WEST VIRGINIA SECRETARY OF STATE

NATALIE E. TENNANT

ADMINISTRATIVE LAW DIVISION

eFILED

11/23/2015 3:38:19 PM

OFFICE OF
WEST VIRGINIA SECRETARY OF STATE

FORM 4 -- NOTICE OF RULE MODIFICATION OF A PROPOSED RULE

AGENCY **Oil And Gas**
RULE TYPE **Legislative** AMENDMENT TO EXISTING RULE **Yes** TITLE-SERIES **35-08**
RULE NAME **Horizontal Well Development**

CITE AUTHORITY **W. Va. Code §§ 22-6A-6(a)(4) and 22-11-4(a)(16)**

THE ABOVE PROPOSED LEGISLATIVE RULES, FOLLOWING REVIEW BY THE LEGISLATIVE RULE MAKING REVIEW COMMITTEE, IS HEREBY MODIFIED AS A RESULT OF REVIEW AND COMMENT BY THE LEGISLATIVE RULE MAKING REVIEW COMMITTEE. THE ATTACHED MOFICATIONS ARE FILED WITH THE SECRETARY OF STATE.

BY CHOOSING 'YES', I ATTEST THAT THE PREVIOUS STATEMENT IS TRUE AND CORRECT.
Yes

Kristin A Boggs -- By my signature, I certify that I am the person authorized to file legislative rules, in accordance with West Virginia Code §29A-3-11 and §39A-3-2.

Title-Series: 35-08 Rule Id: 9871 Document: 27273

TITLE 35
LEGISLATIVE RULE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS

SERIES 8
RULES GOVERNING HORIZONTAL WELL DEVELOPMENT

§35-8-1. General.

1.1. Scope. -- This rule shall govern and apply to proceedings under W. Va. Code § 22-6A-1, et seq., related to horizontal wells. Certain portions of this rule also govern and apply to W. Va. Code § 22-12-1, et seq., related to groundwater protection.

1.2. Authority. -- W. Va. Code §§ 22-1-3 and 22-6A-6(a)(4).

1.3. Filing Date. -- ~~April 21, 2014~~

1.4. Effective Date. -- ~~June 1, 2014~~

§35-8-2. Definitions.

Unless the context in which used clearly requires a different meaning, the definitions contained in W. Va. Code §§ 22-1-2, 22-6-1, 22-6A-4, and 22-11-3 apply to this rule in addition to those definitions set forth below:

2.1. "W. Va. Code" means the West Virginia Code of 1931, as amended.

2.2. "Barrel" means forty-two (42) U.S. gallons of two hundred thirty-one (231) cubic inches each of liquid, including slurries, at a temperature of sixty (60) degrees Fahrenheit.

2.3. "Chief" means Chief of the Office of Oil and Gas as designated by the Secretary of the Department of Environmental Protection.

2.4. "Coal permit" means a valid current surface mining permit issued by the Department of Environmental Protection.

2.5. "Coal permit holder" means the party that is registered with the West Virginia Office of Miners' Health, Safety, and Training as the operator of ~~that~~ a coal permit. The "coal permit holder" may also be known or referred to as the "coal mine operator."

2.6. "Cubic foot of gas" means the volume of gas contained in one (1) cubic foot of space at a standard pressure base and a standard temperature base. The standard pressure base shall be fourteen and seventy-three hundredths pounds per square inch absolute (14.73 psia), and the standard

temperature base shall be sixty (60) degrees Fahrenheit.

2.7. "Day" means a period of twenty-four (24) consecutive hours.

2.8. "Designated agent" means a resident of the State of West Virginia designated by an operator as the agent or attorney in fact of the operator upon whom process, notices, orders or other communications issued pursuant to W. Va. Code § 22-6A-7(h) may be served.

2.9. "Designated mining area" means an area of real property subject to a coal permit, further depicted or described in the Notice of Designated Mining Area, where excavation work will be conducted within the succeeding twelve (12) months.

2.10. "Excavation work" means work where vegetation, timber, topsoil or overburden will be moved, removed or placed by surface mining operations and includes surface impacts incident to underground coal mine operations.

2.11. "Gas-oil ratio test" means a test, by any means generally accepted in the industry, to determine the number of cubic feet of gas produced per barrel of oil produced.

2.12. "Gas well" means any well that produces or appears capable of producing a ratio of six thousand (6,000) cubic feet of gas or more to each one (1) barrel of oil on the basis of the initial gas-oil ratio test.

2.13. "Health care professional" means a physician, physician assistant, nurse practitioner, registered nurse, or emergency medical technician licensed by the State of West Virginia.

2.14. "Initial gas-oil ratio test" means the gas-oil ratio test preformed for the purpose of completing Form IV-36, "Well Operator's Report of Initial Gas-Oil Ratio Test," to designate the type of well being drilled.

2.15. "Karst terrain" means a terrain, generally underlain by limestone or dolomite, in which the topography is formed chiefly by the dissolving of rock and which may be characterized by sinkholes, sinking streams, closed depressions, subterranean drainage, and caves, as such areas (known as "karst regions") have been identified, mapped, and published by the West Virginia Geological and Economic Survey.

~~2.15.~~2.16. "Log" or "well log" means a systematic, detailed geological record of all formations, including coal, freshwater, and salt water encountered in the drilling of a well.

~~2.16.~~2.17. "Natural gas pipeline" means a pipeline, other than an interstate or utility pipeline, that is used to transport natural gas.

~~2.17.~~2.18. "Notice of Designated Mining Area" means a written notice from a coal permit holder that contains the following information: (a) A copy of the mine plan permit maps previously submitted to the Department of Environmental Protection in connection with the permit, ~~currently~~

pursuant to W. Va. Code § 22-3-9(12) and 38 CSR 2 § 3.4, with a discernible boundary identifying the designated mining area where excavation work will be conducted within the following twelve (12) month period.; and (b) The general location of all oil and gas wells and pipelines known to the coal mining permit holder or operator or identified in the coal permitting process, together with any GPS or other survey information in the possession of the coal permit holder that identifies the location of any natural gas pipelines in the designated mining area; and (c) The office telephone number and mailing address for the mine where the work will occur and identification of the location of any staffed guard gate or entrance.

~~2.18.~~2.19. "Office" ~~shall mean~~ means the Office of Oil and Gas within ~~WVDEP~~ the Department of Environmental Protection.

~~2.19.~~2.20. "Oil well" means any well which produces or appears capable of producing a ratio of less than six thousand (6,000) cubic feet of gas to each one (1) barrel of oil on the basis of the initial gas-oil ratio test.

~~2.20.~~2.21. "Staff gauge" means a continuously functioning measuring device in the field designed to record the height of water in a stream or river.

~~2.21.~~2.22. "Stream gauging station" means an active, continuously functioning measuring device in the field for which a mean daily stream flow is computed or estimated and quality assured for at least 355 days of a water year or a complete set of unit values are computed or estimated and quality assured for at least 355 days of a water year.

~~2.22.~~2.23. "Surface owner of record" and "owner of record of the surface" means any person who is an owner of record of surface land or an undivided interest therein, whether or not the surface ownership is severed from the oil and gas or other mineral ownership.

~~2.23.~~2.24. "Well completion" means the date on which hydraulic fracturing operations have ceased for more than 30 consecutive days.

§35-8-3. Forms.

An index and copies of all current forms required by or used in conjunction with this rule may be obtained from the Chief or on the Department's website. The Office of Oil and Gas reserves the right to amend any forms prospectively to accord more fully with ~~Chapter 22, Article 6A of the West Virginia Code~~ W. Va. Code § 22-6A-1, et seq. and this rule.

§35-8-4. Violations, Findings, and Orders.

Findings and orders of oil and gas inspectors concerning violations discovered during an inspection shall be recorded on the appropriate Office form. Such finding and orders shall not be construed to limit the Office's power to initiate any other lawful proceedings concerning violations of W. Va. Code § 22-6A-1 et seq. or this rule.

§35-8-5. Permits, Notice, Review.

5.1. Application for Permit; Issuance, Conditions and Modifications.

5.1.a. An application for any well work permit required for a horizontal well by W. Va. Code § 22-6A-7, except for permits to plug a well, shall be made on Form WW-6B, "Well Work Permit Application," and shall be accompanied by:

5.1.a.1. A "Notice of Application for a Well Work Permit" in the form prescribed by subsection 5.3 below;

5.1.a.2. A plat in the form prescribed by section 6 below;

5.1.a.3. A bond in one of the forms prescribed by section 8 below, or in lieu thereof cash or collateral security allowed by W. Va. Code § 22-6A-15;

5.1.a.4. Form WW-9, "Construction and Reclamation Plan," as required by W. Va. Code § 22-6A-7(c)(1) and a plan for performing the reclamation required by W. Va. Code § 22-6A-14 and section 12 below;

5.1.a.5. Form WW-6B, "Casing and Cementing Plan," as required by W. Va. Code § 22-6A-7(b)(8) and subsection 9.2 below;

5.1.a.6. The "Water Management Plan," as required by W. Va. Code § 22-6A-7(e) and subsection 5.6 below;

5.1.a.7. The applicable fee(s), which include:

5.1.a.7.A. Ten thousand dollars ($10,000) for the initial horizontal well drilled at a location and five thousand dollars ($5,000) for each additional horizontal well drilled on a single well pad at the same location, pursuant to W. Va. Code § 22-6A-7(g);

5.1.a.7.B. One Hundred Fifty Dollars ($150) for the special reclamation fee, pursuant to W. Va. Code § 22-6A-5(a)(17); and

5.1.a.7.C. One Hundred Dollars ($100) for a general permit registration fee.

5.1.a.8. If applicable, the consent required by W. Va. Code § 22-6A-12(a).

5.1.b. Where there is more than one type of well work, a single application may be used so long as all well work is noted on the Form WW-6B filed in connection therewith. Form WW-6B shall also include:

5.1.b.1. The casing program, as detailed in section 9.2 of this rule;

5.1.b.2. The anticipated depth and thickness of any producing formation, expected pressures, anticipated fresh groundwater zones, and the method or information by which the depth of the deepest fresh groundwater zone was determined;

5.1.b.3. The diameter of the ~~bore hole~~ borehole.

5.1.b.4. The casing type, whether the casing to be used is new or used, and the depth, diameter, wall thickness, and burst pressure rating for the casing;

5.1.b.5. The cement type, yield, additives, and estimated amount of cement to be used;

5.1.b.6. The estimated location of centralizers;

5.1.b.7. The proposed borehole conditioning procedures; and

5.1.b.8. Any alternative methods or materials required by the Chief as a condition of the well work permit.

5.1.c. An application for a permit to plug a well shall be made on Form WW-4(B), "Application to Plug and Abandon a Well," and shall be accompanied by:

5.1.c.1. A "Notice of Application to Plug and Abandon a Well," in the form prescribed by the Chief;

5.1.c.2. A plat in the form prescribed by section 6 below unless the operator complies with subdivision 19.1.f. below; and

5.1.c.3. A bond in one of the forms prescribed by section 8 below, or in lieu thereof cash or collateral security required by W. Va. Code § 22-6A-15.

5.1.d. The applicant for any permit mentioned in this rule must file an original and two (2) copies of the application and the plans associated with the application.

5.1.e. The permit and any conditions to or modifications of the proposed permitted well work shall be issued by endorsement on or attachment to the "Permit" copy of the Application (Form WW-6B or WW-4(B) as applicable) and the Water Management Plan Approval.

5.1.f. Any permit issued pursuant to this section shall expire automatically unless the permitted well work is commenced within twenty-four (24) months of the date the permit was issued. No permit shall be extended to authorize the commencement of well work after the expiration of twenty-four (24) months from the date the permit was issued.

~~5.1.g. No permit issued in accordance with this section is transferable.~~

~~5.1.h.~~5.1.g. Irrespective of the scope of the well work for which a permit was originally issued, the operator shall file a new application for any well work performed subsequent to the expiration of the reclamation period, including any extensions granted pursuant to W. Va. Code § 22-6A-14.

~~5.1.i.~~5.1.h. In the event an operator drilling a horizontal well encounters conditions or experiences events in the borehole prior to reaching the intended total depth of the permitted well work, which conditions or events result in the inability to drill to the intended total depth of the permitted well work, the operator may submit an application to the Chief requesting permission to drill a new, replacement borehole. The notice and comment periods provided by W. Va. Code § 22-6A-10 that accompanied the original borehole shall satisfy the notice and comment requirements for the new, replacement borehole permit application, except that the operator shall provide notice to the coal owner, operator or lessee as required by W. Va. Code § 22-6A-10(b)(3). The objection period associated with the notice to the coal owner, operator or lessee may be waived pursuant to the provisions of W. Va. Code § 22-6A-8(b). The new, replacement borehole permit application must be identical to the original well work permit application, with the exception of the location coordinates for the new, replacement borehole and any necessary revisions to the casing program or design. The new, replacement borehole must be located on the same well pad as the original borehole, and it must meet all applicable spacing requirements. The original borehole must be plugged in a manner approved by the Chief. Verbal permission to plug the existing borehole may be granted by the Chief or the Chief's designee in the event the drilling operations have been continually progressing on the hole to be plugged. Within five (5) days of commencement of plugging operations, the operator shall submit a plugging permit application to the Chief and provide notice as provided by W. Va. Code § 22-6A-10(b).

5.1.i. In any area having karst terrain, as identified, mapped, and published by the West Virginia Geological and Economic Survey, prior to submitting its application, the operator shall conduct testing at the proposed drilling site in order to identify caves and other voids, faults and relevant features in the strata. The operator shall also conduct testing to identify surface features such as sinkholes. The results of these tests shall accompany the permit application.

5.2. Flat Well Royalty Leases.

5.2.a. Any application for a well work permit subject to the provisions of W. Va. Code § 22-6A-5(a)(5) shall include the information required by W. Va. Code § 22-6-8(c). The required information may be recorded on the applicable form of the Notice of Application in lieu of filing copies of the well operator's lease or leases or other continuing contract or contracts.

5.2.b. If the applicant's right to extract, produce or market the oil or gas is based upon a lease or leases or other continuing contract or contracts providing for a flat well royalty or any similar provision for compensation to the owner of the oil or gas in place that is not inherently related to the volume of oil and gas so extracted, produced, and marketed, then the affidavit to be furnished pursuant to W. Va. Code § 22-6-8(e) shall be submitted on Form WW-60.

5.3. Notice to Surface Owners of Record; Proof of Notice; Comments.

5.3.a. For purposes of notice of surface owners of record pursuant to W. Va. Code §§ 22-6A-10 and 22-6A-16, the applicant well operator is entitled to assume, subject to performing the public record review described in subdivision 5.3.b. below, that the specific person(s) listed on the relevant tax ticket(s) maintained by the Sheriff pursuant to W. Va. Code § 11A-1-8 (as distinguished from the listing of an estate or of person(s) as "agent" or with "et al." or "heirs" or other designation indicating unspecified owners or record), were in fact surface owners of record when the tax ticket was prepared.

5.3.b. To establish that a surface owner identified on a tax ticket has not transferred an interest in the surface, the applicant well operator must review, from the date the surface owner acquired the surface, or for ten (10) years prior to the date of the review, whichever period is shorter, the "Grantor Index" and the "Fiduciary Index" maintained in the office of the Clerk of the County Commission. If the review identifies surface owner(s) in replacement of or in addition to the tax ticket listing, all successor names shall likewise be checked in the Grantor and Fiduciary Indexes to establish the surface owner(s) of record on the date the review is made. If more than three tenants in common or other co-owners of interests described in W. Va. Code § 22-6A-10(c)(1) ~~of this code~~ hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to W. Va. Code § 11A-1-8 ~~of this code~~.

5.3.c. Where the relevant tax ticket(s) list an estate or list person(s) as "agent" or with "et al." or "heirs" or other designation indicating unspecified owners of record, the applicant well operator must use records in the office of the Clerk of the County Commission to determine whether the total number of owners is more than three (3) and, if the total number of such owners is three (3) or less, the name(s) of the surface owner(s) of record on the date the review is made.

5.3.d. If the identification of the surface owners of record is made pursuant to the criteria of subdivisions 5.3.a. and 5.3.b. or 5.3.c. within ninety (90) days of the date of filing the application for a permit, the applicant well operator need not review the records again prior to the filing.

5.3.e. Proof of personal service may be made by the return of any sheriff or other official empowered by law to serve process or by affidavit of personal service on Form WW-70 by any person, including but not limited to any employee or agent of the applicant well operator. If service is affected by certified mail, service is effective upon mailing, and the return receipt card or other postal receipt for certified mailing with postal stamp affixed or photocopy will be accepted as proof of service.

5.3.f. No permit will be issued until all required proofs of notice have been filed with the Chief.

5.3.g. All comments filed pursuant to the provisions of W. Va. Code §§ 22-6A-10(e) and 22-6A-11 shall be in writing and should contain the name, address, and telephone number of the person filing the comment, the applicant well operator's name and well number, and the approximate location of the proposed well site, including district and county as indicated in the permit application.

Comments may be accompanied by other pertinent documents in support of the comment. Other than as prescribed in this rule, no particular form for the comment is prescribed.

5.4. Erosion and Sediment Control Plan

5.4.a. Erosion and sediment control plans submitted in conjunction with applications for well work permits involving well sites that disturb three acres or more of surface (excluding pipelines, gathering lines, and roads) shall be certified by, and constructed in accordance with plans certified by, a West Virginia registered professional engineer and in compliance with best management practices (BMPs) established by the Chief and provided in the Office's erosion and sediment control field manual, and contain both a narrative and a set of drawings. The plans shall be considered conditions of the permit and be enforceable as such.

5.4.b. The narrative components of the plan shall include:

5.4.b.1. A general sequence of events that describe in relative terms how and when each construction phase (i.e. clearing and grubbing, mass grading, stabilization) will occur and when each erosion and sediment control BMP will be installed;

5.4.b.2. A description of the stabilization methods to be used, including the application rates for temporary and permanent seeding and mulching, as well as the timeframes for establishing stabilization; and

5.4.b.3. Details or specifications for the erosion and sediment control BMPs employed on the project.

5.4.c. The drawings submitted with the plan shall include:

5.4.c.1. A vicinity map locating the site in relation to the surrounding area and roads;

5.4.c.2. A plan view site map at a scale of one inch equal to one hundred feet (1" = 100') or greater, showing appropriate detail of all site features, including the identification of site access that provides for a stabilized construction entrance and exit to reduce tracking of sediment onto public or private roads; and

5.4.c.3. The location of all proposed erosion and sediment control BMPs.

5.5. Site Construction Plan

5.5.a. All applications for well work permits involving well sites that will disturb three acres or more of surface (excluding pipelines, gathering lines, and roads) shall be accompanied by a site construction plan certified by, and constructed in accordance with plans certified by, a West Virginia registered professional engineer. The plan shall describe the nature and purpose of the construction project and identify the procedures for construction that will be used to achieve site stability. The plan shall be considered conditions of the permit and be enforceable as such.

5.5.b. The site construction plan shall contain the following information:

5.5.b.1. A vicinity map locating the site in relation to the surrounding area and roads;

5.5.b.2. A plan view site map at a scale of one inch equal to one hundred feet (1" = 100') or greater that shows appropriate detail of all site features and:

5.5.b.2.A. Clearly identifies the limit of disturbance for the project;

5.5.b.2.B. Provides existing topographic information on a contour interval that affords sufficient detail to illustrate site terrain conditions;

5.5.b.2.C. Identifies proposed cut and fill areas with grading contours at an interval that provides sufficient detail to accurately depict slope ratios, indicating top and bottom of slopes; and

5.5.b.2.D. Identifies any existing structures, roads, water bodies, karst terrain, and other critical areas within the area that would most likely be affected by the construction.

5.5.b.3. A cross-section of the length and width of the location, providing cut and fill volumes; and

5.5.b.4. Any other engineering designs or drawings necessary to construct the project.

5.5.c. At a minimum, site construction shall be conducted in accordance with the following criteria:

5.5.c.1. All woody material, brush, and trees shall be cleared from the site area and the cleared area kept to the minimum necessary for proper construction, including the installation of necessary sediment controls. Trees six inches (6") in diameter and larger shall be cut and logs stacked, unless agreed to otherwise by the operator and timber owner. However, in no case shall organic material be buried;

5.5.c.2. Topsoil shall be removed from construction areas and stockpiled for reuse during reclamation. In woodland areas, tree stumps, large roots, large rocks, tree and leaf debris, and ground vegetation shall be removed prior to actual site construction;

5.5.c.3. No embankment fill shall be placed on frozen material;

5.5.c.4. The fill material shall be clean mineral soil, free of roots, woody vegetation, stumps, sod, large rocks, frozen soil or other objectionable material;

5.5.c.5. Embankment material shall exhibit adequate soil strength and contain the proper amount of moisture to ensure that compaction will be achieved;

5.5.c.6. Earthen fill slopes shall be constructed with slopes no steeper than a ratio of two-to-one (2~~ horizontal~~:1~~ vertical~~) horizontal to vertical;

5.5.c.7. Soil fill material shall be placed in lifts or layers over the area to receive the fill. Soil lift thickness shall be between six (6") and twelve (12") inches, provided that proper compaction can be achieved throughout the entire thickness of the lift.

5.5.c.8. The size of rock lifts shall not exceed thirty-six inches (36"). The rock shall not be greater in any dimension than thirty-six inches (36");

5.5.c.9. Compaction shall be obtained by compaction equipment so that the entire surface of each fill lift is compacted to an appropriate density. Each lift shall be compacted before beginning the next lift. Minimum compaction requirements for embankment fills shall be ninety-five percent (95%) of the Standard Proctor density as established in the American Society for Testing and Materials' "Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort" (ASTM D-698). After determination of the required parameters indicated by the soil tests, the engineer shall specify an acceptable moisture range.

5.5.c.10. Surface water diversion ditches shall be constructed above the disturbed area and maintained to intercept water and to divert surface water runoff around the site; and

5.5.c.11. In areas of steep terrain, a terraced bench shall be constructed at the base of the slope where fill is to be placed, creating a toe foundation and aid in holding fill material. Additional terracing shall be constructed for each additional fifty vertical feet (50') of slope and shall be a minimum of ten feet (10') wide.

5.5.c.12. Well pads shall be fully enclosed by berm structures or an engineered berm equivalent approved by the Chief. If an earthen berm is employed, the berm shall be a minimum of two feet (2') in height with a two foot (2') top. Minimum compaction requirements for raised earthen berms shall be the same as those for embankment fills as set forth in subdivision 5.5.c.9 above and have maximum side slopes of one and one-half horizontal to one vertical (1.5:1). The area where the access road meets the well pad shall be equipped with a mountable berm structure. Sumps may be installed to release stormwater from the pad with the exception of when drilling and completion activities are in progress.

5.6. Water Management Plan

5.6.a. All applications for well work permits shall include an estimation of the volume of water that will be used in conjunction with drilling, fracturing or stimulating the well for which the permit is sought and, if the drilling, fracturing or stimulating of the well requires the use of water obtained by withdrawals from waters of this State in amounts that exceed two hundred ten thousand (210,000) gallons during any thirty-day period, the application for a well work permit shall include a

water management plan.[1] The water management plan is considered a condition of the permit, and it is enforceable as such.

5.6.b. The water management plan, which may be submitted either on an individual well basis or on a watershed basis, shall include the following information:

5.6.b.1. The type of water source, such as surface or ~~ground water~~ groundwater, the county in which each water source to be used for water withdrawals is located, and the latitude and longitude of each anticipated withdrawal location;

5.6.b.2. The anticipated volume of each water withdrawal;

5.6.b.3. The anticipated months when water withdrawals will be made;

5.6.b.4. The planned management and disposition of wastewater from fracturing, stimulation, and production activities;

5.6.b.5. A listing of the anticipated chemical additives, including Chemical Abstract Service (CAS) registry numbers, that may be used in the hydraulic fracturing or stimulating of the well, and, upon well completion, a listing of the chemical additives, including CAS registry numbers, that were actually used in the hydraulic fracturing or stimulating of the well shall be submitted as part of the completion report required by W. Va. Code § 22-6A-5(a)(14) and section 10 below;

5.6.b.6. For all groundwater withdrawals, the results of an aquifer test, as defined in subparagraph 9.1.a.4.A. below supporting the feasibility of the water supply well as a water source at a proposed pump rate.

5.6.c. For all surface water withdrawals, the water management plan shall include the following, in addition to the information required in subdivision 5.6.b above:

5.6.c.1. Identification of the current designated and existing water uses, including any public water intakes within one mile downstream of the withdrawal location;

5.6.c.2. A demonstration, using methods acceptable to the Secretary, that sufficient in-stream flow will be available immediately downstream of the point of withdrawal. Sufficient in-stream flow is maintained when pass-by flow that is protective of the identified use of the stream is preserved immediately downstream of the point of withdrawal; and

5.6.c.3. Identification of the methods to be used to minimize significant adverse impact to aquatic life.

5.6.d. As part of the agency's approval of a proposed Water Management Plan, the agency

---

1 This Rule in no way abrogates the statutory requirement that water withdrawals in excess of ~~seven hundred fifty~~ three hundred thousand (~~750,000~~ 300,000) gallons per calendar month be registered with the Division of Water and Waste Management. *See*, W. Va. Code § 22-26-1, et seq.

will provide to the operator both a minimum stream flow requirement at a specified United States Geological Survey-operated stream gauging station and a minimum pass-by flow requirement that must be maintained immediately downstream of each proposed surface water withdrawal point. For proposed groundwater withdrawal locations, the agency shall review the operator's aquifer test data to evaluate the appropriateness of the proposed withdrawal rate. In some cases, groundwater withdrawal locations may be provided a minimum stream flow requirement that must be maintained. Operators receiving withdrawal thresholds from the agency must adhere to both the minimum gauge reading and pass-by flow requirements. Demonstration that pass-by flow requirements are met must be done in a manner acceptable to the Secretary. At withdrawal locations where operators monitor stream flow to ensure minimum pass-by flows are maintained in accordance with paragraph 9.1.a.1., such findings shall be sufficient for commencement of a withdrawal.

5.6.e. Signage shall be posted at each water withdrawal site that: ~~provides how to obtain the Water Management Plan, the phone number of the company conducting the withdrawal, the Office's web site name and phone number, and the permit number. A person who is aware of the water withdrawal limiting thresholds and who has the ability to determine if adequate flow is available shall be present any time pumping is commenced and shall monitor the water withdrawal location and assigned stream gauging stations at least one time during the calendar day when pumping is occurring. A daily record of such monitoring shall be available upon request.~~ discloses that the location is a water withdrawal point; includes the water withdrawal site name as defined in the approved water management plan; identifies the operator and well pad name(s) for which the water will be used; and provides a contact telephone number for that operator and a contact telephone number and website address for the Office of Oil and Gas.

5.6.f. Wastewater generated from drilling, fracturing, stimulation, and production activities may be used for drilling, fracturing, and stimulation activities. Any wastewater brought from another well location shall be stored in pits or tanks or centralized waste pit facilities to be used at the new well location. The use of wastewater shall be identified in the plan.

5.7. Well Site Safety Plan

5.7.a. All applications for well work permits shall be accompanied by a well site safety plan to address proper safety measures to be employed for the protection of persons on the well site, as well as the general public in the area surrounding the well site. Each plan shall be specific to the well site described in the permit application and include the surrounding area. The plan shall encompass all aspects of the operation, including the actual well work for which the permit is sought, the anticipated Safety Data Sheets (SDS) ~~MSDS~~ for the chemical components added to the hydraulic fracturing fluid, and completion, production, and work-over activities. It shall be made available on the well site during all phases of the operation and provide an emergency point of contact and twenty-four (24)-hour contact information for the well operator. At least seven (7) days before commencement of well work or site preparation work that involves any disturbance of the land, the well operator shall provide a copy of the well site safety plan to the local emergency planning committee (LEPC) for the emergency planning district in which the well work will occur or to the county office of emergency services. The operator shall also provide one copy of the Well Site Safety Plan to the surface owner, any water purveyor and any surface owner subject to notice and

water testing as provided in section 15 of this rule: *Provided*, That in the event the Well Site Safety Plan previously provided to a surface owner, water purveyor or surface owner, is later amended, in whole or in part, the operator shall provide a copy of the amendments to the surface owner, water purveyor or surface owner. The operator should work closely with the local first responders to familiarize them with potential incidents that are related to oil and gas development, so that the local first responders have the information they need to provide the support necessary for the operator to implement the well site safety plan. The well site safety plan shall include, at a minimum, the information contained in subdivision 5.7.b. through 5.7.h.

5.7.b. Siting Requirements

5.7.b.1. A plan view map showing the well location, access road, pits, flare lines, dwellings, and noting the north and prevailing wind directions;

5.7.b.2. An area topographical map showing the well site location that includes latitude and longitude coordinates at the well site entrance and the point at which the access road intersects with the public road, which shall be identified by route number and/or name;

5.7.b.3. An evacuation plan for the removal of personnel and residents in the surrounding area who have the potential to be affected by an emergency;

5.7.b.4. A list of telephone numbers, including twenty-four (24)-hour contact information, for the following entities: the operator, any known contractors of the operator that will be on the site, the Department, the oil and gas inspector, the oil and gas inspector supervisor, and local emergency response units. This information shall be provided for all remaining contractors at the pre-spud meeting; and

5.7.b.5. A list of all schools and public facilities within a one-mile radius of the proposed well site, including telephone numbers for the same.

5.7.c. Well Control and Blowout Preventer (BOP) Requirements

5.7.c.1. A list of all BOP equipment and casing heads, including types, sizes, and ratings used during drilling, completion, and work-over operations shall be maintained on site;

5.7.c.2. The procedure and schedule for testing the BOP stack as follows: for the bottom and horizontal wellbore drilling phase, the BOP equipment shall be function tested upon initial installation, weekly, and after each bit trip unless otherwise authorized by the Office as part of a well work permit. It shall be pressure tested upon initial installation and every twenty-one (21) days thereafter. All pressure tests shall be performed for thirty (30) minutes. Annular preventers should be tested to seventy percent (70%) of the rated capacity and ram preventers should be tested to eighty percent (80%) of the rated capacity.

5.7.c.3. A schedule for BOP equipment installation and operation on the applicable casing string;

5.7.c.4. A list of all personnel with approved well control training and current certification recognized by the International Association of Drilling Contractors (IADC) shall be provided to the Office prior to the pre-spud meeting;

5.7.c.5 A detailed record of significant events, including without limitation lost circulation, the presence of hydrogen sulfide gas, fluid entry, kicks, and abnormal pressures. The operator shall immediately notify the oil and gas inspector of the presence of hydrogen sulfide gas at concentrations of ten parts per million (10 ppm) or greater or any blow-out or significant kick;

5.7.c.6. A schematic and description of the wellhead assembly placed on the well upon completion;

5.7.c.7. A protocol and established safeguards designed to prevent underground collisions during any drilling on multi-well pads; and

5.7.c.8. Protection of High Pressure, Large Volume Wells - On all wells where high pressure or large volume can be reasonably expected, properly working pressure BOP equipment shall be used on the inner string of casing at all times. When the inner string of casing has been placed in the well and cemented in, the casing and BOP equipment shall be properly configured, installed, and tested by operation and pressure to a minimum pressure that is commensurate with the objective formation pressure or zones with anticipated high pressure or large volume gases before drilling is continued.

5.7.d. Well Killing Operations Requirements

5.7.d.1. An inventory of all material that will be on site for the mixing of mud, including the amount of mixed mud, mixed mud weight, amount of additional weighting material (i.e. barite or bentonite), and the volume of water for mixing;

5.7.d.2. The number and type of mixing units that will be utilized for the mixing of mud; and

5.7.d.3. The methodology and type of kill procedures as recognized by the IADC.

5.7.e. Hydrogen Sulfide Operations Requirements

5.7.e.1. The equipment and method used for the monitoring, detection, and warning of the presence of hydrogen sulfide gas during drilling, completion, and work-over operations, specifying the location of the monitoring and detection equipment;

5.7.e.2. A statement of the training to be provided or that has been provided to all personnel who will be involved in hydrogen sulfide operations;

5.7.e.3. A list of the personal protective equipment (PPE) that will be maintained on the well site when in areas where hydrogen sulfide gas is likely to be encountered; and

5.7.e.4. The method that will be used to notify the oil and gas inspector and the Chief of the presence of hydrogen sulfide gas and how the operator will control access to the same.

5.7.f. Notification and Protection Zones Requirements

5.7.f.1. The operator shall establish a method of notification to all residents and emergency response personnel who may be affected by specific events during the operation. Such events may include, without limitation, the presence of hydrogen sulfide gas, blow-outs, wet gas flowback periods, and flaring.

5.7.f.2. The operator shall establish and maintain protection zones during applicable events and working environments.

5.7.f.3. Accidents - If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief.

5.7.g. ~~Material~~ Safety Data Sheets ~~(MSDS)~~ (SDS) for all materials and chemicals on the well site shall be readily available and maintained at the well site. The safety plan should identify the location of the ~~MSDS~~ SDS and contact information for the person(s) who are responsible for maintaining them.

5.7.h. Safety meetings shall be held on-site weekly, at a minimum, and specifically prior to the beginning of drilling (pre-spud meeting), completion, and work-over operations. Meeting attendance shall be logged, and the log shall be maintained on site during operations. A check-in and check-out list of all personnel shall be maintained during the drilling and completion phases of the operation, as well as a system for logging personnel and visitors to the drilling location to allow for an accurate count of people on the site at any time. The oil and gas inspector shall be notified forty-eight (48) hours prior to the pre-spud meeting.

5.8. Identification Markings.

5.8.a. Every well shall have attached or stamped, in a permanent manner, the API identification number, which consists of the state (47), county (001 through 109), and permit number. The number shall be no less than one-half ~~(1/2)~~ inch (1/2") in height and detectable by any interested person approaching the well. Any additional information the well operator may desire to display may be incorporated in the permanent identification plat or stamp in a manner that will not confuse or distort the permanent API identification number.

5.8.b. Except as provided below, upon the completion of the plugging and filling of any abandoned well, a permanent monument or marker consisting of a length of pipe (minimum diameter size six ~~(6)~~ inches (6")) filled with concrete (or the equivalent thereof if approved by the Chief) shall be erected over the well. The marker shall extend no less than thirty ~~(30)~~ inches (30") above the surface and not less than ten ~~(10)~~ feet (10') below the surface and into the well, and shall be sealed

with concrete for the purpose of making the marker permanent. The API well identification number, as described above, shall be attached or stamped in a permanent manner to the monument, and the numbering shall be no less than one half ~~(1/2)~~ inch (1/2") in height and detectable by any interested person approaching the marker. The erection of the marker shall in no way interfere with the bleeder pipe from the well where such pipe is required, or the vent or other device installed pursuant to the plugging requirements of the Office. The manner of plugging and filling the well shall be accurately described on Form WR-38, "Affidavit of Plugging and Filling Well" as to time and manner of plugging and filling the well, and shall be approved by the Chief as a satisfactory landmark that may be used in the location of adjacent wells. Two (2) permanent reference points with courses and distances from the abandoned well shall be designated and prescribed on the plat required by section 6 of this rule in a form approved by the Chief, accompanying Form WW-4, "Notice of Intention to Plug and Abandon a Well" and, if any change in the plat is necessary, accompanying Form IV-38, "Affidavit of Plugging and Filling Well".

5.9. Parties Responsible. – All contractors and drillers, including all service companies carrying on business or doing work in oil and natural gas fields in West Virginia, as well as lease holders and operators generally, shall take notice of and are hereby directed to observe and apply the provisions of W. Va. Code § 22-6A-1, et seq. and this rule; and all contractors, drillers, service companies, and operators shall be held responsible for violations thereof.

5.10. Evidence of Performance.

5.10.a. After the completion of the work authorized to be done by any permit required by W. Va. Code § 22-6A-7, the permittee shall comply with filing requirements of W. Va. Code § 22-6A--5(a)(14) and section 11 of this rule.

5.10.b. In addition to the requirements of subdivision 5.10.a, following completion of plugging a well, the operator shall also comply with the affidavit requirements of the Office.

5.11. Area of Review-- The permittee shall review the area surrounding the proposed well pad so as to identify and evaluate potential conduits for unintended fracture propagation, a report of which the permittee shall provide to the Office with the application for well work. All existing active, plugged, abandoned, and undocumented wells within a five hundred feet (500') radius of the surface location of the well that is the subject of the new application and within a five hundred feet (500') radius of the lateral section of the wellbore shall be considered for the potential of unintended fracture propagation. The report shall detail those wells that are known or reasonably expected to penetrate a depth that could be within the range of the fracture propagation. The detail shall include at a minimum the API number, operator name, total depth, perforated formation(s) and producing zones not perforated.

5.12 The operator shall comply with all provisions set forth in the permit as approved, including all associated plans required by this section.

§35-8-6. Plats; Form and Contents.

6.1. Plats.

6.1.a. The plat submitted with the well work permit application pursuant to W. Va. Code § 22-6A-5(a)(6) shall contain the information required by that subdivision of the Code and this rule in the form and manner provided below. A separate plat is not required for stimulating a well where stimulating is to be a part of the work for which a permit is sought and is noted on Form WW-6B, "Well Work Permit Application."

6.1.b. An application for permission to fracture a well subsequent to and not as an incident of previously permitted drilling, redrilling, deepening, pressuring or converting a well shall be accompanied by a plat pursuant to W. Va. Code § 22-6A-5(a)(~~7~~6). If the well to be fractured is a horizontal well, the plat shall contain the same information required for plats as outlined in subdivision 6.1.a above, and shall be in the form and manner provided below.

6.2. Form and Contents of Plats. – In addition to the statutory requirements set forth in W. Va. Code § 22-6A-5(a)(6) ~~and (7)~~, any plat filed with the Chief shall conform to the following standards of accuracy and depiction:

6.2.a. Accuracy - An accuracy of one (1) part in two thousand five hundred (2,500) is required for location of wells on land containing workable coal beds that are tributary to operator coal mines. All other plats require a minimum accuracy of one (1) part in two hundred (200). The attained accuracy standard shall be stated on every plat.

6.2.b. Permanent Landmarks - At least two (2) 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 monument or landmark is not a permanently established property corner, it shall be referenced to a permanently established property corner by courses and distances on the basis of an on-the-ground survey.

6.2.c. Physical Location of Well - Every well shall be drilled within ten ~~(10)~~ feet (10') of the exact well location designated on the plat. At no point shall the path of the drilled borehole deviate from the permitted borehole by more than fifty feet (50') or deviate outside the target formation subsequent to intersection of that formation. The path of the borehole shall be drilled using prudent methods identified pursuant to the requirements in section 5.7.c.7. of this rule establishing safeguards to minimize the risk of underground collisions. Such deviations or curvature strategy for borehole separations are acceptable exceptions to the 50' distance requirement. Additionally if unforeseen conditions occur such as fault intersection, formation dip, other geological variations or drilling methodology causing the borehole to either deviate from the fifty feet (50') path requirement or to drill out of the target formation, prudent actions shall immediately be applied to correct the borehole or otherwise provide immediate notice to the Office of Oil and Gas. To facilitate compliance and verification, the plat for a new well shall designate at least two (2) reference points from which, after the drilling site has been cleared and graded, the proposed well location can be accurately reestablished by the well operator and, if desired, subsequently verified by the oil and gas inspector or any interested person. When the survey party stakes the proposed well location, it shall flag or otherwise mark the reference points, which may be permanent (such as standing trees) or temporary

(such as set stakes). The reference points shall be beyond the limits of the drilling site but within six hundred ~~(600)~~ feet (600') of the well location. A description of the reference points and their location with reference to the well location shall be indicated on a detail drawing or a narrative statement on the face of the plat.

6.2.d. 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. Existing wells (operating or abandoned) shall also be considered established landmarks if the wells are accurately platted and on file with the Office. If landmarks used are not permanently established property corners, the landmark must be adequately referenced to property corners to permit their future location.

6.2.e. Method of Showing Property Lines - The courses and distances of all farm lines both adjoining and connecting the landmarks or permanently established property corners and all mineral tract boundaries within the scope of the well location plat shall be shown thereon. All lines actually surveyed shall be shown on the plat in solid lines. Lines taken from deed descriptions only shall be shown by broken lines. Mineral tract boundary lines and surface tract boundary lines shall be clearly distinguishable from each other.

6.2.f. Proven Elevation - The elevation of the surface of the well location shall be given, and it shall be tied to either a government benchmark or other point of proven elevation. The location of the government benchmark or the point of proven elevation shall be noted and described on the plat.

6.2.g. North-South Line - A north and south line shall be given and point to the top of the plat.

6.2.h. Scale and Size of Plat - If practicable, all plats shall be drawn to a scale of one inch equals two thousand feet (1" = 2,000'), (1:24,000) or to even multiples thereof for each reduction of the plat photographically to a scale of one inch equals two thousand feet (1" = 2,000'). The plat shall be eight and one-half inches by fourteen inches (8½" x 14") in size. Plats may be submitted electronically, using a format approved by the Chief.

6.2.i. Topographic Map Location of Well - The topographic map location of the top-hole and bottom-hole of the well for which any permit application is made shall be shown on the plat by a "cross" with the measured distance in feet from the nearest two point five (2.5) minute latitude and longitude intersection using the Northeast (upper right) border of the plat on a seven point five (7.5) minute (1:24,000) topographic map. The plat shall also contain Universal Transverse Mercator (UTM) Zone 17 Northing and Easting coordinates in North American Datum (NAD) 83(CORS96). Each plat shall indicate the quadrangle name of the topographic map used.

6.2.j. 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 one thousand two hundred ~~(1,200)~~ feet (1,200') of the surface location of the well that is the subject of the new application and within five hundred ~~(500)~~ feet (500') of the horizontal section of the well bore and, in the case of an application for a gas well with a depth of three thousand ~~(3,000)~~ feet (3,000') or

more and that penetrates a coal seam, the scope of the plat shall be sufficient to show all wells within two thousand four hundred ~~(2,400)~~ feet (2,400') of the surface location of the well that is the subject of the application and within five hundred ~~(500)~~ feet (500') of the horizontal section of the well bore. To make this determination, the permit applicant may rely on all available records and locational information; the permit applicant need not conduct a physical survey of the area.

6.2.k. Other Surface Features - The plat shall show the following surface features lying within the scope of the plat:

6.2.k.1. Existing water wells or developed springs used for human or domestic animal consumption within two hundred fifty ~~(250)~~ feet (250') of the well for which the permit is being sought;

6.2.k.2. Occupied dwellings or buildings two thousand five hundred ~~(2,500)~~ square feet (2,500 ft^2) or larger used to house or shelter dairy cattle or poultry husbandry within six hundred twenty-five ~~(625)~~ feet (625') of the center of the well pad for which the well work permit is being sought. Occupied dwellings for the purpose of this Rule shall mean dwellings that are used for human habitation on a permanent or periodic basis. An occupied dwelling is not a structure designed for temporary human habitation, i.e. a mobile camping unit, unless such unit is affixed to the ground, not capable of immediate removal, and attached to at least one public utility; tents or similar camping units; unimproved structures that are not equipped for long-term human habitation; temporary structures erected on the premises commensurate with the initiation of activity indicating the prospect of horizontal drilling activities on the site; and similar temporary structures.

6.2.k.3. Streams;

6.2.k.4. Roads and highways; and

6.2.k.5. Railroads.

6.2.l. Names - The plat shall state the names of the surface owners and the royalty owners of the land at the well location.

6.3. Plat Certification - Surveys and plats shall be made under the supervision of a registered professional engineer or professional surveyor licensed by the State of West Virginia. The certificate shall be signed and certified by the registered professional engineer or professional 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 rules issued and prescribed by the Department of Environmental Protection."

6.4. Re-use of Plats - Following issuance of the initial permit for drilling a well, any subsequent application for a new permit involving the same well may be accompanied by an accurate copy of the plat accepted by the Chief for use with the permit issued for the most recent previous application,

updated as necessary to reflect new data or additional data not required by statute or this rule and bearing a new certification as required above. However, a new certification is not required for a plugging permit.

6.5. Permanent Character of Plats - Every plat submitted pursuant to this rule shall be of permanent character, that is, on linen or plastic or other material of comparable quality and with indicia or other ink resulting in a depiction not subject to substantial degradation through time from exposure to ordinary conditions of temperature, humidity, and light. Plats may be submitted electronically, using a format approved by the Chief.

§35-8-7. Notice to Coal Owner, Operator or Lessee; Objections to Applications by Coal Owner, Operator or Lessee; Notice of Objection.

Objections filed by coal owners, operators or lessees pursuant to W. Va. Code §§ 22-6A-11(c)(2) shall be filed with the Office in accordance with W. Va. Code §§ 22-6-15 and 22-6-17.

§35-8-8. Separate Bonds; Blanket Bonds; Financial Responsibility; Registration; Designation of Agent; Transfer of Title and Operator Status; Transfer Procedures; Ineffective Bonds; and Financial Responsibility from Competing Interests.

8.1. Separate Bonds.

8.1.a. Each permit application filed after the effective date of this rule shall be accompanied by a separate bond with corporate surety or cash or other collateral security in compliance with W. Va. Code § 22-6A-15 and shall be submitted in a form approved by the Chief, except where: (1) a blanket bond is being furnished pursuant to W. Va. Code § 22-6A-15(c); or (2) the permit application is for a permit to plug a well that is already subject to corporate surety, cash or collateral security that satisfied applicable requirements at the time the corporate surety, cash or collateral security was furnished.

8.1.b. The demonstration of financial responsibility for individual wells after December 14, 2011 shall be accompanied by a separate bond with corporate surety or cash or other collateral security in the amount of fifty thousand dollars ($50,000) in compliance with W. Va. Code §§ 22-6A-15, except where a blanket bond is being furnished pursuant to W. Va. Code § 22-6A-15(c), and shall be submitted in a form approved by the Chief. Any corporate surety bond, cash or collateral security furnished prior to December 14. 2011 shall remain in effect for the benefit of the Office until such time as the well operator is issued any new determination of financial responsibility as may be required by this rule.

8.2. Blanket Bonds.

8.2.a. Any blanket bond furnished after December 14, 2011 shall have corporate surety, cash or other collateral security and shall be submitted in a form approved by the Chief. Any blanket bond with corporate surety, cash or collateral security furnished in connection with any permit or permits issued prior to December 14, 2011 shall remain in effect for the benefit of the Office until

such time as the well operator is issued any additional permit and has furnished new or additional corporate surety, cash or collateral security complying with W. Va. Code § 22-6A-15. If a permit application is for a permit to plug a well that is already subject to corporate surety, cash or collateral security that satisfied applicable requirements at the time the corporate surety, cash or collateral security was furnished, no additional corporate security, cash or collateral security is required.

8.2.b. The demonstration of financial responsibility for multiple wells after the effective date of this rule shall be accompanied by corporate surety or cash or other collateral security in compliance with W. Va. Code § 22-6A-15 and shall be submitted in a form approved by the Chief. Any corporate surety bond, cash or collateral security furnished prior to December 14, 2011 shall remain in effect for the benefit of the Office until the well operator is issued any new determination of financial responsibility as may be required by this rule.

8.3. Registration; Designated Agent; Transfer of Title and Operator Status.

8.3.a. All persons owning or operating or proposing to own or operate a horizontal well in West Virginia shall register with the Chief. In all cases, an agent or attorney in fact shall be designated on Form OP-1, "Designation of Agent by Well Owner or Operator" by and for each well or operator upon whom process, notices, orders, and other communications issued pursuant to Chapter 22 of the West Virginia Code may be served. The designation shall not be effective until it has been accepted in writing by the designee and approved by the Chief. Every well owner or operator who has designated an agent or attorney in fact shall, within five (5) days after termination of the designation, notify the Chief of the termination and designate a new agent on Form OP-1. This rule applies to all well operators, not merely those specifically required by W. Va. Code § 22-6A-7 to designate an agent. A well operator who is a natural person and a resident of the State of West Virginia may list himself or herself instead of an agent for service of all papers.

8.3.a.1. When a well work permit or title to ~~a~~ an existing well or the right to operate a well is transferred from one well work permittee or operator to another, the Chief shall be notified in writing of the name and address of the transferee ~~well operator~~ within thirty (30) days of the transfer by the transferor ~~well operator~~ or, if the transferor ~~well operator~~ no longer exists, by one or more of the owners of the well work permit or existing well. A copy of the notification shall be delivered to the transferee ~~well operator~~. Failure to notify the Chief of the transfer is a violation of this rule by the transferor.

8.3.a.2. The transferee ~~well operator~~ shall forthwith register with the Chief if the transferee has not previously registered. In any event, the transferee shall forthwith notify the Chief of its designated agent or attorney in fact pursuant to this rule, unless a designation has already been made and approved. The transferee ~~well operator~~ shall file with the Chief on ~~form OP-77~~ prescribed forms the well name and the permit number of the transferred well work permit or existing well, the county and district in which the transferred well or well work permit is located, the names and addresses of the transferor ~~well owners or operators~~ and the transferee ~~well operators~~, a copy of the instrument of assignment or transfer or a certification of the assignment or transfer acceptable to the Chief, and the applicable bond, cash or collateral security described in W. Va. Code § 22-6A-15.

8.3.a.3. No assignment or transfer by the transferor ~~well owner~~ shall relieve the transferor ~~well owner~~ of any obligations or liabilities incurred pursuant to this rule or Chapter 22 of the West Virginia Code, unless and until the Chief approves the transfer application and notifies the transferee and transferor that they have complied with the provisions of this subsection.

8.4. General Filing Requirements and Procedures for Application to Transfer Operator and Declaration of Operator Status.

8.4.a. Each application to transfer ~~a~~ an existing well shall be on Form OP-77. Each application to transfer a well work permit shall be done on Forms OP-6A and WW-6A1PT and shall also include a Department of Highways road bond letter issued to the transferee and an update to the emergency contact information provided in the Well Site Safety Plan pursuant to section 5.7. of this rule.

8.4.b. No transfer of operator or declaration of operator status will be approved until a copy of Form OP-1, "Operator Registration Form and Designation Form," has been filed with the Chief.

8.4.c. A separate application must be submitted for each existing well or well work permit for which a transfer is desired.

8.4.d. Each application to transfer an existing well must be accompanied by a filing fee of fifty dollars ($50). Each application to transfer a well work permit must be accompanied by a filing fee of five hundred dollars ($500). Where an operator or permittee is submitting several existing well or well work permit transfer applications at one time, a single check may be submitted for a sum equal to the number of applications multiplied by fifty dollars ($50) or five hundred dollars ($500), respectively. The fee should be paid by the transferor, but in no case will any well be transferred without payment of the fee.

8.4.e. Upon receipt of an application to transfer ~~a~~ an existing well or well work permit from one operator or permittee to another or to transfer ~~a~~ an existing well or well work permit from one bond to another bond, the Chief will review the submitted data along with other available information and approve or disapprove the application within sixty (60) days or ninety (90) days, respectively. If the Chief disapproves the application, he or she shall state the reasons for the disapproval and allow the parties to resubmit the application with corrected or additional information.

8.5. If for any reason the bond or other proof of financial responsibility on ~~a~~ an existing well or well work permit is rendered invalid or ineffective, the operator has sixty (60) days in which to replace the bond or other proof of financial responsibility. In the event the bond or other proof of financial responsibility is not replaced, the Chief shall order the well to be shut in and may order the well to be plugged.

8.6. Nothing in this section shall prohibit the Chief from accepting and holding bonds or other forms of financial responsibility from more than one competing interest.

§35-8-9. Operational Criteria.

9.1. Water Quality and Quantity Protection Standards

9.1.a. All operators are required to protect the quality and quantity of water in surface and ~~ground water~~ groundwater systems both during and after drilling operations and during reclamation by:

9.1.a.1. Withdrawing water from surface waters of the State using methods deemed appropriate by the Secretary so as to maintain sufficient in-stream flow immediately downstream of the withdrawal location;

9.1.a.1.A. To assure maintenance of adequate pass-by flow downstream of withdrawal points, the Secretary may require the operator to install and maintain a staff gauge or other suitable stream flow measuring device.

9.1.a.1.B. If a staff gauge or other suitable stream flow measuring device is required, operators shall certify that the staff gauge or other suitable stream flow measuring device has been properly calibrated. The agency will provide forms and instructions for facilitating proper location, installation, and calibration of the staff gauge or other suitable stream flow measuring device.

9.1.a.2. Casing, sealing or otherwise managing wells to keep fluids or natural gas from entering ground or surface waters, as prescribed in subsection 9.2 below;

9.1.a.3. Conducting oil and gas operations using BMPs so as to minimize additional contributions of suspended or dissolved solids to stream flow or runoff outside the permit area, but in no event shall the contributions be in excess of requirements set by applicable State or federal law; and

9.1.a.4. Registering all water supply wells with the Chief, and constructing and plugging water supply wells in accordance with laws governing drinking water well construction and plugging. Water supply well registrations shall include the results of a detailed aquifer test prior to its inclusion as a potential water source identified in the Water Management Plan, as required in subdivision 5.6.d. of this rule. The aquifer test shall be conducted by qualified groundwater professionals or licensed drilling and water system installers. The aquifer test will serve as an evaluation of the aquifer, the local groundwater basin, and the production capability of the water supply well to ensure that the resources are adequate to supply the need without adverse impact to the water resources of the basin. Adverse impacts, for the purpose of water supply well suitability considerations, shall include: lowering of groundwater or stream flow levels to an extent that may be injurious to any existing or potential uses; rendering competing supplies unreliable; affecting other water uses; causing water quality or quantity degradation that may be injurious to any existing or potential uses; affecting fish, wildlife or other living resources or their habitat; causing permanent loss of aquifer storage capacity; or affecting low flow of perennial streams.

9.1.a.4.A. The aquifer test shall consist of a hydrogeologic delineation of the groundwater basin identifying all existing groundwater wells and developed springs within one thousand five hundred feet (1,500') of the water supply well.

9.1.a.4.B. The test shall include a step-drawdown test over a range of pumping rates to allow for characterization of the water-bearing zones and provide for the selection of an appropriate rate for a subsequent constant-rate aquifer test. The step-drawdown test should be performed at pumping rates that start at approximately fifty percent (50%) of the anticipated yield and progress to higher rates in approximately equal steps until the water level fails to stabilize over the step period or the anticipated yield is reached.

9.1.a.4.C. The aquifer test shall also include a constant-rate drawdown test during which the pump is used for an extended period of time at the desired pump rate to observe induced changes in groundwater levels, surface water bodies, and wetlands. The recommended drawdown timeframe is seventy-two (72) hours, but must be of sufficient duration to establish hydrologic changes and trend characteristics.

9.1.a.4.D. A recovery analysis to evaluate the sustainability of the proposed withdrawal is also required. The duration of the recovery test is a minimum of twenty-four (24) hours or until the groundwater levels have recovered to ninety percent (90%) of their pretest levels.

9.1.a.4.E. A minimum of one groundwater monitoring station shall be installed to adequately characterize the aquifer during the testing period.

9.1.a.5. All drinking water wells within one thousand five hundred feet (1,500') of a water supply well shall be flow and quality tested by the operator upon request of the drinking well owner prior to operating the water supply well.

9.1.a.5.A. Flow tests shall include a site description consisting of a site diagram accurately describing the drinking water well location with GPS coordinates, as well as any septic leach fields or other significant structures that that may be present; a description of the household that the subject drinking water well serves, including occupancy, number of bathrooms, other water discharge points such as external hose bibs, kitchen and laundry facilities, swimming pools, and other outbuildings supplied by the subject drinking water well; and a description of the components of the water system, such as a well pit, pump house, basement installation, etc.

9.1.a.5.B. Flow tests shall include collection of the following technical details:

9.1.a.5.B.1. All known characteristics of the pump system including make, model, horsepower rating of the pump and drive motor, water treatment and filtration systems, pressure tanks and storage tanks;

9.1.a.5.B.2. An accurate description of all known subsurface completion

characteristics of the drinking water well, including depth, casing type, and diameter, sand pack (if present), and discharge line characteristics;

9.1.a.5.B.3. An accurate description of the groundwater discharge point where the flow measurement and quality sampling will take place, such as a hydrant, exterior hose bib, interior water tap, or other point of discharge; and

9.1.a.5.B.4. A description of the equipment the discharge passes through before flow measurement or sampling, such as filtration systems, pressure tanks, etc.

9.1.a.5.C. Where the drinking water well is accessible for water level measurements, all depth measurement equipment and procedures used in the drinking water well flow test described in subparagraph 9.1.a.5.D. below shall be accurately described in a manner that can be easily replicated should additional testing be required. All water level and well depth measurements shall be within an accuracy of one-half inch (1/2"). The equipment and method used for measuring the well discharge rate shall be documented. If a water meter is used, the make, model, and accuracy parameters shall be recorded. If the flow rate is determined by filling a container of known volume, times shall be recorded to the nearest one-half second (1/2 sec).

9.1.a.5.D. The drinking water well flow test for wells accessible for water level measurements shall be in substantial compliance with the following procedure or an alternative procedure approved by the Chief. Any testing procedures determined to present a potential to cause adverse impacts to the water resources, drinking water well or associated pumping equipment shall be modified to minimize impact.

9.1.a.5.D.1. The drinking water well shall be taken out of service for a minimum of thirty (30) minutes prior to the start of the pump test.

9.1.a.5.D.2. The water level shall be measured at thirty (30), ten (10) and five (5) minutes before the start of pumping to document static conditions and immediately before the start of pumping, which is to be designated as time zero (0) for the test.

9.1.a.5.D.3. A step-drawdown test shall be performed at pumping rates that start at approximately fifty percent (50%) of the anticipated yield and progress to higher rates in approximately equal steps until the water level fails to stabilize over the step period.

9.1.a.5.D.4. Water level measurements shall be recorded at regular time intervals measured in minutes. Suggested time intervals for measurement are once per minute during the first ten (10) minutes of testing; every two (2) minutes up to thirty (30) minutes of testing; every five (5)

minutes up to sixty (60) minutes of testing; and at ten (10) minute intervals throughout the remainder of the test.

9.1.a.5.D.5. The water level measurement taken at the conclusion of the withdrawal portion of the test shall be the same as the zero (0) minutes of recovery time. Water levels shall be measured during the recovery time at the same intervals as measured for the draw down period. The recovery interval shall continue until the groundwater levels have recovered to ninety percent (90%) of their pretest levels.

9.1.a.5.E. Where the drinking water well is inaccessible for water level measurements, the operator shall coordinate with the drinking water well owner to come to agreement on a satisfactory analysis method. All equipment and procedures used in the drinking water well flow test shall be accurately described in a manner that can be easily replicated should additional testing be required.

9.1.a.5.F. Raw groundwater samples shall be collected within ten (10) minutes of the end of the flow test or when it has been determined that a representative sample can be obtained. The samples shall be collected and analyzed in accordance with subsection 15.3. of this rule.

9.1.b. All operators who withdraw two hundred ten thousand (210,000) gallons or more of water from waters of this State during any thirty-day period shall adhere to the following operational and reporting requirements:

9.1.b.1. Within forty-eight (48) hours prior to the withdrawal of water, the operator shall identify the location of withdrawal by latitude and longitude; verify, using methods outlined in paragraph 9.1.a.1 above, that sufficient flow exists to protect designated uses of the stream; and provide notice to the Chief in a form and manner approved by the Chief;

9.1.b.2. Water withdrawal locations and facilities shall be limited to those identified in the approved water management plan, as required in Section 5.6. of this rule. All water withdrawal locations identified in the water management plan shall be identified with a sign that ~~discloses that the location is a water withdrawal point, the name and telephone number of the operator for which the water withdrawn will be utilized, and the telephone number for the Department of Environmental Protection.~~ meets the requirements set forth in Section 5.6.e. Such signage shall be erected within twenty-four (24) hours of notification of intent to commence active withdrawals. Prior to use, best management practices for controlling erosion and sedimentation shall be installed at water withdrawal sites and shall be routinely inspected and properly maintained during all phases of activity covered by the well work permit. These practices shall meet the minimum requirements for erosion and sediment control structures described within the Office of Oil and Gas Sediment Control Field Manual. When the withdrawal location is no longer being utilized, or at the direction of the Chief, the operator shall notify the Chief, remove all signage~~;~~, and reclaim the location. During withdrawals, a person who is aware of the water withdrawal limiting thresholds and who has the ability to determine if adequate flow is available shall be present any time pumping is commenced and shall monitor the water withdrawal location and assigned stream gauging stations at least one time during the calendar day when pumping is occurring. A daily record of such monitoring shall be

available upon request.

9.1.b.3. For all water used for hydraulic fracturing of horizontal wells and for flowback water from hydraulic fracturing activities and produced water from production activities from horizontal wells, an operator shall comply with the following record-keeping and reporting requirements:

9.1.b.3.A. For production activities, the following information shall be recorded and retained by the well operator: (1) the quantity of flowback water from hydraulic fracturing of the well; (2) the quantity of produced water from the well; and (3) the method of management or disposal of the flowback and produced water; For the purposes of this section flowback shall be defined as the water recovered during the first thirty (30) days of the flowback period.

9.1.b.3.B. For transportation activities, the following information shall be recorded and ~~maintained~~ by the operator: (1) the quantity of water transported; (2) the collection and delivery or disposal location(s) of the water; and (3) the name of the water hauling company.

9.1.b.3.C. The information maintained pursuant to this subdivision shall be available for inspection by the department along with other required permits and records and maintained for three years after the water withdrawal activity.

9.1.c In any area having karst terrain, as identified, mapped, and published by the West Virginia Geological and Economic Survey, the operator shall conduct baseline water testing prior to commencement of any site construction or well work. Testing shall be conducted on the water resources which are determined to have a physical connection or are hydrologically connected and down-gradient of the well location.

9.2 Casing and Cementing Standards

9.2.a. The operator shall prudently drill through fresh groundwater zones so as to minimize any disturbance of them. Further, the operator shall construct the well and conduct casing and cementing activities of all horizontal wells in accordance with W. Va. Code §§ 22-6A-5(a)(10), (11), (12), and (13) and 22-6A-24 and this rule and in a manner that will provide for control of the well at all times, prevent the migration of gas and other fluids into the fresh groundwater and coal seams, and prevent pollution of or diminution of fresh groundwater.

9.2.b. General Casing Standards

9.2.b.1. The diameter of each section of the wellbore in which casing will be installed and cemented shall be at least one inch greater than the outside diameter of the casing collar to be installed.

9.2.b.2. Casing shall be centralized in each segment of the wellbore to provide sufficient casing standoff and facilitate effective circulation of cement to isolate critical zones. Centralizers

must meet standards established by the American Petroleum Institute (API) in Specification 10D where bow spring centralizer use is applicable, or in API 10TR-5 for use of solid or rigid centralizers, where applicable.

9.2.b.3. All casing shall be made of steel and manufactured and tested consistent with standards established by the API in API Specification 5CT or the American Society for Testing Materials (ASTM). Each casing connection shall be torqued in accordance with manufacturers' specifications or API standards RP 5A3 and RP 5C5 to preserve the design integrity of the casing. The Office may approve welded casing connections. At a minimum welded casing connections shall be conducted by a certified welder and the casing must be pressure tested before drill out.

9.2.b.4. All casing shall possess an internal pressure rating twenty percent (20%) greater than the anticipated maximum pressure to which the casing will be exposed. Prior to installation, used casing must pass a hydrostatic pressure test at a pressure twenty percent (20%) greater than the anticipated maximum pressure to which the casing will be exposed.

9.2.b.5. The operator shall provide notice to the oil and gas inspector at least twenty-four (24) hours prior to the commencement of any casing installation.

9.2.b.6. Subsequent to the installation and cementing of any casing, a casing pressure test may be required by the Chief to establish casing integrity.

9.2.c. Conductor Casing Standards

9.2.c.1. Conductor casing shall be set where necessary to stabilize unconsolidated sediments and must be installed in a manner that prevents infiltration of surface fluids into the subsurface.

9.2.c.2. Conductor casing may be driven into place. If set in a drilled hole, the casing annulus must be cemented. Cementing of the conductor casing may be done by grouting from the surface, so long as any fresh groundwater zones are cemented across and isolated.

9.2.c.3. The section of the wellbore in which the conductor casing is installed, if not driven, must be drilled using only air, ~~freshwater~~ fresh water or freshwater-based drilling fluid. Any additives to the drilling fluid, such as soap, must be added in a manner that is protective of fresh groundwater.

9.2.d. Freshwater Casing Standards

9.2.d.1. The freshwater protective casing required by W. Va. Code § 22-6A-5(a)(13) shall extend at least fifty feet (50') and no more than one hundred fifty feet (150') below the deepest freshwater horizon (that being the deepest horizon that will replenish itself and from which ~~freshwater~~ fresh water or usable water for household, domestic, industrial, agricultural or public use may be economically and feasibly recovered) and shall have cement circulated in the annular space outside the casing. The freshwater protective casing may be installed to a depth greater than one

hundred fifty feet (150') below the deepest freshwater horizon in order to cover workable coal seams or to address unstable wellbore conditions, so long as all other requirements of this subsection are met.

9.2.d.2. The section of the wellbore in which the freshwater casing is installed shall be drilled using only air, ~~freshwater~~ fresh water or freshwater-based drilling fluid and shall be conducted using operating practices that minimize damage or disturbance or the possibility of unnecessary damage or disturbance to the uncased strata/formations and groundwater contained in any of those formations; provided that in any area having karst terrain, as identified, mapped and published by the West Virginia Geological and Economic Survey, the section of the wellbore in which the freshwater casing is installed shall be drilled using only air. The requirements of this section do not prevent the use of drilling practices and procedures reasonably necessary to the successful drilling of the well in a safe manner. The requirements of this section shall not be construed to prohibit practices specifically allowed by statute or other rules. Any additives to the drilling fluid, such as soap, must be added in a manner that is protective of the fresh groundwater. In any karst region, when a well is drilled through a cave void, the freshwater casing shall be equipped with a cement basket or similar device above and as close to the top of the cave as practical to allow for cementing of the annular space from that point to the surface. The hole may be drilled no more than one hundred feet (100') below the base of the cave prior to installing the casing or liner.

9.2.d.3. A minimum of three hundred ~~(300)~~ feet (300') of freshwater casing shall be installed, except that less than three hundred ~~(300)~~ feet (300') may be installed if necessary to avoid penetration of any salt water, oil or gas bearing zones.

9.2.d.4. The volume of cement needed shall be calculated using approved engineering methods to assure the return of the cement to the surface through circulation by the displacement method. Cement baskets may be installed on the surface casing in areas where lost circulation zones may exist to facilitate cement circulation to the surface through the displacement method or, if necessary, through grouting from the surface.

9.2.d.5. In the event cement does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours. If the top of the cement cannot be located using sound engineering practices approved by the Chief or the Chief's designee, then an electric log or similar technology approved by the Chief shall be used. Sound engineering practices approved by the Chief or the Chief's designee shall be used to fill the annular space back to the surface. Requests to approve methods other than pre-approved practices shall be acted upon by the Chief or the Chief's designee within twenty-four (24) hours of actual notice to the Chief or the Chief's designee, otherwise the request will be deemed approved.

9.2.d.6. If the coal protection casing is cemented to the surface in accordance with the prescribed procedure, this may also be considered a freshwater protective casing.

9.2.d.7. In no case shall the freshwater casing penetrate salt water or gas bearing strata or extend below sea level.

9.2.d.8. There shall be no oil and gas production through the freshwater casing.

9.2.d.9. Variances from the requirements of this section shall be granted on a site specific or area basis in accordance with section 14 of this rule.

9.2.d.10. Subsequent to installation and cementing of the fresh water protection casing, a formation integrity test (FIT), as recognized by the American Petroleum Institute (API) Standards 65 Part 2, may be required by the Chief to establish cement and formation integrity during well work activities. FIT tests should consider heavier mud weights or equivalent mediums expected during drilling of the borehole below the casing shoe. Any FIT test conducted shall apply a known or predetermined pressure limit that may need established for that region, specific well activity, or as otherwise required by the Chief and shall be conducted no more than fifty (50) feet in drilling out and below the fresh water protection casing shoe.

9.2.e. Standards for Casing through Coal Seams.

9.2.e.1. The coal protection casing required to be installed through the workable coal seam(s) by W. Va. Code § 22-6A-5(a)(10), (11), and (12) shall be in addition to the production casing.

9.2.e.2. The coal protection casing required by W. Va. Code § 22-6A-5(a)(10) shall have cement circulated by the displacement method in the annular space outside the casing. The volume of the cement needed shall be calculated by using approved methods to assure the return of the cement to the surface. In the event cement does not return to the surface, the oil and gas inspector shall be notified. Sound engineering practices approved by the Chief or the Chief's designee shall be used to fill the annular space back to the surface.

9.2.e.3. When a well is drilled through a horizon of a coal bed from which the coal has been removed, the coal protection casing shall be equipped with a cement basket or similar device above and as close to the top of the coal bed as practical to allow for cementing of the annular space from that point to the surface. The hole may be drilled no more than one hundred ~~(100)~~ feet (100') below the base of the mine void prior to installing the casing or liner required by W. Va. Code § 22-6A-5(a)(12) without prior approval from the Chief.

9.2.e.4. Either the freshwater casing or the intermediate casing may serve as the coal protection casing.

9.2.e.5. Subsequent to installation and cementing of the coal protection casing, a formation integrity test (FIT), as recognized by the American Petroleum Institute (API) Standards 65 Part 2, may be required by the Chief to establish cement and formation integrity during well work activities. FIT tests should consider heavier mud weights or equivalent mediums expected during drilling of the borehole below the casing shoe. Any FIT test conducted shall apply a known or predetermined pressure limit that may need established for that region, specific well activity, or as otherwise required by the Chief and shall be conducted no more than fifty (50) feet in drilling out

and below the coal protection casing shoe.

9.2.f. Intermediate Casing Standards

9.2.f.1. Intermediate casing shall be set when necessary to provide for well control, down-hole stability, safety, and separation of flow zones and when installed shall be cemented to the surface through circulation by the displacement method, unless conducted in a manner otherwise approved by the ~~secretary~~ Chief.

9.2.f.2. Subsequent to installation and cementing of the intermediate casing, a formation integrity ~~(shoe)~~ test (FIT) , as recognized by the American Petroleum Institute (API) Standards 65 Part 2, may be required by the Chief to establish cement and formation integrity during well work activities. FIT tests should consider heavier mud weights or equivalent mediums expected during drilling of the borehole below the casing shoe. Any FIT test conducted shall apply a known or predetermined pressure limit that may need established for that region, specific well activity, or as otherwise required by the Chief and shall be conducted no more than fifty feet (50') in drilling out and below the intermediate casing shoe.

9.2.g. Production Casing Standards. – Production casing shall be installed and may be cemented in place or set without cement to allow for packer completion. If cemented, the cement shall be placed in the hole by the displacement method from the bottom of the hole to a point at least five hundred ~~(500)~~ feet (500') above the shallowest producing zone. If no intermediate casing is installed, production casing must be cemented to a point at least five hundred ~~(500)~~ feet (500') above the shallowest fluid bearing zone.

9.2.h. Cementing Standards

9.2.h.1. Prior to cementing, the wellbore shall be conditioned to ensure adequate cement displacement and a high quality bond between cement and the wellbore.

9.2.h.2. All cement placed in the wellbore shall meet the ASTM C 150 Standard or API Specification 10A.

9.2.h.3. Cement must protect the casing from corrosion and degradation associated with the geochemical, lithological, and physical conditions of the wellbore. Sulfate resistant cement shall be used whenever necessary to protect the casing and prevent the migration of hydrogen sulfide and sulfate waters.

9.2.h.4. Cement placed in the annular space around the casing shall be allowed to set to a minimum compressive strength of five hundred ~~(500)~~ pounds per square inch (500 psi) and achieve a compressive strength of one thousand two hundred ~~pounders~~ pounds per square inch (1,200 psi) in seventy-two (72) hours, using approved engineering data for the type of cement used. The waiting time for cement used in compliance with this section shall not be less than eight (8) hours.

9.2.h.5. The cement slurry must be mixed and pumped at a rate that ensures a consistent slurry density. Surface casing cement free water separation may be no more than six ~~(6)~~ milliliters (6mL) per two hundred fifty ~~(250)~~ milliliters (250mL) of cement separation, tested in accordance with API RP 10B. Intermediate casing cement free fluid separation may be no more than three milliliters (3mm) per two hundred fifty milliliters (250mL) of cement slurry, tested in accordance with API RP 10B-2.

9.2.h.6. Cement testing shall be conducted in accordance with API standards.

9.2.h.7. The oil and gas inspector shall be notified at least twenty four (24) hours prior to the commencement of any cementing operations.

9.2.h.8. Cement used to fill the annular space around the freshwater and coal protection casing shall be API Class A Ordinary Portland cement with no greater than three percent (3%) calcium chloride and no other additives. If the well operator furnishes satisfactory proof that a different type of cement or additive is adequate, the Chief may approve use of a different type of cement.

9.2.h.9. The operator shall maintain a copy of the cementing records for each casing string at the well site for review by the oil and gas inspector. The records shall include the type of cement, any cement additives used, the volume, yield, and density of the cement, and the amount of cement returned to the surface. The records shall contain information describing the sequence of events during the cementing operation and include pumping rates, pressures, and pumping time.

9.2.i. Defective Casing or Cementing – The operator shall report defective, insufficient or improperly cemented casing to the oil and gas inspector or the Chief within twenty-four (24) hours of discovery of the problem and, within seventy-two (72) hours, correct the defect or submit a plan to correct the defect to the Chief for approval. If the defect cannot be corrected or a plan is not approved by the Chief, the well shall be plugged upon the issuance of a written order by the Chief.

9.2.j. Annual Inspection – The operator shall conduct an inspection at the surface of each unplugged well. The inspection shall be conducted no less frequently than once per calendar year and in a method approved by the Chief. The operator shall certify that the required inspections have occurred, in a form approved by the Chief and filed with the operator's annual report required by section 11 below. During inspection, if the operator detects evidence of more than de minimus leakage or other indications of casing integrity failure, the operator shall notify the oil and gas inspector and the Chief of the same and take all appropriate measures to eliminate or mitigate the leakage or casing integrity failure.

9.2.k. Results of the tests conducted in accordance with subsection 9.2 of this rule shall be maintained on the well site and readily available for review by the oil and gas inspector until completion of the permitted well work.

9.3. Fracture Propagation -- The permittee shall provide notice to all known well owners and/or operators of potential conduits, as determined by Section 5.11 of the permittee's planned completion

activities prior to commencement of completion activities. Such notice shall include information on the timing and duration of the well completion activities and the permittee's contact information so that the owner and/or operator can monitor and contact the permittee if any potential fracture communication issues are observed. The permittee shall offer to coordinate or assist with all appropriate monitoring.

9.3.a. If the permittee is notified of potential fracture communication, the permittee shall suspend the completion activities and review if fracture communication has occurred and whether the completion activities can be appropriately managed by modifying the operation. Upon suspending the completion activities the permittee shall notify the oil and gas inspector immediately. The permittee may resume completion activities only upon an approved demonstration to the Chief or his designee.

9.3.b. The permittee shall monitor any existing abandoned well that is located within the area of review defined in subsection 5.11. of this rule and that may serve as a potential conduit for unintended fracture propagation during completion activities. The Chief may require, in his or her reasonable discretion, that any monitored abandoned well be plugged or re-plugged in the event that communication between the permitted well and the monitored abandoned well cannot be adequately and safely managed by operating adjustments during completion activities.

9.3.c. The permittee shall monitor all associated fracturing treatment pressures throughout the entirety of the hydraulic fracturing operation. If data monitoring indicates that communication has occurred, the permittee shall terminate the fracturing operations and relieve the associated pressure. Upon fracture termination the operator shall contact the oil and gas inspector immediately.

~~9.3.~~9.4. Blowout Prevention Training – The operator shall assure that, at all times during the drilling, completion or re-work operation, a person is present who has successfully completed a blowout prevention training course that has been approved by the Chief.

9.5. The operator shall, at all times, conduct all operations on the well pad in a manner that will provide for control of the well and all ancillary equipment.

§35-8-10. Well Records.

10.1. Well Records Made During Permitted Work - The well operator or its contractor (service provider, drilling contractor or other contractor, as appropriate) shall keep at the well location a copy of the application as permitted, including the associated plat and plans required by section 5 of this rule. The well operator or its contractor (service provider, drilling contractor or other contractor, as appropriate) shall also make and preserve at the well location accurate records of all well work performed pursuant to the permit, including documentation by the contractor or person performing the cementing services of the time of completion of cementing and the volume of cement used for the cementing of all casing operations. The records shall be complete enough to support, as applicable, the entries of well work done and related data on Form WR-35, "Well Operator's Report of Well Work," Form WR-36, "Well Operator's Report of Initial Gas-Oil Ratio Test, and Form WR-38, "Affidavit of Plugging and Filling Well," but these forms shall reflect information discovered or

changes made after the permitted well work has been finished and before the reports are filed. The records made and preserved at the well location and the recordings made on Form WR-35 shall include, but not be limited to, indications of caverns, open mines or other voids, whether the freshwater casing cement circulated to the surface, and the efforts made to fill the annular space and the results. Unless the records of well work performed are prepared by the well operator or owner, a copy of all the records shall be delivered to the well owner or operator, except for those records the contractor (service provider, drilling contractor or other contractor, as appropriate) designates as a confidential trade secret.

10.1.a. As part of the well completion report (Form WR-35), the operator or its service provider shall list all the additives used in the hydraulic fracturing or stimulation process, including each additive's specific trade name, supplier, and purpose. The operator or its service provider shall also list each chemical ~~of each additive~~ intentionally added to a base fluid for the purpose of preparing a fracturing fluid, along with each chemical's CAS registry number if applicable, its maximum concentration in the additive, and its maximum concentration as added to the base fluid, and the volume of the base fluid used. The concentrations shall be expressed as a mass percent. The operator or service provider may designate the information regarding the specific identity or concentration or both of a chemical as a confidential trade secret not to be disclosed to the agency or anyone else except in the event of an investigation by the office, medical emergency, or for diagnostic or treatment purposes involving the designated chemical, pursuant to subdivisions 10.1.d. and 10.1.e. below.

10.1.b. The operator or service provider shall fulfill the additive reporting requirement of subdivision 10.1.a above by submitting the information to the Office and the FracFocus Chemical Disclosure Registry.

10.1.c. As part of the well completion report (Form WR-35), the operator shall report the volumes of fluids pumped and treatment pressures recorded throughout the hydraulic fracturing process.

10.1.d. In the event of an investigation by the office involving a chemical designated as a confidential trade secret, the operator or service provider shall provide the specific identity of the chemical, the concentration of the chemical, or both the specific identity and concentration of the chemical, as needed, to the agency upon receipt of notification from the chief or his or her designee stating that such information is necessary in connection with an investigation by the office. Upon receipt of such notification of need, such information shall be disclosed by the operator or service provider, as applicable, directly to the chief or his or her designee and shall in no way be construed as publicly available. The chief or designee may disclose information regarding the specific identity of a chemical, the concentration of a chemical, or both the specific identity and concentration of a chemical claimed to be a confidential trade secret to additional agency staff members to the extent that such disclosure is necessary to allow the agency staff member receiving the information to assist in such an investigation by the office, provided that such individuals shall not disseminate the information further and such information shall at all times be considered confidential and shall not be construed as publicly available. Upon request by the operator or service provider, and where a notification of need is provided orally, the chief shall execute a written statement of need indicating

that the information was necessary in connection with an investigation by the office.

10.1.e. The operator or service provider shall provide the specific identity of a chemical designated as a confidential trade secret, the concentration of the chemical designated as a confidential trade secret, or both the specific identity and concentration of the chemical designated as a confidential trade secret, as needed, upon request to a health care professional in a medical emergency, or for diagnostic or treatment purposes. The health care professional shall only use the information provided by the operator or service provider for diagnosis or treatment of an individual, and the operator or service provider may provide notice to the health care professional at the time of release of the information, that the information provided is solely for diagnosis or treatment of the individual, that the information may be a trade secret, and disclosure to others for any other purpose may subject that health care professional to a legal action by the operator or service provider for violating its trade secret.

10.2. Filing of Well Records and Related Forms.

10.2.a. Within ninety (90) days after completing the permitted well work, the operator shall file with the Office two (2) copies of Form WR-35 containing in proper form the geological information required by W. Va. Code § 22-6A-5(a)(14) and the exact location of the as-drilled wellbore; Form WR-36 (except that, where the well has not been connected within ninety (90) days to pipelines or production tanks, Form WR-36 shall be filed no more than fifteen (15) days after connection); and Form WR-38. The forms need not repeat well record information for any work (whether permitted or not) performed prior to and not part of the permitted work to which the forms apply. The forms shall correct or add to the well log and other records made and preserved at the well location by specifying the casing, treatment or physical changes performed after completion of the permitted work, and the additional information or corrected information discovered by electric logs or other means after completion of the permitted work. The information submitted in accordance with this subdivision designated as a confidential trade secret shall not lose its status as such after the one year confidentiality period or the extension period addressed in paragraph 10.2.b.3 below.

10.2.b. Confidential Information; Filing of Well Logs:

10.2.b.1. Within ninety (90) days after the completion of drilling or recompletion of a well, the well operator shall, at the request of the Chief, file a copy of the well log and the electrical, radioactive or other similar conventional log if those logs have been performed. In addition, as soon as practicable, the well operator shall, upon request of the Chief, file a copy of drill stem test charts, formation water analyses, porosity, permeability or fluid saturation measurements, core analyses, and lithological logs or sample descriptions as compiled. Provided, that no such additional information shall be required unless the well operator has compiled such information in the ordinary course of business. No interpretation of the data is required to be filed.

10.2.b.2. Any reports and other information or materials that reveal trade secrets or other confidential business information relating to the competitive interests of the operator or the operator's privy may be marked "CONFIDENTIAL" by the operator or the operator's privy and shall not

be disclosed to the public for one year following their delivery to the Chief or to the State Geological and Economic Survey, unless the well operator gives the Chief or the State Geological and Economic Survey written permission to release the information at an earlier date.

10.2.b.3. For good cause shown by the operator, the period of confidentiality for well logs may be extended in annual increments, but the total period of confidentiality shall not exceed three (3) years.

10.3. Restriction of New Application - Except for good cause shown, no application required by W. Va. Code § 22-6A-7 may be filed for any subsequent well work on a well in which previous well work has commenced but for which the forms required by section 10.2 of this rule have not been completed and filed with the Chief.

§35-8-11. Reports.

11.1. Annual Reports of Natural Gas, Oil, Condensate, and ~~Natural Gas Liquids~~ Water Production

11.1.a. The operator shall file an annual report of natural gas, oil, condensate, and ~~natural gas liquids~~ water production for each well on or before March 31 of the year succeeding the production. This report shall be on Form WR-39, "Report of ~~Annual~~ Monthly Production," or in any other form approved by the Chief, and must identify the production from every oil and natural gas well not yet plugged and abandoned, regardless of the status of the well. Oil, condensate, and ~~natural gas liquids~~ produced water shall be reported in barrels, and natural gas shall be reported in thousand cubic feet. The volume of ~~natural gas liquids~~ condensate reported shall be ~~those~~ the amount separated under the control of the well operator. For purposes of reporting condensate volume under this section, "condensate" means the light hydrocarbon liquid fraction that condenses from the produced gas stream at atmospheric or surface pipeline pressure and temperature and is separated at or near the well head by the well operator.

11.1.b. Measurement of Oil and ~~Natural Gas Liquids~~ Condensate – The volume of oil and ~~natural gas liquids~~ condensate production shall be determined through the standard practices ~~of common carriers in the State of West Virginia~~ in the industry. The report on the volume of oil and ~~natural gas liquids~~ condensate shall be the same volume on which the royalty interest was determined ~~and shall be acceptable "pipeline quality."~~.

11.1.c. Measurement of Natural Gas

11.1.c.1. If a meter has been set for each well, the natural gas production for each well shall be reported, with each well identified by API number.

11.1.c.2. If common or master meter measurement is in use, the wells subject to common measurement shall be identified by API number, and production estimated for each well shall be reported.

11.1.c.3. If calculated value is in use and no measurement of natural gas is available for an individual well or group of wells, the calculated volume of natural gas production using accepted engineering methods shall be reported, the wells so measured shall be identified by API number, and the production estimate for each well shall be reported if estimates are made.

11.1.d. Measurement of Produced Water – The volume of water produced shall be determined through the standard practices in the industry. For the purposes of reporting produced water volume under this section, "produced water" means any water originating from subsurface formations that is brought to the surface along with oil or natural gas. Flowback water volumes need not be included in this report. For the purpose of this section the definition of "flowback" is the definition found in Section 9.1.b.3.A.

11.1.~~d~~e. Failure to submit an annual report of natural gas, oil, condensate or water ~~or natural gas liquids~~ production as required by this rule or to provide proof of an existing use or a bona fide future use per 35 CSR 5 shall constitute a rebuttable presumption that the well is abandoned by the operator.

§35-8-12. Reclamation; Notification; Production and Gathering Pipelines; and Operating in Designated Mining Areas.

12.1. Reclamation under the Construction and Reclamation Plan. – All proposed reclamation methods for construction of any roads, drilling locations, pits, impoundments or alternative overflow prevention facilities shall be submitted on Form WW-9 with the application for any permit required by W. Va. Code § 22-6A-7. Proposed reclamation methods shall be approved by the Chief or the Chief's designee prior to the issuance of the permit, and all reclamation shall be done under the supervision of the Chief or the Chief's designee. With the consent of this Chief or the Chief's designee, the reclamation may be altered from the plan initially set out in Form WW-9, if found necessary due to topography or other conditions not apparent upon initial submission and approval of the proposed reclamation methods.

12.2. Access Roads - All access roads shall be constructed and maintained so as to minimize sedimentation, maintain natural drainage areas and, if practicable, to direct or carry away from disturbed areas surface water run-off from undisturbed areas.

12.3. Drilling Sites - Drilling sites shall be constructed and maintained to prevent surface run-off carrying excessive sedimentation from the site, to confine all materials leaked or spilled as a result of drilling operations to the drilling site, and to minimize sedimentation by not placing in any stream any material moved or cut. Upon the plugging of a non-productive well, whether as a continuous operation with other permitted well work or otherwise, all cementing and other waste materials resulting therefrom shall be retained on the drilling site until properly disposed of or recycled.

12.4. Pits and Freshwater Impoundments Associated with a Well Work Permit - All pits shall meet the requirements of subdivisions 17.2.b. through 17.2.f. and subdivision 17.2.h. of this rule. Additionally, ~~All~~ all pits and freshwater impoundments constructed on the permitted well location shall meet the following minimum requirements:

12.4.a. All pits and freshwater impoundments shall be constructed and maintained so as to prevent seepage, leakage or overflows and to maintain their integrity.

12.4.b. Provisions shall be made for diverting surface water from pits.

12.4.c. All pits and freshwater impoundments shall have adequate freeboard to prevent overflow, and in no case shall the freeboard be less than approximately two (2) feet. When an operator is unable to maintain adequate freeboard to prevent overflow, the operator shall notify the oil and gas inspector and an additional pit, freshwater impoundment or alternative overflow facility shall be constructed under the supervision of the Chief or the Chief's designee. The additional pit, freshwater impoundment or alternative overflow facility shall also meet the requirements specified in this subsection (12.4).

12.4.d. All pits and freshwater impoundments shall have an impermeable synthetic liner to prevent seepage or leakage, except those freshwater impoundments deemed to be suitable to prevent seepage or leakage based on soil analyses from the operator and standards developed and certified by a West Virginia registered professional engineer and approved by the Chief. All liners shall be installed in a manner that protects the structural integrity of both pit or freshwater impoundment and liner.

12.4.e. Dikes and embankments associated with pits and freshwater impoundments shall be constructed of compacted material and maintained with a slope that will preserve the structural integrity of the dike or embankment.

12.4.f. All dikes and embankments shall be free of trees and other organic matter, large rocks or any other material that reasonably could be expected to adversely affect the structural integrity of the dike or embankment.

12.4.g. Reclamation of the pits and freshwater impoundments shall not cause an overflow or discharge of materials to waters of the State. All material in the pit or freshwater impoundment, including the liner, shall be disposed of ~~in accordance with W. Va. Code § 22-6A-8(g)(2). All pit fluid shall be disposed of at a permitted off-site location.~~ under approved permit unless beneficially reused in an appropriate manner.

12.4.h. All pits and alternative overflow prevention facilities shall be constructed, maintained, and reclaimed so as not to be left in a condition that constitutes a hazard or prevents use of the surface for any use available prior to the well activity, unless otherwise allowed by agreement with the surface owner, after the expiration of the reclamation period prescribed by W. Va. Code § 22-6A-14 and this section of the rule.

12.4.i. No pits or freshwater impoundments shall be constructed or utilized in any area having karst terrain, as identified, mapped, and published by the West Virginia Geological and Economic Survey.

12.5. Surface and Underground Water Pollution.

12.5.a. Before beginning to drill a horizontal well, the well owner or operator shall make proper and adequate provision to prevent pollution of the surface and groundwater.

12.5.b. When rotary drilling penetrates a formation known to contain substantial amounts of salt water, drilling will continue to the next casing point by drilling with mud, foaming or other satisfactory methods for the purpose of isolating the salt water in the formation or preventing the discharge of salt water into a freshwater horizon or to the surface of the ground. In the case of foaming, it is recognized that a certain amount of salt water mixed with the cuttings will be discharged above the surface of the ground, which will be contained in lined pits or steel tanks no larger than necessary for this purpose.

12.6. Notifications Prior to Commencement of Work - Prior to the construction of roads, locations or pits-for any proposed well work, the operator or his contractor shall notify the oil and gas inspector so that the inspector can inspect and approve the construction and method of reclamation for all areas proposed in the permit application to be disturbed in siting, drilling, completing or producing the well. In addition, the well operator or his contractor shall notify the oil and gas inspector twenty-four (24) hours before actual permitted well work is commenced.

12.7. Requirements for Production and Gathering Pipelines.

12.7.a. This rule prescribes the minimum requirements for the safe and efficient installation of all production and gathering pipelines installed, relocated or replaced after the effective date of this rule, which are not regulated by the United States Department of Transportation minimum safety standards applicable to pipelines.

12.7.b. The Chief reserves the right to direct the burial of any line installed pursuant to this rule to protect the public safety, by order issued after notice and hearing pursuant to the Office's rules.

12.7.c. Subject to the reservation in subdivision 12.7.b. above, production and gathering lines subject to this rule shall conform to the following:

12.7.c.1. Lines shall be buried where practical and reasonable, and practical and reasonable shall be construed to mean lines should be buried in the following situations:

12.7.c.1.A. Where the line crosses agricultural land as defined in W. Va. Code § 19-19-2;

12.7.c.1.B. Where an unburied line would prohibit use of a pre-existing private roadway or other means of access to a part of or all of surface land;

12.7.c.1.C. Where the line is crossing a stream bed;

12.7.c.1.D. Where the line crosses a public road, in which event it shall be buried and otherwise installed in accordance with the rules of the public agency having jurisdiction over the road; and

12.7.c.1.E. Where the Chief decides prior to installation that burial would be practical and reasonable.

12.7.c.2. All buried lines shall be installed with a minimum of eighteen (18) inches of cover, except where solid rock is encountered, in which case the minimum cover shall be six (6) inches. The buried line shall be installed in a manner that protects the line against corrosion.

12.7.c.3. Whenever a buried line crosses a pre-existing public or private roadway, the location of the line shall be clearly marked at the point of crossing by an appropriate marker; and

12.7.c.4. A suitable conductive wire shall be installed with plastic pipe or other suitable material to facilitate locating it with an electronic pipe locator.

12.7.d. Notwithstanding subdivision 12.7.c of this rule, the surface owner(s) of record of any tract subject to the provisions of W. Va. Code § 22-6A-14 have the right to prescribe that a pipeline or specified parts thereof need not be buried. The prescription shall be on Form WR-75, "Permission Not to Bury Production or Gathering Line," unless it is included in the recorded right-of-way or lease under which the pipeline is to be installed, which right-of-way or lease was granted by the then surface owner of record. Once executed and delivered to the person who proposed to install and operate the line, the prescription may not be revoked by any subsequent surface owner(s) of record.

12.7.e. This rule shall not be construed to prohibit a surface owner from preparing a safe crossing of a pipeline for a new means to access of another part of his or her tract.

12.8 Operating in Designated Mining Areas

12.8.a. In the event the coal permit holder provides a gas operator with a Notice of Designated Mining Area by certified mail/return receipt requested, the gas operator shall disclose by markers or drawings on one or more maps all natural gas pipelines as provided in subdivision 12.8.b below within ninety (90) days of the date of receipt of the notice, but the Chief may extend this time period by not more than ninety (90) days for good cause shown.

12.8.b. Pipelines in designated mining areas

12.8.b.1. All buried pipelines within a designated mining area shall be physically marked by the installation by or for the gas operator of above ground pipeline markers to be placed near the pipeline approximately along the line of sight, but not more than five hundred feet (500') apart. The pipeline markers shall be at least three feet (3') in height and include the word "Warning," "Caution," or "Danger" followed by the words "Gas Pipeline," all of which must be in letters at least one inch (25 millimeters) high with one-quarter inch (6.4 millimeters) stroke, and show the name of

the gas operator and the ten digit telephone number (including area code) where the gas operator can be reached. Markers shall be within twenty feet (20') of the pipeline where practicable. If the pipeline has been buried or moved by a third party, the pipeline shall be marked on a best-efforts basis and, in any event, the gas operator is not required to dig or excavate to uncover the line. The gas operator does not have a duty to replace markers unless those markers are damaged, disturbed or destroyed by the gas operator or someone acting on the gas operator's behalf.

12.8.b.2. Unburied lines within a designated mining area will be marked as provided above or identified by providing the holder of the coal permit with computer-assisted or other drawings that show the approximate location of the unburied natural gas pipelines operated by the gas operator, or a topographical map on a scale no larger than one inch equals two thousand feet (1" = 2,000'), showing the approximate location of the operator's natural gas pipelines. The pipeline locations shown on the map shall be within three hundred feet (300') of the actual location of the line, unless it has been buried or moved by a third party, in which event the map or drawings shall identify the line on a best-efforts basis.

12.8.b.3. Pipeline markers should be placed where reasonably possible within "line of sight," but in places where that may not be practical, other means may be used to establish markings along the line of sight, provided that the coal operator is informed of the alternative method of marking. Additionally, upon receipt of a Notice of Designated Mining Area, the gas operator shall provide the coal operator that provided the Notice of Designated Mining Area with a ten digit telephone number where the gas operator may be contacted.

12.8.b.4. The provisions of this subdivision may be superseded by a written agreement between the gas operator and the coal operator, which allows for notice of the location of pipelines by providing drawings, computer-assisted or otherwise, a topographical map of a scale no less detailed than one inch equaling two thousand feet (1" = 2,000') or by providing the GPS coordinates of such pipeline. A copy of the agreement shall be supplied to the Director of Miners' Health, Safety, and Training and to the Chief.

12.8.c. Gas operators who have received a Notice of Designated Mining Area shall have a continuing obligation to comply with the disclosure requirements of this section with respect to: (1) all new pipelines installed by the gas operator subsequent to the gas operator's initial disclosure; and (2) all existing pipelines relocated by the gas operator elsewhere within a designated mining area subsequent to the gas operator's initial disclosure.

12.8.d. Upon the gas operator providing the required maps, coordinates or drawings or upon the gas operator setting conforming pipeline markers, the gas operator shall certify to the Chief by notarized affidavit, sworn or attested under penalty of law, that, to the best of the gas operator's knowledge and belief, or that of the gas operator's authorized agent or representative: (1) the gas operator is aware of and understands its obligations pursuant to subdivision 12.8.a. of this rule; and (2) the gas operator has complied fully therewith. The gas operator shall deliver a copy of the certification to the coal permit holder by certified mail/return receipt requested to the address provided in the Notice of Designated Mining Area.

12.8.e. So long as mining activities are ongoing, and excepting a bona fide emergency, a gas operator shall attempt to contact the coal permit holder whenever the gas operator enters or leaves the designated mining area. An attempt shall be deemed sufficient if the gas operator checks in at any staffed guard gate or entrance, or if the gas operator telephones the contact number listed in the Notice of Designated Mining Area in a good faith effort to communicate with the coal permit holder.

12.8.f. If any provision of this section is deemed to conflict with the pipeline regulations of the United States Department of Transportation (USDOT), then the USDOT regulations shall prevail, be enforced, and govern the conduct otherwise subject to this section. Nothing in this section is intended to contravene any right or obligation imposed by contract, statute or the common law.

§35-8-13. Preventing Waste.

13.1. Equipment - All well owners or operators, contractors, drillers, pipeline companies or gas distributing companies producing or transporting oil or natural gas for any purpose shall use every reasonable precaution in accordance with accepted and approved methods to prevent waste of oil or natural gas and to prevent the pollution of the waters of the State in drilling, producing, transporting or distributing the oil or natural gas and shall not wastefully utilize oil or natural gas or allow the same to leak or escape from natural reservoirs, wells or pipelines.

13.2. Commercial Well Properly Equipped - Whenever oil or natural gas in commercial quantities in a well-defined oil or natural gas bearing stratum, which stratum are known to contain oil or natural gas in commercial quantities, is encountered in any well drilled for oil or natural gas in this State, all oil or natural gas bearing strata shall be adequately protected from infiltrating waters.

13.3. Preparation for Drilling In - Equipment for conserving oil and natural gas shall be provided before drilling in. In all proved or well-defined oil or natural gas fields or where it can be reasonably expected that oil or natural gas in commercial quantities will be encountered, adequate preparations shall be made for the conservation of oil or natural gas before drilling any well.

13.4. Multi-Zone Production - So far as it is practical to do so, natural gas being produced at a high pressure should be separated in the well from that being produced at a substantially lower pressure by means of casing, tubing, casing heads, and packers in order to eliminate the flow of high pressure natural gas into the low pressure sands.

§35-8-14. Variances.

Upon request of the operator, or upon the Chief's own initiative, the Chief may grant a variance from any requirements of this rule upon a showing by the operator of the reason for the variance and that alternative practices will satisfy the requirements of Chapter 22, Article 6A of the West Virginia Code and exhibit sound engineering practices. Prior to taking final action to grant or deny a variance, the Chief shall provide notice of the proposed action to the public, the surface owner(s) of record, and any coal owner, operator or lessee and provide them with an opportunity to comment on the a proposal.

§35-8-15. Water Supply Testing.

15.1. Testing Obligations and Rights.

15.1.a. In accordance with W. Va. Code §§ 22-6A-10(b)(5) and 22-6A-10(d), at the request of the surface owner or water purveyor, the operator shall sample and analyze, in accordance with this section, water from any existing water wells or developed springs actually used by the surface owner or water purveyor for consumption by humans or domestic animals, which water wells or springs are located within one thousand five hundred (1,500) feet from the center of the proposed well pad.

15.1.b. If no request is made of the operator pursuant to the previous subsection, the operator shall sample and analyze, in accordance with this section, water from any one known existing water well or developed spring within one thousand five hundred (1,500) feet from the center of the proposed well pad. If more than one water well or spring exists, the operator shall select for sampling and analysis the one water well or spring that, in the operator's judgment, has the highest potential for being influenced by the operator's well work.

15.1.c. If for any reason the operator is unable to sample and to analyze water from any existing water wells or developed springs within one thousand five hundred (1,500) feet from the center of the proposed well pad, the Chief may require the operator to sample and to analyze, in accordance with this section, water from one existing water well or developed spring located between one thousand five hundred (1,500) and two thousand (2,000) feet from the center of the proposed well pad.

15.1.d. In accordance with W. Va. Code § 22-6A-18, at the operator's discretion, any or all existing water wells or developed springs within one thousand five hundred (1,500) feet from the center of the proposed well pad may be sampled and analyzed in accordance with this section.

<u>15.1.e. In accordance with W. Va. Code § 22-6A-8(g)(5)(D), owners of drinking water wells located within one thousand five hundred feet (1,500') of a water supply well used to support activities permitted under this article may request well flow and quality testing prior to operating the water supply well. Drinking water well owners shall be noticed as described in section 15.2.b.</u>

15.2 Notice

15.2.a. Surface Owner and Water Purveyor – Pursuant to W. Va. Code § 22-6A-10(d), the operator shall give notice to the surface owner and the water purveyor of their right to request that the operator sample and analyze an existing water well or developed spring in accordance with subdivision 15.1.a. of this rule. The operator may satisfy this requirement by providing this notice at the same time and in the same manner as it provides the surface owner with notice of the permit application.

15.2.b. Generally - The operator shall make a reasonable attempt to give additional notice of

the right to request the operator to sample and analyze an existing water well or developed spring in accordance with subdivision 15.1.a above. The operator may satisfy this requirement if notice is provided by any of the following methods:

15.2.b.1. Personal service or posting notice at the entrance to any occupied dwellings or at any other locations where the use of the existing water well or developed spring is conspicuous, which occupied dwellings or other locations are located within one thousand five hundred (1,500) feet from the center of the proposed well pad;

15.2.b.2. Mailing notice to occupied dwellings located within one thousand five hundred (1,500) feet from the center of the proposed well pad; or

15.2.b.3. Any other means reasonably calculated to provide adequate notice to the surface owner and water purveyor and approved by the Chief.

15.2.c. Form - The notice provided by the operator in accordance with this section shall be in a form approved by the Chief, which, at a minimum, shall contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

15.2.d. Timing – The operator shall provide notice as required in subsection 15.2 above prior to filing any permit application with the Chief.

15.2.e. Filing – At the time the operator files a well work permit application, the operator shall also file a statement describing whether any water users as described above were identified and the manner in which the operator provided the requisite notice.

15.3. Sampling and Analysis.

15.3.a. Approved Methods - The operator shall collect and analyze samples in accordance with methods approved by the Chief or as set forth at 40 CFR Part 136.

15.3.b. Parameters - The operator shall analyze samples for the following parameters:

15.3.b.1. Total Petroleum Hydrocarbons (GRO, DRO, ORO)

15.3.b.2. BTEX

15.3.b.3. Chloride

15.3.b.4. Sodium

15.3.b.5. Total Dissolved Solids (TDS)

15.3.b.6. Aluminum

15.3.b.7. Arsenic

15.3.b.8. Barium

15.3.b.9. Iron

15.3.b.10. Manganese

15.3.b.11. pH

15.3.b.12. Calcium

15.3.b.13. Sulfate

15.3.b.14. Detergents (MBAS)

15.3.b.15. Dissolved Methane

15.3.b.16. Dissolved Ethane

15.3.b.17. Dissolved Butane

15.3.b.18. Dissolved Propane

15.3.b.19. Bacteria (total coliform)

15.3.b.20. Any others parameters determined by the operator or the Chief.

15.3.c. Laboratories - The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

15.3.d. Distribution of Results – No later than thirty (30) days after receipt of any water sample analysis, the operator shall provide the results of the same in writing to the Chief and to any of the water users who requested an analysis in accordance with this section.

15.3.e. Certification of Results - The submission of analytical results on behalf of the

operator pursuant to subdivision 15.3.d. shall be made by a responsible operator representative or contractor knowledgeable of and responsible for the sampling and analysis of water samples, who shall make the following certification:

> I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

15.4. Operator's Right of Entry.

15.4.a. After notice as required by this section, the operator (or any other contractor or laboratory directed by the operator to collect samples of water for analysis) may enter onto land upon which an existing water well or developed spring is located to conduct sampling as authorized by subsection 15.1 above. This right of entry may be exercised for this purpose without the permission of the surface owner or water purveyor.

15.4.b. If the surface owner or water purveyor protests or acts to block the right of entry, then the right of entry may be enforced by a court with jurisdiction to enter an injunction regarding the land upon which the existing water well or developed spring is located. However, if any person acts to block the right of entry provided herein, the operator is not required to enforce this right of entry and shall not be liable for any penalty or loss of rights, privileges or permits based on the failure to exercise the right of entry and obtain the water sample otherwise required by this section.

15.4.c. If the operator or contractor does not enter onto land and obtain a water test because of a protest or action to block the operator's or contractor's entry, the protest or action to block entry shall be admissible as evidence in an action between the operator and any surface owner or water purveyor in which the results of the test would have been relevant.

15.4.d. The operator is liable for any reasonable actual damages done other than normal wear and tear of the property while gathering the sample required by this section. This provision does not limit other provisions of the law.

§35-8-16. Construction of Pits and <u>Freshwater</u> Impoundments with Capacity of Greater Than Five Thousand (5,000) Barrels Included in a Specific Well Work Permit.

16.1. All pits and <u>freshwater</u> impoundments with capacity of greater than five thousand (5,000) barrels that are included in a specific well work permit shall be constructed only in locations appropriate for the storage of water, including wastewater, and shall be designed, constructed, located, maintained, and used in accordance with this rule and in a manner that minimizes adverse

environmental effects and assures safety to the public. Notice of construction of all pits and freshwater impoundments shall be provided to the oil and gas inspector and the Chief prior to construction. The notice shall identify the location and dimensions of the pit or freshwater impoundment. The Chief shall have the authority to inspect these sites and enforce this rule.

16.2. Design and Construction Requirements. – All pits shall meet the requirements of subdivisions 17.2.b. through 17.2.f. and subdivision 17.2.h. of this rule. Additionally, ~~All~~ all pits and freshwater impoundments subject to this section shall meet the following minimum requirements:

16.2.a. Be constructed in accordance with plans designed and certified by a West Virginia registered professional engineer;

16.2.b. Provide adequate freeboard of no less than approximately two (2) feet to resist overtopping by waves or sudden increases in volume and to provide adequate slope protection against surface erosion and sudden drawdown;

16.2.c. Have a stable foundation during all phases of construction and operation and be designed based on adequate and accurate information on the foundation conditions; and

16.2.d. Incorporate lifelines and perimeter fencing for increased safety.

16.3. In constructing the dike or embankment, the operator shall remove all topsoil from the foundation, install cutoff trenches where necessary to ensure stability, provide for proper compaction and ensure against excessive settlement by excluding sod, roots or frozen soil from the embankment. Permanent vegetative cover, free of brush and trees, shall be established on all dikes and embankments.

16.4. A pit or freshwater impoundment that is constructed in such a manner that it (a) Rises twenty-five (25) feet or more above the natural bed of a stream or watercourse as measured from the downstream toe of the embankment and does or can impound fifteen (15) acre-feet or more of water; or (b) Rises six (6) feet or more above the natural bed of a stream or watercourse as measured from the downstream toe of the embankment and does or can impound fifty (50) acre-feet or more of water is, by definition, a dam and thereby subject to the provisions of the *West Virginia Dam Control Act*, W. Va. Code § 22-14-1, et seq. and are not subject to the requirements of this section or of W. Va. Code § 22-6A-1 et seq. as it relates to pit and impoundment construction.

16.5. Any freshwater impoundment that does not meet the criteria of section 16.4 above and that is intended to be left permanent shall meet the requirements set forth by the United States Department of Agriculture's Natural Resources Conservation Service "Conservation Practice Standard – Ponds" (Code 378). No pits may be left permanent.

16.6. Inspections.

16.6.a. After construction and prior to the placement of any fluid, all pits and freshwater

impoundments with a capacity of greater than five thousand (5,000) barrels shall be inspected by a West Virginia registered professional engineer to ensure compliance with the certified design and construction plan. If the inspection reveals that the pit or freshwater impoundment has been constructed in accordance with the plan, the professional engineer shall certify that in writing to the Chief. Placement of fluid in the pit or freshwater impoundment shall not begin until the certification has been filed with the Chief.

16.6.b. All pits and freshwater impoundments with a capacity of greater than five thousand (5,000) barrels containing fluid must be inspected every two (2) weeks for the life of the pit or freshwater impoundment and within twenty-four (24) hours of a significant rain event, which shall be defined as rainfall of two (2) inches or more in a six (6) hour period. The inspection must be conducted by a company representative experienced in pit and impoundment construction and a report of the same shall be available for review by the Office. If an inspection discloses a potential hazard, the company shall inform the oil and gas inspector or the Chief within twenty-four (24) hours of the inspection the findings and of the emergency procedures implemented for public protection and remedial action.

§35-8-17. Construction of Centralized Pits and Impoundments with Capacity of Greater Than Five Thousand (5,000) Barrels.

17.1. For purposes of this rule, the following terms have the following meanings:

17.1.a. "Centralized pit or impoundment" is a pit or impoundment, as that term is defined above, with capacity of greater than five thousand (5,000) barrels, which is not associated with a specific well work permit, but which is being used by the operator for the fluid management of one or more surrounding well work locations. The operator must receive a certificate of approval from the Chief prior to constructing a centralized pit or impoundment.

17.1.b. "Certificate of approval" means the written approval issued by the Chief to a person who has applied to the Chief for a certificate that authorizes the person to place, construct, enlarge, alter, remove or repair a centralized pit or impoundment and which specifies the conditions or limitations under which the work is to be performed by the applicant.

17.1.c. "Dangerous condition" means any structural or hydraulic condition of a centralized pit or impoundment that may lead to (1) failure of the centralized pit or impoundment and possible loss of human life or substantial loss of property; (2) harm to the public health or welfare; or (3) significant harm to the environment.

17.1.d. "Emergency condition" means an imminently dangerous condition where failure of the centralized pit or impoundment is possible at any time.

17.2. All centralized pits and impoundments shall be constructed in accordance with the provisions of section 16 above and the additional requirements set forth in this section except subsections 17.2.f. and 17.2.g. which do not apply to freshwater impoundments.

17.2.a. Siting Requirements

17.2.a.1. No centralized pits or freshwater impoundments shall be constructed or utilized in any area identified, mapped, and published as karst terrain by the West Virginia Geological and Economic Survey.

17.2.a.2. Centralized pits may not be constructed within the one hundred (100) year floodplain of waters of this State as determined by the National Flood Insurance Program (NFIP) floodplain mapping; in or within one hundred feet (100') of a wetland as measured horizontally from the limit of disturbance; within five hundred feet (500') measured horizontally from the limit of disturbance to an occupied dwelling, unless the dwelling owner has provided a written waiver consenting to the pit being closer than five hundred feet (500'); within five hundred feet (500') of a perennial stream as measured horizontally from the limit of disturbance; within five hundred feet (500') of a private water source as measured horizontally from the limit of disturbance, unless the owner of the water source has provided a written waiver consenting

to the pit being closer than five hundred feet (500'); within one thousand feet (1,000') upstream of a public water system intake source as measured horizontally from the limit of disturbance; or in or within twenty inches (20") of the seasonal high of the groundwater table, except perched groundwater zones.

17.2.b. A centralized pit or impoundment shall have dikes that are designed, constructed, and maintained with sufficient structural integrity to prevent massive failure of the dikes. Minimum crest width of the embankment shall be twelve feet (12'). Maximum interior and exterior slopes shall be constructed at a two-to-one ratio (2:1), horizontal to vertical, unless the operator can demonstrate through soil testing and engineered plans that include slope stability analyses that different slope configurations are sufficient to hold the required loading as defined by the engineer with a minimum factor of safety of one and one-half (1.5).

17.2.c. Minimum compaction requirements for embankment fills shall be the same as those for embankment fills as set forth in subdivision 5.5.c.9 above and have maximum side slopes of two horizontal to one vertical (2:1)

17.2.d. Fills shall be constructed in horizontal lifts with a maximum thickness nine inches (9") with no individual particle being greater than three inches (3"). Organic material, woody debris, frozen material or any other objectionable or deleterious material shall not be allowed in any fill material utilized in the construction of a pit or impoundment. No fill material shall be allowed that is too wet or too dry to achieve adequate compaction based on soil test results;

17.2.e. Liner Requirements

17.2.e.1. Centralized impoundments shall have a synthetic liner designed and constructed of materials (e.g., a geomembrane of sixty (60) mil minimum thickness) to prevent the migration of water out of the impoundment to the adjacent surface and subsurface soil, groundwater or surface water at any time during the active life.

17.2.e. 2. Centralized pits shall have a two liner system. The liner system shall be designed, constructed, and installed to prevent migration of wastewater out of the centralized pit to the adjacent surface and subsurface soil, groundwater or surface water at any time during the active life of the centralized pit. The liner system shall include a synthetic top liner designed and constructed of materials (e.g., a geomembrane of sixty (60) mil minimum thickness) to prevent the migration of wastewater into the liner during the active life of the pit and a synthetic bottom liner, designed and constructed of materials (e.g., a geomembrane of sixty (60) mil minimum) to prevent the migration of wastewater into this component during the active life of the pit.

17.2.e.3. Liners shall be constructed of synthetic materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the water or wastewater to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation; placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression or uplift; and installed to cover all surrounding earth likely to be in contact with the water or wastewater.

17.2.f. Leak Detection

17.2.f.1. The area between the top and bottom liners, as described in paragraph 17.2.e.2., shall be designed as a leak detection system. This leak detection system shall be capable of detecting, collecting, and removing leaks of wastewater at the earliest practicable time through all areas of the top liner likely to be exposed to wastewater during the active life of the pit.

17.2.f.2. The leak detection system shall be constructed with a minimum bottom slope of one percent; constructed of granular drainage materials with a hydraulic conductivity of 1×10^{-1} cm/sec or more and a minimum thickness of twelve (12") inches (30.5 cm) or constructed of synthetic or geomet drainage materials with a transmissivity of at least 3×10^{-4} m^2/sec; constructed of materials that are chemically resistant to the wastewater in the centralized pit, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastewater and any materials or equipment used at the surface of the centralized pit; designed and operated to minimize clogging during the active life of the pit; and constructed with sumps and liquid removal methods (e.g., pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each centralized pit shall have its own sump(s). The design of each sump and removal system shall provide a method for monitoring the volume of liquids removed.

17.2.f.3. Any liquids removed from a pit shall be properly managed by offsite disposal or placed back into the centralized pit. The owner or operator shall collect and remove pumpable liquids in the sumps to minimize the head on the bottom liner.

17.2.g. Monitoring

17.2.g.1. A person or company that operates a centralized pit shall install, operate, and maintain a monitoring system that can detect the entry of contaminants into the groundwater or surface water.

17.2.g.2. The water quality monitoring system shall accurately characterize groundwater flow, groundwater chemistry, and flow systems on the site and adjacent area. For the purpose of establishing baseline groundwater data, the system shall consist of at least one monitoring well hydraulically down gradient from the proposed pit area in the direction of decreasing static head that is capable of providing representative data of groundwater prior to the construction of the pit. The down gradient monitoring well(s) shall be: sufficient in number, location and depth to be representative of water quality; located so that they do not interfere with routine well operations; located within two hundred feet (200') of the centralized pit; and drilled by drillers licensed in accordance with the Division of Water and Waste Management's *Monitoring Well Rules*, 47 CSR 59. The well materials shall be decontaminated prior to installation. All monitoring wells shall be installed in accordance with the Division of Water and Waste Management's *Monitoring Well Design Standards*, 47 CSR 60.

17.2.g.3. The groundwater monitoring program shall include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide a reliable indication of groundwater quality below the centralized pit. At a minimum, the program shall include procedures and techniques for sample collection, sample preservation and shipment, analytical procedures, and chain of custody control.

17.2.g.4. Analyses of data collected shall be submitted to the Office within sixty (60) days of sampling or fifteen (15) days after completion of analyses, whichever is sooner, unless the Office approves another time period upon request of the operator and for good cause shown. Water samples must be collected from monitoring wells on a minimum frequency of once per calendar quarter and analyzed by a laboratory certified by the Division of Water and Waste Management's laboratory certification program for, at a minimum, the following parameters:

17.2.g.4.A. Total dissolved solids;

17.2.g.4.B. Chloride;

17.2.g.4.C. Sulfates;

17.2.g.4.D. pH; and

17.2.g.4.E. Specific conductance.

17.2.h. A centralized pit or impoundment shall be designed, constructed, maintained, and operated to prevent overtopping resulting from normal or abnormal operations; overfilling; wind; rainfall; run-on; malfunctions of level controllers, alarms, and other equipment; and human error and have at a minimum two feet (2') of freeboard maintained at all times. To verify the two feet (2') of freeboard, the elevation of two feet (2') below the crest of the centralized pit or impoundment shall

be permanently marked on the liner.

17.3. Certificate of Approval for Construction of Centralized Pits and Impoundments

17.3.a. Application Preparation, Submission, and Review

17.3.a.1. Applications shall be submitted on Form IMP-1B. Application forms must be completed in their entirety without unauthorized omissions, alterations or additions. Applications shall be signed by the applicant.

17.3.a.2. A complete application will consist of a completed and signed application form, all applicable fees, and a plan package containing the information required by subdivision 17.3.b. below.

17.3.a.3. Applications will be reviewed for sufficiency by the Office. The review will consider the completeness and technical accuracy of the information submitted and will evaluate all engineering plans and assumptions to determine the safety of the centralized pit or impoundment.

17.3.a.4. Applications that are incomplete or otherwise not in compliance with the requirements of this rule will be returned to the applicant for correction.

17.3.b. Plans and Specifications

17.3.b.1. Plans and Specifications - Plans and specifications relating to the design, placement, construction, enlargement, alteration, repair, removal or reclamation of a centralized pit or impoundment must be prepared in accordance with the requirements of this rule.

17.3.b.2. All plans and specifications shall be signed and certified by a West Virginia registered professional engineer.

17.3.b.3. Plan Package Organization - Each plan package submitted for approval shall contain a general narrative discussion of the project to fully and accurately describe the following information, arranged in the following order, unless an alternative submission format is approved by the Chief:

17.3.b.3.A. Existing site conditions;

17.3.b.3.B. Local geology and geotechnical considerations;

17.3.b.3.C. Design techniques with associated design computations and data;

17.3.b.3.D. Environmental protection measures for the control of erosion and sedimentation and for the disposal of construction wastes;

17.3.b.3.E. Method of construction, including clearing and grubbing, topsoil stockpiles, and surface and subsurface drainage structures; and

17.3.b.3.F. Routine inspection and maintenance procedures and schedules.

17.3.b.4. Project Specifications - Specifications submitted with the plan package must be specific to construction of the centralized pit or impoundment for which a certificate of approval is being sought. Specifications shall be included in the plan package to detail the following:

17.3.b.4.A. Clearing and grubbing;

17.3.b.4.B. Soil stockpiles;

17.3.b.4.C. Slopes and grades;

17.3.b.4.D. Surface drainage structures such as embankment diversion ditches;

17.3.b.4.E. Spreading and compaction requirements, including lift thicknesses, moisture content, and degree of compaction;

17.3.b.4.F. Anti-seep mechanisms;

17.3.b.4.G. Channel and slope protection (e.g., riprap);

17.3.b.4.H. Project quality control and testing;

17.3.b.4.I. Construction erosion and sediment control;

17.3.b.4.J. Construction waste disposal;

17.3.b.4.K. Dust abatement;

17.3.b.4.L. Revegetation;

17.3.b.4.M. Installation and reading of monitoring devices;

17.3.b.4.N. Inspection and maintenance; and

17.3.b.4.O. Other information as requested by the Chief.

17.3.c. Maps and Drawings – The operator shall include maps and drawings in the plan package showing the following:

17.3.c.1. The project area in relation to primary highways, county seats, and major drainages. County highway maps may be used for this purpose;

17.3.c.2. The limits of the project area shall be included in the plan package. The minimum map scale meeting this requirement is a 7½- minute United States Geological Survey topographic map with the project area plotted on it;

17.3.c.3. A plan view map of the project area that shows all disturbed and impoundment or pit areas shall be included in the plan package showing detailed contour intervals (i.e., a five-foot maximum interval); and

17.3.c.4. Construction drawings shall be included in the plan package showing subdrains, spillways, anti-seep mechanisms, and other pertinent structures.

17.3.d. Erosion and Sediment Control Plan – The operator shall submit as part of the plan package an erosion and sediment control plan that has been certified by a West Virginia registered professional engineer. Erosion and sediment control measures shall, at a minimum, conform to current erosion and sediment control reference manuals and apply to the entire project area.

17.3.e. Reclamation Plan – The operator shall submit as part of the plan package a reclamation plan that has been certified by a West Virginia registered professional engineer. The reclamation plan shall include details describing the post-construction phase and the post-use final reclamation configuration of the centralized pit or impoundment site.

17.3.f. Maintenance Plan – The operator shall submit as part of the plan package a maintenance plan that has been certified by a West Virginia registered professional engineer. The maintenance plan shall be updated periodically as necessary to reflect changing site conditions and shall include, at a minimum, schedules for maintaining embankments, vegetative or rock covers, gates, fences, safety lines and equipment, liners, pumps, diversion ditches, drainage control, manifold loading lines, monitoring equipment, and appurtenances. The maintenance plan shall be implemented immediately by the operator upon issuance of the certificate of approval by the Chief. Specific maintenance requirements are set forth in subsection 17.8. below.

17.3.g. Monitoring and Emergency Action Plan

17.3.g.1. The operator shall submit as part of the plan package a monitoring and emergency action plan that includes, but is not limited to, the following:

17.3.g.1.A. A description of the centralized pit or impoundment, including appropriate drawings and location maps;

17.3.g.1.B. A description of areas or items to be inspected;

17.3.g.1.C. The responsible persons' names, addresses, and telephone numbers;

17.3.g.1.D. The method the responsible person(s) will use to contact the Chief and county emergency services authorities in the event of an emergency; and

17.3.g.1.E. Other items required by the Chief based upon site-specific conditions.

17.3.g.2. Monitoring and emergency action plans shall be updated annually. More frequent updating of the plans may be required by the Chief based upon rapidly changing personnel or site conditions. The updated monitoring plan shall be implemented immediately by the operator upon the approval of the plan by the Chief.

17.3.g.3. The operator shall coordinate with county emergency service authorities in the development of the emergency action plan and shall provide county emergency services authorities with a copy of the approved monitoring and emergency action plan and all updates to that plan that have been approved by the Chief.

17.3.g.4. Emergency Procedures

17.3.g.4.A. Emergency Condition - If the operator determines that an emergency exists, he or she shall immediately notify any person who may be endangered if the centralized pit or impoundment should fail and then notify the appropriate county emergency services authorities and the Chief. After providing notification of the emergency condition, the operator shall immediately take any remedial action, such as an emergency release of water, which is necessary to protect life and property. The Chief may waive the requirement for a certificate of approval where necessary to accomplish repairs under emergency conditions.

17.3.g.4.B. Dangerous Condition - Should a dangerous condition develop, the operator shall immediately notify the Chief and take any remedial action necessary to protect life and property. Emergency procedures developed in accordance with the provisions of subdivision 17.3.g. shall be implemented to protect life and property downstream. The site shall be inspected and monitored at least once every eight (8) hours until the emergency situation is alleviated. Continuous monitoring may be required by the Chief when there is an imminent danger to the health, safety or welfare of the public.

17.3.g.4.C. Evaluation of Dangerous Conditions - If a dangerous condition develops, the operator shall initiate an engineering evaluation as soon as possible to formulate a plan for permanent correction of the dangerous condition. The evaluation and corrective action plan shall be submitted to and approved by the Chief prior to implementation.

17.3.g.5. The Chief's approval of a monitoring and emergency action plan or updates to the plan shall not relieve the operator of its legal duties, obligations or liabilities otherwise applicable by law.

17.3.h. Water Management Plan – All applications for certificates of approval for centralized pits or impoundments shall include an estimation of the volume of water that will be stored in the pit or impoundment for which the certificate of approval is sought and, if filling the pit or impoundment requires the use of water obtained by withdrawals from waters of this State in amounts that exceed two hundred ten thousand (210,000) gallons during any thirty-day period, the

application for a certificate of approval shall include a water management plan as set forth in subsection 5.6. above,[2] except that the applicant for a certificate of approval does not need to provide the information required by paragraphs 5.6.b.4. and 5.6.b.5.

17.4. Notification of the Commencement of Construction – In addition to the requirements of W. Va. Code § 22-6A-10(h) and prior to the commencement of construction activities in the project area, the operator or the operator's representative shall notify the Chief and the surface owner of record of the tract on which the centralized pit or impoundment is to be constructed the name, address, and telephone number of the operator's and contractor's authorized contact person at the project area who is responsible for communicating with the Office and for receiving inspections reports and legal notifications, and the name, address, and telephone number of the operator's and contractor's authorized contact person at the project area whom the Chief or the surface owner can contact in case of an emergency, if those names and contact information are different.

17.5. Conformance with Plans

17.5.a. All work undertaken in the construction or modification of a centralized pit or impoundment shall be in strict conformance with the plans and specifications contained in the plan package submitted pursuant to subsection 17.3. above and approved by the Chief. Any changes to the approved plans and specifications shall be submitted to and approved by the Chief prior to implementation.

17.5.b. Upon completion of construction of a centralized pit or impoundment, the operator shall submit to the Chief certification from a West Virginia registered professional engineer that the centralized pit or impoundment was constructed in accordance with the approved plan. Once this certification and an as-built plan ~~has~~ have been received by the Chief or the Chief's designee, the centralized pit or impoundment may be filled. This final certification shall be maintained by the operator for a minimum of five (5) years after the reclamation of the structure and site. The certification shall be completed, signed, and sealed by the registered professional engineer who provided oversight for construction and shall contain, at a minimum, the following information: a statement that the engineer provided oversight for all aspects of construction and that the pit or impoundment was constructed as designed and in substantial conformance with these requirements and the quality assurance and quality control plan; soils classification testing results for the embankments; soil compaction testing results for the sub-base; as-built drawings noting any deviation from the original plans; quality assurance and quality control test results; and color photographs of, at a minimum, the following: the cleared and grubbed foundation; the leak detection system installation; the placement and compaction of fill; the completed embankments; the completed sub-base; and (6) the completed secondary liner.

17.6. On-Site Documents - A copy of the certificate of approval, all approved plans and specifications, and all outstanding notices to comply or orders to comply that have been issued by the Chief shall be available at the project area office for reference by construction personnel and the oil

2 This Rule in no way abrogates the statutory requirement that water withdrawals in excess of ~~seven hundred fifty~~ three hundred thousand (~~750,000~~300,000) gallons per calendar month be registered with the Division of Water and Waste Management. *See*, W. Va. Code § 22-26-1, et seq.

and gas inspector.

17.7. Application and Annual Registration Fees

17.7.a. Application Fee - Each application submitted to place, construct, alter, repair or remove a centralized pit or impoundment shall include an application fee of three hundred dollars ($300).

17.7.b. Annual Registration Fee – Operators holding certificates of approval shall be assessed an annual registration fee of one hundred dollars ($100). In accordance with W. Va. Code § 22-6A-9, existing certificates of approval will be extended for one year upon receipt of the annual registration fee, an inspection report in accordance with subsection 17.9.b., a maintenance plan in accordance with subdivision 17.3.f., a monitoring and emergency action plan in accordance with subdivision 17.3.g., and a water management plan in accordance with subdivision 17.3.h. Where an approved, up-to-date inspection report, maintenance plan, monitoring and emergency action plan, and water management plan are on file in the Office, and where no outstanding violation(s) exist, then the certificate of approval will be extended without resubmission of the foregoing documents upon receipt of the annual registration fee.

17.7.c. Any certificate of approval issued pursuant to W. Va. Code § 22-6A-9 and this rule is void if fee payment has not been made within forty-five (45) days of receipt of notice that the amount is due. Resubmission of an application in accordance with section 17.3 is required where a certificate has become void.

17.8. Maintenance of Centralized Pits or Impoundments

17.8.a. Signage – Once constructed, a centralized pit or impoundment shall display adequate signage that readily identifies its owner, its name and Certificate of Approval (COA) identification number, its contents, the ten-digit telephone number of a 24-hour emergency contact person, and warnings to the public forbidding unauthorized entry and communicating the hazards of unauthorized entry. Signs shall be conspicuously displayed at road entrances and, at a minimum, one on each of four sides of the pit or impoundment to ensure visibility from any approach. Signs shall be constructed of durable, weather-proof material.

17.8.b. Security – All centralized pits and impoundments shall be enclosed by adequate fencing to secure the site from access by the public and wildlife. ~~The fence shall be maintained in good condition.~~ A six foot (6') minimum height perimeter fence that is suitable to limit unauthorized entry to the site shall be installed prior to placing any fluid in the centralized pit or impoundment. At least one strand of barbed wire shall be installed at the top of the perimeter security fence to discourage unauthorized entry. An equivalent fencing measure may be utilized upon the approval of the Chief. This security fence shall be maintained for the life of the centralized pit or impoundment. Orange construction barrier fence and barbed wire only fence shall not be considered adequate for limiting unauthorized access. A lifeline throw ring safety device attached to a rope shall be kept available at all times in case someone accidentally falls into the pit or impoundment. The safety device shall be attached in a readily available location adjacent to the

centralized pit or impoundment.

17.8.c. Embankments – All failures resulting from landslides or slope failures shall be corrected immediately, if the failures affect the safety or design capacity of the centralized pit or impoundment or its appurtenances. Any such failure shall be reported to the oil and gas inspector or the Chief within twenty-four (24) hours of its occurrence.

17.8.d. All liners shall be maintained so as to prevent leakage.

17.8.e. The operator shall maintain leak detection equipment and establish a leak detection zone around any centralized wastewater impoundment so as to ensure quick detection of leaks; immediately address evidence of leaks, with all efforts made to control the leak, to lower the water level in order to inspect the leaking area, and to repair the leak; and report all leaks or spills to the agency's spill hotline at 1-800-642-3074, the oil and gas inspector, and the Chief.

17.8.f. The operator shall utilize a marking device in all centralized pits and impoundments that readily allows for water level readings. The marking device shall display increments of at least six (6) inches and be used to observe and log water level readings. The marking device may include paint markings on the liner wall, a vertical rod with markings or other similar system.

17.8.g. The immediate area surrounding all centralized pits and impoundments shall have vegetative control and be mowed periodically.

17.8.h. The embankments of all centralized pits and impoundments shall be kept clear of burrowing animals.

17.8.i. Diversion ditches and all other surface water control ditches shall be maintained in proper working order so as to prevent drainage into the centralized pit or impoundment or uncontrolled erosion and sedimentation.

17.8.j. The operator shall not store non-aqueous phase hydrocarbons (i.e. visible, floating hydrocarbons) in a centralized pit or impoundment. Accumulation of non-aqueous phase hydrocarbons shall be skimmed and disposed of properly.

17.9. Inspection of Centralized Pits or Impoundments

17.9.a. After construction and prior to the placement of any fluid, any centralized pit or impoundment shall be inspected by a West Virginia registered professional engineer to ensure compliance with the certified design and construction plan. If the inspection reveals that the pit or impoundment has been constructed in accordance with the plan, the professional engineer shall certify that in writing to the Chief. Placement of fluid into the pit or impoundment shall not begin until the certification and as-built plan ~~has~~ have been filed with the Chief.

17.9.b. During initial filling operations, the pit or impoundment shall be monitored continuously until the structure is filled. The pit or impoundment shall be inspected daily, at a

minimum, for the first seven (7) days after the initial filling. "Continuous monitoring" means that the structure will be inspected at a minimum frequency of at least every two (2) hours. During construction and installation, liner systems (e.g., membranes, sheets or coatings) shall be inspected for uniformity, damage, and imperfections (e.g., holes, cracks, thin spots or the presence of foreign materials). Immediately after construction or installation, synthetic liners shall be inspected to ensure tight seams and joints and the absence of tears, punctures or blisters.

~~17.9.b.~~17.9.c. All centralized pits and impoundments containing fluid must be inspected every two (2) weeks for the life of the pit or impoundment and within twenty-four (24) hours of a significant rain event, which shall be defined as rainfall of two (2) inches or more in a six (6) hour period. The person conducting the inspection shall report describing evidence of any of the following: deterioration, malfunctions or improper operation of overtopping control systems; sudden drops in the level of the structure's contents; and severe erosion or other signs of deterioration in dikes or other containment devices. The inspection must be conducted by a company representative experienced in pit and impoundment construction. If an inspection discloses a potential hazard, the company shall inform the oil and gas inspector or the Chief within twenty-four (24) hours of the inspection the findings and of the emergency procedures implemented for public protection and remedial action.

17.9.d. In the event the centralized pit or impoundment has not been utilized for its intended purpose for an extended period of time (at least six months), the owner or operator shall obtain a certification from a professional engineer that the centralized pit or impoundment, including that portion of any dike that provides freeboard, has structural integrity. The certification shall establish, in particular, that the dike: will withstand the stress of the pressure exerted by the types and amounts of water or wastewater to be placed in the centralized pit or impoundment; and will not fail due to internal erosion or piping without dependence on any liner system included in the centralized pit or impoundment construction.

17.9.e. An owner or operator shall record the amount of liquids removed from each leak detection system sump at least once each week during the active life of the centralized pit.

17.9.f. Pipelines transporting any wastewaters (e.g. drilling or hydraulic fracturing fluids) to or from the pit shall have pressure monitored at the pump. The discharge end of the pipeline shall be visibly inspected to ensure that flow does not decrease or change in a manner that could indicate that leakage is occurring in the pipeline. Personnel at both the intake and discharge end of the pipeline shall maintain constant communication during flowback or pumping operations when filling a centralized pit. Automated monitoring of the intake and discharge ends of the pipeline will also be acceptable. In the event of a leak or suspected leak, the operator shall cease operation of the pipeline until leaks are found and corrected.

17.9.g. Loading and unloading stations, including but not limited to drums, trucks, and railcars, shall have spill prevention and control facilities and procedures as well as secondary containment, if appropriate or otherwise required. Spill containment and cleanup equipment shall be readily accessible. Drip pans or other appropriate containment devices shall be utilized as needed at hose connections, valves or any other location that has small leaks.

17.10. Removal of Centralized Pits or Impoundments

17.10.a. To remove a centralized pit or impoundment, the operator shall submit Form IMP-5, "Impoundment Modification / Closure Form," along with the appropriate permit fee set forth in subdivision 17.7.a. above.

17.10.b. Removal of a centralized pit or impoundment shall be in accordance with the reclamation plan approved by the Chief and consist of the complete removal of the structure to the original ground. Centralized pits or impoundments shall be completely drained before removal operations begin. Removal work shall be scheduled during dry weather using National Weather Service advice and proceed quickly to reduce the potential for impounding water. Erosion and sediment control measures sufficient to comply with the approved erosion and sediment control plan shall be implemented during removal operations.

17.11. Transfer of a Centralized Impoundment; Transfer of a Centralized Pit Prohibited

17.11.a. An operator may transfer ownership of a centralized freshwater impoundment to the surface owner of record of the surface tract upon which the freshwater impoundment is situated, upon notification to the Chief in writing within thirty (30) days after the transfer as follows:

17.11.a.1. The name and address of the surface owner to whom the freshwater impoundment is transferred;

17.11.a.2. A copy of the signed agreement between the operator and the surface owner acknowledging certificate of approval responsibility and including any warranties, insurance coverage or liability agreements between the parties; and

17.11.a.3. The effective date of the ownership or responsibility transfer.

17.11.b. An operator may transfer ownership of a centralized pit or impoundment to a registered and bonded well operator upon notification to the Chief in writing within thirty (30) days after the transaction by providing the following:

17.11.b.1. A copy of the signed agreement between the operators; and

17.11.b.2. The effective date of the ownership transfer.

17.11.c. Any impoundment that does not meet the criteria of section 16.4. above and that is intended to be left permanent shall meet the requirements set forth by the United States Department of Agriculture's Natural Resources Conservation Service "Conservation Practice Standard – Ponds" (Code 378).

17.11.d. No centralized wastewater pit shall be left permanent, but must be removed and

reclaimed by the operator in accordance with this rule.

§ 35-8-18. Spill and Pollution Prevention and Control Measures; Drilling, Completion, Work-over, and Production Operations.

18.1. Site equipment shall be positioned and techniques shall be used on well sites so as to prevent spills of any pollutants to surface waters and ~~ground waters~~ groundwater of the State. Potential pollutant sources from well operations during the drilling, completion, work-over, and production phases include, but are not limited to, mobile treatment or service units, skid drop-off units, material storage, the loading and unloading of dry bulk materials and liquids, process activities, dust generating activities, improper connections or management practices, waste disposal practices, and production facilities.

18.2. The limit of disturbance must be indicated on the erosion and sediment control plan described in subdivision 5.4.c. of this rule. All site provisions and activities listed in this section must be conducted within this limit of disturbance.

18.3. The operator may utilize placement of linings, feltings, paddings, and support boardings of adequate qualities and strengths in the areas of the site that contain complex activities, equipment, and materials.

18.4. All catchment basins, synthetic linings, paddings, boardings, sumps, berms, dikes, curbings, drill pad spill containment lining systems, and diversionary structures shall be appropriately installed, of adequate quality, and maintained to intercept all spills and pollutants from operations.

18.5. Catchment basins, dikes, sumps, and secondary containments shall be structurally sound and appropriate for collection of stormwater. Protective measures shall be in place for adequate stormwater control and pollutant collection.

18.6. Secondary containments shall be installed with impermeable basins for tanks used for stored liquids other than freshwater and shall have a capacity of one hundred and ten percent (110%) of the largest tank within a battery. The Office's Water Pollution Control Rule (35 CSR 1) and federal SPCC plans may also apply to operations in this section.

18.7. Bulk storage of dry chemicals and materials shall be placed upon an impermeable base and protective of weather conditions and stormwater runoff.

18.8. The owner or operator or person in charge of operations subject to this rule shall include measures for inspections of all facilities and equipment during active drilling, completion, and work-over operations. The owner, operator or person in charge of operations must conduct site inspections at least once per week and maintain records of the inspections so that they are available for review by the oil and gas inspector.

18.9. The owner or operator or person in charge of operations subject to this rule shall notify the

oil and gas inspector or the Chief of a reportable discharge, as that term is defined in 35 C.S.R. 1 § 3.3, by calling 1-800-642-3074 immediately, but in no case no later than twenty-four (24) hours after becoming aware of the discharge. The owner or operator or person in charge of operations shall notify the oil and gas inspector immediately of any spills or pollutant discharges that are reasonably expected to contaminate surface water or groundwater.

§35-8-19. Plugging, Abandonment, and Reclamation.

19.1. Notice and Application to Plug and Abandon; Time of Filing. -- Prior to the commencement of plugging operations and the abandonment of any well, the well operator shall:

19.1.a. Notify, by registered or certified mail or any form of correspondence that evidences receipt (i.e. facsimile or electronic mail), the Chief and the coal operator operating coal seams, the coal seam owner of record or lessee of record, if any, to whom notices are required to be given by W. Va. Code § 22-6A-10, of its intention to plug and abandon the well(s) (using the form of notice provided by the Chief), giving the API number of the well and its location, and fixing the time at which the work of plugging and filling will be commenced, which time shall be not less than five (5) days after the day on which the notice so transmitted is received by the Chief, in order that a representative or representatives of the Chief and the coal operator, owner or lessee, if any, may be present at the plugging and filling of the well: *Provided*, That whether the representatives appear or do not appear, the well operator may proceed at the time fixed to plug and fill the well in the manner hereinafter described;

19.1.b. First obtain the written approval of the Chief and the coal operator, owner or lessee, if any; or

19.1.c. In the event the well to be plugged and abandoned is one on which drilling or reworking operations have been continuously progressing pursuant to authorization granted by the Chief, first obtain the verbal permission of the Chief or the Chief's designated representative to plug and abandon the well, except that the well operator shall, within a reasonable period not to exceed five (5) days after the commencement of the plugging operations, give the written notices required by W. Va. Code § 22-6A-10.

19.1.d. The Notice of Intention to Plug and Abandon a Well required by W. Va. Code § 22-6A-10 shall conform to subdivision 5.1.c. of this rule.

19.1.e. The well operator shall also submit copies of all logs in its possession upon specific request by the Chief, pursuant to W. Va. Code § 22-6A-7(b)(10).

19.1.f. The well operator shall not be required to prepare or submit to the Chief a plat prior to the commencement of plugging operations as long as a plat pertaining to the particular well is on file with the Office and accurately identifies the location of the well, or so long as there is also on file with the Office the coordinates of the well established by a global positioning system (GPS). The coordinates established by a GPS must be filed with the Office in either a written or electronic form prescribed by the Chief. The GPS used to establish the coordinates shall be accurate within the

variance allowed by law for the distance between the actual location of the well and location shown on the plat that is required to be filed with a well work permit application,.

19.1.g. No well may be plugged or abandoned unless, prior to the commencement of activities associated with those operations, the operator furnishes a bond to the Chief as provided in W. Va. Code § 22-6A-15. In no event prior to the commencement of plugging operations shall a lessee under a lease covering a well be required to give or sell the well to any person owning an interest in the well, including, but not limited to, the respective lessor or agent of the lessor, nor may the lessee be required to grant a person with an interest in the well, including, but not limited to, the respective lessor or agent of the lessor an opportunity to qualify to continue operation of the well in accordance with W. Va. Code § 22-6A-15.

19.2. In all cases, completed Forms WW-4(A) and WW-4(B) shall be filed with the Office and parties required to be noticed in the manner and within the time limits set out in W. Va. Code § 22-6A-10.

19.3. All dry or abandoned wells or wells presumed to be abandoned under the provisions of section W. Va. Code § 22-6-19 shall be plugged and reclaimed in accordance with the provisions of W. Va. Code § 22-6A-14 and this rule. The owner or operator of every well presumed to have been abandoned under the provisions of W. Va. Code § 22-6-19 shall file Form WW-4 within sixty (60) days after abandonment, unless the Chief waives this requirement upon request of the operator and for good cause shown.

19.4. Work Order; Manner and Method of Plugging.

19.4.a. An applicant for a permit to plug a well shall set forth the information required by Form WW-4(B), "Application to Plug and Abandon a Well", and a detailed statement of the manner in which the work of plugging and filling the well is to be performed, including:

19.4.a.1. Location (by depth);

19.4.a.2. Kind and length of plugs to be used and the method chosen to insure that no gap exists between the bottom of the coal protection string of casing and the expanding cement plug thereunder;

19.4.a.3. Plans for mudding, cementing, and filling;

19.4.a.4. Plans for testing and for shooting and removing casing; and

19.4.b. Any well operator proposing to plug or to clean out and replug a well in the manner specified in subdivision 20.3.c. of this rule shall furnish the alternate cost estimates for performing the well work in the manner specified in paragraph 20.3.d.2. of this rule only in the event a coal operator, owner or lessee has filed a Form OB-16, "Request by Coal Operator, Owner or Lessee for Plugging Under W. Va. Code § 22-6-24(d) or 35 CSR 8 § 20.3.d. "

19.5. Length of Plug -- All cement plugs, other than those across coal seams, shall be at least one hundred feet (100') in length unless a variance from such a requirement is granted pursuant to section 14 above.

19.6. Retrieving Casing and Completing a Seal -- The operator shall make reasonable efforts to cut and pull all recoverable casing as determined by methods approved by the Chief or the Chief's authorized representative. Equipment used to pull recoverable casing shall be rated and rigged at or above one hundred fifty percent (150%) of the estimated weight of the heaviest string of recoverable casing, unless otherwise approved by the Chief or the Chief's authorized representative. Sufficient instrumentation shall be utilized to accurately indicate the pulling force applied. When casing cannot be pulled, the operator shall make reasonable attempts to perforate the pipe and squeeze cement behind the pipe in the vicinity of the freshwater zones to prevent the contamination of the fresh water zone.

19.7. Verbal Permission to Plug.

19.7.a. Verbal permission may be given in the event the well to be plugged and abandoned is one on which drilling or working operations have been continuously progressing pursuant to authorization granted by the Chief. Any verbal permission shall be given by the Chief, the supervising inspector or any inspector who is available to supervise the plugging work. Unless verbal approval is given by the Chief, the well operator shall notify the Office by telephone of the verbal approval given by the supervising inspector or the inspector no later than the next regular working day.

19.7.b. Unless the well operator proposes to plug the well in a manner allowed by paragraph 20.3.d.2. of this rule, the well operator shall contact the coal operator or the coal owner or lessee who has filed a declaration pursuant to W. Va. Code § 22-6-36, so as to provide the coal owner, operator or lessee the best opportunity to make a plugging request in accordance with subdivision 19.4.b of this rule.

19.8. Objections to Proposed Plugging -- Objections to the proposed plugging of a well, whether by the Office or by any affected person, shall not be made except for violation or impending violation of any provision of this rule. The Chief shall promptly rule on such objections at a hearing to be held after providing no less than five (5) days' notice to the applicant and objectors.

19.9. Plugging Method Request by Coal Operator or Coal Seam Owner:

19.9.a. The request by a coal operator or coal seam owner made pursuant to subdivision 20.3.d. of this rule for a well to be plugged in any manner allowed by paragraph 20.3.d.2. of this rule rather than by the method provided in subdivision 20.3.c. of this rule shall be made on Form OB-16, "Request by Coal Operator, Owner or Lessee for Plugging Under W. Va. Code § 22-6-24(d) or 35 CSR 8 § 20.3.d."

19.9.b. The well operator or owner in his sole discretion may waive the provision in subdivision 20.3.d. of this rule that such request "must be filed in writing with the Office prior to the

scheduled plugging of the well." In the event of such waiver, the cost of undoing any part of the plugging work in order to comply with the coal operator's or coal seam owner's request shall be treated as a part of the cost of complying.

19.9.c. The Office shall make findings and issue an order in accordance with paragraph 20.3.d.2. of this rule by endorsement on or attachment to Form WW-4.

19.10. Statutory Affidavit -- When the plugging, filling, and reclamation of a well have been completed, an affidavit, in triplicate, shall be made on a form prescribed by the Chief by two experienced persons who participated in the work (whether they are employees of the well owner or operator, a service company or a plugging contractor) and the Chief or his or her designated representative. The affidavit shall set forth the time and manner in which the well was plugged and filled and the land reclaimed. One copy of this affidavit shall be retained by the well operator, another (or true copies of same) shall be mailed to the coal operator or operators, if any, and the third to the Chief. The affidavit shall be made on Form WR-38, "Affidavit of Filling Well."

§35-8-20. Plugging Methods.

20.1. Materials Used in Plugging -- The non-porous materials and cements described in subsection 20.3 of this rule must be specified in the work order portion of Form WW-4(B), "Application to Plug and Abandon a Well." All cement, except where expanding cement is required, used in conjunction with plugging shall be American Petroleum Institute Class A Ordinary Portland cement with no greater than three percent (3%) calcium chloride and no other additives. All non-porous materials used in conjunction with plugging shall be at least six percent (6%) bentonite gel. If the operator furnishes satisfactory proof that different cement or non-porous material types are adequate, the Chief or his or her authorized representative may approve use of different cement or non-porous materials. Materials and cements must be of a kind and quality accepted by the oil and gas industry, approved by the Chief as suitable for the intended purpose, and otherwise comply with all provisions of law and accepted standards. The Chief may approve use of non-standard material or cement upon request of the operator and for good cause shown.

20.2. Cleaning Out and Replugging Application; Objections; Order.

20.2.a. Application to clean out and replug a previously plugged well pursuant to subdivision 20.3.e of this rule shall be made by completing Form WW-4A, "Notice of Application to Plug and Abandon a Well," and by the associated comments required to accompany Form WW-4A by subsection 19.1 of this rule.

20.2.b. Objections to a Form WW-4 application to clean out and replug a well, whether by the Chief or by any affected person, shall not be made except for violation or impending violation of the provisions of sections 19 and 20 of this rule. If such an objection is filed or made, the Chief shall set a hearing date and give notice in accordance with subdivision 20.3.e. The notice shall indicate the date, time, and location of the hearing, identifying the well by reference to the API number.

20.2.c. The Chief's order permitting or rejecting an application shall be endorsed on the Form WW-4 application and shall be mailed to the parties in accordance with the method provided by subdivision 20.3.e.

20.3. Plugging methodology--Upon the abandonment or cessation of the operation of any well drilled for natural gas or petroleum, the operator shall fill and plug the well in the following manner:

20.3.a. Where the well does not penetrate workable coal beds, it shall either be filled with water, cement or other nonporous material throughout the horizontal section; or a permanent bridge shall be anchored at the point in which the well intersects the formation in which the horizontal section exists. At this point, being the top of the target formation, there shall be placed a plug of cement or other suitable material which will completely seal the hole. Between this sealing plug and a point twenty feet (20') above the next higher oil, gas or water-bearing stratum, the hole shall be filled in the manner outlined herein. At that point, there shall be placed another plug of cement or other suitable material which will completely seal the hole. In like manner, the hole shall be filled and plugged with reference to each of its oil, gas or water-bearing strata. However, whenever the strata are not widely separated and are free from water, they may be grouped and treated as a single sand, gas or petroleum horizon, and the aforesaid filling and plugging may be performed as though there were but one horizon. After the plugging of all oil, gas or water-bearing strata as aforesaid, a final cement plug shall be placed approximately ten feet (10') below the bottom of the largest casing in the well. From this point to the surface, the well shall be filled with mud, clay or other nonporous material. In case any of the oil or gas-bearing strata in a well have been shot, thereby creating cavities which cannot readily be filled in the manner above described, the well operator shall follow either of the following methods:

20.3.a.1. Should the stratum which has been shot be the lowest one in the well, there shall be placed, at the nearest suitable point, but not less than twenty feet (20') above the stratum, a plug of cement or other suitable material which will completely seal the hole. However, in the event that the shooting has been done above one or more oil or gas-bearing strata in the well, plugging in the manner specified shall be done at the nearest suitable point, but not less than twenty feet (20') below and above the stratum shot; or

20.3.a.2. When the cavity is in the lowest oil or gas-bearing stratum in the well, a liner shall be placed which shall extend from below the stratum to a suitable point, but not less than twenty feet (20') above the stratum in which shooting has been done. In the event, however, that the shooting has been done above one or more oil or gas-bearing strata in the well, the liner shall be so placed that it will extend not less than twenty feet (20') above or less than twenty feet (20') below the stratum in which shooting has been done. Following the placing of the liner in the manner here specified it shall be compactly filled with cement, mud, clay or other nonporous sealing material.

20.3.b. Where the well penetrates one or more workable coal beds and a coal protection string of casing has been circulated and cemented into the surface, the well shall be filled and securely plugged in the manner provided in subdivision 20.3.a. of this rule, except that expanding cement shall be used instead of regular hydraulic cement, to a point approximately one hundred feet (100') below the bottom of the coal protection string of casing. A one hundred foot (100') plug of

expanding cement shall then be placed in the well so that the top of the plug is located at a point just below the coal protection string of casing. After the plug has been securely placed in the well, the coal protection string of casing shall be emptied of liquid from the surface to a point one hundred feet (100') below the lowest workable coal bed or to the bottom of the coal protection string of casing, whichever is shallower. A vent or other device approved by the Chief shall then be installed on the top of the coal protection string of casing in a manner that will prevent liquids and solids from entering the well, but will permit ready access to the full internal diameter of the coal protection string of casing when required. The coal protection string of casing and the vent or other device approved by the Chief shall extend, when finally in place, a distance of not less than thirty inches (30") above ground level and shall be permanently marked with the API well number assigned by the Chief;

20.3.c. Where the well penetrates one or more workable coal beds and a coal protection string of casing has not been circulated and cemented in to the surface, the well shall be filled and securely plugged in the manner provided in subdivision 20.3.a. of this rule to a point fifty feet (50') below the lowest workable coal bed. Thereafter, a plug of cement shall be placed in the well at a point not less than forty feet (40') below the lowest workable coal bed. After the cement plug has been securely placed in the well, the well shall be filled with cement to a point twenty feet (20') above the lowest workable coal bed. From this point the well shall be filled with mud, clay or other nonporous material to a point forty feet (40') beneath the next overlying workable coal bed, if applicable and the well shall then be filled with cement from this point to a point twenty feet (20') above the workable coal bed. This method shall be followed for any other workable coal beds penetrated by the well. After the filling and plugging of the well to a point above the highest workable coal bed, filling and plugging of the well shall continue in the manner provided in subdivision 20.3.a. of this rule to a point fifty feet (50') below the surface, and a plug of cement shall be installed from the point fifty feet (50') below the surface to the surface with a monument installed therein extending thirty inches (30") above ground level;

20.3.d. Where the well penetrates one or more workable coal beds and a coal protection string of casing has not been circulated and cemented in to the surface, a coal operator or coal seam owner may request that the well be plugged in the manner provided in paragraph 20.3.d.2 of this rule rather than by the method provided in subdivision 20.3.c. above. The request shall be made on forms prescribed by the Chief, and submitted to the Chief prior to the scheduled plugging of the well. At the time the request is submitted to the Chief, a copy of the request must also be mailed by registered or certified mail or any form of correspondence that evidences receipt (i.e. facsimile or electronic mail) to the well operator named in the request.

20.3.d.1. Upon receipt of the request, the Chief shall issue an order staying the plugging of the well and shall promptly determine the costs of plugging the well both in the manner provided in paragraph 20.3.d.2 of this rule and in the manner provided in subdivision 20.3.c. of this rule. In making this determination, the Chief shall take into consideration any agreement previously made between the well operator and the coal operator or coal seam owner making the request.

20.3.d.1.A . If the Chief determines that the cost of plugging the well in the manner provided in subdivision 20.3.c. of this rule exceeds the cost of plugging the well in the manner provided in paragraph 20.3.d.2. of this rule, the Chief shall grant the request of the coal operator or

owner and shall issue an order requiring the well operator to plug the well in the manner provided in paragraph 20.3.d.2. of this rule.

20.3.d.1.B. If the Chief determines that the cost of plugging the well in the manner provided in subdivision 20.3.c. of this rule is less than the cost of plugging the well in the manner provided in paragraph 20.3.d.2. of this rule, the Chief shall request payment into escrow of the difference between the determined costs by the coal operator or coal seam owner making the request. Upon receipt of satisfactory notice of the payment, or upon receipt of notice that the well operator has waived the payment, the Secretary shall grant the request of the coal operator or coal seam owner and shall issue an order requiring the well operator to plug the well in the manner provided in paragraph 20.3.d.2 of this rule. If satisfactory notice of either payment into escrow or waiver of the payment is not received by the Chief within fifteen (15) days after the request for payment into escrow, the Chief shall issue an order permitting the plugging of the well in the manner provided in subdivision 20.3.c. of this rule. Copies of all orders issued by the Chief shall be sent by registered or certified mail or any form of correspondence that evidences receipt (i.e. facsimile or electronic mail) to the coal operator or coal seam owner making the request and to the well operator. When the escrow agent has received certification from the Chief of the satisfactory completion of the plugging work and the reimbursable extra cost thereof (that is, the difference between the Chief's determination of plugging cost in the manner provided in subdivision 20.3.c. of this rule and the well operator's actual plugging cost in the manner provided in paragraph 20.3.d.2 of this rule), the escrow agent shall pay the reimbursable sum to the well operator or the well operator's designee from the payment into escrow to the extent available. The amount by which the payment into escrow exceeds the reimbursable sum plus the escrow agent's fee, if any, shall be repaid to the coal owner. If the amount paid to the well operator or the well operator's designee is less than the actual reimbursable sum, the escrow agent shall inform the coal owner, who shall pay the deficiency to the well operator or the well operator's designee within thirty (30) days. If the coal operator breaches this duty to pay the deficiency, the well operator shall have a right of action and be entitled to recover damages as if for wrongful conversion of personalty, and reasonable attorney fees.

20.3.d.2. Where a request of a coal operator or coal seam owner filed pursuant to subdivision 20.3.d. has been granted by the Chief, the well shall be plugged in the manner provided in subdivision 20.3.a. of this rule, except that expanding cement shall be used instead of regular hydraulic cement, to a point approximately two hundred feet (200') below the lowest workable coal bed. A one hundred foot (100') plug of expanding cement shall then be placed in the well beginning at the point approximately two hundred feet (200') below the lowest workable coal bed and extending to a point approximately one hundred feet (100') below the lowest workable coal bed. A string of casing with an outside diameter no less than four and one-half inches (4½") shall then be run into the well to a point approximately one hundred feet (100') below the lowest workable coal bed, and the string of casing shall be circulated and cemented in to the surface. The casing shall then be emptied of liquid from a point approximately one hundred feet (100') below the lowest workable coal bed to the surface, and a vent or other device approved by the Chief shall be installed on the top of the string of casing in a manner that will prevent liquids and solids from entering the well, but will permit ready access to the full internal diameter of the coal protection string of casing when required. The string of casing and the vent or other device approved by the Chief shall extend, when finally in place, a distance of no less than thirty inches (30") above ground level and shall be permanently

marked with the API well number assigned by the Chief. Notwithstanding the foregoing provisions of this paragraph, if under particular circumstances a different method of plugging is required to obtain the approval of another governmental agency for the safe mining through of the well, the Chief may approve a different method of plugging if he or she finds the same to be as safe for mining through and otherwise adequate to prevent gas or other fluid migration from the oil and gas reservoirs as the method above specified.

20.3.e. Any person may apply to the Chief for an order to clean out and replug a previously plugged well in a manner which will permit the safe mining through of the well. The application shall be filed with the Chief and shall contain the API well number, a general description of the well location, the name and address of the owner of the surface land upon which the well is located, a copy of or record reference to a deed, lease or other document which entitles the applicant to enter upon the surface land, a description of the methods by which the well was previously plugged, and a description of the method by which the applicant proposes to clean out and replug the well. At the time an application is filed with the Chief, a copy shall be mailed by registered or certified mail or any form of correspondence that evidences receipt (i.e. facsimile or electronic mail) to the owner or owners of the land, and the oil and gas lessee of record, if any, of the site upon which the well is located. If no objection to the replugging of the well is filed by the landowner or oil and gas lessee within thirty (30) days after the filing of the application, and if the Chief determines that the method proposed for replugging the well will permit the safe mining through of the well, the Chief shall grant the application by an order authorizing the replugging of the well. The order shall specify the method by which the well shall be replugged, and copies the order shall be mailed by certified or registered mail or any form of correspondence that evidences receipt (i.e. facsimile or electronic mail) to the applicant and to the owner or owners of the land, and the oil and gas lessee, if any, of the site upon which the well is located. If the landowner or oil and gas lessee objects to the replugging of the well, the Chief shall notify the applicant of the objection. Thereafter, the Chief shall schedule a hearing to consider the objection, which hearing shall be held after notice by registered or certified mail or any form of correspondence that evidences receipt (i.e. facsimile or electronic mail) to the objectors and the applicant. After consideration of the evidence presented at the hearing, the Chief shall issue an order authorizing the replugging of the well if he or she determines that replugging of the well will permit the safe mining through of the well. The order shall specify the manner in which the well shall be replugged, and copies thereof shall be sent by registered or certified mail or any form of correspondence that evidences receipt (i.e. facsimile or electronic mail) to the applicant and objectors. The Chief shall issue an order rejecting the application if the he or she determines that the proposed method for replugging the well will not permit the safe mining through of the well;

20.3.f. All persons adversely affected by a determination or order of the Chief issued pursuant to the provisions of this section is entitled to judicial review in accordance with the provisions of the Administrative Procedures Act, W. Va. Code § 29A-5-1, et seq.

APPENDIX A

The symbols shall be as follows:

New Drilling Location: - 

New Fracturing or Stimulating Location. -  F/S

Cancelled Application or Permit: -  CNC

Oil Well: - 

Gas Well: - 

Dry Hole: - 

Liquid Injection Well: -  LI

Waste Disposal Well: - WD

Abandoned Well: -  - - LI - WD