

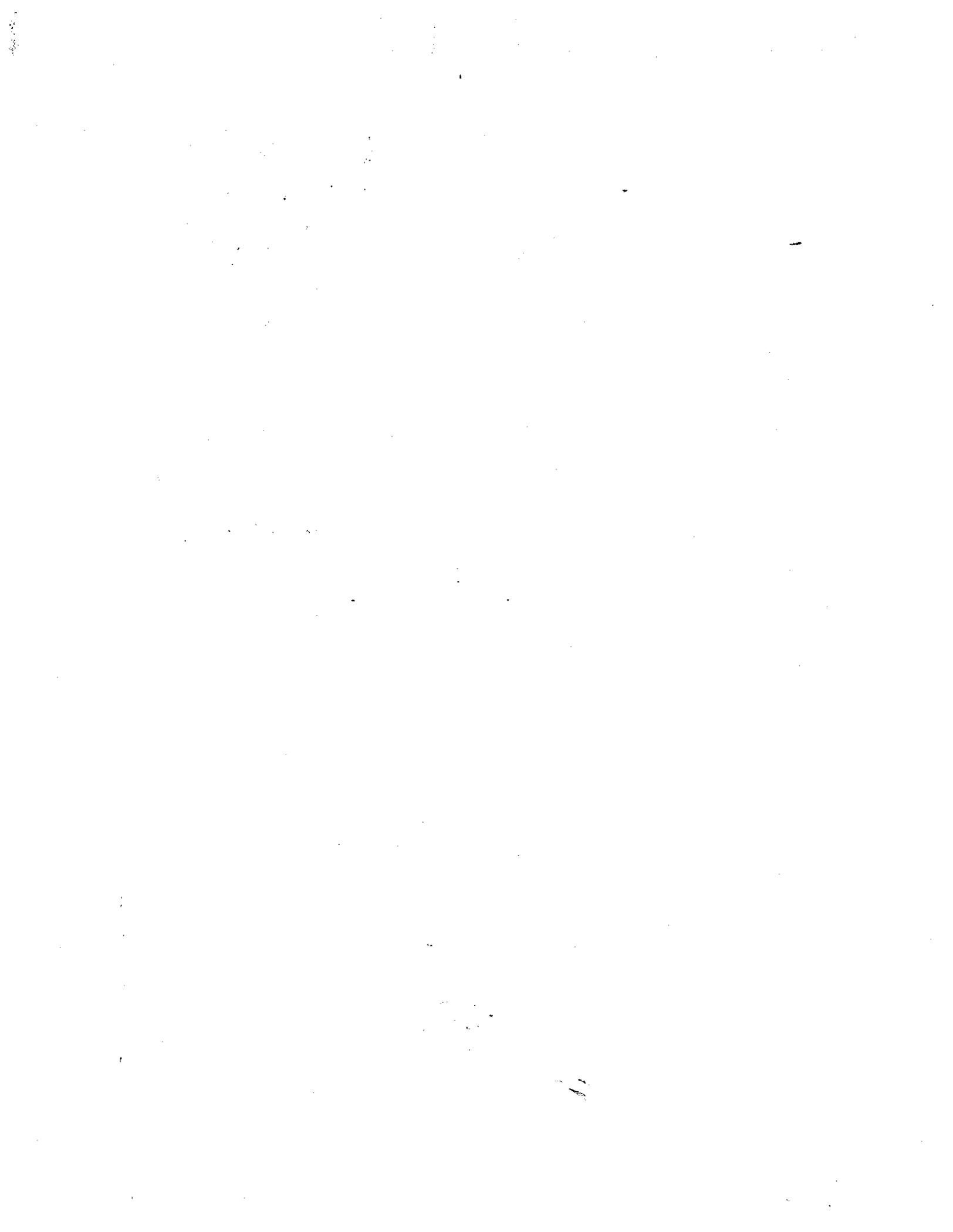
**IOGCC/EPA STATE REVIEW OF  
OIL & GAS EXPLORATION & PRODUCTION  
WASTE MANAGEMENT REGULATORY PROGRAMS**

# **Pennsylvania Review**



**A PROJECT OF THE  
Interstate Oil & Gas Compact Commission**

March 1992



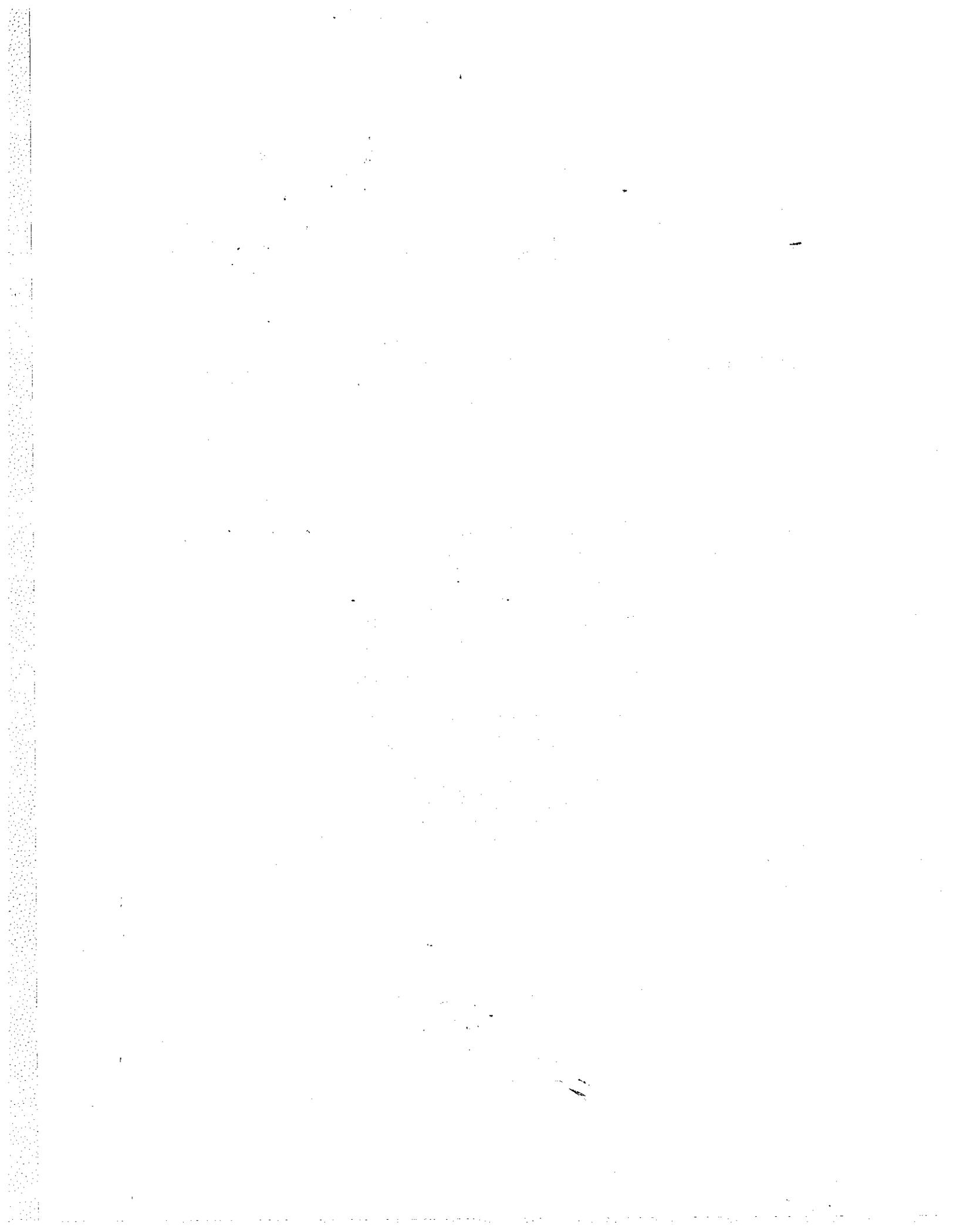
**PENNSYLVANIA REVIEW**

**IOGCC/EPA STATE REVIEW OF OIL & GAS EXPLORATION  
AND PRODUCTION WASTE MANAGEMENT REGULATORY PROGRAMS**



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## INTRODUCTION

This report contains the findings and recommendations of a four-person team appointed by the Interstate Oil and Gas Compact Commission (IOGCC) to review components of the regulatory programs of the Commonwealth of Pennsylvania that pertain to management of wastes derived from the exploration and production (E&P) of crude oil and natural gas. The review was coordinated by IOGCC in cooperation with the United States Environmental Protection Agency (EPA) and other interest groups.

**BASIS FOR THE REVIEW:** The primary basis for the review is the report entitled "EPA/IOGCC Study of State Regulation of Oil and Gas Exploration and Production Waste," hereinafter referred to as the "IOGCC guidance" or "IOGCC guidelines." The review team evaluated Pennsylvania's E&P waste regulatory programs against the guidelines and criteria listed in the IOGCC guidance. However, the review team did have some latitude to make inquiries, findings, and recommendations beyond the specific guidelines and criteria contained in the IOGCC guidance which deals only with E&P waste identified as exempt from Resource Conservation and Recovery Act (RCRA) Subtitle C regulation. Since the potential exists for non-exempt waste to be commingled with exempt waste at E&P sites, steps should be taken to prevent such. This issue is not the subject of this report.

The ultimate purpose of the review is to identify strengths and recommend improvements for the Commonwealth's E&P waste regulatory programs. Because it is not intended to be a detailed review of the effectiveness of Pennsylvania's E&P waste program, the review did not include an evaluation of various site-specific case studies or environmental data. The review (and the criteria upon which it is based) is more of an evaluation of whether the Commonwealth has certain elements of an E&P waste regulatory program than it is a determination of the extent to which the Pennsylvania program is protective of human health and the environment.

Ground rules for the Pennsylvania review were established by an IOGCC steering committee comprised of state environmental and oil and gas regulatory officials, representatives of industry and environmental organizations, and officials of interested federal agencies. Members of the review team, official observers of the reviews, rules of participation, and guidelines for preparation of the draft and final reports were approved by the steering committee.

**EXTENT AND CONTENT OF THE REVIEW:** A questionnaire (See Appendix A) based primarily on criteria listed in the IOGCC guidance was developed by the steering committee and used as a focal point for the Pennsylvania review. The questionnaire touched only briefly on E&P waste management practices and issues that were not addressed in the administrative and technical criteria of the IOGCC guidance. Those practices and issues excluded are:

- technical requirements for injection wells regulated under the federal Safe Drinking Water Act;
- effluent limitations for discharges to surface waters regulated under the federal Clean Water Act's National Pollutant Discharge Elimination System (NPDES); and
- monitoring and regulation of naturally occurring radioactive materials (NORM) in oilfield wastes.

Questions concerning injection wells and NPDES-permitted discharges were limited, both in the questionnaire and during the in-state review, to how the regulatory programs for those practices interface with other E&P waste management practices that involve the handling and disposition of liquid and solid wastes.

The review team focused its evaluation on Pennsylvania's regulatory requirements for onsite disposal of drilling and production waste and offsite treatment and disposal facilities. The review addressed management of those wastes in onsite pits, landspreading, burial, roadspreading, commercial and centralized treatment facilities for brine, and offsite disposal of E&P wastes at solid waste landfills.

Statutory and administrative components of the Pennsylvania programs, including staffing and funding levels and enforcement activities, were assessed against applicable criteria in the IOGCC guidance. How Pennsylvania's programs interface with federal programs applicable to E&P wastes also was reviewed.

**REVIEW TEAM MEMBERSHIP:** The review team chosen for the Pennsylvania review included: Mr. Danny R. Rycroft, P.E., Phillips Petroleum Company/American Petroleum Institute; Ms. Wilma Subra, Environmental Community/Subra Company; Mr. Donald L. Mason, Esq., Ohio Department of Natural Resources, Division of Oil and Gas; and Mr. Carroll D. Wascom, Louisiana Department of Natural Resources, Office of Conservation. Observer team members included: Ms. Nancy Johnson, Department of Energy, Office of Fossil Energy; Mr. Larry P. Kardos, PhD, Consultant; and Ms. Paula Ford, Environmental Community. Others present included Mr. Jerry Simmons, IOGCC staff; Mr. Robert Tonetti, EPA Office of Solid Waste, Washington, D.C.; Mr. Dan Derkics, EPA Office of Solid Waste, Washington, D.C.; Mr. Dennis Rudy, EPA Office of Solid Waste, Washington, D.C.; and Ms. Terri Lorenzon, Wyoming Environmental Quality Council.

**WHERE AND HOW THE REVIEW WAS CONDUCTED:** The Pennsylvania review was conducted in Harrisburg, at the offices of the Bureau of Oil and Gas Management (BOGM) on November 4-7, 1991. Mr. James E. (Jim) Erb, Director of BOGM was the primary respondent to the questions posed by the review panel during the week. Mr. Ronald Gillius, Chief of the Division of Surface Activities within BOGM was responsible for preparing the answers to the questions in the IOGCC questionnaire and assisted Mr. Erb

in responding to the questions of the review panel. Also available were Mr. David F. Janco, Chief, Compliance and Monitoring Section of BOGM's Pittsburgh Regional Office and Mr. Kenneth G. Young, Oil and Gas Regional Manager of BOGM's Meadville Regional Office. Other staff members providing information on specific topics were Mr. David J. English, Chief and Mr. Gary M. Fleeger, Systems Coordinator of BOGM's Division of Enforcement & Administration and Mr. Steve Socash of the Bureau of Waste Management, Office of Air & Waste Management. Others were available as necessary during the review.

The review was conducted by discussing the answers in the questionnaire provided the review team by BOGM. Prior to beginning each section of the questionnaire, Mr. Jim Erb or the appropriate staff member would give an overview of the topic to be discussed (i.e., permitting, enforcement, technical requirements, etc.). Each review team member was responsible for leading the questioning and ensuing discussion for particular topics in the questionnaire. Observers were also permitted to interject questions throughout the review process. At the end of each day, the review panel, observers, EPA representatives and IOGCC staff would identify issues raised during the daily questioning sessions. Taking these into consideration, the review team then prepared a rough draft of findings and areas of concern for each of the criteria for an effective E&P waste management program which are listed in the IOGCC guidance document. On Thursday, November 7, 1991, an exit interview was conducted with Mr. Jim Erb to inform him of the findings of the review team. The panel outlined the positive aspects of the Pennsylvania regulatory program discovered during the review and expressed some of the identified areas of concern.

Each review team member was assigned one or more sections to prepare as a draft report for the Pennsylvania review. The review panel met again on January 13-17, 1991 to complete the draft report. Once completed, the draft report was distributed to all participants of the review, including the Pennsylvania regulatory officials and review observers. The review panel met on March 2-4, 1992 to consider all comments and to prepare the final report.

The review team reached consensus on most of the findings and recommendations contained herein. In areas where consensus was not achieved, appropriate entries have been made in the report.

## **OIL AND GAS PRODUCTION AND WASTE MANAGEMENT IN THE COMMONWEALTH OF PENNSYLVANIA**

### **OIL**

The Seneca Indians used oil from springs near Oil City, Venango County for ceremonial purposes and early settlers used "Seneca Oil" as a medicine to cure all ailments. On August 27, 1859, "Colonel" Edwin Drake and a salt well driller, "Uncle Billie" Smith, drilled the first oil well in North America for commercial production. Oil was struck at 69 1/2 feet and resulted in the world's first commercial interest in oil production. By the end of 1861, 2.5 million barrels of oil was produced. Development was so active that most of the oilfields in Venango County were discovered by 1870.

The Bradford field in McKean County, the largest field in the Commonwealth, was discovered in 1871 with a peak annual production of almost 23 million barrels in 1881.

Pennsylvania was the leading oil producer until 1895. From the 1890's to the late 1920's, oil production declined until secondary recovery water flooding in the 1930's resulted in a marked production increase. Since the middle 1950's, oil production in Pennsylvania has been on the decline.

### **NATURAL GAS**

During the early days of the oil boom (1860's - 1880's) gas was used as a fuel to drive engines at oil wells and for heating. Rapid expansion of the gas industry began in 1884 when gas began to be used in the Pittsburgh steel industry. Until 1930, all gas was produced from the shallow Mississippian and Upper Devonian formations. In 1930 gas was discovered in the Lower Devonian Oriskany Sandstone in Tioga County and in the Upper Silurian Medina Sandstone in Erie County in 1947.

Pennsylvania uses almost five times more gas than it produces and consequently has converted depleted gas fields to storage. With 65 operating storage fields, Pennsylvania leads the country in gas storage.

### **CURRENT PRODUCTION**

About 2,500,000 bbl oil and 2,000,000 mcf gas are produced annually. Production occurs in 38 of 67 counties. Although peak oil production occurred in 1891, gas production is currently at an all time high. The majority of oil production is in the Meadville region (Venango, Warren, McKean, Elk and Forest counties) while gas production is spread throughout western Pennsylvania.

## ENVIRONMENTAL REGULATIONS

From the beginning, oil and gas development in Pennsylvania occurred in an unregulated fashion with little thought given to anything but getting the product out of the ground. An unknown number of oil and gas wells have been drilled in the Commonwealth, with activity peaking and ebbing as new discoveries were made.

From the environmental standpoint, the Pure Streams Act of 1937 (No. 394) provided the first pollution abatement controls. Pollution was broadly construed to mean the discharge or effects of noxious or deleterious substances "rendering unclean the waters of the Commonwealth to the extent of being harmful or inimical to the public health, or to animals or aquatic life, or to the use of such waters for domestic water supply, or industrial purposes, or for recreation." The Brunner Bill (Act No. 177, 1945) increased the penalties for pollution and broadened the authority of the Commonwealth to attack and solve pollution problems. Numerous additional amendments (1956, 1965, 1970, 1978, 1980) have resulted in the current Clean Streams Law.

Early regulation of the oil and gas industry dates back to the late 1800's when operators were required to plug wells to protect oil bearing zones and to protect fresh water. In the early 1900's, legislation specifying well plugging procedures was enacted.

The first comprehensive regulation of the oil and gas industry arose from the need to protect underground coal miners from the dangers associated with drilling gas wells through or near coal mines. The Gas Operations Well-Drilling Petroleum and Coal Mining Act (No. 225, 1955) required permits for gas wells in coal areas. This authority was expanded in the early 1960's to all oil and gas wells. Other requirements included the authority to require records of wells drilled. These permits were little more than registration of wells since there was no authority for denial of permits.

In 1984, after six years of debate, the Oil and Gas Act (No. 223) was adopted. This statute provided for a comprehensive regulatory program which tied together requirements for environmental protection with oil and gas well permitting, bonding, drilling, operation, inactive status, reporting and plugging. This Law and Chapter 78 of the Rules and Regulations (promulgated in 1989 under the authorities of the Oil and Gas Act, the Coal and Gas Resource Coordination Act, the Oil and Gas Conservation Law, the Clean Streams Law, the Solid Waste Management Act, and the Administrative Code), provide the primary framework for the Department's current oil and gas regulatory program. Amendments to the Oil and Gas Act have been offered every legislative session since its passage, but except for a package of clarifying amendments in 1986, the law has remained intact.

There are three oil and gas operator associations in Pennsylvania. The Pennsylvania Oil and Gas Association (POGA) is the oldest, has several hundred members, and represents primarily larger oil operators and small gas operators. POGA has monthly meetings, a

monthly news magazine, sponsors educational forums, sponsors research, and lobbies state government. The Independent Oil and Gas Association (IOGA), has less than a hundred members; primarily represents larger gas operators, and is presently trying to attract oil operators as well. IOGA (formerly the Pennsylvania Natural Gas Association) has monthly meetings, a periodic newsletter, has recently begun to sponsor education forums, and actively lobbies. Both IOGA and POGA have environmental committees. The third association, the Pennsylvania Independent Petroleum Producers (PIPP), represents an unknown number of small independent oil and gas producers.

Several environmental groups have worked on oil and gas issues in the Commonwealth. Some of these environmental groups include the Pennsylvania Chapter of the Sierra Club, the Pennsylvania Federation of Sportsman's Club, the Cornplanter Chapter of Trout Unlimited and the Audubon Council of Pennsylvania.

An unknown number of wells have been drilled in Pennsylvania. The BOGM has records on 151,000 wells which have been permitted, plugged or registered. Over 76,000 of these are considered to be operating wells. About half are oil wells and half are gas wells. Permits are being issued for new wells (mostly gas wells) at a rate of about 2,000 per year not all of which are drilled. About two-thirds of the total activities regulated by the program take place in the Meadville region. Approximately 85% of the wells (65,000) are currently bonded by approximately 1,100 bond instruments. The Commonwealth has records on approximately 5,400 operators, many of whom have only one or a few wells. Therefore, it appears that 20% of the operators (1,100) have about 85% of the wells on record, and that the remaining 80% of the operators (4,300) have only 15% of the wells (11,000). Therefore, BOGM has concluded that there are a lot of operators who have a few wells, each of which are not in compliance with the law.

A 1978 EPA aerial survey estimated there were approximately 17,000 unclosed pits in the Commonwealth that are active, abandoned, or orphaned. The survey included all pits including active and abandoned oil and gas pits and similar impoundments such as ponds, etc. The existence of the unclosed pits in no way reflects that BOGM has not been effectively regulating current industry practices. The pits are a result of past management practices that are no longer in use.

Although BOGM does not have a comprehensive program to bring all of these pits into compliance, they do address abandoned pits that are brought to their attention and have the authority to take action on those that may pose imminent environmental harm or threats to human health.

## **Finding 1.**

The BOGM is conducting a project to characterize the waste in unclosed abandoned pits and to evaluate the cost benefit of remediation of the pits by various techniques.

## **Recommendation 1.**

Although it is beyond the scope of the IOGCC Guidelines to address past waste management practices, the review team encourages BOGM to continue research efforts to develop and implement a comprehensive program to address unclosed abandoned and orphaned pits.

### **I. GENERAL**

#### **A. Regulatory Jurisdictions and Authorities**

The Department of Environmental Resources (DER) is responsible for the regulation of oil and gas exploration and production (E&P) wastes within the Commonwealth of Pennsylvania. Several offices within DER manage various aspects of the program as indicated below:

1. Within the Office of Mineral Resources (OMR), the Bureau of Oil and Gas Management (BOGM), administers the bulk of the Pennsylvania oil and gas regulatory program.
2. As part of the Office of Field Operations (OFO), there are Northwest (Meadville) and Southwest (Pittsburgh) Regional Offices. These offices issue well permits and NPDES permits and also provide technical services and perform monitoring and compliance activities for the enforcement of BOGM regulations.
3. The Office of Water Management (OWM), Bureau of Water Quality Management (BWQM), provides the policy and regulatory guidance for the issuance of NPDES permits and construction and operation permits. Regional staff of the BWQM review NPDES applications for industrial and municipal waste treatment facilities.
4. The Office of Air and Waste Management (OAWM), Bureau of Waste Management (BWM) regulates offsite commercial and centralized landfills. BWM develops regulations and guidelines for the disposal of solid wastes and is responsible for permitting offsite landfills which accept small but

unknown volumes of E&P wastes. Staff in the regional offices review permits for these disposal sites.

5. Attorneys within the Office of Chief Counsel (OCC), Bureau of Regulatory Counsel (BRC) are assigned to BOGM and the regional offices (OFO) to provide legal assistance as needed in such areas as enforcement and rulemaking.
6. The Bureau of Laboratories (BL) and the Bureau of Office Systems and Services (BOSS), Office of Management and Technical Services (OMTS) provide analysis of samples for enforcement efforts and the technical review of bonds, respectively.

The organizational structure of DER is included in this report as Appendix B.

The BOGM is one of the newer agencies within the DER. Established in 1983, BOGM was formed in response to requests from the public and industry for a single agency within DER to address oil and gas production and development issues. The BOGM regulates onsite E&P waste management practices, onsite and centralized brine treatment facilities, brine disposal wells and the roadspreading of produced brine.

The BOGM central office is located in Harrisburg and is responsible for administering the Pennsylvania oil and gas programs. The Director and three divisions within the central office carry out the functions outlined in Appendix C (Functional Statements). These functions are briefly discussed below:

1. The Director of BOGM directs the planning, development, coordination, implementation and evaluation of state-wide oil and gas regulatory programs.
2. The Subsurface Activities Division develops regulations and guidelines for oil and gas drilling, operating and plugging activities, and administers the abandoned well plugging program.
3. The Surface Activities Division develops regulations and guidelines for the control and disposal of E&P waste fluids and solids.
4. The Enforcement and Administration Division develops guidance on enforcement procedures and develops and maintains BOGM's computer system for permitted and registered well data.

Also included in BOGM functional statements of Appendix C are the responsibilities of the regional offices. The technical staffs of the Technical Service Sections in the Meadville

and Pittsburgh regional offices review applications and issue permits for the following E&P waste management activities:

1. production pit construction;
2. land application of E&P waste solids;
3. onsite burial of E&P solid wastes;
4. roadspreading of produced brine;
5. disposal wells;
6. brine treatment plants and NPDES permits; and
7. alternate disposal methods.

Within each regional office is a monitoring and compliance section that is responsible for performing field inspections and collecting evidence for enforcement actions.

Other agencies that have interests in or jurisdiction over E&P waste management activities include the following:

1. U.S. EPA regulates injection wells and disposal wells through direct implementation out of the Region III offices located in Philadelphia, Pennsylvania.
2. Pennsylvania Fish Commission enforces laws relating to the protection, propagation and distribution of fish, including enforcement actions against unpermitted discharges in watersheds.
3. The following agencies monitor oil and gas leases on lands under their jurisdiction for waste disposal practices:

DER

Bureau of Forestry  
Bureau of State Parks

Pennsylvania Game Commission

U.S. Forest Service  
Allegheny National Forest

U.S. Fish and Wildlife Service

U.S. Department of Interior  
Bureau of Land Management

Three state boards provide oversight or supervisory control over certain aspects of the Pennsylvania E&P waste program. The responsibilities of these boards are explained as follows:

1. Environmental Quality Board (EQB)

The EQB promulgates regulations administered by the DER and is composed of 21 members, twelve of which are the heads of Departments and Agencies in the executive branch of state government. Five are appointed by the Citizens Advisory Council and four are appointed by the leadership of the legislative branch.

2. Technical Advisory Board (TAB)

The TAB provides consultation to DER in the formulation of technical regulations which effect the oil and gas industry. It is composed of five members chosen by the Governor.

3. Environmental Hearing Board (EHB)

The EHB conducts hearings and issues adjudication on any order, permit, license or decision of the DER.

**Finding I.A.1.**

The statutory authorities upon which the Pennsylvania E&P waste regulatory program is based are consistent with Section 3.1.a-c. of the IOGCC guidelines. The statutes provide authority to promulgate regulations, issue permits, conduct inspections and take enforcement actions relative to oil and gas exploration and production activities. These authorities are listed below:

- a. The Oil and Gas Act (58 P.S. Sections 601.101 - 601.605).
- b. The Clean Streams Law (35 P.S. Sections 691.1 - 691.1001).
- c. The Solid Waste Management Act (35 P.S. Sections 6018.101-1003).
- d. Article XIX-A of the Administrative Code of 1929 (71 P.S. Sections 510-1-510-108).

### **Finding I.A.2.**

Consistent with Section 3.1 of the IOGCC guidelines, the implementing regulations, which include 25 PA Code Chapters 78 and 79, adequately define the necessary terminology and provide specific siting, permitting, construction, operating and closure requirements for oil and gas related activities.

The BOGM has developed and published an "Oil and Gas Wastewater Permitting Manual" which is a guide to the procedures and requirements for obtaining NPDES permits for surface water discharges, construction and operation permits for treatment facilities, or activities which discharge wastewaters to surface or groundwaters and disposal well construction and operation permits. The BOGM also publishes an "Oil and Gas Operators Manual" which provides an introduction to the rules and regulations governing the management of waste generated by the oil and gas industry, copies of forms required of oil and gas operators, pit construction requirements, copies of applicable rules and regulations, and other information for other oil and gas related permits or approvals. These manuals are valuable tools for assisting oil and gas operators or any interested party in understanding requirements for the oil and gas industry in Pennsylvania.

In addition to the manual, DER publishes a "Users' Guide to DER Permits" which provides helpful information concerning what permits are required for certain activities. Phone numbers and contacts of regulatory personnel and offices are also provided. These documents are an excellent means of assisting operators in interpretation and implementation of applicable regulations.

### **Finding I.A.3.**

Although BOGM regulations are generally strong and include detailed requirements for environmentally sound E&P waste management practices, when changes to the regulations are deemed necessary, it takes 18 months to two years to promulgate new regulations, assuming they are noncontroversial (IOGCC Guidance 3.1.a-c).

### **Recommendations I.A.3.**

The procedures for promulgating regulations should be streamlined. Although the IOGCC Guidance does not specifically require new E&P regulations to be promulgated within a certain amount of time, the review team felt strongly that 18 months to two years is an inordinate amount of time, taking into consideration the timeframe of other states.

## **B. Goals**

Consistent with IOGCC Guidance, Section 3.2, The Commonwealth of Pennsylvania has adopted a clear written statement for E&P programs, goals and objectives, as expressed below:

DER's mission is to ensure the wise use of Pennsylvania's natural resources; protect and restore the natural environment; protect public health and safety; provide opportunities for outdoor recreation; and enhance the quality of life for all Pennsylvanians.

DER will act as trustee to guarantee the rights of all Pennsylvanians, including future generations, to a safe, healthy environment. DER will carry out its stewardship responsibilities in a fair and timely manner that both respects environmental values and is deserving of the public's trust.

Chapter 1, Section 102 of the Oil and Gas Act includes the following declaration of purpose:

1. Permit the optimal development of the oil and gas resources of Pennsylvania consistent with the protection of the health, safety, environment and property of the citizens of the Commonwealth.
2. Protect the safety of personnel and facilities employed in the exploration, development, storage and production of natural gas or oil or the mining of coal.
3. Protect the safety and property rights of persons residing in areas where such exploration, development, storage or production occurs.
4. Protect the natural resources, environmental rights and values secured by the Pennsylvania Constitution.

The program objective of BOGM is to promote a healthy oil and gas industry in Pennsylvania while at the same time assuring that safety, conservation and environmental objectives of the laws and regulations are met.

### **Finding I.B.1.**

The Oil and Gas Act declaration of purpose and the DER statement of goals are an excellent basis upon which to build an E&P waste management program and are consistent with IOGCC Guidance 3.2.

### **C. State/Regional Variations in Criteria**

The BOGM rules and regulations take into consideration differences in geology and methods of operation within the Commonwealth. The following items identify examples of such variations:

1. Coal protective casing in the coal producing regions of the state.
2. Top hole water generated by cable-tool and air rotary drilling methods.

The Coal and Gas Resource Coordination Act provides for coordinating the activities of operators of coal mines and gas wells.

The large number of wells in Pennsylvania with very low production rates may result in a greater degree of noncompliance with any and all oil and gas related regulatory programs because of the inability to fund compliance efforts. The BOGM takes these factors into consideration in carrying out the E&P waste management program.

### **D. Coordination Among Agencies**

Only one state agency regulates E&P wastes in Pennsylvania, the DER. However, various offices within DER must coordinate permitting, surveillance, and enforcement activities to implement applicable regulations. Such coordination appears to exist within DER, resulting in a unified effort to implement the E&P waste management program. For example, the Coal and Gas Resource Coordination Act provides for coordinating the activities of operators of coal mines and gas wells. Also, a memorandum of understanding (MOU) between BOGM and the Bureau of Water Quality Management (BWQM) coordinates implementation and ensures consistency with the NPDES program.

### **E. Personnel**

The DER utilizes various sub-agencies to administer the Pennsylvania E&P waste management program. Therefore, many employees provide a portion of their time to such activities as permitting, compliance evaluation, and legal services. The diverse responsibilities of DER personnel encourages enhanced communication across disciplines and between offices within DER. A majority of the field inspectors and water quality specialists within the program have college degrees and are very well trained.

The bulk of program administrative functions for E&P waste management are carried out by BOGM, consistent with IOGCC Guidance (4.3.1.1.). Such functions include program planning and evaluation, policy setting, regulation development, training, budgeting, and personnel management. The BOGM central office personnel that perform these activities

include 12 positions: a director, three supervisors, five technical staff (one vacancy) and three clerical staff (one vacancy).

Legal support for the Pennsylvania E&P waste program is provided by the Office of Chief Counsel (OCC), Bureau of Regulatory Counsel (BRC), as needed, in areas of enforcement and rulemaking. One attorney is assigned to the central office of BOGM. Two attorneys in the OCC regional office in Pittsburgh provide legal counsel and litigate cases for BOGM regional staff in Pittsburgh and Meadville.

The two regional offices are responsible for the implementation of all DER programs, E&P waste management being just one of many. All personnel of BOGM are required to have the appropriate combination of college degrees and experience. The technical staff in the Pittsburgh regional office consists of 23 positions with 17 filled. The Meadville regional office employees are composed of 41 positions with 39 filled. These positions include managers and supervisors, geologists, sanitary engineers, water quality specialists, water quality compliance specialists, water quality supervisors, hydrogeologists, oil and gas inspector supervisors, and oil and gas inspectors. The technical staff in each regional office reviews applications for production pits, land application, roadspreading, disposal wells, brine treatment plants and alternate methods of waste management. Water quality specialists and oil and gas inspectors perform compliance investigations and respond to complaints.

### **Field Inspectors**

The Monitoring and Compliance Section of each Regional Office is responsible for performing field inspections and collecting evidence for enforcement actions. Over the last three (3) fiscal years, the number of total inspections has continued to decline from 13,213 in FY 1988/1989 to 12,528 in FY 1989/1990 to 10,621 in FY 1990/1991. There has been a concurrent increase in general environmental inspections from 2,936 to 3,916 to 3,772, respectively.

The BOGM has extremely capable field inspectors and water quality specialists. Most have four year college degrees in addition to oil and gas field related experience.

Since the new environmental regulations were promulgated in 1989, more attention has been focused on the environmental impacts of oil and gas activities. The Oil and Gas Act of 1984 requires permits be issued within 45 days of receipt of the application. Periodically, permit backlogs are reduced by the use of other dedicated staff. Backlogs also exist in requests to transfer permits because there is a lack of personnel to adequately perform the required compliance reviews. The verification of appropriate bonding (financial assurance) is also backlogged. Approximately one-third of employees' time is spent on E&P waste related activities.

The number of compliance inspections at E&P sites has decreased due to a reduction in staff and furloughs, the increased complexity of inspections and subsequent enforcement actions needed to implement the requirements of the Oil and Gas Act (1984) and the new oil and gas regulations (1989). This reduced ability to perform adequate inspections has caused safety concerns at high priority sites such as gas storage areas and drilling and plugging activities in coal areas. Only about one-fourth of the necessary inspections can be conducted in coal producing areas with existing staff and priorities. Inspection goals that are not being met are to inspect wells and well sites at least once during drilling, once during the life of the well and at the time of plugging and abandonment.

#### **Finding I.E.1.**

There has been an overall negative impact on the level of surveillance and enforcement as a result of staff reductions. Budgetary concerns and limitations have resulted in too few oil and gas inspectors and water quality specialists to allow for a prioritization of more than a limited variety of inspection and enforcement services. As a result, the BOGM must prioritize and concentrate its resources more narrowly than it believes to be sufficient (IOGCC Guidance 4.3, 4.3.1.4 and 4.3.2).

#### **Recommendation I.E.1.**

The Commonwealth should allocate sufficient resources so as to broaden the number and kind of inspection and enforcement activities (also, see Finding and Recommendation I.F.1).

#### **Finding I.E.2.**

Although DER employees are well qualified and trained, there appears to be a lack of personnel and resources in all areas of E&P waste regulation, administration, permitting, surveillance and enforcement. Staffing levels that were to be provided through a three year program have not been authorized as requested and have not met the needs for inspection and enforcement actions for routine environmental and administrative violations. The BOGM does not have the authority to fill vacancies at present. Only 59 of 65 authorized positions are filled (IOGCC Guidance 4.3, 4.3.1, and 4.3.2).

### **Recommendation I.E.2.**

Steps should be taken to fill currently vacant positions and to add new positions in all areas of E&P waste regulatory management according to currently requested levels.

### **F. FUNDING**

The Pennsylvania E&P waste management program is funded by general appropriation of the legislature and by restricted revenue account from permit fees, surcharges, fines and administrative fees. The BOGM continually has difficulty competing for general appropriations since the area of the Commonwealth where most of the oil and gas activities are located is sparsely populated. Fees, fines and surcharges can be expended on administrative costs and placed into a well plugging and abandonment fund. The Commonwealth of Pennsylvania does not have a severance tax as in other oil and gas producing states. The BOGM has been attempting each year to increase its budget and personnel through the fiscal and legislative process. Because production is at such a low volume for most wells (averaging 0.3 barrels of oil per day), resources available by operators for upgrading operations are very limited. In addition, proposed changes in the oil and gas laws could add additional responsibilities to BOGM without adequate resources being provided.

### **Finding I.F.1.**

Funding levels for the BOGM E&P waste management program are inadequate to fully carry out the program as it exists (IOGCC Guidance 4.3.2).

### **Recommendation I.F.1.**

In addition to general appropriations, other sources of funding should be developed to address current and future personnel and resource needs. The Commonwealth should consider the following options in order to increase revenues:

1. Raising fees;
2. Increasing permit surcharges;
3. Implementing a severance tax on production;
4. Implement inspection fees; and/or
5. Implement fees tied to volumes of E&P waste generated/disposed.

## II. PERMITTING

The permitting of oil and gas related activities is performed by various programs within DER and the U.S. EPA. Within the Pennsylvania DER, BOGM is the primary permitting agency and issues permits for:

1. Onsite E&P waste management facilities;
2. Centralized and onsite treatment facilities for brine;
3. Surface facilities at disposal wells; and
4. Roadspreading of brine.

The DER, Bureau of Waste Management issues permits for:

1. Offsite commercial E&P waste management facilities and landfills; and
2. Centralized waste management facilities.

The U.S. Environmental Protection Agency issues permits for injection and disposal wells under the UIC program. The Commonwealth of Pennsylvania is a direct implementation state under UIC. In addition to UIC permits required by EPA under the federal Safe Drinking Water Act, BOGM also permits disposal wells under the Pennsylvania Clean Streams Law and Oil and Gas Act. The surface facilities at Class II disposal wells are permitted by BOGM under the Clean Streams Law. The Class II enhanced recovery wells are regulated by BOGM under the Oil and Gas Act.

Permit timeframe varies with the type of permit:

1. Production pit approval - life of the pit.
2. Plugging and servicing pit approval - 90 days after the pit is constructed.
3. NPDES permit - renewal every five years.
4. Treatment facility permit - life of facility/must be constructed within two years of permit issuance.
5. Disposal well permit - life of operation.
6. Offsite facility permit for residual waste disposal - life of operation.

### Finding II.1.

The BOGM has a strong regulatory program for permitting onsite and offsite waste management practices and facilities. The permitting process includes the review of applications for E&P waste activities by the technical staff in the regional offices (IOGCC Guidance 4.1.1).

### **Finding II.2.**

Under the regulatory requirements, when a well changes ownership, the well permit must be transferred. During the process of permit transfer, BOGM reviews the bonding on the well and the compliance history of the wellsite. If outstanding compliance issues are unresolved, BOGM may incorporate a consent decree with a compliance schedule into the permit transfer (IOGCC Guidance 4.1.1).

### **Finding II.3.**

The IOGCC criteria for commercial and centralized facilities states that the permits should be reviewed and revised if necessary, no less frequently than every five years. The commercial brine treatment facilities have NPDES permits which are renewed every five years. However, the disposal well facilities and residual waste disposal facilities are issued permits for the life of the operation (IOGCC Guidance 4.1.1).

### **Recommendation II.3.**

A process should be implemented that will require a review process to take place on all commercial/centralized facility permits every five years. The review process should include an onsite inspection, review of compliance history, status of outstanding compliance issues and review of adequacy of bonding. Provisions should be made to enable amendment of the permit to include outstanding issues needing attention. [Note: The review team recognizes that regulations were adopted as final by the EQB on January 21, 1992, and are currently undergoing final review by the Independent Regulatory Review Commission and Attorney General.]

### **Finding II.4.**

If E&P waste solids are to be disposed of offsite at a commercial disposal facility a "Module I" (Form ER-WM-14, Appendix D) must be submitted for each waste stream. The Module I must include the types of waste to be disposed, a complete analysis of the waste, and the facility at which the waste will be disposed. The timeframe required for a Module I review is not specified (but may take up to 300 days). This may not adequately coincide with the mandated closure period on a drilling pit (within 90 days of completion of drilling activities). The timeframe for a Module I may be far in excess of the 90 days required to complete pit closure (IOGCC Guidance 4.1.1).

#### **Recommendation II.4.**

The timeframe for permitting a Module I should be reviewed to determine if the timeframe could be altered to correspond with the requirements for drilling pit closure requirements.

#### **Finding II.5.**

The vast majority of E&P waste solids and sludges are disposed of onsite. The remaining waste is disposed of in municipal and industrial waste landfills. The landfills are constructed with liners and leachate collection systems. Each regional office of the state agency has recommendations of what is to be included in an application for a landfill which will accept solid and industrial waste as well as E&P waste (residual waste). These varying recommendations include such issues as monitoring, liner thickness, construction standards, Quality Assurance/Quality Control (QA/QC), etc. (IOGCC Guidance 4.1.1).

#### **Recommendation II.5**

The application requirements for landfills which will dispose of residual waste from E&P operations should be standardized. [Note: The review team recognizes that regulations for other facilities were adopted as final by the EQB on January 21, 1992, are undergoing final review by the Independent Regulatory Review Council and Attorney General.]

### **III. PUBLIC PARTICIPATION**

Public participation is provided for as part of the promulgation of regulations, issuances of NPDES (Part I), Part II Construction/Operations, and residual waste disposal permits, and notices of meetings and hearings. The public is provided a 30 day comment period prior to the issuance of an NPDES permit or Part II permit and a 60 day comment period for offsite residual waste disposal permits.

#### **Finding III.1.**

With exceptions noted below, the public notice requirements under the regulations meet the criteria of the IOGCC guidelines (IOGCC Guidance 4.2.2 and 4.2.2.1).

### **Finding III.2.**

There is no requirement for additional or special notification to the adjacent landowners of record (in writing) for commercial or centralized disposal facilities or NPDES permits for treatment and discharge facilities (IOGCC Guidance 4.2.2.1).

### **Recommendation III.2**

The DER should adopt regulations which require special notification of adjacent landowners of record when a commercial or centralized disposal facility is proposed. [Note: The review team recognizes that regulations were adopted as final by the EQB on January 21, 1992, and undergoing final review by the Independent Regulatory Review Council and Attorney General. As written, new regulations would provide for notification of adjacent landowners and should be part of the regulatory program.]

### **Finding III.3.**

The BOGM has formal procedures for public access to BOGM files. The BOGM has also established procedures for maintaining files that are confidential in nature. Interested parties must make prior notice to BOGM in order to perform file reviews (IOGCC Guidance 4.2.2.1).

### **Recommendation III.3.**

Prior notice to BOGM in order to perform file reviews is beneficial to the agency to allocate limited resources to such a file review. However, if an interested party is unaware of the requirement, the potential for a substantial loss of time and effort in travel to the BOGM office may result. Although BOGM has met the criteria of IOGCC Guidance 4.2.2.1, they should ensure that an interested party unfamiliar with the process can obtain reasonable access to the files on a one time basis only.

### **Finding III.4.**

The BOGM publishes proposed and final NPDES and Part II permits on a weekly basis in the "Pennsylvania Bulletin". The BOGM also disseminates program information through seminars, by notices to industry associations, and in the "Pennsylvania Bulletin" (IOGCC Guidance 4.2.2.2).

### **Finding III.5.**

Although IOGCC Guidance is not specific in this area, BOGM sends out press releases on significant enforcement actions and provide summaries of enforcement activities at public meetings and in response to requests from legislators, industry associations, environmental groups and the public upon request. Major enforcement actions are published in the Pennsylvania Bulletin. Affected parties are notified of permit actions, variances, etc. as part of the permitting process (IOGCC Guidance 4.2.2.2).

**All review team members agree with the above finding.**

### **Recommendation III.5.**

**One review team member believed it was important to make the recommendation III.5. that BOGM should implement a process to provide notification of final actions and compliance orders resulting from major violations or subsequent due process proceedings to interested citizens of record.** The BOGM should have available information regarding program implementation such as permits, variances, enforcement actions, fines levied, etc.

### **Finding III.6.**

The BOGM requires the road owner (Township or Commonwealth) to sign the spreading application indicating concurrence with the application. The frequency of roadspreading is based on dust conditions and road conditions. However, notification of private landowners adjacent to these roadways is not required (IOGCC Guidance 4.2.2.1).

### **Recommendation III.6.**

The BOGM should require the brine spreading operator as part of the annual roadspreading plan to provide public notification that would adequately notify the residents and/or landowners along roads to be spread with produced brine.

### **Finding III.7.**

The "Oil and Gas Operators Manual" is designed with helpful information for use by oil and gas operators in designing environmentally sound facilities. The manual is written such that it is easily understood by field personnel (IOGCC Guidance 4.2.2.2).

### **Finding III.8.**

Section 216 of the Oil and Gas Act requires TAB members meet certain technical background requirements. Individuals to be considered for these positions are required to be geologists or petroleum engineers with at least three years experience in Pennsylvania. Their names are submitted to the Governor by the Citizens Advisory Council.

All review team members agree with the above finding.

### **Recommendation III.8.**

**One review team member believed it was important to make recommendation III.8. that at least one Citizens Advisory Council member on the Technical Advisory Board should have an environmental or health related background.** This would result in more meaningful public input into the rulemaking process.

### **Finding III.9.**

**One review team member believed it was important to make finding III.9. that the guidance provides for the dissemination of program information to the regulated industry and the public through an ongoing process.** One of the ways this could be accomplished is through the publication of an annual report (IOGCC Guidance 4.2.2.2).

### **Recommendation III.9**

**One review team member believed it was important to make recommendation III.9. that in order to provide ongoing program information to the regulated industry and the public, the BOGM should publish an annual report of its activities.**

#### **IV. FINANCIAL ASSURANCE**

Mechanisms are in place to address sufficiency of bonding. BOGM has duly adopted alternate mechanisms to address the needs of small operators who may not be able to afford a bond; e.g. by use of payment in lieu of bond, collateral bond. Phased payment of collateral is also allowed. Letters of credit, U.S. treasury bills, certificates of deposit, cash and qualified negotiable securities may be used as bond equivalents.

##### **Finding IV.1.**

The bond requirements are set at \$2,500 per well with a blanket of \$25,000 for all wells per operator. With BOGM's average cost to plug being \$17,000, the blanket bonding limits are generally insufficient. Bonds can be used to address environmental problems at the wellsite (wells, pits, etc.). If companies with many wells under a blanket bond default, it could leave the Commonwealth underfunded with a large number of wells to P&A, since blanket bond is only \$25,000 (IOGCC Guidance 4.2.3).

##### **Recommendation IV.1.**

The bonding requirements for single and blanket coverage should be increased to cover the average cost of plugging and site reclamation. Furthermore, alternative revenue sources should be adopted so that funds can be provided when bonds prove to be insufficient to cover the expense of plugging and remediation. [Note: Bond amounts can be adjusted by the EQB every two years by authority of the Oil and Gas Act.]

#### **V. CONTINGENCY PLANNING**

The BOGM regulations require oil and gas operators to prepare a Preparedness, Prevention and Contingency Plan (PPC). The authority is derived from the Clean Streams Law and the Oil and Gas Act.

The operator must review all polluttional substances and wastes, both solid and liquid, that will be used or generated, and identify methods for control and disposal of those substances and wastes. The operator must also recognize that unexpected conditions can occur that would require immediate response to mitigate any detrimental effects. The operator must also plan to prevent polluttional substances or wastes from reaching the waters of the Commonwealth.

The plan meets or exceeds the EPA SPCC program. The PPC must be submitted to BOGM upon request. Specific plan elements include:

1.
  - a. Operator identification and 24 hour phone number.
  - b. Location on maps and indications of storage tanks, etc.
  - c. Type of operation.
2. List of chemicals and additives including Material Safety Data Sheets, cleanup procedures, toxicological and waste characteristics. Volumes and methods of storage.
3. Assessment of spill likelihood and consequences.
4. Methods of spill containment.
5. Site security and assessment of unauthorized acts of third parties or acts of God.
6. Preventative maintenance - availability of critical parts, inspection routines, etc.
7. Personnel training programs of the operator.
8. Waste disposal methods of all wastes - wastewater, drilling mud and cuttings, etc. Permitted facilities to be used. Waste hauler to be used.
9. Incident Response - Listing of equipment and manpower of operator and/or contractor that will respond. Listing of federal, state, and local agencies that must be notified.
10. Discussion reviewing the operator's history of pollution incidents and corrective actions taken.

The DER has emergency coordinators in each Region. The DER also has a mobile laboratory based in Harrisburg which is capable of onsite air and water sampling statewide. All BOGM vehicles and emergency response vehicles are radio equipped. Annual phone logs are kept of emergency response contacts.

**Finding V.1.**

The BOGM requirements meet or exceed IOGCC criteria in all respects (IOGCC Guidance 4.2.1).

## VI. TECHNICAL CRITERIA

### A. General Requirements

The following are point-by-point discussions of Pennsylvania's provisions compared to IOGCC guidelines 5.1.a-f:

- a. The declaration of purpose in the Oil and Gas Act meets this requirement.
- b. The regulations of the Commonwealth specify analysis, waste treatment and disposal methods to meet this requirement.
- c. Variances for siting, construction and operation are allowed if approved in advance by BOGM.
- d. Drilling muds and cuttings are disposed of in municipal waste landfills. Removal of free liquids is required per the IOGCC guidelines. Disposal is not allowed in any landfill unless the site is designed to contain the waste.
- e. The BOGM's "Oil and Gas Operators Manual" contains recommendations for source reduction and recycling that address drilling and completion operations as well as production operations. The manual and the regulations contain treatment options and proper disposal methods for wastes.
- f. The BOGM has in place specific testing requirements for specific wastes and disposal practices. Variances may be granted with prior approval from BOGM. The BOGM also has the authority to require further testing when conditions warrant.

Several areas of this review involve the sampling and analysis of wastes or other materials. The review team noted that the existing BOGM program does not require analysis of every site. Instead BOGM may, with prior approval, allow sampling at a representative number of sites to serve as the basis of exempting the testing of all sites.

#### Finding VI.A.1.

In general, the BOGM program satisfies the criteria outlined in IOGCC Guidance 5.1. The "Oil and Gas Operators' Manual" presents waste management practices

for operators to consider, but does not recommend a hierarchy of preference as suggested in Guidance 5.1.e.i-iv.

## **B. Permitting**

All pits are authorized by permit or rule or are included in authorization of other permits such as a drilling permit. Prior notification of construction and an authorization number is required for pits authorized by rule. An operator is authorized in emergencies to construct pits to prevent imminent pollution and protect public safety and health. Good cooperation exists within DER and BOGM divisions.

### **Finding VI.B.1.**

The BOGM program for pit permitting meets or exceeds IOGCC guideline 5.3.2.

## **C. Siting**

All pits must be located 20 inches above the seasonal high groundwater table and may not be located within 100 feet of a wetland, stream, or body of water without applying for a waiver. For temporary containment pits, Forms ER-OG-70 and ER-OG-72 request information on the type of fluid and proximity to streams and wetlands. If a pit is used to dispose of drill cuttings or residual wastes, there are additional restrictions on distance to buildings and water wells.

The forms and applications authorizing pits require the location of the pit be specified. For pits used to dispose of residual wastes, a report must be submitted containing information on the location, dimensions and depth of the pit.

The regulations require an operator to construct, install and maintain erosion and sedimentation (E&S) control measures and facilities and prepare an erosion and sedimentation control plan under the requirements of Chapter 102 entitled "Erosion Control". Chapter 102 requirements are applicable to all earth moving activities, regardless of size. In addition, a permit is required if more than 25 acres are disturbed. Any site obtaining an NPDES permit must have an E&S plan and submit it with the permit application.

The pit siting program also has requirements for sedimentation and erosion control. The BOGM has included well written guidelines for construction of lease access roads, drilling sites, and production operations in the "Oil and Gas Operators Manual" to aid the oil and gas operator construct a site to prevent sedimentation and erosion control problems.

### **Finding VI.C.1.**

The pit siting requirements satisfy each element of Section 5.3.3 of the IOGCC Guidance.

### **D. Construction**

The following are point-by-point discussions of Pennsylvania provisions compared to IOGCC guidelines 5.3.4 a-h.

- a. Regulations specify pits be designed and operated with a minimum of 2 feet freeboard maintained at all times.
- b. The bottoms of all pits must be a minimum of 20 inches above the seasonal high groundwater table. Further protection is provided by the requirement that impermeable liners must be used in the construction of all pits except those containing freshwater, uncontaminated drilling mud and tophole water unless the operator wishes to demonstrate that no detriment to the groundwater is occurring by the use of groundwater monitoring wells.
- c. Construction standards are included for slope, material (liners), and freeboard. The liner subbase minimum thickness and materials are specified and the regulations state the subbase shall be capable of bearing the weight of the pit contents. Alternatives to the construction standards are allowed if equivalent or superior protection is provided and then only with approval from BOGM.
- d. The construction standards in (c) above specify liners. Therefore the IOGCC salt and oil based mud construction criteria is satisfied.
- e. Liners are required for all pits except those containing freshwater, uncontaminated drill cuttings and tophole water pits. In those instances where pits are prohibited, such as wetlands, floodplains, or other environmentally sensitive areas, it is the policy of BOGM to require steel pits or tanks.
- f. Regulations require the facility to be reasonably secure from unauthorized acts of third parties. The "Oil and Gas Operator's Manual" prepared by BOGM has guidelines for preparation of the required Preparedness, Prevention and Control Plan (PPC) and discusses fencing as a part of a general security plan.

- g. All fluids must be collected and disposed of in a manner that prevents pollution of the Commonwealth waters. The BOGM ensures that reserve pits are located and designed such that rigwash fluids and leaks from drilling equipment are collected.
- h. Unlined skimming and settling pits are prohibited.

**Finding VI.D.1.**

With the exceptions noted below, the BOGM program meets or exceeds IOGCC Guidance 5.3.4. Regulations requiring area or statewide regulations for fencing, netting, or flagging per IOGCC 5.3.4.f do not exist.

**Recommendation VI.D.1.**

The BOGM should incorporate fencing, netting and flagging requirements to satisfy IOGCC Guidance 5.3.4.f. The program may consider specific area environmental concerns, type of waste contained in the pit, and site security. For example, pits containing tophole water or freshwater may be exempt if the area were otherwise secure.

**Finding VI.D.2.**

**Three review team members believed it important to make finding VI.D.2. that the BOGM has a policy whereby an operator must submit an environmental mitigation plan with the pit permit application before operations take place in a wetland, floodplain, or other environmentally sensitive area.** By policy, BOGM will not approve the permit or mitigation plan unless steel tanks are used in lieu of pits. Therefore, BOGM satisfies IOGCC Guidance 5.3.4.e by incorporating the mitigation plan requirement in their permit requirements and must approve the permit prior to operations.

**Finding VI.D.3.**

**One review team member believed it important to make finding VI.D.3. that although BOGM has an informal policy it has not developed written guidelines for when steel pits or tanks must be used (IOGCC Guidance 5.3.4.e).**

### Recommendation VI.D.3.

**One review team member found it important to make recommendation VI.D.3. that BOGM should formalize its policy as written guidelines on the use of steel pits or tanks in environmentally sensitive areas.**

### E. Operational Requirements

The following are point-by-point discussions of the operational requirements of IOGCC guidelines 5.3.5 a-m:

- a. Tophole water, freshwater, and uncontaminated drilling muds may be contained in unlined pits. All other fluids and wastes require an impermeable pit liner. Regulations require the liner shall satisfy EPA Method 9090, Compatibility Test for Wastes and Membrane Liners, or other documented data approved by BOGM.
- b. Regulations require the facility to be reasonably secure from unauthorized acts of third parties. The "Oil and Gas Operator's Manual" prepared by BOGM has guidelines for preparation of the required Pollution Prevention and Control (PPC) Plan and discusses fencing as a part of a general security plan. See finding and recommendation VI.4. in 5.3.4 above.
- c. Regulations specify that a pit be designed and operated with a minimum of 2 feet freeboard maintained at all times.
- d. Regulations require operators to maintain liner integrity. Puncture of the liner is not permitted. The liner must be compatible with the contents of the pit. Alternate liner materials must be approved by BOGM.
- e. Regular inspections by the operator are required as part of the permit conditions.
- f. The regulations require the free liquid fractions be skimmed from pits prior to disposal of the solid wastes.
- g. Same as (f) above. Free oil must be removed and recycled or sent to a permitted landfill.
- h. Produced water pits may be permitted under 691.308 of the Clean Streams Law but are required to be lined. There are only 10 permitted produced water pits in Pennsylvania.

- i. Percolation pits are prohibited by regulation.
- j. Evaporation pits are considered the same as production pits for permitting and operational requirements. They are discouraged, however, as annual precipitation exceeds evaporation.
- k. Blowdown, flare, and other long term emergency pits are prohibited.
- l. All pits (except those containing tophole water, uncontaminated drill cuttings, and freshwater) are required to have liners. Lined temporary pits are the only option available for basic sediment type pits.
- m. Regulations require workover pits to be closed within 90 days of construction of the pit.

**Finding VI.E.1.**

The BOGM program meets or exceeds all of the IOGCC guidelines 5.3.5.

**F. Closure**

In general, closure and disposal operations are not allowed unless the wastes are generated by the drilling or production of a well on the site where the closure or disposal operations will take place. The following are point-by-point discussions of Pennsylvania provisions compared to IOGCC guidelines 5.3.6 a-f regarding closure of pits.

- a. BOGM has extensive regulations for pit closure. BOGM leaves lease and landowner contractual obligations to the operator and landowner.
- b. Regulations require reserve pits and other temporary pits to be closed within 9 months and workover/plugging pits to be closed within 90 days.
- c. Fluids must be removed from pits prior to closure. Tophole water (fresh groundwater, usually from air drilling) may be landspread on the surface if a representative sample meets parameters for pH, conductance, and has no visible oil sheen. If these parameters are not met, the liquids must be contained and treated or disposed of at a permitted commercial facility.

Uncontaminated drill cuttings may be disposed of onsite if the free liquid fraction is removed and subjected to the same tests and disposal practices as is tophole water.

Residual waste liquids and solids may be landspread onsite if they do not exceed 50 times the primary maximum contaminant level in effect under Section 109.202 or 50 percent of the maximum levels outlined in Section 75.261(g) of the BOGM regulations.

- d. The liquids and solids not meeting the onsite criteria are required to be transported to state approved sites for treatment and/or disposal.
- e. Regulations require capping, stabilizing, and grading of closed pits and also require erosion and sedimentation control measures such as stabilization and revegetation.
- f. As of 1989, pit locations are kept on file by BOGM and are available to the public.

#### **Finding VI.F.1.**

The BOGM program meets or exceeds all of the IOGCC guidelines of 5.3.6.

### **G. Landspreading**

#### **1. Regulatory Requirements**

In general, landspreading operations are not allowed unless the wastes are generated by the drilling or production of a well on the site where the closure or disposal operations will take place. The well must be registered and permitted. The well and wellsite must also satisfy the financial assurance requirements of the Commonwealth.

The BOGM leaves lease and landowner contractual obligations to the operator and landowner. The BOGM has extensive regulations for landspreading, including application rates and criteria for characterizing the waste. Free liquids must be removed and disposed of properly. Landspreading must be at least 100 ft from a stream, body of water or wetland, 200 feet from a water supply well, 1000 feet upgradient from an uncased well or spring being used for drinking water, 200 feet from residential and commercial buildings, and 20 inches above the seasonal high groundwater. Landspreading cannot be done on slopes greater than 25 percent and is limited to the wellsite where the wastes were generated. Landspreading shall not result in runoff and wastes must be incorporated into the soil to a depth of at least 6 inches. The site must be stabilized for erosion control and revegetated.

Residual wastes cannot be landspread unless the waste leachate meets specified requirements. The BOGM may require soil surveys, monitoring, or chemical analysis.

Reports of land applications are required with well record and completion reports which are submitted to the Commonwealth.

## 2. Operational Requirements

The following are point-by-point discussions of Pennsylvania provisions compared to IOGCC guidelines 5.4.3 a-k with regard to the landspreading of E&P waste:

- a. The regulations require the free liquid fractions be skimmed from pits prior to disposal of the solid wastes.
- b. Regulations require a pH of 6-9 and allow treatment to achieve this range.
- c. Regulations specify the waste must be incorporated into the soil a minimum of 6 inches.
- d. Regulations specify no pooling of waste and specify a maximum 25 percent slope to control runoff.
- e. Utilization of biodegradation by BOGM is in the development stage. Nothing in the regulations prevent nutrient application to enhance biodegradation.
- f. The BOGM Landspreading Guidelines specify that conductance values for the waste and the soil in the landspread area be measured and an application rate calculated. The maximum loading rate is specified and the calculated rate may not exceed this value.
- g. The BOGM Landspreading Guidelines specify a maximum 1 percent by weight of oil and grease. The BOGM has the authority to require post closure analysis but does not mandate it.
- h. The BOGM Landspreading Guidelines outline the sampling procedures after the waste has been incorporated into the soil. The BOGM has the authority to require post closure analysis but does not mandate it.
- i. Regulations require analysis of the waste and soil before landspreading. The BOGM has the authority to require post closure analysis but does not mandate it.

- j. Regulations do not prohibit additional tilling of the soil.
- k. Authority is in place for additional analysis.

**Finding G.1.**

Except as noted below, BOGM program meets or exceeds all IOGCC guidelines 5.4.

**Finding G.2.**

The BOGM has extensive landspreading guidelines that are easy for an owner and operator to understand. These guidelines satisfy the regulations with regard to onsite land applications. The guidelines contain the maximum loading rates for the various metals, salts, and oil and grease. The guidelines also contain simple directions for sampling and the calculations necessary to determine which constituent in the waste limits the loading rate. Example of calculations are also provided as well as a Land Application Calculation Sheet.

**Finding G.3.**

The program does not mandate soil analysis after landspreading. This does not satisfy IOGCC Guidance 5.4.3.g,h,i.

**Recommendation G.3.**

The BOGM should incorporate in its program a requirement for post landspreading soil analysis.

**Finding G.4.**

The program does not address remediation where post landspreading criteria are not satisfied per IOGCC Guidance 5.4.3.h.

**Recommendation G.4.**

The BOGM should incorporate in its program a requirement for remediation if the post closure landspreading criteria are not met.

## **H. Burial and Landfilling**

The following are point-by-point discussions of Pennsylvania provisions compared to IOGCC Guidance 5.5.3.a-c with regard to the operational requirements for burial and landfilling of E&P wastes.

- a. Regulations prevent burial of wastes unless a liner is provided and then only after BOGM approval. Naturally Occurring Radioactive Material (NORM) analysis is not required but the Bureau of Radiation Protection and BOGM are surveying for NORM across several industries including the oil and gas industry. Closure requirements meet or exceed all IOGCC guidelines. Refer to Closure sections 5.3.6.a. and 5.3.6.e.
- b. Specific regulations require top and bottom liners (or folding the bottom liner over the top of the waste) for burial of wastes at wellsites.
- c. As of 1989, the pit locations are kept on file by BOGM and are available to the public. Agency records are maintained for 100 years.

### **Finding VI.H.1.**

The BOGM program meets or exceeds all IOGCC guidelines 5.5.3.

## **I. Roadspreading**

Regulatory requirements are in place for roadspreading of produced water. No other wastes are allowed to be roadspread.

The Commonwealth exercises its authority to regulate roadspreading under Section 402 of the Pennsylvania Clean Streams Act and Section 101.3 of the regulations. Requirements are provided in the BOGM's "Oil and Gas Operators Manual".

Following is a point-by-point discussions of Pennsylvania provisions compared to IOGCC Guidance 5.6.3.a-c with regard to the operational requirements for roadspreading of produced water:

- a. Roadspreading of wastes other than produced water is prohibited.
- b. Requirements for loading rates (not to exceed 1 gallon per square yard), prevention of runoff (slopes must be less than 10 percent), and distance from streams would be 150 feet or more; proximity would be no less 150

feet (no closer than 150 feet) to streams (150 feet or more) are found in the "Oil and Gas Operators Manual".

- c. Testing is required and the product must be consistent with commercial mixes and commercial brine well products used by the Pennsylvania Department of Transportation (PennDOT).

The BOGM has determined: that production brine from shallow and deep gas wells in the Commonwealth can have a positive impact on road maintenance, primarily in the form of dust control, and reduced road maintenance expenditures; roadspreading is not a disposal method but a beneficial reuse of residual produced fluids; and production brine offers a good alternative to purchased salt or brine.

The BOGM further realizes that excessive use of brine can result in unacceptable environmental damage. A plan which will minimize the potential for damage from produced brine spreading for dust control must be submitted to BOGM for its approval prior to implementation. The plan is for a calendar year and revisions must be approved. The plan must include: identity of the spreader, signed authorization from the official of the municipality or individual authorizing the spreading, map of areas for spreading, proposed rate and frequency and statement from responsible official that the rate and frequency are appropriate. Also, chemical analysis of the brine must be submitted. Other requirements control the spreading. The person receiving approval of the plan must file monthly reports to BOGM indicating where the brine was spread, the quantities, length of road to nearest tenth mile, and the dates of spreading. These reports must be filed whether brine was spread that month or not.

## **J. Commercial and Centralized Disposal Facilities**

In general, the criteria are more stringent for commercial facilities than for E&P sites. Commercial facilities are municipal landfills and, by state regulation, have liners and monitoring. Wastes taken to those facilities are required to be analyzed for a variety of constituents and permits are required prior to disposal.

The Commonwealth of Pennsylvania has 24 commercial and centralized facilities which treat and/or dispose of E&P waste brine. Six of the facilities are regulated as municipal (4 POTW's) and two (2) as industrial wastewater dischargers. There are eight Class II disposal well facilities. Three landfills are approved to receive oil and gas residual wastes such as pit solids and brine treatment sludges.

The permitting of commercial and centralized E&P waste treatment and disposal facilities is performed by a number of state agencies and the U.S. EPA. The BOGM issues NPDES permits for onsite and centralized brine treatment facilities. Disposal wells and related surface facilities are also permitted by BOGM. The BWM issues permits for

landfills and centralized waste management facilities. The U.S. EPA Region III issues permits for Class II injection wells.

The brine treatment facilities are required to have an NPDES permit and a Part II Clean Streams Law permit for the construction and operation of the treatment facility. The municipal and industrial waste treatment plants that accept brine are required to have an NPDES permit and a Part II Clean Streams Law permit. The injection well facilities are required to have an Oil and Gas Act Permit, a Part II Disposal Well Construction and Operation Permit under the Clean Streams Law and a UIC permit from the U.S. EPA Region III. The residual oilfield waste is disposed of in landfills which are required to have Solid Waste Management permits.

**Finding VI.J.1.**

The regulations governing the permitting and operation of commercial and centralized offsite E&P waste disposal facilities meet, for the most part, the technical and regulatory requirements of the IOGCC Guidance 5.7.2.

The permitting program requires the submittal of siting information, construction plans, operational guidelines and closure plans. These components must be carried out during the appropriate timeframe of the permit.

**Finding VI.J.2.**

The Commonwealth of Pennsylvania issues NPDES permits for five year time periods while the injection well and landfill permits are issued for the life of the facility. According to the IOGCC guidelines, permits for commercial and centralized disposal facilities should be in force for a finite period (IOGCC Guidance 5.7.2.1.a).

**Recommendation VI.J.2.**

The Commonwealth should establish a finite timeframe for all the permits for commercial and centralized facilities. [Note: the review team recognizes regulations for other facilities were adopted as final by the EQB on January 21, 1992, and are undergoing final review by the Independent Regulatory Review Council and Attorney General.]

## **VII. WASTE TRACKING AND HAULER CERTIFICATION**

The BOGM regulates offsite commercial and centralized treatment facilities for drilling and production waste fluids. The BWM regulates the commercial and centralized treatment facilities for waste sludges and solids.

### **Finding VII.1.**

The Commonwealth of Pennsylvania does not have a waste hauler certification program to regulate the commercial transportation of E&P waste (IOGCC Guidance 4.2.4).

### **Recommendation VII.1.**

The Commonwealth should initiate a waste hauler certification program consistent with the IOGCC Guidance 4.2.4 and 5.7.2.3.e.

### **Finding VII.2.**

The Commonwealth of Pennsylvania does not have an oil and gas waste tracking program which documents the movement of wastes from the site of origin to their final disposition (IOGCC Guidance 4.2.5).

### **Recommendation VII.2.**

The Commonwealth of Pennsylvania should implement a waste tracking program and manifest system consistent with the IOGCC Guidance 4.2.5 and 5.7.2.3.

### **Finding VII.3.**

Data on the amounts (volume) of oil and gas E&P waste generated, treated and disposed of by various methods are not recorded by the Commonwealth of Pennsylvania (IOGCC Guidance 4.2.5 and 5.7.2.3).

### **Recommendation VII.3.**

The IOGCC Guidance does not specifically require waste accountability by E&P waste management programs. A system is needed to quantify the E&P waste generated by category as well as the quantities of waste processed, treated and disposed of by various methods. The quantification of waste by category would allow the Commonwealth to more efficiently track and trace the disposition of E&P waste, insure regulatory compliance and to protect human health and the environment.

## **VIII. DATA MANAGEMENT**

The BOGM shares a mainframe computer with the rest of the DER. Personal computers that tie into the mainframe are available in the Regional Offices. The data maintained in the mainframe includes permits, NOV's, well records (date drilled, well name, operator, location), environmental inspection reports, violations, enforcement actions, casing, depth, API number, well status, surface elevation, coal area or conservation well, and coal mines penetrated.

The DER is currently upgrading the existing (old) mainframe to a new, more modern system that will have expanded reporting capabilities. The old system has a limited number of "canned" reports available. Building of new programs for reporting needs of BOGM has been put on hold until the new computers are installed. There are discussions with other states and the EPA to standardize systems.

Information is available to the Regional Offices via terminals. Laboratory analysis is immediately input as it is completed and is available to the Regional Offices.

### **Finding VIII.1.**

The BOGM program meets or exceeds all criteria of IOGCC guideline.

## **IX. COMPLIANCE**

The BOGM has all the necessary statutes, laws, regulations, rules and policies as delineated in IOGCC Guidelines. With respect to compliance evaluation, site inspection, complaint response and information collection and documentation.

### **Finding IX.1.**

Due to funding inadequacies for personnel, compliance inspections by oil and gas inspectors and water quality specialists often occur in response to citizen complaints instead of through routine periodic inspections. Therefore, 4.1.2.1.(b)(1) and (b)(2) are not fully complied with by the Commonwealth.

### **Recommendation IX.1.**

Funding should be increased to meet the required level of inspections. Such a change would allow for additional onsite inspections during drilling, reworking, plugging and more frequent routine status checks by water quality specialists.

With increased resources, unclosed abandoned and orphaned pits could be identified and responsible parties located for appropriate legal and remedial action.

## **X. ENFORCEMENT**

Functional responsibilities are divided between field inspectors (who oversee all aspects of drilling, reworking and plugging of wells) and water quality specialists (who review and respond to citizen complaints and make inspections of environmental damage during the operational phases of the oil and gas facility). Though the inspectors and water quality specialists have separate functional responsibilities for downhole or surface concerns, respectively. Each have been cross-trained to recognize, assess, and act on any environmental violation that may be brought to their attention.

In addition to those prescribed administrative and judicial enforcement actions, BOGM also has the ability to require water replacement of contaminated private wells. The provision carries five defenses once the Bureau determines the cause of contamination: 1) the pollution existed prior to the drilling; 2) landowner refused to allow the operator access to conduct a pre-drilling survey; 3) the water supply is not within 1,000 feet of the well; 4) the pollution occurred more than six months after completion of drilling; 5) the pollution occurred as a result of some cause other than drilling.

These requirements provide protection to the citizens of Pennsylvania without forcing them through the burdensome process of litigation. The cost of water quality testing is borne by the benefitted industry rather than the injured citizen. [Reference: Oil and Gas Act of 1984, Public Law 1140 No. 233 Section 208(a) et seq. 25 PA Code Chpt. 78.51.] (IOGCC Guidance 4.1.3.1.)

The BOGM may disqualify an applicant from permit issuance through administrative action. Such action serves to further strengthen the BOGM's ability to achieve compliance in an expeditious manner, thus protecting the environment from further harm.

The BOGM has available and utilizes the guidelines recommended by the IOGCC criteria for calculation of penalties and fines. (IOGCC Guidance 4.1.3.2.)

### **Finding X.1.**

The BOGM has available and utilizes the enforcement mechanisms outlined in IOGCC Guidance 4.1.3.1.a-f and 4.1.3.2. Additional strengths include the utilization of a duly adopted cross-matrix of penalization (penalty schedule). This cross-matrix as promulgated is a deterrent to code and rule violations as it: 1) encourages cooperation in respect to remediation; and 2) increases penalties for willful violators in a progressive manner.

Furthermore, Notices of Violation (NOV) may be used as written notice to the operator/owner when delivered to an appropriate party. The NOV is a four-part carbon sheet that includes sufficient language to apprise the recipient of the possibility of administrative, civil or criminal actions and it lists the observations of BOGM personnel.

### **Recommendation X.1.**

In addition to all enforcement actions outlined in 4.1.3.1.a-h, the review team recommends that BOGM seeks legislative authority which empowers them to bar an operator from commercial production at the site of the violation.

### **Finding X.2.**

The cross-matrix penalty policy encompasses the recommended elements as specified by IOGCC Guidance 4.1.3.2. The BOGM may give notice and cause the bond of an operator to be forfeited should he fail to take appropriate actions. After such forfeiture, the operator is given sufficient time to make remediation and provide a new bond or financial assurance. (IOGCC Guidance 4.3.2 and 4.3.1.h.)

### **Finding X.3.**

The administrative action of the BOGM and the judicial actions of the county and Commonwealth courts provide procedural due-process to all aggrieved parties. During the judicial appeal process, the operator may continue to drill and produce as long as other requirements are fulfilled (IOGCC Guidance 4.3.1.3).

## **XI. STUDIES AND PROJECTS**

There are several areas where the Commonwealth has gone above and beyond the IOGCC guidelines in trying to develop new or innovative E&P waste management and disposal options which are worthy of mention. They can be summarized as follows:

### **A. General NPDES Permit for Stripper Oil Well Facilities**

The BOGM developed and issued a general National Pollutant Discharge Elimination System (NPDES) permit for treated discharges to certain classifications of streams from stripper oil well facilities where the method of production is primary recovery or gas drive. The permit was issued pursuant to 25 Pa. Code Chapter 92 and is subject to certain specified effluent limitations and special conditions. Stripper oil wells produce 10 barrels or less of crude oil a day. Discharges from water floods or other secondary or tertiary recovery operations are not covered by this general permit. This permit was approved by the U.S. EPA.

### **B. Surfactant Demonstration Projects**

The BOGM recently participated in a joint project with industry in evaluating the biodegradation of surfactants in tophole water. The objective of the project was to eliminate the surfactant by adding acclimated bacteria and nitrogen fertilizer to the tophole water and aerating the pit. Five sites were evaluated. This project has been suspended due to current lack of interest by the industry.

### **C. NORM Survey of Oil and Gas Wastes**

In order to determine the levels of naturally occurring radioactive material (NORM) that may be contained in produced waters, measurements were taken from pipe and equipment, scales from the bottom of produced water storage tanks and pits were measured. The NORM survey was conducted in three phases. In Phase I, staff sampled the solids and liquids from brine pits and tanks at oil and gas wellsites across the Commonwealth. They also sampled wastes at disposal wells

and brine treatment plants. There were 41 wellsites, 2 disposal wells, and 7 brine treatment plants sampled.

The second phase of the survey involved the inspection of 9 pipe yards in seven counties. The inspections were conducted jointly by staff from the Bureau of Oil and Gas Management and the Bureau of Radiation Protection using low level radiation detection meters to determine radioactivity measurements.

In Phase III of the survey, regional staff used low level radiation detection meters to survey oil and gas wellsites across the Commonwealth. In addition, Bureau of Radiation Protection personnel used low level radiation detection meters to survey brine treatment plants, municipal treatment plants which accept oil and gas wastes, disposal wells, and gas storage facilities. There were 309 wellsites, 7 brine treatment plants, 3 municipal treatment plants which accept oil and gas wastes, 5 disposal wells, and 2 gas storage facilities surveyed.

#### **D. Solidification as an Alternate Waste Management Practice**

The BOGM initiated an evaluation of solidification as an alternate waste management disposal practice at several demonstration sites. Under the oil and gas regulations, where wastes are to be disposed in pits, these pits must be lined with 30 mil synthetic flexible liners for the protection of groundwater. Alternative waste disposal practices can be requested to be approved. Solidification was viewed by the gas industry as the option of choice for the closure of pits, since they believed the process could provide the same environmental protection as a synthetic liner, provide the stability required for a backfilled pit, and allow for the use of a thinner, more easily managed liner until pit closure took place. At the demonstration sites, monitoring wells were placed near the pit locations to observe any groundwater contamination. Solidifier materials, as well as pit contents, were analyzed to determine potential sources of pollutants. This study did not show solidification to offer the same level of environmental protection as the synthetic liner. The results were useful, however, in establishing the suitability of certain solidifiers for site stabilization.

#### **E. Characterization of Oil Production Pit and Tank Bottom Wastes**

The BOGM is currently conducting a project involving the characterization of wastes that accumulated in the bottoms of storage tanks, pits, and separators (commonly referred to as basic sediments) used for oil production in order to identify low cost options available to industry to close the pits and dispose of the wastes in an environmentally sound manner. Prior to the development of regulations, pits used for the collection and storage of these wastes were rarely

lined and had a potential to contaminate groundwater. This project will identify the disposal options available to the industry to close these pits and bring these sites into compliance with current requirements.

**F. Assessment of Roadspreading**

Another project underway is a three-year assessment of impacts on ground or surface waters from the practice of spreading brines from gas and primary recovery oil wells on unpaved secondary road system for dust control and road stabilization. This assessment involves the selection and monitoring of five roads which are spread with brines.

**E. Simplified Brine Treatment Units**

Over the past several years BOGM has been providing consultation on a research project being conducted by Pennsylvania State University to develop simplified brine treatment units for oil well brines. These home-built plywood, 2X4, plastic pipe, and limestone units are designed to remove metals and organics from brines prior to discharge. Treatment includes flow control, oil and grease removal, pH adjustment, aeration, settling, and filtration. A computer model sizes the units based on flows and brine constituents. The units are undergoing field demonstration at this time.



## **LIST OF ACRONYMS**



## ACRONYMS

BL	Bureau of Laboratories
BOGM	Bureau of Oil and Gas Management
BOSS	Bureau of Office Systems and Services
BRC	Bureau of Regulatory Counsel
BWM	Bureau of Waste Management
BWQM	Bureau of Water Quality Management
DER	Department of Environmental Resources
EHB	Environmental Hearing Board
E&P	Exploration and Production
EPA	Environmental Protection Agency
EQB	Environmental Quality Board
IOCC	Interstate Oil Compact Commission (now IOGCC)
IOGA	Independent Oil and Gas Association
IOGCC	Interstate Oil and Gas Compact Commission
MOU	Memorandum of Understanding
NORM	Naturally Occurring Radioactive Material
NPDES	National Pollutant Discharge Elimination Systems
OAWM	Office of Air and Waste Management
OCC	Office of Chief Counsel
OFO	Office of Field Operations
OMRM	Office of Mineral Resources Management
OMTS	Office of Management and Technical Services
OWM	Office of Water Management
PIPP	Pennsylvania Independent Petroleum Producers
POGA	Pennsylvania Oil and Gas Association
RCRA	Resource Conservation and Recovery Act
TAB	Technical Advisory Board
UIC	Underground Injection Control



**APPENDIX A**

**PENNSYLVANIA QUESTIONNAIRE AND SUPPLEMENTS**



APPENDIX A

State Pennsylvania  
Completed by Ronald Gilius  
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Gas Management  
Organization Pennsylvania Department of Environmental  
Resources  
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This questionnaire is being utilized as an important part of the IOGCC's review of individual state regulatory programs related to the management of exploration and production (E&P) waste generated by oil and gas operations. The questionnaire is designed to allow a comparison to be made between a state's program and the waste management criteria of the IOGCC as contained in "EPA/IOCC Study of State Regulation of Oil and Gas Exploration and Production Waste," Interstate Oil Compact Commission, December, 1990.

The following is a time schedule that must be maintained for completion of this questionnaire and the state review.

Date Submitted 9-19-91

Completion Date 10-18-91

In-state Review 11-4 to 8-91

Review Report Completion \_\_\_\_\_

Note: If additional space is needed to complete any of the attached questions, please continue your response, with the question number noted, on another piece of paper and attach it to this questionnaire.

I. GENERAL

1. Please include six copies of the following:
  - a. Organization charts showing all agencies responsible for the management and disposal of exploration and production wastes, and the structure and function of those agencies.
  - b. All statutes, regulations and orders of any state agencies that are applicable to oil and gas exploration and production waste management and disposal.
  - c. Any memoranda of understanding or similar agreements between state agencies or between the state and any other governmental entities (BLM, EPA, Indian Tribes, local jurisdictions) pertaining to the management and disposal of exploration and production wastes.
  - d. Any written mission statement(s), goals, objectives and policies applicable to oil and gas exploration and production waste management and disposal activities. Please provide the citation to or source of such goals and objectives.

2. List applicable state regulations that are used to regulate E&P waste to protect the environment:

25 Pa. Code Chapters 75, 78, 79, 91, 92, 95, 97, 101, 102 and 260 to 270.

3. Identify any significant policy statements that have not been incorporated into laws or regulations. (Including groundwater, surface water, agriculture, wildlife or any other environmental protection).

None.

4. What is the statutory authority upon which your E&P regulatory program is based? What powers and duties are provided in the statute(s)?

a. The Oil and Gas Act (58 P.S. §§ 601.101-601.605)

b. The Clean Streams Law (35 P.S. §§ 691.1-691.1001)

c. The Solid Waste Management Act (35 P.S. §§ 6018.101-6018.1003)

d. Article XIX-A of the Administrative Code of 1929 (71 P.S. §§ 510-1 - 510-108)

The statutes provide authority to promulgate regulations, issue permits, conduct inspections and to take enforcement actions against violators.

5. Does this statutory authority include authority for the promulgation of rules and regulations? Please provide reference to the applicable section(s).

a. The Oil and Gas Act (Section 604)

b. The Clean Streams Law (Section 608)

c. The Solid Waste Management Act (Section 104)

6. Do the statutes, regulations, policies or orders contain definitions of terms? Please provide reference to the appropriate sections.

Regulations

25 Pa. Code Sections 75.1, 78.1, 79.1, 91.1, 92.1, 97.2, 101.1, 102.1

Statutes

The Oil and Gas Act (Section 103); The Clean Streams Law (Section 1); The Solid Waste Management Act (Section 103)

7. Please provide the approximate amounts (volume or percent) of E&P waste disposal by each of the following practices.

Landfarming	<u>Data on the volumes of waste disposed by each method is not kept at this time.</u>
Roadspreading	
Pits	
Surface water discharge	
Burial or landfill	
Disposal wells	
EOR injection	<u>None</u>
Annular disposal	
Other _____	

8. Are the levels of funding and staff provided adequate for full E&P waste management program implementation? Please provide funding levels and total staff complement for E&P waste activities for the past three years.

a.	<u>Funding level</u>	<u>Staff level</u>
1988	<u>\$332,400</u>	<u>14.6 work years</u>
1989	<u>\$316,900</u>	<u>17.1 work years</u>
1990	<u>\$508,700</u>	<u>20.5 work years</u>

b. Describe the methods used for funding the E&P waste program in your state, detailing in particular any

funding mechanisms other than a general appropriation from the legislature.

General appropriations and restricted revenue account from permit fees, surcharges, fines and administrative fees.

9. Identify the number of personnel and the areas of responsibility in each of the following four categories. For each category of disposal describe classifications, functions and duties, minimum experience and training requirements, additional training available, and adequacy of level of support for the job that needs to be done.
- a. Administration: (Including program planning, evaluation, budgeting, and personnel, permitting, licensing, financial assurance, ownership transfer, public involvement, data collection, public hearings, and management.)

The administration of the oil and gas program in Pennsylvania is in the central office of the Bureau of Oil and Gas Management which is located in Harrisburg, Pennsylvania. It is comprised of the Director's Office and three divisions which include the Subsurface Activities Division, the Surface Activities Division and the Enforcement and Administration Division.

The Director's Office consists of the Director of the Bureau of Oil and Gas Management and three clerical staff. The three clerical staff assist the Director and the three divisions. One clerical position is vacant at this time.

The Subsurface Activities Division administers the abandoned well plugging program and develops regulations and guidelines relating to activities associated with drilling, operating and plugging a well. This includes casing requirements, plugging requirements and allowable pressures when injecting gas into a gas storage field, as well as other subsurface activities. This division includes a division chief and one geologist. To administer the abandoned well plugging program, two administrative assistants and an oil and gas inspector need to be added to this division. In addition, 2 hydrogeologists are needed to develop the state's program for UIC primacy.

The Surface Activities Division develops regulations and guidelines for activities related to the control and disposal of wastewater and solid wastes. This includes requirements for disposal of solids and fluids which result from the drilling, production, or plugging of a well. This division includes a division chief and two sanitary engineers.

The Enforcement and Administration Division develops guidance on enforcement procedures and develops and maintains the computer system for data relating to permitted and registered wells. This division includes a division chief, a systems coordinator and a compliance specialist. To develop enforcement related guidances and to improve the determination of responsible parties for abandoned wells, 1 compliance specialist and 2 real estate specialists need to be added to this division.

The Bureau of Office Systems and Service's Division of Certification, Licensing and Bonding provides technical review of bonds initially reviewed by the Bureau of Oil and Gas Management regional clerical staff. They process bonds in and out of the State Treasurer's Office and forward acceptable bonds on to the Bureau of Legal Services for legal review and approval. The content of the bond forms are approved by the Office of the Attorney General.

- b. Legal: (Include in-house, agency lawyers, attorney general's office support, independent counsel covering enforcement actions, direction of preparation for enforcement cases, involvement in both procedural and substantive aspects of rulemaking.)

The Department of Environmental Resources includes a Bureau of Regulatory Counsel. Attorneys in the Bureau are assigned to the various programs within the Department. The Bureau of Oil and Gas Management has one attorney assigned to it in the Central Office.

The Office of the Chief Counsel has a regional office for the western region of the state in Pittsburgh. Two attorneys from this office provide legal counsel and litigate cases for the regional staff in Pittsburgh and Meadville.

- c. Technical: (Including geologic and engineering evaluation and technical specifications, technical support to legal and field personnel.)

In addition to the central office, the Bureau of Oil and Gas Management has two regional offices in Meadville and Pittsburgh. The technical staff in the Pittsburgh office includes a chief of the technical services section, one hydrogeologist, four geologists, and a sanitary engineer. Two sanitary engineering positions and one geologist position are vacant at this time. The technical staff in the Meadville office includes a chief of the technical services section, one hydrogeologist, five geologists and one sanitary engineer. One geologist position is vacant at this time. Additional staff needed to carry out the

program include: 4 geologist; 1 sanitary engineer; and 4 clerks.

The technical staff review applications for production pits, land application, roadspreading, disposal wells, brine treatment plants and alternat methods.

The Bureau of Water Quality Management, whose primary responsibility is to protect the water resources in Pennsylvania, provides the policy and regulatory guidance for the issuance of discharge permits and construction and operation permits. Regional staff of the Bureau of Water Quality Management review NPDES applications for industrial waste treatment and municipal waste treatment facilities.

The Bureau of Waste Management develops regulations and guidelines for the disposal of solid wastes. They are responsible for permitting off site disposal facilities for solid E&P wastes. Staff in the regional offices of the Bureau of Waste Management review permits for municipal and residual waste disposal sites.

- d. Field Inspectors: (Including inspectors on-site representatives to witness critical regulated activities, assembly of evidence for enforcement actions.)

Within each regional office, there is a Monitoring and Compliance Section. The monitoring and compliance staff in the Pittsburgh region includes a chief of the monitoring and compliance section, a water quality compliance specialist, a water quality specialist supervisor, three water quality specialists, an oil and gas inspector supervisor, and six oil and gas inspectors. The water quality specialist supervisor and two oil and gas inspector positions are vacant at this time. The monitoring and compliance staff in the Meadville region includes two water quality compliance specialists, one water quality specialist supervisor, eight water quality specialists, one oil and gas inspector supervisor and ten oil and gas inspectors. One water quality compliance specialist and one oil and gas inspector position are vacant at this time. Additional staff needed to carry out the program include: 2 oil and gas inspectors; 1 oil and gas inspector supervisor; 2 water quality specialists; 2 compliance specialists; and 2 water quality specialist supervisor.

The monitoring and compliance section is responsible for performing field inspections and collecting evidence for enforcement actions.

The Department's Bureau of Laboratories performs analysis of samples collected by field personnel for enforcement

actions and field investigations. They also review requests of private labs for certification to do predrilling surveys for oil and gas operators. One person is available to review requests for certification.

10. List all agencies involved in regulating E&P waste. (Please list in descending order of their direct involvement.) Under each agency, list the E&P operating and/or waste management practices that they have authority to regulate.
  - a. Department of Environmental Resources (Bureau of Oil and Gas Management)
    1. Regulates all on-site E&P waste management practices
    2. Regulates centralized treatment facilities for brine
    3. Regulates disposal wells
    4. Regulates roadspreading
  - b. Department of Environmental Resources (Bureau of Waste Management)
    1. Regulates off site commercial and centralized landfills
  - c. U.S. EPA
    1. Regulates injection and disposal wells (UIC Program)
  - d. Pennsylvania Fish Commission
    1. Enforces the Fish and Boat Code and other Laws (i.e. Clean Streams Law) which relate to the protection, propagation and distribution of fish.
  - e. Department of Environmental Resources-Bureau of Forestry and Bureau of State Parks, Pennsylvania Game Commission, U.S. Forest Service-Allegheny National Forest, U.S. Fish and Wildlife Service, and the U.S. Department of the Interior-Bureau of Land Management.
    1. They monitor leases on their lands for waste disposal practices.
11. Please describe the make-up of any governing board, commission, or other body with oversight or supervisory control over any aspect of your E&P waste regulatory program. Please reference the statute or rule which creates the governing body and describes the qualifications of its members. Does this body merely serve on an advisory basis or

does it make substantive decisions about regulatory policies, enforcement actions, or rulemaking?

Environmental Quality Board (EOB) - The EOB promulgates regulations administered by the Department of Environmental Resources. It is composed of 21 members. Twelve are the heads of Departments and Agencies in the executive branch of the state government. Five are members of the Citizens Advisory Council. Four are appointed by the leadership of the legislative branch of state government. This body was established under Act 275, 1970 - Section 1920-A of the Administrative Code of April 9, 1929, as amended.

Technical Advisory Board (TAB) - This board provides consultation to the Department in the formulation of technical regulations in areas governed by the Oil and Gas Act. It is composed of 5 members chosen by the Governor. Three members must be petroleum engineers, petroleum geologists, or experienced drillers representing the oil and gas industry. One member must be a mining engineer from the coal industry. One member must be a petroleum engineer or geologist chosen by the Governor from a list compiled by the Citizen's Advisory Council who will represent the interests of the public. This body was established under the Oil and Gas Act.

Environmental Hearing Board (EHB) - The EHB holds hearings and issues adjudication on any order, permit, license or decision of the Department.

12. Does the state have primacy for the following federal programs? If yes, specify the state agency(s) that has authority and when was it obtained? If no, specify the state agency(s) that has authority for any program that the state implements in addition to the federally run program.

a. RCRA Yes  No

agency(s) Department of Environmental Resources, 1986

b. NPDES Yes  No

agency(s) Department of Environmental Resources, 6/30/78

c. UIC Yes  No

agency(s) Department of Environmental Resources

d. Other \_\_\_\_\_ Yes  No

agency(s) \_\_\_\_\_

13. Do local ordinances apply to E&P waste in this state?

Yes X No     

If yes, please give examples below.

1. City \_\_\_\_\_  
\_\_\_\_\_

2. County/ \_\_\_\_\_  
Parish \_\_\_\_\_

3. Other Only ordinances established under Pennsylvania Municipalities Planning Code Act of 1968 and the Flood Plain Management Act of 1978 apply to oil and gas wells.

14. Discuss mechanisms in place in your state for the coordination of E&P waste program activities among the public, government agencies and the regulated industry.

The industry and the public are provided the opportunity to comment on proposed regulations before they go into effect. They are also given the opportunity to comment on NPDES permits before final action is taken.

The oil and gas well regulations had a 60-day public comment period. During that period the Environmental Quality Board held three public hearings throughout the oil and gas producing part of the state. The comments from the public were recorded and responded to by the Department in a comment and response document and considered in the formulation of the final regulations.

Memorandums of Understanding are developed when programs overlap within the State and between the State and Federal Governments. Currently there is a memorandum of understanding with EPA for the NPDES program.

Our Bureau maintains contact with oil and gas industry organizations within the state. Officials in our agency regularly speak at the organizations' functions and have been involved in training programs coordinated with the industry organizations.

Information regarding proposed and finalized regulations is distributed through the Pennsylvania Bulletin which is published weekly. An oil and gas operator's manual is available to operator's and the public. It contains applicable laws and regulations, suggested practices and other information important to oil and gas operators. In addition,

the Department holds regional round tables to keep local operators and the public informed of regulatory and policy decisions.

A list is maintained of interested individuals for receiving information from our agency.

15. Does the E&P waste program require waste segregation of hazardous materials? Give reference to any statutory or regulatory provisions regarding such requirements.

Only wastes generated by the drilling or production of an oil or gas well may be disposed on site. Since these wastes are exempt from the hazardous waste classification they are not considered hazardous. Other substances which are brought on site and are not used in the drilling or production of the well and are considered hazardous may not be mixed with the waste generated by the drilling or production of the well. These requirements are in the Department's Hazardous regulations (25 Pa. Code Chapters 260 to 270).

16. Does the E&P waste program allow the disposal of drilling fluids and muds in non-industrial landfills?

Yes X No     

- a. If so, under what conditions?

An application must be submitted to the Department to obtain approval for the landfill to accept such waste. The application must contain a chemical analysis of the waste for the following parameters:

Total residue, total dissolved solids, volatile residue on total residue, pH, cyanide, oil and grease, ammonia-nitrogen, phenolics, arsenic, barium cadmium, chromium, lead, mercury, nickel, selenium, silver, copper, molybdenum, zinc, organics, heating value, ignitability, corrosivity and reactivity.

The following parameters must be tested for in a leachate if the chemical analysis shows the constituent in concentrations greater than 0.01 mg/kg:

Oil and grease, pH, ammonia-nitrogen, phenolics, cyanide, antimony, arsenic, barium, cadmium, chromium total, hexavalent chromium, lead, mercury, nickel, selenium, silver, copper, molybdenum, zinc, organics, total organic halogen, chemical oxygen demand, total organic carbon, total volatile residue and total filterable residue.

The operator must also give a description of how the waste was generated and an evaluation of the compatibility of the waste to the liner installed in the facility.

The Department's municipal waste regulations govern the disposal of wastes at a municipal waste landfill (refer to 25 Pa. Code Chapters 271 to 283).

b. Is this disposal method a practice in your state?

Yes X No     

17. Does the program contain a hierarchy of preferred E&P waste management options (e.g., source reduction, recycling, treatment, proper disposal)? If so, please describe them.

A section of the Operators Manual identifies thirteen recommended fluid reduction and reuse practices (pp. 4-52 to 4-57). Disposal options are the operator's choice provided the requirements for that method can be met.

18. What physical and chemical waste analysis requirements are included in the E&P waste management and disposal program?

Disposal of residual waste in a pit at the well site

TCLP test.

Disposal of residual waste by land application at the well site

TCLP test, total metals, total oil and grease, and specific conductance of a saturated paste extract.

NPDES permits

Aluminum, arsenic, barium, cadmium, chromium (total), copper, iron (total), lead, lithium, nickel, silver, zinc, beryllium, manganese, iron (dissolved), pH, total dissolved solids, oils and grease, total suspended solids, osmotic pressure, chloride, alkalinity (total), hardness (total), bromide, sulfate (total), NH<sub>3</sub>-N, MBAS, total phenolics, magnesium, sodium, calcium, specific conductance, benzene, and toluene.

Roadspreading

The brine is tested for the following parameters: pH, iron, MBAS, calcium, manganese, sodium, chloride, sulfate, barium, magnesium, total dissolved solids, total solids, aluminum and potassium.

Underground Injection

The wastewater must be tested for pH, alkalinity, total dissolved solids, total suspended solids, dissolved oxygen,

Langelier's corrosivity index, chlorides, sulfate, sodium, iron, manganese and calcium.

Residual Waste Disposal Permits

For off-site disposal facilities refer to question 13 (pp.41 through 45) relating to commercial and centralized disposal facilities.

II. Permitting Relating To E&P Wastes.

1. In answering the following questions, please base the responses on specific regulatory requirements, information required in the permit applications, conditions applied when the permit is issued or any informal information supplied to the agency.

a. Are permits issued separately for specific activities? Yes X No     

Are pits permitted as part of the drilling permit? Yes      No X

b. Are permits issued by rule? Yes X No     

What types of activities are permitted by rule?

On-site temporary pits and on-site residual waste disposal pits.

c. Are general permits issued? Yes X No     

What types of activities are permitted by a general permit?

The first general permit is a General NPDES permit for discharges from stripper oil wells.

d. What is the duration of the types of permits issued by the agency?

The Production Pit Approval is for the life of the pit. The Plugging and Servicing Pit Approval is for 90 days after the pit is constructed.

NPDES permits must be renewed every 5 years. Treatment facilities must be constructed within two years of the issuance of the Construction and Operations Permit, which is good for the life of the facility.

Permits for disposal wells are for the life of the operation.

Residual waste disposal permits for off-site facilities are issued for the life of the operation.

- e. 1. Is the compliance status of the applicant a consideration in the determination to issue a permit? Yes X No
2. Is permit compliance a condition to the continued active status of a permit? Yes X No
- f. Is a bond or other type of financial assurance required for certain E&P activities? Yes X No

1. If so, what types of activities are covered by this requirement?

The well must be covered by a surety or collateral bond for on-site disposal of the waste. Off-site residual waste disposal facilities must also be covered by a bond.

2. If so, what type of assurance is required?

The bonds can be a surety or collateral bond.

3. If yes, what amount?

\$2,500 for single wells and \$25,000 for a blanket bond. The minimum amount for an off-site residual waste disposal facility is \$10,000. The actual amount is based on a site specific analysis of cost to reclaim the site.

4. Can the bond be blanket or single purpose?

The well bond can be a blanket or a single well bond. The bond for an off-site residual waste disposal facility must be a bond for the operation.

5. Is there a periodic review of the amount of assurance required to determine sufficiency of financial coverage? Yes X No

The Oil and Gas Act provides that the Environmental Quality Board may adjust the bond rates every two years.

6. Is there a statutory or regulatory mechanism for forfeiture of financial assurance? Yes X No

7. If so, what basis must be established to forfeit financial assurance?

The Department determines that the operator failed to comply with the requirements of the Oil and Gas Act regarding drilling, water supply replacement, plugging and site restoration.

For off-site residual waste disposal facilities, the determines that the operator has failed to satisfy the requirements of the permit.

8. For what purpose can funds be spent that result from the forfeiture of financial assurance?

The forfeited well site bond is placed in the Restricted Well Plugging Revenue Account which can be used to plug problem abandoned wells or for the administration of the Oil and Gas Act. Forfeited bonds for off-site residual waste disposal permitted facilities go to the Solid Waste Abatement Fund.

9. a. What are the procedures for bond release?

The well site bond is automatically released one year after the plugging certificate is received by the Department. For off-site residual waste disposal, the operator can request release of the bond after certification of final closure. The bond can be released in in part or completely.

- b. What are the conditions for bond release?

The well must be plugged, the site restored and the other conditions of the Oil and Gas Act have to be met.

- g. Is public liability insurance required?

Yes  No

Public liability insurance is not required for on-site disposal, however it is required for off-site residual waste disposal facility.

- h. 1. For what activity is a closure plan required?

Closure plans are not required for on-site disposal. The standards for pit restoration are contained in the regulations. The operator must file a report with the Department identifying the location and pit restoration procedures with the well completion report or within 30 days of pit closure. For off-site residual waste disposal, refer to question 13 (pp. 41 through 45) regarding commercial and centralized facilities.

2. When is a closure plan required?

Refer to question h.1.

3. If so, what must it include (e.g., disposal techniques, analytical tests, etc.)?

Refer to question h.1.

4. If permits are by rule, are closure requirements specified? Yes  No

5. If yes, please describe.

25 Pa. Code § 78.63 lists the requirements for closure of on-site residual waste pits. 25 Pa. Code § 78.61 (a) identifies the closure requirements for pits containing uncontaminated drill cuttings. 25 Pa. Code § 78.56 lists the requirements for closure of temporary containment pits.

i. Do state permit requirements differ in different areas of the state? Yes  No

If so, explain how and why the requirements vary (e.g., climate, geology, etc.). \_\_\_\_\_

j. Is more than one agency involved in the permitting process? Yes  No

If so, list the agencies and the activities for which they have regulatory authority.

The U.S. EPA is involved in permitting disposal wells.

k. Is there a specific time period in which the permit application must be either approved or denied? Yes  No

l. Are variances to general permitting requirements allowed? Yes  No

1. If so, what are the conditions usually applied to these variances (duration, waste characteristics, construction, siting, operational, closure, etc.)?

The operator may request approval to use an alternate method provided that the practice provides equal or superior environmental protection to the methods listed in the regulations.

2. May the regulatory agency revise the permit application? Yes  No

III. Siting

1. Facilities covered.

- a. What facilities are covered by the state E&P waste management program? (e.g., reserve pits, production pits, roads, commercial facilities.)

Temporary pits, production pits, plugging and servicing pits, on-site residual waste disposal pits, brine treatment facilities, disposal wells, land application areas, industrial and municipal waste treatment plants, and off-site residual waste disposal facilities.

2. Siting restrictions.

- a. Are there depth to groundwater siting requirements in the regulations? Yes  No

If so, explain.

The bottoms of the pits and the soil surface for land application must be at least 20 inches above the seasonal high groundwater table. Approval for a lesser distance may be obtained for temporary pits and plugging and servicing pits during dry times of the year provided the pit is above groundwater.

- b. Are there floodplain siting restrictions in the regulations? Yes  No

If so, explain.

Pits for disposal and areas for land application of residual waste must be at least 100 feet from a stream. Pits for freshwater and uncontaminated drill cuttings and areas for land application may be closer than 100 feet provided a waiver is obtained from the Department. In the waiver, the operator must describe the additional precautions he will take to protect the stream.

- c. Are there wetland siting restrictions in the regulations? Yes  No

If so, explain.

The well site may not be located within 100 feet of a wetland unless a waiver is granted by the Department. In addition, a permit under the Dams and Waterways Act is needed if the operation is in a wetland.

- d. Are there specific contour siting restrictions? Yes  No

If so, explain.

Landspreading cannot be practiced in areas with slopes greater than 25%.

- e. Are there distance restrictions from drinking water wells, surface waters, residential/commercial buildings, geologic hazards or any environmentally sensitive areas?  
Yes  No

If so, explain.

The facilities cannot be within 100 ft. of surface waters. Residual waste disposal pits and landspreading areas may not be within 200 feet of a water supply or an existing building. Landspreading areas may not be within 1000 feet upgradient of an uncased water well.

- f. Are any other siting criteria evaluated as part of the permitting process (e.g., land use, incompatible adjacent uses, aesthetics, etc.)?  
Yes  No

If so, explain.

The Department must consider the impact of a well on rare and endangered flora and fauna. The Department matches the location of a well permit against a computerized database of endangered species which is kept for the Commonwealth. In addition, the Department must consider the impact of the site on public resources including; publicly owned parks; forest, gamelands and wildlife areas; national or state scenic rivers; national natural landmarks; historical and archaeological sites listed on the federal or state list of historic places.

- g. Are there any other general restrictions on where a facility may be sited?  
Yes  No

If so, explain.

The surface of landspreading areas must be 20 inches above bedrock. All of the facilities must be located at the well site.

- h. Comments

For off-site residual waste disposal facilities, refer to question 13 (pp. 41 through 45) regarding commercial and centralized facilities.

IV. Public Participation.

1. a. List the statutory and regulatory citations which provide for public participation in agency E&P waste management and disposal actions.

1 Pa. Code §7.1 and 7.2, Act 1984-223 (The Oil and Gas Act) Section 216, Article XIX-A of the Administrative Code of 1929 (71 PS §510-21,22), 25 Pa. Code §92.61, 25 Pa. Code §92.82, Act 1986-175 (The Sunshine Law).

- b. Briefly, list the types of agency actions covered by these provisions.

Promulgation of regulations, issuance of NPDES and Part II permits, notice of meetings and hearings.

- c. What types of public participation are allowed? (e.g., oral or written testimony, public hearings, appeals, etc.)?

Oral and written testimony, public hearings, appeals, conferences.

2. Is the public provided with notice of the agency's intention to issue a permit that addresses E&P waste management?

Yes X No     

If so, please explain.

The Clean Streams Law requires operators to notify the public through a newspaper and to notify municipalities and counties when they are applying for NPDES and Part II permits. Act 14 requires municipal notification for issuance of permits. Draft NPDES permits are published in the Pennsylvania Bulletin for a 30 day comment period. For off-site residual waste disposal facilities, the applicant must notify the host municipality and the Department publishes notice of the application in the Pennsylvania Bulletin for a 60 day comment period.

3. Are notices of concurrently applicable state or federal programs coordinated?

Yes      No X

4. What notice is given to the public of the issuance of general permits and permits by rule issue or area permits?

The general permit for stripper oil well discharges requires municipal notification by the operator and publication in the Pa. Bulletin by the Department.

5. Is the public provided a comment period prior to issuance of an E&P waste management permit?

Yes X No

If so, please explain.

The public is provided a 30 day comment period prior to the issuance of a NPDES permit or Part II permit. A 60 day comment period is provided for off-site residual waste disposal permit.

What is the duration of that comment period?

Thirty days for NPDES permits and 60 days for residual waste disposal permits.

6. Is there an opportunity for public hearings prior to the issuance of an E&P waste management permit? Yes  No
7. Are special notice requirements applicable to commercial or centralized disposal facilities? Yes  No

If so, please specify.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

8. Does the state statutory and regulatory program provide an appeal mechanism or a court remedy for those aggrieved by an agency action to issue or deny a permit? Yes  No

If so, please explain.

Aggrieved parties may make appeals to the Environmental Hearing Board (EHB).

9. a. What are the procedures and costs to the public for obtaining agency records related to E&P waste management?

The files are available to the public at either the Pittsburgh or Meadville regional office. If greater than 10 pages, the cost of copying is \$.30 a page.

- b. What are the bases for withholding any such information?  
Litigation

10. Are spill, compliance and reporting records available to the public and the regulated industry? Yes  No

11. a. Does the agency have a minimum record keeping time period for operators? Yes  No

If so, what is that time period?

Three years for NPDES permits.

Is that time period automatically extended while unresolved enforcement actions are pending?

Yes  No

b. Is the operator required to notify the agency prior to the destruction of maintained records?

Yes  No

12. Does the agency provide for the dissemination of program information to the regulated industry and the public?

Yes  No

If so, describe the mechanism used for the dissemination of information (e.g., seminars, newsletters, special mailings, association committees, and incentive programs).

The Pennsylvania Bulletin, mailing lists, Operators Manual, waste permitting manual, contact with industry, organizations, public meetings.

13. Advisory panels.

Does the state use advisory groups (e.g., industry, government and public representatives) to obtain input and feedback on the effectiveness of state programs for the management of E&P wastes?

Yes  No

If so, please describe.

The Technical Advisory Board as described in question I.11.

## V. Contingency Planning.

### 1. Applicability

a. Does the agency have the authority to require an operator to comply with a contingency plan relating to E&P waste management and disposal approved by the state agency?

Yes  No

What types of operators are covered under this requirement?

Well operators, and operators of treatment facilities, disposal wells and roadspreading operations.

b. What types of spills and/or releases are covered under the contingency plan requirements?

Any spill of toxic or taste and odor-producing substance, or any other substance which would cause pollution or damage property.

2. Contents

- a. Who must the operator notify in the event of a release?

The Department of Environmental Resources, the Pennsylvania Emergency Management Agency, County Health Department, PA Fish Commission, the National Response Center (U.S. EPA and U.S. Coast Guard), local police and fire departments, the local sewage treatment plant (for discharges to sewer systems), downstream public water supplies, industrial water users, and recreation areas.

- b. What is the time requirement for reporting? Please specify.

1. Telephone: 24 hours
2. Written: If requested by the Department.

- c. What type of information must be provided to the state or federal agency in an operator's spill report? Please describe.

1. Name of the person reporting the incident
2. Name and location of the installation
3. Phone number where the person reporting the spill can be reached
4. Date, time, and location of the incident
5. A brief description of the incident, nature of the materials or wastes involved, extent of any injuries, and possible hazards to human health or the environment
6. The estimated quantity of the materials or wastes spilled
7. The extent of contamination of land, water, or air, if known.

- d. Does the state recognize the federal Clean Water Act reportable quantities of oil (sheen) and CERCLA hazardous substances? Yes  No

If not, does the state have its own reportable quantities that differ from those above?

Yes  No

If yes, please describe. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- e. Does the state have a requirement that spills be immediately contained and cleaned up?

Yes  No

If yes, does this pertain only to spills over the reportable quantity or to all spills?

All spills

Do such requirements apply to spills on land?

Yes  No

- f. Does the state have regulations or policies prescribing cleanup and containments?

Yes  No

If yes, do they differ for land and water?

Yes  No

If yes, please describe.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Agency Review

- a. Must the state agency approve an operator's cleanup procedures?

Yes  No

- b. What penalties/remedies may be assessed by the state against an operator for failure to report or clean up a spill of oil, produced water, or other E&P waste?

Civil penalties of up to \$25,000 plus \$1,000 per day under the Oil and Gas Act, and up to \$10,000 per day for each violation under the Clean Streams Law. In addition criminal penalties may be pursued in the courts.

- c. Are any penalties/remedies mandatory?

Yes  No

If yes, please describe.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- d. Does the state have a procedure or regulation for assessing environmental damage associated with the release of oil, produced water, or other E&P waste?

Yes  No

If yes, please describe.

Procedures are described in a policy and procedure manual which is distributed to each person responsible for evaluation of violations. The manual outlines the category of the violation and its impact on the factors outlined by statute to be considered for the violation. The factors considered are willfulness of the violation,

damage or injury to the natural resources of the Commonwealth or their uses, endangerment of the safety of others, costs of remedying the harm, savings resulting to the person in consequence of such violation and other relevant factors. These are categorized to arrive at an equitable civil penalty amount for the particular circumstances of the violation. The categories are based on the worst case scenario being the highest penalty amount allowed by the applicable statute. Lower categories, and thus the penalty amounts, are less for violations with less impact on the resources or ranked lower in the factors considered by the statute. The categories are considered by a regional staff person to equate the penalty with other occurrences in the region. Central office personnel are consulted on extraordinary violations and for statewide penalty consistency. The calculated penalty amount is then used as the basis for settlement or filing a civil penalty complaint.

4. Relationship to SPCC

- a. Has the state adopted the federal spill prevention containment and countermeasures (SPCC) plan requirements? Yes  No

If not, has the state adopted its own analogous SPCC requirements? Yes  No

Please describe.

The operator is required to develop and implement a Preparedness, Prevention and Contingency (PPC) Plan, and to make the plan available to the Department upon request. The plan must address responses to spills, training of personnel, and contact procedures if a spill occurs. The SPCC plan can be a part of the PPC plan.

- b. Are there state requirements for dikes or berms around tanks or other production equipment? Yes  No

If yes, please explain.

Tanks must be surrounded by an earthen dike and must be able to contain 1½ the capacity of the tanks.

- c. Are there state requirements or specifications for the construction of production facilities directly aimed at preventing spills or leaks (e.g., corrosion protection, level controls, etc.)? Yes  No

If yes, please explain.

Pits are to have at least two feet of freeboard at all times. The pits must have impermeable liners. They must

also be reasonably protected from unauthorized acts of third parties.

- d. Are there state requirements for inspection and maintenance of production facilities? Yes  No

If yes, please explain.

The operator must describe his plan for operating and maintaining the pit in his application for a production pit permit.

## VI. Technical Requirements.

### 1. Pit Construction

- a. Are requirements different for drilling and production pits? Yes  No

If so, please specify.

Temporary pits and pits for the disposal of contaminated and uncontaminated drill cuttings are authorized by rule (refer to 25 Pa. Code §§ 78.56, 78.61(a) and 78.62). Pits used for storage of production fluids and pits used for servicing and plugging must be authorized by a pit approval number (refer to 25 Pa. Code §§ 78.57, 78.58 and 78.59).

If one pit or interconnected pits hold more than 250,000 gallons, or the total capacity of any pits on one tract or related tracts of land is more than 500,000 gallons, a permit under the Clean Streams Law is needed.

- Are there size restrictions? Yes  No

If so, please specify.

The pit must be constructed and maintained to contain all pollutional substances and wastes, and have two feet of freeboard.

- b. Are there depth restrictions? Yes  No

If so, please specify. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- c. Are there berm height restrictions? Yes  No

If so, please specify.

The pit must be structurally sound and have a freeboard of at least two feet.

- d. Are there side wall slope restrictions?

Yes  No

If so, please specify.

The slopes in production pits and plugging and servicing pits cannot be steeper than a ratio of 2 horizontal to one vertical.

- e. Are there construction material requirements for berms?

Yes  No

If so, please specify. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- f. Are there restrictions based upon site characteristics (e.g., soil, contour, geology, etc.)?

Yes  No

If so, please specify.

The bottoms of the pits must be at least 20 inches above the seasonal high groundwater table. This restriction can be waived during dry times of the year for temporary pits and plugging and servicing pits.

- g. Are there liner requirements?

Yes  No

If so, please specify.

Temporary containment pits which contain pollutional materials, production pits, plugging and servicing pits and residual waste disposal pits must have a synthetic flexible liner. The liner must be a synthetic flexible liner of at least 30 mils thickness, unless an alternate is approved by the Department.

1. Are natural liners allowed?

Yes  No

If yes, explain for what type of location, specific materials, permeability restrictions, leak detection requirements, construction techniques, required well depths specified, whether waste compatibility must be demonstrated, etc.

The liner must have a coefficient of permeability no greater than  $1 \times 10^{-7}$  cm/sec. The physical and chemical characteristics of the liner must be

compatible with the waste. Approval must be obtained for natural liners.

2. Are synthetic liners required? Yes  No

If yes, explain in what type of location, specific materials allowed, thickness restrictions, permeability, construction and installation techniques required, whether leak detection is required, whether waste compatibility must be demonstrated, etc.

Pits that contain polluttional substances, pits for the storage of production fluids, servicing and plugging pits, and pits used for the disposal of contaminated drill cuttings must be lined with a synthetic flexible liner of at least 30 mils thick. The liner must have a proper subbase that will not puncture or tear the liner. Liner integrity must be maintained. Liner and waste compatibility is based on the EPA Method 9090 or other documented data.

- h. Are tanks required in lieu of pits under certain circumstances? Yes  No

If so, please specify. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- i. Are there provisions allowing unlined skimming/settling pits? Yes  No

If so, please specify. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- j. Do modifications of the original construction require re-permitting? Yes  No

- k. Does the regulatory agency inspect the construction prior to allowing the pit to be placed into service? Yes  No

- l. Are variances to construction standards allowed? Yes  No

If yes, please describe what procedures and criteria are required to grant these variances?

The operator must submit a request for an alternate pit liner or an alternate method. The request must show that the alternate pit liner or method will provide equal or

superior protection to the pit liner or methods required in the regulations.

m. Comments

For off-site residual waste disposal facilities, refer to question 13 (pp. 41 through 45) regarding commercial and centralized facilities.

2. Pit Operation and Maintenance

a. Are there regulations concerning security?

Yes X No     

If yes, are there specific requirements directed at protecting wildlife?

Yes      No X

Are these specific requests to prevent disposal?

Yes      No X

b. Are there requirements concerning inspection schedules that the operator must follow?

Yes      No X

c. Are there requests for periodic sampling and analysis of pit contents?

Yes      No X

If yes, do the requirements vary with the location of the pit or other criteria?

Yes      No     

If so, explain.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

d. Are there fencing, flagging or caging/netting requirements for the protection of the public, domestic animals, wildlife, and waterfowl?

Yes      No X

If so, specify.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

e. Are there restrictions concerning minimum freeboard?

Yes X No     

If so, please explain.

The minimum freeboard is two feet.

Do restrictions vary based upon the type of material being put into the pit?

Yes      No X

If so, please explain. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- f. Are there groundwater monitoring requirements? Yes  No

If yes, specify.

Groundwater monitoring is required when the pit is permitted under the Clean Streams Law, and when demonstrating that an existing pit is impermeable.

- Are there other monitoring requirements? Yes  No

If yes, specify. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- g. If liners are required, are there requirements to insure its integrity? Yes  No

- h. If some form of leak detection system must be employed, how often must it be checked? N/A

- i. Are there time restrictions on operation of the pit? Yes  No

If yes, specify.

Temporary pits must be restored within 9 months of the completion of drilling. Plugging and servicing pits must be restored within 90 days of the construction of the pit.

- j. Are there reporting requirements on the use of pits. Yes  No

If so, explain.

Within 30 days of the disposal of residual waste in a pit, the operator must submit a report to the Department.

- k. Are variances allowed to operation and maintenance requirements? Yes  No

If yes, please state the criteria used to allow the variances.

There are no specific operation and maintenance requirements. An operator must follow any operation and maintenance requirements identified in his Preparedness.

Prevention and Contingency (PPC) Plan.

1. What routine inspections are required to be provided by the operator to assure that pit operational requirements are being met?

Pits must be maintained to meet standards. Inspection frequency is left to the discretion of the operator.

Are results of these inspections reported?

Yes \_\_\_\_\_ No X

- m. What are the requirements for removal/disposal/recycling of hydrocarbons that accumulate in pits? Give reference to the applicable statutory or regulatory sections.

The free liquid fraction in the pit must be removed before the waste is disposed on-site in a lined pit or by land application (25 Pa. Code §§ 78.62(a)(14) and 78.63 (a)(14)).

- n. What are the requirements for removal of oil and other wastes from unlined skimming/settling pits?

The same as question m above.

- o. Are produced water pits allowed in your state? If so, what are the requirements for disposal of the water?

Pits used for the containment of production fluids must be authorized by a pit approval number or a Clean Streams Law pit (refer to 25 Pa. Code § 78.57).

- p. Describe any restrictions concerning the use of percolation pits.

Percolation pits are prohibited.

- q. Describe maintenance requirements for evaporation pits. Give reference to the applicable statutory or regulatory sections.

Only enhance evaporation pits are recognized. These pits are considered production pits and must comply with 25 Pa. Code § 78.57 (refer to question o above).

- r. What restrictions are placed on the use of emergency pits? Is notification of the regulatory agency required when they are used?

No restrictions.

- s. Is there a prohibition against the use of basic sediment pits for oily wastes? Give reference to the applicable

statutory or regulatory sections.

These pits are considered to be production pits and must comply with 25 Pa. Code § 78.57.

- t. What limitations are placed on the operation of work over pits?

These pits would be considered plugging and servicing pits and must comply with 25 Pa. Code § 78.59.

- u. Comment

For off-site residual waste disposal facilities, refer to question 13 (pp. 41 through 45) regarding commercial and centralized facilities.

### 3. Pit Closure

- a. Are closure requirements specified in the statutes or regulations? Yes  No

Are closure requirements specified in the permit?

Yes  No

- b. Is a closure plan required to be submitted to the agency?

Yes  No

If so, when (with the application, prior to closure, kept at the site, etc.)?

Pit closure standards are contained in the regulations.

- c. Is an analysis of the pit contents required prior to beginning closure? Yes  No

If so, what are the chemical constituents and analytical techniques specified?

On-site disposal in a pit is allowed if the leachate from the waste is less than 50% of the TCLP criteria, 50 times the State's primary maximum contaminant levels or 50 times the State's safe drinking water levels. Representative data may be used.

Are liquids and solids required to be analyzed separately? Yes  No

Do the results of the analysis dictate the closure technique allowed? Yes  No

- d. Do the requirements for closure vary with the type of mud or drilling fluid used, service the pit was in, age of



- i. Is landspreading of pit contents allowed during closure?  
Yes  No

If so, what are the criteria?

Siting restrictions must be met as shown above. The waste must be incorporated into the soil at no more than a 1:1 ratio to a depth of at least 6 inches. The soil must fall within the textural classes of sandy loam, loam, sandy clay loam, silty clay loam or silt loam. The leachate from the waste cannot exceed the TCLP standard.

- j. Are there certain types of pit materials that are specifically required to be removed and disposed off site as part of the closure requirements?  
Yes  No

If yes, please list the specific material or criteria that trigger this requirement.

The liquid fraction in the pit that is polluttional materials and is not considered tophole water must be disposed of off site.

- k. Are there restrictions on the amount of time allowed after operations cease for the closure to occur?  
Yes  No

If so, explain.

Plugging and servicing pits must be restored within 90 days after construction. Temporary pits must be closed within 9 months after completion or recompletion of the well.

- l. Are records kept at the regulatory agency, or elsewhere, of all pit locations?  
Yes  No

If so, are such records available for review by the public?  
Yes  No

How long are records maintained?

100 years

- m. Are variances to the closure requirement allowed?  
Yes  No

If yes, please explain the criteria used to grant these variances.

An operator may obtain approval for an alternate practice by submitting a request to the Department for approval. The alternate waste management practice must provide

equivalent or superior environmental protection to the practices identified in the regulations.

n. Comments

For off-site residual waste disposal facilities, refer to question 13 (pp. 41 through 45) regarding commercial and centralized facilities.

4. Storage Tanks

- a. Are there construction siting, or enclosure requirements for oil, brine or E&P waste storage tanks utilized in either drilling or production operations?

Yes   X   No       

If yes, please explain such requirements and reference any applicable statutes or regulations.

Tanks must be structurally sound and reasonably protected from unauthorized acts of third parties. Two feet of freeboard must remain at all times. The tank must be impermeable.

5. Landspreading

- a. Does the state E&P waste management program provide for waste disposal in which the wastes are spread upon, and sometimes mixed into soils?

Yes   X   No       

If so, please explain.

Land application of drill cuttings and other residual waste is permitted provided distance restriction, site conditions and the application rates are met. For residual waste and contaminated drill cuttings, the operator must obtain approval from the Department. For uncontaminated drill cuttings, approval is not required. The requirements for the land application of uncontaminated drill cuttings are contained in 25 Pa. Code § 78.61(b). The requirements for the land application of contaminated drill cuttings is contained in 25 Pa Code §78.63 and the "Guidelines for Land Application of Residual Waste (Including Contaminated Drill Cuttings) From the Drilling, Production and Plugging of an Oil and Gas Well".

- b. Are such provisions applicable to commercial facilities?

Yes        No   X  

- c. Are permits required? (If not, go to g)

Yes        No   X

- d. Does the permit limit disposal to enumerated wastes or waste streams? Yes  No
- e. What is the duration for permits? \_\_\_\_\_
- f. Is landowner approval required? Yes  No
- g. If a formal approval is not required, is notice or approval required prior to landspreading? Yes  No
- h. Are detailed waste analyses required to be submitted prior to approval or as part of the permit procedure? (e.g., pH analysis, organic, inorganic levels, etc.) Yes  No

If so, please state the constituents for which one must analyze and the analytical technique specified.

Total metal analysis for Cd, Pb, Hg, Ni, Zn, Cr, Cu and oil and grease are conducted by methods described in EPA document SW-846. Soluble salts are tested using a saturated paste extract method described in Handbook No. 60 (USDA, 1954).

- i. Are soil analyses required prior to landspreading? Yes  No

Are soil analyses required after closure of the site? Yes  No

If so, what are those criteria? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- j. Are there other criteria for obtaining approval or as part of a permit (e.g., location restrictions, record keeping, reporting, capacity or loading requirements, etc.)? Yes  No

If yes, please specify.

The area of land application cannot be within 200 feet of an existing building, 100 feet of a stream, body of water or wetland, 200 feet of a water supply, or 1000 feet upgradient of an uncased well or spring being used as a water supply. Loading restrictions are addressed in the land application guidelines.

- k. Is demonstration of treatment or dilution required for landspreading? Yes  No

If yes, please describe. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

1. Please list the specific types of E&P waste that are allowed to be spread on the land.

Drilling pit wastes, solids from production pits and plugging and servicing pits. Before disposal by land application, the liquid fraction of the pit waste must be removed.

- m. Are variances from the landspreading requirements allowed? Yes  No

If yes, please explain the conditions and criteria for granting such variances.

The request for a variance must be made on an alternate waste management practices form and must show that it provides equivalent or superior environmental protection to the land application method allowed in the regulations.

- n. Comments

For off-site residual waste disposal facilities, refer to question 13 (pp. 41 through 45) regarding commercial and centralized facilities.

6. Burial and Landfilling

- a. Are there requirements for burial and landfilling E&P wastes? Yes  No
- b. Are permits required? (if not, go to e) Yes  No
- c. Does the permit limit burial and landfilling to enumerated wastes or waste streams? Yes  No
- d. What is the duration period for permits?  
Life of the operation.
- e. Is landowner approval required? Yes  No
- f. If a formal permit is not required, is notice or approval required prior to burial or landfilling? Yes  No
- g. Are detailed waste analyses required prior to approval or as part of the permit procedure? Yes  No

If so, please state the constituents for which one must analyze and the analytical technique specified.

Refer to question 13 (pp. 41 through 45) regarding commercial and centralized facilities.

- h. Are there other criteria for obtaining approval or as part of a permit (e.g., siting restrictions, groundwater monitoring requirements, record keeping, reporting, soil analysis, volume limits, liners, etc.)? Yes  No

If yes, please specify.

Refer to question 13 regarding commercial and centralized facilities.

- i. Please list the specific types of E&P waste that are allowed to be buried or landfilled.  
Production pit wastes, drilling pit wastes, plugging and servicing pit wastes.
- j. Are variances from the burial and landfilling rules allowed? Yes  No

If yes, please explain the conditions and criteria for granting such variances.

Any variances are approved as part of the permit.

- k. Comments

Burial or landfilling of the waste at the well site is not allowed. A residual waste disposal permit (25 Pa. Code Chapter 75 (proposed Chapters 287 to 299)) would be required to dispose of the waste off-site by these practices. Refer to question 13 (pp. 41 through 45) regarding commercial and centralized facilities for detailed information on residual waste disposal permits.

7. Roadspreading

- a. Are there requirements for roadspreading? Yes  No
- b. Are permits required? (if not, go to e) Yes  No
- c. Does the permit limit roadspreading to enumerated wastes or waste streams? Yes  No

- d. What is the duration period of permits? \_\_\_\_\_
- e. Is road owner approval required? Yes  No
- f. If a formal permit is not required, is notice or approval required before roadspreading? Yes  No
- g. Are detailed waste analyses required prior to approval or as part of the permit procedure? Yes  No

If so, please state the constituents for which one must analyze and the analytical technique specified.

Iron, pH, MBAS, calcium, manganese, sodium, chloride, sulfate, barium, magnesium, total dissolved solids, total solids, aluminum and potassium.

- h. Are there other criteria for obtaining approval or as part of a permit (e.g., siting restrictions, groundwater monitoring requirements, record keeping, reporting, soil analysis, volume limits, etc.)? Yes  No

If yes, please specify.

To obtain approval, the operator must submit a yearly plan identifying the roads to be spread, a description of how the brine will be spread, the proposed rate and frequency of application, identification of the geologic formation from which the brines are produced, and the waste analysis as described above. In addition, the application rate may not exceed 1 gallon per one square yard of road surface, the brine may not be spread within 150 feet of a stream, creek, lake or other body of water, the brine must be spread with a spreader bar with shut off controls in the cab of the truck, the brine may not be spread on roads with a grade greater than 10%, and the brine cannot be spread when the road is wet, during rain or when rain is imminent.

- i. Please list the specific types of E&P waste that are allowed to be roadspread.

Produced brines.

- j. Are variances from the roadspreading requirements allowed? Yes  No

If yes, please explain the conditions and criteria used by the state to grant such variances. \_\_\_\_\_

k. Comments \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

8. Injection

a. Are there requirements for the injection of E&P wastes?  
Yes  No

If so, please list the E&P wastes covered by these requirements.

Produced fluids.

b. Are permits required? (If not, go to e)  
Yes  No

c. Does the permit limit disposal to enumerated wastes or waste streams?  
Yes  No

d. What is the duration period of permits?

Life of the well, or until revoked.

e. If a formal permit is not required, is notice or approval required before injection?  
Yes  No

f. How are these wells classified by the state (or federal EPA if the state does not have primacy)?

These wells are considered disposal wells.

g. Are detailed waste analyses required to be submitted prior to approval or as part of the permit procedure?  
Yes  No

If so, please state the constituents for which one must analyze and the analytical technique specified.

Iron, pH, alkalinity, calcium, manganese, sodium, chloride, sulfate, TDS, total suspended solids, dissolved oxygen, Langelier's corrosivity index.

h. Please list the specific types of E&P waste that are not allowed to be injected.

Injection limited to production brines.

i. Comments \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

9. Annular Disposal Not Regulated by UIC

- a. Are there requirements for the annular disposal of E&P wastes? Yes \_\_\_ No X

If so, please list the specific E&P wastes allowed to be disposed of in the annulus.

Annular disposal is not allowed.

- b. Are permits required? (If not, go to e) Yes \_\_\_ No \_\_\_

- c. Does the permit limit disposal to enumerated wastes or waste streams? Yes \_\_\_ No \_\_\_

- d. What is the duration period of permits? \_\_\_\_\_

- e. Is landowner approval required? Yes \_\_\_ No \_\_\_

- f. If a formal permit is not required, is notice or approval required prior to annular disposal? Yes \_\_\_ No \_\_\_

- g. How are these wells classified by the state (or federal EPA if the state does not have primacy)? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- h. Are detailed waste analyses required prior to approval or as part of the permit procedure? Yes \_\_\_ No \_\_\_

If so, please state the constituents for which one must analyze and the analytical technique specified. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- i. Are there other criteria for obtaining approval or as part of a permit (e.g., siting restrictions, groundwater monitoring requirements, record keeping, reporting, soil analysis, volume limits, etc.)? Yes \_\_\_ No \_\_\_

If yes, please specify. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- j. Please list the specific types of E&P wastes that are allowed to be injected into the annulus. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

k. Are variances from the annular injection requirements allowed? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, please explain the conditions and criteria for granting such variances. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

l. Comments \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. Other types of disposal allowed

a. 1. Are other disposal methods, not described above, allowed? Yes \_\_\_\_\_ No X

2. If so, please list these disposal methods and the specific E&P waste allowed to be disposed by each method. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

[Please answer 10.b. - 10.k. for each disposal method, photocopying extra pages as necessary.]

b. Are permits required? (If not, go to e) Yes \_\_\_\_\_ No \_\_\_\_\_

c. Does the permit limit disposal to enumerated wastes or waste streams? Yes \_\_\_\_\_ No \_\_\_\_\_

d. What is the duration period of permits? \_\_\_\_\_

e. Is landowner approval required? Yes \_\_\_\_\_ No \_\_\_\_\_

f. If a formal permit is not required, is notice or approval required prior to annular disposal? Yes \_\_\_\_\_ No \_\_\_\_\_

g. Are detailed waste analyses required prior to approval or as part of the permit procedure? Yes \_\_\_\_\_ No \_\_\_\_\_

If so, please state the constituents for which one must analyze and the analytical technique specified.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

h. Are there other criteria for obtaining approval or as part of a permit (e.g., siting restrictions, groundwater

monitoring requirements, record keeping, reporting, soil analysis, volume limits, etc.)?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, please specify. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

i. Please list the specific types of E&P waste that are allowed to be handled in this manner. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

j. Are variances allowed from the requirements for this type of disposal? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, please explain the conditions and criteria for granting such variances. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

k. Comments \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11. Are there prohibitions on the land disposal of any E&P wastes? Yes X No \_\_\_\_\_

If so, please list the specific wastes.

Waste that do not meet requirements for pit disposal, land application or disposal under a residual waste disposal permit.

12. If a waste is hauled offsite, are there regulatory requirements for:

a. on-site storage? Yes \_\_\_\_\_ No X  
b. manifesting? Yes \_\_\_\_\_ No X  
c. transporting? Yes X No \_\_\_\_\_

13. Commercial and Centralized E&P Waste Disposal Facilities

a. Are commercial non-hazardous waste disposal or recycling facilities (including disposal wells or pits) required to be permitted? Yes X No \_\_\_\_\_

b. Are there specific requirements for permitting (siting, disposal methodology, access control, closure, emergencies, bonding, insurance, etc.)? Yes X No \_\_\_\_\_

## 1. Brine Treatment Plants

The treatment plants require an NPDES permit as well as a Part II Clean Streams Law permit for construction and operation of the treatment facility. These facilities are permitted and designed to treat produced fluids and drilling fluids from oil and gas wells. The NPDES permit sets limits on contaminant levels in the effluent based on the type of stream and the technology available to treat the waste. For the Part II Construction and Operation permit, the operator must provide a design engineers report for the treatment facility and related information such as the location of impoundments, major drainage basin, concentration of the waste constituents and the estimated area of impacted groundwater.

## 2. Industrial Waste Treatment Plants

These treatment plants require an NPDES permit as well as a Part II Construction and Operation permit. The facilities are designed and permitted to treat for multiple types of industrial wastes. The information required is similar to the information required for brine treatment plants as shown above.

## 3. Municipal Waste Treatment Plants

These treatment plants require an NPDES permit as well as a Part II Construction and Operation permit. They are designed and permitted to primarily treat for municipal wastes. Industrial wastes which are discharged to a Publicly Owned Treatment Works must meet new source and existing source categorical pretreatment standards for the industry in question.

## 4. Residual Waste Disposal Site

Permits are required for offsite residual waste disposal sites. These sites can be considered as commercial, centralized, or any other disposal facility that is not on the well site. The specific requirements for the permitting and operation of these sites are located at 25 Chapter Pa. Code Sections 75.21 through 75.29. Generally, these requirements consist of submitting applications and receiving approvals in a two phased permitting procedure.

In Phase I of the application the operator needs to identify the daily operation of the facility, the nature and source of the waste, the expected life of

the facility and the proposed ultimate disposition of the site. The part of the application also describes the siting information, the location of water sources, the locations of mines, wells, pipelines, and geologic and hydrologic features, and soils and ground water information.

Once approval of Phase I has been received, the Phase II portion of the application is prepared to include at a minimum the following information:

- (i) Design plans including such information regarding compaction, cover, management of surface water, erosion control, monitoring, and scheduling of activities.
- (ii) Design criteria including information regarding surface water control, grading, terracing, access roads, suitability of soil cover, procedures near coal seams and outcrops, distances to flood plains, final cover, and gas venting.
- (iii) A detailed operations plan and such further information as may be required by the Department to insure that the proposed solid waste processing or disposal facility or area complies with the provisions of the regulations.

Only approved wastes may be disposed at the facility. If another type of waste is to be disposed, a "Module 1" must be submitted with the application which indicates the types of waste to be disposed and the analyses that must be performed to characterize those wastes.

Other conditions include: landowner approval of the residual waste facility is required prior to issuance of the permit; there is no time duration attached to the permit; and there are no variances from the regulations allowed.

Depending on the type of waste being disposed there are requirements liners and leachate collection. All sites are required to have monitoring wells.

- c. Are the permit requirements different for each type of disposal method (e.g., landfill, landfarm, disposal well, pit, etc.)? - Yes  No
- d. What is the duration period of permits?

NPDES permits must be renewed every 5 years.

e. Does the permit limit disposal to enumerated wastes or waste streams? Yes  No

f. Are there classifications of E&P wastes for purposes of disposal in commercial or centralized facilities? Yes  No

If so, explain.

The two general categories are the liquids (brines and drilling fluids) and the solids (basic sediments and drill cutting or muds).

g. Must waste be analyzed before acceptance by the facility? Yes  No

h. Is a manifesting system required under the regulations? Yes  No

If not, do the facilities normally require the use of a manifest anyway? Yes  No

i. Are commercial facilities required to keep records of individual shipments received (e.g., waste type, volume, generator, transporter, etc.)? Yes  No

j. Are there location restrictions for centralized or commercial waste disposal sites near:

1. Floodplains Yes  No

2. Residences Yes  No

3. Groundwater Yes  No

4. Surface water Yes  No

5. Geologic concerns Yes  No

6. Other (please specify) Yes  No

k. Are liners, leachate collection and removal systems, monitoring wells or air monitoring required? Yes  No

If yes, list which ones.

Landfills and disposal impoundments must be lined with a natural or manufactured impermeable liner. Monitoring wells are required to monitor the ground water at the site.

1. Comments \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

VII. Waste Tracking

1. Does the state E&P waste management program have a waste tracking program in effect which documents the movement of wastes from the site of their origin to their final disposition? Yes \_\_\_\_\_ No X
- a. If so, please describe briefly the content of that program and attach the statutory or regulatory provisions regarding waste tracking of E&P wastes. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

VIII. Data Management

1. How does the state E&P waste management program maintain the information submitted by permittees such as permitting, operating, and monitoring information?  
Permitting - paper log in Pittsburgh and PC database in Meadville
2. Are there efforts made to facilitate the sharing of data among responsible state and federal agencies? Yes X No \_\_\_\_\_  
If so, please describe.  
UIC - Attempting to work out well number conversion system. NPDES permits are provided to EPA.
3. Is the data which is maintained by the state agencies regularly analyzed by both state and federal agencies? Yes \_\_\_\_\_ No X  
Please explain.  
Data for The Department's program is not compatible to the EPA UIC because their ID system is not based on the well API number.

IX. Inspection, Surveillance, Compliance Evaluation

1. Are there procedures for the receipt, evaluation, retention, and investigation for possible enforcement action of all notices and reports required of permittees? Yes X No \_\_\_\_\_  
If so, please explain.

The data system has fields to indicate receipt of required reports. If not received and in the self monitoring component of LUMIS then report generated to show overdue reports and prioritized for inclusion of enforcement action.

2. Does the state program have inspection and surveillance procedures that are independent of information supplied by regulated persons to determine compliance (e.g., surveys, periodic inspections, response to citizen complaints, etc.)  
Yes  No

If so, please explain.

Response to complaints, watershed surveys, routine inspections, priority list for operator, inspections by number of wells. Inspection strategy tailored to meet current need/problem. Aerial survey annually.

Please describe the record keeping procedures followed with regard to such surveillance and inspection.

Inspection reports kept on file and tracked in the our computerized database. The annual flight report is also kept in a file. Compliant records are maintained in a log and kept confidential.

3. Do your statutes or regulations contain right of entry provisions for inspections by state personnel?  
Yes  No

If so, give reference to the statutory or regulatory requirements.

Oil and Gas Act § 508 and 25 Pa. Code §§ 78.901 - 906.

4. Describe or provide a copy of and chain of custody procedures which have been adopted to insure the integrity of any samples collected during inspections.

The standard procedures are to use legal seals, iced containers and transport by bonded courier to the Department's lab.

#### X. Enforcement

1. Can the agency issue a notice of violation with a compliance schedule?  
Yes  No
- a. On the average, how many notices of violation does the agency issue each month?

2. Can the agency restrain any person by order or by suite in state court from engaging in unauthorized activity which is causing or may cause damage to public health or the environment? Yes X No \_\_\_\_\_

a. In the past two years, how many restraining orders did the agency obtain?

76

3. Can the agency, upon determination that emergency conditions which pose an imminent and substantial human health or environmental hazard, enter and take immediate corrective action after reasonable efforts to notify the operator have failed? Yes X No \_\_\_\_\_

a. Under what specific circumstances has the agency undertaken immediate corrective action in an emergency situation?

After house explosion and operator being reluctant to correct, DER obtained court order to plug the leaking well.

4. Can the agency enjoin by suite in local court as the result of a continuing violation of any program requirement or permit condition without necessity of prior revocation of the permit?

Yes X No \_\_\_\_\_

a. How many times in the last two years has the agency brought suit to enjoin a party from committing a continuing violation?

Once

5. Can the agency require by administrative order or suit in state court, that the appropriate action be undertaken to correct any harm to public health and the environment that may have resulted from a violation of any program requirement, including but not limited to establishment of compliance schedules? Yes X No \_\_\_\_\_

6. Can the agency revoke, modify, or suspend any permit upon a demonstration that the permittee has violated the terms and conditions of the permit, failed to pay an assessed penalty, or used false or misleading information or fraud to obtain the permit?

Yes X No \_\_\_\_\_

a. In the last two years, how many drill permits, pit permits, or other permits were revoked due to violations of the conditions of the permit or agency rules?

One

7. Can the agency assess administrative penalties or seek in court civil penalties or criminal sanctions, including fines and/or imprisonment? Yes X No

- a. Please identify the statutory and regulatory provisions which authorize such penalties.

Oil and Gas Act, Clean Streams Law and Administrative Code.

- b. Are there guidelines for the factors to be considered for the calculation of penalties? Yes X No

Briefly describe the factors to be considered and provide the statutory or regulatory citation.

Damage, willfulness, cost to the Department, savings to the violator and history of violations at other sites (35 P.S. §691.605(a) under the Clean Streams Law and 58 P.S. §601.506 of the Oil and Gas Act).

- c. How many times in the last two years has the agency assessed and collected penalties, whether civil or criminal in nature?

93

- d. What is the average penalty collected during that time?

\$2246

- e. What is the total amount of penalties collected in the past two years?

\$208,954

8. Can the agency enforce the forfeiture of financial assurance instruments? Yes X No

- a. What is the total monetary amount of bond forfeitures in the last two years?

\$50,000

9. What are the appeal rights of the regulated community to seek administrative or judicial review?

Thirty days to appeal to administrative courts, then state court.

- a. In the past two years, have any other non-agency parties brought suit against the agency to force compliance with

statutes, rules, policies, or programs?

Yes \_\_\_\_\_ No X

b. What was the outcome of such suits (i.e., did the non-agency party prevail)? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. Are there procedures for inspections, analysis, penalties, record keeping and reporting? Yes X No \_\_\_\_\_

11. Comments:

Our NOV's are simply notices of violation having been observed and asking when it will be corrected. They do not have mandatory compliance schedules and are not appealable. However, orders direct compliance and are appealable. Orders may be issued by either of the two Regional Managers and by the Bureau Director. NOV's are sent by any Bureau employee and ask when the noted violation was corrected or how and when it will be.

SUPPLEMENT TO THE IOGCC OIL AND GAS WASTE MANAGEMENT QUESTIONNAIRE

5. Do your statutes or regulations contain right of entry provisions for inspections by state personnel?

Yes X No     

If so, give reference to the statutory or regulatory requirements.

Section 508(a) of the Oil and Gas Act, 58 P.S. §601.508(a) authorizes the Department and its representatives to make inspections, conduct tests, sample or examine papers and to enter and examine property, facilities, operations or activities pursuant to this Act.

Section 508(b) states that the person in charge of such facility or operation; shall give our agents free and unrestricted access and entry. Upon refusal our agent may obtain a search warrant with a showing of probable cause that a regulated activity is occurring on site.

Sections 508(c,d and e) give the Department the power to subpoena witnesses, documents, to depose and pay witnesses respectively.

SUPPLEMENT TO THE IOGCC OIL AND GAS WASTE MANAGEMENT QUESTIONNAIRE

6. Describe or provide a copy of any chain of custody procedures which have been adopted to insure the integrity of any samples collected during inspections.

See the attached protocol which is currently in the process of being updated. In accordance with EPA sample preservation requirements, samples are iced and/or preserved for shipment until they are received by the laboratory for analysis. Each sample is identified by the collector with his sample collector number and his unique sequential sample number. Legal seals are placed on the sample container by the collector and the seal number identified on the analysis sheet with the collector number. The sample is shipped by bonded courier to the laboratory. Upon receipt in the lab, the samples are sorted, the legal seal condition is noted, and the requested analysis performed. Each analyst initials the report for the analysis they perform and the report is reviewed by the chief chemist. The results are then sent to the collector. As long as we use this "standard operating procedure" our chain of custody is not challenged.

SUPPLEMENTAL QUESTION  
E&P WASTE MANAGEMENT QUESTIONNAIRE

VI. Technical Requirements - 7. Roadspreading

- k. Have field studies been conducted to determine if this practice has resulted in contamination of soils and groundwater and surface water quality? If so, what were the results of such studies?

Yes, a study is being conducted by staff in the Pittsburgh region. The study involves placing lysimeters in the soil to the side of roads which are being spread with brine. Samples from the lysimeters are taken periodically and analyzed for common constituents of brine such as chloride, sodium, calcium, barium and strontium to see if there are any increases over time. Another study is proposed to begin this fall under a grant from EPA. It will last two years and will investigate the environmental impact from roadspreading.

SUPPLEMENTAL QUESTION  
E&P WASTE MANAGEMENT QUESTIONNAIRE

VI. Technical Requirements - 13. Commercial and Centralized E&P Waste  
Disposal Facilities

- l. Are liners, leachate collection and removal systems,  
monitoring wells or air monitoring required?

Yes   X              No       

Landfills and disposal impoundments must be lined with a  
natural or manufactured impermeable liner. Monitoring wells  
are required to monitor the ground water at the site.

- m. Are commercial facilities required to keep records of  
individual shipments received (i.e. waste type, volume,  
generator, transporter, etc.)?

Yes   X              No

SUPPLEMENTAL QUESTION  
E&P WASTE MANAGEMENT QUESTIONNAIRE

X. Enforcement

11. Does the state have an orphaned E&P waste facility remediation program?

Yes \_\_\_\_\_ No  X

Explain.

There is no formal program to remediate abandoned E&P waste facilities. If such facilities were causing an immediate threat to the environment or human health the commonwealth could order operators (if known) to close out the facilities under laws such as the clean streams law. Any pits or other facilities on a site which is plugged under the abandoned well plugging program are reclaimed.

SUPPLEMENTAL QUESTION  
E&P WASTE MANAGEMENT QUESTIONNAIRE

What is being done about NORM?

Starting in March the Department has been conducting a three phase survey to determine the extent of NORM in the oil and gas producing industry in Pennsylvania. The first phase involved taking liquid and solid samples from pits and tanks containing produced fluids. The samples were sent to the DER laboratory for a combined radium analysis. The second phase involved surveying used pipe in pipe yards with a low level radiation detection meter. The third phase involved surveying equipment at well sites with low level radiation detection meters. The sites were differentiated by location and formation drilled to. Results of the surveys have not yet been finalized.



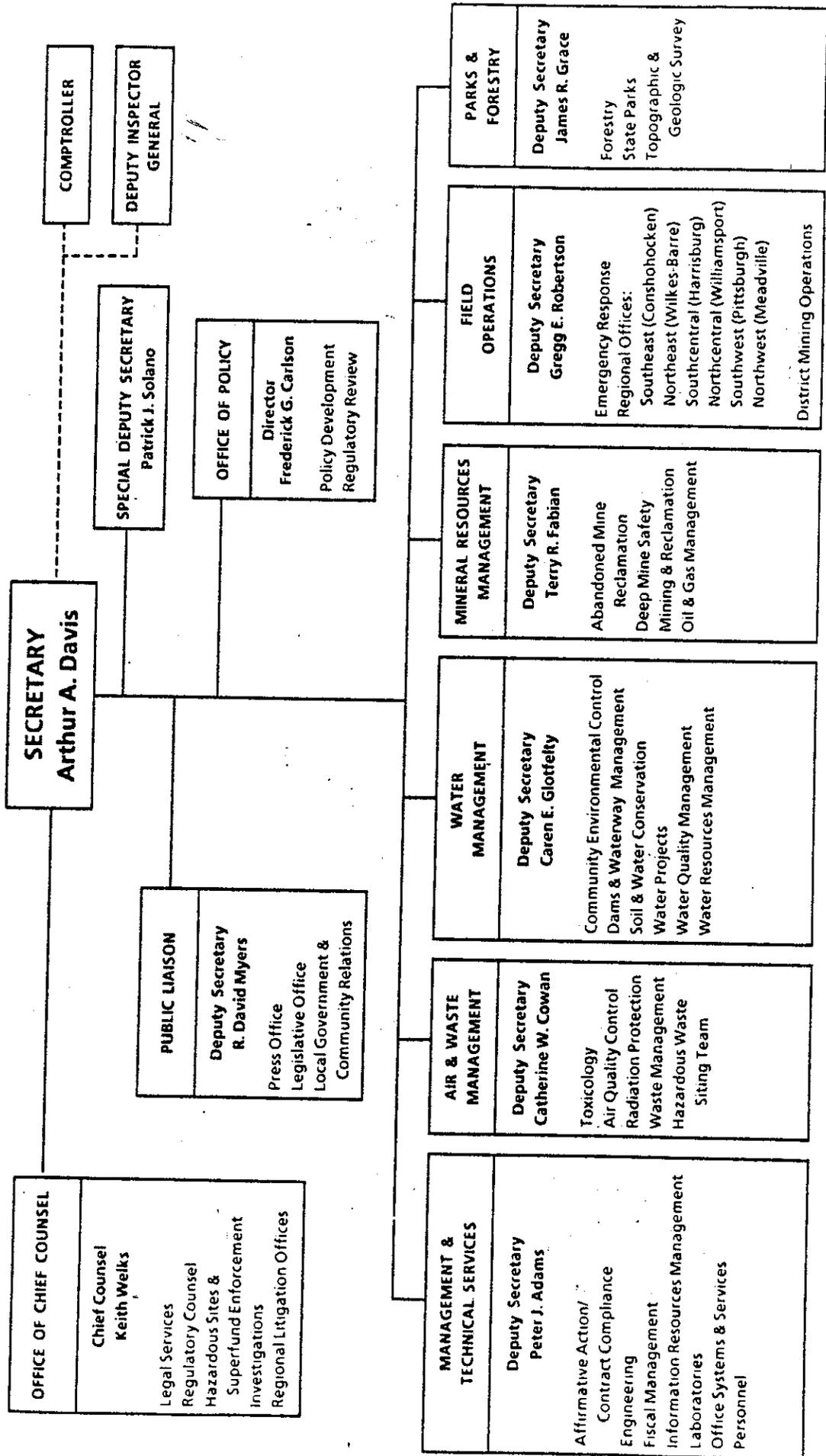
**APPENDIX B**

**ORGANIZATIONAL STRUCTURE DEPARTMENT  
OF ENVIRONMENTAL RESOURCES**





# New Organization Structure





**APPENDIX C**

**FUNCTIONAL STATEMENTS - BUREAU OF  
OIL AND GAS MANAGEMENT**



**APPENDIX C**  
**BUREAU OF OIL AND GAS MANAGEMENT**  
**FUNCTIONAL STATEMENTS**

**BUREAU DIRECTOR**

DIRECTS, THROUGH SUBORDINATE MANAGERS, THE PLANNING, DEVELOPMENT, DIRECTION, COORDINATION, IMPLEMENTATION AND EVALUATION OF STATE-WIDE OIL AND GAS DRILLING AND PLUGGING MANAGEMENT, CONSERVATION AND ENVIRONMENTAL MANAGEMENT PROGRAMS TO FACILITATE THE ENVIRONMENTALLY SAFE DEVELOPMENT AND PRODUCTION OF PENNSYLVANIA'S OIL AND GAS RESERVES IN A MANNER THAT WILL PROTECT THE COMMONWEALTH'S NATURAL RESOURCES AND THE ENVIRONMENT.

DETERMINES PENNSYLVANIA'S OIL AND GAS PRIORITIES, POLICIES, PROCEDURES, GOALS AND OBJECTIVES, AND CONDUCTS STRATEGIC PLANNING FOR THE PROGRAM.

COORDINATES PROGRAM ACTIVITIES WITH FEDERAL, STATE AND LOCAL AGENCIES, COMPANY REPRESENTATIVES AND SPECIAL INTEREST GROUPS.

**SURFACE ACTIVITIES DIVISION**

DEVELOPS REGULATIONS, POLICIES AND TECHNICAL GUIDANCE FOR ENVIRONMENTAL ACTIVITIES ASSOCIATED WITH OIL AND GAS WELLS, SUCH AS SOIL EROSION CONTROL, POLLUTION PREVENTION, SPILL CLEAN-UP AND WELL SITE RESTORATION.

COMMUNICATES WITH THE U.S. EPA ON ACTIVITIES UNDER THE DELEGATED PROGRAM FOR PERMITTING, REGULATING AND INSPECTING STREAM DISCHARGES OF OIL AND GAS WASTEWATER. THIS INCLUDES STREAM MODELING, ESTABLISHING TECHNOLOGY-BASED TREATMENT REQUIREMENTS, CONDUCTING COMPLIANCE INSPECTIONS, AND CONDUCTING OTHER RELATED REVIEWS OF FACILITY COMPLIANCE.

PLANS, DEVELOPS, COORDINATES AND EVALUATES THE BUREAU'S COMPLIANCE PROGRAMS, INCLUDING INSPECTION AND COMPLIANCE MONITORING ACTIVITIES, AND PROVIDES THE REGIONAL STAFF WITH GUIDANCE ON INSPECTION METHODS FOR UNIQUE OR NEW TECHNOLOGY AND TECHNICAL GUIDANCE ON SURFACE ACTIVITIES RELATING TO OIL AND GAS PROGRAM ACTIVITIES.

**ENFORCEMENT AND ADMINISTRATION DIVISION**

DEVELOPS REGULATIONS AND POLICIES FOR THE ENFORCEMENT PROGRAM CONDUCTED BY THE BUREAU.

PLANS, EVALUATES AND PROVIDES GUIDANCE ON THE STATEWIDE ENFORCEMENT PROGRAM CONDUCTED BY REGIONAL STAFF.

DEVELOPS, OPERATES AND MAINTAINS INFORMATION FILES AND DATA SYSTEMS. DEVELOPS SPECIALIZED REPORTS OF BUREAU ACTIVITIES THROUGH THE USE OF COMPUTER DATA BASES.

COORDINATES THE DEVELOPMENT OF BUREAU TRAINING AND BUDGETING.

COORDINATES AND RESOLVES PROBLEMS REGARDING THE BONDING PROGRAM FOR OIL AND GAS WELLS.

PLANS, EVALUATES AND PROVIDES GUIDANCE TO OIL AND GAS WELL OPERATORS AND REGIONAL STAFF ON ACTIVITIES SUCH AS ANNUAL PRODUCTION REPORTS AND WELL RECORDS

COORDINATES THE REVIEW AND ESTABLISHMENT OF GAS PRICE DETERMINATIONS IN ACCORDANCE WITH THE NATURAL GAS POLICY ACT. ACTIVITIES INCLUDE REPORTS OF REGIONAL ACTIVITIES, TRAINING OF NEW STAFF, ASSURING IMPLEMENTATION OF NEW OR CHANGED REQUIREMENTS, AND PROGRAM EVALUATION



APPENDIX D  
INSTRUCTIONS FOR COMPLETING MODULE 1  
REQUEST FOR APPROVAL TO TREAT, STORE, OR DISPOSE OF A  
HAZARDOUS OR RESIDUAL WASTE STREAM  
(Form ER-WM-14)

Important: Read all instructions *carefully* before completing module and submit only one waste stream per module.

SECTION I - GENERAL INFORMATION - self explanatory.

SECTION II - WASTE DESCRIPTION

Item A. General Properties

- #3. Describe the color and odor of the waste. (This question is subjective.) For example, gray, solvent odor. Enter number of solid or liquid phases of separation and describe each phase. For example, 2 phases of separation, one solid and one liquid.
- #4. Provide the proper U.S. DOT shipping name, UN/NA number and hazard class for the waste stream. For example, solvents, waste, n.o.s. (toluene, MEK, butanol). UN 1998, flammable.
- #8. a. Check yes if the waste stream is a hazardous waste as described in Chapter 261.
- b. If yes, describe the waste by its characteristic [Chapter 261, Subchapter C], the nonspecific or specific source lists [261.31 and 261.32], and/or the commercial chemical product or manufacturing chemical intermediate lists [261.33(e) and 261.33(f)]. List all the reasons which cause the waste to be hazardous. For example, spent pickle liquor from steel finishing operations, K062, Corrosive (D002), and Toxicity Characteristic (D007).

Item B. Chemical Analyses

These analyses and tests must be performed for all treatment and disposal activities except incineration and thermal treatment. Activities utilizing surface impoundments and waste piles for storage are also required to perform these tests and analyses. Analytical requirements for incineration and thermal treatment can be obtained by contacting the Department.

All analyses submitted must specify the method used and any special preparation, deviation from the method, or pertinent observations. A list of accepted methods is available from the Department. The Method of Standard Addition must be employed to take into account interferences in the matrix of the sample. See the current edition of EPA's *Test Methods for Evaluating Solid Waste* (SW-846) or *Standard Methods for Examination of Water and Wastewater*.

The laboratory performing the analysis must employ the quality control procedures described in EPA's *Test Methods for Evaluating Solid Waste* (SW-846). The procedures and documentation of the quality control procedures must be available for inspection if requested by the Department.

- #1. Total Analysis of the Waste - This analysis must include the following list of parameters (a-n) unless generator certifies in writing the absence of the parameters based on his knowledge of the manufacturing or pollution control processes. Additional parameters, if necessary, must analyzed to completely characterize the waste. Each analysis sheet must include; *date of sampling, date of analysis, name of laboratory performing test, and laboratory contact person and phone number*. Analytical determinations should be run on the samples as is, unless otherwise specified in the cited method. Report the analyses in mg/kg on a dry weight basis for solids or in mg/L for liquids, or as otherwise specified in cited method.

No single analytical method is applicable for all waste streams and some modifications may be necessary for unusual waste types. Any modifications, however, must be approved by the Department.

If the sample is of unknown origin or characteristics contact the Department at (717) 787-7381 prior to analysis.

- a. Solids
  - i. Total Solids
  - ii. Total Volatile Solids
  - iii. Total Dissolved Solids
- b. Free Liquids
- c. pH
- d. Cyanide
- e. Oil and Grease and/or Total Petroleum Hydrocarbons
- f. Total Organic Halogen
- g. Ammonia-Nitrogen - Liquids Only
- h. Phenolics - Liquids Only
- i. Total Metals
  - i. Arsenic
  - ii. Barium
  - iii. Cadmium
  - iv. Chromium
  - v. Lead
  - vi. Mercury
  - vii. Nickel
  - viii. Selenium
  - ix. Silver
  - x. Copper
  - xi. Zinc

j. Organics - Wastes must be tested for specific solvents, pesticides, or other organic constituents known to be used or produced as a product or byproduct in the process that generated the waste stream. For methods of analysis for specific compounds refer to EPA's *Test Methods for Evaluating Solid Waste* (SW-846), or other published procedures. Other methods or modifications may be acceptable if approved by the Department. Contact the Department at (717) 787-7381 for such approval.

Note: If the results of the Total Organic Halogen determinations in f are less than 50 mg/kg, analysis for particular halogenated organic compounds is not required, unless specified by the Department.

- k. Heating Value
- l. Ignitability
- m. Corrosivity
- n. Reactivity (Including Reactive Cyanide and Reactive Sulfide) or submit certification that waste is not reactive.

## #2. Toxicity Characteristics Determinations

To demonstrate a waste stream is or is not hazardous by toxicity characteristics, use the Toxicity Characteristic Leaching Procedure (TCLP) for parameters listed in 261.24(b) and 40 CFR 261.24(b). The analyses should be conducted on samples in the condition in which they are to be treated, stored or disposed.

The following constituents and parameters are required in the leachate analysis unless they are not present in the total analysis, or if the total analysis of the waste indicates less than the Maximum Concentration of Contaminants for the parameters listed in 261.24(b), or 100 times the EPA Interim Primary Drinking Water Standards for a given constituent or parameter, then that constituent or parameter need not be analyzed unless otherwise specified by the Department. Report all results in mg/L or as otherwise specified in methods.

- a. Extract fluid pH, report as pH units
- b. pH - in leachate, report as pH units
- c. Phenolics
- d. Total Metals
  - i. Antimony
  - ii. Arsenic
  - iii. Barium
  - iv. Cadmium
  - v. Chromium
  - vi. Hexavalent Chromium
  - vii. Lead
  - viii. Mercury
  - ix. Nickel
  - x. Selenium
  - xi. Silver
  - xii. Copper
  - xiii. Zinc
- e. Organics - for methods of analysis for specific compounds, refer to EPA's *Test Methods for Evaluating Solid Waste* (SW-846), or other published procedures. Other methods may be acceptable if approved by the Department.

Unless otherwise specified by the Department, if the value of Total Organic Carbon in #3b is less than 50 mg/L, an analysis for particular organic compounds is not required; if the value for Total Organic Halogen in #3c is less than 50 mg/L, analysis for particular halogenated organic compounds is not required.

## #3. Water Leaching Determinations

Use the extraction procedure described in ASTM Method D3987-85 for the following constituents and parameters. The analysis should be conducted on samples in the condition in which they are to be treated, stored or disposed. Report all results in mg/L or as otherwise specified in method.

- a. pH
- b. Total Organic Carbon
- c. Total Organic Halogen

- d. Ammonia - Nitrogen
- e. Oil and Grease
- f. Cyanide
- g. Chemical Oxygen Demand
- h. Solids
  - i. Total Solids
  - ii. Total Volatile Solids
  - iii. Total Dissolved Solids

#4. Description of the sampling method - The procedures outlined in 261.34(a) must be followed when sampling waste streams.

Item C. Process Description and Schematic - Please attach to this module the following:

#1. Confidentiality claim (if any) - Information submitted to the Department in this portion of the module may be claimed as confidential by the applicant. If no claim is made at the time of submission, the Department shall make the information available to the public without further notice.

Claim of confidentiality shall address the following:

- a. The portions of the information claimed to be confidential.
- b. The length of time the information is to remain confidential.
- c. The measures taken to guard undesired disclosure of the information to others.
- d. The extent the information has been disclosed to others and the precautions taken in connection with that disclosure.
- e. A copy of pertinent confidentiality determinations by EPA or any other federal agency.
- f. The nature of the substantial harm to the competitive position by disclosure of the information, the reasons it should be viewed as substantial and the relationship between the disclosure and the harm.

#2. Describe the manufacturing process which produced the waste and any pollution control methods involved. This must include the raw materials used in the process, any intermediate products formed, final products, and any substances added during treatment. For example:

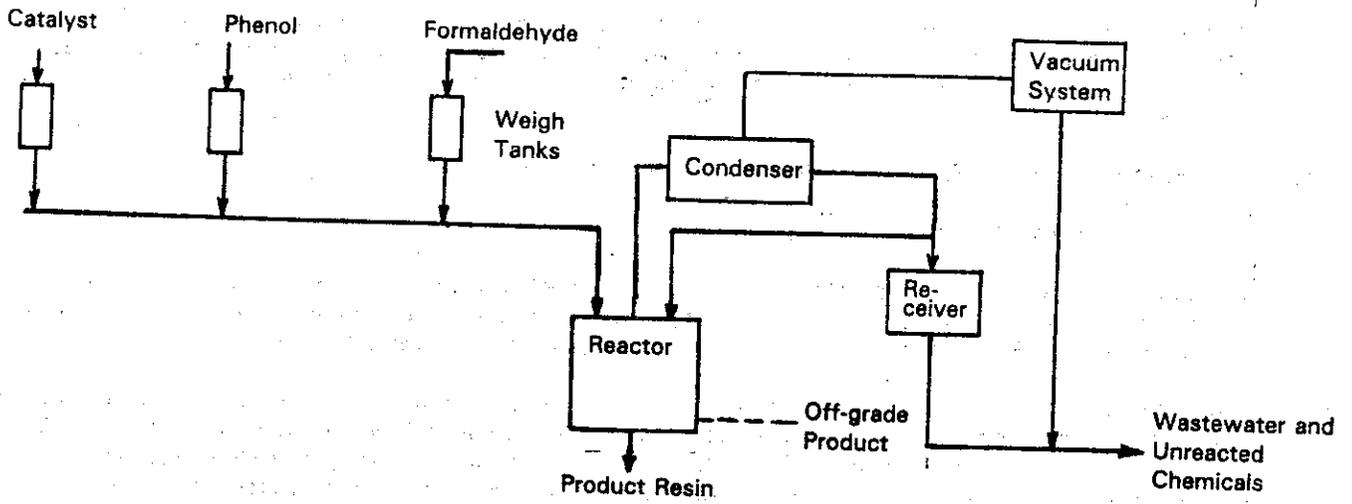
"Resol Resin Manufacture"

"These resins are formed by reacting phenol, or a substituted phenol with formaldehyde which contains an excess of formaldehyde. An alkali (sodium hydroxide) is used to catalyze the polymerization which takes place at a pH of between 8 and 11 and at a temperature of 60°C.

"When the desired degree of polymerization has occurred, the kettle is cooled to about 35°C to inhibit further reaction. The caustic may be neutralized in the kettle with sulfuric acid at this time. The water from this distillation forms a concentrated waste of unreacted materials and low molecular weight resin.

"The batch is dumped, and depending on the specific resin, the batch may be washed several times and a vacuum may be used during the dehydration cycle. It is important that molten resin be handled quickly to avoid its setting up to an insoluble, infusible mass, which would become a waste."

- #3. Provide, on 8½" x 11" size paper, flow schematics of the manufacturing and/or pollution control processes generating the hazardous or residual waste stream starting with the raw materials and ending with the final products. For example:



### SECTION III - LINER COMPATIBILITY EVALUATION

Liner compatibility testing - any facility utilizing a liner must conduct an evaluation of the liner compatibility with the waste stream before accepting that waste stream for storage, treatment or disposal in a waste pile, surface impoundment, or landfill, unless the approval to accept that waste stream is granted in the facility's permit. The evaluation procedure must be approved by the Department prior to its commencement.

The test protocol will vary with the type of liner system and the characteristics of the waste stream. The Department should be contacted for appropriate test protocols. In lieu of actual testing, existing published or documented data on the hazardous waste or waste generated from similar processes proving the liner compatibility may be substituted in some instances.

### SECTION IV - PROPOSED TREATMENT, STORAGE, OR DISPOSAL METHOD

Use additional sheets of paper if necessary.

- item A. Proposed Treatment Method - If applicable, briefly describe the method proposed to treat this waste stream. For example, "Solvent removed from waste by solvent recovery apparatus to less than 1% solvent. Recovered solvent is sold to XYZ, Inc. for reclamation. Solids are polymerized and the remaining solvent is driven off by heat."
- item B. Proposed Storage Method - If applicable, briefly describe the method proposed to store this waste stream and the compatibility with its container, the waste pile liner, or the surface impoundment liner. For example, "Paint waste is placed into 55 gal. steel drums and is proposed to be stored at the XYZ Waste Disposal Company's storage building for 60 days prior to processing. The paint waste is compatible with its container and the other wastes stored in the immediate vicinity. The proposed location for the paint waste within the building is indicated on the attached drawing."
- item C. Proposed Disposal Method - If applicable, briefly describe the method proposed to dispose of this waste stream. For example, "Polymerized solids are to be placed in a segregated cell of XYZ Waste Disposal Company with compatible wastes as indicated on the attached drawing. The cell is located at coordinates D-7. The cell design has been approved as part of the facility permit."

### SECTION V. ALTERNATIVES TO PROPOSED TREATMENT AND/OR DISPOSAL METHOD

- item A. What Other Treatment, Disposal, Recycle, Reuse, or Reclaim Method(s) Can be Used? Briefly describe viable alternatives to your proposal.
- item B. Why was the Treatment and/or Storage Disposal Method in Section III Chosen? Briefly describe why the proposed method was chosen. For example, "The proposed method offers the most cost effective means of disposal over a 10 year period. Capital investment of solvent apparatus and polymerization equipment will be off-set by income from sale of recovered solvent and smaller volumes of waste to be disposed."

### SECTION VI. CERTIFICATION OF GENERATOR

The Application Must be Certified in the Following Manner:

- #1. Corporation - A corporate officer must sign the document and the corporate seal must be affixed.
- #2. Limited partnerships - A general partner must sign the document.
- #3. All other partnerships - A partner must sign the document.
- #4. Sole proprietorships - The proprietor.
- #5. Municipal, state, or federal authority or agency - An executive officer or ranking elected official responsible for compliance of the authority's or agency's hazardous waste activities and facilities with all applicable regulations.

All signatures affixed to the document must be notarized.

### SECTION VII. CERTIFICATION OF REGISTERED PROFESSIONAL ENGINEER FOR TREATMENT, STORAGE, OR DISPOSAL FACILITY - Self-Explanatory.



DATE PREPARED
DATE REVISED

DEPARTMENT USE ONLY

II. WASTE DESCRIPTION (Must be completed by Generator)

A. General Properties

1. pH range \_\_\_\_\_ to \_\_\_\_\_ (based on past analyses or knowledge)

2. Physical state:

- |  |   |
|--|---|
| a. <input type="checkbox"/> liquid (less than 20% solids by dry wt. or flowable) | c. <input type="checkbox"/> solid (equal to or greater than 20% by dry wt. and non-flowable)    |
| b. <input type="checkbox"/> gas (ambient temperature and pressure)               | d. <input type="checkbox"/> Check here if c. above was checked and waste contains free liquids. |

3. Physical appearance:

Color \_\_\_\_\_ Odor \_\_\_\_\_

Number of solid or liquid phases of separation \_\_\_\_\_

Describe each phase of separation

4. U.S. DOT proper shipping name UN/NA number, and hazard class (if applicable):

5. Typical volume of waste to be shipped to treatment storage or disposal facility:

a. Monthly \_\_\_\_\_ gal., tons (circle one)

b. Annually \_\_\_\_\_ gal., tons (circle one)

6. Treatment or disposal frequency: \_\_\_\_\_ times per year;  one time

7. Current volume to be shipped to treatment storage or disposal facility \_\_\_\_\_ gal., tons (circle one)

8. a. Is the waste a hazardous waste defined in Chapter 261?  Yes  No

b. If yes, describe the hazardous waste according to its description and hazardous waste number in Chapter 261.

9. Has the waste been delisted as a hazardous waste by DER?  Yes  No  N/A  
If yes or N/A, check the appropriate box(es) in Item 10.

DATE PREPARED
DATE REVISED

DEPARTMENT USE ONLY

10. Is the waste a residual waste or a delisted hazardous waste?  Yes  No  
 If yes, check the following box(es) as applicable:

- |  |   |
|--|---|
| <input type="checkbox"/> discarded commercial chemical product | <input type="checkbox"/> process waste                                  |
| <input type="checkbox"/> tank bottom                           | <input type="checkbox"/> infectious waste                               |
| <input type="checkbox"/> off-specification species             | <input type="checkbox"/> baghouse dust                                  |
| <input type="checkbox"/> manufacturing chemical intermediate   | <input type="checkbox"/> wastewater treatment plan residue (industrial) |
| <input type="checkbox"/> still bottom                          | <input type="checkbox"/> wastewater treatment plant residue (sewage)    |
| <input type="checkbox"/> spent catalyst                        | <input type="checkbox"/> water treatment plant residue                  |
| <input type="checkbox"/> flyash                                | <input type="checkbox"/> incinerator residue                            |
| <input type="checkbox"/> bottom ash                            | <input type="checkbox"/> acid mine drainage treatment sludge            |
| <input type="checkbox"/> slag                                  | <input type="checkbox"/> spill residue                                  |
| <input type="checkbox"/> foundry sand                          | <input type="checkbox"/> other (specify) _____                          |
| <input type="checkbox"/> SO <sub>2</sub> scrubber sludge       |   |

**B. Chemical Analyses – Please attach the following:**

1. The results of the total analysis of the waste as described in the instructions.
2. The results of the leaching tests as described in the instructions and the leaching method.
3. A description of the sampling method.
4. The range of concentrations of the constituents based on knowledge or past analyses.

**C. Process Description and Schematic – Please attach the following:**

1. The substantiation for a confidentiality claim as described in the instructions, if portions of the information you have submitted are confidential.
2. A detailed description of the manufacturing and/or pollution control processes producing the hazardous or residual waste as specified in the instructions.
3. A schematic of the manufacturing and/or pollution control processes producing the hazardous or residual waste as specified in the instructions.

**III. Liner Compatibility Evaluation (must be completed by TSD facility)**

Attach the results of the liner compatibility evaluation or supporting data as specified in the instructions.

DATE PREPARED
DATE REVISED

DEPARTMENT USE ONLY

**IV. PROPOSED TREATMENT, STORAGE, AND/OR DISPOSAL METHOD (must be completed by TSD facility. Use additional sheets if necessary.)**

**A. Proposed Treatment Method**

**B. Proposed Storage Method and Length of Storage**

**C. Proposed Disposal Method**

**V. ALTERNATIVES TO PROPOSED TREATMENT AND/OR DISPOSAL METHOD (must be completed by generator. Use additional sheets if necessary.)**

**A. What Other Treatment, Disposal, Recycle, Reuse, or Reclamation Method(s) Can be Used? Briefly describe viable alternatives to your proposal.**

**B. Why was the Treatment and/or Disposal Method in Section IV Chosen?**

DATE PREPARED
DATE REVISED

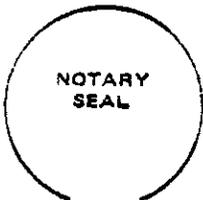
FOR DEPARTMENT USE ONLY

VI. CERTIFICATION OF GENERATOR

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Name of Responsible Official \_\_\_\_\_ Title \_\_\_\_\_  
Signature \_\_\_\_\_ Date \_\_\_\_\_

Taken, sworn and subscribed before me, this



\_\_\_\_\_ day of \_\_\_\_\_ A.D. 19 \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

VII. CERTIFICATION OF REGISTERED PROFESSIONAL ENGINEER FOR TREATMENT STORAGE AND/OR DISPOSAL FACILITY

This is to certify that I have personally reviewed all engineering information contained in the accompanying modules, drawings, specifications, and other documents which are part of this application and that I have found it to be of good engineering quality, true and correct, and is in conformance with the requirements of the Department of Environmental Resources, and it does not, to the best of my knowledge, withhold information that is pertinent to a determination of compliance with the requirements of the Department.

NOTICE: It is an offense under Pennsylvania Crimes Code to affirm a false statement in documents submitted to the Department.

Name \_\_\_\_\_  
Signature \_\_\_\_\_  
Date \_\_\_\_\_  
Address \_\_\_\_\_  
Phone No. \_\_\_\_\_

