

NOTICE OF PUBLIC HEARING

WEST VIRGINIA DEPARTMENT OF MINES
OIL AND GAS DIVISION
1613 WASHINGTON STREET, E.
CHARLESTON, WEST VIRGINIA 25311
(304) 348-2057

The West Virginia Department of Mines, Oil and Gas Division will hold a public hearing on the amendments of proposed Administrative Regulations for Oil and Gas Wells, pursuant to the provisions of Chapter 29A of the Code of West Virginia.

The hearing will be held:

September 23, 1977, at 10:00 a.m. - Department of Mines
Conference Room
(Ground Floor)
1613 Washington St., E.
Charleston, West Virginia

The record will remain open until September 23, 1977 for submission of additional written evidence.

Copies of the proposed regulations may be obtained at the West Virginia Department of Mines, Oil and Gas Division Office at 1613 Washington St., E., Charleston, West Virginia 25311

Walter Miller, Director
WEST VIRGINIA DEPARTMENT OF MINES

FILED IN THE OFFICE OF
SECRETARY OF STATE OF
WEST VIRGINIA

THIS DATE 8-23-77

SERIES IV

FILED IN THE OFFICE OF
SECRETARY OF STATE OF
WEST VIRGINIA

THIS DATE 8-23-77

WEST VIRGINIA ADMINISTRATIVE REGULATIONS

Department of Mines

Chapter 22-4

(1977)

GENERAL OUTLINE

Series IV Oil and Gas Wells

Section 1. General

Section 2. Regulations

WEST VIRGINIA ADMINISTRATIVE REGULATIONS

Department of Mines

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SECRETARY OF STATE OF
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SERIES IV

(1977)

THIS DATE 8-23-77

Subject: Oil and Gas Wells

Section 1. General

1.01. Scope. These regulations pertain to the oil and gas wells division of the Department of Mines.

1.02. Authority. These Regulations are issued under authority of Section 13, Article 4, Chapter 22, Code of West Virginia, as amended.

1.03. Effective Date. These rules and regulations are promulgated on _____ and become effective.

1.04. Filing Date. These rules and regulations were filed in the office of the Secretary of State on _____.

1.05. Certification. These rules and regulations are certified authentic by the Director of Department of Mines by certification number _____.

WEST VIRGINIA ADMINISTRATIVE REGULATIONS

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2.01 Statutory Authority.

By virtue of Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, the Department of Mines has the authority in the matter of regulating the location, drilling, deepening, re-drilling, fracturing, stimulating, or converting an existing well for the disposal of sewage, industrial waste, or the effluent therefrom, or physically changing to allow the migration of fluid from one formation to another, casing, operating, plugging, filling and abandoning of all oil and gas wells in West Virginia; in the protection of oil, gas, water-bearing and all other strata; in the prevention of waste in the operation of said wells; and in fixing the distance from said wells to water supplies, dwellings, and within which mining operations may be conducted.

(a) All rules and regulations in this chapter are subject to bond forfeitures as defined in Section 2, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, and subject to penalties set forth in Section 17, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, respectively.

2.02. Well Definition. "Well" shall mean any shaft or hole sunk, drilled, bored or dug into the earth or into any underground strata for the extraction, injection or placement of any liquid or gas, or any shaft or hole sunk, drilled, bored, dug or used in conjunction with such extraction, injection or placement. The term "well" shall not have included within its meaning any shaft or hole sunk, drilled, bored or dug into the earth or into any underground strata for the sole purpose of core drilling or extracting therefrom potable fresh or usable water for household, domestic, industrial, agricultural or public use.

2.03 Coal Seams

Coal Seams or Workable Coal Beds are interchangeable terms and mean any seam of coal seam twenty inches or more in thickness shall be deemed a workable coal bed in the administration of this Article, unless a seam of less thickness is being commercially worked, or can in the judgment of the Department foreseeably be commercially worked and will require protection if wells are drilled through it, in which case such latter seam shall be deemed a workable coal bed.

2.04. Rules of Procedure and Evidence. In all matters coming before the Department of Mines, the rules of procedure and evidence, where not otherwise prescribed by statute, shall be substantially similar to those governing courts of record in West Virginia.

2.05. Registration. All persons, firms, associations or corporations owning or operating any oil or gas well or wells drilled in West Virginia shall register with the Deputy Director. In all cases an agent or attorney in fact who shall be named and appointed by and for each well owner or operator, upon whom process, notices, orders and other communications issued pursuant to this chapter may also be served. Every well owner or operator who has appointed such agent or attorney in fact shall, within five days after termination or revocation of such agency, notify the Deputy Director of such termination or revocation and forthwith name and appoint a new agent or attorney in fact.

2.06. Location Plat. All plats accompanying applications to drill, deepen, redrill, fracture, stimulate, or convert an

existing well for the disposal of sewage, industrial waste, or effluent therefrom, or physically change to allow the migration of fluid from one formation to another, partial plugging, filling and abandoning shall be legible, of permanent character, and in the form prescribed by the Deputy Director. A separate application and a separate plat of location shall be filed for each well, unless a previously approved permanent character plat is on file with the department.

The following data shall be shown on all maps or plats submitted to the Deputy Director for the purpose of locating all oil and/or gas wells for the abandonment of which permits are required

(1) Permanent Landmarks; Accuracy. The location of such well shall be made by an on the ground survey and shall be tied to at least two permanent monuments or landmarks by courses and distances to an accuracy of one part in 200, and such monuments or landmarks, if they are not permanently established property corners, shall be referenced to a property corner. Such well shall be drilled within ten feet of the exact location designated on the plat.

An accuracy of one part in 2500 is required for locations of wells on land containing workable coal beds which are tributary to operating coal mines.

(2) Description

Landmarks and permanently established property corners used

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

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

(4) Name and Acreage. The name of the known surface owners and acreage and lease owner and acreage of the farm and lease on which the well is located shall be given.

(5) Water Wells and Dwellings

All water wells supplies and dwellings within two hundred feet of the well location shall be accurately located and shown on the plat by course, distance and surface elevation.

(6) Adjoining Farm Names. The names of known surface owners of all adjoining farms coming within the scope of such plat shall be given.

(7) Streams, Railroads, All Roadways to be Shown.

The names and locations of all streams, roads, railroads and highways coming within the scope of such plat shall be given, with name, route, and owner shown.

(8) Location of Other Wells to be Shown. The location of all known wells which come within the scope of the well location shall be accurately shown, whether active, drilling or abandoned.

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

The location of the government bench mark or the point of proven elevation shall be noted and described on the plat.

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

(11) Scale of Plat. If practicable, all plats shall be drawn to a scale of 1" = 2000' (1:24,000) or even multiples of 1:2000 for easy reduction of the plat photographically to a 1:2000 scale.

(12) Plat Certification. Such plat shall be legible and of permanent character of the size 8½ x 14'. Plats shall specify the minimum degree of accuracy of the surveying, elevation and mapping. Surveys and plats shall be made under the supervision of a registered professional engineer or licensed land surveyor entitled and licensed by law to practice in the State of West Virginia. The certificate shall be signed and certified by the registered professional engineer or licensed land surveyor in the following manner:

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

(13) Distance and Manner of Well Location.

The topographic map location shall be shown on the plat by a "cross" with the measured distance in feet from the nearest 5 minute latitude and longitude intersection using the North East (upper right) border of the plat on the 15 minute (1:62,500) topographic map. If the 7.5 minute (1:24,000) topographic map is used, the topographic location shall be shown on the plat by a "cross" with the measured distance in feet from the nearest 2.5 minute latitude and longitude intersection using the North East (upper right) border of the plat. Each plat shall indicate the topographic map name and series whether 7.5 minute or 15 minute used to show the well location.

2.07 Procedure, Well Operator, and Mine Operator, Coal Owner and Coal Lessee.

Five copies of Form OG-1, prescribed by these rules and regulations, shall be submitted in its entirety, together with the plat described in Rule 2.06, the permit or reclamation fee of \$100.00 and the appropriate and sufficient bond or other approved security required by Section 2, Article 4. Chapter 22 of the West Virginia Code of 1931, as amended. The permit shall be posted at the well site so as to be visible at all times during permitted operations.

(1) Coal Operator Notice.

The oil and/or gas well owner or operator shall furnish the coal owner or operator, who has mapped the coal seam beneath said tract about to be drilled and filed his map with the Department in accordance with Article 2, Chapter 22 of the West Virginia Code of 1931, as amended, whether or not title to the coal has been severed from title to the surface of the tract of land about to be drilled: A copy of the application for a permit to drill, redrill, deepen, fracture, stimulate, plug, pressure, convert, combine, partially plug, or physically change, (Form OG-1 or Form OG-9 as applicable); and the well location plat showing the location of the proposed well or existing well, in the manner set forth in Sections 2, 2a, 2b, 3, 3a, and 9, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, and In the event there are mine workings, either active, projected or abandoned, within one thousand feet of such location, the coal operator of such mine workings shall file with the Deputy Director, on or before the day on which the permit sought is to be issued, a map showing all mine workings, projected workings, or abandoned workings within one thousand feet of such location, and the location of the said well in relation to such mine workings. The map shall show the elevation of the coal seam or coal seams shown thereon.

(2) Coal Seam Owner of Record and Coal Seam Lessee
of Record.

The oil and/or gas well owner or operator shall furnish the coal seam owner of record and coal seam lessee of record, if any, where said coal seam owner or coal seam lessee has recorded the declaration provided for in Section 20, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, whether or not title to the coal has been severed from the title to the surface of the tract of land about to be drilled, a copy of the application for a permit to drill, redrill, deepen, fracture, stimulate, plug, pressure, convert, partially plug, combine or physically change, (Form OG-1, or Form OG-9, as applicable), and the well location plat showing the location of the proposed well in the manner set forth as applicable in Sections 2, 2a, 2b, 3, 3a, and 9, Article 4, Chapter 22, of the West Virginia Code of 1931, as amended.

2.08 Coal Operator Procedure.

All coal owners or operators shall cause to be placed on their property maps the location of all oil or gas wells penetrating coal seams, the workable coal beds, or oil or gas-producing strata whether they be active wells, wells being drilled or abandoned wells; and all such wells coming within the scope of any mine map shall be shown thereon. All coal owners or operators shall diligently endeavor to ascertain, collect and compile all available data concerning the location of all wells which have been drilled on said property and shall make and keep a record of all such data.

2.09. Well Records. All drilling contractors and drillers shall keep at each oil and/or gas well, while engaged in permitted work, accurate records of the drilling, redrilling, fracturing, stimulating, converting an existing well for the

disposal of sewage, industrial waste, or the effluent therefrom, or physically changing to allow the migration of fluid from one formation to another, casing, operating, plugging, filling and abandoned, showing all formations encountered, fresh and salt water zones, the casing used, and all other information contemplated by the Form OG-1 Well Permit Application and required on Form OG-10 Well Record. A copy of all this information shall be delivered to the well owner or operator.

(1) Forms. Two copies of completed well record (Form OG-10) shall accompany each request for permitted work, unless completion well record has previously been submitted and is on file with the department.

(1a) Form OG-9. Notice of Intentions to Plug and Abandon Well. Three copies of Form OG-9, Notice of Intention to Plug and Abandon Well, shall be submitted to the Oil and Gas Division for approval before plugging and abandoning any oil and/or gas well.

(2) Formation to be Shown. Form OG-10 shall set forth a true, accurate and complete drillers and/or geological log of the oil and/or gas well showing in detail of the formation from top to bottom, including the color and character of the strata, the thickness of the same, the strata shot, fractured, stimulated, acidized and/or treated all evidence of water (fresh or salt) oil or gas, coal thickness depth and where found.

(3) Well Records to be Submitted. Within ninety days after the completion of permitted work, two copies of Form OG-10 (well Record and/or Log) shall be sent by the well owner or operator to the Deputy Director. On all permitted work, the Form OG-10 will be filed to show the additional formations, casing, treatments, or physical changes performed after the original well has been completed or corrected information discovered, by logs or other means.

(3a) Deep Well Confidential Information. Filing of Well Logs. Within ninety days after the completion of drilling or recompletion of a deep well, the operator shall submit a copy of the well log and the electrical, radioactive or other similar conventional log if they have been run. In addition, as soon as practicable, operators shall file a copy of drill stem test charts, formation water analysis, porosity, permeability or fluid saturation measurements, core analysis, and lithologic log or sample description as compiled; provided that, no such information shall be required unless the operator has compiled such information in the ordinary course of business. No interpretation of the data is to be filed.

All information furnished with respect to a deep well marked "confidential" shall be kept confidential for one (1) year after the date the information is required to be filed hereunder, unless the operator gives written permission to release such information at an earlier date.

For good cause shown by the operator, the Commissioner may extend the period of confidentiality for one (1) year. The total period of confidentiality shall not exceed three (3) years.

(4) Identification Markings. Each oil and/or gas well, whether operating or abandoned, 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, such numbering shall be no less than one half inch height and detectable by any interested persons approaching the well. Any additional information the well operator may desire to display may be incorporated into the permanent identification plate or stamp in such a manner that it will not confuse or distort the permanent API identification number.

2.10. Casing.

(1) In addition to the casing required by and described in Sections 5, 6, 7, and 8 of Article 4, of Chapter 22 of the West Virginia Code of 1931, as amended, there shall be used in each well such material and equipment and there shall be employed such procedures as are necessary for the purpose of separating high pressure zones from low pressure zones; the producing horizons, the water-bearing strata, and mineable coal zones for the life of the well.

(2) Fresh Water Casing. A protective string of casing shall extend thirty feet below the deepest fresh water horizon, being the deepest horizon which will replenish itself and from

which fresh or usable water for household, domestic, industrial, agricultural, or public use, may be economically or feasibly recovered and shall have cement circulated in the annular space outside said casing. The volume of cement needed shall be calculated using approved engineering methods to assure the return of the cement to the surface. In the event cement does not return to the surface, every reasonable attempt will be made to fill the annular space by introducing cement from the surface. If the intermediate string of casing is cemented to the surface in conformity with prescribed procedure, this shall also be considered a fresh water string.

(3) Multiple Casing Through Coal Seams. Wells drilled in areas underlain with workable coal seams shall be equipped with a coal-protecting string of casing for the life of the well as required by Sections 5, 6, 7, and 8 of Article 4, Chapter 22 of the West Virginia Code of 1931, as amended. The casing installed through the workable coal seam shall be in addition to the production string of casing.

(4) Cement Strength. Cement placed in the annular space around the casing shall be allowed to set to a minimum compression strength of 500 pounds per square inch using approved engineering data for the type of cement used. The waiting time on cement shall in no case be less than eight hours.

2.11 Plugging Dry and Abandoned Wells.

Any well which is completed as a dry hole or which is not in use for a period of twelve consecutive months shall be presumed to

have been abandoned and shall promptly be plugged as required by Sections 4, 5, 6, and 7, 9, 10, 12 and 12a, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, by the owner or operator unless such owner or operator furnishes proof to the Deputy Director that there is bona fide future use for such well.

(1) Manner in Which Plugging Must be Done. All dry and abandoned wells shall be plugged and filled in such a manner as to prevent migration of oil, gas, water (fresh and/or salt) or any injected liquid or gas to any strata other than the stratum or strata in which they occur or have been placed.

(2) Materials. Non-porous material shall be used in plugging and suitable plugs set as indicated in Sections 9 and 10, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended. Hydraulic cements recognized by API and used as consistent with good engineering practices, shall be used through all workable coal seams, fresh water bearing strata and for all other cement plugs.

2.12 Notice of Intention to Plug and Abandon.

(1) Forms Used.

Notice of intentions to plug and abandon any oil or gas well not operating under current permitted work shall be given to the Deputy Director on Form OG-9. In the event the well to be plugged is a continuous operation of permitted work authorized by the Department of Mines, Oil and Gas Division, the operator may obtain verbal permission from the Deputy Director for Oil and Gas or his designated representative.

Plugging and filling operations are to be conducted under the supervision of the District Oil and Gas Inspector. The well operator shall give the written notices provided in Section 9, Article 4, Chapter 22, of the West Virginia Code of 1931, as amended, to the Coal operator operating coal seams or the coal seam owner of record or coal lessee of record, if any, to whom notices are required to be given.

(2) Bonds and Other Security to be Posted. Before plugging any well for which a bond is not in force as provided in Sections 2 and 9, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended; a performance bond, a deposit of approved securities or cash in the amount of \$2,500.00, shall be filed or made for each oil and/or gas well to be plugged; provided, however, that a well owner or operator may file a blanket bond or deposit approved security in the amount of \$15,000.00 covering all wells in the state.

(3) Location Plat. A tracing of the location plat described in Rule 2.06 shall be filed if such location plat has not previously been filed with the Department of Mines.

(4) Well Record. The well record Form OC-10 as described in Rule 2.09 - (2) shall be submitted in duplicate with the Deputy Director.

2.13. Work Order, Manner and Method of Plugging.

(1) Detail of Manner of Plugging. Three copies of Form OC-9 shall be filed with the Deputy Director setting forth a detailed statement of the manner in which the work of plugging and filling such well is to be done, including such information

as the location (by depth), kind and length of plugs to be used; plans for mudding, cementing, and filling; plans for testing, and for shooting and removing casing, and all other pertinent information regarding said abandonment, all of which shall be in compliance with Section 10 of Article 4, Chapter 22 of the West Virginia Code of 1931, as amended. In the event the well to be plugged is a continuous operation of permitted work authorized by the Department, verbal permission to plug and abandon may be obtained from the Deputy Director for Oil and Gas or his designated representative, as described in Rule 2.12-1.

(2) Objection to Work Order. If no objection to said work order is filed with the Department on or before five days after the receipt of said work order by the Department or if none is imposed by the Department, or prior consent has been given by the coal operator, coal owner or coal lessee who has recorded the declaration provided for in Section 20, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, and received by the Department, then the said work order will be approved or amended and approved and one copy returned to the well operator as his authority for doing the work according to the approved plan. In the event verbal plugging is to be conducted by verbal authorization where notices are required to be given by Chapter 22, Article 4, Section 2, of the West Virginia Code of 1931, as amended, the verbal authorization must also be confirmed to the Deputy Director for Oil and Gas or his designated representative before commencement of said plugging operation, as described in Rule 2.12-(1).

(3) A plugging work order, Form OG-9, Notice of Intention to Plug and Abandon Well, shall be made out and filed in triplicate with the Deputy Director for approval or correction, and a copy shall accompany a notice to the coal operator, coal owner or coal lessee who has recorded the declaration provided for in Section 20, Article 4, Chapter 22, of the West Virginia Code, as amended.

In the event the plugging and abandoning is conducted by verbal permission as described in Rule 2.12 (1), the written work order OG-9, Well Record OG-10 and affidavit of plugging, OG-8 shall be filed in triplicate with the Deputy Director within a reasonable period of time, not to exceed five working days.

2.14. Marker and Affidavit.

(1) Upon the completion of the plugging and filling of any abandoned oil or gas well, a permanent monument or marker consisting of a length of pipe (minimum size, 6") filled with concrete (or the equivalent thereof if approved by the Deputy Director) shall be erected over the well; the marker shall extend no less than thirty (30) inches above the surface and not less than 10 feet into the well, below the surface, and shall be sealed with concrete for the purpose of making the marker permanent. The API well identification number which consists of State (47), County (001 through 109) and permit number shall be attached or stamped in a permanent manner to said monument. The erection of the marker shall in no way interfere with the bleeder pipe from the well where such pipe is required. Such marker shall be accurately described in the affidavit as to time and manner of plugging and filling the well and shall be accepted by the Deputy

Director for Oil and Gas as a satisfactory landmark which may be used as such in the location of adjacent wells.

(2) As soon as the plugging of a well is completed, an affidavit (forms to be furnished by the Deputy Director), giving in detail the manner in which the well was plugged and filled, shall be sent to the Deputy Director. Form OG-8 relative to the filling and plugging of said wells shall be executed by at least two parties doing the actual work, whether or not they are service company, plugging contractor or well owner or operator employees.

(3) In an area where bona fide proof can be given that an above ground marker cannot be used, pipe shall be sealed and filled at least 50 feet below surface with cement. Two permanent reference points with courses and distances from the abandoned well shall be designated and described on the plat accompanying the affidavit of plugging the well.

2.15. Proper Protection of High Pressure Wells. On all wells where high pressure and large volumes can be reasonably expected properly working pressure blow-out preventer 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, said casing and blow-out equipment (both blind and pipe rams, or equivalent) shall be installed and tested by operation and pressure to a minimum pressure which commensurates with the objective formation pressure before drilling is continued.

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

2.17. Commercial Well Properly Equipped. Whenever oil or natural gas in commercial quantities, in a well-defined oil or gas-bearing stratum, known to contain oil or natural gas in such quantities, is encountered in any well drilled for oil or gas in this state, all such strata shall be adequately protected from infiltrating waters. This rule shall not prevent the drilling deeper in search for oil or gas in any well as provided in Section 14, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended.

2.18. Necessary Equipment. All oil or gas well owners or operators, contractors, drillers, pipeline companies, or gas distributing companies, producing crude oil or natural gas, or piping oil or gas for any purpose, shall use every possible precaution in accordance with the accepted and approved methods to stop and prevent waste of oil or gas, or both and stop or prevent the pollution of the water of the State in drilling and producing operations, or in piping or distributing such products and shall not wastefully utilize oil or gas or allow the same to leak or escape from natural reservoirs, wells or pipelines.

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

2.20. Parties Responsible. All contractors and drillers, including all service companies carrying on business or doing work in oil and 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 foregoing rules and regulations; and all contractors, drillers, service companies and operators shall be held responsible for infraction of said laws, rules and regulations.

2.21. Pillar Plans - Method - Procedure. The size of coal pillars left around a well shall depend upon the nature and height of the coal, the nature of the top and bottom, and the amount of over burden. Two copies of OG-7 and two copies of a map, size 8½ x 14 (sample map shall be furnished upon request by the department), must be filed with the Deputy Director for oil and gas before mining within 500 feet of any well. Before mining within 200 feet of any well, an approved permit must be issued by the Deputy Director for Oil and Gas. Two copies of OG-7 completed through the petition section must be filed and approved.

All pillar plan maps must be made under the supervision of a registered engineer or licensed land surveyor approved for underground work. The initial pillar plan map must bear the seal and signature of the engineer or surveyor. Copies of OG-7, Petitions and Maps, must be simultaneously sent to the well owner operator.

(1) Pillar plan maps shall be of a scale that shall show haulageways and ventilation systems that will aid the Department in approving or altering the configuration of the pillar to be left.

(2) The topographic location of the well shall be shown on the pillar plan plat by a cross with measured distance in feet from the nearest 5 minute latitude and longitude intersection using the North East (upper right) border of the plat on the 15 minute (1:62,500) topographic map. If the 7.5 minute (1:24,000) topographic map is used, the topographic location shall be shown on the plat by a cross with a measured distance in feet from the nearest 2.5 minute latitude and longitude intersection using the North East (upper right) border of the plat.

(3) After initial approval has been given, a progress map shall be submitted to the department and well operator at six month intervals upon which shall be shown the permit number.

2.22 Transfer of Title.

(1) When title to a well is transferred from one well owner or operator to another, the Deputy Director shall be immediately notified.

Failure to do so shall be considered a violation of the Rules and Regulations and punishable under Section 17, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, and bond forfeiture as defined in Section 2, Article 4, Chapter 22, of the West Virginia Code of 1931, as amended. A responsible agent shall be appointed and any previously designated agent shall be liable until the new owner or operator and his attorney in fact have registered and qualified with the Oil and Gas Division of the Department of Mines.

(2) The bond or other approved security of a well owner or well operator upon transfer of ownership of a well or wells will not be released by the Department until satisfactory evidence of the transfer or change of ownership is furnished the Department. Where the transfer or change of ownership is to a corporation, partnership or a nonresident of the State of West Virginia, the bond of the transferring well owner or operator will not be released until a new agent shall be designated for such new well owner or operator, which agent shall be the attorney in fact for the new well operator or owner pursuant to Section 1k, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended. Prior to the replacement or substitution of any bond or other approved security provided for in Sections 2, and 9, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, such replacement or other approved security provided for in Sections 2, and 9, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, shall be filed with and approved by the Department.

2.23. Surface and Underground Water Pollution.

(1) Before commencing to drill any well for oil and

gas, the well owner or operator shall make proper and adequate provision to prevent surface and underground water pollution.

(2) 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 method for the purpose of either isolating the salt water in the formation or preventing the discharge of salt water per se into a fresh water horizon, or above the surface of the ground. In the case of foaming, it is recognized that a certain amount of salt water, mixed with cuttings, will be discharged above the surface of the ground which will be contained in sump pits no larger than necessary for this purpose, or handled in such a manner that salt water per se will not be discharged into fresh water.

(3) No oil or gas well shall be drilled nearer than two hundred feet from an existing water well or drilling without obtaining written consent of the owner, such consent must be submitted before a permit will be issued.

2.24 Reclamation

(1) All access roads shall be constructed and maintained to prevent excess sedimentation; to maintain natural drainage areas; and if practicable, to direct or carry away from disturbed areas surface water run-off from undisturbed areas. Drilling sites shall be constructed and maintained to prevent surface run-off from carrying excessive sedimentation away from the site; to confine all materials leaked or spilled as a result of drilling operations to the drilling site; and

to prevent excess sedimentation by placing in any stream any material moved or cut. Upon the plugging of a non-productive well, all cementing and other waste materials resulting therefrom shall be removed from the drilling site.

(2) A proposed reclamation method for construction of roads, drilling locations and pits, if any, or alternative overflow prevention facilities, shall be submitted with the permit application to the Oil and Gas Division of the Department of Mines.

(3) Such proposed reclamation method, on forms furnished by the Oil and Gas Division of the West Virginia Department of Mines, shall be approved by the Deputy Director of the Oil and Gas Division of the Department of Mines or his designated representative, prior to the issuance of the permit, pursuant to Chapter 22, Article 4, Section 1k of the Code of West Virginia of 1931, as amended.

(4) All reclamation shall be done under the supervision of the Oil and Gas Division of the Department of Mines. Such reclamation may be altered or amended, if found necessary, with the consent of the Deputy Director or his designated representative, due to topography or other conditions not apparent upon initial submission and approval of the proposed reclamation method.

2.24 Old 2:24

2.25 Underground Disposal of Water, Liquids or Wastes and the Underground Injection of Water, Liquids, or Wastes.

(1) No discharge of salt water, brackish water, or other water unfit for domestic livestock or other general uses shall be made into the

waters of the State. When underground disposal of such water is required, such disposal well and related facilities will be permitted only upon application and approval of the Water Resources Division of the Department of Natural Resources and Oil and Gas Division of the Department of Mines, as required by Federal and State laws.

Disposal into the same formation from which the water is produced is preferable. Injection of water, other liquids, or wastes shall be accomplished through a tubing and packer arrangement with the packer set immediately above the injection zone, and the annulus between the tubing and casing shall be monitored by pressure sensitive devices. The injection pressure will be regulated to minimize the possibility of fracturing the confining strata. Upon application and after notice and hearing a variance from this requirement may be granted by the Deputy Director upon a showing by an individual operator that alternate prudent engineering practices shall result in fresh water protection.

The following are exempted from the requirements of this Section 2.25.

(a) Injection of water or other liquids for the purpose of well stimulation.

(b) Injection for purpose of gas storage.

An application for a disposal well as defined in Section 2b, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, shall include:

(a) A plat drawn to a scale of one (1) inch equal to two thousand (2,000) feet showing the location of the disposal well including the requirements of Administrative Regulation 2.06.

(b) The name, description and depth of the formation into which water, other liquids or wastes are to be injected, including a mechanical log of the proposed disposal well or wells, if one is available.

(c) A statement by the well owner or operator as to whether or

not the well is to be used for pressure maintenance, enhanced recovery, secondary recovery, tertiary recovery, or for disposal purposes; and

(d) The approximate depth of the known fresh water zone(s);

(e) The known names of all mineral lessees and known mineral lessors contiguous to the tract on which the injection shall occur, which shall also be referenced on the plat where practicable.

(f) Location on the plat of known water wells within a one thousand foot radius.

(g) Location and identification on the plat of all producing or injection wells within a one thousand foot radius.

(h) Location on the plat and total depth of any known abandoned wells within a one thousand foot radius.

(2) Prior to injection into a permitted well, the well owner or well operator shall furnish the Department with a certification indicating that all requirements of this regulation have been met. The certification shall include the following:

(a) The identification of said well by permit number, well operator's name, lease name, well number, topographical location, elevation and county.

(b) The entire casing and cementing record, any packers and other special down hole equipment, and cement bond logs;

(c) The anticipated maximum bottom hole pressure (PSI) and rate of injection in barrels per day or cubic feet per day;

(d) Identification of the injection zone by geological name and depth top (top and bottom of zone), the number of perforations if applicable or the interval of open hole; and

(e) Certification that the mechanical integrity of the well has been tested.

2.25 (3) Any injection well in existence prior to the effective date of this regulation shall be exempt from the requirements of this regulation; provided that within one year of the effective date of this regulation the operator files an area plat, or plats showing all of such operator's injection wells. Such exemption shall remain effective until such time as in the opinion of the Deputy Director and upon notification thereof to the well owner or operator, it is determined that said well is leaking liquids to other wells or to the surface.

(4) The well owner or well operator of an injection project shall monitor and submit to the Department the injection pressures and volumes at least monthly. The Deputy Director may require more frequent monitoring if, in his opinion, good reason therefore exists.

2.25

2.26 Pits.

All drilling pits shall be constructed, maintained and reclaimed in such manner as to prevent seepage, leakage and overflow; to divert surface water from the pit; and to provide impervious materials for the lining if existing soil is not impervious. If an operator is unable to prevent overflow from any drilling pit, the Oil and Gas Division of the Department shall be notified by the operator and additional drilling pits or alternative overflow facilities shall be constructed under the supervision of the Oil and Gas Division of the Department to prevent said overflow. All drilling pits used in drilling operations and alternative overflow prevention facilities shall be constructed, maintained and reclaimed so as not to be left in such condition as not to constitute a hazard to man or beast or to prevent use of surface for agricultural purposes.

2.26

2.27 Well Operator to Notify.

Every well owner or operator shall notify the proper district oil and gas inspector 24 hours before actual drilling has commenced. Prior to the construction of roads, locations and pits every oil and gas operator, contractor or agent shall notify the proper oil and gas inspector to allow him the opportunity of inspecting and approving the construction and method of reclamation for all proposed areas to be disturbed in siting, drilling, completing or producing the well. The District Oil and Gas Inspector will notify the appropriate Water Resources Inspector to allow them the opportunity to inspect and approve the drilling pits.

2.27

2.28 Accidents.

If any explosion or other accident occurs in or about a drilling operation, causing loss of life or serious personal injury, it shall be the duty of the operator or contractor to give immediate notice stating the particulars of the explosion or accident to the District Oil and Gas Inspector or Deputy Director.

2.29 Cubic Feet of Gas.

Cubic feet of gas shall mean, in these rules and regulations, the volume of gas contained in one 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 (14.73) PSIA and the standard temperature base shall be sixty degrees (60°) Fahrenheit.

Deputy Director and the observed gross volume of oil shall be corrected to exclude the entire volume of such impurities.

(b) Temperature Correction--The observed volume of oil corrected for impurities shall be further corrected to the standard volume at 60^o Fahrenheit in accordance with A. S. T. M. D. -1250, Table 7, or any revisions thereof and any supplements thereto or any close approximation thereof approved by the Deputy Director.

2.33 Measurement of Gas

(1) All gas, except gas used on the lease for development purposes and lease operations, when produced or sold shall be measured by an approved meter of sufficient capacity. In case of gas production the production for each well will be identified and reported where a meter has been set for each well.

(2) Common or Master Meter Measurement--When one meter measures production for more than one well, the production from each common meter will be identified and reported.

(3) Calculated Value--Where no measurement is available for an individual well or group of wells, the calculated volume of gas production using accepted engineering methods will be identified and reported.

The standard pressure base for reporting purposes shall comply with Administrative Regulation 2.29 regardless of atmospheric pressure or temperature.

The foregoing rules and regulations are hereby prescribed and promulgated for the Administration of Article 4, Chapter 22 of the Code of West Virginia, 1931, as amended and effective.

NOTICE OF PUBLIC HEARING

WEST VIRGINIA DEPARTMENT OF MINES
OIL AND GAS DIVISION
1613 WASHINGTON STREET, E.
CHARLESTON, WEST VIRGINIA 25311
(304) 348-2057

The West Virginia Department of Mines, Oil and Gas Division will hold a public hearing on the amendments of proposed Administrative Regulations for Oil and Gas Wells, pursuant to the provisions of Chapter 29A of the Code of West Virginia.

The hearing will be held:

September 23, 1977, at 10:00 a.m. - Department of Mines
Conference Room
(Ground Floor)
1613 Washington St., E.
Charleston, West Virginia

The record will remain open until September 23, 1977 for submission of additional written evidence.

Copies of the proposed regulations may be obtained at the West Virginia Department of Mines, Oil and Gas Division Office at 1613 Washington St., E., Charleston, West Virginia 25311

Walter Miller, Director
WEST VIRGINIA DEPARTMENT OF MINES



8-23-77

SERIES IV

FILED IN THE OFFICE OF
SECRETARY OF STATE OF
WEST VIRGINIA

THIS DATE 8-23-77

WEST VIRGINIA ADMINISTRATIVE REGULATIONS

Department of Mines

Chapter 22-4

(1977)

GENERAL OUTLINE

Series IV Oil and Gas Wells

Section 1. General

Section 2. Regulations

WEST VIRGINIA ADMINISTRATIVE REGULATIONS

Department of Mines

Chapter 22-4

SERIES IV

(1977)

FILED IN THE OFFICE OF
SECRETARY OF STATE OF
WEST VIRGINIA

THIS DATE 8-23-77

Subject: Oil and Gas Wells

Section 1. General

1.01. Scope. These regulations pertain to the oil and gas wells division of the Department of Mines.

1.02. Authority. These Regulations are issued under authority of Section 13, Article 4, Chapter 22, Code of West Virginia, as amended.

1.03. Effective Date. These rules and regulations are promulgated on _____ and become effective.

1.04. Filing Date. These rules and regulations were filed in the office of the Secretary of State on _____.

1.05. Certification. These rules and regulations are certified authentic by the Director of Department of Mines by certification number _____.

WEST VIRGINIA ADMINISTRATIVE REGULATIONS

Department of Mines

Chapter 22-4

(1977)

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SECRETARY OF STATE OF
WEST VIRGINIA

THIS DATE _____

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2.01 Statutory Authority.

By virtue of Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, the Department of Mines has the authority in the matter of regulating the location, drilling, deepening, re-drilling, fracturing, stimulating, or converting an existing well for the disposal of sewage, industrial waste, or the effluent therefrom, or physically changing to allow the migration of fluid from one formation to another, casing, operating, plugging, filling and abandoning of all oil and gas wells in West Virginia; in the protection of oil, gas, water-bearing and all other strata; in the prevention of waste in the operation of said wells; and in fixing the distance from said wells to water supplies, dwellings, and within which mining operations may be conducted.

(a) All rules and regulations in this chapter are subject to bond forfeitures as defined in Section 2, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, and subject to penalties set forth in Section 17, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, respectively.

2.02. Well Definition. "Well" shall mean any shaft or hole sunk, drilled, bored or dug into the earth or into any underground strata for the extraction, injection or placement of any liquid or gas, or any shaft or hole sunk, drilled, bored, dug or used in conjunction with such extraction, injection or placement. The term "well" shall not have included within its meaning any shaft or hole sunk, drilled, bored or dug into the earth or into any underground strata for the sole purpose of core drilling or extracting therefrom potable fresh or usable water for household, domestic, industrial, agricultural or public use.

2.03 Coal Seams

Coal Seams or Workable Coal Beds are interchangeable terms and mean any seam of coal seam twenty inches or more in thickness shall be deemed a workable coal bed in the administration of this Article, unless a seam of less thickness is being commercially worked, or can in the judgment of the Department foreseeably be commercially worked and will require protection if wells are drilled through it, in which case such latter seam shall be deemed a workable coal bed.

2.04. Rules of Procedure and Evidence. In all matters coming before the Department of Mines, the rules of procedure and evidence, where not otherwise prescribed by statute, shall be substantially similar to those governing courts of record in West Virginia.

2.05. Registration. All persons, firms, associations or corporations owning or operating any oil or gas well or wells drilled in West Virginia shall register with the Deputy Director. In all cases an agent or attorney in fact who shall be named and appointed by and for each well owner or operator, upon whom process, notices, orders and other communications issued pursuant to this chapter may also be served. Every well owner or operator who has appointed such agent or attorney in fact shall, within five days after termination or revocation of such agency, notify the Deputy Director of such termination or revocation and forthwith name and appoint a new agent or attorney in fact.

2.06. Location Plat. All plats accompanying applications to drill, deepen, redrill, fracture, stimulate, or convert an

existing well for the disposal of sewage, industrial waste, or effluent therefrom, or physically change to allow the migration of fluid from one formation to another, partial plugging, filling and abandoning shall be legible, of permanent character, and in the form prescribed by the Deputy Director. A separate application and a separate plat of location shall be filed for each well, unless a previously approved permanent character plat is on file with the department.

The following data shall be shown on all maps or plats submitted to the Deputy Director for the purpose of locating all oil and/or gas wells for the abandonment of which permits are required

(1) Permanent Landmarks; Accuracy. The location of such well shall be made by an on the ground survey and shall be tied to at least two permanent monuments or landmarks by courses and distances to an accuracy of one part in 200, and such monuments or landmarks, if they are not permanently established property corners, shall be referenced to a property corner. Such well shall be drilled within ten feet of the exact location designated on the plat.

An accuracy of one part in 2500 is required for locations of wells on land containing workable coal beds which are tributary to operating coal mines.

(2) Description

Landmarks and permanently established property corners used

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

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

(4) Name and Acreage. The name of the known surface owners and acreage and lease owner and acreage of the farm and lease on which the well is located shall be given.

(5) Water Wells and Dwellings

All water wells supplies and dwellings within two hundred feet of the well location shall be accurately located and shown on the plat by course, distance and surface elevation.

(6) Adjoining Farm Names. The names of known surface owners of all adjoining farms coming within the scope of such plat shall be given.

(7) Streams, Railroads, All Roadways to be Shown. The names and locations of all streams, roads, railroads and highways coming within the scope of such plat shall be given, with name, route, and owner shown.

(8) Location of Other Wells to be Shown. The location of all known wells which come within the scope of the well location shall be accurately shown, whether active, drilling or abandoned.

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

The location of the government bench mark or the point of proven elevation shall be noted and described on the plat.

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

(11) Scale of Plat. If practicable, all plats shall be drawn to a scale of 1" = 2000' (1:24,000) or even multiples of 1:2000 for easy reduction of the plat photographically to a 1:2000 scale.

(12) Plat Certification. Such plat shall be legible and of permanent character of the size 8½ x 14'. Plats shall specify the minimum degree of accuracy of the surveying, elevation and mapping. Surveys and plats shall be made under the supervision of a registered professional engineer or licensed land surveyor entitled and licensed by law to practice in the State of West Virginia. The certificate shall be signed and certified by the registered professional engineer or licensed land surveyor in the following manner:

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

(13) Distance and Manner of Well Location.

The topographic map location shall be shown on the plat by a "cross" with the measured distance in feet from the nearest 5 minute latitude and longitude intersection using the North East (upper right) border of the plat on the 15 minute (1:62,500) topographic map. If the 7.5 minute (1:24,000) topographic map is used, the topographic location shall be shown on the plat by a "cross" with the measured distance in feet from the nearest 2.5 minute latitude and longitude intersection using the North East (upper right) border of the plat. Each plat shall indicate the topographic map name and series whether 7.5 minute or 15 minute used to show the well location.

2.07 Procedure, Well Operator, and Mine Operator, Coal Owner and Coal Lessee.

Five copies of Form OG-1, prescribed by these rules and regulations, shall be submitted in its entirety, together with the plat described in Rule 2.06, the permit or reclamation fee of \$100.00 and the appropriate and sufficient bond or other approved security required by Section 2, Article 4. Chapter 22 of the West Virginia Code of 1931, as amended. The permit shall be posted at the well site so as to be visible at all times during permitted operations.

(1) Coal Operator Notice.

The oil and/or gas well owner or operator shall furnish the coal owner or operator, who has mapped the coal seam beneath said tract about to be drilled and filed his map with the Department in accordance with Article 2, Chapter 22 of the West Virginia Code of 1931, as amended, whether or not title to the coal has been severed from title to the surface of the tract of land about to be drilled: A copy of the application for a permit to drill, redrill, deepen, fracture, stimulate, plug, pressure, convert, combine, partially plug, or physically change, (Form OG-1 or Form OG-9 as applicable); and the well location plat showing the location of the proposed well or existing well, in the manner set forth in Sections 2, 2a, 2b, 3, 3a, and 9, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, and In the event there are mine workings, either active, projected or abandoned, within one thousand feet of such location, the coal operator of such mine workings shall file with the Deputy Director, on or before the day on which the permit sought is to be issued, a map showing all mine workings, projected workings, or abandoned workings within one thousand feet of such location, and the location of the said well in relation to such mine workings. The map shall show the elevation of the coal seam or coal seams shown thereon.

(2) Coal Seam Owner of Record and Coal Seam Lessee
of Record.

The oil and/or gas well owner or operator shall furnish the coal seam owner of record and coal seam lessee of record, if any, where said coal seam owner or coal seam lessee has recorded the declaration provided for in Section 20, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, whether or not title to the coal has been severed from the title to the surface of the tract of land about to be drilled, a copy of the application for a permit to drill, redrill, deepen, fracture, stimulate, plug, pressure, convert, partially plug, combine or physically change, (Form OG-1, or Form OG-9, as applicable), and the well location plat showing the location of the proposed well in the manner set forth as applicable in Sections 2, 2a, 2b, 3, 3a, and 9, Article 4, Chapter 22, of the West Virginia Code of 1931, as amended.

2.08 Coal Operator Procedure.

All coal owners or operators shall cause to be placed on their property maps the location of all oil or gas wells penetrating coal seams, ~~the workable~~ coal beds, or oil or gas-producing strata whether they be active wells, wells being drilled or abandoned wells; and all such wells coming within the scope of any mine map shall be shown thereon. All coal owners or operators shall diligently endeavor to ascertain, collect and compile all available data concerning the location of all wells which have been drilled on said property and shall make and keep a record of all such data.

2.09. Well Records. All drilling contractors and drillers shall keep at each oil and/or gas well, while engaged in permitted work, accurate records of the drilling, redrilling, fracturing, stimulating, converting an existing well for the

disposal of sewage, industrial waste, or the effluent therefrom, or physically changing to allow the migration of fluid from one formation to another, casing, operating, plugging, filling and abandoned, showing all formations encountered, fresh and salt water zones, the casing used, and all other information contemplated by the Form OG-1 Well Permit Application and required on Form OG-10 Well Record. A copy of all this information shall be delivered to the well owner or operator.

(1) Forms. Two copies of completed well record (Form OG-10) shall accompany each request for permitted work, unless completion well record has previously been submitted and is on file with the department.

(1a) Form OG-9. Notice of Intentions to Plug and Abandon Well. Three copies of Form OG-9, Notice of Intention to Plug and Abandon Well, shall be submitted to the Oil and Gas Division for approval before plugging and abandoning any oil and/or gas well.

(2) Formation to be Shown. Form OG-10 shall set forth a true, accurate and complete drillers and/or geological log of the oil and/or gas well showing in detail of the formation from top to bottom, including the color and character of the strata, the thickness of the same, the strata shot, fractured, stimulated, acidized and/or treated all evidence of water (fresh or salt) oil or gas, coal thickness depth and where found.

(3) Well Records to be Submitted. Within ninety days after the completion of permitted work, two copies of Form OG-10 (well Record and/or Log) shall be sent by the well owner or operator to the Deputy Director. On all permitted work, the Form OG-10 will be filed to show the additional formations, casing, treatments, or physical changes performed after the original well has been completed or corrected information discovered, by logs or other means.

(3a) Deep Well Confidential Information. Filing of Well Logs. Within ninety days after the completion of drilling or recompletion of a deep well, the operator shall submit a copy of the well log and the electrical, radioactive or other similar conventional log if they have been run. In addition, as soon as practicable, operators shall file a copy of drill stem test charts, formation water analysis, porosity, permeability or fluid saturation measurements, core analysis, and lithologic log or sample description as compiled; provided that, no such information shall be required unless the operator has compiled such information in the ordinary course of business. No interpretation of the data is to be filed.

All information furnished with respect to a deep well marked "confidential" shall be kept confidential for one (1) year after the date the information is required to be filed hereunder, unless the operator gives written permission to release such information at an earlier date.

For good cause shown by the operator, the Commissioner may extend the period of confidentiality for one (1) year. The total period of confidentiality shall not exceed three (3) years.

(4) Identification Markings. Each oil and/or gas well, whether operating or abandoned, 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, such numbering shall be no less than one half inch height and detectable by any interested persons approaching the well. Any additional information the well operator may desire to display may be incorporated into the permanent identification plate or stamp in such a manner that it will not confuse or distort the permanent API identification number.

2.10. Casing.

(1) In addition to the casing required by and described in Sections 5, 6, 7, and 8 of Article 4, of Chapter 22 of the West Virginia Code of 1931, as amended, there shall be used in each well such material and equipment and there shall be employed such procedures as are necessary for the purpose of separating high pressure zones from low pressure zones; the producing horizons, the water-bearing strata, and mineable coal zones for the life of the well.

(2) Fresh Water Casing. A protective string of casing shall extend thirty feet below the deepest fresh water horizon, being the deepest horizon which will replenish itself and from

which fresh or usable water for household, domestic, industrial, agricultural, or public use, may be economically or feasibly recovered and shall have cement circulated in the annular space outside said casing. The volume of cement needed shall be calculated using approved engineering methods to assure the return of the cement to the surface. In the event cement does not return to the surface, every reasonable attempt will be made to fill the annular space by introducing cement from the surface. If the intermediate string of casing is cemented to the surface in conformity with prescribed procedure, this shall also be considered a fresh water string.

(3) Multiple Casing Through Coal Seams. Wells drilled in areas underlain with workable coal seams shall be equipped with a coal-protecting string of casing for the life of the well as required by Sections 5, 6, 7, and 8 of Article 4, Chapter 22 of the West Virginia Code of 1931, as amended. The casing installed through the workable coal seam shall be in addition to the production string of casing.

(4) Cement Strength. Cement placed in the annular space around the casing shall be allowed to set to a minimum compression strength of 500 pounds per square inch using approved engineering data for the type of cement used. The waiting time on cement shall in no case be less than eight hours.

2.11 Plugging Dry and Abandoned Wells.

Any well which is completed as a dry hole or which is not in use for a period of twelve consecutive months shall be presumed to

have been abandoned and shall promptly be plugged as required by Sections 4, 5, 6, and 7, 9, 10, 12 and 12a, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, by the owner or operator unless such owner or operator furnishes proof to the Deputy Director that there is bona fide future use for such well.

(1) Manner in Which Plugging Must be Done. All dry and abandoned wells shall be plugged and filled in such a manner as to prevent migration of oil, gas, water (fresh and/or salt) or any injected liquid or gas to any strata other than the stratum or strata in which they occur or have been placed.

(2) Materials. Non-porous material shall be used in plugging and suitable plugs set as indicated in Sections 9 and 10, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended. Hydraulic cements recognized by API and used as consistent with good engineering practices, shall be used through all workable coal seams, fresh water bearing strata and for all other cement plugs.

2.12 Notice of Intention to Plug and Abandon.

(1) Forms Used.

Notice of intentions to plug and abandon any oil or gas well not operating under current permitted work shall be given to the Deputy Director on Form OG-9. In the event the well to be plugged is a continuous operation of permitted work authorized by the Department of Mines, Oil and Gas Division, the operator may obtain verbal permission from the Deputy Director for Oil and Gas or his designated representative.

Plugging and filling operations are to be conducted under the supervision of the District Oil and Gas Inspector. The well operator shall give the written notices provided in Section 9, Article 4, Chapter 22, of the West Virginia Code of 1931, as amended, to the Coal operator operating coal seams or the coal seam owner of record or coal lessee of record, if any, to whom notices are required to be given.

(2) Bonds and Other Security to be Posted. Before plugging any well for which a bond is not in force as provided in Sections 2 and 9, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended; a performance bond, a deposit of approved securities or cash in the amount of \$2,500.00, shall be filed or made for each oil and/or gas well to be plugged; provided, however, that a well owner or operator may file a blanket bond or deposit approved security in the amount of \$15,000.00 covering all wells in the state.

(3) Location Plat. A tracing of the location plat described in Rule 2.06 shall be filed if such location plat has not previously been filed with the Department of Mines.

(4) Well Record. The well record Form OG-10 as described in Rule 2.09 - (2) shall be submitted in duplicate with the Deputy Director.

2.13. Work Order, Manner and Method of Plugging.

(1) Detail of Manner of Plugging. Three copies of Form OG-9 shall be filed with the Deputy Director setting forth a detailed statement of the manner in which the work of plugging and filling such well is to be done, including such information

as the location (by depth), kind and length of plugs to be used; plans for mudding, cementing, and filling; plans for testing, and for shooting and removing casing, and all other pertinent information regarding said abandonment, all of which shall be in compliance with Section 10 of Article 4, Chapter 22 of the West Virginia Code of 1931, as amended. In the event the well to be plugged is a continuous operation of permitted work authorized by the Department, verbal permission to plug and abandon may be obtained from the Deputy Director for Oil and Gas or his designated representative, as described in Rule 2.12-1.

(2) Objection to Work Order. If no objection to said work order is filed with the Department on or before five days after the receipt of said work order by the Department or if none is imposed by the Department, or prior consent has been given by the coal operator, coal owner or coal lessee who has recorded the declaration provided for in Section 20, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, and received by the Department, then the said work order will be approved or amended and approved and one copy returned to the well operator as his authority for doing the work according to the approved plan. In the event verbal plugging is to be conducted by verbal authorization where notices are required to be given by Chapter 22, Article 4, Section 2, of the West Virginia Code of 1931, as amended, the verbal authorization must also be confirmed to the Deputy Director for Oil and Gas or his designated representative before commencement of said plugging operation, as described in Rule 2.12-(1).

(3) A plugging work order, Form OG-9, Notice of Intention to Plug and Abandon Well, shall be made out and filed in triplicate with the Deputy Director for approval or correction, and a copy shall accompany a notice to the coal operator, coal owner or coal lessee who has recorded the declaration provided for in Section 20, Article 4, Chapter 22, of the West Virginia Code, as amended.

In the event the plugging and abandoning is conducted by verbal permission as described in Rule 2.12 (1), the written work order OG-9, Well Record OG-10 and affidavit of plugging, OG-8 shall be filed in triplicate with the Deputy Director within a reasonable period of time, not to exceed five working days.

2.14. Marker and Affidavit.

(1) Upon the completion of the plugging and filling of any abandoned oil or gas well, a permanent monument or marker consisting of a length of pipe (minimum size, 6") filled with concrete (or the equivalent thereof if approved by the Deputy Director) shall be erected over the well; the marker shall extend no less than thirty (30) inches above the surface and not less than 10 feet into the well, below the surface, and shall be sealed with concrete for the purpose of making the marker permanent. The API well identification number which consists of State (47), County (001 through 109) and permit number shall be attached or stamped in a permanent manner to said monument. The erection of the marker shall in no way interfere with the bleeder pipe from the well where such pipe is required. Such marker shall be accurately described in the affidavit as to time and manner of plugging and filling the well and shall be accepted by the Deputy

Director for Oil and Gas as a satisfactory landmark which may be used as such in the location of adjacent wells.

(2) As soon as the plugging of a well is completed, an affidavit (forms to be furnished by the Deputy Director), giving in detail the manner in which the well was plugged and filled, shall be sent to the Deputy Director. Form OG-8 relative to the filling and plugging of said wells shall be executed by at least two parties doing the actual work, whether or not they are service company, plugging contractor or well owner or operator employees.

(3) In an area where bona fide proof can be given that an above ground marker cannot be used, pipe shall be sealed and filled at least 50 feet below surface with cement. Two permanent reference points with courses and distances from the abandoned well shall be designated and described on the plat accompanying the affidavit of plugging the well.

2.15. Proper Protection of High Pressure Wells. On all wells where high pressure and large volumes can be reasonably expected properly working pressure blow-out preventer 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, said casing and blow-out equipment (both blind and pipe rams, or equivalent) shall be installed and tested by operation and pressure to a minimum pressure which commensurates with the objective formation pressure before drilling is continued.

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

2.17. Commercial Well Properly Equipped. Whenever oil or natural gas in commercial quantities, in a well-defined oil or gas-bearing stratum, known to contain oil or natural gas in such quantities, is encountered in any well drilled for oil or gas in this state, all such strata shall be adequately protected from infiltrating waters. This rule shall not prevent the drilling deeper in search for oil or gas in any well as provided in Section 14, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended.

2.18. Necessary Equipment. All oil or gas well owners or operators, contractors, drillers, pipeline companies, or gas distributing companies, producing crude oil or natural gas, or piping oil or gas for any purpose, shall use every possible precaution in accordance with the accepted and approved methods to stop and prevent waste of oil or gas, or both and stop or prevent the pollution of the water of the State in drilling and producing operations, or in piping or distributing such products and shall not wastefully utilize oil or gas or allow the same to leak or escape from natural reservoirs, wells or pipelines.

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

2.20. Parties Responsible. All contractors and drillers, including all service companies carrying on business or doing work in oil and 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 foregoing rules and regulations; and all contractors, drillers, service companies and operators shall be held responsible for infraction of said laws, rules and regulations.

2.21. Pillar Plans - Method - Procedure. The size of coal pillars left around a well shall depend upon the nature and height of the coal, the nature of the top and bottom, and the amount of over burden. Two copies of OG-7 and two copies of a map, size 8½ x 14 (sample map shall be furnished upon request by the department), must be filed with the Deputy Director for oil and gas before mining within 500 feet of any well. Before mining within 200 feet of any well, an approved permit must be issued by the Deputy Director for Oil and Gas. Two copies of OG-7 completed through the petition section must be filed and approved.

All pillar plan maps must be made under the supervision of a registered engineer or licensed land surveyor approved for underground work. The initial pillar plan map must bear the seal and signature of the engineer or surveyor. Copies of OG-7, Petitions and Maps, must be simultaneously sent to the well owner operator.

(1) Pillar plan maps shall be of a scale that shall show haulageways and ventilation systems that will aid the Department in approving or altering the configuration of the pillar to be left.

(2) The topographic location of the well shall be shown on the pillar plan plat by a cross with measured distance in feet from the nearest 5 minute latitude and longitude intersection using the North East (upper right) border of the plat on the 15 minute (1:62,500) topographic map. If the 7.5 minute (1:24,000) topographic map is used, the topographic location shall be shown on the plat by a cross with a measured distance in feet from the nearest 2.5 minute latitude and longitude intersection using the North East (upper right) border of the plat.

(3) After initial approval has been given, a progress map shall be submitted to the department and well operator at six month intervals upon which shall be shown the permit number.

2.22 Transfer of Title.

(1) When title to a well is transferred from one well owner or operator to another, the Deputy Director shall be immediately notified.

Failure to do so shall be considered a violation of the Rules and Regulations and punishable under Section 17, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, and bond forfeiture as defined in Section 2, Article 4, Chapter 22, of the West Virginia Code of 1931, as amended. A responsible agent shall be appointed and any previously designated agent shall be liable until the new owner or operator and his attorney in fact have registered and qualified with the Oil and Gas Division of the Department of Mines.

(2) The bond or other approved security of a well owner or well operator upon transfer of ownership of a well or wells will not be released by the Department until satisfactory evidence of the transfer or change of ownership is furnished the Department. Where the transfer or change of ownership is to a corporation, partnership or a nonresident of the State of West Virginia, the bond of the transferring well owner or operator will not be released until a new agent shall be designated for such new well owner or operator, which agent shall be the attorney in fact for the new well operator or owner pursuant to Section 1k, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended. Prior to the replacement or substitution of any bond or other approved security provided for in Sections 2, and 9, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, such replacement or other approved security provided for in Sections 2, and 9, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, shall be filed with and approved by the Department.

2.23. Surface and Underground Water Pollution.

(1) Before commencing to drill any well for oil and

gas, the well owner or operator shall make proper and adequate provision to prevent surface and underground water pollution.

(2) 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 method for the purpose of either isolating the salt water in the formation or preventing the discharge of salt water per se into a fresh water horizon, or above the surface of the ground. In the case of foaming, it is recognized that a certain amount of salt water, mixed with cuttings, will be discharged above the surface of the ground which will be contained in sump pits no larger than necessary for this purpose, or handled in such a manner that salt water per se will not be discharged into fresh water.

(3) No oil or gas well shall be drilled nearer than two hundred feet from an existing water well or drilling without obtaining written consent of the owner, such consent must be submitted before a permit will be issued.

2.24 Reclamation

(1) All access roads shall be constructed and maintained to prevent excess sedimentation; to maintain natural drainage areas; and if practicable, to direct or carry away from disturbed areas surface water run-off from undisturbed areas. Drilling sites shall be constructed and maintained to prevent surface run-off from carrying excessive sedimentation away from the site; to confine all materials leaked or spilled as a result of drilling operations to the drilling site; and

to prevent excess sedimentation by placing in any stream any material moved or cut. Upon the plugging of a non-productive well, all cementing and other waste materials resulting therefrom shall be removed from the drilling site.

(2) A proposed reclamation method for construction of roads, drilling locations and pits, if any, or alternative overflow prevention facilities, shall be submitted with the permit application to the Oil and Gas Division of the Department of Mines.

(3) Such proposed reclamation method, on forms furnished by the Oil and Gas Division of the West Virginia Department of Mines, shall be approved by the Deputy Director of the Oil and Gas Division of the Department of Mines or his designated representative, prior to the issuance of the permit, pursuant to Chapter 22, Article 4, Section 1k of the Code of West Virginia of 1931, as amended.

(4) All reclamation shall be done under the supervision of the Oil and Gas Division of the Department of Mines. Such reclamation may be altered or amended, if found necessary, with the consent of the Deputy Director or his designated representative, due to topography or other conditions not apparent upon initial submission and approval of the proposed reclamation method.

2.24 Old 2.24

2.25 Underground Disposal of Water, Liquids or Wastes and the Underground Injection of Water, Liquids, or Wastes.

(1) No discharge of salt water, brackish water, or other water unfit for domestic livestock or other general uses shall be made into the

waters of the State. When underground disposal of such water is required, such disposal well and related facilities will be permitted only upon application and approval of the Water Resources Division of the Department of Natural Resources and Oil and Gas Division of the Department of Mines: as required by Federal and State laws.

Disposal into the same formation from which the water is produced is preferable. Injection of water, other liquids, or wastes shall be accomplished through a tubing and packer arrangement with the packer set immediately above the injection zone, and the annulus between the tubing and casing shall be monitored by pressure sensitive devices. The injection pressure will be regulated to minimize the possibility of fracturing the confining strata. Upon application and after notice and hearing a variance from this requirement may be granted by the Deputy Director upon a showing by an individual operator that alternate prudent engineering practices shall result in fresh water protection.

The following are exempted from the requirements of this Section 2.25.

(a) Injection of water or other liquids for the purpose of well stimulation.

(b) Injection for purpose of gas storage.

An application for a disposal well as defined in Section 2b, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended, shall include:

(a) A plat drawn to a scale of one (1) inch equal to two thousand (2,000) feet showing the location of the disposal well including the requirements of Administrative Regulation 2.06.

(b) The name, description and depth of the formation into which water, other liquids or wastes are to be injected, including a mechanical log of the proposed disposal well or wells, if one is available.

(c) A statement by the well owner or operator as to whether or

not the well is to be used for pressure maintenance, enhanced recovery, secondary recovery, tertiary recovery, or for disposal purposes; and

(d) The approximate depth of the known fresh water zone(s);

(e) The known names of all mineral lessees and known mineral lessors contiguous to the tract on which the injection shall occur, which shall also be referenced on the plat where practicable.

(f) Location on the plat of known water wells within a one thousand foot radius.

(g) Location and identification on the plat of all producing or injection wells within a one thousand foot radius.

(h) Location on the plat and total depth of any known abandoned wells within a one thousand foot radius.

(2) Prior to injection into a permitted well, the well owner or well operator shall furnish the Department with a certification indicating that all requirements of this regulation have been met. The certification shall include the following:

(a) The identification of said well by permit number, well operator's name, lease name, well number, topographical location, elevation and county.

(b) The entire casing and cementing record, any packers and other special down hole equipment, and cement bond logs;

(c) The anticipated maximum bottom hole pressure (PSI) and rate of injection in barrels per day or cubic feet per day;

(d) Identification of the injection zone by geological name and depth top (top and bottom of zone), the number of perforations if applicable or the interval of open hole; and

(e) Certification that the mechanical integrity of the well has been tested.

2.25 (3) Any injection well in existence prior to the effective date of this regulation shall be exempt from the requirements of this regulation; provided that within one year of the effective date of this regulation the operator files an area plat, or plats showing all of such operator's injection wells. Such exemption shall remain effective until such time as in the opinion of the Deputy Director and upon notification thereof to the well owner or operator, it is determined that said well is leaking liquids to other wells or to the surface.

(4) The well owner or well operator of an injection project shall monitor and submit to the Department the injection pressures and volumes at least monthly. The Deputy Director may require more frequent monitoring if, in his opinion, good reason therefore exists.

2.25

2.26 Pits.

All drilling pits shall be constructed, maintained and reclaimed in such manner as to prevent seepage, leakage and overflow; to divert surface water from the pit; and to provide impervious materials for the lining if existing soil is not impervious. If an operator is unable to prevent overflow from any drilling pit, the Oil and Gas Division of the Department shall be notified by the operator and additional drilling pits or alternative overflow facilities shall be constructed under the supervision of the Oil and Gas Division of the Department to prevent said overflow. All drilling pits used in drilling operations and alternative overflow prevention facilities shall be constructed, maintained and reclaimed so as not to be left in such condition as not to constitute a hazard to man or beast or to prevent use of surface for agricultural purposes.

2.26

2.27 Well Operator to Notify.

Every well owner or operator shall notify the proper district oil and gas inspector 24 hours before actual drilling has commenced. Prior to the construction of roads, locations and pits every oil and gas operator, contractor or agent shall notify the proper oil and gas inspector to allow him the opportunity of inspecting and approving the construction and method of reclamation for all proposed areas to be disturbed in siting, drilling, completing or producing the well. The District Oil and Gas Inspector will notify the appropriate Water Resources Inspector to allow them the opportunity to inspect and approve the drilling pits.

2.27

2.28 Accidents.

If any explosion or other accident occurs in or about a drilling operation, causing loss of life or serious personal injury, it shall be the duty of the operator or contractor to give immediate notice stating the particulars of the explosion or accident to the District Oil and Gas Inspector or Deputy Director.

2.29 Cubic Feet of Gas.

Cubic feet of gas shall mean, in these rules and regulations, the volume of gas contained in one 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 (14.73) PSIA and the standard temperature base shall be sixty degrees (60°) Fahrenheit.

2.30 Barrel.

Barrel shall mean forty-two (42) U. S. gallons of two hundred and thirty-one (231) cubic inches each at a temperature of sixty degrees (60°) Fahrenheit.

2.31 Annual Report of Oil and Gas Production.

An annual report of oil and gas production shall be filed with the Deputy Director. The report must be filed on or before the succeeding March 31st. The report must be filed regardless of the status of the well. The first report under these regulations be filed by March 31, 1978 for the year of 1977.

The report to be submitted by the well operator or well owner or a person specified by the operator or owner shall include the well operator's name, place of business, lease(s) or well name(s), API number(s) (composed of State, county, and permit number), and volume of oil measured in barrels or gas measured in thousand cubic feet, and other pertinent information as the Deputy Director, by rule or regulation, may require in the performance of his statutory duties under Section 4, Article 4, Chapter 22 of the West Virginia Code of 1931, as amended.

2.32 Measurement of Oil

The volume of production of oil shall be computed in terms of barrels of clean oil on the basis of meter measurements or tank measurements of oil level difference, made and recorded to the nearest quarter-inch of one hundred percent (100%) capacity tables, subject to the following corrections:

(a) Correction for Impurities--The percentage of impurities (water, sand, and other foreign substances, not constituting a natural component part of the oil) shall be determined to the satisfaction of the

Deputy Director and the observed gross volume of oil shall be corrected to exclude the entire volume of such impurities.

(b) Temperature Correction--The observed volume of oil corrected for impurities shall be further corrected to the standard volume at 60° Fahrenheit in accordance with A. S. T. M. D. -1250, Table 7, or any revisions thereof and any supplements thereto or any close approximation thereof approved by the Deputy Director.

2.33 Measurement of Gas

(1) All gas, except gas used on the lease for development purposes and lease operations, when produced or sold shall be measured by an approved meter of sufficient capacity. In case of gas production the production for each well will be identified and reported where a meter has been set for each well.

(2) Common or Master Meter Measurement--When one meter measures production for more than one well, the production from each common meter will be identified and reported.

(3) Calculated Value--Where no measurement is available for an individual well or group of wells, the calculated volume of gas production using accepted engineering methods will be identified and reported.

The standard pressure base for reporting purposes shall comply with Administrative Regulation 2.29 regardless of atmospheric pressure or temperature.

The foregoing rules and regulations are hereby prescribed and promulgated for the Administration of Article 4, Chapter 22 of the Code of West Virginia, 1931, as amended and effective.