

SECTION 8
RESPONSIVENESS SUMMARY

TABLE OF CONTENTS

	<u>Page</u>
Responsiveness Summary	1
Footnotes	11
References	12
Attachments:	
A. MOU Language Designed to Facilitate Interagency Communication and Coordination During the Administration of the Class II Portion of the UIC Program	13
B. Flow Chart for Processing Class II Injection Well Permit Applications	20

RESPONSIVENESS SUMMARY

The public participation requirements of 40 CFR 123.54(a) have been satisfied by the West Virginia Division of Water Resources (DWR). A public notice was issued on September 27, 1982. This public notice was published in the largest newspapers across the State. Copies of the public notice and the Affidavits of publication are in Section 7 of this Application for Program Authorization. Copies of the public notice were also sent to persons on the appropriate State mailing list.

This public notice of the intention of the State to adopt a UIC Program which meets U.S. EPA's approval briefly outlined the fundamental objectives of the West Virginia UIC Program and listed the contents of the proposed application. The public notice also indicated when and where the proposed application could be reviewed by the public, the cost of obtaining a copy of the proposed application, and whom to call for additional information. The public notice further stated that the comment period would extend until November 8, 1982 (43 days) and that the public hearing would be held on October 28, 1982 (31 days after publication of the public notice statewide in the Charleston Gazette).

The public hearing was held at 7:00 p.m. in the Division of Water Resources' conference room at 1201 Greenbrier Street in Charleston, West Virginia. Copies of all written comments submitted and the transcript of the public hearing are in Section 7 of this Application for Program Authorization.

The proposed application presented to the public for comment detailed methods by which the State government would regulate subsurface injection of fluids in order to protect the quality of underground sources of drinking water. This included the statutory basis for the State's implementing such a program, copies of all applicable State statutes and regulations, and agreements between the State and the U.S. EPA and between the participating State agencies. The application explained the jurisdictions of each State agency and the mechanisms

by which they would coordinate their regulatory activities.

The West Virginia Geological and Economic Survey (WVG&ES), in its role as a provider of geologic expertise to the agencies implementing the UIC Program, commented upon the proposed method by which their comments upon permit applications were entered into the public record. The flow charts detailing permit application processing were modified accordingly.¹

The WVG&ES also stressed the need for professionally qualified geologists to be utilized for the preparation of the geological information submitted with permit applications. This sentiment was echoed by the two professional geologist's associations which submitted written comments. The DWR agrees with the premise that qualified professionals should prepare these materials.² However, no State certification board exists for professional geologists. The DWR is confident that the WVG&ES will comment upon any inadequately prepared permit applications which they review. Then the DWR may require the permit applicant to appropriately revise their submission.

The WVG&ES remarked that appropriately trained and experienced geologists are necessary to administer the UIC Program. The DWR has qualified geologists on staff currently. Coupling the efforts of these individuals with considerable resources available through consultation with the WVG&ES, the UIC Program can be properly implemented and administered. Comments submitted on the draft UIC application by WVG&ES resulted in refinements and clarifications to the statements regarding the geology of the State.³

During the public comment period, the Ohio River Valley Water Sanitation Commission (ORSANCO) forwarded comments and a document which expresses its policies regarding underground injection. This document, entitled Underground Injection of Wastewaters, was developed by this Commission's Advisory Committee on Underground Injection of Wastewaters. ORSANCO's specific concerns regarding the proposed UIC application were whether the proposed UIC Program was compatible with ORSANCO's Policy Statement and their recommended administrative

procedures for a State UIC Program.

The State's approach to implementing this program aligns quite well with ORSANCO's policy. The West Virginia UIC Program will permit underground injection of industrial wastes only when such injection of wastes has been determined to be the best available alternative.⁴ The factors impacting this determination will include the geologic and hydrologic conditions peculiar to each particular proposed site and the region in general, the composition of the fluid to be injected and its compatibility with these subsurface conditions, and whether or not the necessary safety factors and monitoring devices will be included as part of the operation.^{5,6,7} Once these factors have been determined adequate for underground injection of wastes, the necessary operating constraints will be established to assure compatibility with the existing conditions.⁸ After an injection system commences operation, certain types of information are required to be maintained. This forms a record of the history of the well when combined with the periodic reporting requirements. The duration of retention of these and other records is also outlined in this Application.⁹ When injection ceases, the well will be properly plugged and marked.¹⁰ With regard to alternate plans for disposal of fluids if an injection system is required to terminate operation, it is a fundamental requirement of all permits that the permittee take all reasonable steps necessary to minimize any adverse impact to the waters of the State resulting from noncompliance of any permit condition.¹¹ Further, any activities covered under this permit shall not lead to pollution of the ground waters of the State.¹²

ORSANCO also identified several items as essential in the administration of a State UIC Program for the underground injection of wastewater. As part of the permit application, the applicant must assess the suitability of the local geology and the hydrologic conditions at the proposed underground injection well site.¹³ The specific content of the information to be submitted should

be outlined by the State.¹⁴ Prior to injection, the applicant is required to determine the compatibilities of the injected fluids with the proposed injection formation.¹⁵ The application must include detailed plans of the construction of the proposed injection system both on the surface and subsurface (casing, tubing, packers, etc.).¹⁶ After issuance of a permit, the injection must be monitored to assure that the maximum permitted injection pressures are not exceeded. The monitoring records must be submitted to the State periodically as required under the conditions of the permit.¹⁷ When constructing the well, the applicant must submit all the information generated such as geologic logs, geophysical logs, well cuttings, stimulation information, and well completion reports.¹⁸ This information is used by the State in the permit application review process. If, for any reason, the injection well operator cannot fulfill the requirements and conditions of the permit or if it is wished to modify these requirements or conditions, the permittee must notify the State immediately.¹⁹ After thoroughly reviewing the information submitted with an application for an Underground Injection Control Permit, the State must issue, deny, or issue with modification a UIC Permit.²⁰ The Public Participation Process in the State UIC Program provides that other states which may be affected by underground injection activities shall be notified prior to permit issuance.²¹

The Department of Health (DOH) commented upon the State UIC Regulations, suggesting modifications of the UIC Program Description (Section 4) as one method to address the DOH concerns. The Water Resources Board considered these comments when they were originally submitted during the comment period for the State UIC Regulations. Some changes were subsequently made.

The DOH suggested the addition of a definition of "drinking water" to the State UIC Regulations. These regulations deal with underground sources of drinking water (USDW's) which are defined in the State UIC Regulations.²²

The DOH suggests that "potential" underground drinking water supplies also be protected. The definition of USDW covers "potential" underground drinking water supplies as "...an 'aquifer' or its portion which contains a sufficient quantity of ground water to supply a public water system...".²³

The DOH suggests that the definition of USDW may not include smaller drinking water systems because it is limited to public water systems (those systems regularly serving at least 25 individuals or having at least 15 service connections). The coverage of "potential" underground drinking water supplies brings most of the smaller drinking water systems under the protection of the UIC Program because they have the potential to supply 25 individuals. The American Waterworks Association reports that in 1975, the percapita consumption of water from municipal systems in West Virginia was 150 gallons/capita day (Metcalf and Eddy, 2nd edition, 1979). This indicates that a flow of 2.6 gallons per minute is needed to supply 25 individuals.²⁴ Information collected by the U.S. Geological Survey for the UIC Program indicates that individual water supply wells should be able to provide this quantity of water.

The DOH stated that the State UIC Regulations' definition of "exempted aquifer" was unclear. The Water Resources Board changed the punctuation to clarify the intent.²⁵

The DOH comments regarding notification of actual, possible or suspected migration of fluids into USDW's, determinations of risk to or endangerment of the health of the public, and violations of primary drinking water standards have been addressed by developing standard operating procedures by which the DWR consults with the DOH to obtain their assessment of these situations. This consultation has been extended to the permitting process as well.²⁶

The DOH also wanted to be notified of any change in the concentration of any parameter in water supply wells at Class IV well installations. There are no known wells of this type (injecting hazardous wastes into or above USDW's)

in the State. They are prohibited under the State UIC Regulations.²⁷

The DOH suggests, in two different instances, to increase a $\frac{1}{4}$ mile distance to $\frac{1}{2}$ mile or one mile depending upon the proximity of individual or public water supply wells in order to increase the safety factor for drinking water supplies. One instance where this is recommended is in the establishment of an "area of review." The DWR plans to utilize appropriate equations to determine the "zone of endangering influence." If this zone is greater than the $\frac{1}{4}$ mile fixed radius mentioned above, it will be used as the area of review.²⁸ The other instance where DOH recommends this change is in the definitions of Class I and Class IV wells. These definitions use this distance as a part of the phrases which differentiate between these two types of wells.²⁹

Both written comments and oral public hearing comments were made regarding the anticipated impact of the DWR Class II portion of the UIC Program upon existing enhanced recovery operations in the State. The concern expressed was that new wells already being constructed in existing fields or projects would be forced to suspend construction or initiation of injection until a UIC Permit could be obtained from the DWR. This will not be the case. The DWR will authorize by rule any new wells being put into existing fields or projects.³⁰

One commenter stated that Chapter 20-5A-7 of the Code of West Virginia is devoid of public notice and public hearing authority for the Chief of the DWR. This is true. The correct reference is Chapter 20-5A-5(a).³¹

The other public comments were related to the Division of Water Resources' authority over enhanced recovery wells and the administrative procedures involved in a two-permit system for Class II wells.

The State UIC Program which has been proposed vests the Office of Oil and Gas and the Oil and Gas Conservation Commission with the primary responsibility over Class II wells, with the Division of Water Resources functioning

in an oversight role.

Both the Division of Water Resources and the Office of Oil and Gas have authority and expertise relating to Class II wells. The Division of Water Resources' authority is found in Chapter 20-5A of the West Virginia Code and covers all types of injection wells. The Office of Oil and Gas' authority falls under Chapter 22-4 and 22-4A of the Code and also includes all injection wells.

In the early stages of the UIC Program development, the State agencies decided that it was desirable to regulate Class II wells under Section 1425 of the federal Safe Drinking Water Act (SDWA), which allows a State to utilize its existing laws and regulations if those laws and regulations meet certain minimum requirements and represent "an effective program...to prevent underground injection which endangers drinking water sources."

Since the Office of Oil and Gas and the Oil and Gas Conservation Commission already had specific regulations relating to injection wells, the decision was made to utilize their program as the basis of the Class II well portion of the State program. At the same time, the Division of Water Resources needed to remain active in this part of the program, since it is responsible for the overall implementation of the State program, as the designated lead agency.

The nature of this oversight role took shape when, on April 8, 1982, the State Water Resources Board adopted regulations governing the Division of Water Resources' implementation of the State UIC program. The Board decided that in order for the Division's oversight of the program to be effective, the Division should continue to issue permits for brine disposal wells and should begin issuing permits for enhanced recovery wells. As an alternative to requiring individual permits, immediately the Board provided for "authorization by rule," if certain requirements were met.

Contrary to several public comments, the Water Resources Board's decision

to require permits or authorization by rule for all well types was made independently of other considerations, such as public notice requirements.

It was not until after the Board had decided that permits should be required by Water Resources that the agencies discussed the possibility of combining the public notice procedures of the agencies. This effort was part of an overall effort to combine procedures and eliminate duplication between the agencies, as is evidenced by the single application and permit forms which are included in the program.

In addition, the decision to combine public notice procedures was based upon a concern that the Oil and Gas agencies' procedures for public participation might not meet the requirements under Section 1425 of the SDWA. The commenters are correct that there are no "regulations" as such under the 1425 program; however, EPA has promulgated an "Interim Final Guidance" document on the subject, at 46 Fed. Reg. 27333, dated May 19, 1981. This "Guidance" document suggests that in assessing the "effectiveness" of a State program, public participation in the process is a factor. The document then cites several factors which EPA will consider in determining whether the State's procedures are adequate.

Since under Chapter 22-4 and 4A the provisions for public notice and hearing are more limited than under Chapter 20-5A, the agencies decided that, where feasible, they would combine procedures to ensure that EPA would approve the 1425 portion of the program. (The Division of Water Resources' authority for public notice and hearing is found in West Virginia Code 20-5A-5 and the Division's procedures would clearly meet EPA's requirements.)

In the development of the program, every effort was made to make the two-permit system work well, with the convenience of the well operator in mind. The Governor's office was involved in this effort and has reviewed the details of the Memorandum of Understanding between the agencies. We believe this document will serve as the basis for resolving any questions which arise and will

ensure the smooth implementation of the Class II well portion of the UIC program (Attachment A).

Based upon comments regarding the concern that the Class II enhanced recovery well permit applicant might become a victim of confusion, inconsistency, misunderstanding and delays due to bureaucratic overlap, and in a desire to reduce any significant additional burdens of cumbersome and duplicative permitting procedures, the Office of Oil and Gas and the DWR took steps to further clarify this process and reduce duplicative submission of permit applications. An instruction sheet (Form IV-3-AP) was developed to guide the enhanced recovery permit applicant through the various permitting options possible for area permit applications.³² The Class II well permit application form (Form IV-3) and its accompanying Line Item Explanation refer the applicant to this instruction sheet when appropriate.³³ These forms reduce the amount of materials needed to be submitted with an area permit application by allowing the applicant to incorporate by reference any permits already in the Office of Oil and Gas' files. The Office of Oil and Gas will then forward copies of these permits to the DWR for use in the permitting process. The Flow Chart for Processing Class II Permit Applications was also modified to reflect this (Attachment B).

The final comments regarding the Class II enhanced recovery well portion of the UIC Program were concerned with the possibilities of duplicative public hearings being held on the same project.

Every effort will be made, where practicable, to combine the Commissioner's field unitization hearing with the Chief's area permit public hearing (if any). New language was included in the Memorandum of Understanding between the agencies administering the Class II portion of the UIC Program regarding this effort. The new language provides for notification of the other agencies prior to scheduling any hearing regarding injection wells.³⁴ Then the agencies will

have the opportunity to coordinate any hearings required to avoid duplication.

A copy of this Responsiveness Summary will be sent to those who testified at the hearing or submitted written comments during the public comment period. A copy will be forwarded to others upon request (for the cost of copying).

FOOTNOTES
(REFERRING TO SPECIFIC PORTIONS
OF THIS APPLICATION FOR PROGRAM AUTHORIZATION)

1. Section 4; Figures V-1 and V-2; p.42 & 44
2. " 4; statement III,2; p.152
3. " 4; especially in I,A
4. " 4; p.7
5. " 4; pp.3, 79 & 156
6. " 4; pp.79, 80 & 146
7. " 4; pp.49, 50 & 146
8. " 4; p.80
9. " 4; pp.51 & 179
10. " 4; pp.85 & 183
11. " 4; p.181
12. " 4; p.182
13. " 4; pp.3, 79, 87, 88 & 156
14. " 4; pp.156-162
15. " 4; pp.79, 80 & 89
16. " 4; pp.74-79 & 157
17. " 4; pp.51, 178 & 179
18. " 4; pp.77 & 78
19. " 4; pp.51 & 52
20. " 4; pp.56 & 59
21. " 4; p.97
22. " 6; p.26
23. " 4; p.26
24. Calculation: $(25 \text{ individuals})(150 \text{ gallons/capita day})(\text{day}/24 \text{ hours})$
 $(\text{hour}/60 \text{ minutes})=2.6 \text{ gallons/minute}$
25. Section 6; p.22
26. " 4; pp.8, 11 & 128
27. " 4; p.26; and Section 6; 11.03; p.60
28. " 4; VIII,C; pp.80-82
29. " 6; 4.01, 4.04(a) and (b); pp.29 & 30
30. " 6; 13.02(a)(2); p.66
31. " 6; 20-5A-5(a); p.6
32. " 4; p.165
33. " 4; pp.164-164.3
34. " 4; III,A,14, p.120; III,B,10, p.121; and III,C,8, p.122

ATTACHMENT A

MOU Language Designed to Facilitate Interagency
Communication and Coordination During the
Administration of the Class II Portion of the UIC Program

REFERENCES

Metcalf & Eddy, Inc., 1979, Wastewater Engineering: Treatment/
Disposal/Reuse, 2nd edition, McGraw-Hill Book Company.

ATTACHMENT A

TABLE OF CONTENTS

	<u>Page</u>
I. General Program Administration Responsibilities . .	1
II. Technical Criteria	1
III. Processing Permit Applications	2
IV. Compliance Assurance	2
A. General	2
B. Review of Monitoring Reports	2
C. Inspection	3
D. Notification of Violations and Enforcement Actions	3
V. Review and Repermitting of Existing Wells	3
VI. Exchange of Information	4
VII. Response to Citizen Complaints	4
VIII. Avoidance of Duplicative Hearings	5

I. GENERAL PROGRAM ADMINISTRATION RESPONSIBILITIES

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.

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.

The Administrator shall review Class I, Class II and Class III wells for mechanical integrity and forward that information to the Chief.

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.

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.

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.

II. TECHNICAL CRITERIA

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.

III. PROCESSING PERMIT APPLICATIONS (See Attachment B for MOU page 7)

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).

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).

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).

IV. COMPLIANCE ASSURANCE

A. General

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.

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.

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.

B. Review of Monitoring Reports

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.

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.

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.

C. Inspection

The Chief shall coordinate the inspection and enforcement of Class II well permits with the Administrator and the Commissioner.

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.

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.

D. Notification of Violations and Enforcement Actions

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.

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.

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.

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.

V. REVIEW AND REPERMITTING OF EXISTING WELLS

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).

The Chief shall cooperate with the Administrator and the Commissioner in the establishment of priorities for the re-permitting of Class II wells based on the information supplied through his review and that provided by the Administrator and the Commissioner.

The Administrator shall cooperate with the Chief in the establishment of priorities for the re-permitting of existing Class II wells.

The Commissioner shall cooperate with the Chief in the establishment of priorities for the re-permitting of existing Class II brine disposal wells.

VI. EXCHANGE OF INFORMATION

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 repermited 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.

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.

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.

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.

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.

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.

VII. RESPONSE TO CITIZEN COMPLAINTS

The Chief shall cooperate with the Administrator and the Commissioner in responding to and investigating citizen complaints.

The Administrator shall cooperate with the Chief in responding to and investigating citizen complaints.

The Commissioner shall cooperate with the Chief in responding to and investigating citizen complaints.

VIII. AVOIDANCE OF DUPLICATIVE HEARINGS

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.

In order to avoid duplicative public hearings, the Administrator shall notify the Chief prior to scheduling any hearing which involves injection wells.

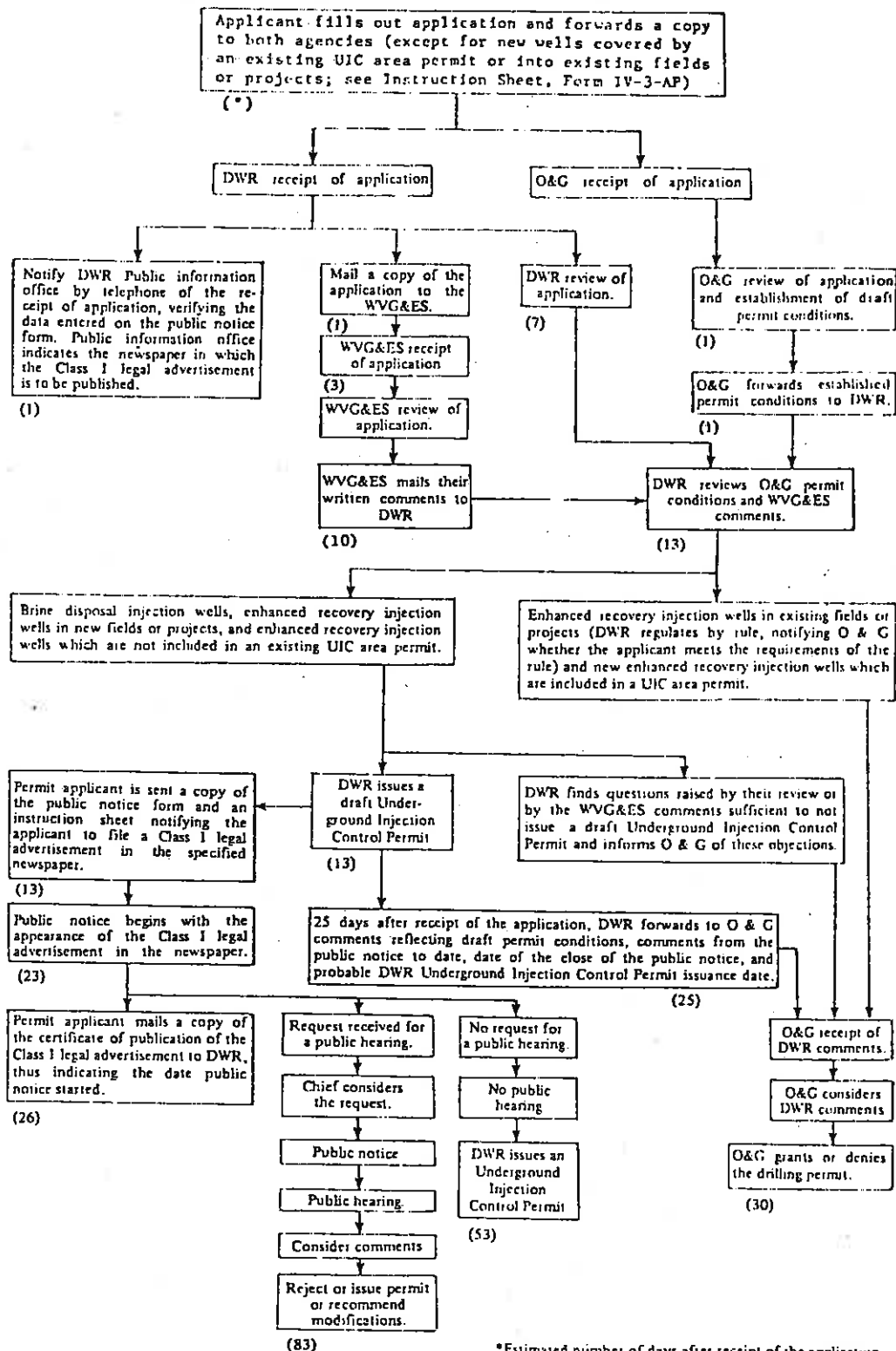
In order to avoid duplicative public hearings, the Commissioner shall notify the Chief prior to scheduling any hearing which involves injection wells.

ATTACHMENT B

Flow Chart for Processing Class II Injection Well Permit Applications
(page 7 of the MOU)

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.