SECTION 5
APPLICATION FOR PROGRAM AUTHORIZATION
FOR
CLASS II WELLS
UNDER
SECTION 1425, SAFE DRINKING WATER ACT

THE

OFFICE OF OIL AND GAS OF THE DEPARTMENT OF MINES

AND THE

OIL AND GAS CONSERVATION COMMISSION

APPLICATION FOR PROGRAM AUTHORIZATION FOR CLASS II WELLS

UNDER

SECTION 1425 OF THE SAFE DRINKING WATER ACT

C O N T E N T S

ATTACHMENTS

UIC ATTORNEY GENERAL'S STATEMENT

I hereby certify, pursuant to the provisions of Part C of the Safe Drinking Water Act (42 U.S.C. 300 et seq., as amended) and 40 C.F.R. § 123.5(a), that in my opinion the laws of West Virginia provide adequate authority to apply for, assume, and carry out the program set forth in the Program Description submitted by the Office of Oil and Gas, State Department of Mines. The specific authorities are provided in the Program Description and are contained in lawfully enacted statutes and promulgated regulations which are currently in full force and effect.

CHAUNCEY H. BROWNING
ATTORNEY GENERAL
STATE OF WEST VIRGINIA

A. INTRODUCTION

1. Structure, Coverage and Scope of the Program

West Virginia ground water comes from precipitation which percolates through the soil and rock until it reaches a zone where all available voids are filled with water. The upper surface of this saturated zone is called the water table and usually conforms to the topography, being highest under hills and intersecting the land surface at the level of streams. The sandstone, shale and coal in West Virginia form a stack of permeable and impermeable layers. This impedes downward percolation of precipitation, leaving a perched water table system above the local streams level. The suitability of this water for drinking may be affected by the types and quantities of minerals which have dissolved into the water from the surrounding rock. This mineralization increases with depth until the water encountered is too salty to be potable. Some areas may also have locally high levels of certain dissolved minerals which render the water unacceptable for drinking purposes.

The official Code of West Virginia has laws which protect fresh water. These laws are contained in Chapter 22, Article 4, administered by the Administrator of the Office of Oil and Gas of the Department of Mines; Chapter 22, Article 4A, administered by the Commissioner of the Oil and Gas Conservation Commission; and Chapter 20, Article 5A, administered by the Chief of the Division of Water Resources (DWR) of the Department of Natural Resources (See Attachments page 1).

How these three agencies work together in order to protect Underground Sources of Drinking Water (USDWs) is outlined in the Memorandum of Understanding (MOU), see Attachments page 26. There will be considerable overlap in the responsibilities of the Office of Oil and Gas and the Oil and Gas Conservation Commission. These two agencies are currently in the same office and already cooperate in many duties. They will be concerned with Class II (oil and gas related) injection wells which are either disposing of fluids or are injecting fluids to enhance the recovery of oil and gas. These fluids include salt water, fresh water, carbon dioxide and water, steam, and various other chemicals.

West Virginia has many shallow oil reservoirs which have approximately 75% of the discovered oil still in place, unable to be drained by primary production methods. With the escalation of oil prices in 1979 there blossomed many enhanced recovery projects and there are now seven fields with at least twelve or more injection wells compared to only one before 1979. These enhanced recovery fields are all water flooding operations with some involving CO_2 injection also. It is to the advantage of the operator to ensure old wells in the field are plugged properly and to adequately case and cement the injection wells since any leakage out of the injection zone would reduce pressure and hence inhibit oil production. These facts, together with strict enforcement of the Code and Regulations, ought to provide satisfactory protection of the State's USDWs.

2. General Authority to Protect USDWs

Chapter 22, Article 4, Section 1k makes it unlawful "for any well to be drilled, ..., to allow the migration of fluid from one formation to another, unless a permit has been obtained ..."

This section indicates the legislative intention to protect

formations from fluid migration due to well activities. This would include protection of water-bearing formations.

This protection of water-bearing strata is specifically addressed for underground injection wells in Chapter 22, Article 4, Section 2b, which requires an operator to provide information, before obtaining a permit on:

> "(e) the geological formation into which such liquid or pressure is to be introduced, and
>
> * * *
>
> "(g) the location of all water-bearing horizons above and below the geological formation into which such pressure, liquid or waste is to be introduced ..."

Both Sections 1k and 2b require the Administrator to consult with the Department of Natural Resources regarding the proposed well activity's effect upon groundwater. Section 2b requires this consultation for every injection well. Section 1k is limited to situations where the well activity may contribute to an existing pollution problem, and it is the two agencies' practice to cooperate closely when such problems have been identified. Based upon these comments, the Administrator has authority to deny permits or condition them as necessary for the protection of USDWs.

Chapter 22, Article 4, Section 8a specifically addresses the protection of water bearing strata by requiring a string of casing in such a manner as required by the regulations. Chapter 22, Article 4, Section 1 et seq. contains other references to protection of water bearing strata.

The above statutory sections, in conjunction with the general authority to supervise and enforce the provisions of the Article and to enact necessary regulations (22-4-1a), vest the Administrator with sufficient authority to administer the Class II well portion of the State's UIC Program.

B. PROGRAM DESCRIPTION

1. Permitting Process

a. General

The following narrative is a fairly detailed

description of the permitting procedures for oil, gas and liquid injection wells. It has been constructed from the West Virginia Code, Chapter 22, Article 4, Sections 1k and 2b and the regulations pertaining to these Codes. In general, production wells and injection wells are covered by the same regulations except in areas which have been pointed out in the text.

Prior to drilling an injection well, the operator must submit an IV-3, "Liquid Injection or Waste Disposal Well Permit" (see Attachments pages 2, 3). This form will contain all the relevant information needed by the Office of Oil and Gas and DWR in order to properly assess the environmental impact of the injection program. The operator must also submit a plat prepared by a registered engineer or licensed land surveyor. The plat must show the district and county in which the tract of land is located, the name and acreage of the same, the names of the owners of all adjacent tracts, the proposed or actual location of the well or wells determined by a survey, the courses and distances of such location from two permanent points of land marked on said tract and the number to be given to the well. The well operator must also provide on the plat or in the manner prescribed by the Department of Mines (a) the location of all wells, abandoned or otherwise; (b) where available, the casing records of all such wells; (c) where available, the drilling log of all such wells; (d) the maximum pressure to be introduced; (e) the geological formation into which such liquid or pressure is to be introduced; (g) the location of all water-bearing horizons above and below the geological zone into which such pressure, liquid or waste is to be introduced; and (h) such other information

as the Administrator of the Office of Oil and Gas by rule and regulation may require. In addition to the statutory requirements, the plat, filed on Form IV-6 (see Attachments page 4) must conform to the following standards of accuracy and depiction (22-4-2b, Regulation 11.02):

(1) Accuracy. An accuracy of one part in 2500 is required for location of wells on land containing workable coal beds which are tributary to operating coal mines. All other plats require a minimum accuracy of one part in 200. The attained accuracy standard shall be stated on every plat.

(2) Permanent Landmarks. At least two permanent monuments or landmarks with courses and distances to the subject well shall be shown on the basis of an on-the-ground survey; and, if any such monument or landmark is not a permanently established property corner, it shall be referenced to a property corner by courses and distances on the basis of an on-the-ground survey.

(3) Physical Location of Well. Every well shall be drilled within ten feet of the exact location designated on the plat.

(4) Description. Landmarks and permanently established property corners used shall be named and described on all plats. They shall include standing corner trees, set stones, iron pipes, T-rails, or other manufactured monuments; and existing wells (operating or abandoned) shall also be considered established landmarks if said wells are platted and on file with the Department. If landmarks used are not property corners, they must be adequately referenced to property corners to permit their future location.

(5) Method of Showing Property Lines. The courses and distances of all farm lines adjoining and those connecting the said landmarks or farm corners within the scope of such well location plat, shall be shown thereon. All lines actually surveyed shall be shown on such plat in solid lines. Lines taken from deed descriptions only shall be shown by broken lines.

(6) Proven Elevation. The elevation of the surface of the location shall be given and it shall be tied to either a government bench mark or other point of proven elevation. The location of the government bench mark or the point of proven elevation shall be noted and described on the plat.

(7) North-South Line. A north and south line shall be given and point to the top of the plat.

(8) Scale and Size of Plat. If practicable, all plats

shall be drawn to a scale of 1" = 2000' (1:24,000) or even multiples of 1:2000 for easy reduction of the plat photographically to a 1:2000 scale. The plat shall be 8-1/2 inches by 14 inches in size.

(9) Topographic Map Location of Well. The topographic map location of the well for which any permit under 22-4-1k is being sought shall be shown on the plat by a "cross" with the measured distance in feet from the nearest 5 minute latitude and longitude intersection using the North East (upper right) border of the plat on the 15 minute (1:62,500)topographic map. If the 7.5 minute (1:24,000) topographic map is used, the topographic location shall be shown on the plat at a "cross" with the measured distance in feet from the nearest 2.5 minute latitude and longitude intersection using the North East (upper right) border of the plat. Each plat shall indicate the topographic map name and series whether 7.5 minute or 15 minute is used to show the well location.

(10) Wells. All wells within the scope of the plat, whether active, drilling or abandoned, shall be shown. The scope of every plat shall be sufficient to show all wells within 1,200 feet of the well which is the subject of the application; and in the case of an application for a shallow gas well with a depth of 3,000 feet or more that will penetrate a coal seam, the scope of the plat shall be sufficient to show all wells with 2,400 feet of the well which is the subject of the application. Each well so shown, including the subject well, shall bear a designation that permits the kind (oil, gas, liquid injection under 22-4-4a, waste disposal, underground gas storage, or storage observation) and status (active, abandoned, or drilling) of each such well to be determined by the use of (i) API permit number (excluding State and County) for each well having such a permit number, (ii) in parenthesis, and following the API number if such is listed, the kind and status numbers provided below, and (iii) the symbols provided below. The kind and status numbers shall be as follows:

Oil wells

01- Shallow, active
02- Shallow, abandoned
03- Shallow, drilling
04- Deep, active
05- Deep, abandoned
06- Deep drilling

Deep gas wells

07- Production, active
08- Production, abandoned
09- Production, drilling
10- Underground storage, active
11- Underground storage, abandoned
12- Underground storage, drilling
13- Storage observation, active
14- Storage observation, abandoned
15- Storage observation, drilling

Shallow gas wells

16- Less than 3,000 feet, production, active
17- Less than 3,000 feet, production, abandoned
18- Less than 3,000 feet, production, drilling
19- Less than 3,000 feet, underground storage, active
20- Less than 3,000 feet, underground storage, abandoned
21- Less than 3,000 feet, underground storage, drilling
22- Less than 3,000 feet, storage observation, active
23- Less than 3,000 feet, storage observation, abandoned
24- Less than 3,000 feet, storage observation, drilling
25- 3,000 feet or more, production, active
26- 3,000 feet or more, production, abandoned
27- 3,000 feet or more, production, drilling
28- 3,000 feet or more, underground storage, active
29- 3,000 feet or more, underground storage, abandoned
30- 3,000 feet or more, underground storage, drilling
31- 3,000 feet or more, storage observation, active
32- 3,000 feet or more, storage observation, abandoned
33- 3,000 feet or more, storage observation, drilling

Liquid injection wells under Code §22-4-10a

34- Active
35- Abandoned
36- Drilling or being converted

Waste disposal wells

37- Active
38- Abandoned
39- Drilling or being converted

The symbols shall be as follows:

New drilling location 

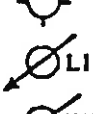
New fracturing or stimulating location 

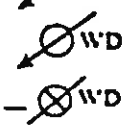
Cancelled application or permit 

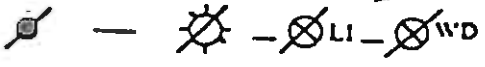
Oil well

Gas well 

Dry hole

Liquid injection well under Code §22-4-10a 

Waste disposal well 

Abandoned well 

(11) Other Surface Features. In addition to the surface features and owner identification data required by statute or by the foregoing specifications in this Regulation 11.02, the plat shall also show the following surface features lying within the scope of the plat: (i) water wells within two hundred feet of the well for which any permit under 22-4-1k is being sought except for liquid injection or waste disposal wells, in which case water wells within one thousand feet of the well shall be shown; (ii) dwellings within two hundred feet of the well of which any such permit is being sought; (iii) streams; (iv) roads and highways; and (v) railroads, with the owners' names.

(12) Names. The plat shall state the names of the surface owners and the royalty owners of the land at the well location.

The plat must be signed and certified by the registered professional engineer or licensed land surveyor in the following manner:

> "I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Department of Mines."

The plat must be on linen or plastic or other material of comparable quality and with india or other ink of a nature to result in a depiction not subject to substantial degradation from exposure to ordinary conditions of temperature, humidity and light.

If the tract is known to be underlined by one or more coal seams, copies of the plat must be sent by certified or registered mail to each and every coal operator who has mapped his seam and filed his maps with the Office of Oil and Gas of the Department of Mines in accordance with Chapter 22, Article 4, Section 2 of the West Virginia Code. If the coal seam owner of record and lessee of record have filed the declaration provided in the article and are not yet operating the coal seam, they shall receive copies of the plat by registered or certified mail. The declaration may be in the following language:

"DECLARATION OF OIL AND GAS NOTICE"
(22-4-20)

(1) The undersigned is the ('owner' or 'lessee') of one or more coal seams or workable coal beds as those terms are defined in Section one [22-4-1], Article four, Chapter twenty-two of the Code of West Virginia.

(2) The coal seam(s) or workable coal bed(s) owned or leased partly or wholly by the undersigned lie(s) under the surface of lands described as follows:

(Here insert a description legally adequate for a deed, whether by metes and bounds or other locational description, or by title references such as a book and page legally sufficient to stand in lieu of a location description.)

(3) The undersigned desires to be given all notices of oil and gas operations provided by Sections two, two-a, two-b and nine [22-4-2, 22-4-2a, 22-4-2b and 22-4-9], Article four, Chapter twenty-two of the Code of West Virginia, addressed as follows:

(Here insert the name and mailing address of the undersigned owner or leassee.)

_____
(Signature)

(Here insert an acknowledgement legally adequate for a deed.)

b. Objections and Comments

If the coal operator, owner, or lessee objects to the location of the well, they must file a Form IV-13, "Objection Under 22-4-3, 22-4-3a or 22-4-3b to Proposed Permitted Work," within fifteen days.

Should the Chief of the Division of Water Resources of the Department of Natural Resources feel that a well proposed to be drilled or converted for injection will affect detrimentally the reasonable standards of purity and quality of the State's water, he can file an objection within thirty days from the receipt of the plats and notices required by Section 2b. These objections must be in writing and set out as definitely as reasonably

possible the ground or grounds for the objection. The Chief must also indicate the conditions necessary to overcome the objections.

If any objection is filed, the Department of Mines notifies the well operator as to the person making an objection and the character of the objections. The Department also must fix a time and place to consider the objections. The hearing must be held within thirty days of the end of the thirty-day period for objections and allow for ten days' written notice to the well operator and all objecting coal operators, owners, lessees or Chief by registered or certified mail. At the meeting, the parties may agree on the location proposed or another location as to satisfy all objections and meet the approval of the Department. Any change in the original location must be indicated on the plat on file with the Department showing the distance and direction of the new location from the old. The altered plat will then be filed and become part of the permanent record. In the case of proposed conversion, the parties may agree upon conditions for the conversion for the protection of life and property or for protection of reasonable standards of purity and quality of the waters of the State. Once agreement is reached, the plat and notice required by Section 2b will be filed and become part of the permanent record.

In either case, a permit will be issued forthwith reciting the filing of the plat and notice required by Chapter 22, Article 4, Section 2b and that at a hearing duly held the location shown on the plat or the conditions for conversion were agreed upon and approved. The well operator is then authorized to drill or convert as the case may be.

Where the parties are unable to agree on a location, the Department of Mines will hear the evidence and testimony. In

making its decision, the Department shall consider:

(1) Whether the drilling location is above or in close proximity to any mine opening or shaft, entry, traveling, air haulage, drainage or passageway, or to any proposed extension thereof, in any operated or abandoned or operating coal mine, or coal mine already surveyed and platted, but not yet being operated;

(2) Whether the proposed drilling can reasonably be done through an existing or planned pillar of coal, or in close proximity to an existing well or such pillar of coal, taking into consideration the surface topography;

(3) Whether a well can be drilled safely, taking into consideration the dangers from creeps, squeezes, or other disturbances, due to the extraction of coal;

(4) The extent to which the proposed drilling location unreasonably interferes with the safe recovery of coal, oil and gas.

Within ten days the Department of Mines will issue an order: (1) That it refuses to issue a permit; (2) That it will issue a permit for the proposed location; (3) That it will issue a permit for a location different than that requested by the operator. The order must state with particularity the reasons for the order and it must be mailed to all parties present or represented at the hearing by registered or certified mail. Any permit so issued will become valid ten days after the Department mailed its order. For good cause, the Department may stay the issuance of a permit for a period not to exceed thirty days.

If a permit is issued for another location, the Department of Mines indicates the new location on the plat on file. The plat, all notices, the name and addresses of the well operator, the names and addresses of all persons notified, the dates of all hearings and all actions taken by the Department, permits issued or refused, papers filed and all transcripts will become a record of proceedings before the Department. This record will be open to inspection by the public.

Where the parties are unable to agree on conditions under which the well is to be converted, the Department of Mines will proceed to hear evidence and testimony. In making its decision, the Department will consider: (1) Whether the well can be converted safely, taking into consideration the dangers from creeps, squeezes or other disturbances; (2) Whether the well can be converted, taking into consideration the reasonable standards of the purity and quality of the waters of the State. Within ten days the Department will issue an order stating the conditions under which the conversion is to take place or an order stating with particularity the reasons for refusing the permit. The order will be mailed by registered or certified mail to the parties present or represented at the hearing. A Permit so issued will become valid ten days after it has been mailed. For good cause, the Department may stay the issuance of a permit for not more than thirty days. If a permit is issued, the Department indicates the well to be converted on the plat on file and together with the name of the well operator, the names and addresses of all persons notified, the dates of hearings and all actions taken by the Department, permits issued or refused, papers filed and a transcript of all hearings will constitute a record of the proceedings. The record of the proceedings are open to inspection by the public.

Any objection by coal operators, owners, or lessees must be on Form IV-13, "Objection Under 22-4-3, 22-4-3a or 22-4-3b to Proposed Permitted Work." If the objection is by the Department of Mines, it must be in writing and with the same detail required of objections by coal operators, owners or lessees.

If any objection is filed under Chapter 22, Article 4, Section 3a, the Department of Mines is to notify the well operator by means of Form IV-14, "Notice to Well Operator of Objections Under 22-4-3 or 22-4-3a." Copies of all the objections must be attached.

If an objection is filed under Chapter 22, Article 4, Section 3b, the Department of Mines must notify the Chairman of the Review Board by means of a Form IV-15, "Notice to Shallow Gas Well Review Board of Objection Under 22-4-3b to a Proposed Drilling Site." Copies of all objections and all other information required by Chapter 22, Article 4, Section 3b and copies of all these documents must be sent to the well operator as his notice of objections.

If there are no objections to the plat as filed and the application contains all the necessary information, the Departmen of Mines may issue a permit. The application must contain:

(a) The name and address of the well operator;

(b) The name and address of the owner of the surface lands upon which the well is or may be located;

(c) The name and address of every coal operator operating coal seams under the tract of land on which the well is or may be located, and the coal seam owner of record and lessee of record required to be given notice by Section 2, if any, if said owner or lessee is not yet operating said coal seams;

(d) The name and address of the agent of the well operator, if any such agent is required to be designated under the provisions of this section;

(e) The approximate depth to which the well is to be drilled;

(f) The proposed casing program of such well including the sizes of all such casing, the depth to which all casing is to be run and the extent to which such casing is to be cemented;

(g) The proposed method of reclamation which shall comply with the requirements of Section 12b of this article; and

(h) Any other information which the Administrator by rule or regulation may require.

c. Signatories Required for Permit Applications (22-4-1k, Regulation 7.01)

The applicant, if a corporation, partnership or nonresident, must also give the name and address of a resident to be the attorney-in-fact upon whom notices, orders, or other communications and upon whom process may be served. Should the designation as attorney-in-fact be terminated, the operator must notify the Department of Mines within five days and designate a new agent.

In making a decision whether to issue a permit, the Administrator must consult with the Chief of the Division of Water Resources if the well may contribute to an existing pollution problem (22-4-1k). If the issuance of a permit may reasonably be expected to contribute to an existing pollution problem, then the Administrator will not issue a permit (22-4-1k).

A permit may be issued prior to the thirty-day period if the well operator obtains written consent from the coal operator, owner, lessees, if any, whom copies of the plat and notice must have been sent. The operator must also obtain written consent of the Chief of the Division of Water Resources of the Department of Natural Resources, and present all such written consents to the Department of Mines (22-4-2b).

Accompanying an application for a permit must be a bond of the operator for two thousand five hundred dollars, payable to the State of West Virginia with a corporate bonding or surety company authorized to do business in this state. The bond shall be conditioned upon full compliance with all laws, rules, and regulations relating to the drilling of a well or the converting of an existing well for the purposes provided for in Section 10a or introducing of liquids for the disposal of sewage, industrial waste or other waste or the effluent therefrom including the

redrilling, deepening, casing, plugging or abondonment of all such wells. An operator is able to furnish a blanket bond of fifteen thousand dollars to cover a number of wells under the same conditions as above. In addition, the operator may deposit with the Administrator of the Office of Oil and Gas, cash or any of the following securities or any combination. The acceptable collateral securities are:

> Bonds of the United States or agency thereof, or those guaranteed by, or for which the credit of the United States or agency therefor is pledged for the payment of the principal and interest thereof; (2) direct general obligation bonds of this state, or any other state, or territory of the United States, or the District of Columbia, unconditionally guaranteed as to the principal and interest by such other state or territory of the United States, or the District of Columbia if such other state, territory, or the District of Columbia has the power to levy taxes for the payment of the principal and interest of such securities, and if at the time of the deposit such other state, territory, or the District of Columbia is not in default in the payment of any part of the principal or interest owing by it upon any part of its funded indebtedness; (3) direct general obligation bonds of any county, district, city, town, village, school district or other political subdivision of this state issued pursuant to law and payable from ad valorem taxes levied on all the taxable property located herein, that the total indebtedness after deducting sinking funds and all debts incurred for self-sustaining public works does not exceed five percent of the assessed value of all taxable property therein at the time of the last assessment made before the date of such deposit, and that the issuer has not, within five years prior to the making thereof, been in default for more than ninety days in the payment of any part of the principal or interest on any debt, evidenced by its bonds; (4) revenue bonds issued by this state or any agency of this state when such bonds are payable from revenues or earnings specially pledged for the payment of principal and interest, and a lawful sinking fund or reserve fund has been established and is being maintained for the payment of such bonds; (5) revenue bonds issued by a municipality in this state for the acquisition, construction, improvement or extension of a waterworks system, or a sewerage system, or a combined waterworks and sewerage system, when such bonds are payable from revenue or earnings specifically pledged for the payment of principal and interest, and a lawful sinking fund or reserve fund has been established and is being maintained for the payment

> of such bonds; (6) revenue bonds issued by a public service district in this state for the acquisition, construction, improvement or extension of any public service properties, or for the reimbursement or payment of the costs and expenses creating the district, when such bonds are payable from revenue or earnings specifically pledged for the payment of principal and interest, and a lawful sinking fund or reserve fund has been established and is being maintained for the payment of such bonds; (7) revenue bonds issued by a board of trustees of a sanitary district in this state for the corporate purposes of such district, when such bonds are payable from revenue or earnings specifically pledged for the payment of principal and interest, and a lawful sinking fund or reserve fund has been established and is being maintained for the payment of such bonds; and (8) bonds issued by a federal land bank or homeowner's loan corporation.

The cash or the market value of the securities must equal two thousand five hundred dollars for a single bond or fifteen thousand for a blanket bond. The Treasurer of the State of West Virginia will determine if the securities satisfy the requirements of the statute. If the securities are acceptable, the Treasurer will hold the cash or securities in trust and the operator is entitled to all interest and income earned as long as the operator is in full compliance with all laws, rules and regulations relating to the drilling, redrilling, deepening, casing, plugging, abandonment and reclamation of wells and for furnishing such reports and information as may be required by the Department of Mines.

A separate bond furnished by a well operator in compliance with any section of Chapter 22, Article 4 of the Code of West Virginia is to be on Form IV-7, "Bond Well or Single Waste Disposal Well." A blanket bond furnished by a well operator in compliance with any section of Chapter 22, Article 4 of the Code of West Virginia is to be on Form IV-8, "Blanket Bond for Oil and Gas Wells, Liquid Injection Wells, and Waste Disposal Wells."

d. Assessment of Permit Applications

If the permit application meets the administrative requiremen the Administrator will assess the application to ensure the we will meet the technical standards (see later section "Technical Requirements"). If so, the permit application will be sent to the Division of Water Resources for assessment. Within thirty (30) days the Chief must send comments to the Administrator whereupon the Administrator must issue or not issue the permit (22-4-2b).

An operator must also obtain an Underground Injection Control Permit' from the Division of Water Resources before drilling commences. The Division of Water Resources will be responsive to comments from the West Virginia Geological & Economic Survey and the public before issuing this permit and recommendations can be passed along to the Administrator within the thirty days (see later section "Other State Agencies" and attachments page for further explanation of this dual permitting process).

Actual injection is not permitted until the well is drilled and Form IV-37, "Pre-Operation Certificate for Liquid Injection or Waste Disposal" is submitted (see Attachment page 5). This will contain details of any alterations to the drilling program as stated on IV-3 and results of the Mechanical Integrity Test. The Administrator will then approve injection if everything is in order.

2. Inspection and Entry

The West Virginia Code, Chapter 22, Article 4, Section 1(c-g) and Chapter 22, Article 4, Section 1a(c)(7) fully covers all aspects of inspection, including eligibility and appointment of inspecto inspectors' duties and inspectors' authority. Under Chapter 22, Article 4, Section 1(f,g) and Chapter 22, Article 4, Section 12, an

inspector has the authority to visit and inspect an oil or gas facility at any time, and shall exercise supervision over the drilling, casing, plugging, filling and reclamation of the well.

A qualified engineer, geologist or inspector will witness mechanical integrity tests, corrective action operations and plugging procedures. At least twenty-five percent (25%) of all mechanical tests performed each year will be witnessed by the inspector although it is the intent of the Office of Oil and Gas to have as many tests as practicable witnessed.

3. Monitoring, Reporting and Record Keeping

i) The operator of a liquid injection or waste disposal well must monitor daily and send to the Department of Mines monthly a Form IV-40, "Report for Liquid Injection, Waste Disposal or Enhanced Recovery," showing injection pressures and volumes (see Attachments page 6). The Administrator can require more frequent or continuous monitoring and more frequent reporting if he feels there is a good reason to do so (22-4-2b, Regulation 9.05 and 22-4-10a).

ii) The Administrator has the authority to sample injected fluids at any time during the injection operation. This is stated in Chapter 22, Article 4, Section 1a(1) which gives him the duty to enforce the provisions of the Article, and Chapter 22, Article 4, Section 2b, Regulation 9.03(3) which pertains to the type of material being injected. To change the injection substance specified on Form IV-37, the operator must secure a revised permit (22-4-1k, Regulation 7.02(e)).

iii) The Administrator requires prompt notice of mechanical failure or downhole problems in injection wells. This is with the authority given in Chapter 22, Article 4, Section 1a(1) to enforce the provisions of the Article.

iv) The State keeps records of monitoring reports from one mechanical integrity test to the next (i.e. five years). These are checked as they are received for injection rates and any pressure discrepancies. Chapter 22, Article 4, Section 12, and Chapter 22, Article 4, Section 1a allow the Administrator access to all records.

v) The Administrator can require an inspection of a well and may also authorize a mechanical integrity test as a form of remedial action if he deems it necessary in cases where violations have occurred (22-4-1g).

vi) The monitoring, reporting and recording of technical data is dealt with in the section, "Technical Requirements."

4. Compliance Schedules

Before injection in any well begins, the operator must receive a permit and the well will be scheduled by the Administrator for a physical review of its mechanical integrity no less frequently than once each five years and more frequently if an investigation of the monthly reports reveals a significant change of volume or pressure (22-4-1k, 22-4-2b).

In 1978 the Office of Oil and Gas required an IV-3, "Liquid Injection or Waste Disposal Permit" form and an IV-37, "Preoperation Certificate" with evidence of mechanical integrity to be submitted. All of the waterflooding operations except a Columbia Gas 63-injection well field and two small fields were permitted in 1978 and later. The Oil and Gas Conservation Commission is currently in the process of scheduling mechanical integrity tests for these pre-1978 wells in order to comply with the regulations. These wells will also be examined on a well by well basis in order that they meet the construction and casing regulations. Where needed, further casing, tubing or cementing

will be ordered. Testing of these wells should be accomplished within three years since Columbia Gas and the Office of Oil and Gas have scheduled at least ten tests for each half of a year.

There are 57 brine disposal wells that the Office of Oil and Gas will be assuming responsibility for from the Division of Water Resources. It is the intent of the Office to obtain an IV-3 and schedule a mechanical integrity test for each of these wells. These wells are currently being monitored by the Division of Water Resources. The Office of Oil and Gas will schedule tests over the next three years to ensure compliance.

Chapter 22, Article 4, Section 2b, Regulation 9.04, exempts injection wells which have been injecting prior to July 1, 1969, from having to meet the construction requirements in 9.01, 9.02 and 9.03. This exemption applies to 31 of these wells. However, the exemption only applies if the operator has filed a plat showing all of such operator's injection wells before July 1, 1969, or it is determined that the well is not leaking. Only a few such plats have been filed. It is the intent of the Office of Oil and Gas to schedule tests starting with the oldest wells.

5. Transfer of Permits

A permit is non-transferable from one well to another (22-4-1k, Regulation 7.02(g)), however, title to a well is transferable under the conditions set out in Chapter 22, Article 4, Section 1k, Regulation 7.01. The Administrator must be notified of a transfer of title within five days by the transferor. The transferree must register with the Department of Mines. The transferor's bond will not be released until evidence of the transfer is furnished and the transferee's bond received.

6. Termination of Permits

There is no provision in the regulations for the termination of permits due to violation. The Administrator may order all operations to cease until a violation is corrected and performance bond may be revoked to remedy a violation. A permit will terminate within eight (8) months of being issued if the permitted drilling or converting has not begun (22-4-1k, 22-4-1g, 22-4-9, 22-4-2b, Regulation 7.02(f)).

7. Area Permits

The Commissioner may order a unit operation of a pool productive of oil or gas after notice and hearing, provided that the order is necessary for the prevention of waste and the drilling of unnecessary deep wells and the secondary recovery operation will ultimately increase the production of oil (22-4A-8). Individual wells in the unit must still be permitted, however, certain permit conditions can be set down by the Commissioner to apply to all wells within the unit such as allowing a certain type of construction. Brine disposal wells will not be issued area permits but will be permitted on a well by well basis.

8. Emergency Permits

There is no provision in the Oil and Gas Regulations for issuance of an emergency permit although efforts can be made to process the application as expeditiously as possible. In cases where the permit has previously been approved and an emergency arises, the Commissioner may give oral approval for any variance requested by an operator, to be confirmed in writing within five (5) days (22-4A, Regulation 3.01).

9. Variances and Discretionary Exemptions

The Administrator may refuse a permit if any application

to physically change a well may result in contributing to a pollution problem (22-4-1k). He may allow variances in the construction of the well provided they are sound engineering principles and specified on the State Form IV-3 (see Attachments, page 2,3), or at a hearing.

10. Modification of Permits

It is unlawful for any well to be drilled, redrilled, deepened, fractured, stimulated, plugged, pressured, converted, combined or physically modified to allow the migration of fluid from one formation to another unless a permit therefor has been issued by the Department of Mines. An application for any such permit shall be filed with the Administrator (22-4-1k, Regulation 7.02(e); 22-4a, Regulation 3.01).

C. Rules to Regulate Class II Wells

All injection wells involving secondary recovery and brine disposal must comply with the requirements set forth in the permitting procedure where there are special requirements for wells used for introducing liquids or waste into the ground. The Division of Water Resources will regulate all Class II enhanced recovery wells by rule for five years during which time they must obtain Underground Injection Control Permit. All of the Class II wells which will be regulated by the Office of Oil and Gas will have permits valid for the life of the well.

D. Technical Requirements

1) Map of area of review - discussed in "Permitting Procedure" and later in Section 9.

2) Well records are required for all wells abandoned or otherwise located within the area of review (22-4-2b). The Office of Oil & Gas does not keep records of water wells. However, Regulation 11.02(ii) requires that water wells within 1000 feet be shown on

the plat. The Office of Oil & Gas does not require the well records for oil or gas wells within the area of review unless they are not on file in which case the applicant must submit them.

3) Daily rate and volume of injected fluids and injection pressure, as well as the source of such fluids and the analysis of such fluids and its compatibility with receiving formation is to be filed on Form IV-37 (22-4, Regulation 9.03).

4) Detailed description of surface and subsurface construction are required to be included on Forms IV-3 and IV-37 as specified in Regulation 9.03.

5) All aspects of the program to stimulate the well must be included on the State Form IV-3, "Liquid Injection or Waste Disposal Well Permit Application" as required by Regulation 7.02.

6) Construction (22-4-1k, 22-4-2b, 22-4-8a, Regulations 9.01, 9.02 and 9.03).

1. Casing and Cementing

Injection of water, other liquids or wastes must be accomplished by a tubing and packer arrangement with the packer set immediately above the injection zone, and the annulus between the tubing and casing must be monitored by pressure sensitive devices or through production casing adequately seated and cemented that will allow monitoring of the annulus between the injection casing and last intermediate casing string or coal-fresh water casing string as the case may be. When filing Form IV-3 and showing that alternate prudent engineering practices will prevent migration outside the target formation, an individual operator may obtain a variance from the foregoing requirements. An example of the type of variance allowable is where the injection casing is cemented to the surface and the fresh water casing is cemented to surface. Unless a variance has been obtained, the fresh water

protective string of casing must extend 30 feet below the deepest fresh water horizon.

The fresh water horizon is defined as the deepest horizon which will replenish itself and from which fresh water or usable water for household, domestic, industrial, agricultural or public use may be economically or feasibly recovered (22-4-8a, Regulation 15.03). The volume of cement to permanently set the string of casing must be calculated using approved engineering methods to assure the return of the cement to the surface. If the cement does not return to the surface, the operator must make every reasonable attempt to fill the annular space by introducing cement from the surface. A coal protection string of casing cemented to the surface in this manner is considered a fresh water string for water strata above the coal. The cement must be allowed to set to a minimum compression of 500 pounds per square inch using approved engineering data for the type of cement used. In no case can the waiting time be less than eight hours (22-4-8a, Regulation 15.4). In addition to the casing specified, the operator must use such materials and equipment and additional procedures as are necessary to separate high pressure zones from low pressure zones, the producing horizons, the waterbearing strata, and mineable coal zones for the life of the well (Regulation 15.01).

The operator is required to regulate the injection pressure to minimize the possibility of fracturing the confining strata (22-4-10a). All aspects of the construction and injection data must be included on Form IV-3, "Liquid Injection or Waste Disposal Well Application." Before injection can commence, the IV-37, "Pre-Operation Certificate" must be submitted and include any alterations from the program set forth on IV-3.

2. Mechanical Integrity

It is important that injection wells possess mechanical integrity in order that leakage through the casing with consequent migration of fluid into zones other than the injection zone does not occur. The Administrator has general and ample authority to enforce the regulations and condition permits to ensure the well does not leak i.e. has mechanical integrity.

Chapter 22, Article 4, Section 1k(f) and (h); Chapter 22, Article 4, Section 2b; Chapter 22, Article 4, Section 8a; and Chapter 22, Article 4, Section 10a specifically authorize the Administrator to impose casing requirements to protect USDW's. Regulations 9.00 and 15.00 are related to these codes and also specify casing requirements to ensure no leakage into fresh water zones.

Form IV-3 requires that a State inspector or if unavailable, the Administrator or representative, be notified 24 hours prior to a mechanical integrity test. The method and result of the test must be shown on Form IV-37. If the test is successful, authorization for injection will be stated on the form, a copy of which will be sent to the operator, and the Division of Water Resources.

The test shall be designed to show that there is no significant fluid movement into an USDW through vertical channels adjacent to the well bore (see Attachments pages 9 through 13 for an example of a test used in West Virginia).

This type of test is suitable for injection wells that have not been constructed with tubing and packer arrangements. The Office of Oil and Gas is now requiring all new injection wells to be constructed with a tubing and packer arrangement as required in Regulation 9.01. This will allow the annulus to be monitored easily and regularly for any pressure discrepancies that may

suggest leakage.

If any other compelling geologic, hydrologic or engineering data is used as a basis for alternate well construction, other than the tubing and packer arrangement, the Administrator may grant a variance upon showing in the application or at the hearing by an individual operator that alternate engineering practices will prevent migration outside the target formation (Regulation 9.01).

Tracer surveys and noise logs are not required, but are readily available from companies as needed. Temperature surveys are required only when questionable. Bonding logs may be required if the cementing is questionable (see Attachments page 14 and 15 for examples of injection denial where the mechanical integrity had not been demonstrated adequately by the operator, Sterling Drilling and Pennzoil).

A qualified engineer, geologist, or inspector will inspect and witness at least twenty-five percent (25%) of mechanical integrity tests per year. Failures in mechanical integrity may be indicated during the operation of the well by unusual discrepancies in day-to-day well pressures, results of which will be filed with the State monthly for inspection.

3. Operation

Before injection operations can begin the Form IV-37 must be filed with the Office of Oil and Gas and signed by the Administrator. A monthly report containing injection rates, volumes and pressure must be filed with the Office of Oil and Gas on Form IV-40 (see Attachments page 6).

Chapter 22, Article 4, Section 8b, Regulation 16.02 requires that within ninety days of the completion of permitted work, the well operator must file an accurate log containing the character,

depth and thickness of geological formations encountered, including fresh water, coal seams, mineral beds, brine, and oil and gas bearing formations and any other information as the Administrator may require. In addition, the operator may file the electrical, radioactive or other similar conventional logs if they have been run, and drill stem test charts, formation water analysis, porosity, permeability or fluid saturation measurements, core analysis, and lithological log or sample description as compiled. The records must be complete enough to justify the entries of work done and related date on Form IV-35, "Well Operator's Report of Drilling, Fracturing, and/or Stimulating or Physical Change," (Attachments page 25), Form IV-36, "Well Operator's Report of Initial Gas-Oil Ratio Test," Form IV-37, "Pre-Operation Certificate for Liquid Injection or Waste Disposal Well," (Attachments page 5) and Form IV-38, "Affidavit of Plugging and Filling Well" (Attachments page 7). The forms need not repeat well record information for any work (whether permitted or not) done before. The well operator or his drilling contractor or driller shall keep at the well location a copy of this application as permitted, including the associated plat and reclamation plan required by Regulation 7.02; and the well operator or his drilling contractor or driller shall make and preserve at the well location accurate records of the work done under the permit.

4. Plugging and Abandonment

Appropriate mechanisms are available in the State regulations to insure the proper plugging of wells upon abandonment. These are contained in Chapter 22, Article 4, Section 10, Regulation 17, and Chapter 22, Article 4, Section 10, Regulation 18 and specify methods to ensure a plugged well will not leak. In the case of an injection well, the Commissioner shall be notified

within 10 days after the discontinuance of injection operations (22-4A, Regulation 4.04). No injection well may be plugged without a permit (22-4-1k). A schematic diagram of an injection well that has been plugged and approved by the state is contained in the Attachments, page 8.

Chapter 22, Article 4, Section 2 and Chapter 22, Article 4, Section 9 require that a bond be furnished with the Office of Oil and Gas before plugging operations commence which will not be released until the plugging operation is satisfactorily performed. The operator must submit an IV-38 "Affidavit of Plugging and Filling" to the Office of Oil and Gas after plugging the well (22-4-9, Regulation 16.02).

5. Area of Review and Corrective Action

"Form and Content of Plat" (22-4-2, 22-4-2b, Regulation 11.02 (10)) An application for a well must contain a plat showing the location of all wells whether active, drilling or abandoned within 1,200 feet of the well being applied for if it is to be drilled 3,000 feet or less, or within 2,400 feet if it is to be drilled to 3,000 feet or more, and penetrates a coal seam. This is the minimum distance which may be considered as the area of review. Chapter 22, Article 4, Section 2b requires that the location of all wells, abandoned or otherwise located within the area to be affected be shown on the plat.

The Administrator will define the zone of endangering influence which will also be known as the area of review by examining all the available data to see if any wells within the area might serve as a conduit for the migration of fluids to a USDW. This determination will be done using an appropriate radial flow equation of which the Theis equation is an example (see Attachments page 16).

A zone of endangering influence will be calculated using the appropriate radial flow equation.

Once a radius of endangering influence is calculated it will be determined whether there are any wells within this zone and if so whether they penetrate the injection zone. Records can then be checked to verify the adequacy of their completion, or plugging procedures. If inadequate wells are located within this computed zone of endangering influence, then appropriate corrective action will be prescribed as a condition of the Order authorizing injection. Final authorization will not be granted until the well's mechanical integrity and the mandated corrective action are verified by field inspection. Chapter 22, Article 4, Section 1k and Chapter 22, Article 4, Section 2b give the Administrator the authority to require corrective action as a condition of the permit.

Chapter 22, Article 4, Section 1g allows the Administrator or an inspector to approve or reject corrective action which may include, but not be limited to:

(a) Modifications of wells within the area of review (may include recementing, plugging or replugging).

(b) More stringent monitoring programs.

(c) Periodic testing of fluid of other wells within the area of review.

(d) Additional permit conditions to assure protection of ground water.

If the Administrator has assurance (either initially or as a result of corrective action) that wells within the area of influence will not serve as conduits for the migration of injected

fluids into groundwater strata, he may approve the application.

During the operation of the well the Administrator may establish a reasonable time to correct a violation or order cessation of the operation if endangerment to a USDW occurs (22-4-1g).

The Chief of the Division of Water Resources may also order, without hearing or notice, cessation of a polluting operation if it is endangering a water supply ("Water Pollution Control Act" 20-5A-12a).

Chapter 22, Article 4A, Regulation 1.06 allows for the Commissioner to require correction of any condition that is likely to cause waste of oil and gas and to require the proper plugging and abandonment of any deep well or wells no longer used or useful.

The Commissioner may permit certain conditions in lieu of immediate corrective action, such as allowing a negative hydraulic gradient at the base of the USDW in question, or requiring bottom hole pressure tests on observation wells as was necessary in the Guyan Oil Case (see Attachments pages 20,21,22).

E. Enforcement

Statute Chapter 22, Article 4, Section 1(g) authorizes the Administrator to issue an order giving a reasonable time to abate violations and/or cease operations of the well if a violation has occurred.

Chapter 22, Article 4, Section 1(k) allows for criminal penalties of up to $2,000 and/or imprisonment up to 12 months for violations of the section dealing with permit application.

Chapter 22, Article 4, Section 17 allows for the same level of criminal penalty as in Chapter 22, Article 4, Section 1(k) for violations of the Article or Regulations. Chapter 22, Article

4, Section 18, Chapter 22, Article 4A, Section 12, and Chapter 22, Article 4B, Section 16 entitle the Commissioner to seek an injunction if any violation has occurred or is about to occur in order to restrain the violation. The Administrator may also, under those sections, require pipeline severance in order to restrain the violation.

Chapter 22, Article 4A, Section 14 allows for penalties of $1,000 fine for each day a violation of the Article or Regulations continues or $5,000 and/or 6 months jail for the purpose of evading an order or provision of the Article or falsifying any report.

Chapter 22, Article 4B, Section 17 contains the same penalties as in Chapter 22, Article 4A, Section 14.

"Water Pollution Control Act" Chapter 20, Article 5A, Section 12a authorizes the issuance of an emergency order in cases of endangerment to private or public drinking water without hearing or notice.

In any action for contamination or deprivation of a fresh water source or supply within 1,000 feet of the site of drilling for an oil or gas well, there is a rebuttable presumption that such drilling, and such oil or gas well, or either, was the proximate cause of the contamination or deprivation of such fresh water source or supply (22-4-19). Note: This 1,000 foot radius is not the area of review.

F. Staffing and Resources

The Office of Oil and Gas has submitted an application to the Department of Natural Resources for funds totaling $101,350 in order to implement and maintain the Underground Injection Control (UIC) Program for Class II wells for 1982. This total is composed of 75% Federal, 25% State funds. The personnel will be allocated as follows:

Number	Position	Basis
(1)	Administrator	1/8 Salary
(1)	Engineer (as available)	1/4 Salary
(1)	Geologist (as available)	1/4 Salary
(13)	Inspectors	Pro Rata
(2)	Secretaries	Pro Rata
(1)	Clerk	Pro Rata

See Attachments, page 24, for a cost itemization of the UIC program for the Office of Oil and Gas and the Oil and Gas Conservation Commission.

G. Other State Agencies

The Division of Water Resources of the Department of Natural Resources will have primary responsibility for all Class I, III, IV and V wells while the Office of Oil and Gas and the Oil and Gas Conservation Commission will assume primary responsibility for all Class II wells. This coordination of effort is detailed in the Memorandum of Understanding between the three agencies (see Attachments page 26). Any application for a Class II injection well will be made on Form IV-3, a copy of which will be sent to the Office of Oil and Gas and a copy to the Division of Water Resources. The Chief of DWR will review the application and send a copy to the West Virginia Geological and Economic Survey. After comments are received from the Survey, the Division of Water Resources will draft a permit and require that the applicant put a public notice in the appropriate county newspaper. The Chief, using any comments received from the Survey and the public, must send comments to the Administrator within 30 days of the reception of the permit application. The Office of Oil and Gas may then permit the well. However, the applicant must also obtain an Underground Injection Control Permit from the Division of Water Resources in order to drill the well (see Attachments page 23, for

a Flow Diagram showing the interaction between agencies in the permitting process).

The Office of Oil and Gas frequently liaises with the West Virginia Geological and Economic Survey which can provide detailed geological data on the State. They act in an advisory capacity and also construct maps under contract as in the case of the Salt and Fresh Water Bearing Horizon Maps which are available to operators.

H. Inventory of Class II Wells

Liquid injection wells filing monthly reports with the Office of Oil and Gas = 260.

Liquid injection wells not filing monthly reports with the Office of Oil and Gas = 63. (The Office of Oil and Gas has recently requested these and they shall be forthcoming).

Gas injection wells = 77. (These are not currently filing monthly reports but the Office will be requesting them as soon as possible).

Non-operating permits (permitted but not yet filing reports) = 55.

Brine disposal wells filing monthly reports with the Division of Water Resources of the Department of Natural Resources = 57. The liquid injection wells filing monthly reports with the Office of Oil and Gas have been mapped on the 7 1/2' quad topographic maps specifying API permit number, field name and injection zone. All the other wells are on the Office's 7 1/2' or 15' quad maps identified by API permit number and symbol showing whether they are liquid, gas or waste disposal. Eventually, all the injection wells monitored by the Office will be placed on the 7 1/2' reserved soley for injection wells. Currently, an inventory of injection wells is on computer but grouped with storage wells. Injection

and storage wells are in the process of being separated into different categories to make it easier to request a print-out of injection wells only.

I. Exempted Aquifers

There are no fresh water bearing horizons that are considered exempted aquifers at present. The policy of the Division of Water Resources is to rehabilitate contaminated groundwater rather than to abandon an aquifer to further pollution. The Chief of the Division of Water Resources has the authority to designate an area as an exempted aquifer (State Water Resources Board Regulation 13.22(b)). The Chief will comment to the Administrator if a Class II well appears likely to cause groundwater pollution, and will not issue an Underground Injection Control Permit. It will be the Division of Water Resources' responsibility to designate exempted aquifers. In the meantime, the Office of Oil and Gas will permit Class II wells under the assumption that all USDWs are to be protected.

J. Plan for Review of Existing Wells

As stated in the "Compliance" section, schedules have been drawn up to re-permit and test the mechanical integrity of enhanced recovery wells. A schedule will also be arranged when the Office of Oil and Gas assumes responsibility for the brine disposal wells. Most of the enhanced recovery projects in the State commenced 1978 and later. The first injection wells from these projects will be due for testing in 1983. Each injection well in the State will be reviewed within 5 years. With the expected expansion of two major enhanced recovery fields, as well as additional permits for existing fields, approximately 100 new injection permits are likely to be issued in 1982.

K. Public Participation

When an application for a secondary recovery field requiring unitization is applied for, the Commissioner sets a time for a public hearing not less than ten and not more than thirty days thereafter. All interested persons are entitled to be heard. Notice of the hearing will be sent by mail to persons who have expressed their interest. The Commissioner will also post a Class II legal advertisement for the hearing in the publications of the county or counties which may be affected (22-4A-5).

After the hearing and subsequent order by the Commissioner, he will send notice of findings to the interested parties who are able, if desiring, to appeal for judicial review.

In the case of well applications for liquid injection or brine disposal which are not in existing unitized fields, the Division of Water Resources is required to go to public notice. After the Division of Water Resources permit is completed, the Chief will inform the applicant in which newspaper the public notice must be printed. The Division of Water Resources has a system to ensure that the public has an opportunity to participate in the permitting process (See "Flow Diagram," Attachments page 23). The Office of Oil and Gas has no regulation requiring public notice for injection wells other than unitized enhanced recovery fields. However, the Division of Water Resources will assume responsibility for public notice for these wells during the permitting process.

L. Complaints

The Office of Oil and Gas provides forms for any person wishing to file a complaint. An inspector can be sent to investigate the complaint if need be, and further action can be

pursued if a violation is occurring. Chapter 22, Article 4, Section 12 provides for a formal complaint process for any aggrieved person who feels the well operator is not drilling, casing, plugging, filling or reclaiming a well in accordance with the regulations. The Commissioner will be responsive to informal requests from the public for modification or termination of operations that endanger a USDW.