" as in the West Virginia Administrative Regulations of the State Water Resources Board, Chapter 20-5A, 1982, Series IX (see Attachment A).
 10. In order to avoid duplicative public hearings, the Administrator shall notify the Chief prior to scheduling any hearing which involves injection wells.
 11. The Administrator shall submit to the Chief the necessary information regarding activities for which grant funding has or will be used (including inventory updates, progress reports, narrative workplans, budget estimates, annual program reports, and mid-course evaluation reports) as required by the U.S. Environmental Protection Agency (EPA) to meet Underground Injection Control Program requirements. This information shall be submitted to the Chief by the appropriate dates (Attachment B) so that the Chief may report to the U.S. Environmental Protection Agency and thereby insure the quarterly release of grant funds.
 12. The Administrator shall provide the necessary State matching funds for all Federal pass through grant funds provided by the Chief.
 13. The Administrator shall maintain adequate financial records for all Underground Injection Control Program expenditures until the program audit is completed.
 14. The Administrator shall review all monitoring forms and reports submitted by the operators of Class II wells and shall take such actions as are necessary and appropriate to enforce all the terms and conditions of this permit.
 15. The Administrator shall prepare and send to the Chief quarterly non-compliance reports based on the monitoring reports received from the operators of Class II wells for those wells designated "major" by the Chief. The Administrator shall also prepare and send to the Chief an annual report of noncompliance for all "minor" facilities.

16. The Administrator shall continue to inspect Class II wells and to enforce permit terms and conditions, except for those existing brine disposal wells which are currently operating under a permit from the Chief.
17. The Administrator shall promptly inform the Chief of any violations detected of the Chief's permit which are not also violations of the Administrator's permit.
18. The Administrator shall inform the Chief of enforcement actions taken by sending him a copy of each abatement form, criminal warrant, or court action filed on any Class II well facility.
19. The Administrator shall cooperate with the Chief in responding to and investigating citizen complaints.

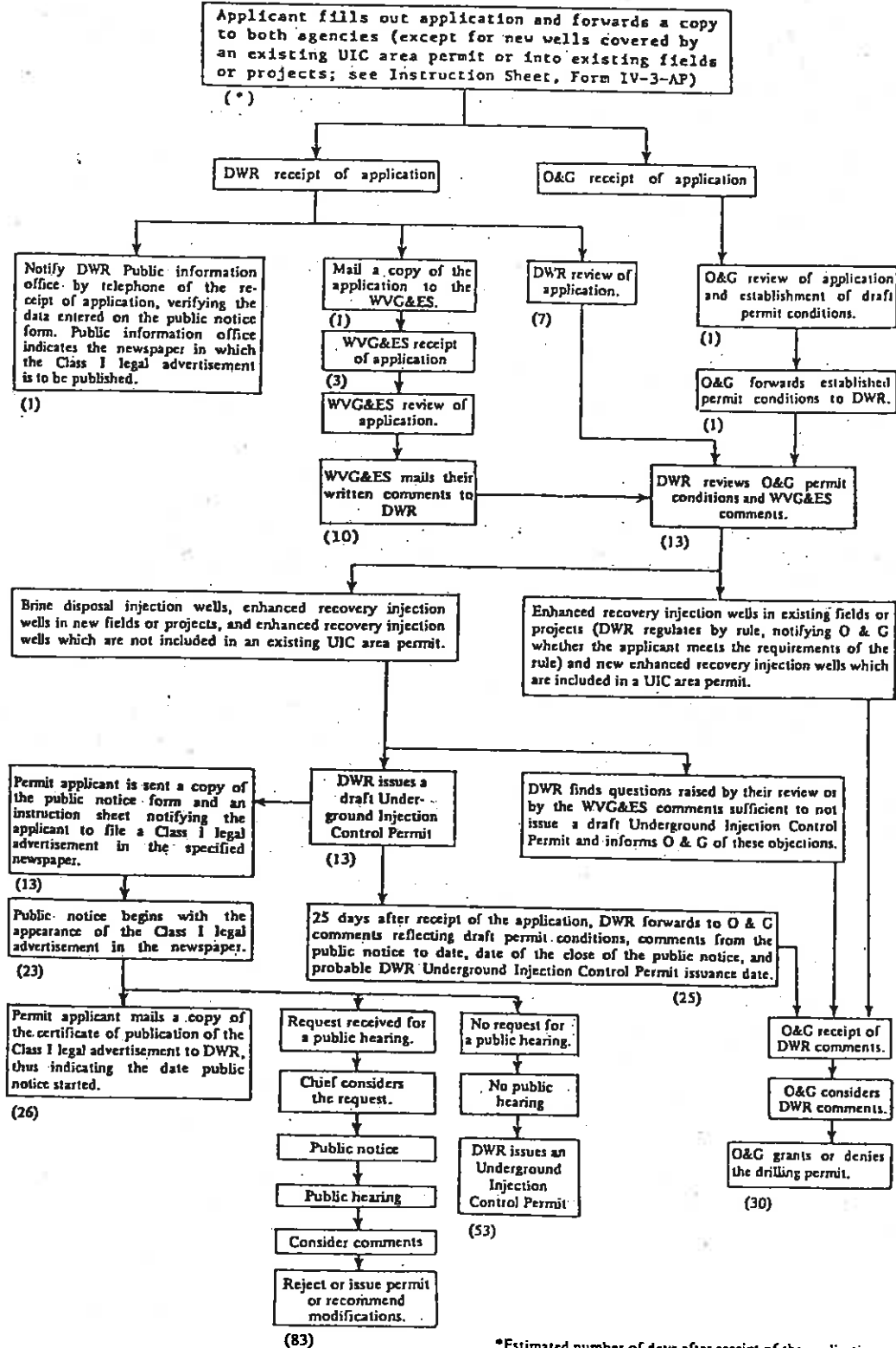
C. Oil and Gas Conservation Commission

1. The Commissioner will regulate by issuing orders for operations of Class II enhanced recovery wells. Monitoring of operations will continue through the check of monthly monitoring reports submitted by the operators.
2. The Commissioner shall check the quality, quantity, and pressure of the injected fluid and the casing and cementing procedures for Class II enhanced recovery wells to insure that there will be no migration of fluids into fresh water zones.
3. The Commissioner shall initiate, include in the order and schedule a testing program to insure that all Class II wells are tested every five (5) years for casing and cementing integrity.
4. The Commissioner will follow the procedure outlined in the Flow Chart for Processing Class II Injection Well Permit Applications found in Section IV of this MOU (page 7).
5. The Commissioner shall cooperate with the Chief in the establishment of priorities for the re-permitting of existing Class II brine disposal wells.
6. The Commissioner shall forward to the Chief copies of all monitoring forms and reports received from Class II well installations. These copies shall be forwarded immediately upon receipt of the monitoring forms and/or reports.
7. When implementing the Underground Injection Control Program, the Commissioner defines "Underground Source of Drinking Water" as in the West Virginia Administrative Regulations of the State Water Resources Board, Chapter 20-5A, 1982, Series IX (see Attachment A).
8. In order to avoid duplicative public hearings, the Commissioner shall notify the Chief prior to scheduling any hearing which involves injection wells.

9. The Commissioner shall submit to the Chief the necessary information regarding activities for which grant funding has or will be used (including inventory updates, progress reports, narrative workplans, budget estimates, annual program reports, and mid-course evaluation reports) as required by the U.S. Environmental Protection Agency (EPA) to meet Underground Injection Control Program requirements. This information shall be submitted to the Chief by the appropriate dates (Attachment B) so that the Chief may report to the U.S. Environmental Protection Agency and thereby insure the quarterly release of grant funds.
10. The Commissioner shall provide the necessary State matching funds for all Federal pass through grant funds provided by the Chief.
11. The Commissioner shall maintain adequate financial records for all Underground Injection Control Program expenditures until the program audit is completed.
12. The Commissioner shall review all monitoring forms and reports submitted by the operators of Class II wells and shall take such actions as are necessary and appropriate to enforce all the terms and conditions of his permit.
13. The Commissioner shall prepare and send to the Chief quarterly non-compliance reports based on the monitoring reports received from the operators of Class II wells for those wells designated "major" by the Chief. The Administrator shall also prepare and send to the Chief an annual report of noncompliance for all "minor" facilities.
14. The Commissioner shall continue to inspect Class II wells and to enforce permit terms and conditions, except for those existing brine disposal wells which are currently operating under a permit from the Chief.
15. The Commissioner shall promptly inform the Chief of any violations detected of the Chief's permit which are not also violations of the Administrator's permit.
16. The Commissioner shall inform the Chief of enforcement actions taken by sending him a copy of each abatement form, criminal warrant, or court action filed on any Class II well facility.
17. The Commissioner shall cooperate with the Chief in responding to and investigating citizen complaints.

IV. FLOW CHART FOR PROCESSING CLASS II PERMIT APPLICATIONS

Division of Water Resources (DWR); Office of Oil & Gas, Department of Mines (O&G); West Virginia Geological and Economic Survey (WVG&ES); Underground Injection Control (UIC)



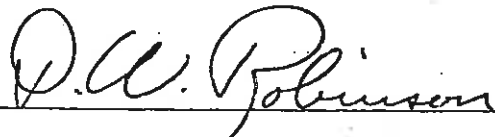
*Estimated number of days after receipt of the application.

V. Effective Date

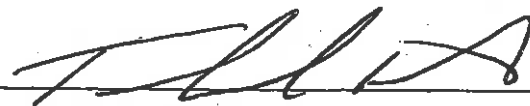
This MOU and any subsequent modifications will take effect after signing by the participating agencies identified herein and upon authorization of the State program by the U. S. Environmental Protection Agency.

VI. Modifications

This MOU may be modified or amended by mutual written agreement signed by the participating agencies identified herein.



Chief
Division of Water Resources



Administrator
Office of Oil and Gas
Department of Mines

Commissioner
Oil and Gas Conservation Commission

ATTACHMENT A

From the
West Virginia Administrative Regulations
of the
State Water Resources Board
Chapter 20-5A, 1982
(Series IX)

"Underground source of drinking water" (USDW) means an "aquifer" or its portion:

- (a)(1) which supplies any public water system; or
- (2) which contains a sufficient quantity of ground water to supply a public water system; and
 - (i) currently supplies drinking water for human consumption; or
 - (ii) contains fewer than 10,000 mg/l total dissolved solids; and
- (b) Which is not an exempted aquifer.

ATTACHMENT B: REPORTING REQUIREMENTS

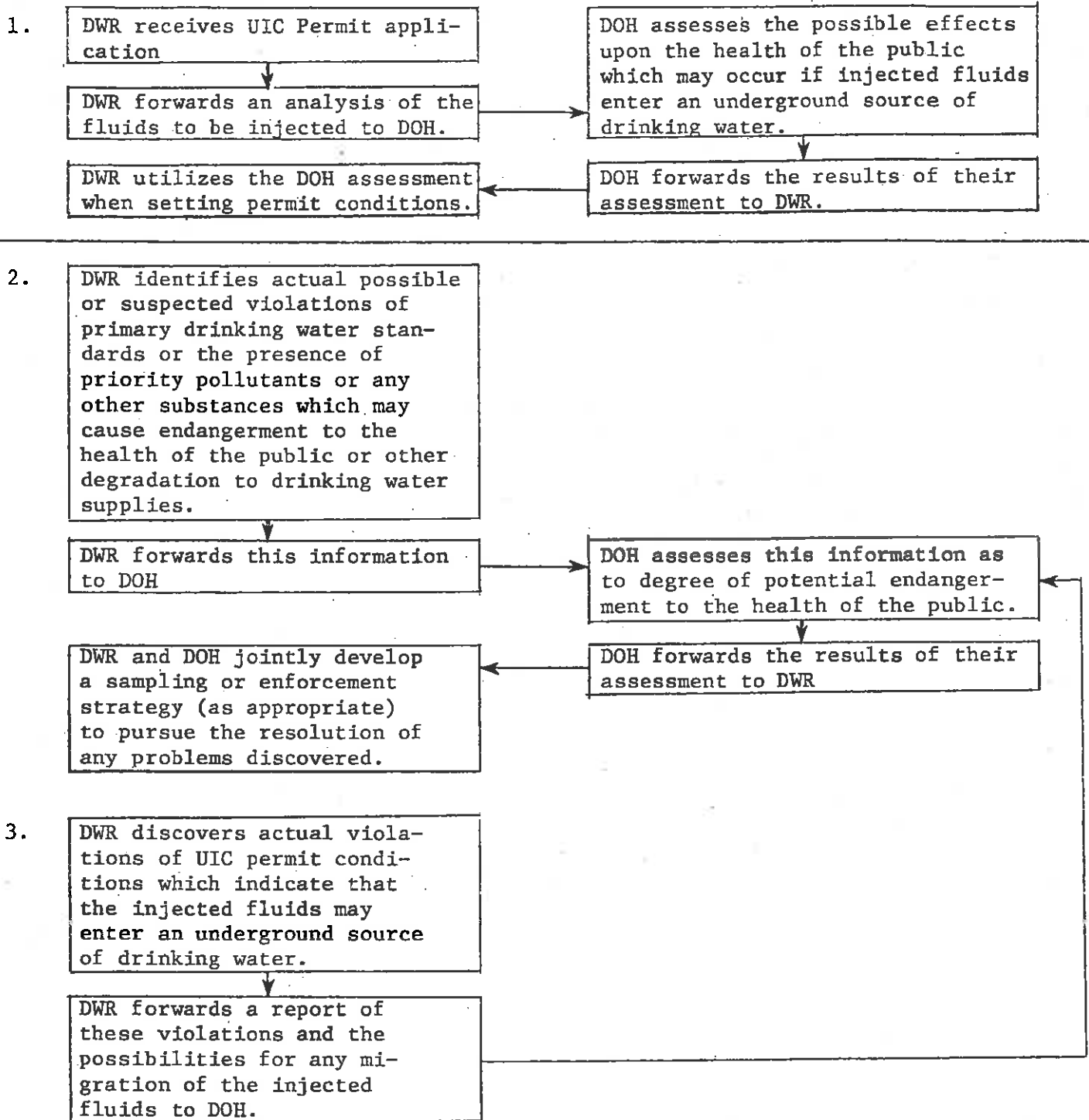
FREQUENCY	DATES	REPORT	FEDERAL CITATION
ANNUAL	Draft May 15 Final July 1	Annual DIC Program Plan	35.670-2 35.670-3
	January 15	Annual Program Report (A) Program Implementation (B) Suggested Program Changes (C) Updated Inventory	122.18(c)(4) (1)(A) (1)(B) (1)(C)
	January 15	Annual Non-Compliance Report for Non-Major Facilities	122.18(c)(1)
SEMI-ANNUAL	April 7 July 7 October 7	Semi-Annual Grant Progress Report	
QUARTERLY	April 15 July 15 October 15 January 15	Quarterly Non-Compliance Report for Major Facilities	122.18(a)
SPECIAL & UNUSUAL	February 10 August 10 of first two years of Primacy	Midcourse Evaluation Report	122.18(c)(4) (11) and 146.15 146.25 146.35

APPENDIX E

INTERACTIONS BETWEEN THE
DIVISION OF WATER RESOURCES
AND THE
DEPARTMENT OF HEALTH

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Implementation of the UIC Program	128.5
Coordinated Response to Ground Water Contamination Problems	129

DIVISION OF WATER RESOURCES (DWR) AND DEPARTMENT OF HEALTH (DOH)
INTERACTIONS IN IMPLEMENTATION OF THE UIC PROGRAM



APPENDIX F
ITEMIZED COSTS
FOR
DEVELOPMENT & IMPLEMENTATION OF PROGRAM

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IX	Milestone Chart of Funding Sources	144

Table I-A
(FY '83)
STAFF DESCRIPTION AND RESOURCE COMMITMENTS

<u>Position</u>	<u>Work Years</u>
Natural Resources Administrator	.15
Administrative Assistant	.15
Public Information Representative	.50
Clerk	.20
Engineer	.20
Engineer	.70
Engineer Technician	.10
Chemist	.20
Geologist	.80
Inspector	.10
Inspector	.10
Inspector	.10
Inspector	.10
Inspector	.10
Total	3.50

Table I-B
(FY '84)
STAFF DESCRIPTION AND RESOURCE COMMITMENTS

<u>Position</u>	<u>Work Years</u>
Natural Resources Administrator	.15
Administrative Assistant	.15
Public Information Representative	.50
Clerk	.20
Engineer	.20
Engineer	.70
* Engineer	1.00
Engineer Technician	.10
Chemist	.20
Geologist	.80
Inspector	.10
Inspector	.10
Inspector	.10
Inspector	.10
Inspector	.10
Total	4.50
* Vacancies	

Table II-A

Division of Water Resources

Personnel

UIC Federal Fiscal Year 1983

<u>Activity</u>	Personal Services
Program Development & Management	\$ 8,000
Permit Review and Issuance	39,000
Compliance Assurance/Enforcement	0
Public Participation	7,000
Training	0
Total	\$ 54,000

Table III-A

Division of Water Resources

Contractual Services

UIC Federal Fiscal Year 1983

<u>Activity</u>	<u>Contractual Services</u>	<u>Total</u>
Program Development & Management	\$ 100,000	\$100,000

Table II-B

Division of Water Resources

Personnel

UIC Federal Fiscal Year 1984

<u>Activity</u>	Personal Services
Program Development & Management	\$ 8,000
Permit Review and Issuance	57,000
Compliance Assurance/Enforcement	0
Public Participation	7,000
Training	0
Total	\$ 72,000

Table III-B

Division of Water Resources

Contractual Services

UIC Federal Fiscal Year 1984

<u>Activity</u>	<u>Contractual Services</u>	<u>Total</u>
Program Development & Management	\$ 150,612	\$150,612

Table IV-A
 Division of Water Resources
 Travel
 UIC Federal Fiscal Year 1983

<u>Activity</u>	<u>Travel Expense (026)</u>	<u>Vehicle Expense (036)</u>	<u>Total</u>
Program Development & Management	\$3,000	\$ 300	\$3,300
Permit Review and Issuance	1,000	0	1,000
Compliance Assurance/Enforcement	2,000	600	2,600
Public Participation	1,000	100	1,100
Training	3,000	0	3,000
Total	\$10,000	\$1,000	\$11,000

Table IV-B
 Division of Water Resources
 Travel
 UIC Federal Fiscal Year 1984

<u>Activity</u>	<u>Travel Expense (026)</u>	<u>Vehicle Expense (036)</u>	<u>Total</u>
Program Development & Management	\$1,400	\$ 300	1,700
Permit Review and Issuance	1,000	0	1,000
Compliance Assurance/Enforcement	2,000	800	2,800
Public Participation	1,000	100	1,100
Training	3,000	0	3,000
Total	8,400	\$1,200	9,600

Table V-A
 Division of Water Resources
 Supplies
 UIC Federal Fiscal Year 1983

<u>Activity</u>	<u>Office/Postage Expense (020)</u>	<u>Printing (021)</u>	<u>Clothing/ Household Expense (034)</u>	<u>Research/ Educational Supplies (037)</u>	<u>Total</u>
Program Development & Management	\$ 1,000	\$ 400	\$ 1,000	\$ 0	\$2,400
Public Participation	1,000	800	0	500	2,300
Total	\$ 2,000	\$1,200	\$1,000	\$ 500	\$4,700

Table V-B
 Division of Water Resources
 Supplies
 UIC Federal Fiscal Year 1983

<u>Activity</u>	<u>Office/Postage Expense (020)</u>	<u>Printing (021)</u>	<u>Clothing/ Household Expense (034)</u>	<u>Research/ Educational Supplies (037)</u>	<u>Total</u>
Program Development & Management	\$ 600	\$ 500	\$ 1,100	\$ 0	\$2,200
Public Participation	1,000	1,000	0	500	2,500
Total	\$ 1,600	\$1,500	\$1,100	\$ 500	\$4,700

Table VI-A

Division of Water Resources
Equipment
UIC Federal Fiscal Year 1983

<u>Activity</u>	<u>Office/ Communications Equipment (070)</u>	<u>Research/ Educational (072)</u>	<u>Books (077)</u>	<u>Small Tools (078)</u>	<u>Total</u>
Program Development & Management	\$ 1,000	\$ 0	\$ 200	\$ 300	\$ 1,500
Compliance Assurance/Enforcement	0	300	0	0	300
Public Participation	0	0	0	200	200
Training	0	200	0	0	200
Total	\$ 1,000	\$ 500	\$ 200	\$ 500	\$ 2,200

Table VI-B

Division of Water Resources
 Equipment
 UIC Federal Fiscal Year 1984

<u>Activity</u>	<u>Office/ Communications Equipment (070)</u>	<u>Research/ Educational (072)</u>	<u>Books (077)</u>	<u>Small Tools (078)</u>	<u>Total</u>
Program Development & Management	0	0	0	0	0
Compliance Assurance/Enforcement	0	0	0	0	0
Public Participation	0	0	0	0	0
Training	0	0	0	0	0
Total	0	0	0	0	0

Table VII-A
 Division of Water Resources
 Other
 UIC Federal Fiscal Year 1983

Activity	Computer Service (027)	Advertisement (035)	Misc. (051)	Office Equipment Repair (061)	Household/Field Equipment Repair (063)	Small Tool Repair (068)	Indirect	Total
Program Development & Management	\$ 5,000	\$ 0	\$ 0	\$ 0	\$ 200	\$ 500	\$ 3,394	\$ 9,594
Permit Review and Issuance	0	0	0	0	0	0	16,291	16,291
Public Participation	0	3,000	2,000	0	0	0	2,941	12,941
Total	\$ 5,000	\$ 3,000	\$ 2,000	\$ 0	\$ 200	\$ 500	\$ 22,626	\$ 33,826

Table VII-B
 Division of Water Resources
 Other
 UIC Federal Fiscal Year 1984

<u>Activity</u>	<u>Computer Service (027)</u>	<u>Advertisement (035)</u>	<u>Misc. (051)</u>	<u>Office Equipment Repair (061)</u>	<u>Household/ Field Equipment Repair (063)</u>	<u>Small Tool Repair (068)</u>	<u>Indirect</u>	<u>Total</u>
Program Development & Management	\$ 5,000	\$ 0	\$ 0	\$ 500	\$ 200	\$ 500	\$ 3,352	\$ 9,552
Permit Review and Issuance	0	0	0	0	0	0	23,883	23,883
Public Participation	0	3,000	2,000	0	0	0	2,933	7,933
Total	\$ 5,000	\$ 3,000	\$ 2,000	\$ 500	\$ 200	\$ 500	30,168	41,368

TABLE VIII
 COST ITEMIZATION FOR IMPLEMENTATION AND MAINTENANCE
 OF THE CLASS II PORTION OF THE
 U. I. C. PROGRAM IN 1983 BY THE
 OFFICE OF OIL AND GAS OF THE DEPARTMENT OF MINES

	<u>CATEGORIES</u>				<u>TOTAL</u>
	<u>PERSONAL SERVICES*</u>	<u>TRAVEL</u>	<u>SUPPLIES</u>	<u>CONTRACTUAL</u>	
ADMINISTRATION	12,500	1,000	-	-	13,500
CLERICAL	9,500	-	2,100	3,300 (ISSD)***	14,900
TRAINING	4,250	1,500	-	-	5,750
MAPPING	4,250	-	1,500	-	5,750
INSPECTION	20,000	14,509	1,500	-	36,009
PUBLIC PARTICIPATION	nil	-	-	-	-
ENFORCEMENT	-	-	-	1,100	1,100
<u>TOTAL DIRECT</u>	50,500	17,009	5,100	4,400	77,009
INDIRECT**	24,341	-	-	-	24,341
<u>TOTAL</u>	74,841	17,009	5,100	4,400	101,350

*Rough estimate of man-hours needed to implement U. I. C. Program for next year (5,456 hours)

**Indirect costs calculated as 48.2% of Personnel costs.

***Information Systems Services Division.

NOTE: These funds are to be obtained from carryover funding from FY '82.

TABLE IX

UIC PROGRAM FOR FEDERAL FY '83

MILESTONE CHART

FUNDING BREAKDOWN BY QUARTER

GRANT ACTIVITIES	OCT NOV DEC	JAN FEB MAR	APR MAY JUN	JUL AUG SEP	FUNDING SOURCES		
					EPA Share	State Share	Total
<u>EPA Grant Dollars</u> Program Development and Management	\$19,466	\$17,966	\$17,966	\$17,964	\$73,362	\$51,432	\$124,7
<u>EPA Grant Dollars</u> Permit Review and Issuance	\$14,073	\$14,073	\$14,073	\$14,072	\$56,291		\$ 56,2
<u>EPA Grant Dollars</u> Compliance Assurance/ Enforcement	\$ 950	\$ 650	\$ 650	\$ 650	\$ 2,900		\$ 2,9
<u>EPA Grant Dollars</u> Public Participation	\$ 4,786	\$ 4,585	\$ 4,585	\$ 4,585	\$18,541		\$ 18,5
<u>EPA Grant Dollars</u> Training	\$ 800	\$ 800	\$ 800	\$ 800	\$ 3,200		\$ 3,2
Total	\$40,075	\$38,074	\$38,074	\$38,071	\$154,294	\$51,432	\$205,7

FY '84

FUNDING SOURCES		
EPA SHARE	STATE SHARE	TOTAL
\$208,710	\$69,570	\$278,2

* Assumes Class II FY '84 costs are the same in FY '83 (Table VIII).

APPENDIX G
ASSESSMENT METHODOLOGY FOR CLASS V WELLS

UNDERGROUND INJECTION CONTROL PROGRAM
ASSESSMENT METHODOLOGY FOR CLASS V WELLS

The following parameters describe the information which should be considered by the Division of Water Resources, Hazardous Waste/Ground Water Branch in order to assess the contamination potential of Class V injection wells.

- (a) A 7.5 minute U.S. Geological Survey topographical maps (or copy of one) with the well location clearly and accurately plotted.
- (b) Known or suspected hydraulic connections with underground sources of drinking water.
- (c) Estimated depths to the 3,000 mg/l and 10,000 mg/l total dissolved solids levels. Estimates of water availability in terms of well yields in the area.
- (d) Descriptions of mineral resources present or believed to be present in the area of the injection well operation and the effect of the well operation on these resources.
- (e) The geology of the well site and the region around the well site shown in cross section.
- (f) All available descriptions of the chemical, physical, and biological properties and characteristics of the fluids to be injected.
- (g) Volume, rate, and injection pressure of the fluid.
- (h) History of the injection operation.
- (i) Available data on the potentially affected underground sources of drinking water and the population which uses them (flow direction of the underground sources of drinking water and the disposal zone, location of water supply wells, etc.).

- (j) The following geological and physical characteristics of the injection zone and the overlying and underlying impermeable barriers:
- (1) thickness
 - (2) areal extent*
 - (3) lithology
 - (4) effective porosity (drill stem test)*
 - (5) transmissivity (drill stem test)*
 - (6) temperature of formation (drill stem test)*
 - (7) formation fluid composition (drill stem test)*
 - (8) permeability (drill stem test)*
 - (9) coefficient of aquifer storage (drill stem test)*
 - (10) formation and fluid pressure, including original pressure and modifications resulting from fluid withdrawal or injection (drill stem test)*
 - (11) location, extent, and effects of known or suspected faulting (indicating whether faults are sealed) or fractured avenues for fluid movement*
 - (12) amount and extent of natural fracturing
 - (13) fracturing gradients (directional log)
 - (14) characteristics of the combined waste and formation fluid including effect of gravity segregation*
 - (15) compatibility of injected waste with the physical, chemical and biological characteristics of the reservoir
 - (16) use of a buffer zone
- (k) The following engineering data should be supplied:
- (1) diameter of hole and total depth of well
 - (2) cementing procedures and type of cement
 - (3) coring program

(* when available)

- (4) formation testing program (drill stem test or similar procedure)
- (5) logging program (formation density, neutron, gamma-ray, directional-log)
- (6) artificial fracturing or stimulation program
- (7) injection procedure
- (8) plans or sketches of the surface and subsurface construction details of the system including engineering drawings when available and specifications of the system (including but not limited to well head construction, and casing depth)
- (9) plans for monitoring including fluid-pressure monitoring within the injection zones and annular space and description of annular fluid
- (10) expected changes in pressure, rate of native fluid displacement by injected fluid, directions of dispersion and zone affected by the project
- (11) contingency plans to cope with all shut-ins or well failures in a manner that will prevent any environmental degradation.

APPENDIX H

CLASS I & III PERMIT APPLICATIONS AND INSTRUCTIONS

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Application No. _____

Date Issued _____

Date Filed _____

**STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
CHARLESTON 25306**

Division of Water Resources
1201 Greenbrier Street
Charleston, West Virginia 25311
(304) 348-5935

**UNDERGROUND INJECTION CONTROL PROGRAM
APPLICATION FOR UNDERGROUND INJECTION CONTROL PERMIT
FOR
CLASS I WELLS AND CLASS III WELLS**

In accordance with Chapter 20, Article 5A of the Code of West Virginia, as amended and the Administrative Regulations of the State Water Resources Board (Series IX) 1982,

(Name, Address and Telephone Number of Applicant)

(Name, Address and Telephone Number of Well Operator)

(Name, Address and Telephone Number of Owner)

hereby make application for the issuance of an Underground Injection Control Permit to operate a well for the injection or reinjection underground of any fluids, including, but not limited to, liquids, slurries and gases.

The following SIC codes best reflect the principle products or services provided by this facility (list a maximum of four codes): _____

The nature of the operation of this facility may be briefly described as: _____

4. Proposed confining interval(s)

Formation Name(s)	Anticipated Formation Depth (top and bottom)
_____	_____
_____	_____
_____	_____

5. Total depth of well _____

6. Proposed injection rate . Average _____ (gpm) Maximum _____ (gpm)

7. Anticipated injection pressure Average _____ (psi)
Maximum _____ (psi)

III. Submit with Application

1. A listing of all permits or construction approvals received or applied for under any of the following programs:

- a. Hazardous Waste Management program under RCRA and West Virginia Code, Chapter 20-5E-1 et seq.
- b. NPDES program under CWA and State Act.
- c. Prevention of Significant Deterioration (PSD) program under the Clean Air Act.
- d. Nonattainment program under the Clean Air Act.
- e. National Emission Standards for Hazardous Pollutants (NESHAPS) pre-construction approval under the Clean Air Act.
- f. Dredge or fill permits under Section 404 of CWA.
- g. Other relevant environmental permits, including State permits.

2. Feasibility report (see attached outline)

Prepared by _____
(Professional Engineer or professional geologist -- submit brief statement of qualifications with report)

3. Financial responsibility

The permittee must maintain financial responsibility and resources to close, plug, and abandon underground injection wells in a manner prescribed by the Chief. The permittee must show evidence of financial

responsibility to the Chief by submission of a surety bond, or other adequate assurance, such as a financial statement or other material acceptable to the Chief.

IV. Retention of Permit Application Materials

Applicants shall keep records of all data used to complete permit applications and any supplemental information submitted for a period of at least three years from the date the application is signed.

V. Confidentiality of Information

Any information submitted to the State pursuant to the Administrative Regulations of the State Water Resources Board (Series IX) 1982, may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission. If no claim is made at the time of submission, the State may make the information available to the public without further notice.

Upon satisfactory showing to the Chief that such records, reports, permit documentation, or information would, if made public, divulge methods or processes entitled to protection as trade secrets, the Chief shall consider, treat and protect such records as confidential. It is the responsibility of the person claiming any information as confidential to clearly mark each page containing such information with the word "CONFIDENTIAL" and to submit an affidavit setting forth the reasons that said persons believes that such information is entitled to protection. Any document submitted to the Chief which contains information for which a claim of confidential information is made must be submitted in a sealed envelope marked "CONFIDENTIAL" and addressed to the Chief. The document must be submitted in two separate parts. The first part must contain all information which is not deemed as confidential by the person preparing the report and shall include appropriate cross-references to the second part. The second part contains data, words, phrases, paragraphs, or pages and appropriate affidavits containing or relating to the information which is claimed to be confidential. No information shall be protected as confidential information by the Chief unless it is submitted in accordance with the provisions above. No information which is submitted in accordance with the provisions above shall be afforded protection as confidential information unless the Chief finds that such protection is necessary to protect trade secrets and that such protection will not hide from public view the characteristics of waste materials and probable effects of the introduction of such wastes or by-products into the environment. The person who submits information claimed as confidential shall receive written notice from the Chief as to whether the information has been accepted as confidential or not.

Claims of confidentiality for the following information will be denied:

- (1) The name and address of any permit application or permittee.
- (2) Information which deals with the existence, absence, or level of contaminants in drinking water.

VI. Signature

It is understood that any Underground Injection Control Permit issued pursuant to this application may be revoked or suspended and all of the enforcement

procedures set forth in Chapter 20, Article 5A of the Code of West Virginia invoked in the event that (1) future investigations disclose conditions other than stated in this application; or (2) there is failure to comply with the terms and conditions of any such permit issued pursuant to this application, with the plans and specifications submitted herewith, or with the plan of maintenance and method of operation submitted herewith.

Any person signing this document shall make the following certification:

"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 fine and imprisonment."

By _____
(Signature and Title)

For _____

NOTE: The person signing this application shall be:

- (1) For a corporation: a principle executive officer of at least the level of vice-president;
- (2) For a partnership or sole proprietorship: a general partner or the proprietor, respectively; or
- (3) For a municipality, State, Federal, or other public agency: either a principal executive officer, ranking elected official or by a duly authorized representative only if:
 - (a) The authorization is made in writing by a person described above;
 - (b) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 - (c) The written authorization is submitted to the Chief.



**STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
CHARLESTON 25306**

**CLASS I WELL
INSTRUCTIONS
FOR
FILING UNDERGROUND INJECTION CONTROL PERMIT APPLICATIONS
APPLICATION FORM WRD-UIC-1-82**

Form WRD-UIC-1-82 is to be used for making application for a permit for the subsurface disposal of industrial wastes from manufacturing and process industries, and for subsurface injection for solution mining.

The applicant is the company or other legal entity or person actually engaged in the activity for which the permit application is made. Five (5) copies of the application are enclosed. The original and three (3) copies are to be returned to the Division of Water Resources when completed. The other copy shall be retained by the applicant. All drawings and maps are to be folded to 8 1/2" x 11" size.

In accordance with Chapter 20, Article 5A, Section 6 of the Code of West Virginia a filing fee of fifty dollars (\$50.00) by check or money order shall accompany the application. The check or money order shall be made payable to "West Virginia Department of Natural Resources". The filing fee is deposited in the state treasury to the credit of the state general fund and is not returnable.

The completed application and the application fee shall be mailed to:

Chief, Division of Water Resources, DNR
1201 Greenbrier Street
Charleston, West Virginia 25311

Attention: Hazardous Waste/
Ground Water Branch

Section I, Line 1 to 7

Complete description of location of proposed injection well.

Section II, Line 2

Describe the chemical and physical characteristics of the waste or wastes to be disposed of.

Section II, Lines 3 and 4

List the depths from ground level to top and base of proposed injection and confining intervals. Geological name(s) of strata to be used for injection and confining purposes should be listed.

Section III, Part 2

A preliminary feasibility report is required. This report should detail the permittee's proposals to meet the requirements of the Administrative Regulations of the State Water Resources Board (Series IX) 1982. No action can be taken to process the application until this report has been submitted to the Division of Water Resources. The report shall include, but not be limited to, the following information:

A. Well Location

1. A general map and description of well location showing boundaries of property owned or leased by the applicant;
2. A 7.5' topographic map, extending one (1) mile beyond the property boundaries of the source, depicting the area of review [refer to Administrative Regulations of the State Water Resources Board (Series IX) 1982, Section 5.00 to determine area of review], the location of and names and numbers for all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, mines (surface and subsurface), water wells, springs, and other pertinent features. Map should also show the location of faults if known or suspected within the area.

B. Geology and Geohydrology

1. Maps and cross-sections detailing the geologic structure of the local area;
2. Generalized maps and cross-sections illustrating the regional geologic setting;
3. Geohydrology of fresh-water aquifers within one (1) mile beyond the property boundaries of the source with respect to the depth, thickness, position relative to the injection formation, direction of groundwater movement (where known) and usage.
4. Geologic and engineering description of potential injection horizons and confining beds with reference to lithology, thickness, areal distribution, porosity, permeability, reservoir pressure and temperature, chemical characteristics of reservoir fluids, formation breakdown or fracture pressure, and hydrodynamics;

5. Mineral resources and their occurrence at the well site and in the immediate area such as oil and gas, coal, brines, and any other deposits of significance;
6. Seismicity -- Location and intensity of earthquakes recorded in area;
7. Description of stimulation program.

C. Corrective Action

This section should contain a tabulation of data on all wells within one (1) mile beyond the property boundaries of the source which penetrate into the proposed injection zone. Such data must include a description of each well's type, location, depth, record of plugging and/or completion, and any additional information on these wells as available. If any of these wells are improperly sealed, completed, or abandoned, the applicant must also submit a plan consisting of such steps or modifications as are necessary to ensure that these wells will not become avenues for the migration of fluids into underground sources of drinking water.

D. Reservoir Response and Injection Fluid Migration

1. Estimated pressure build-up with time (at the well bore and at 100, 1,000, and 10,000 feet from the well bore);
2. Predicted rate and direction of injection fluid movement.

E. Proposed Well Design, Construction and Testing Procedures

1. Drilling, coring and testing programs;
2. Casing and tubing - size, grade, type, weight, setting depth;
3. Cement -- type including additives and amount;
4. Other subsurface equipment;
5. Well-head equipment;
6. Proposed plan to demonstrate mechanical integrity (refer to Administrative Regulations of the State Water Resources Board (Series IX), 1982, Section 6.02);
7. Schematic or other appropriate drawings of the surface and subsurface construction details of the well);
8. In the event an existing well is to be converted to a disposal well, the applicant shall furnish all available logging and testing program data on the well.

F. Proposed Surface Equipment

1. Holding tanks, flow lines, filters and pumps;
2. Flow, pressure and other monitoring devices;
3. Other equipment or control devices.

G. Characteristics of Injection Fluid

1. Industrial process from which injection fluid is derived;
2. Physical, biological and chemical description of injection fluid (including variations);
3. Compatibility with subsurface fluids.

H. Alternative Disposal Methods

1. Description of alternative disposal strategies;
2. Brief comparison of alternatives with respect to both economic and environmental considerations, and justification for decision to use underground injection;

I. Proposed Pre-Injection Waste Treatment

J. Proposed Operating Program

1. Expected life of facility;
2. Injection schedule including average and maximum rates, and estimated yearly total volume for each year through projected well life;
3. Injection pressure including average and maximum;
4. Monitoring techniques.

K. Contingency Plan

Proposed contingency plans to cope with all shut-ins or well failures so as to prevent migration of contaminating fluids into any underground source of drinking water.

L. Proposed Plan for Plugging and Abandonment



**STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
CHARLESTON 25305**

**CLASS III WELL
INSTRUCTIONS
FOR
FILING UNDERGROUND INJECTION CONTROL PERMIT APPLICATIONS
APPLICATION FORM WRD-UIC-1-82**

Form WRD-UIC-1-82 is to be used for making application for a permit for the subsurface disposal of industrial wastes from manufacturing and process industries, and for subsurface injection for solution mining.

The applicant is the company or other legal entity or person actually engaged in the activity for which the permit application is made. Five (5) copies of the application are enclosed. The original and three (3) copies are to be returned to the Division of Water Resources when completed. The other copy shall be retained by the applicant. All drawings and maps are to be folded to 8 1/2" x 11" size.

In accordance with Chapter 20, Article 5A, Section 6 of the Code of West Virginia a filing fee of fifty dollars (\$50.00) by check or money order shall accompany the application. The check or money order shall be made payable to "West Virginia Department of Natural Resources". The filing fee is deposited in the state treasury to the credit of the state general fund and is not returnable.

The completed application and the application fee shall be mailed to:

Chief, Division of Water Resources, DNR
1201 Greenbrier Street
Charleston, WV 25311

Attention: Hazardous Waste/
Ground Water Branch

Section I. Line 1 to 7

Complete description of location of proposed injection well.

Section II, Line 2

Describe the chemical and physical characteristics of the waste or wastes to be disposed of.

Section II, Lines 3 and 4

List the depths from ground level to top and base of proposed injection and confining intervals. Geological name(s) of strata to be used for injection and confining purposes should be listed.

Section III, Part 2

Preliminary feasibility report is required. This report should detail the permittee's proposals to meet the requirements of the Administrative Regulations of the State Water Resources Board (Series IX) 1982. No action can be taken to process the application until this report has been submitted to the Division of Water Resources. The report shall include, but not be limited to, the following information:

A. Well Location

1. A general map and description of well location showing boundaries of property owned or leased by the applicant;
2. A 7.5' topographic map, extending one (1) mile beyond the property boundaries of the source, depicting the area of review [refer to Administrative Regulations of the State Water Resources Board (Series IX) 1982, Section 5.00 to determine area of review], the location of and names and numbers for all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, mines (surface and subsurface), water wells, springs, and other pertinent features. Map should also show the location of faults if known or suspected within the area.

B. Geology and Geohydrology

1. Maps and cross-sections detailing the geologic structure of the local area;
2. Generalized maps and cross-sections illustrating the regional geologic setting;
3. Geohydrology of fresh-water aquifers within one (1) mile beyond the property boundaries of the source with respect to the depth, thickness, position relative to the injection formation, direction of groundwater movement (where known) and usage.
4. Geologic and engineering description of potential injection horizons and confining beds with reference to lithology, thickness, areal distribution, porosity, permeability, reservoir pressure and temperature, chemical characteristics of reservoir fluids, formation breakdown or fracture pressure, and hydrodynamics;

5. Mineral resources and their occurrence at the well site and in the immediate area such as oil and gas, coal, brines, and any other deposits of significance;
6. Seismicity -- Location and intensity of earthquakes recorded in area;
7. Description of stimulation program;
8. A tabulation of data reasonably available from public records or otherwise known to the applicant on all wells within one (1) mile beyond the property boundaries of the source included on the map which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of plugging and completion.

C. Reservoir Response and Injection Fluid Migration

1. Estimated pressure build-up with time (at the well bore and at 100, 1,000, and 10,000 feet from the well bore);
2. Predicted rate and direction of injection fluid movement.

D. Proposed Well Design, Construction and Testing Procedures

1. Drilling, coring, and testing program;
2. Casing and tubing - size, grade, type, weight, setting depth;
3. Cement -- type including additives and amount;
4. Other subsurface equipment;
5. Well-head equipment;
6. Proposed plan to demonstrate mechanical integrity (refer to Administrative Regulations of the State Water Resources Board (Series IX), 1982, Section 6.02);
7. Schematic or other appropriate drawings of the surface and subsurface construction details of the well;
8. In the event an existing well is to be converted to an injection well, the applicant shall furnish all available logging and testing program data on the well.

E. Proposed Surface Equipment

1. Holding tanks, flow lines, filters and pumps;
2. Flow, pressure and other monitoring devices;
3. Other equipment or control devices.

F. Characteristics of Injection Fluid

1. Physical, biological, and chemical description of injection fluid (including variation);

2. Compatibility with subsurface fluids.

G. Proposed Operating Program

1. Expected life of facility;
2. Injection schedule including average and maximum rates, and estimated yearly total volume for each year through projected well life;
3. Injection pressures including average and maximum;
4. Monitoring techniques.

H. Contingency Plan

Proposed contingency plans to cope with all shut-ins or well failures so as to prevent migration of contaminating fluids into any underground source of drinking water.

I. Proposed Plan for Plugging and Abandonment

APPENDIX I
CLASS II PERMIT APPLICATION

APPENDIX I, CLASS II PERMIT APPLICATION

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FORM IV-3
(Obverse)
[02-83]

DRILLING CONTRACTOR

- 1) Date: _____ 19____
2) Operator's Well No. _____
3) SIC Code _____
4) API Well No. 47 - _____
State County Permit _____
5) UIC Permit _____

STATE OF WEST VIRGINIA
LIQUID-INJECTION OR WASTE DISPOSAL WELL PERMIT APPLICATION

For Both
DEPT. OF MINES, OFFICE OF OIL AND GAS, DNR, DIVISION OF WATER RESOURCES

- 6) WELL TYPE: Liquid Injection ___ / Disposal ___ / Gas Injection ___ /
7) LOCATION: Elevation _____ Watershed _____
District _____ County _____ Quadrangle _____
8) WELL OPERATOR _____ 12) DESIGNATED AGENT _____
Address _____ Address _____
9) ROYALTY OWNER _____ 13) COAL OPERATOR _____
Address _____ Address _____
Acreage _____
10) SURFACE OWNER _____ 14) COAL OWNER(S) WITH DECLARATION ON RECORD:
Address _____ Name _____
Acreage _____ Address _____
Name _____
11) OIL AND GAS INSPECTOR TO BE NOTIFIED BEFORE
DRILLING, AND 24 HOURS IN ADVANCE OF ANY
MECHANICAL INTEGRITY TEST
Name _____ Address _____
15) COAL LESSEE WITH DECLARATION ON RECORD:
Name _____
Address _____
- 16) The undersigned well operator is entitled to operate for liquid injection or waste disposal purposes at the above location under a deed ___ / lease ___ / other contract ___ / dated _____, 19____, to the undersigned well operator from _____.
(If said deed, lease, or other contract has been recorded:
Recorded on _____, 19____, in the office of the Clerk of the County Commission of _____ County, West Virginia, in _____ Book _____ at page _____. A permit is requested as follows:
- 17) PROPOSED WORK: Convert ___ / Drill ___ / Drill deeper ___ / Fracture or stimulate ___ / Plug off old formation ___ / Other physical change in well (specify) _____
18) Date of first liquid injection or waste disposal: _____, 19____.
- PROPOSED WORK ORDER
THIS IS AN ESTIMATE ONLY:
ACTUAL INFORMATION MUST BE SUBMITTED ON FORM IV-37 UPON COMPLETION
- 19) Estimated depth of completed well _____ feet Rotary ___ / Cable tools ___ /
20) Approximate water strata depths: Fresh, _____ feet; salt, _____ feet.
21) Approximate coal seam depths: _____ Is coal being mined in the area? Yes ___ / No ___ /
22) GEOLOGICAL TARGET FORMATION _____ Depth _____ feet (top) to _____ feet (bottom)
a) Virgin reservoir pressure in target formation _____ psig; Source _____
b) Estimated reservoir fracture pressure _____ psig (BHFP)
c) Perforation intervals _____ Open-hole intervals _____
23) MAXIMUM PROPOSED INJECTION OPERATIONS
Volume per hour: _____ Bottom hole pressure: _____ psig
24) DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED - PLUS ADDITIVES

25) SPECIFICATION FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL _____
26) FILTERS (IF ANY) _____

27) CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE INTERVALS		CEMENT FILL-UP OR SACKS Cubic ft.	PACKERS	
	Size	Grade	Weight per ft.	New	Used	For drilling	Left in well		Top	Bottom
Conductor										Kinds
Fresh water										
Coal										Sizes
Intermediare										
Production										Depths se
Tubing										
Liners										Perforations
										Top Bottom

28) Copies of this Permit Application and the enclosed plat and reclamation plan have been mailed or delivered by hand to the above named coal operator, coal owner(s), and coal lessee on or before the day of the mailing or delivery of this Permit Application to the Department of Mines at Charleston, West Virginia.

The person signing this document shall make the following certification:

"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 fine and imprisonment.

Well Operator
By _____
Its _____

W A I V E R

The undersigned coal operator _____ / owner _____ / lessee _____ / of the coal under this well location has examined this proposed well location. If a mine map exists which covers the area of the well location, the well location has been added to the mine map. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

Date: _____, 19____ By: _____
Its _____

OFFICE USE ONLY

Permit number _____ PERMIT _____
Date _____ 19____

This permit covering the well operator and well location shown below is evidence of permission granted to drill in accordance with the pertinent legal requirements subject to the conditions contained herein and on the reverse hereof. Notification must be given to the District Oil and Gas Inspector prior to the construction of roads, locations and pits for any permitted work. (Refer to No. 10)

In addition, the well operator or his contractor shall notify the proper District Oil and gas inspector 24 hours before actual permitted work has commenced.

Permit expires _____ unless work is commenced prior to that date and prosecuted with due diligence.

Bond:	Agent:	Plat:	Casing:	Fee:

Administrator, Office of Oil and Gas

NOTE: Keep one copy of this permit posted at the drilling location.

IV-3 Line Item Explanation

- 1) Date of Application
- 2) Your well name and number
- 3) Designated Standard Industrial Code
- 4) To be filled out by the Office of Oil and Gas. For area permits, refer to instruction sheet IV-3-AP.
- 5) To be filled out by the Division of Water Resources unless this well is covered by an existing area permit (see instruction sheet IV-3-AP).
- 6) Well type for which permit is being applied for.
- 7) Where well is located.
- 8) Before a permit can be issued to a corporation, company partnership, or fictitious name, the name must be registered with the Secretary of State's Office.
- 9) Use separate sheet if necessary
- 10) Present surface owner at time application is filed.
- 11) Oil & Gas Inspector whose assigned county the well is located
- 12) See Reg. 7.01 relating to code §22-4-1k
- 13) As per §22-4-20; See Note 28
- 14 & 15) As per §22-4-20; See Note 28
- 16) Lease Information
- 17) Work that will be attempted - A separate Form IV-3 shall not be required for fracturing or stimulating a well where fracturing or stimulating is to be part of the work for which a permit is sought and is noted as such on the Form IV-3 filed in connection therewith.
- 18) Anticipated date at which first injection or disposal will begin.
No injection or disposal well may begin operation until an IV-37 (Pre-Operation Certificate) is submitted to the Office of Oil & Gas for authorization by the Administrator and returned to the operator.
- 19) Self explanatory
- 20) Depth to deepest freshwater, and shallowest salt water, taken from nearby wells corrected for differences in elevation
- 21) All coal seam depths
- 22) Anticipated formation in which the well will be completed and the depths to the top and bottom of the formation.
 - a) The reservoir pressure of the target formation in the virgin state and the means of obtaining this pressure.
 - b) Self explanatory
 - c) Self explanatory
- 23) The maximum values anticipated
- 24) Identification of materials shall include their specific gravity.
- 25) As needed
- 26) As needed
- 27) Proposed casing program and cementing refer to Code 22-4-5, 22-4-6, 22-4-7, 22-4-8, 22-4-8a, Re. 9.01, 15.01, 15.02, 15.03, 15.04, 25.01, 25.02, 25.03, 25.04
- 28) The named coal operator, coal owner(s), and coal lessee are hereby notified that any objection they wish to make or are required to make by Code §22-4-3 must be filed with the Department of Mines within fifteen (15) days after the receipt of this Application by the Department.

ADDITIONAL REQUIREMENTS

NOTE 1: Regulation 7.02 of the Department of Mines provides that the original and four copies of Form IV-3 must be filed with the Department, accompanied by (i) a plat in the form prescribed by Regulation 11, (ii) a bond in one of the forms prescribed by Regulation 12, or in lieu thereof the other security allowed by Code §22-4-2a, (iii) Form IV-9, "Reclamation Plan", applicable to the reclamation required by Code §22-4-12b and Regulation 23, and (iv) if applicable, the consent required by Code §22-4-8a from the owner of any water well or dwelling within 200 feet of the proposed well.

A separate Form IV-3 shall not be required for fracturing or stimulating a well where fracturing or stimulating is to be part of the work for which for which a permit is sought and is noted as such on the Form IV-3 in connection therewith.

NOTE 2: In addition to the permit required from the Department of Mines, the operator of a disposal well must obtain a separate permit from the Department of Natural Resources under the provisions of Code §20-5a-5(b)(7). This Form IV-3 is the application for both permits.

A copy of Form IV-3 must also be sent to the Chief of the Division of Water Resources, 1201 Greenbrier St., Charleston, 25311 (see instruction sheet IV-3-AP for area permits).

NOTE 3: Before injection can be permitted a Form IV-37 must be filed with the Office of Oil and Gas along with proof of mechanical integrity.

NOTE 4: Submit on separate sheet application for variance (if any) from Regulation 9.01(a) (specify purpose, necessity, and justifications).

NOTE 5: The person signing this application shall be:

- (1) For a corporation: by a principal executive officer of at least the level of vice-president;
- (2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
- (3) For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.
or his duly authorized representative.

A person is a duly authorized representative if:

- (1) The authorization is made in writing by a person described in this note above.
- (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
- (3) The written authorization is submitted to the Chief of the Division of Water Resources.

NOTE 6: Submit a topographic map showing one mile around the well (for a single well) or one mile around the boundary of the area (for area permits). This map must show the location of the facility, each well where fluids are injected, and those wells, springs, surface water bodies and drinking water wells listed in the public record or otherwise known to the applicant in the map area. (20-5A, UIC Regulation 13.10(d)(6)).

STATE OF WEST VIRGINIA
INSTRUCTION SHEET FOR ENHANCED RECOVERY INJECTION WELLS and
UNDERGROUND INJECTION CONTROL (UIC) PROGRAM AREA PERMIT APPLICATIONS

for both the

DEPARTMENT OF MINES, OFFICE OF OIL AND GAS

and the

DEPARTMENT OF NATURAL RESOURCES, DIVISION OF WATER RESOURCES

1. - IF the new injection well(s) is(are) to be drilled in an existing enhanced recovery field or project, the Division of Water Resources will regulate by rule.
THEN the permit applicant must submit Form IV-3 to the Office of Oil and Gas only. It is not necessary (in this case) for the permit applicant to submit a copy of Form IV-3 to the Division of Water Resources as stated in NOTE 2 of Form IV-3.
2. - IF the new injection well(s) is(are) to be drilled into an area covered by an existing UIC area permit,
THEN
 - IF the total number of injection wells (including the new well(s)) within the area covered by the UIC area permit does not exceed the maximum number allowed by the area permit,
THEN the permit applicant must submit Form IV-3 to the Office of Oil and Gas only. It is not necessary (in this case) for the permit applicant to submit a copy of Form IV-3 to the Division of Water Resources as stated in NOTE 2 of Form IV-3.
 - IF the total number of injection wells (including the new well(s)) within the area covered by UIC area permit does exceed the maximum number allowed by the area permit,
THEN the applicant must apply to the Division of Water Resources to modify the UIC area permit. The permit applicant must also submit Form IV-3 to the Office of Oil and Gas as required.
3. - IF the injection well(s) is(are) to be covered by a UIC area permit and are EITHER existing wells being re-permitted under the UIC Program, OR are wells in a new project or field,
THEN
 1. The applicant must submit one Form IV-3 to the Division of Water Resources describing the general construction feature of all new wells. This Form IV-3 should have only items number 1, 6, 8, 17, 18, and 22-28 completed. If more than one type of general construction is proposed, submit a Form IV-3 for each type.
 2. A list of API Well Numbers, and the corresponding Operator's Well Numbers for all existing injection wells inside the area permit and another list of Operator's Well Numbers for any new wells being proposed at the time of submittal should be submitted to the Division of Water Resources.
 3. The applicant must also submit a Form IV-3 for each well to the Office of Oil and Gas as required under Chapter 22, Article 4 of the State Code of West Virginia.
 4. A Form IV-37 (revised 1-83) must be submitted to the Office of Oil and Gas for each well included under the area permit. It must be approved by the Office of Oil and Gas before injection may begin.
 5. A single topographic map showing the exact locations of all existing wells and fulfilling the requirements of NOTE 6 on Form IV-3 must be submitted to the Division of Water Resources.

APPENDIX J
CLASS II PERMIT

API Well No. _____
Operator's Well No. _____
UIC Permit No. _____

STATE OF WEST VIRGINIA
UNDERGROUND INJECTION CONTROL PERMITS
FOR BOTH
DEPARTMENT OF MINES, OFFICE OF OIL AND GAS
AND
DEPARTMENT OF NATURAL RESOURCES, DIVISION OF WATER RESOURCES
FOR
CLASS II INJECTION WELLS



This document consists of the permit required by the Department of Mines, Office of Oil and Gas, and the permit required by the Department of Natural Resources, Division of Water Resources.

A. The Office of Oil and Gas Permit No. _____ consists of Form IV-3 (attached) and is effective upon approval and signing of that Form by the Administrator of the Office of Oil and Gas.

B. The Division of Water Resources Underground Injection Control Permit No. _____ consists of the terms of Form IV-3 (attached) and of the following terms and conditions:

1. The requirements of Section 13.06 and 13.12, Series IX, of the West Virginia Administrative Regulations of the State Water Resources Board are hereby incorporated by reference as terms and conditions.
2. All reports required by this permit shall be submitted to the Administrator of the Office of Oil and Gas with the exception stated in paragraph 3 below. The frequency of reporting shall be that required by the Administrator of the Office of Oil and Gas.
3. The following shall be reported immediately to the Chief of the Division of Water Resources in accordance with Section 13.06(d) and Section 13.12(1)(6), Series IX, of the West Virginia Administrative Regulations of the State Water Resources Board:
 - (a) Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water;
 - (b) Any non-compliance with a permit condition or any malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water; and
 - (c) Any non-compliance which may endanger health or the environment.
4. Other requirements may be attached on additional page(s).
5. The herein-described activity is to be extended, modified, added to, made, enlarged, acquired, constructed or installed, and operated, used and maintained strictly in accordance with the terms and conditions of this permit; with the plans and specifications submitted with Permit Application No. _____, dated the _____ day of _____, 19____; with the information submitted with Application for Reissuance No. _____ dated the _____ day of _____, 19____; with the plan of maintenance and method of operation thereof submitted with such application(s); and with any applicable rules and regulations promulgated by the State Water Resources Board.
6. Failure to comply with the terms and conditions of this permit, with the plans and specifications submitted with Permit Application No. _____, dated the _____ day of _____, 19____, with the information submitted with Application for Reissuance No. _____, dated the _____ day of _____, 19____, and with the plan of maintenance and method of operation thereof submitted with such application(s) shall constitute grounds for the revocation or suspension of this permit and for the invocation of all the enforcement procedures set forth in Article 5A, Chapter 20 of the Code of West Virginia.
7. This permit is issued in accordance with the provisions of Article 5A, Chapter 20 of the Code of West Virginia and is transferable under the terms of Section 7 of said article.

Date: _____

Chief
Division of Water Resources

FORM IV-3
(Obverse)
[02-83]

DRILLING CONTRACTOR

- 1) Date: _____ 19____
2) Operator's
Well No. _____
3) SIC Code _____
4) API Well No. 47 - _____
State County Permit _____
5) UIC Permit _____

STATE OF WEST VIRGINIA
LIQUID INJECTION OR WASTE DISPOSAL WELL PERMIT APPLICATION
For Both
DEPT. OF MINES, OFFICE OF OIL AND GAS, DNR, DIVISION OF WATER RESOURCES

- 6) WELL TYPE: Liquid Injection ___/ Disposal ___/ Gas Injection ___/
7) LOCATION: Elevation _____ Watershed _____
District _____ County _____ Quadrangle _____
8) WELL OPERATOR _____ 12) DESIGNATED AGENT _____
Address _____ Address _____
9) ROYALTY OWNER _____ 13) COAL OPERATOR _____
Address _____ Address _____
Acreage _____
10) SURFACE OWNER _____ 14) COAL OWNER(S) WITH DECLARATION ON RECORD:
Address _____ Name _____
Address _____
Acreage _____ Name _____
Address _____
11) OIL AND GAS INSPECTOR TO BE NOTIFIED BEFORE
DRILLING, AND 24 HOURS IN ADVANCE OF ANY
MECHANICAL INTEGRITY TEST
Name _____ 15) COAL LESSEE WITH DECLARATION ON RECORD:
Address _____ Name _____
Address _____

- 16) The undersigned well operator is entitled to operate for liquid injection or waste disposal purposes at the above location under a deed ___/ lease ___/ other contract ___/ dated _____, 19____, to the undersigned well operator from _____.
(If said deed, lease, or other contract has been recorded:)
Recorded on _____, 19____, in the office of the Clerk of the County Commission of _____ County, West Virginia, in _____ Book _____ at page _____. A permit is requested as follows:
17) PROPOSED WORK: Convert ___/ Drill ___/ Drill deeper ___/ Fracture or stimulate ___/ Plug off old formation ___/ Other physical change in well (specify) _____
18) Date of first liquid injection or waste disposal: _____, 19____.

PROPOSED WORK ORDER

THIS IS AN ESTIMATE ONLY:

ACTUAL INFORMATION MUST BE SUBMITTED ON FORM IV-37 UPON COMPLETION

- 19) Estimated depth of completed well _____ feet Rotary ___/ Cable tools ___/
20) Approximate water strata depths: Fresh, _____ feet; salt, _____ feet.
21) Approximate coal seam depths: _____ Is coal being mined in the area? Yes ___/ No ___/
22) GEOLOGICAL TARGET FORMATION _____ Depth _____ feet(top) to _____ feet(bottom)
a) Virgin reservoir pressure in target formation _____ psig; Source _____
b) Estimated reservoir fracture pressure _____ psig (BHFP)
c) Perforation intervals _____ Open-hole intervals _____
23) MAXIMUM PROPOSED INJECTION OPERATIONS
Volume per hour: _____ Bottom hole pressure: _____ psig
24) DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED - PLUS ADDITIVES

25) SPECIFICATION FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL

26) FILTERS (IF ANY) _____

27) CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE INTERVALS		CEMENT FILL-UP OR SACKS Cubic ft.	PACKERS
	Size	Grade	Weight per ft.	New	Used	For drilling	Left in well		
Conductor									Kinds
Fresh water									
Coal									Sizes
Intermediate									
Production									Depths se
Tubing									
Liners									Perforations
									Top Bottom

28) Copies of this Permit Application and the enclosed plat and reclamation plan have been mailed or delivered by hand to the above named coal operator, coal owner(s), and coal lessee on or before the day of the mailing or delivery of this Permit Application to the Department of Mines at Charleston, West Virginia.

The person signing this document shall make the following certification:

"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 fine and imprisonment.

_____ Well Operator
By _____
Its _____

W A I V E R

The undersigned coal operator _____ / owner _____ / lessee _____ of the coal under this well location has examined this proposed well location. If a mine map exists which covers the area of the well location, the well location has been added to the mine map. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

Date: _____, 19____ By: _____
Its _____

OFFICE USE ONLY

Permit number _____ PERMIT _____ Date _____ 19____

This permit covering the well operator and well location shown below is evidence of permission granted to drill in accordance with the pertinent legal requirements subject to the conditions contained herein and on the reverse hereof. Notification must be given to the District Oil and Gas Inspector prior to the construction of roads, locations and pits for any permitted work. (Refer to No. 10)

In addition, the well operator or his contractor shall notify the proper District Oil and gas inspector 24 hours before actual permitted work has commenced.

Permit expires _____ unless work is commenced prior to that date and prosecuted with due diligence.

Bond:	Agent:	Plat:	Casing:	Fee:

_____ Administrator, Office of Oil and Gas

NOTE: Keep one copy of this permit posted at the drilling location.

APPENDIX K

TIMETABLE FOR DIVISION REPORTING TO EPA

TIMETABLE FOR DWR REPORTING TO EPA

FREQUENCY	DATES	STATE	REPORT	CITATION
ANNUAL	Draft June 1 Final Aug 1	X X	Annual UIC Program Plan	35.670-2 35.670-3
	Dec. 31*	X	Annual Program Report (A) Program Implementation (B) Suggested Program Changes (C) Updated Inventory	122.18(c)(4) (1)(A) (1)(B) (1)(C)
	Dec. 31*	X	Annual Non-Compliance Report for Non-Major Facilities	122.18(c)(1)
SEMI-ANNUAL	Nov. 26 Feb. 28 May 31 Aug. 31	X X X X	Semi-Annual Grant Progress Report	
QUARTERLY	March 31* June 30* Sept 30* Dec. 31*	X X X X	Quarterly Non-Compliance Report for Major Facilities	122.18(a)
SPECIAL & UNUSUAL	Feb 28 & Aug 31 of first two years of Primacy	X X	Midcourse Evaluation Report	122.18(c)(4) (11) and 146.15 146.25 146.35
	3 yrs. after Primacy	X	Class V Assessment Report	122.37(d) & 146.52

* or within 60 days thereafter

APPENDIX L

ADDITIONAL FORMS FOR STATE UIC PROGRAM

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FORM IV-37
(Obverse)
[01-83]

Date: _____, 19____
Operator's
Well No. _____
API Well No. _____
State County Permit

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES, OIL AND GAS DIVISION

PRE-OPERATION CERTIFICATE
FOR LIQUID INJECTION OR WASTE DISPOSAL WELL

WELL OPERATOR _____ DESIGNATED AGENT _____
Address _____ Address _____

GEOLOGICAL TARGET FORMATION _____ Depth _____ feet(top) to _____ feet(Bottom)
Virgin reservoir pressure in target formation _____ psig
Source of information on virgin reservoir pressure _____
Perforation intervals _____ Open-hole intervals _____

MAXIMUM PROPOSED INJECTION OPERATIONS

Volume per hour: _____ Bottom hole pressure: _____ psig

DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED

Liquids to be injected for oil recovery under Code § 22-4-10a: _____

Wastes to be disposed of: _____

Additives (slurry mediums, inhibitors, solvents, oxidizers, deoxidizers, etc.): _____

Specific Gravity: _____

SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL: _____

FILTERS (IF ANY) _____

ADDITIONAL DRILLING AS PART OF THE CONVERSION

(Complete and submit Form IV-35, "Well Operator's Report of Drilling, Fracturing and/or Stimulating or Physical Change".)

DETAILS ON NEW CASING AND TUBING PROGRAM AS PART OF THE CONVERSION:

(To be completed below unless the new casing and tubing program is described on a Form IV-35, "Well Operator's Report of Drilling, Fracturing and/or Stimulating or Physical Change", submitted in connection with the permit to which this Form IV-37 preoperation certificate relates.)

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE INTERVALS		CEMENT FILL-UP OR SACKS (Cubic feet)	PACKERS
	Size	Grade	Weight per Ft.	New	Used	For drilling	Left in well		
Conductor									Kinds
Fresh water									
Coal									Sizes
Intermediate									
Production									Depths set
Tubing									
Liners									Perforations:

(continue on reverse side)

FORM IV-37
(Reverse)
[01-83]

MECHANICAL INTEGRITY TEST

Test method: _____

The undersigned certifies that the test was performed on _____, 19____
and demonstrated the mechanical integrity of the well. The test was
witnessed by _____ representing the Office of Oil and Gas.

Well Operator _____ Date _____

THIS WELL IS AUTHORIZED FOR INJECTION.

Signed _____ Administrator, Office of
Oil and Gas

Date _____

[NOTE: That the mechanical integrity of this well must be demonstrated
again within ninety (90) days of five years from this date in
order for injection to continue. Please notify the state inspector
24 hours in advance of the test].

FACILITIES OR SYSTEMS TO PROTECT THE
INTEGRITY OF THE GEOLOGICAL TARGET
FORMATION FRACTURING THE CONFINING STRATA _____

APPLICATION FOR VARIANCE (IF ANY) FROM REGULATION 4.01 (a)
[Specify purpose, necessity, and justification]

Well Operator
By: _____
Its _____



STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
CHARLESTON 25305

JOHN D. ROCKEFELLER IV
Governor

DIVISION OF WATER RESOURCES
Hazardous Waste/Ground Water Branch
1201 Greenbrier Street
Charleston, WV 25311
(304) 348-5935

DAVID C. CALLAGHAN
Director
WILLIS H. HERTIG, JR.
Deputy Director

Re:

Dear

Your forms for Permit Application No. _____ for a State UIC Program
Underground Injection Control Permit have been found to be complete.

It is necessary to obtain a drilling permit from the Department of Mines,
Office of Oil and Gas prior to drilling any injection well in the State. You
may contact them at (304) 348-2057.

A public notice is enclosed to fulfill the requirements of Chapter 20,
Article 5A-5(a), Code of West Virginia and Section 13.24, Series IX of the
West Virginia Administrative Regulations of the State Water Resources Board.
You are responsible for the publication of a Class I legal advertisement by
the date and in the paper specified thereon. Upon publication, you are required
to send a copy of the certificate of publication to:

Chief, Division of Water Resources, DNR
1201 Greenbrier Street
Charleston, WV 25311
ATTN: Dianna Messinger, Public Information Office

The cost of publication is also your responsibility.

Enclosed is a copy of your draft permit and any required fact sheet.

Very truly yours,

WATER RESOURCES DIVISION

Underground Injection Control Program

cc:
Enclosures

A. MONITORING REQUIREMENTS

B. SCHEDULE OF COMPLIANCE

C. MONITORING REQUIREMENTS

1. Reporting

- a) The permittee shall monitor and record all data required on the Monthly Monitoring and Report Form (WRD-UICMON-82). This form shall be completed and filed with the Division of Water Resources at the end of each month.
- b) The required monitoring reports should be received no later than 15 days following the end of the reporting period and be addressed to:

Chief, Division of Water Resources, DNR
1201 Greenbrier Street
Charleston, West Virginia 25311

ATTENTION: Hazardous Waste/Ground Water Branch

2. Procedures for Any Sampling Required

Samples shall be taken, preserved and analyzed in accordance with the regulations issued pursuant to Section 304 (h) of P.L.95-217. With specified exceptions, this requires the use of the latest edition of Standard Methods for the Examination of Water and Wastewater and the latest edition of the Manual of Methods for Chemical Analyses of Water and Wastes published by the U.S. Environmental Protection Agency.

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

3. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a) The date, exact place, and time of sampling or measurements;
- b) The individual(s) who performed the sampling or measurements;
- c) The date(s) analyses were performed;
- d) The individual(s) who performed the analyses;
- e) The analytical techniques or methods used; and
- f) The results of such analyses.

This information is not to be submitted to this agency, but is to be retained as stated in Section C.5.

4. Additional Monitoring by Permittee

If the permittee monitors any parameter designated herein more frequently than required by this permit, using approved analytical methods as specified

above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Monthly Monitoring Report Form. Such increased frequency shall also be indicated.

5. Records Retention

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

6. Compliance Schedules

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

7. Duty to Provide Information

The permittee shall furnish to the Chief within a reasonable time, any information which the Chief may request to determine whether cause exists for modifying, revoking and reissuing, or revoking this permit, or to determine compliance with this permit. The permittee shall also furnish to the Chief, upon request, copies of records required to be kept by this permit.

Where the permittee becomes aware that he failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Chief, he shall promptly submit such facts or information.

8. Signatory Requirement

All applications, reports, or information submitted to the Chief shall be signed and certified, as required under Section 13.11 of the Administrative Regulations of the State Water Resources Board (series IX), 1982.

9. Definitions

- a) "Average Operating Pressure" is the arithmetic average of all determinations of the operating pressure (psig) made during the injection process.
- b) "Min. Annulus Pressure" is the lowest pressure (psig) which is registered on the annulus pressure monitoring equipment during the injection process.
- c) "Max. Annulus Pressure" is the highest pressure (psig) which is registered on the annulus pressure monitoring equipment during the injection process.
- d) "Max. Operating Pressure" is the highest pressure (psig) which is registered on the well head pressure monitoring equipment during

the injection process.

D. MANAGEMENT REQUIREMENTS

1. Change in Injection

All injection authorized herein shall be consistent with the terms and conditions of this permit. The injection of any fluid identified in this permit at a pressure in excess of that authorized shall constitute a violation of the permit. For any anticipated extension, construction, installation or modification of an injection system or part thereof, or any anticipated new injection zone, or any increase in pressure of the injection specified or permitted under this permit, prior notification to this agency is required for a determination if a new Underground Injection Control Permit or a modification of this permit is necessary. The permittee shall give notice to the Chief as soon as possible of any planned significant physical alterations or additions to the permitted facility, or any planned significant changes in the operation of the facility. (See E.4. regarding applying for modification.)

2. Noncompliance Notification

- a) Anticipated noncompliance. The permittee shall give advance notice to the Chief of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- b) Immediate reporting. The permittee shall report:
 - (i) Any noncompliance which may endanger health or the environment immediately after becoming aware of the circumstances by using the Division's designated spill alert telephone number.
 - (ii) Any monitoring or other information which indicates that any contaminant may cause an endangerment to a USDWs; and
 - (iii) Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between the USDWs.

A written submission shall be provided within five (5) 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 reoccurrence of the noncompliance.

- c) Other noncompliance. The permittee shall report all instances of noncompliance not previously reported at the time monitoring reports are submitted. The report shall contain the information listed under Immediate Reporting above.

3. Facilities Operation

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 the permit.

4. Adverse Impact

The permittee shall take all reasonable steps necessary to minimize any adverse impact to the waters of the State resulting from noncompliance with any injection limitations and to determine the nature and impact of the noncomplying injection.

5. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of injected fluids shall be disposed of in a manner and at a site approved by the Division of Water Resources.

6. Duty to Halt or Reduce Activity

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

E. RESPONSIBILITIES

1. Inspection and Entry. The permittee shall allow the Chief of the Division of Water Resources, and/or his authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

- a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- b) Have access to and copy, at reasonable times, any records that must 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 the SDWA and State Act, any substances or parameters at any location.

2. Transfer of Ownership or Control

This permit is not transferable to any person except after notice to the Chief. The Chief may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the SDWA, and the provisions of Section 7, Article 5A, Chapter 20 of the Code of West Virginia and regulations. In some cases, modification or revocation and reissuance is mandatory (see Section 13.17).

3. Availability of Reports

Except for data determined by the Division to be confidential in accordance with the provisions of Chapter 20-5A-6 of the WV Code, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Division of Water Resources. Injection data shall not be considered confidential. The intentional misrepresentation of any material fact in any such report may result in the imposition of criminal penalties as provided by Chapter 20-5A-19.

4. Permit Modification

This permit may be modified, suspended, or revoked in whole or in part during its term in accordance with the provisions of Chapter 20-5A-8 of the Code of West Virginia. The filing of a request by the permittee for a permit modification, revocation and reissuance, suspension or revocation, or a notification of planned changes or anticipated non-compliance, does not stay any permit condition.

An application for a modification of this permit must be submitted to this agency at least ninety (90) days prior to the proposed modification.

5. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

6. Water Quality

The injection or injections covered by this permit are to be performed in a manner so as not to cause violations of present water quality criteria (adopted by the State Water Resources Board). Further, any activities covered under this permit shall not lead to pollution of the ground waters of the State as a result of the handling, disposal or injection of such injection fluids covered herein.

7. New Permit

The permittee has a duty to reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, six (6) months prior to the expiration date of this permit the permittee shall have requested, completed and submitted a new application for a permit for continued operation of these facilities.

8. Conversion or Abandonment

The permittee shall notify the Chief 90 days before conversion or abandonment of the well or in the case of area permits before closure of the project. Chapter 22, Article 4, Section 1k of the West Virginia State Code states that no injection well may be plugged without a permit. An "Affidavit of Plugging and Filling" must be submitted to the Office of Oil and Gas (22-4-9, Regulation 16.02). The Commissioner of the Oil and Gas Conservation Commission must also be notified within ten days after the discontinuance of injection operations (22-4A, Regulation 4.04). The permittee has the responsibility of injection operations (22-4A, Regulation 4.04). The permittee has the responsibility of contacting these agencies and obtaining the necessary permit and forms before conversion or abandonment of an injection well.

9. Notice Prior to Injection

Except for all new wells authorized by an area permit, a new injection well may not commence injection until construction is complete, mechanical integrity has been demonstrated and witnessed, and:

(1) The permittee has submitted notice of completion of construction to the Chief; and

(2) (i) The Chief has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the permit; or

(ii) The permittee has not received notice from the Chief of his or her intent to inspect or otherwise review the new injection well within thirteen (13) days of the date of the notice in paragraph (c)(1) of this section, in which case prior inspection or review is waived and the permittee may commence injection. The Chief shall include in the notice a reasonable time period in which he or she shall inspect the well.

F. MECHANICAL INTEGRITY TEST:

"I certify that the mechanical integrity of the well has been adequately demonstrated on _____, 19____ in my presence."

date

Authorized Representative of the Chief

This permit will not go into effect and no injection may proceed until the appropriate mechanical integrity test is performed and witnessed as attested above.

G. OTHER REQUIREMENTS

The herein-described activity is to be extended, modified, added to, made, enlarged, acquired, constructed or installed, and operated, used and maintained strictly in accordance with the terms and conditions of this permit; with the plans and specifications submitted with Permit Application No. _____, dated the _____ day of _____, 19____; with the information submitted with Application for Reissuance No. _____, dated the _____ day of _____, 19____; with the plan of maintenance and method of operation thereof submitted with such application(s); and with any existing rules and regulations promulgated by the State Water Resources Board.

Failure to comply with the terms and conditions of this permit, with the plans and specifications submitted with Permit Application No. _____, dated the _____ day of _____, 19____, with the information submitted with Application for Reissuance No. _____, dated the _____ day of _____, 19____, and with the plan of maintenance and method of operation thereof submitted with such application(s) constitutes a violation of the SDWA and Article 5A, Chapter 20 of the Code of West Virginia and is grounds for enforcement action; for permit suspension or revocation, revocation and reissuance, or modification; or for denial of a permit renewal application.


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

By: _____
Chief

INJECTION WELL INVENTORY FORM

Please print or type with an ELITE typewriter in the shaded area only, INSTRUCTIONS ON REVERSE.

Form Approved OMB No. 158-0017

		U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF DRINKING WATER INVENTORY OF INJECTION WELLS <small>(This information is collected under the authority of the Safe Drinking Water Act.)</small>		I. DATE PREPARED <small>(mo., day, & year)</small>		II. FACILITY I.D. NUMBER		III. TRANSACTION TYPE <small>(check one)</small>	
								<input type="checkbox"/> 1. DELETION <input type="checkbox"/> 2. FIRST TIME ENTRY <input type="checkbox"/> 3. CHANGE OF ENTRY	
IV. FACILITY NAME AND LOCATION									
C A. NAME									
01									
C B. STREET ADDRESS OR ROUTE NUMBER									
02									
C C. CITY OR TOWN D. ST. E. ZIP CODE F. COUNTY G. INDIAN LAND (mark 'X')									
03									
V. LEGAL CONTACT: TYPE, NAME, PHONE, MAILING ADDRESS, AND OWNERSHIP									
C A. TYPE (mark 'X') B. NAME (last, first, & middle initials) C. PHONE (area code & no.)									
04 <input type="checkbox"/> 1. OWNER <input type="checkbox"/> 2. OPERATOR									
C D. ORGANIZATION									
05									
C E. STREET OR P.O. BOX									
06									
C F. CITY OR TOWN G. ST. H. ZIP CODE I. OWNERSHIP (check one)									
07 <input type="checkbox"/> P. PRIVATE <input type="checkbox"/> M. PUBLIC <input type="checkbox"/> D. OTHER (specify) <input type="checkbox"/> S. STATE <input type="checkbox"/> F. FEDERAL									
VI. WELL INFORMATION									
WELL OPERATION STATUS: UC = UNDER CONSTRUCTION AC = ACTIVE TA = TEMPORARILY ABANDONED PA = PERMANENTLY ABANDONED AND APPROVED BY STATE AN = PERMANENTLY ABANDONED AND NOT APPROVED BY STATE									
C A. CLASS AND TYPE B. TOTAL NO. OF WELLS C. WELL OPERATION STATUS D. COMMENTS (optional)									
08									
09									
10									
11									
12									
13									
14									

INSTRUCTIONS

- Item I. Enter date in order of month, day, and year.
- Item II. In the first two positions, insert the appropriate U.S. Postal Service State Code. In the remaining positions, insert the appropriate DUNS, GSA, or State Facility Number, preceded by a one position alphabetic identifier.
 D - DUNS Number
 G - GSA Number
 S - State Facility Number.
 Example: A Federal facility (GSA - 123456789) located in Virginia would be entered as: VAG123456789.
- Item III. Transaction type.
- Deletion. Place an 'X' in this box and enter the Facility ID Number.
- First time entry. Place an 'X' in this box and fill in all appropriate information.
- Change of entry. Place an 'X' in this box, enter the Facility ID Number, and fill in the information to be changed.
- Item IV. Facility Name and Location
- Item A. Insert the official or legal name of the facility.
- Item B, C, D, and E. Self-Explanatory.

- Item F. Insert the numeric county code acquired from the Federal Information Processing Standards Publication (FIPS Pub 6-1) June 15, 1970, prepared by the U.S. Department of Commerce, National Bureau of Standards. For Alaska, use the Census Division Code developed by the U.S. Census Bureau.
- Item G. Place an 'X' in the box if the facility is located on an Indian reservation.
- Section V. Legal Contact.
- Item A. Place an 'X' in the appropriate box to indicate the type of legal contract. For wells operated by a lease, the operator is the legal contact.
- Items B, C. Self-Explanatory.
- Item D. If the legal contact is an individual, give the name of his/her business organization to expedite mail distribution.
- Item E, F, G, and H. Self-Explanatory.
- Item I. Place an 'X' in the appropriate box to indicate the type of ownership.
- Section VI. Well Information.
- Item A. Enter in these two positions the class and type of injection wells to be inventoried at this facility. Use the most pertinent code selected from the list below. For example: 2R for enhanced recovery injection wells and 3M for solution mining wells, etc.
- Item B. Enter the total number of injection wells for each specified class/type.
- Item C. Insert the number of wells for each class/type under each operation status.

CLASSIFICATIONS AND TYPES OF INJECTION WELLS

WELL CODE CLASS/TYPE	PRIMARY FUNCTION OF INJECTION WELLS	WELL CODE CLASS/TYPE	PRIMARY FUNCTION OF INJECTION WELLS	WELL CODE CLASS/TYPE	PRIMARY FUNCTION OF INJECTION WELLS
Class I	Industrial, Municipal, and Nuclear Storage Wells That Inject Below Deepest Under-Ground Source of Drinking Water.	2X	Other Class II wells	Class V	All Other Wells That Inject into or above an Underground Source of Drinking Water
1I	Industrial disposal well	Class III	Special Process Injection Wells	5A	Air conditioning/cooling water return well
1M	Municipal disposal well	3G	In situ gasification wells	5B	Salinity barrier well
1N	Nuclear waste disposal or storage well	3M	Solution mining well	5D	Storm water drainage well
1X	Other Class I wells	3S	Sulfur mining well by Frasch process	5F	Agricultural drainage well
Class II	Oil and Gas Production and Storage Related Injection Wells	3T	Geothermal well	5G	Other drainage wells
2A	Annular injection well	3U	Uranium mining well	5R	Recharge well
2D	Produced fluid disposal well	3X	Other Class III wells	5S	Subsidence control well
2H	Hydrocarbon storage well	Class IV	Hazardous Facility Wells That inject into or above an Under-ground Source of Drinking Water	5T	Waste disposal well
2N	Enhanced recovery injection well.	4H	Hazardous facility injection well	5X	Other Class V wells

STATE OF WEST VIRGINIA
APPLICATION FOR REISSUANCE OF AN UNDERGROUND INJECTION CONTROL (UIC) PERMIT
FOR
DEPARTMENT OF NATURAL RESOURCES, DIVISION OF WATER RESOURCES
AND
MECHANICAL INTEGRITY TEST FORM

Permit No. _____ Date of Issuance _____ Expiration Date _____

Name of Permittee _____ Phone No. _____

Address of Permittee _____

Name of Facility _____ County _____

Geological Target Formation _____ Depth _____ feet(top) to _____ feet
(bottom)

Since the State Permit was issued have you:

- 1. Modified or added to your injection system in any way? Yes No
- 2. Increased the injection pressure of your operation? Yes No
- 3. Changed the injection zone depth? Yes No
- 4. Extended, modified or added to your facility any operation which would cause an increase in the volume injected or increase the injection pressure? Yes No

If any of the above were answered yes, give a brief description of the changes and indicate the proposed increase(s) in volume, injection pressure, and/or additional parameters. (Use additional page(s) as necessary)

The person signing this document shall make the following certification:

"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 fine and imprisonment."

Signature of Applicant _____
Date _____

NOTE: The person signing this application shall be:

- (1) For a corporation: by a principal executive officer of at least the level of vice-president;
- (2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
- (3) For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.

or his duly authorized representative.

A person is a duly authorized representative if:

- (1) The authorization is made in writing by a person described in this note above.
- (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
- (3) The written authorization is submitted to the Chief of the Division of Water Resources.

Mechanical Integrity Test (Attach additional pages as needed to describe method)

Method: _____

The undersigned certifies that the test was performed on _____, 19____ and demonstrated the mechanical integrity of the well. The test was witnessed by _____.

Well Operator _____ Date _____

STATE OF WEST VIRGINIA
APPLICATION FOR REISSUANCE OF AN UNDERGROUND INJECTION CONTROL (UIC) PERMIT
FOR
DEPARTMENT OF NATURAL RESOURCES, DIVISION OF WATER RESOURCES
AND
MECHANICAL INTEGRITY TEST FORM
FOR
DEPARTMENT OF MINES, OFFICE OF OIL AND GAS

Permit No. _____ Date of Issuance _____ Expiration Date _____

Name of Permittee _____ Phone No. _____

Address of Permittee _____

Name of Facility _____ County _____

Geological Target Formation _____ Depth _____ feet (top) to _____ feet
(bottom)

Since the State Permit was issued have you:

1. Modified or added to your injection system in any way? Yes No
2. Increased the injection pressure of your operation? Yes No
3. Changed the injection zone depth? Yes No
4. Extended, modified or added to your facility any operation which would cause an increase in the volume injected or increase the injection pressure? Yes No

If any of the above were answered yes, give a brief description of the changes and indicate the proposed increase(s) in volume, injection pressure, and/or additional parameters. (Use additional page(s) as necessary)

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Signature of Applicant _____
Date _____

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or his duly authorized representative.

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- (3) The written authorization is submitted to the Chief of the Division of Water Resources.

Mechanical Integrity Test (Attach additional pages as needed to describe method)

Method: _____

The undersigned certifies that the test was performed on _____, 19____ and demonstrated the mechanical integrity of the well. The test was witnessed by _____ representing the Office of Oil and Gas.

Well Operator _____

Date _____

STATE OF WEST VIRGINIA
APPLICATION FOR MODIFICATION OF AN UNDERGROUND INJECTION CONTROL (UIC) PERMIT
FOR
DEPARTMENT OF NATURAL RESOURCES, DIVISION OF WATER RESOURCES

Permit No. _____ Date of Issuance _____ Expiration Date _____
Name of Permittee _____ Phone No. _____
Address of Permittee _____
Name of Facility _____ County _____
Geological Target Formation _____ Depth _____ feet (top) _____ feet
(bottom)
Description of proposed modification (attach additional pages as needed) _____

Permit modifications must be approved by the Chief, Division of Water Resources and must be publicly advertised as prescribed in Chapter 20-5A-5 of the West Virginia Code as amended in 1978.

The applicant must present a detailed description with supporting drawings, water analyses, etc. as to exactly what modification is being applied for. A schedule of compliance (completion of final plans, commencement and completion of construction, operational level date, etc.), beginning at the time of permit modification issuance, must also be provided where applicable. All data must be submitted in triplicate and must be signed by the applicant or his authorized agent.

The person signing this document shall make the following certification:

"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 fine and imprisonment."

Signature of Applicant _____
Date _____

NOTE: The person signing this application shall be:

- (1) For a corporation: by a principal executive officer of at least the level of vice-president;
- (2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
- (3) For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.

or his duly authorized representative.

A person is a duly authorized representative if:

- (1) The authorization is made in writing by a person described in this note above.
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- (3) The written authorization is submitted to the Chief of the Division of Water Resources.