ENVIRONMENTAL LAW INSTITUTE

PRACTICAL APPROACHES TO IMPLEMENTING ENVIRONMENTAL LAWS

Getting from Here to There

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Practical Approaches to Implementing Environmental Laws: Getting from Here to There

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The Institute's Environmental Program for Central and Eastern Europe offers assistance on drafting and implementing environmental laws and policies to government officials, representatives of non-governmental organizations, and other professionals in the region. The Program's activities include specialized consultations, roundtable discussions, working papers, study tours, information outreach, and a visiting scholars program. Funding for the Environmental Program for Central and Eastern Europe is provided by the World Environment Center, under an agreement with the U.S. Agency for International Development, the German Marshall Fund of the United States, the Andrew W. Mellon Foundation, the Rockefeller Brothers Fund, the C.S. Mott Foundation, the Soros Foundation, and the U.S. Information Agency.

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INTRODUCTION

Environmental protection is a process, not merely an objective. It does not culminate when a law is passed. Adopting an environmental law through the development of a consensus about the need for environmental regulation opens a new chapter in the environmental protection story: That chapter concerns the process by which the goals of the statute are implemented -- *i.e.*, are translated into reality. In practice, effective implementation[1] is the key to a strong and successful system of environmental controls. Without a workable implementation strategy, even the most impressive law may have few real-world effects.

The sweeping environmental protection goals often adopted in laws cannot be achieved overnight. The very fact that pollution controls are needed presupposes that the status quo, in which society is operating without such controls, has posed an unacceptable threat to the environment. Imposing environmental protection requirements on current operations will necessarily require significant adjustments in the behavior of individuals, government agencies, and industry. Both the regulated and the regulators will have to learn about the content of the new rules and develop methods of ensuring that compliance with the rules is achieved.

The foundation for all of these methods of compliance must be a strong and credible program of environmental enforcement, including the imposition of fines, shut-down of the facility, equitable and injunctive relief, and the imposition of criminal penalties for violations. Without real enforcement, environmental controls will be ignored by the regulated community, and thus no effective system of compliance will be implemented.

Even with a strong enforcement system, implementation requires essential alterations in operations that may make it difficult for the regulated community to comply immediately with environmental controls. In countries with relatively undeveloped environmental protection regimes, obstacles to immediate compliance may be especially serious. Economic constraints may preclude the purchase of costly pollution prevention or cleanup technology. Unfamiliarity with the concept of effective environmental regulation may be hard to overcome as well.

Some delays in the complete attainment of newly developed or recently strengthened environmental protection goals may be inevitable. The long-term political and practical success of an environmental protection system, however, requires that compliance problems be anticipated and addressed in a manner that will ensure progress towards full environmental compliance. Accommodation of compliance problems should be at most a temporary exception, not a permanent rule, and should be undertaken in a manner that includes clear, achievable interim goals.

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[1] The term "implementation" in this paper encompasses all steps taken to achieve compliance after a law is passed, including writing regulations, setting standards, applying standards to individual pollution sources, and enforcing the environmental laws and regulations.

In short, agencies implementing environmental protection goals must develop strong enforcement regimes that demonstrate a commitment to achieving the protection goals. But they must also be realistic and flexible when industries come forward with creative ways of achieving those goals. This combination of stringency and flexibility is vital to an effectively implemented program. This paper draws on experience in the United States and other countries to suggest some possible approaches to achieving compliance with environmental controls. None of these suggestions should be viewed as the "ideal" or "perfect" solution. Some may be more well suited to regulation of specific kinds of pollution or to other particular situations or circumstances. Often, the combination of tough enforcement, flexibility, and overall sensitivity to environmental protection goals can best be accomplished through an integration of one or more approaches.

I.
OVERVIEW OF THE REGULATORY PROCESS

Before possible approaches for facilitating the transition to an active system of environmental regulation can be explored, the regulatory process itself must be understood. At each stage of that process, opportunities exist for anticipating and addressing the combined need for tough enforcement and flexibility in attaining compliance with applicable environmental controls.

A. Establishing Environmental Protection Goals

The process of environmental regulation is set in motion by the government's determination that a particular environmental problem is serious enough to warrant correction by government action. The government's first step is usually the establishment of an environmental protection goal. In some countries, such a goal is contained in the nation's constitution, which may establish a general right to a healthy and safe environment. In others, such as the United States, overall environmental goals are set by statute. Those goals can be expressed as specific targets and/or as generalized policies.

For example, the Brazilian constitution of October 5, 1988, contains a special chapter on the environment, which is based on the fundamental right to an adequate environment, and imposes on the government duties intended to safeguard that right.[2] In the United States, the Federal Water Pollution Control (Clean Water) Act states that "it is the national

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[2] BRAZ. CONST., art. 225, para. 1. *See also* Constitutional Act Instituting the Charter of Fundamental Rights and Freedoms, Jan. 9, 1991, Czech and Slovak Federal Republic Act No. 23/1991 (establishing (1) a right to "a favorable living environment"; (2) an entitlement to "timely and complete" environmental information; and (3) a duty not to "endanger or cause damage to" the environment). Some state constitutions in the United States also contain environmental protection guarantees.

goal that the discharge of pollutants into the navigable waters be eliminated by 1985."[3] The U.S. Resource Conservation and Recovery Act (RCRA), which governs the control, treatment, and disposal of solid and hazardous waste, establishes a "national policy . . . that, wherever feasible, the generation of hazardous waste is to be reduced or eliminated as expeditiously as possible."[4] The statute or constitutional provision may also lay out interim goals to be achieved along the way. The Clean Water Act takes this approach by establishing, "wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water."[5]

These goals should be regarded as enforceable requirements to which the public and industry must adhere. For example, many countries in Latin America allow legal actions to enforce constitutional rights, including environmental rights. Even if more specific compliance standards are developed pursuant to these goals, government should retain the ability to bring an enforcement action pursuant to the generalized goals.

B. Developing an Implementation Strategy

Once environmental protection goals have been established, decisionmakers must develop a strategy for implementing and enforcing those goals. To do this, decisionmakers must consider a wide range of issues. *First*, the overall objectives of a country's system of environmental regulation are relevant to the selection of an implementation and enforcement strategy. These objectives will likely vary depending on the nature and severity of the environmental problems facing the nation.

Second, implementation of environmental laws may require consideration of institutional factors. For example, decisionmakers will need to determine whether particular environmental problems are best addressed on a national, regional, or local level. And at each level of government, policymakers implementing new or restructured environmental protection systems must allocate the authority, responsibility, and resources for promulgating, administering, and enforcing the new requirements.

These decisions will often be influenced by existing resource constraints. For example, it would make little sense to create a regulatory program that required frequent inspections of numerous factories in a country where the number of available qualified

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[3] Clean Water Act §§ 101(a)(1), 33 U.S.C. §§ 1251(a)(1).

[4] RCRA § 1003(b), 42 U.S.C. § 6902(b).

[5] 33 U.S.C. § 1251(a)(2). The statute set July of 1983 as the deadline for achieving this goal. Information about water quality conditions in the United States has not been collected and analyzed systematically; however, in the judgment of state water quality officials, the majority of U.S. surface waters were maintained at or above this "fishable/swimmable" level in 1984. *See* CONSERVATION FOUNDATION, THE STATE OF THE ENVIRONMENT: A VIEW TOWARD THE NINETIES 88-89 (1987).

inspectors is limited, unless there is a parallel increase in the number of qualified inspectors. Not only the lack of existing resources, but their availability can influence regulatory choices. In the state of Pennsylvania, recent legislative proposals for a nutrient management program assigned many review and inspection functions to local land and water conservation districts, rather than to the state environmental agency, in recognition of those districts' grassroots nature and superior presence in the agricultural community.

Third, implementation and enforcement priorities may need to be set, due to limitations on the time and resources available to achieve environmental protection goals. Policymakers may need to concentrate on certain forms of pollution, certain categories of polluters, and/or certain methods of regulation. This process of priority-setting is particularly critical in the environmental arena because ecological causes and effects are so closely connected. Increasing controls on the discharge of pollutants into the water, for example, may simply prompt regulated entities to convert those substances into other forms that can be emitted into the air or deposited on land. On the other hand, the synergistic nature of the causes of environmental problems means that process changes designed to control pollution in one environmental medium can sometimes produce environmental benefits in other areas as well.

Ideally, these and other factors relevant to implementing environmental protection goals will be taken into account at an early stage in the process of setting up or restructuring the regulatory regime. Airing these issues when the relevant legal controls are being designed will promote the effectiveness of the system by ensuring that fundamental legislative, regulatory, and institutional choices are designed, wherever possible, to accommodate relevant policy concerns.

Early consideration by policymakers of implementation issues will also offer various constituencies the opportunity to express competing views and to highlight potential problems, so that the policy choices incorporated into the statutes and regulations are informed ones. And full discussion of the factors relevant to implementation and enforcement will ensure that the regulators, the regulated entities, and the public at large are not taken by surprise by the practical effects of the environmental protection provisions. If environmental control mechanisms are adopted without a full understanding of their potential social, economic, and political consequences, they may be too hastily abandoned when those consequences come to light.

C. Setting Regulatory Standards

Although statutory or constitutional goals may be directly enforceable, often the real-world meaning of such goals may not be immediately apparent in all contexts. A statutory goal of eliminating all discharges of pollutants into a nation's surface water by a specified target date, for example, must be interpreted and clarified on several levels before the operator of a factory will know what compliance with the statute will mean to the day-to-day operations of its plant. Among other things, the term "pollutant" must be defined, so that

the factory-owner can ascertain whether any substances discharged during the factory's operations are covered by the statute. Interim steps towards attaining the ultimate zero-discharge goal should also be spelled out in the form of specific requirements applicable to each factory or to groups of similar factories. The government could enforce the general goal directly against a polluter. However, developing clearer, more specific standards will greatly increase the polluter's understanding of what it must do to achieve the goal, and will enhance the state's ability to identify and prove violations.

While standards can be established by the legislature in a statute, the task of setting standards is usually delegated to a government agency. The agency may set the standard in a generalized rule that will apply to categories of similar facilities, or it may issue guidelines that will be used to direct its staff how to develop and apply the standards to individual facilities on a case-by-case basis (usually through a permitting process).

The standards can take a variety of forms. For example, they can be established based on how much pollution is in the receiving environment ("ambient standards"), how much pollution is being released from the factory into the environment ("emission standards"), or what equipment is used to prevent or treat the pollution ("design standards").[6] These various methods of regulation are not mutually exclusive. In fact, in order to attain the maximum level of environmental protection, and to protect against localized environmental harm, regulators often require industrial facilities to satisfy more than one form of environmental standard.

Design Standards. Standards can consist of prescribed technologies to be used in particular industrial operations. For instance, all factories of a certain size could be required to install scrubbers on their smokestacks, or all landfill operators could be instructed to use plastic liners meeting specified design and installation criteria. Such regulatory prescriptions are referred to as "design standards." The advantage of design standards is that they are predictable. They provide the regulated community with certainty about what pollution control requirements apply to them. They are also relatively easy for the government to administer and enforce: Either a factory has installed the prescribed equipment, or it has not. For these reasons, design standards can be very effective when reliable compliance monitoring is not available. However, design standards do not leave much flexibility to factories in meeting the standard. They thus may discourage some pollution prevention efforts and improvements in pollution control technology. In addition, if they are not set properly, they may not achieve the desired levels of environmental quality.

Ambient Standards. Standards can also be expressed in terms of a desired level of environmental quality of the ambient air, water, *etc.* The regulated entity must then ensure that its discharges do not cause pollution in the ambient environment to exceed the

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[6] These categories are merely descriptive of the various processes through which standards are set. Some standards may reflect a combination of these categories. The U.S. traditionally uses a slightly different classification of these various approaches to standard-setting.

established levels.[7] For example, an environmental agency can establish that no receiving waters should have mercury level concentrations above 2 micrograms per litre (ug/l). If a factory is discharging mercury into a stream, it must ensure that its discharge will not result in the stream's mercury level exceeding 2 ug/l.

The advantage of ambient standards is that they relate directly to the environment to be protected. However, ambient standards are very hard -- if not impossible -- to comply with and enforce. It is difficult for a regulated entity to determine what level of discharge is required to meet the standard. For example, in the situation described above, a neighboring factory's mercury discharge will likely affect the level of mercury the first factory can discharge without violating the ambient level in the stream. Yet this effect will be extremely difficult to calculate. Similarly, it is extremely difficult for an enforcing agency to prove that a particular factory has caused a violation of an ambient standard. For example, if the stream's mercury level exceeds 2 ug/l, how can the environmental agency prove that the first factory caused the violation? It could have been the fault of the second factory, it could have been the combined fault of both factories, it could have been caused by another factory upstream, or it could have been caused by someone dumping mercury directly into the stream -- there is no sure way to prove any of these scenarios.

For these and other reasons, ambient standards are always used in the United States in combination with more specific design or emission standards. Ambient standards are often used in determining design and emission standards. In addition, if design or emission standards are not sufficient to keep an individual emission -- or group of emissions -- from violating the ambient standard, stricter limits will be imposed that will ensure that the ambient standard is not violated. This combination of standards helps to ensure both that the ambient environment is not excessively polluted and that a predictable and enforceable standard can apply to each regulated entity.

Emission Standards. Standards are often expressed in terms of what pollutants may be released into the environment by a particular source. These standards measure the amount of pollution permissible at the "end of the pipe" -- *i.e.,* at the point when the pollutants are discharged by the source into the environment. Emission (or discharge) standards make compliance and enforcement much more straightforward than do ambient standards because they identify a clear point where the level of pollution can be measured and dictate exact performance expectations for the regulated entity. However, determining what level of emission standard is appropriate is difficult, because emission standards do not directly correspond to the quality of the receiving environment. Emission standards are linked to environmental quality either by extrapolating ambient standards into "end of the pipe" requirements, or by identifying technology that will achieve desired quality levels and basing the standard on the emissions that technology will produce.

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[7] These ambient standards can be based on the quality of the environment, on public health needs, or -- as is often the case -- on a combination of the two.

Emission standards can be derived from ambient standards.[8] Through modeling techniques, regulators can calculate the "pollution load" contributed to the ambient air or water quality level in a particular area. The regulators then can allocate the pollution load to the sources contributing to the pollution in the area, so that their combined discharges do not violate the ambient standards.[9] This process, however, is extremely complicated. Even when the requisite scientific expertise and measuring equipment are available, uncertainties relating to the interaction of pollutants with the environment cast doubt on the accuracy and reliability of such modeling techniques. Thus, it is very difficult to develop an emission standard that can be scientifically linked to an ambient quality goal. Nevertheless, emission standards need not be set at such scientifically accurate levels. In most cases, emission standards can be set at levels that are merely estimated to prevent undesired ambient pollution levels.

Emission standards can also target the level of pollution produced through the use of a certain type of pollution prevention or control technology.[10] For example, the government entity setting the standards may direct that permissible emission rates for factories engaged in a certain industry be based on the amount of pollution those factories would produce if generally available pollution control technology were employed. A stricter standard might presume the use of the "best available" technology.[11] The standard could even force additional technological advancement by directing that emission levels at a specified future date be reduced *below* the levels that would be reached by the use of the best techniques and equipment currently available.[12] In contrast to design standards, which operate by prescribing specific forms of technology, these "technology-based" standards consider particular technological methods only in setting maximum emission rates: Dischargers are free to use any method available to keep their pollution output within those limitations.

Both ambient and emission standards are sometimes referred to as "performance standards," because they judge a facility by what pollution results from its activities, rather than on how its pollution prevention and treatment equipment is designed. These

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[8] This can be done in regulations or -- more commonly -- through permits for individual facilities.

[9] Some portion of the pollution load can be reserved (*i.e.*, not allocated to any existing source) to accommodate future sources that may be added in the area.

[10] Again, these standards are either set in regulations or through individual permits.

[11] For an analysis of this method of standard-setting, *see* ENVIRONMENTAL L. INST., SETTING STANDARDS: THE "BEST AVAILABLE TECHNOLOGY" OPTION (ELI Working Paper, Jan. 1991).

[12] Courts in the United States have held that unless a statute specifically identifies technological feasibility as a factor to be taken into account in standard-setting, technological impossibility will not excuse non-compliance with environmental quality standards. *See* Commonwealth v. Pennsylvania Power Co., 490 Pa. 399, 411, 416 A.2d 995, 1001 (1980).

performance standards encourage innovation in pollution prevention and control techniques. Because a regulated entity is theoretically free to attain applicable emission rates in any manner, performance standards provide an incentive for members of the regulated community to reduce their emissions and to develop more efficient and cost-effective pollution control devices. However, performance standards can be more costly for the government to implement than design standards, because allowable standards must be calculated for various regulated entities and receiving environments. In addition, by closely tying a standard to the level of emissions a certain technology can produce, many performance standards in effect dictate the use of a particular technology. For example, standards set under the U.S. Clean Air Act for sulfur dioxide effectively required large new coal-burning electric power plants to employ gas-stack scrubbers. Finally, performance-based standards cannot be used in every circumstance. For example, when a building is demolished, the contractor cannot measure emissions of asbestos dust at the demolition site. In this instance, design standards are needed to dictate how the contractor will control the dust at the site.

These various approaches to standard-setting -- prescribing technologies or employing quality-based or technology-based performance standards -- can supplement each other to produce the desired goals and to respond to particular circumstances and constraints. In the United States, pollution sources are often required to comply with one or more sets of environmental controls. In addition to meeting technology-based emission limitations, for example, facilities discharging pollutants into U.S. surface waters must meet ambient water quality requirements as well. A factory on a highly polluted river may satisfy applicable technology-based standards, but to the extent that the pollutants authorized to be discharged in compliance with those standards would impair water quality in the river below acceptable levels, those discharges will be prohibited. Similarly, certain minimum technology-based standards are set in the United States for certain types of pollution, regardless of the ambient standards applicable to the receiving environment. By requiring in this manner that all facilities practice certain minimum pollution control practices, the government can ensure both that all similar industries are competing equally, and that clean environments are not unnecessarily degraded. Combining different kinds of standards in this manner can help to minimize the danger of environmental harm.

D. Reinforcing Standards with Economic Mechanisms

Yet another tool for achieving environmental protection objectives relies on economic instruments to regulate behavior directly. This method can be used in conjunction with, but generally not in lieu of, the standard-setting processes described above. The theory of an economic incentive system is to provide the polluter with a financial incentive to reduce pollution rather than enforcing a set level of discharge for an individual polluter. These incentives are intended to ensure that pollution reduction is undertaken out of financial self-interest. One example of such an incentive program is the deposit payment system, which focuses on consumers (rather than producers) of waste products. This system encourages recycling of materials by including in a product's purchase price a tax that will be refunded

to the purchaser when the product -- or the container in which it is packaged -- is returned for recycling or reuse. Another pure economic mechanism is the emissions tax. Pollutant discharges are taxed on the basis of their volume, thus encouraging sources to reduce their pollution output to the point at which the cost of further reductions is higher than that of paying the tax.[13]

Although many of these systems seem very simple and cost-effective on paper, they are often very difficult -- if not impossible -- to implement effectively and efficiently. For example, the effectiveness of many emission tax mechanisms depends on the ability of the regulator to set taxes or deposit payments at a level calculated to deter the polluting activity. This level is difficult to calculate even with a stable economy. In addition, most economic incentive systems still require an underlying environmental regulatory system with strict monitoring and enforcement. In the United States, most economic incentive systems are still experimental, in spite of over a decade of work in developing them.[14]

E. Applying Standards to Individual Pollution Sources

Once policymakers have selected from among the regulatory tools available for effectuating statutory goals, the chosen regulatory mechanisms must be applied to govern the behavior of individual polluters. In the case of the purely economic mechanisms discussed above, the government will have to calculate the tax rate or other payment level that will reduce polluting behavior by the appropriate amount.[15] Once these rates have been determined, their application to individual polluters may be relatively simple, because tax rates or deposit payments are likely to apply on a similar basis to large categories of polluters. However, as experience in implementing such systems in the United States has demonstrated, the process of administering and enforcing a tax or deposit system -- including the collection of payments and the prevention of fraud -- may be very costly.

If "command and control" mechanisms (*i.e.*, regulations dictating permissible pollution outputs for particular sources) are employed instead of, or in conjunction with, economic mechanisms, standards must be applied source-by-source. For example, if the regulatory

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[13] Although these economic instruments are designed to achieve environmental protection objectives directly, other economic instruments, such as emissions trading, are created with the objective of increasing the economic efficiency of the regulatory system by decreasing the cost to industry of compliance. This latter category of economic instruments can produce indirect environmental benefits as well, because industry possesses an incentive to develop new methods of environmental compliance.

[14] For further information about the feasibility of economic incentives for achieving compliance, *see* ENVIRONMENTAL L. INST., ENVIRONMENTAL REGULATIONS VS. ECONOMIC INCENTIVES: A QUESTION OF CONTEXT (ELI Working Paper, forthcoming, 1993).

[15] As noted above, arriving at the appropriate level will not be easy. A fee that is set too low will not change behavior in the desired manner, while an overly high fee might prompt industry to over-correct for its polluting behavior by ceasing its activity entirely.

authorities have decided to require all sources discharging pollutants directly into surface waters to achieve emission levels equivalent to those that would result if the "best available technology" were employed, an individual factory must be informed of the nature of the discharge it will be allowed to emit into a neighboring river.

One of the most practical -- and effective -- mechanisms for establishing the exact limitations on a pollution source's discharge, the methods by which the source will achieve this level of discharge, and a timetable for implementing those methods is the permitting process. In order to receive authorization to operate, a pollution source can be required to apply for a permit from the appropriate regulatory authorities. The permitting process serves as the vehicle for translating environmental protection goals, as expressed in statutes, regulations, and standards, into terms specific to the operations of an individual pollution source.

The permitting process offers many valuable opportunities, including:

- Reviewing the entire operations of polluting industries;
- Tailoring compliance methods to the resources and capabilities of individual factories;
- Ensuring that steady progress is made towards compliance goals;
- Facilitating the supervision of the compliance process; and
- Streamlining later enforcement efforts.

In addition, permitting enables the government to control pollution prospectively rather than remediate environmental damage after it has been inflicted: A new factory will not be able to commence operations unless it can demonstrate compliance. This permitting process is explained in more detail in section II.B below.

F. Enforcing Applicable Regulatory Requirements

Once standards are set and, if a permitting system is used, permit terms and conditions are established, it will be possible to determine when individual polluters have violated these regulatory requirements. The government must vigorously enforce the environmental controls it has imposed. This enforcement will achieve many goals, including: (1) punishing individual violators; (2) recovering the economic benefit to the violators; (3) recovering the costs to society resulting from the violations, and (4) deterring future non-compliance. Possible enforcement options include:

- Suspending or revoking a facility's permit (*i.e.*, shut-down of the violating facility);

- Imposing administrative or civil fines;
- Imposing non-monetary penalties, such as disqualification from eligibility for any government contracts;
- Requiring the facility to take specific actions (*e.g.*, install pollution control equipment), or refrain from taking specific actions (*e.g.*, discharge any chemicals); and
- Imposing criminal penalties, including punishment of corporate officers responsible for the violations.

The threat of an enforcement action may also encourage polluters to attempt to negotiate settlement agreements with the government, in which the violators may undertake to achieve compliance within a certain time period. Negotiation of a consent order enables the government to impose special conditions, including additional requirements not necessarily specified by law, designed to guarantee compliance by the regulated entity.[16]

Although enforcement occurs at the end of the process of implementation, the power of a strong enforcement program to stimulate compliance is essential to the effectiveness of that process. It is the threat of strong, consistent enforcement that spurs the implementation of all other aspects of the environmental protection program.[17]

II.
ALTERNATIVE APPROACHES TO ACHIEVING STRONG BUT FLEXIBLE ENFORCEMENT

The only way to ensure that an environmental law is effective is to establish and carry out a strong enforcement regime. Even if there are good indicators that industry may not be able to comply immediately, strong enforcement practices must not be delayed. However, in order to accommodate industry's need to develop compliance ability over time, flexibility must be incorporated into the enforcement structure. This flexibility does not mean delayed or relaxed enforcement. Rather, it means *strong* enforcement of *realistic* expectations of industry performance. Outlined below are some of the options available for incorporating flexibility into the enforcement structure.

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[16] Possible uses of enforcement mechanisms to facilitate compliance are discussed further at pp. 24-25 *infra*.

[17] For more information about enforcement, *see* U.S. EPA OFFICE OF ENFORCEMENT, PRINCIPLES OF ENVIRONMENTAL ENFORCEMENT (February 1992).

A. Phase-in of Environmental Controls by Statute or Regulation

An environmental protection system can build flexibility into the regulatory system at its earliest stage -- that of establishing general rules of conduct by statute or regulation. In such a system, the applicable environmental statute and/or the regulations issued under the statute would set an overall goal and would direct the method by which the goal could be phased in. Phase-in could occur over time. Alternatively, or additionally, phase-in could be achieved by applying standards of differing stringency to certain categories of polluters. Through this method, flexibility is achieved through the regulatory system; these regulatory requirements are then achieved through a strict enforcement program.

1. Phase-in over Time.

A statute itself can prescribe an applicable phase-in process and schedule. The statute could establish standards that would become periodically more stringent at prescribed intervals. For example, ambient air quality in particular regions could be required to reach a specific, increased level of improvement every several years. Alternatively, the statute could require that performance standards be toughened over time. Or the statute could combine these approaches by setting a minimum air or water quality level and overlaying that baseline requirement with a set of gradually more restrictive performance standards.[18]

The U.S. Clean Water Act provides an example of a statutory phase-in scheme. Provisions added to the Clean Water Act in 1972 (as amended) called for entities that discharge toxic waste directly into navigable waters to comply with the "best practicable control technology" currently available (BPT) by July 1, 1977, and to meet a more stringent discharge standard consistent with the "best available technology economically achievable" (BAT) by March 31, 1989. Most major industries in the United States met the national goal of achieving BPT standards between 1972 and 1977, and most have achieved the BAT standards since then.[19]

Rather than setting a phase-in schedule by statute, the legislature could authorize or direct the administrative agency charged with implementing and enforcing the statute to establish such a schedule by regulation. The statute could instruct or allow the agency to publish one regulation setting forth a long-term schedule of phased-in standards. Or the statute could authorize or require the agency to reissue its regulations periodically and to escalate the applicable standards with each revision. As in the case of a statutory system,

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[18] A program of tradeable emissions permits is a mechanism that may allow industry to self-select a phase-in schedule. Under such a system, industries can buy rights to additional emissions from other similar industries whose emissions are below the established limits.

[19] In addition to meeting these technology-based standards, facilities covered by the Clean Water Act must also comply with water quality requirements imposed by the states in which they are located. *See supra* p. 8.

the phase-in mechanisms themselves could take a variety of forms, which can be combined to achieve the highest possible level of compliance.

2. Varying Standards among Regulated Entities.

The statute or regulations could also guarantee some flexibility in the application of environmental controls by establishing different substantive requirements, or different compliance timetables, for existing and new facilities. The regulators may assume that compliance will be most difficult and expensive for industries that are already in operation, which will have to adapt existing methods and old machinery to meet new pollution reduction standards. Therefore, it may be appropriate to offer a more lenient compliance schedule in the case of preexisting entities.[20] In the state of Pennsylvania, for example, recent regulations governing the operations of solid waste processing, storage, and disposal facilities offer existing permit-holders an additional two-year period in which to obtain a modified permit from the government that meets the regulatory requirements.[21] And in the former Czech and Slovak Federal Republic (CSFR), existing sources of air pollution were given seven years in which to comply with emission limitations established under that country's Clean Air Act.[22]

Another way to phase in requirements is to link the phase-in schedule to the existence of the environmental condition that the requirements seek to prevent. For example, in Pennsylvania, the filtration requirement for drinking water supplies using surface water sources is based on the need to prevent sickness caused by certain surface-water-borne cysts. For systems that had already been shown to contain such cysts prior to the effective date of the requirement, an early implementation date was set. Systems in which the cysts first appeared after the effective date of the requirement had to provide filtration by a somewhat later date. Finally, all surface water systems, regardless of evidence of cysts in the supply, were required to meet the filtration requirement by a final, outside deadline.

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[20] Imposing more stringent requirements on new facilities than on existing facilities may create a risk of deterring investment in new plants. Because newer plants may also be cleaner plants, it has been argued that this type of differential regulation discourages environmental improvement. *See* Dudek, Stewart & Wiener, *Environmental Policy for Eastern Europe: Technology-Based Versus Market-Based Approaches*, 17 COLUM. J. ENVTL. L. 1, 13-14 (1992). However, even taking into account the cost of complying with tougher environmental regulations, establishing new facilities may still be more economically efficient than retrofitting old ones. Moreover, to the extent that differing levels of environmental regulation do run the risk of discouraging the development of new facilities, this effect could be offset by providing financial benefits, such as tax advantages or government procurement preferences, to new environmentally efficient industries.

[21] 25 PA. CODE §§ 287.111-287.118 (1992).

[22] An initial five-year phase-in period for existing sources, *see* Clean Air Act, July 9, 1991, CSFR Act No. 309/1991, § 14(3), was later increased to seven years. *See* Act Which Changes and Supplements Law No. 309/1991 on the Protection of Air Against Pollutants (the Clean Air Act), April 27, 1992, § 10. It is anticipated that this federal CSFR air act will be adopted by the parliaments of the new Czech Republic and Slovakia.

3. Advantages, Drawbacks, and Other Considerations.

These statutory or regulatory phase-in mechanisms are valuable because they are instituted at an early stage in the process of environmental regulation. Their incorporation into the process ensures that the possibility of non-compliance has been accommodated in the overall design of the environmental controls, and may contribute to the legitimacy of the regulatory system.

However, statutory or regulatory phase-in schedules will not automatically give regulated entities the flexibility they may require to attain compliance. For example, if eventual achievement of an applicable emission standard will require the installation of a certain level of equipment, but a factory cannot afford to install the equipment, gradually increasing the standard over time may not assist the noncomplying factory. It can either afford the necessary technology or it cannot; it will not be able to achieve a lower interim standard by installing only part of the requisite machinery.

In addition, enactment of generalized phase-in schedules does not ensure that regulated entities will make any progress towards compliance during the interim period before the more stringent standard becomes effective.[23] Instead, the regulated entities may take none or few of the actions necessary to work towards compliance, and then assert economic hardship or a similar excuse when the phase-in period is over. Moreover, limited government resources will often preclude close monitoring of industry's progress towards attaining phase-in goals. Industry may thus remain, in effect, unregulated during a generalized phase-in period. In order to achieve sufficient flexibility without forfeiting ultimate environmental protection goals, it may be necessary to implement a further level of regulation that is more responsive to individual circumstances, and in which source-specific progress towards compliance can be monitored and interim goals enforced.

B. Strong but Flexible Enforcement through the Permitting Process

The process of translating generalized environmental standards into mechanisms that affect the behavior of individual pollution sources also offers opportunities for flexible but strong environmental enforcement. Perhaps the most significant opportunity for this is through the permitting process. This system achieves flexibility by allowing specific conditions -- both applicable limitations and methods of compliance -- to be tailored to the circumstances of individual permit-holders.

In a functioning permit system, a regulated party will be unable to operate without obtaining and complying with a permit issued by the government for a limited period. The permit specifies the exact emission limitations and/or other regulatory controls that apply to a pollution source's operations. For example, a permit can prohibit a source from

[23] This potential drawback is more likely the longer the period during which the less stringent standard is in effect.

discharging certain substances, can prescribe acceptable discharge levels for other substances, and can make discharge contingent on the attainment of specified ambient quality levels in the surrounding air or water. At the expiration of the permit term, the permit-holder will be able to renew the permit only if it can demonstrate that it has complied and will fully comply with both the new and the original permit terms, as well as that it is in compliance with all environmental laws at all its facilities. A strong permitting system can promote consistent enforcement of statutory and regulatory requirements, while allowing flexibility through determining the unique permit conditions of each permit holder.[24]

1. The Permit Application.

Once a regulatory system has been established that requires polluters to obtain a permit for their operations, the enforcing agency can require the polluting industries to submit applications for permits.[25] If a polluting facility does not submit an application, the regulatory agency can institute a full enforcement proceeding for violation of: (1) the statutory goals; (2) the regulatory standards; and/or (3) the requirement to submit an application. This threat of enforcement (or actual enforcement, if necessary) will provide the often-needed incentive for industry to take the laws seriously and submit a permit application.

In the permit application, the regulatory agency can require the applicant to submit comprehensive information about its operations, organizational structure, and financial resources. This information -- which the agency might otherwise have to gather itself at substantial cost -- can be very useful to the government, both in determining the necessary permit conditions and also later in enforcing those conditions. Knowledge of production methods and systems can help a regulatory agency to tailor permit terms and conditions to achieve the maximum possible degree of compliance; information about the organizational structure and ownership of a permit applicant can assist in targeting any future enforcement efforts and in calculating penalty assessments for permit violations. The process thus allows some of the burden posed by environmental regulation to be shifted to the private sector.

In the permit application, the applicant must also propose the exact methods by which it will attain compliance with the applicable requirements. It is best if these methods are developed and proposed by the applicant, rather than by the enforcing agency, for two

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[24] Appendix A contains sample permits.

[25] The environmental agency can institute additional phase-in allowances here by establishing different deadlines for filing a permit application for different types of facilities.

reasons.[26] First, an applicant should know its industrial processes and waste streams better than anyone else. Thus, the applicant should be in the best position to identify the most efficient way of achieving compliance.

Second, if the applicant submits a method and schedule of compliance that it certifies can be achieved, and then does not adhere to the schedule, the enforcing agency can more easily institute enforcement proceedings. If, on the other hand, the agency had developed the methods and schedule of compliance, the permit applicant could challenge any subsequent enforcement proceeding on the grounds that the original method and schedule for compliance were unrealistic.[27]

2. Pollution Prevention: Creative Methods of Achieving Compliance.

The permit application process should enable and encourage applicants to take a broad approach to achieving compliance standards. In applying for a permit, the operator of an industrial facility may review the applicable discharge standards and conclude that the facility's present technical capability is insufficient to allow treatment of its waste stream to the required levels. However, the facility operator may still be able to achieve the discharge standards (or come closer to complying with them) by reviewing the facility's entire production process to identify potential reductions in waste. If the point of discharge alone is considered in permitting and standard-setting, compliance methods may be limited to treatment technologies and other "end-of-pipe" processes. But if a facility's entire range of operations can be modified in order to attain environmental compliance, changes earlier in the process can be considered. This not only grants the regulated industry the ability to integrate pollution control techniques with other overall operational plans, but can also lower compliance costs.

In some instances, a relatively minor adjustment to production techniques may reduce pollution output more efficiently than would the installation of sophisticated and expensive end-of-pipe technologies. For example, a facility may be able to prevent or reduce sulphur dioxide (SO_2) emissions by employing low-sulphur fuel in its operations, rather than installing a costly scrubber in its smokestack.[28] Or a factory may discover in the course of

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[26] The agency can provide the applicant with guidance on determining the best possible method of compliance (*e.g.*, examples of technology that would satisfy requirements, operations and maintenance ideas that would reduce pollution). The agency could also hold a pre-application conference for similar facilities where different methods of compliance are discussed.

[27] Appendix B contains sample permit applications.

[28] One U.S. pharmaceutical plant developed a water-based medicine tablet coating to replace a solvent-based coating. The change cost $60,000 to implement, but it eliminated the need for $180,000 in pollution control equipment and netted long-term savings in the cost of raw materials. This same company has calculated that similar process modifications, raw material substitutions, equipment redesigns, and other operational changes it has implemented worldwide since 1975 have prevented over 575,000 tons of pollution, at a total savings to the

designing an environmental compliance program that a production process used to manufacture only a small segment of its output is creating a disproportionate amount of pollution. The factory may conclude that it is cheaper and more sensible to eliminate that component of its operations than to treat the resulting pollution after the fact. Requiring consideration of such front-end pollution prevention options, particularly through an effectively managed permit system, can benefit both industry and the environment.[29]

3. The Compliance Schedule: Enforcing Gradual Achievement of Compliance.

Even with a thorough review of potential pollution prevention and treatment activities, a factory may not immediately be able to achieve compliance goals due to legitimate financial and/or technical reasons. This does not mean that the enforcing agency should "look the other way" and not enforce the statute against the factory. Instead, the agency should require the factory, through the permit application process, to propose a precise schedule of actions the factory will take in order to come into eventual compliance.

For example, if the permit applicant operates a factory that is subject to a limitation on SO_2 emissions, its permit application may set forth the operational and technological changes it will undertake to reduce those emissions to allowable levels. The applicant may promise to substitute low-sulphur fuel for current fuel supplies and to install a scrubber on its smokestack. The compliance schedule can specify exact dates by which interim steps towards these two goals will be accomplished. For example, the schedule can establish dates by which: (1) the new fuel supplier will be identified; (2) the new fuel will be ordered; (3) the new fuel will be used in the factory; (4) the scrubber will be identified; (5) the scrubber will be ordered; (6) installation of the scrubber will begin; (7) testing of the newly installed scrubber will begin; and (8) the new scrubber will be fully operational.[30]

With these interim dates established through the permit, the enforcing agency can monitor the factory to ensure that steps are being taken towards full compliance. Rather

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company of more than $530 million. *See* WORLD RESOURCES INST., BEYOND COMPLIANCE: A NEW INDUSTRY VIEW OF THE ENVIRONMENT 14 (B. Smart ed. 1992).

[29] This pollution prevention review can be required by statute or regulation by regulating the pollution source -- *i.e.*, the entire operation or plant -- rather than the discharge alone. Alternatively, even if the standard purports to regulate only the discharge, application of the standard can be based on a consideration of an industry's entire operations. For example, in arriving at a "best available technology" emission level, the regulating agency can consider technological options available at all stages of the production process. The legislative history of the Clean Water Act makes it clear that, in setting BAT emission rates under that statute, the agency should consider "the total plant" and not just "the control technique used at the actual discharge of the point source." H.R. Rep. No. 92-911, 92d Cong., 2d Sess., 102-03 (1972).

[30] Appendix C contains sample compliance schedules. An alternative to modifying the legal compliance date through a permit schedule is the execution of a binding legal document (a consent order and agreement or its equivalent) that preserves the original legal obligation and commits the agency to a particular course of enforcement responses in exchange for steps by the permit-holder towards compliance.

than waiting for the final compliance deadline to punish a failure to implement a pollution control measure, the agency can institute enforcement proceedings if the factory fails to meet any of the interim steps. In this way, the agency can maintain a strong enforcement program, spurring industry along its way towards compliance, without being placed in the often difficult position of having to enforce final compliance goals against an industry that is not able to comply. Industry will be given the flexibility -- within the enforcement structure -- to take the steps needed to phase into compliance.

4. Documenting Compliance.

When a permit applicant submits its proposed method and schedule for achieving compliance with the statutory goals and standards, the enforcing agency needs to confirm not only whether the applicant can accomplish what it has proposed to do, but also that the steps proposed will actually succeed in achieving the compliance goals. The agency can require the applicant to provide information demonstrating that its proposals are feasible. For example, the applicant can be asked to submit certifications from disinterested third-party engineers or other scientific and technical professionals attesting that the steps proposed will be effective and that the schedule proposed is the shortest possible.

After the permit is granted, the permit-holder can be required to demonstrate compliance during the permit term by submitting proof that the promised steps have been carried out. For example, a permit-holder who has promised to purchase low-sulphur fuel and install a scrubber can be required to furnish invoices for the fuel delivery, records indicating that it has ordered and received the necessary components for the scrubber, and work orders demonstrating that the scrubber has been made operative.

The government can also require that the president or another high-level officer of the company certify that the company is in compliance with applicable requirements both at the time of application and at each stage in the compliance schedule.[31] Obtaining the certification of senior management can deter non-compliance by rendering the certifying officials liable for permit violations. Compliance can be further secured by some form of financial assurance, such as a bond, which will be forfeited by the permit-holder in the event of non-compliance with a permit condition -- including interim steps -- or with the terms of a certification.

The permit can also contain other terms and conditions, in addition to the compliance schedules and certification requirements discussed above, that can assist the regulatory agency in monitoring a source's progress towards attaining environmental protection goals. For example, the permit can require the pollution source to monitor periodically its own compliance progress and to report to the regulatory agency on its

[31] This certification can attest that the permit-holder is in compliance with legal requirements imposed under other statutes as well, and can cover companies affiliated with the applying company or controlled by the same group of corporate officers.

pollution discharge rates. This process not only assists enforcement agencies and the public in identifying violations, but also ensures that the pollution source itself is aware of the environmental effects of its operations. Periodic, unannounced inspections by government during the course of the permit's duration can also be performed to monitor the permit-holder's compliance.

5. Streamlining the Permitting Process.

Although a permit requirement is a valuable regulatory tool, it also can create a substantial resource burden on the administering agency. An effective permitting procedure requires enough qualified government staff to review and negotiate specific terms in each permit application. A number of mechanisms can help to reduce the administrative burden of the permit process.

One possibility is for the regulatory agency to issue "permits-by-rule" to certain categories of activity whose environmental risks are both well-known and relatively low. Instead of requiring individual permits, the agency can issue a regulation that applies to all industries within the covered category. The regulation would contain conditions similar to those in a permit, such as discharge standards, operational guidelines, and self-monitoring requirements. A covered industry that meets these conditions is automatically deemed to possess a permit to operate, without undergoing a formal application and review process. The agency can then choose to initiate enforcement proceedings against facilities that have not complied with the applicable conditions.[32]

A related method of conserving scarce regulatory resources is for the government to deny permits preemptively to defined categories of regulated entities. As with the "permit-by-rule," such categorical determinations avoid numerous individual permit reviews. For example, a permitting program for hazardous waste disposal might exclude from consideration geographical areas with certain undesirable physical characteristics, such as wetlands or localities with high water tables. This regulatory approach allows the agency to prohibit certain conduct without having to engage in complex scientific evaluations of the potential harm likely to result from each permit applicant's activities.

6. Public Participation in the Permitting Process.

To improve the permitting process, the public should be encouraged to participate by attending hearings on the application and commenting on the compliance plan and on the permit terms and conditions. The public can evaluate interim compliance schedules and reporting conditions in the permit to ascertain whether those provisions are sufficient to allow effective monitoring of permit compliance by the public, as well as by the government.

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[32] Of course, permitting-by-rule eliminates some of the advantages of the permit system discussed above, which stem from the individualized review provided during the permit application process. An example of a permit-by-rule procedure is contained in Appendix D.

Public involvement can also improve the effectiveness of the permit as a compliance tool by drawing on citizens' practical knowledge of the effect of the applicant's operations on environmental conditions in their community. The watchdog role of the public can be extended by allowing citizens to challenge permit terms in front of the issuing agency and/or in court after the permit has been issued. Encouraging public involvement can also benefit the government by building broad support for the regulatory and enforcement program.

7. Enforcement of a Permit.

Violation of any of the permit's terms -- including the interim compliance deadlines -- provides grounds for the suspension or revocation of the permit, thus threatening the permit-holder's ability to operate. Non-compliance can also provide a basis for other administrative, civil, and criminal penalties, including fines and jail terms for corporate officers. By placing the burden on the permit-holder to demonstrate its compliance at prescribed intervals, and by allowing the information supplied by the permit-holder to serve as an admission of non-compliance, the permitting process can be used to make the government's enforcement task easier to accomplish.

The government should always be able to enforce the general statutory goals against a factory. Through a permitting system, however, the government can transfer those goals into specific requirements that a factory must meet. Often, these factory-specific requirements may be easier to enforce than the general goals, thus moving the factory towards the goal of full compliance with the use of fewer government resources.

8. Benefits of the Permitting Process.

The permit process can benefit environmental implementation in several ways. It provides an opportunity for the permit-holder to develop a proposal for phasing in environmental compliance that is compatible with its own operational methods and resources. This renders the compliance process more efficient both for pollution sources, which will propose the plans they can implement most easily and cost-effectively, and for the government, which is freed from the administrative burden of tailoring permit conditions to fit each applicant's specific situation. If the permit process allows or requires consideration of the source's entire operations, it can also encourage long-term environmental improvements by enabling sources to comply by using pollution prevention techniques.

Permitting also assists regulated entities in understanding their compliance obligations and in identifying practicable ways to meet them. The permitting authority can use the application process as an opportunity to educate industry about its legal obligations. The government could hold pre-application conferences to discuss with the regulated community

the mechanics of environmental regulation.[33] The inclusion of interim compliance deadlines in permits can help to ensure that the regulated community is making steady progress towards attaining environmental protection goals. These interim deadlines provide an opportunity for early enforcement action by the government.

Finally, permitting greatly increases the government's leverage during the enforcement process. A permit scheme focuses the dispute between the government and a polluter on the narrow, and usually easier to determine, questions of whether a permit exists and whether the polluter is in compliance with the permit requirements, rather than on far more complex issues of whether the polluter's conduct is causing harm or is violating more general environmental standards. Agencies will expend far fewer resources, and prevail in many more disputes, litigating the former issues.

C. Flexibility through a Variance Process

Another way of achieving the flexibility to meet phase-in needs in the context of a strong enforcement program is through a variance procedure. A variance temporarily excuses a regulated party from compliance with applicable legal requirements, imposing specific limits on and conditions to the exception. The variance will contain a schedule of compliance, similar to those negotiated between the polluter and the government through the permitting process or an enforcement action. However, in the case of a variance, the process of establishing that compliance schedule is much more public -- it is not simply a negotiation between the polluter and the regulating agency.

Usually, a variance is granted by an independent board composed of government officials from relevant government agencies, representatives of the regulated community, and representatives of the public. To obtain a variance, a facility representative must submit a proposal to the variance board. The regulated entity then appears before the board at a public meeting. The board -- and the public attending the meeting -- can question the facility representative about the proposal and recommend changes. The environmental agency then submits its recommendation to the board, and the board votes on whether the variance should be granted. Any report on progress or request for an extension in meeting interim deadlines is subject to similar public review.

This open process enables the government to develop the public consensus necessary to implement a strong regulatory system with flexible phase-in mechanisms. It enables the public to understand why delayed compliance is necessary in a particular case, but also ensures that the government and industry do not delay compliance longer than is justified under the variance procedures.

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[33] These conferences could serve as the vehicles for providing technical assistance or disseminating information on compliance methods.

Several factors will be crucial to the success of a variance system. *First*, the circumstances under which a variance may be available should be strictly limited. For example, the statute or regulation should forbid variances in cases when granting a variance might trigger a violation of applicable ambient quality standards or create dangerous localized effects, as in the case of toxic substances. Applicants must be required to demonstrate particularized circumstances, other than mere financial difficulties, that render immediate compliance impossible. The burden must be on the entity seeking the variance to establish its need for the extension. For example, a statute might allow an extension of a compliance deadline for pollution sources that can demonstrate the installation of innovative production processes or control technologies. The length of the extension can be left to the judgment of the variance board, but should include a prescribed statutory maximum. Similarly, the definition of what constitutes sufficiently "innovative" processes or technologies can, but need not be, spelled out explicitly in the exception provision.[34] Another form of variance provision might grant a one-time temporary extension from regulatory requirements if the regulated entity establishes that adequate treatment technology is not yet available or that compliance is otherwise impossible. This extension would give the regulated entity time to develop a new process or phase out its operations.[35]

Second, the variance must be considered to be temporary, not permanent, in nature -- an extension rather than a waiver. Entities seeking variances must undertake to accomplish complete compliance within a specified time frame. Mechanisms for ensuring that the requisite progress is made may be similar to those discussed above in the context of permitting systems. For example, variance petitions must include proposed compliance schedules requiring specific actions on the part of the variance-holder by certain deadlines and setting forth interim standards. Failure to comply with the schedule and the standards would result in monetary penalties and other serious sanctions, including shut-down, and would constitute automatic termination of the variance.

Third, variances should include specified self-monitoring and reporting requirements. These requirements will facilitate detection, public notice, and enforcement of violations. And *fourth*, a variance-holder should be required to furnish some form of financial

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[34] Section 301(k) of the Clean Water Act contained such a provision, which originally extended compliance with BAT requirements for sources which employed innovative compliance techniques. To receive the extension, an innovative technology had to have the potential for industry-wide application. If it involved a production process, the technology also had to result in significantly greater effluent reductions than otherwise required. If it involved a control technique, the technology either had to achieve a significantly greater effluent reduction than otherwise required, or had to achieve BAT at significantly lower costs than the systems identified by EPA as economically achievable.

[35] Variance processes may be particularly useful when applicable controls are set on an industry-wide, rather than a case-by-case basis. For example, under the U.S. Clean Water Act, a source may qualify for a variance if it can establish the existence of a "fundamentally different factor" that distinguishes it from the other sources in its category and that precludes its compliance with applicable discharge limitations. *See* Chemical Mfrs. Ass'n v. Natural Resources Defense Council, 470 U.S. 116, 120 (1984).

assurance, such as a bond, in order to secure compliance with all interim and final conditions of the variance. Violation of the variance terms and conditions could automatically result in the forfeiture of the amount pledged by the applicant, in addition to any other applicable administrative, civil, or criminal penalties.

Conditions such as these four are essential to avoid the possibility that the variance will swallow up the environmental protection rule. In the CSFR, for example, the government's practice of granting most regulated entities' requests that their discharges be exempted from the country's stringent water law virtually nullified the law.[36]

The variance process, if set up thoughtfully and employed effectively, can improve the environmental protection system. As in the case of permits, the variance procedure could be employed to collect information about the applicant's operations, to spur technological innovation, to monitor progress towards compliance, and to allow public participation in the implementation and enforcement process.

In the early 1970s, a variance system was used effectively in Allegheny County, Pennsylvania, which includes the city of Pittsburgh -- once one of the most polluted urban areas in the United States. County officials employed the variance system to phase in Allegheny County's implementation of the U.S. Clean Air Act. This variance procedure was set up on a temporary basis. Variances -- termed "delayed compliance orders" under Allegheny County's regulations -- were only available during a specified period; at the end of that period, compliance with the Act had been generally attained within the county.[37]

The variances that were granted contained compliance schedules that committed regulated industries to develop innovative pollution control technologies. As a result of the variance process, technological advances were instituted that might not otherwise have been achieved. For example, a variance was granted to one printing company whose process employed solvent-based ink, which resulted in a high level of VOC emissions. At the time the variance was granted, few if any alternative forms of ink were available. The applicant for the variance sought a few months to experiment. Within that period, it returned to the variance board to report that it would replace the solvent-based ink with a non-polluting alternative. At the end of the short variance period, the company had substituted a water-based ink for the solvent-based variety and had reduced its VOC emissions to the prescribed limits.

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[36] *See* Bowman & Hunter, *supra* note 1, at 326 (citing Act on Waters, Oct 31, 1973, Czechoslovak Socialist Republic Act No. 138/1973 § 23(3) ("In individual extraordinary cases . . . the Government of the Republic may agree with discharging waste waters differently from [the] provisions of this law. . . .")). Many of these exceptions have now been prohibited by special rule.

[37] Appendix E contains a copy of this variance procedure.

Those involved with the design and implementation of the Allegheny County variance system attribute its success largely to the active involvement of local citizen groups and close scrutiny of the media. The system provided for public hearings on all variance applications; citizen organizations were granted the right to intervene in those proceedings and to cross-examine witnesses. The citizen intervenors often served as watchdogs, ensuring that any variances issued required substantial interim steps towards compliance and monitoring the performance of the regulated entities. All stages of the variance process were public; variances were granted for short time periods and petitioners had to face public scrutiny each time they returned to report on their progress and seek additional time.[38]

D. Flexibility through the Enforcement Process Itself

A theme running through this paper is that a consistently strong threat of enforcement can be a strong incentive for industry to work with the government in developing realistic mechanisms of achieving compliance. However, if these mechanisms are not available -- or if the available mechanisms are not effective in ensuring steady progress toward compliance -- the enforcement process itself can be used to ensure such steady progress.

Using stringent enforcement, the government can still allow industries to make the transition to full environmental compliance. The government might use the leverage obtained through strong enforcement, for example, to encourage regulated entities to attempt to secure the government's consent to a settlement agreement rather than risking the imposition of severe enforcement penalties. A violator may want to avoid a court prosecution or administrative shut-down order, even at the cost of agreeing to a settlement containing terms more stringent than could be imposed by an enforcement action.

The resulting settlement agreement could provide for a stipulated level of penalty payments, as well as adherence by the violator to the terms of a rigorous compliance schedule. Performance could be secured by a bond or other financial assurance. Such a schedule would resemble those discussed above in the context of permits and variances, although the time to comply and standards to be achieved may be more strict. If settlement is reached at an appropriate stage in the enforcement action, the negotiated agreement may be entered by the judge as a consent order, which will have the effect of a court judgment. Violation of the terms of a consent order would be punishable as contempt of court.

If the enforcing agency pursues a case in court or in an administrative forum and wins, the resulting remedies also offer opportunities for adaptation to individual circumstances. Rather than shutting down a violator's operations entirely, the agency could ask the court to enter an injunction that contains a compliance schedule, ordering the violator to achieve compliance by a certain date and by means of a certain series of actions.

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[38] Telephone interview with Anthony P. Picadio, Attorney at Law and former Chair of the Allegheny County Variance Board, Pittsburgh, Pennsylvania, U.S.A. (July 24, 1992).

Or the government enforcer could set applicable financial penalties according to the nature of the violation and the possibility that compliance could have been achieved.[39] Finally, an enforcement agency seeking criminal penalties for environmental violations could ask the sentencing court to suspend a convicted violator's sentence on condition that the violator attain compliance by a specified deadline.

The enforcement process can have an educational value as well. Through seeking creative remedies and publicizing its enforcement efforts, government can further compliance by deterring polluting activity. For example, in some cases in the United States, courts have ordered environmental violators to take out full-page ads in local newspapers announcing their convictions. Such methods ensure that the public will learn which companies are the most serious polluters. This may produce boycotts of those companies' products or other public pressure on the companies to improve their environmental performance. Industry, in turn, may voluntarily reduce its pollution in an attempt to avoid the poor publicity that can result from a conviction.

Enforcement decisions depend on the discretionary judgments of the responsible government agencies and officials. Although discretionary enforcement techniques are valuable, and some reliance on the judgments of enforcement authorities will be an unavoidable component of the environmental regulation process, policymakers and the public may not wish to rely on the government's enforcement discretion as the exclusive means of providing needed opportunities for flexible implementation. Because decisions about whether and how to enforce environmental laws may be effectively immune from review,[40] it is likely to be difficult to hold an enforcement agency accountable to the public for its decisions.

CONCLUSION

The process of translating statutory goals into reality is at the heart of an effective system of environmental regulation. That process offers opportunities to phase in new or modified environmental controls in a manner that will facilitate compliance by the regulated community. A strong enforcement program combined with regulatory avenues designed to ensure that industry develops and executes realistic compliance plans can speed a country's progress towards achieving environmental protection objectives.

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[39] The EPA's penalty assessment procedure requires consideration of these factors. *See* Environmental Protection Agency, *Policy on Civil Penalties* (Feb. 16, 1984), *reprinted in* 17 ENVTL. L. REP. (Envtl. L. Inst.) 35,083 (Oct. 1987).

[40] In the United States, for example, there is no opportunity to obtain judicial review of an administrative agency's decision whether or not to enforce an environmental law against a particular violator. *See* Heckler v. Chaney, 470 U.S. 821 (1985).

Appendix A

Sample Permit

STATE OF MARYLAND
DEPARTMENT OF THE ENVIRONMENT
2500 Broening Highway Baltimore, Maryland 21224
(410) 631-3621

William Donald Schaefer
Governor

Robert Perciasepe
Secretary

August 21, 1992

CERTIFIED MAIL
Return Receipt Requested

Dixon Valve & Coupling Company
800 High Street
Chestertown MD 21620

Dear Sir:

Enclosed is your validated State Discharge Permit No. 92-001 which will be in force on its effective date. The permittee is responsible for complying with all permit conditions. Accordingly, you are advised to carefully read this permit and become thoroughly familiar with its requirements.

If you have any questions, please call Mr. John McGillen at (410) 631-3631.

Sincerely yours,

Karen G. Irons

Karen G. Irons, P.E., Chief
Pretreatment and Enforcement Division

KGI:sas

Enclosure

STATE OF MARYLAND
DEPARTMENT OF THE ENVIRONMENT
2500 Broening Highway Baltimore, Maryland 21224
( ) 631-

William Donald Schaefer
Governor

Robert Perciasepe
Secretary

Water Management Administration

WASTEWATER DISCHARGE PERMIT

Permit Number: 92-001

Effective Date: September 1, 1992

Expiration Date: September 1, 1995

Pursuant to the provisions of Title 9 of the Environment Article, Annotated Code of Maryland and regulations promulgated thereunder and the provision of the Clean Water Act, and implementing regulations 40 CFR Part 403, the Department of the Environment, hereinafter referred to as the "Department", hereby authorizes

Dixon Valve & Coupling Company
800 High Street
Chestertown, Maryland 21620

Located At

800 High Street, Kent County, Chestertown, Maryland

To Discharge From

a facility engaged in metal finishing (SIC Code 3429) and ancillary operations,

TO

the Chestertown Utilities Commission Wastewater Treatment Plant

in accordance with the following special and general conditions.

I. Special Conditions

A.1 Effluent Limitations

The permittee is authorized to discharge from outfall 001 consisting of wastewater from the automatic and manual zinc plating lines and the anodizing line.

Such discharge shall be limited and monitored after the final baffle and prior to discharge from the pit located below the clarifier as shown in Figure 1 by the permittee as specified below:

Constituent	Effluent Limitations (mg/l)		Monitoring	Sample
	Monthly Average	Daily Max.	Frequency	Type
Flow (gpd)	*	*	(1)	Estimated
Zinc	1.48	2.61	2/Month (2)	Composite (3)
Chromium	1.71	2.77	2/Year	Composite (3)
Copper	2.07	3.38	2/Year (6)	Composite (3)
Lead	0.43	0.69	2/Year (6)	Composite (3)
Nickel	2.38	3.98	2/Year (6)	Composite (3)
Silver	0.24	0.43	2/Year (6)	Composite (3)
Cadmium	0.26	0.69	2/Year (6)	Composite (3)
Total Cyanide	0.65	1.20	2/Year (6)	Grab(4)
TTO	N/A	2.13	1/Quarter	Grab(5)

* Monitoring required without limitations.

The pH shall not be less than 5.0 and shall be monitored and recorded continuously.

All metals shall be analyzed as total metals.

(1) Flow shall be estimated once each week and on each day that effluent sampling is performed.

(2) The sampling frequency for zinc shall be reduced to once per month if there have been no noncompliances reported, by either the permittee or the Department, in the previous 12-month period. If any noncompliance with the zinc limitation is reported, the former, more frequent monitoring schedule shall be resumed.

(3) The composite shall be taken over the period that the facility is in operation on the day of sampling.

(4) In lieu of monitoring for cyanide, the permittee may submit the certification statement specified in Special Condition C.2.

(5) In lieu of monitoring for TTO, the permittee may submit the certification statement specified in Special Condition C.1.

(6) One sample is to be collected in June and the other in December of each year.

A.2 Effluent Limitations

The permittee is authorized to discharge from outfall 002 consisting of wastewater from treatment of waste oil.

Such discharge shall be limited and monitored at the discharge from the ultrafiltration unit (or other final waste treatment unit) by the permittee as specified below:

Constituent	Effluent Limitations (mg/l) Monthly Average	Daily Max.	Monitoring Frequency	Sample Type
Flow (gpd)	N/A	*	(1)	Estimated
Oil & Grease[2]	N/A	100	1/Month	Grab

* Monitoring required without limitations.

(1) The volume of each batch discharge shall be reported.

(2) Oil & grease shall be measured using the 503 A. Partition-Gravimetric Method described in Standard Methods for Examinations of Water and Wastewater, 16th Edition.

B. Prohibitive Standards

General

Pollutants introduced into the sewer shall not pass through the Publicly Owned Treatment Works (POTW) or interfere with the operation or performance of the treatment facility.

Specific

The following shall not be introduced into the POTW:

(1) Pollutants which create a fire or explosion hazard in the POTW, including, but not limited to, wastestreams with a closed cup flashpoint of less than 140 degrees fahrenheit using the test methods specified in 40 CFR 261.21;

(2) Pollutants which will cause corrosive structural damage to the POTW, including any discharges with a pH lower than 5.0;

(3) Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in interference;

(4) Any pollutant, including oxygen demanding pollutants released in a discharge at a flow rate and/or pollutant concentration that will cause interference with the POTW;

(5) Heat in amounts which will inhibit biological activity in the POTW resulting in interference, but in no case heat in such quantities

that the temperature at the POTW Treatment Plant exceeds 40 °C;

(6) Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through; and

(7) Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems.

C. Other Requirements

1. TTO Certification

In lieu of monitoring for Total Toxic Organics (TTO) as specified in Special Condition A, the permittee may submit the following certification statement with the quarterly compliance report:

> "Based on my inquiry of the person or persons directly responsible for managing compliance with the pretreatment standard for total toxic organics (TTO), I certify that to the best of my knowledge and belief, no dumping of concentrated toxic organics into the wastewater has occurred since filing of the last quarterly compliance report. I further certify that this facility is implementing the Toxic Organic Management Plan submitted to the Department."

In requesting the certification alternative, the permittee shall submit a Toxic Organic Management Plan that specifies to the satisfaction of the Department, the toxic organics used; the method of disposal used instead of dumping; and procedures for ensuring that toxic organics do not routinely spill or leak into the wastewater.

2. Cyanide Certification

In lieu of monitoring for cyanide as specified in Special Condition A, the permittee may submit the following certification statement to the Department:

"I certify that no cyanide or cyanide containing compounds are used at this facility. If cyanide is used at some future date, effluent monitoring shall be performed as described in Special Condition A."

3. Prohibition of dilution/excessive discharge

The permittee shall not increase the use of potable or process water or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in this permit.

4. Conformance with Local Codes

The wastewater discharge shall conform with all provisions of the Chestertown sewer use ordinance.

4. Discharge of Cooling Water

Noncontact cooling water, including but not limited to air compressor cooling water, shall be discharged at a point where it will not mix with the wastewater subject to the monitoring requirements of Special Condition A.

D. Reporting Requirements

1. Reporting of Monitoring Results

Monitoring results shall be submitted in a Periodic Compliance Report on a quarterly basis prior to the following dates:

February 1 for October - December
May 1 for January - March
August 1 for April - June
November 1 for July - September

All required reports shall be submitted on forms provided by the Department and shall be signed and certified by the owner or his duly authorized representative in accordance with General Condition C.8. The reports shall be submitted to:

Pretreatment and Enforcement Division
Water Management Administration
Maryland Department of the Environment
2500 Broening Highway
Baltimore, Maryland 21224

2. Reporting of noncompliance with limitations/slug loadings/accidental spills/upset

The permittee shall notify the Department within 24 hours of becoming aware of any violation including any daily maximum or minimum effluent limitation, slug loadings, accidental spill, or upset. Within five days, the permittee shall provide the Department with the following information in writing:

a. description of the noncomplying discharge, slug loading, accidental spill, or upset;
b. cause of noncomplying discharge, slug loading, accidental spill, or upset;
c. anticipated time the condition of noncomplying discharge, slug loading, accidental spill, or upset is expected to continue or, if such condition has been corrected, the duration of the period;
d. steps taken by the permittee to reduce and eliminate the noncomplying discharge, slug loading, accidental spill, or upset;
e. to be taken by the permittee to prevent recurrence of the condition of noncomplying discharge, slug loading, accidental spill, or upset; and
f. a description of the accelerated or additional monitoring by the permittee to determine the nature of the noncomplying discharge, slug loading, accidental spill, or upset.

3. Notification of Changed Discharge

The permittee shall promptly notify the Department in advance of any substantial change in the volume or character of pollutants in their discharge; including the listed or characteristic hazardous waste for which the permittee has submitted initial notification under 40 CFR 403.12(p). Anticipated facility expansions, production increases, or process modifications which will result in new, different, or an increased discharge of pollutants shall be reported by the permittee by notice to the Department. Following such notice, the permit may be modified by the Department to specify and limit any pollutants not previously limited.

4. Automatic Resampling

If sampling performed by the permittee indicates a violation, the permittee shall repeat the sampling and analysis and submit the results of the repeat analysis to the Department within 30 days after becoming aware of the violation, except the permittee is not required to resample if: the Department performs sampling at the permittee's facility at a frequency of at least once per month, or the Department performs sampling at the permittee's facility between the time when the permittee performs its initial sampling and the time when the permittee receives the results of this sampling.

5. Notification of Bypass

If the permittee knows in advance of the need for a bypass, it shall submit prior written notice at least ten (10) days before the date of the bypass to the Department. In the event of an unanticipated bypass, the permittee shall immediately notify the Department and submit written notice within five (5) days. This report shall provide a description of the bypass, its cause and duration, whether the bypass has been corrected, and the steps taken or to be taken to reduce, eliminate and prevent a reoccurrence of the bypass.

6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the locations designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of this monitoring shall be included in the report.

E. Definitions

1. "Monthly , quarterly, semi-annual or annual average" means the arithmetic average of the values for effluent samples collected over over any calendar month, 3 months, 6 months or 12 month period, respectively.

2. "Daily maximum" means the maximum allowable discharge of pollutant during a calendar day. Where daily maximum limitations are expressed in units of mass, the daily discharge is the total mass discharged over the course of the day. Where daily maximum limitations are expressed in terms of concentration, the daily discharge is the arithmetic average measurement of the pollutants derived from all

measurements taken that day.

3. "Grab sample" means an individual sample collected in less than 15 minutes, without regard for flow or time.

4. "Composite sample" means a combination of individual samples obtained at regular intervals over a specified time period. The volume of each individual sample may be either proportional to the flow rate during the sample period (flow composite) or constant and collected at equal time intervals during composite period (time composite).

5. "Bypass" means the intentional diversion of wastes from any portion of a treatment facility.

6. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with categorical Pretreatment Standards because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

7. "Estimated" flow means a calculated volume or discharge rate which is based on a technical evaluation of the sources contributing to the discharge including, but not limited to, pump capabilities, water meters, and batch discharge volumes.

II. General Conditions

A. Monitoring Requirements

1. Representative Sampling
Samples and measurements taken as required herein shall be taken at such times as to be representative of the quantity and quality of the discharges during the specified reporting periods.

2. Sampling and Analysis Methods
The analytical and sampling methods used shall conform to procedures for the analysis of pollutants as identified in Title 40 CFR Part 136 - "Guidelines Establishing Test Procedures for the Analysis of Pollutants" and amendments thereto. Sample holding time limitations and preservation methods specified shall be adhered to.

3. Data Recording Requirements
For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:
a. the exact place, date, and time of sampling or measurement;
b. the person(s) who performed the sampling or measurement;
c. the dates and times the analyses were performed;
d. the analytical techniques or methods used; and
e. the results of all required analyses.

4. Monitoring Equipment Maintenance
The permittee shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation to insure accuracy of measurements.

5. Records Retention
All records and information resulting from the monitoring activities required by this permit, including all records of analyses performed, calibration and maintenance of instrumentation, and original recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years. This period shall be automatically extended during the course of litigation, or when requested by the Department.

B. Management Requirements

1. Duty to Mitigate
The permittee shall take all reasonable steps to minimize or correct any adverse impact resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

2. Maintenance and operation of pretreatment facilities
The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve

compliance with the conditions of this permit. Proper operation and maintenance includes but is not limited to: effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

3. Duty to Halt or Reduce Activity

Upon reduction of efficiency of operation, or loss or failure of all or part of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control its production or discharges (or both) until operation of the treatment facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power of the treatment facility fails or is reduced.

4. Bypass of Treatment Facilities

Bypass is prohibited unless it is unavoidable to prevent loss of life, personal injury or severe property damage, no feasible alternatives exist and the permittee has provided adequate notice of the bypass. The permittee may allow a bypass to occur which does not cause effluent limitations to be exceeded, but only if it is also for essential maintenance to assure efficient operation. Such a bypass is not subject to the bypass notifications provisions above.

5. Upset provision

An upset shall constitute an affirmative defense to an action brought for noncompliance with categorical Pretreatment Standards only if the permittee demonstrates, through properly signed, contemporaneous logs, or other relevant evidence, that:

a. an upset occurred and that the permittee can identify the cause(s) of the upset;
b. the permitted facility was at the time being operated in a prudent and workman-like manner and in compliance with applicable operation and maintenance procedures;
c. the permittee submitted notification of the upset within 24-hours of its occurrence (if this information is provided orally, a written submission must be provided within five (5) days), including a description of the discharge and the cause of noncompliance, the period of noncompliance, including exact dates and times or the anticipated time the noncompliance is expected to continue, and the steps being taken and/or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

6. Duty to Comply

The permittee shall comply with all conditions of this permit. Failure to comply with the requirements of this permit may be grounds for administrative action or enforcement proceedings including civil or criminal penalties, injunctive relief and summary abatements.

7. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The permit application must be submitted at least 90 days before the expiration date of this permit. In the event that a timely and sufficient reapplication has been submitted and the Department is unable, through no fault of the permittee, to issue a new permit before the expiration date of this permit, the terms and conditions of this permit are automatically continued and remain fully effective and enforceable.

8. Duty to provide information

The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit; or to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit.

9. Proper disposal of solids/sludges

The permittee shall dispose of any solids, sludges or other pollutants removed in the course of treatment or control in accordance with Section 405 of the Clean Water Act and Subtitles C and D of the Resource Conservation and Recovery Act.

C. Responsibilities

1. Permit Action

This permit may be modified, revoked and reissued, or terminated for good cause including, but not limited to, the following:

a. to incorporate any new or revised Federal, State, or local pretreatment standards or requirements;
b. material or substantial alterations or additions to the discharger's operation or discharge volume or character which were not considered in drafting the effective permit;
c. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge;
d. information indicating that the permitted discharge poses a threat to the collection and treatment system, POTW personnel or the receiving waters;
e. violation of any terms or conditions of this permit;
f. misrepresentation or failure to disclose fully all relevant facts in the permit application or in any required reporting;
g. to correct typographical or other errors in the permit;
h. to reflect transfer of the facility ownership and/or operation to *a new owner/operator; or*
i. upon request of the permittee, provided such request does not create a violation of any existing applicable requirements, standards, laws, or rules and regulations. The filing of a request by the permittee for a permit modification, revocation and

reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

2. Permit Termination

This permit may be terminated for falsifying self-monitoring reports, tampering with monitoring equipment, refusing to allow timely access to the facility premises and records, failure to meet effluent limitations, failure to pay fines, failure to pay sewer charges, or failure to meet compliance schedules.

3. Permit Appeals

The permittee may petition to appeal the terms of this permit within thirty (30) days of the notice. This petition must be in writing. Failure to submit a petition for review shall be deemed to be a waiver of the appeal. In its petition, the permittee must indicate the permit provisions objected to, the reasons for this objection, and the alternate condition, if any, it seeks to be placed in the permit. The effectiveness of this permit shall not be stayed pending a reconsideration by the Office of Administrative Hearings. If, after considering the petition and any arguments put forth by the Department, the Office of Administrative Hearing determines that reconsideration is proper, it shall remand the permit back to the Department for reissuance. Those provisions being reconsidered by the Department shall be stayed pending reissuance. The permittee seeking review of the Office of Administrative Hearings final action must do so by filing a complaint with the court within appropriate statue of limitation.

4. Inspection and Entry

The permittee shall allow the Department, or an authorized representative, upon the presentation of credentials, to:

a. enter the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the condition of this permit;
b. have access to and copy, at reasonable times, any records that must be kept under the condition of this permit;
c. inspect at reasonable times any facility, equipment, practices, or operations, regulated or required under this permit;
d. sample or monitor, for the purpose of assuring permit compliance, any substances or parameters at any location; and
e. inspect any production, manufacturing, fabricating, or storage area where pollutants, regulated under the permit, could originate,be stored, or be discharged to the sewer system.

5. Transfer of Ownership or Control of Facilities

This permit is issued to a specific user for a specific operation and is not assignable to another user or transferable to any other location without the prior written approval of the Department. In the event of any change in ownership or control of the facility, the permittee shall give at least thirty (30) days advance notice to the Department including a written certification by the new owner stating there is no immediate intent to change the facility's operations and processes and

acknowledgment of full responsibility for complying with the existing permit and identification of the specific date on which the transfer is to occur.

6. Confidential information/availability of reports
Except for data determined to be confidential under Section 308 of the Clean Water Act, 33 U.S.C. §1318, all submitted data shall be available for public inspection at the offices of the Department, the Maryland Department of the Environment, and the Regional Administrator of the Environmental Protection Agency.

7. Falsifying information
Knowingly making any false statement on any report or other document required by this permit or knowingly rendering any monitoring device or method inaccurate is a crime and may result in the imposition of criminal sanctions and/or civil penalties.

8. Signatory requirements
All applications, reports, or information submitted to the Department shall contain the following certification statement and be signed as required in Section (a), (b), (c) or (d) below:

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

a. for a corporation: by a responsible corporate officer, meaning a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation; or

b. by a duly authorized representative of the individual designated in paragraph (a), (b), or (c) of this section if
(i) the authorization if made in writing by the individual described in paragraph (a), (b), or (c);
(ii) the authorization specifies either an individual or a position having responsibility for the overall operation of the facility from which the discharge originates or a position of equivalent responsibility, or having overall responsibility for environmental matters for the company; and
(iii) the written authorization is submitted to the Department.

9. Severability clause

The provisions of this permit are severable. If any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

10. Property rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any violation of Federal, State, or local laws or regulations.

11. Action on violations

The issue or reissue of this permit does not constitute a decision by the Department not to proceed in an administrative, civil, or criminal action for any violations of Department law or regulations occurring before the issue or reissue of this permit, nor a waiver of the Department's right to do so.

12. Penalties for violations of Permit Conditions

The Environment Article, Annotated Code of Maryland 9-342 9-343 provides that any person who violates a permit condition is subject to a civil penalty of up to $1000 per day of such violation. Any person who willfully or negligently violates permit conditions is subject to criminal penalties or a fine of up to $50,000, or by imprisonment for 2 years, or both.

13. Reopener Clause

The requirements specified in this permit may be modified and revised by the Department in accordance with the Department Code.

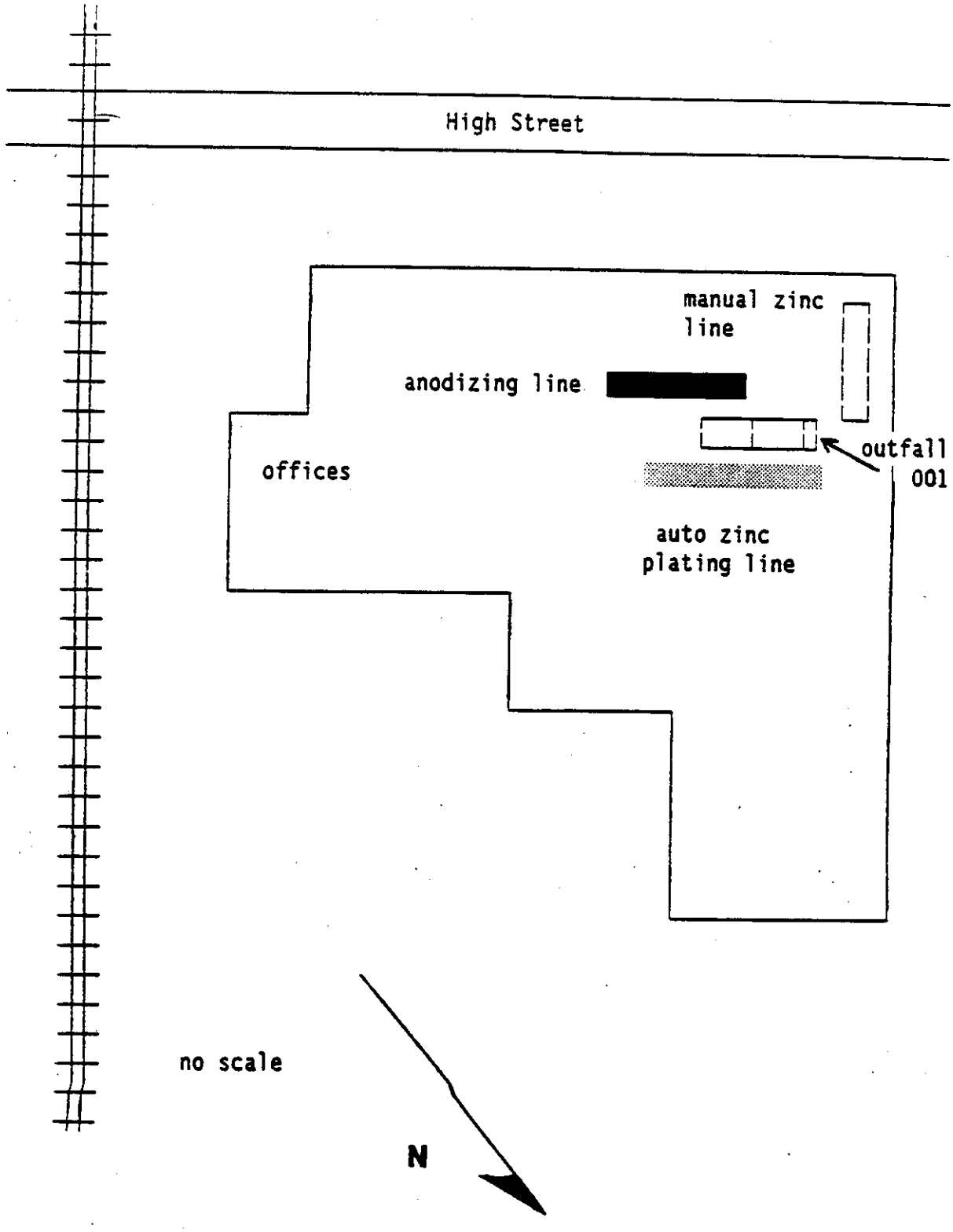
This permit and the authorization to discharge shall expire on midnight September 1, 1995. The permittee shall not discharge after the date of expiration. In order to receive authorization to discharge beyond the above date of expiration, the permittee shall submit such information, forms, and fees as are required by the Department no later than 90 days prior to the above date of expiration.

By authority of

for J.L. Hearn, Director
Water Management Administration

FIGURE 1

Dixon Valve & Coupling Co



Periodic Compliance Report

Name: Dixon Valve & Coupling Co Permit No.: 92-001

Address: 800 High Street, Chestertown, MD 21620

Monitoring Period: From ____/____/____ To ____/____/____
year mo day year mo day

Monitoring Location: 001

Parameter	Concentration (mg/l) Average	Maximum	Number of Analyses	Sample Type
Cadmium				
Copper				
Chromium				
Nickel				
Zinc				
Silver				
Cyanide				
Lead				
TTO				
pH (minimum value)				

Monitoring Location: 002

Parameter	Concentration (mg/l) Average	Maximum	Number of Analyses	Sample Type
Oil & Grease				

Periodic Compliance Report

Name: Dixon Valve & Coupling Co Permit No.: 92-001

Address: 800 High Street, Chestertown, MD 21620

Monitoring Period: From ____/____/____ To ____/____/____
year mo day year mo day

Monitoring Location: 001

Parameter	Concentration (mg/l) Average	Maximum	Number of Analyses	Sample Type
Cadmium				
Copper				
Chromium				
Nickel				
Zinc				
Silver				
Cyanide				
Lead				
TTO				
pH (minimum value)				

Monitoring Location: 002

Parameter	Concentration (mg/l) Average	Maximum	Number of Analyses	Sample Type
Oil & Grease				

Periodic Compliance Report

Name: Dixon Valve & Coupling Co Permit No.: 92-001

Address: 800 High Street, Chestertown, MD 21620

Monitoring Period: From ____/____/____ To ____/____/____
year mo day year mo day

Monitoring Location: 001

Parameter	Concentration (mg/l) Average	Maximum	Number of Analyses	Sample Type
Cadmium				
Copper				
Chromium				
Nickel				
Zinc				
Silver				
Cyanide				
Lead				
TTO				
pH (minimum value)				

Monitoring Location: 002

Parameter	Concentration (mg/l) Average	Maximum	Number of Analyses	Sample Type
Oil & Grease				

Periodic Compliance Report

Monitoring Location: 001

Date	Flow (gpd)

Monitoring Location: 002

Date	Flow (gpd)

Periodic Compliance Report

TTO Certification

Based on my inquiry of the person or persons directly responsible for managing compliance with the pretreatment standard for total toxic organics (TTO), I certify that to the best of my knowledge and belief, no dumping of concentrated toxic organics into the wastewater has occurred since filing of the last quarterly compliance report. I further certify that this facility is implementing the Toxic Organic Management Plan submitted to the Department.

Name/Title (Printed or Typed) _____ Signature/Date _____

Cyanide Certification

I certify that no cyanide or cyanide containing compounds are used at this facility. If cyanide is used at some future date, effluent monitoring shall be performed as described in Special Condition A.

Name/Title (Printed or Typed) _____ Signature/Date _____

General Certification

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

Name/Title (Printed or Typed) _____ Signature/Date _____

Appendix B

Sample Permit Application

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

Application for NPDES Permit New and Existing Industrial Dischargers

Applicant Name: _____

Name of Facility: _____

NPDES Number: PA _____
(if known)

Facility Location: _____ _____
(municipality) (county)

Date of Submittal: _____

Pennsylvania Department of Environmental Resources
Bureau of Water Quality Management

NEW AND EXISTING INDUSTRIAL WASTEWATER DISCHARGERS GENERAL INSTRUCTIONS FOR NPDES PERMIT APPLICANTS

1. ***Who Must Apply for NPDES Permits***

Persons who operate facilities or activities which discharge pollutants into surface waters of the Commonwealth (including intermittently-flowing streams and drainage channels). Pursuant to EPA regulations 40 CFR 122.21, when a facility or activity is owned by one person but is operated by another person, it is the operator's duty to obtain the NPDES permit.

2. ***Who Must Use This Form***

This form must be used by manufacturing, commercial or other facilities which discharge or propose to discharge industrial process wastewater, alone or in combination with other types of wastewater discharges, to surface waters of the Commonwealth.

Process wastewater is any water which, during manufacturing or processing, comes into direct contact with (or results from the production or use of) any raw material, intermediate product, finished product, by-product, or waste product). Process wastewater also includes any type of discharge which is covered by an effluent limitation guideline (ELG) regulation published by the U.S. Environmental Protection Agency (EPA). Process wastewater does not normally include sanitary wastewater, non contact cooling water, or plant-area stormwater runoff, unless such wastewaters are covered by an ELG regulation.

3. ***Where to File Applications***

Three (3) copies of all application materials should be submitted to the DER Regional Office which includes the county in which the facility is located. One copy must be notarized. An additional set of application materials should be submitted for dischargers located in Erie County or within the Delaware River basin.

4. ***When to File Applications***

Unless permission has been granted by the Department for submission at a later date, applications must be filed at least 180 days before your present NPDES permit expires, or 180 days prior to start up and commencement of discharge if you are a new facility.

5. ***Application Fee***

The required application fee of $500.00, payable to "Commonwealth of Pennsylvania," must accompany the application. The check should not be more than 10 days old.

6. ***Public Notification of Permit Application and Public Access to Application Information***

a. **Notification of Municipality and County** - Act 14, which amended the Commonwealth's Administrative Code (effective April 17, 1984), requires every applicant for a new, amended, or renewed NPDES permit to give written notice to each municipality and county in which the facility is located. The written notices shall be received by the municipalities and counties *at least* thirty (30) days before DER may issue or deny the permit.

GENERAL INSTRUCTIONS (continued)

Submit with your application:

(1) A copy of your correspondence notifying your intentions to the municipality(ies) and the county(ies) in which the permitted activity will occur.

(2) Evidence that the municipality(ies) and county(ies) have received your notification. Acceptable forms of this evidence include, certified mail receipt; or written acknowledgement of the notification from the municipality(ies) and county(ies).

Failure to provide a copy of your notification correspondence and evidence of municipal and county receipt of your notification with the application will delay processing of your permit. Failure to comply with Act 14 will result in permit denial.

b. ***Local Newspaper Notice*** - **When applying for an NPDES permit for a *new* industrial waste discharge, or when a NPDES renewal involves a *substantial* change in location, quantity or quality of the industrial discharge, public notice of intent to discharge is required by Section 307 of the Pennsylvania Clean Stream Law. The applicant is required to publish notice of intent to apply for a NPDES permit in a newspaper of general circulation in the county where the discharging facility is located. The notice must be published once-a-week during four consecutive weeks. Acceptable evidence of publication is a notarized copy of the notice and statement of publication dates, or separate clippings of each notice with date line intact. This evidence should accompany the application. The notice shall read as follows:**

> **NOTICE**
>
> **Notice is hereby given that the (Company Name, Address, and telephone number) intends to make application to the Department of Environmental Resources for a Water Quality Management Permit for the discharge of industrial waste water in a manner which meets the Department's requirements, from its facility located in (municipality), (county). This is a (new, existing) discharge of a (temporary, intermittent, continuous) nature, to (describe location and type of discharge, including the name of the receiving stream and the method of discharge).**
>
> **This application is made under the provisions of the Clean Streams Law, the Act of June 22, 1937, P.L. 1987, as amended. Persons desiring additional information, concerning this permit application should contact the applicant as indicated above. Persons who wish to comment on this application should contact the Company as indicated above, or the Department at the following address: Regional Water Quality Manager (appropriate address and telephone number), after (date on which application will be submitted).**

The notice should be located at or near the top of a right-hand page, as far forward as possible in the first section of the newspaper. The notice should appear as a "display" type advertisement. Whenever possible, it should be set off from the surrounding material by a black border. The notice should be at least 2 3/4 inches (or 2 columns) wide and at least 4 inches high.

c. ***Availability of Information to the Public*** - **You may NOT claim confidential any information required by this form, whether the information is reported on the form or in an attachment. This information will be made available to the public upon request.**

Any information you submit to the Department which goes beyond that required by this form may be claimed as confidential, but claims for information which are effluent data will be denied. If you do not assert a claim of confidentiality at the time of submitting the information, the Department may make the information public without further notice to you. Claims of confidentiality will be handled in accordance with EPA's business confidentiality regulations in 40 CFR Part 2.

7. ***How to Use this Form***

The questions to be answered are provided on the right hand pages of the form. Supplemental instructions to those questions are on the left hand pages for your convenience. Enter the NPDES number (if known) for the facility onto the upper right corner of each question page.

Unless otherwise specified in the instructions, each item must be answered in order for the application to be considered complete. To indicate that each item has been considered, enter "N/A" for not applicable, if a particular item does not fit the circumstances or characteristics of your facility or activity.

If more space is needed to answer a question, attach a separate sheet entitled "Additional Information for Item _____." Put the NPDES number in the upper right corner of these separate sheets.

8. ***Application Submittal Checklist***

Page iv consists of a listing of items to be submitted as part of this application, along with a listing of questions included as part of the application package.

Page iv should be used as a checklist for developing the application package prior to submittal to the Department.

APPLICATION SUBMITTAL CHECKLIST

SUPPLEMENTAL TABLES

INSTRUCTIONS FOR COMPLETING FORM

I. PHYSICAL LOCATION AND GENERAL INFORMATION

A. Enter the official or legal name of the facility which is the source of the discharge. Do not use a colloquial name.

B. Give the address or location of the facility identified in A. If the facility lacks a street name or route number, give the most accurate alternative geographic information (i.e., intersection of Rts 45 and 144).

C. Give the name, as it is legally referred to, of the person, firm, public organization, or any other entity which operates the facility described in this application. This may or may not be the same name as the facility name in A above. The operator of the facility is the legal entity which controls the facility's operation rather than the plant or site manager.

Indicate whether the entity which operates the facility also owns it, by marking the appropriate box.

Check the appropriate box to indicate the legal status of the operator of the facility. Indicate "public" for a facility solely owned by local government(s) such as a city, town, parish, etc.

Enter the telephone number and address of the operator identified.

D. List, in descending order of significance, the four-digit standard industrial classification (SIC) codes which best describe your facility in terms of the principal products or services you produce or provide. Also, specify each SIC classification in words.

A listing of common industrial SIC codes is available with this form and is based on the "Standard Industrial Classification Manual" prepared by the Executive Office of the President, Office of Management and Budget, available from the Government Printing Office.

E. Use this space to further describe the nature of your business (e.g. products produced, or services provided).

APPLICATION FOR DISCHARGE PERMIT IS:

NEW ☐ RENEWAL ☐ MODIFICATION ☐

NPDES Number PA _____

I. PHYSICAL LOCATION AND GENERAL INFORMATION

A. Name of Facility _____

B. Facility Location (Street) _____

City or Town _____ Zip Code _____

County _____

C. Facility Operator (Permit Applicant) Information

Operator (Applicant) Name _____

Does the Operator own the facility? ☐ yes ☐ no

Status of Operator Federal ☐ State ☐ Private ☐ Public ☐

Other _____

Phone (___) _____-_____

Street _____ City or Town _____

State _____ Zip Code _____

D. SIC Codes Corresponding SIC Description

1st ____ _____

2nd ____ _____

3rd ____ _____

4th ____ _____

E. General Description and Nature of Business

_____

_____

_____

_____

_____

_____

_____

_____

_____

INSTRUCTIONS FOR COMPLETING FORM

F. Provide a topographic map of the area extending at least to one mile beyond the property boundaries of the facility which clearly show the following:

The legal boundaries of the facility.

The location and serial number of each of your existing and proposed surface water intake and discharge structures (outfalls). If any outfalls discharge to intermittent streams or drainage swales, indicate the distance downstream to the point where perennial stream flow occurs.

All springs and surface water bodies in the area, plus all drinking water wells within 1/4 mile of the facility which are identified in the public record or otherwise known to you.

All hazardous waste management facilities, and wells where fluids are injected underground, which are associated with the facility for which this NPDES permit is being requested.

Each map shall include the scale, meridian arrow showing north, and latitude and longitude to the nearest second. Where a stream or river is shown, indicate direction of the current, and show directions of ebb and flow tides in tidal waters. Use a U.S.G.S. 7-1/2 minute series map (unless one has not been published for your area, then use a 15 minute series map).

G. Outfall Location - Using the topographic map attached in response to item F, determine the latitude and longitude of your outfalls and the name(s) of their respective receiving waters. (Use an attached listing if insufficient space is available.)

H. Preparedness, Prevention and Contingency (PPC) Planning - In general, any manufacturing or commercial installation which has the potential for causing accidental pollution of air, land, or water, or for causing endangerment of public health and safety through accidental release of toxic, hazardous, or other polluting materials, should develop, maintain, and implement a PPC Plan pursuant to Chapter 101 of the Department's rules and regulations.

Many manufacturing or commercial installations may have already developed a Pollution Incident Prevention (PIP) plan which should encompass most of the PPC considerations. In such cases the PIP plan may only need a slight amount of updating.

Oil-related Spill Prevention, Control, and Counter-measure (SPCC) plans, which are or have been developed, pursuant to EPA's oil-related SPCC regulations, should also be considered as part of an installation's overall PPC plan. Some installations may integrate their oil-related SPCC plan with the PPC plan elements, or may elect to keep it as a separate chapter, or appendix, to the PPC plan.

NPDES dischargers should submit (2) copies of the PPC plan for review along with the NPDES application materials. If a PPC plan for the facility has previously been approved by the Department, such submittal is not necessary, unless significant changes have occurred which would warrant submitting a revision to the PPC Plan.

F. Attach Topographic Map. See instructions.

G. Outfall Location: For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

OUTFALL NUMBER *(list)*	LATITUDE			LONGITUDE			RECEIVING WATER *(Name)*
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	

H. **Preparedness, Prevention, and Contingency (PPC) Planning**

Does the facility have a PPC plan which has been reviewed and approved by the Department?

☐ Yes _____ Date of Approval
☐ No, (attach 2 copies for review and approval)

Does the facility have any other related plans, such as a Pollution Incident Prevention (PIP) Plan or a Spill Prevention Control and Counter Measure (SPCC) Plan? ☐ Yes ☐ No

If yes, identify and indicate date(s) approved by the Department or EPA.

INSTRUCTIONS FOR COMPLETING FORM

1. Line Drawing

Using the space provided (or using attached material) show a line drawing which illustrates the flow of water and wastewater through the facility. The line drawing should show generally the route taken by water in your facility from intake to discharge. Show all sources of intake water and operations contributing wastewater, including process and production areas, sanitary flows, cooling water, and stormwater runoff.

The water balance should show average monthly flows for the maximum monthly production period described in Question IV. The stormwater discharges shown should reflect the maximum daily flow expected from a 10-year, 24-hour storm event.

Show all significant losses of water to products, atmosphere, and discharges to surface waters and to publicly-owned or other wastewater treatment facilities. You should use actual measurements whenever available; otherwise use your best estimate. If a water balance cannot be determined (e.g. for a groundwater cleanup operation) provide a pictorial description of the nature and amount of the sources of water and wastewater.

An example of an acceptable line drawing and water balance appears in Figure 1 below

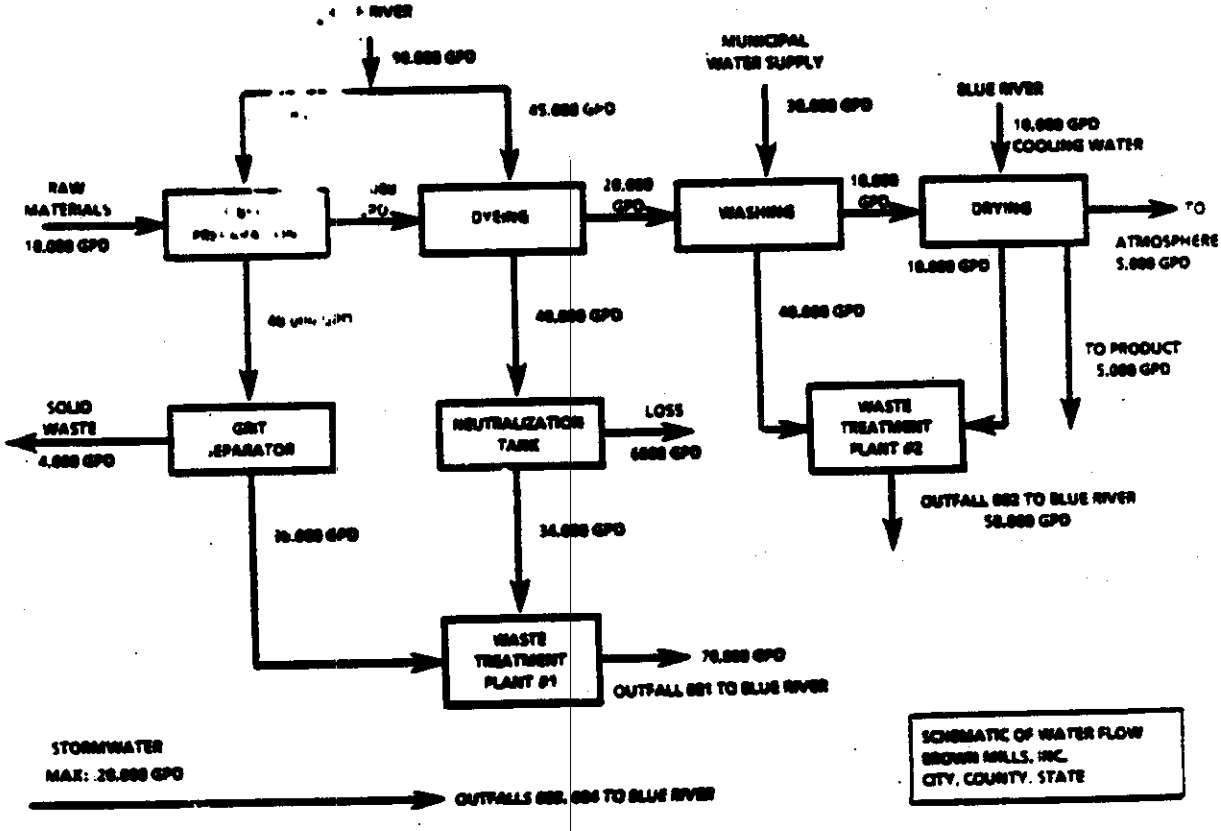


FIGURE 1 - EXAMPLE OF LINE DRAWING AND WATER BALANCE

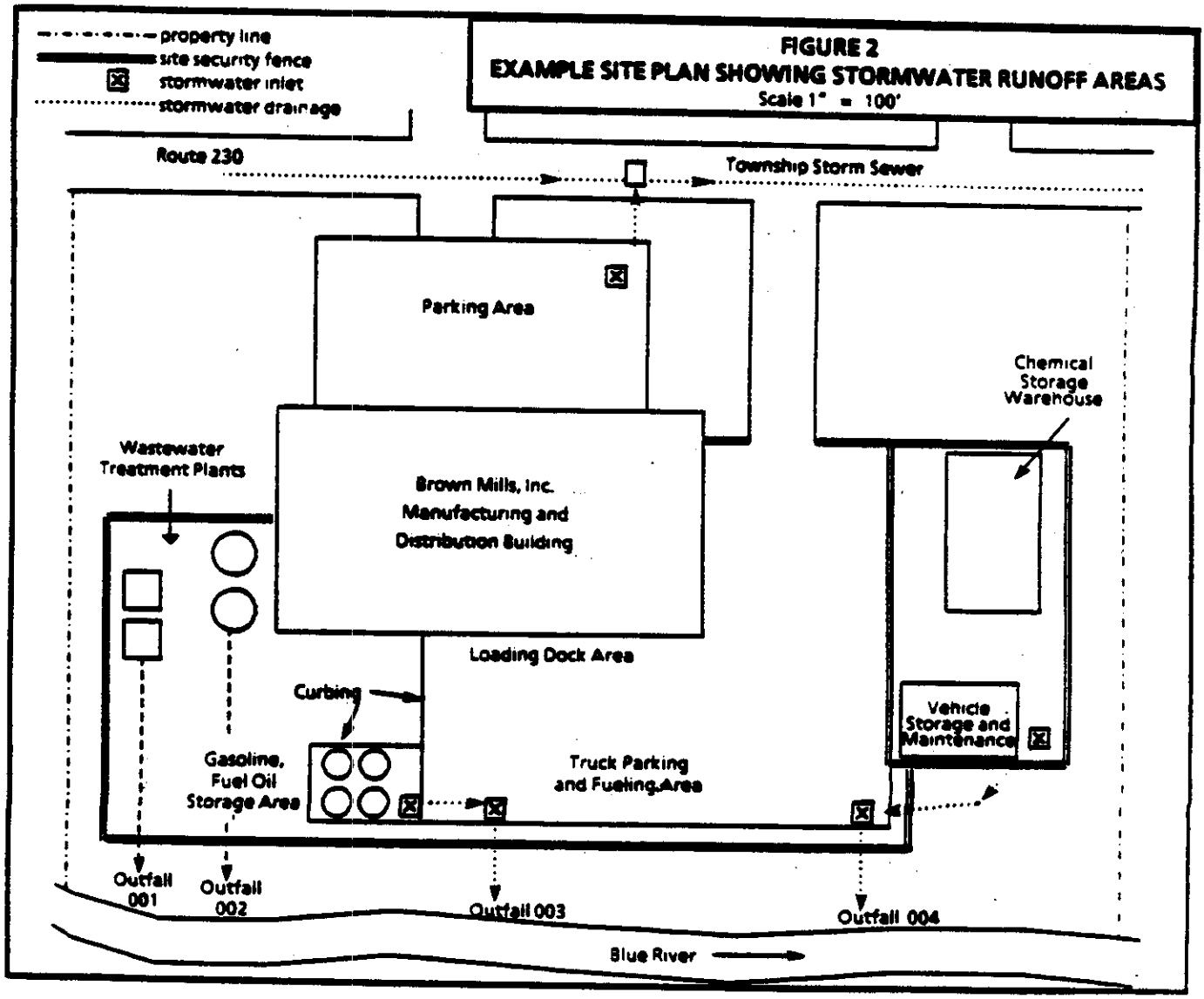
I. **Line Drawing** (see instructions) (use separate attached sheet(s) if desired).

INSTRUCTIONS FOR COMPLETING FORM

J. Site Plan and Stormwater Runoff (SWRO)

Using the space provided, or an attachment, provide a copy of your facility's site plan which delineates property boundaries, building areas, paved and unpaved areas which contribute stormwater runoff from the facility. Information developed for the facility PPC plan should be used wherever possible to respond to this question.

1. Show the following by shading, coloring or other marking (see Figure 2 for example).
   a. Plant-associated areas (areas that have the potential to contaminate stormwater.) They include such areas as industrial plants and plant yards, immediate access roads, drainage ponds, refuse piles, storage piles or areas, and material or product loading and unloading areas. These areas generate Type I SWRO.
   b. Other Areas located on plant lands separate from the plant's industrial activities such as office buildings and accompanying parking lot. These areas generate Type II SWRO.
2. Indicate by appropriate markings and symbols, the location of stormwater drainage inlets, outlets, and associated drainage pipes or channels.
3. Show the locations of outfalls which discharge stormwater to the receiving stream or [illegible]. Where possible, indicate on the site plan which areas contribute stormwater runoff (described in 1.a and 1.b) to these outfalls.
4. Based on the response to 3 above, calculate the drainage area for these contributing areas and report the results under Question IV.E, page 8 of this form.



J. **Site Plan and Stormwater Runoff** - Use space below or an attached diagram (see instructions).

INSTRUCTIONS FOR COMPLETING FORM

II. ACKGROUND ON NEW SOURCE DETERMINATIONS

(1) Under EPA's NPDES Regulations 40 CFR 122.2, a "New Source" is defined as any building, structure, facility or installation from which there is, or may be, a "discharge of pollutants," the "construction" of which commenced:

After promulgation of standards of performance for new sources under Section 306 of the Clean Water Act which are applicable to such source; or

After proposal of standards of performance for new sources under Section 306 which are applicable to such source, but only if the standards are promulgated within 120 days of their proposal.

(2) The following activities result in a "new source":

(i) "Construction" of source on a site where no other source(s) is located; or

(ii) "Construction" of a source on a site where an existing source is located, if the process or production equipment which causes the discharge of pollutants from the existing source is totally replaced by this construction, or

(iii) "Construction" of a source whose processes are substantially independent of an existing source at a site.

(3) "Construction" on a site at which an existing source is located will not be considered as creating a new source (or a new discharger) if the construction does not create a new building, structure, facility, or installation meeting the criteria of paragraphs 2(ii) or (iii) above, but otherwise alters, replaces, or adds to existing process or production equipment.

(4) Pursuant to EPA's NPDES regulations, 40 CFR 122.29, "construction" of a new source has commenced if the owner or operator has either:

(i) Begun, or caused to begin as part of a continuous on-site construction program:

(a) Any placement, assembly, or installation of facilities or equipment; or

(b) Significant site preparation work including clearing, excavation, or removal of existing buildings, structures or facilities which is necessary for the placement, assembly, or installation of a new source facilities or equipment;

or (ii) Entered a binding contractual obligation for the purchase of facilities or equipment which are intended to be used in its operation within a reasonable time. Note: Options to purchase or contracts which can be terminated or modified without substantial loss, and contracts for feasibility, engineering and design studies do not constitute a contractual obligation.

(5) The following definitions are to be used when considering the above instructions:

"Site" - The land or water area where any facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity.

"Facilities or equipment" - buildings, structures, process or production equipment or machinery which form a permanent part of the new source and which will be used in its operation, if these facilities or equipment are of such value as to represent a substantial commitment to construct. It excludes facilities or equipment used in connection with feasibility, engineering, and design studies regarding the source or water pollution treatment for the source.

II. NEW SOURCE DETERMINATION

Referring to the instructions for this question, indicate when "construction" (as defined by EPA) and discharge began for the facilities causing each discharge? If "construction" has not begun, state when it will begin.

Do not complete this table for outfalls which only discharge sanitary wastewater or stormwater runoff (unless considered "process wastewater" under an EPA effluent guideline regulation).

Date "Construction" Began*	Date Discharge Began**	Facilities Causing Discharge	Outfall(s)
~~Example:~~ 9/12/75	10/18/76	Carpet weaving and dyeing	001, 002

* If "construction" began on different dates for facilities which contribute to the same outfall, list these dates separately (use additional sheets if necessary).

** If not yet discharging, indicate date on which discharge is expected to begin.

INSTRUCTIONS FOR COMPLETING FORM

III. OUTFALLS AND ASSOCIATED WASTEWATER TREATMENT TECHNOLOGIES

For each treatment unit, indicate its design flow rate and describe the ultimate disposal of any solid or liquid wastes not discharged. Treatment units and residue handling/disposal methods should be listed in order of occurrence and you should select the proper code from Table 1 for each. Insert "XX" into the column if no code corresponds to a treatment unit you list.

Example

Outfall Number	Treatment Unit Description (list in sequence)	Treatment Unit Code	Treatment Unit Design Flow Rate (10^6 gal/day)	Method for Handling and Disposal of Solid or Liquid Residue Resulting from Treatment (list in sequence)	Handling and Disposal Code
001	Flow equalization	1-Y	0.200	N/A	
	Oil/Water Separation	4-H	0.100	Landfill	5-Q
	Rotating Biological Contactor	3-I	0.100	N/A	
	Sedimentation	1-U	0.100	Vacuum Filter, Landfill	5-U, 5-Q
	Post-aeration	3-L	0.100	N/A	

TABLE 1. CODES FOR TREATMENT UNITS

PHYSICAL TREATMENT PROCESSES

1-A	Ammonia Stripping	1-N	Macrostraining
1-B	Dialysis	1-O	Mixing
1-C	Diatomaceous Earth Filtration	1-P	Moving Bed Filters
1-D	Distillation	1-Q	Multimedia Filtration
1-E	Electrodialysis	1-R	Rapid Sand Filtration
1-F	Evaporation	1-S	Reverse Osmosis (Hyperfiltration)
1-G	Flocculation	1-T	Screening
1-H	Flotation	1-U	Sedimentation (Settling)
1-I	Foam Fractionation	1-V	Slow Sand Filtration
1-J	Freezing	1-W	Solvent Extraction
1-K	Gas-Phase Separation (air stripping)	1-X	Sorption (use carbon)
1-L	Grinding (Comminution)	1-Y	Equalization
1-M	Grit Removal	1-Z	Intermittent Sand Filters

CHEMICAL TREATMENT PROCESSES

2-A	Carbon Adsorption	2-H	Disinfection (Other)
2-B	Chemical Oxidation	2-I	Electrochemical Treatment
2-C	Chemical Precipitation	2-J	Ion Exchange
2-D	Coagulation	2-K	Neutralization
2-E	Dechlorination	2-L	Reduction
2-F	Disinfection (Chlorine)	2-M	Odor Control
2-G	Disinfection (Ozone)	2-N	Chemical Hydrolysis

BIOLOGICAL TREATMENT PROCESSES

3-A	Activated Sludge	3-K	Biological Hydrolysis
3-B	Aerated Lagoons	3-L	Post-aeration
3-C	Anaerobic Treatment	3-M	Treatment by Plant Aeration
3-D	Nitrification-Denitrification	3-N	Holding or Detention Pond
3-E	Pre-Aeration	3-O	Ridge & Furrow Irrigation
3-F	Spray Irrigation/Land Application	3-P	Sheet or Overland Flow Irrigation
3-G	Stabilization Ponds	3-Q	Surface/Subsurface Injection
3-H	Trickling Filtration	3-R	Sequence Batch Reactor
3-I	Rotating Biological Contactors	3-S	Artificial Wetlands
3-J	Polishing Lagoons	3-T	Oxidation Ditch

OTHER PROCESSES

4-A	Discharge to Surface Water
4-B	Ocean Discharge Through Outfall
4-C	Reuse/Recycle of Treated Effluent
4-D	Underground Injection
4-E	Reuse or Sale of Wastewater or Raw Material for Other Processes
4-F	Temperature Control (cooling)
4-G	Eutectic Freezing
4-H	Oil & Grease Removal, Including Skimming & Separators

SLUDGE HANDLING AND DISPOSAL PROCESSES

5-A	Aerobic Digestion
5-B	Anaerobic Digestion
5-C	Belt Filtration
5-D	Centrifugation
5-E	Chemical Conditioning
5-F	Chlorine Treatment
5-G	Composting
5-H	Drying Beds
5-I	Elutriation
5-J	Flotation Thickening
5-K	Freezing
5-L	Gravity Thickening
5-M	Heat Drying
5-N	Heat Treatment
5-O	Incineration
5-P	Land Application
5-Q	Landfill
5-R	Pressure Filtration
5-S	Pyrolysis
5-T	Sludge Lagoons
5-U	Vacuum Filtration
5-V	Vibration
5-W	Wet Oxidation
5-X	Vibration
5-Y	Wet Oxidation

NPDES Number PA_____

III. OUTFALLS AND ASSOCIATED WASTEWATER TREATMENT TECHNOLOGIES

Outfall Number	Treatment Unit Description (list in sequence)	Treatment Unit Code (See Table 1)	Treatment Unit Design Flow Rate (10^6 gal/day)	Method for Handling and Disposal of Solid or Liquid Residue Resulting from Treatment (list in sequence)	Handling and Disposal Code

INSTRUCTIONS FOR COMPLETING FORM

IV. SOURCES OF WASTEWATER CONTRIBUTING TO OUTFALLS

Existing Dischargers - Complete a separate Question IV for each outfall.

New Dischargers - Complete a separate Question IV for each outfall for each year of the first three (3) years of operation, (if no significant changes are expected during the first 3 years, then so indicate and only complete one Question IV).

A. Process Wastewater - See General Instructions on page i, **Who Must Use This Form**, for definition of process wastewater. Space is provided to describe two or more contributing processes.

Process wastewater is any water which, during manufacturing or processing, comes into direct contact with (or results from the production or use of) any raw material, intermediate product, finished product, by-product, or waste product). Process wastewater also includes any type of discharge which is covered by an effluent limitation guideline (ELG) regulation published by the U.S. Environmental Protection Agency (EPA). Process wastewater does not normally include sanitary wastewater, non-contact cooling water, or plant-area stormwater runoff, unless such wastewaters are covered by an ELG regulation.

1. Example: Carpet manufacturing, wastewater from fiber processing and dyeing.

2. All ELG's promulgated or proposed by EPA are published in the Federal Register, and are published annually in the Code of Federal Regulations, 40 CFR Parts 400-end. Contact the applicable DER Regional Office if you have questions concerning applicable ELG's.

3. Answer this question based on the representative monthly production level which is expected to occur during the maximum monthly period of production activity for the process. Do not report maximum daily production rates.

   For existing dischargers, the production levels reported must take into account actual production records and are not to be based simply on the facility's maximum production capabilities, nor on estimates of possible (but unconfirmed) future production increases. To obtain alternative effluent limits based upon anticipated production increases, you must define your actual and maximum production capabilities and demonstrate that there is reasonable potential for an increase in actual production during the duration of the upcoming permit.

   New Dischargers should estimate production figures based on a realistic projection of expected production during the first three (3) years of operation.

   Express production rates in the same terms and units used by EPA in developing its ELG regulation. For example, if the ELG is expressed as "lbs of TSS per 1,000 lbs of product" the information should appear as the following example shows:

Quantity	Unit of Measure	Of Product (or Raw Material)
55	1,000 lbs	carpet material

4. As with production information, the information reported on discharge rates and volumes must be based on actual facility records, not simply on maximum design flows which have been used to size any associated wastewater treatment facilities for the outfall in question. In general, the Department uses the representative monthly discharge rate associated with the maximum monthly period of production to calculate applicable effluent limitations.

NPDES Number PA _____

IV. SOURCES OF WASTEWATER CONTRIBUTING TO OUTFALL NUMBER _____

A. Process Wastewater No. _____

1. Describe process and type of wastewater

2. Applicable EPA Effluent Limitation Guideline: 40 CFR _____

   Category/Subcategory _____

3. Representative Monthly Production Rate

Quantity	Units of Measure	Of Product (or raw material used)	Month When Maximum Production Occurs

4. Discharge Occurs: _____ hrs/day; _____ days/wk; _____ days/yr; _____ months/yr

   During which months? _____

   Long-Term Average Discharge Rate _____ (units _____); Representative Monthly Discharge Rate _____ (units _____);

   Maximum Daily Discharge Rate _____ (units _____)

Process Wastewater No. _____

1. Describe process and type of wastewater:

2. Applicable EPA Effluent Limitation Guideline: 40 CFR _____

   Category/Subcategory _____

3. Representative Monthly Production Rate

Quantity	Units of Measure	Of Product (or raw material used)	Month When Maximum Production Occurs

4. Discharge Occurs: _____ hrs/day; _____ days/wk; _____ days/yr; _____ months/yr

   During which months? _____

   Long-Term Average Discharge Rate _____ (units _____); Representative Monthly Discharge Rate _____ (units _____);

   Maximum Daily Discharge Rate _____ (units _____)

IV. SOURCES OF WASTEWATER FOR OUTFALL _____ (continued)

B & C. Use these to indicate the type, frequency, duration of any sanitary wastewater, non-contact cooling water, or miscellaneous wastewater being discharged through the outfall. "Miscellaneous Wastewater" includes various non-process discharges from sources such as: (1) blowdown from boilers or cooling water systems; (2) laboratory wastes; (3) "housekeeping" wastewater; (4) seepage from materials, product, waste storage piles; (5) sludge storage/processing operations.

D. Total Process, Miscellaneous, Non-Contact Cooling, and Sanitary Wastewater

Based upon the information provided in Question IV, Sections A-C, above, determine the summation of these combined wastewater sources for the outfall. Do not include storm water runoff flows in this summation. In doing this summation, care must be taken to consider those flows which are expected to occur during similar time frames. For example, while NCCW and sanitary wastewater discharges may occur routinely, certain miscellaneous wastewaters may be discharged only at certain times of the week, month, or year. If any additional explanation is needed with regard to this summation, provide it on an attached sheet.

E. Stormwater Runoff

Answer this item based on the information presented in response to Question I, Section J (site plan showing stormwater runoff areas). Use Figure 3 to calculate a total volume, in gallons, of stormwater discharged through the outfall from a 10-year, 24-hour storm event.

Figure 3. Twenty-four Hour Duration, Ten Year Frequency Rainfall Data

County	Inches	County	Inches	County	Inches
Adams	4.8	Allegheny	3.9	Armstrong	3.9
Beaver	3.8	Bedford	4.5	Berks	4.9
Blair	4.3	Bradford	4.2	Bucks	5.0
Butler	3.8	Cambria	4.2	Cameron	4.0
Carbon	4.8	Centre	4.3	Chester	5.0
Clarion	3.7	Clearfield	4.0	Clinton	4.2
Columbia	4.6	Crawford	3.6	Cumberland	4.7
Dauphin	4.8	Delaware	5.0	Elk	3.9
Erie	3.6	Fayette	4.1	Forest	3.8
Franklin	4.8	Fulton	4.6	Greene	3.9
Huntingdon	4.6	Indiana	4.0	Jefferson	3.9
Juniata	4.5	Lackawanna	4.7	Lancaster	5.0
Lawrence	3.7	Lebanon	4.8	Lehigh	4.9
Luzerne	4.7	Lycoming	4.3	McKean	3.9
Mercer	3.7	Mifflin	4.4	Monroe	4.8
Montgomery	5.0	Montour	4.5	Northampton	4.9
Northumberland	4.6	Perry	4.6	Philadelphia	5.0
Pike	4.9	Potter	4.0	Schuylkill	4.7
Snyder	4.5	Somerset	4.3	Sullivan	4.4
Susquehanna	4.5	Tioga	4.2	Union	4.4
Venango	3.7	Warren	3.8	Washington	3.9
Wayne	4.7	Westmoreland	4.0	Wyoming	4.5
York	4.9				

References: U.S. Weather Bureau Technical Paper 40.

IV. SOURCES OF WASTEWATER FOR OUTFALL _____

B. _____

1. Source(s):

2. Discharge Occurs: _____ hrs/day; _____ days/wk; _____ days/yr; _____ months/yr

During which months? _____

Long-Term Average Discharge Rate _____ (units _____); Representative Monthly Discharge Rate _____ (units _____)

Maximum Daily Discharge Rate _____ (units _____)

C. _____

1. Source(s):

2. Discharge Occurs: _____ hrs/day; _____ days/wk; _____ days/yr; _____ months/yr

During which months? _____

Long-Term Average Discharge Rate _____ (units _____); Representative Monthly Discharge Rate _____ (units _____)

Maximum Daily Discharge Rate _____ (units _____)

D. Total Process, Miscellaneous Non-Contact Cooling, and Sanitary Wastewater (not stormwater)

1. Source(s):

2. Discharge Occurs: _____ hrs/day; _____ days/wk; _____ days/yr; _____ months/yr

During which months? _____

Long-Term Average Discharge Rate _____ (units _____); Representative Monthly Discharge Rate _____ (units _____)

Maximum Daily Discharge Rate _____ (units _____)

E. Stormwater Runoff (See instructions)

10-yr, 24-hr. Rainfall (inches)		Drainage Area Size	Units		Conversion Factor		10-Year 24-hr Runoff Volume	Units
_____	X	_____	Ft^2	X	0.623	=		Gallons
_____	X	_____	Yd^2	X	5.61	=		Gallons
_____	X	_____	Acres	X	27.1521	=		Gallons

INSTRUCTIONS FOR COMPLETING FORM

V. ANALYSIS OF EFFLUENT QUALITY

General Instructions

All Dischargers are to follow these instructions and complete the worksheet on page 9.b (see instruction 3 below). This worksheet is to be submitted with the completed application package.

The purpose of Question V is to develop as clear a picture as possible concerning the chemical constituents of the wastewater being discharged or expected to be discharged. Information gathered in support of this question must therefore be representative of normal plant operations, with all processes which contribute wastewater in normal operation, and with a properly operating treatment facility (where treatment is provided) which is not experiencing "upset" conditions.

Normally, only samples results from the past year should be reported; however, data from samples taken less recently may be used provided that: (1) all data quality requirements are met; (2) sampling was done no more than three (3) years before application submittal; and (3) all data are representative of the present discharge. Factors which can result in unrepresentative data include significant changes in production levels, raw materials, manufacturing processes or final products, and wastewater treatment processes.

1. Reporting Effluent Quality

Information on effluent quality is to be developed and presented in Question V for each outfall. If you have two or more substantially identical outfalls, you may request permission to sample and analyze only one outfall and to submit the results of the analysis for the other substantially identical outfall (this may be particularly applicable where more than one outfall discharges Type I stormwater runoff from the same drainage area). Blank pages may be photocopied as needed for the number of outfalls to be described.

The actual sampling events and analytical work must comply with the Sampling and Analytical Testing Instructions associated with this application package.

Where so indicated on Question V, specify the analytical detection level achieved for the pollutant and associated wastewater matrix. It is in the applicant's interest to achieve a level of detection equal to (or better than) those listed on Question V. This will minimize the potential for establishing a large number of effluent limits and/or monitoring requirements in the Final NPDES permit. If the applicant cannot achieve these minimum acceptable detection levels, then an explanation must accompany the application.

Also where so indicated, specify the EPA method number associated with the analytical method used. EPA method numbers are contained in EPA regulations 40 CFR 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act."

2. Reporting Intake Water Quality

Although Question V is designed primarily for reporting effluent data, it may also be used to describe plant intake water quality. You are not required to report data on intake water quality unless you are asking for "net" effluent limitations in order to demonstrate compliance with BCT/BAT requirements. You may also want to sample intake water quality to assist in explaining the presence of pollutants in once-through cooling water or in the blowdown from recirculating cooling water systems, or in other discharges. Before carrying out such intake sampling, it is advisable to discuss the reasons for doing so with the appropriate Regional Office.

INSTRUCTIONS FOR COMPLETING FORM

V. ANALYSIS OF EFFLUENT QUALITY (General Instructions, continued)

3. Determining Required Number of Sampling Events and Pollutants to be Analyzed

After reviewing the specific instructions listed below, complete the table on page 9.b, then fill in the applicable portions of Question V for each outfall listed. Submit the table on page 9.b with your application.

(1) **Process Wastewater (includes contact cooling water)** - Referring to Table 2 of these instructions, determine the applicable industrial category and the applicable groupings of pollutants for Question V which must be analyzed. The results of at least three (3) separate sampling events must be reported for each process wastewater outfall.

Note: As Table 2 indicates, you may not be required to test for certain groupings of pollutants; however, if you know or expect that any pollutants from those groupings are present in the wastewater, you must sample and analyze for those specific pollutants and report the results accordingly under Question V.

(2) **Non-Contact Cooling Water (NCCW)** - If only NCCW is being discharged, analysis is required only for the following Group Aand B parameters for Question V: 2C, 4C, 5C, 7C, 8C, 9C, 10C, 11C, 12C, 18C, 22C, 6M, 7M, 14M, 23M. The results of at least one sampling event must be submitted. See Question VI for reporting data on cooling water conditioning chemicals.

(3) **Sanitary Wastewater** - If only sanitary wastewater is being discharged, analysis is required only for the following Group Aand B parameters for Question V: 1C, 4C, 6C, 9C, 12C, 14C, 16C, 18C. The results of at least one sampling event must be reported.

(4) **Plant Area Stormwater Runoff (SWRO)**

Type I SWRO (1) is subject to EPA effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards; or (2) emanates from plant yard areas, immediate access roads, drainage ponds, refuse piles, storage piles, storage areas, materials or product loading and unloading areas

One sampling event consisting of one to four grab samples must be carried out, depending upon the duration of the discharge. One grab must be taken in the first hour (or less) of discharge, with one additional grab (up to a minimum of four) taken in each succeeding hour of discharge for discharges lasting four or more hours. Composite the samples and run one analysis.

Type I SWRO must be analyzed for the following Group A and B parameters for Question V: 2C, 3C, 4C, 5C, 7C, 17M, 23M, plus any other pollutants from Groups A-D which the applicant knows or suspects may be contaminating the SWRO for the outfall in question, or which are included in an applicable EPA effluent regulation.

Type II SWRO - has minimal contamination potential and originates from areas separate from the plant's industrial activities (such as office buildings and accompanying parking lots). No sampling and analysis is required for Type II SWRO.

(5) **Miscellaneous Wastewaters** (see definition on page 8L) - are to be analyzed for any Group A-E pollutants which the applicant knows or suspects to be present in such discharges. One sampling event is required.

INSTRUCTIONS FOR COMPLETING FORM

V. ANALYSIS OF EFFLUENT QUALITY (General Instructions, continued)

New Dischargers

New dischargers that have effluent data available should follow the standard directions on page 9.a for existing dischargers. New dischargers that do not have an effluent to sample and analyze should review the instructions on page 9.a and estimate and report the data for the parameters of the appropriate Groups (A-E) for each proposed outfall. Base these estimates on your knowledge of the proposed facility's raw materials, maintenance chemicals, intermediate and final products, byproducts, and any analyses of your expected effluent or of any similar effluent. You may also provide such determinations and estimates based on available in-house or contractor's engineering reports, pilot plant studies, or any other studies performed on the proposed facility. Any available data from representative analyses should be reported as applicable.

New dischargers should also indicate the basis for the information reported on Question V for the proposed outfalls. Indicate the basis using the following notations:

1. Actual data from pilot plant.
2. Estimates from other engineering studies.
3. Data from other similar plants.
4. Best professional estimates.
5. Other - specify on the form or by attached sheet.

****** ALL DISCHARGERS SUBMIT THIS TABLE WITH YOUR APPLICATION ******

Outfall Number	Discharge Contains (see descriptions on page 9.a)					Pollutants or Pollutant Groupings which must be Sampled for and Analyzed	Required No. of Sample Events (see Pg. 9.a)
	Process Waste (1)	NCCW (2)	Sanitary Waste (3)	Type I SWRO (4)	Misc. Waste (5)		
Example 003				X		2C, 3C, 4C, 5C, 7C, 17M 23M	1

****** SUBMIT THIS TABLE WITH YOUR APPLICATION ******

V. ANALYSIS OF EFFLUENT/INTAKE QUALITY - INDUSTRIAL WASTEWATER

NPDES Number PA _____

☐ Outfall Number _____ ☐ Intake Sample (specify location of sample)

☐ Existing Discharge ☐ New Discharge (describe basis for information presented, see page 9.b instructions for Question V)

	1. POLLUTANT GROUP A	2. LEVEL PRESENT							3. UNITS	
		a. Maximum Daily Value*		b. Maximum 30 Day Value (if available)**		c. Long Term Avgs. Value (if available)***		d. No. of Analyses	a. Concentration	b. Mass
		(1) Concentration	(2) Mass	(1) Concentration	(2) Mass	(1) Concentration	(2) Mass			
10C	Biochemical Oxygen Demand, BOD									
20C	Chemical Oxygen Demand, COD									
30C	Total Organic Carbon, TOC									
40C	Total Suspended Solids, TSS									
50C	Total Dissolved Solids, TDS									
60C	Ammonia as N									
70C	Oil and Grease									
80C	Bromide									
90C	Chlorine, Total Residual									
100C	Temperature winter	Value		Value		Value			(°C)	(°C)
110C	Temperature summer	Value		Value		Value			(°C)	(°C)
120C	pH	Minimum	Maximum	X	X	X	X		standard units	standard units

* Maximum Daily Value - Report the highest daily value from the last year of data. For composite samples, this value is the total mass or average concentration found in a composite sample taken over the operating hours of the facility during a 24 hour period. For grab samples, this value is the arithmetic or flow-weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24 hour period.

** Maximum 30 Day Value - Determine the average of all daily values taken during each calendar month and report the highest average.

*** Long Term Average Value - If you measure more than one daily value for a pollutant, determine the average of all values within the last year and report both the mass and concentration

V. ANALYSIS OF EFFLUENT/INTAKE QUALITY - INDUSTRIAL WASTEWATER

NPDES Number PA _____

☐ Outfall Number _____ ☐ Intake Sample (specify location of sample)

☐ Existing Discharge ☐ New Discharge (Describe basis for information presented, see page 9.b Instructions for Question V)

	POLLUTANT GROUP B	Minimum Acceptable Detection Level (µg/l)	1. Detection Level Used (µg/l)	2. EPA Method Number Used	3. Level Present					4. Units		5. If you have any reason to expect the pollutant to be normally present in this discharge, check the appropriate block or describe another reason.						
					a. Max Daily Value		b. Average of Analyses		c. Number of Analysis			Raw Material	Manufactured	Stored	Intermediate Product	By-Product	Intake Water	Other (Explain)
					Concentration	Mass	Concentration	Mass		Concentration	Mass							
13C	Color																	
14C	Fecal Coliform																	
15C	Fluoride	100																
16C	Nitrate-Nitrite (as N)																	
17C	Nitrogen, Total Organic (as N)																	
18C	Phosphorus (as P), Total																	
19C	Sulfate (as SO_4)	1,000																
20C	Sulfide (as S)	1,000																
21C	Sulfite (as SO_3)	2,000																
22C	Surfactants (MBAS)	25																

3.a Maximum Daily Value - Report the highest daily value from the last year of data. For composite samples, this value is the total mass or average concentration found in a composite sample taken over the operating hours of the facility during a 24 hour period. For grab samples, this value is the arithmetic or flow-weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24 hour period.

3.b Average of Analyses - Determine the average of all samples taken within the past year, and report both mass and concentration.

V. ANALYSIS OF EFFLUENT/INTAKE QUALITY - INDUSTRIAL WASTEWATER

NPDES Number PA _____

☐ Outfall Number _____ ☐ Intake Sample (specify location of sample)

☐ Existing Discharge ☒ New Discharge (describe basis for information presented, see page 9.b Instructions for Question V)

	POLLUTANT GROUP B (continued)	Minimum Acceptable Detection Level (µg/l)	1. Detection Level Used (µg/l)	2. EPA Method Number Used	3. Level Present					4. Units		5. If you have any reason to expect the pollutant to be normally present in this discharge, check the appropriate block or describe another reason.						
					a. Max Daily Value		b. Average of Analyses		c. Number of Analysis			Raw Material	Manufactured	Stored	Intermediate Product	By Product	Intake Water	Other (Explain)
					Concentration	Mass	Concentration	Mass		Concentration	Mass							
1M	Antimony, Total	200																
2M	Arsenic, Total	50																
3M	Beryllium, Total,	5																
4M	Cadmium, Total	5																
5M	Chromium, Total	50																
6M	Chromium, Hexavalent	10																
7M	Copper, Total	20																
8M	Lead, Total	100																
9M	Mercury, Total	0.2																
10M	Nickel, Total	40																
11M	Selenium, Total	75																
12M	Silver, Total	10																
13M	Thallium, Total	100																
14M	Zinc, Total	5																
15M	Cyanide, Total	20																
16M	Cyanide, Free	5																

3.a Maximum Daily Value - Report the highest daily value from the last year of data. For composite samples, this value is the total mass or average concentration found in a composite sample taken over the operating hours of the facility during a 24 hour period. For grab samples, this value is the arithmetic or flow-weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24 hour period.

3.b Average of Analyses - Determine the average of all samples taken within the past year, and report both mass and concentration.

V. ANALYSIS OF EFFLUENT/INTAKE QUALITY - INDUSTRIAL WASTEWATER

NPDES Number PA _____

☐ Outfall Number _____ ☐ Intake Sample (specify location of sample)

☐ Existing Discharge ☐ New Discharge (describe basis for information presented, see page 9.b Instructions for Question V)

	POLLUTANT GROUP B (continued)	Minimum Acceptable Detection Level (µg/l)	1. Detection Level Used (µg/l)	2. EPA Method Number Used	3. Level Present					4. Units		5. If you have any reason to expect the pollutant to be normally present in this discharge, check the appropriate block or describe another reason.						
					a. Max Daily Value		b. Average of Analyses		c. Number of Analysis									
					Concentration	Mass	Concentration	Mass		Concentration	Mass	Raw Material	Manufactured	Stored	Intermediate Product	By Product	Intake Water	Other (Explain)
17M	Phenols, Total	5																
18M	Aluminum, Total	100																
19M	Barium, Total	100																
20M	Boron, Total	100																
21M	Cobalt, Total	50																
22M	Iron, Total	30																
23M	Iron, Dissolved	30																
24M	Magnesium, Total	30																
25M	Molybdenum, Total	100																
26M	Manganese, Total	10																
27M	Tin, Total	500																
28M	Titanium, Total	400																

3.a Maximum Daily Value - Report the highest daily value from the last year of data. For composite samples, this value is the total mass or average concentration found in a composite sample taken over the operating hours of the facility during a 24 hour period. For grab samples, this value is the arithmetic or flow-weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24 hour period.

3.b Average of Analyses - Determine the average of all samples taken within the past year, and report both mass and concentration.

V. ANALYSIS OF EFFLUENT/INTAKE QUALITY - INDUSTRIAL WASTEWATER

NPDES Number PA _____

☐ Outfall Number _____ ☐ Intake Sample (specify location of sample)

☐ Existing Discharge ☐ New Discharge (describe basis for information presented, see page 9.b Instructions for Question V)

	POLLUTANT GROUP C-1 Volatile Organics**	Minimum Acceptable Detection Level (µg/l)	1. Detection Level Used (µg/l)	2. EPA Method Number Used	3. Level Present					4. Units		5. If you have any reason to expect the pollutant to be normally present in this discharge, check the appropriate block or describe another reason.						
					a. Max Daily Value		b. Average of Analyses		c. Number of Analysis									
					Concentration	Mass	Concentration	Mass		Concentration	Mass	Raw Material	Manufactured	Stored	Intermediate Product	By Product	Intake Water	Other (Explain)
1V	Acrolein	10																
2V	Acrylonitrile	10																
3V	Benzene	10																
5V	Bromoform	10																
6V	Carbon Tetrachloride	10																
7V	Chlorobenzene	10																
8V	Chlorodibromomethane	10																
9V	Chloroethane	10																
10V	2-Chloroethylvinyl Ether	10																
11V	Chloroform	10																
12V	Dichlorobromomethane	10																
14V	1,1-Dichloroethane	10																
15V	1,2-Dichloroethane	10																
16V	1,1-Dichloroethylene	10																
17V	1,2 Dichloropropane	10																
18V	1,3-Dichloropropylene	10																
19V	Ethylbenzene	10																

3.a - Maximum Daily Value - Report the highest daily value from the last year of data. For composite samples, this value is the total mass or average concentration found in a composite sample taken over the operating hours of the facility during a 24 hour period. For grab samples, this value is the arithmetic or flow weighted total mass or average concentration found in a series of grab samples taken over the operating hours of the facility during a 24 hour period.

3.b - Average Value - Determine the average of all samples taken within the past year, and report both mass and concentration.

3.c - Number of Analyses - Indicate the number of MS/S peak pollutants

V. ANALYSIS OF EFFLUENT/INTAKE QUALITY - INDUSTRIAL WASTEWATER

NPDES Number PA _____

☐ Outfall Number _____ ☐ Intake Sample (specify location of sample)

☐ Existing Discharge ☐ New Discharge (describe basis for information presented, see page 9.b Instructions for Question V)

	POLLUTANT GROUP C-1 Volatile Organics**	Minimum Acceptable Detection Level (µg/l)	1. Detection Level Used (µg/l)	2. EPA Method Number Used	3. Level Present					4. Units		5. If you have any reason to expect the pollutant to be normally present in this discharge, check the appropriate block or describe another reason.						
					a. Max Daily Value		b. Average of Analyses		c. Number of Analysis									
					Concentration	Mass	Concentration	Mass		Concentration	Mass	Raw Material	Manufactured	Stored	Intermediate Product	By-Product	Intake Water	Other (Explain)
20V	Methyl Bromide	10																
21V	Methyl Chloride	10																
22V	Methylene Chloride	10																
23V	1,1,2,2-Tetrachloroethane	10																
24V	Tetrachloroethylene	10																
25V	Toluene	10																
26V	1,2 Trans-Dichloroethylene	10																
27V	1,1,1 Trichloroethane	10																
28V	1,1,2 Trichloroethane	10																
29V	Trichloroethylene	10																
31V	Vinyl Chloride	10																

a. Maximum Daily Value - Report the highest daily value from the last year of data. For composite samples, this value is the total mass or average concentration found in a composite sample taken over the operating hours of the facility during a 24 hour period. For grab samples, this value is the arithmetic or flow-weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24 hour period.

b. Average of Analyses - Determine the average of all samples taken within the past year, and report both mass and concentration.

** [illegible] Volatiles, add the GC/MS 5 peak pollutants

V. ANALYSIS OF EFFLUENT/INTAKE QUALITY - INDUSTRIAL WASTEWATER

NPDES Number PA _____

☐ Outfall Number _____ ☐ Intake Sample (specify location of sample)

☐ Existing Discharge ☐ New Discharge (describe basis for information presented, see page 9.b Instructions for Question V)

	POLLUTANT GROUP C-2 Acid-Fraction Organics**	Minimum Acceptable Detection Level (µg/l)	1. Detection Level Used (µg/l)	2. EPA Method Number Used	3. Level Present					4. Units		5. If you have any reason to expect the pollutant to be normally present in this discharge, check the appropriate block or describe another reason.						
					a. Max Daily Value		b. Average of Analyses		c. Number of Analysis									
					Concentration	Mass	Concentration	Mass		Concentration	Mass	Raw Material	Manufactured	Stored	Intermediate Product	By Product	Intake Water	Other (Explain)
1A	2-Chlorophenol	10																
2A	2,4-Dichlorophenol	10																
3A	2,4-Dimethylphenol	10																
4A	4,6-Dinitro-o-Cresol	10																
5A	2,4-Dinitrophenol	50																
6A	2-Nitrophenol	10																
7A	4-Nitrophenol	50																
8A	P-Chloro-m-Cresol	10																
9A	Pentachlorophenol	50																
10A	Phenol	10																
11A	2,4,6-Trichlorophenol	10																

3.a Maximum Daily Value. Report the highest daily value from the last year of data. For composite samples, this value is the total mass or average concentration found in a composite sample taken over the operating hours of the facility during a 24 hour period. For grab samples, this value is the arithmetic or flow-weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24 hour period.

3.b Average of Analyses. Determine the average of all samples taken within the past year, and report both mass and concentration.

** See Instructions for Question V with regard to GC/MS 5 peak pollutants.

V. ANALYSIS OF EFFLUENT/INTAKE QUALITY - INDUSTRIAL WASTEWATER

NPDES Number PA _____

☐ Outfall Number _____ ☐ Intake Sample (specify location of sample)

☐ Existing Discharge ☐ New Discharge (describe basis for information presented, see page 9.b Instructions for Question V)

	POLLUTANT GROUP C-3 Base-Neutral Fraction Organics**	Minimum Acceptable Detection Level (µg/l)	1. Detection Level Used (µg/l)	2. EPA Method Number Used	3. Level Present					4. Units		5. If you have any reason to expect the pollutant to be normally present in this discharge, check the appropriate block or describe another reason.						
					a. Max Daily Value		b. Average of Analyses		c. Number of Analysis									
					Concentration	Mass	Concentration	Mass		Concentration	Mass	Raw Material	Manufactured	Stored	Intermediate Product	By-Product	Intake Water	Other (Explain)
1B	Acenaphthene	10																
2B	Acenaphthylene	10																
3B	Anthracene	10																
4B	Benzidine	50																
5B	Benzo (a) Anthracene	10																
6B	Benzo (a) Pyrene	10																
7B	3,4-Benzo-fluoranthene	10																
8B	Benzo (*ghi*) Perylene	10																
9B	Benzo (k) Fluoranthene	10																
10B	Bis (2-*Chloro-ethoxy*) Methane	10																
11B	Bis (2-*Chloroethyl*) Ether	10																
12B	Bis (2-*Chloro-isopropyl*) Ether	10																
13B	Bis (2-*Ethylhexyl*) Phthalate	10																
14B	4-Bromophenyl Phenyl Ether	10																

3.a Maximum Daily Value Report the highest daily value from the last year of data. For composite samples, this value is the total mass or average concentration found in a composite sample taken over the operating hours of the facility during a 24 hour period. For grab samples, this value is the arithmetic or flow-weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24 hour period.

3.b Average of Analyses Determine the average of all samples taken within the past year, and report both mass and concentration.

** See Instructions for Question VI with regard to GC/MS 5 peak pollutants.

V. ANALYSIS OF EFFLUENT/INTAKE QUALITY - INDUSTRIAL WASTEWATER

NPDES Number PA _____

☐ Outfall Number _____ ☐ Intake Sample (specify location of sample)

☐ Existing Discharge ☐ New Discharge (describe basis for information presented, see page 9.b Instructions for Question V)

	POLLUTANT GROUP C-3 Base-Neutral Fraction Organics**	Minimum Acceptable Detection Level (µg/l)	1. Detection Level Used (µg/l)	2. EPA Method Number Used	3. Level Present					4. Units		5. If you have any reason to expect the pollutant to be normally present in this discharge, check the appropriate block or describe another reason.						
					a. Max Daily Value		b. Average of Analyses		c. Number of Analyses			Raw Material	Manufactured	Stored	Intermediate Product	By Product	Intake Water	Other (Explain)
					Concentration	Mass	Concentration	Mass		Concentration	Mass							
15B	Butyl Benzyl Phthalate	10																
16B	2-Chloronaphthalene	10																
17B	4-Chlorophenyl Phenyl Ether	10																
18B	Chrysene	10																
19B	Dibenzo (a,h) Anthracene	10																
20B	1,2-Dichlorobenzene	10																
21B	1,3-Dichlorobenzene	10																
22B	1,4-Dichlorobenzene	10																
23B	3,3'-Dichlorobenzidine	50																
24B	Diethyl Phthalate	20																
25B	Dimethyl Phthalate	20																
26B	Di-N Butyl Phthalate	20																
27B	2,4-Dinitrotoluene	10																
28B	2,6-Dinitrotoluene	10																
29B	Di-N-Octyl Phthalate	20																
30B	1,2-Diphenylhydrazine (as Azobenzene)	10																

3.a Maximum Daily Value - Report the highest daily value from the last year of data. For composite samples, this value is the total mass or average concentration found in a composite sample taken over the operating hours of the facility during a 24 hour period. For grab samples, this value is the arithmetic or flow weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24 hour period.

3.b Average of Analyses - Determine the average of all samples taken within the past year, and report both mass and concentration.

** See Instructions for Question VI with regard to GC/MS 5 peak pollutants.

V. ANALYSIS OF EFFLUENT/INTAKE QUALITY - INDUSTRIAL WASTEWATER

NPDES Number PA _____

☐ Outfall Number _____ ☐ Intake Sample (specify location of sample)

☐ Existing Discharge ☐ New Discharge (describe basis for information presented, see page 9.b Instructions for Question V)

	POLLUTANT GROUP C-3 Base-Neutral Fraction Organics**	Minimum Acceptable Detection Level (µg/l)	1. Detection Level Used (µg/l)	2. EPA Method Number Used	3. Level Present					4. Units		5. If you have any reason to expect the pollutant to be normally present in this discharge, check the appropriate block or describe another reason.						
					a. Max Daily Value		b. Average of Analyses		c. Number of Analysis			Raw Material	Manufactured	Stored	Intermediate Product	By-Product	Intake Water	Other (Explain)
					Concentration	Mass	Concentration	Mass		Concentration	Mass							
31B	Fluoranthene	10																
32B	Fluorene	10																
33B	Hexachlorobenzene	10																
34B	Hexachlorobutadiene	10																
35B	Hexachloro-cyclopentadiene	10																
36B	Hexachloroethane	10																
37B	Indeno (1,2,3-cd) Pyrene	10																
38B	Isophorone	10																
39B	Naphthalene	10																
40B	Nitrobenzene	10																
41B	N-Nitrosodi-methylamine	20																
42B	N-Nitrosodi-N-Propylamine	20																
43B	N-Nitrosodi-phenylamine	20																
44B	Phenanthrene	10																
45B	Pyrene	10																
46B	1,2,4-Trichlorobenzene	10																

4.a Maximum Daily Value - Report the highest daily value from the last year of data. For composite samples, this value is the total mass or average concentration found in a composite sample taken over the operating hours of the facility during a 24 hour period. For grab samples, this value is the arithmetic or flow weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24 hour period.

4.b Average of Analyses - Determine the average of all samples taken within the past year, and report both mass and concentration.

** See instructions for Question VI with regard to GC/MS 5 peak pollutants.

V. ANALYSIS OF EFFLUENT/INTAKE QUALITY - INDUSTRIAL WASTEWATER

NPDES Number PA _____

☐ Outfall Number _____ ☐ Intake Sample (specify location of sample)

☐ Existing Discharge ☐ New Discharge (describe basis for information presented, see page 9.b Instructions for Question V)

	POLLUTANT GROUP C-4 Pesticides**	Minimum Acceptable Detection Level (µg/l)	1. Detection Level Used (µg/l)	2. EPA Method Number Used	3. Level Present					4. Units		5. If you have any reason to expect the pollutant to be normally present in this discharge, check the appropriate block or describe another reason.						
					a. Max Daily Value		b. Average of Analyses		c. Number of Analysis									
					Concentration	Mass	Concentration	Mass		Concentration	Mass	Raw Material	Manufactured	Stored	Intermediate Product	By-Product	Intake Water	Other (Explain)
1P	Aldrin	10																
2P	Alpha BHC	10																
3P	Beta BHC	10																
4P	Gamma BHC	10																
5P	Delta BHC	10																
6P	Chlordane	10																
7P	4,4' DDT	10																
8P	4,4' DDE	10																
9P	4,4' DDD	10																
10P	Dieldrin	10																
11P	Alpha-Endosulfan	10																
12P	Beta-Endosulfan	10																
13P	Endosulfan Sulfate	10																
14P	Endrin	10																
15P	Endrin Aldehyde	10																
16P	Heptachlor	10																
17P	Heptachlor Epoxide	10																
25P	Toxaphene	10																
26P	DIOXIN:* 2,3,7,8-Tetrachlorodibenzo P Dioxin																	

3.a Maximum Daily Value - Report the highest daily value from the last year of data. For composite samples, this value is the total mass or average concentration found in a composite sample taken over the operating hours of the facility during a 24 hour period. For grab samples, this value is the arithmetic or flow-weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24 hour period.

3.b Average of Analyses - Determine the average of all samples taken within the past year, and report both mass and concentration.

** See Instructions for Question VI with regard to GC/MS 5 peak pollutants.

* Analysis for Dioxin is not required unless your response to Question VI.B indicates a need to do such testing.

V. ANALYSIS OF EFFLUENT/INTAKE QUALITY - INDUSTRIAL WASTEWATER

NPDES Number PA _____

☐ Outfall Number _____ ☐ Intake Sample (specify location of sample)

☐ Existing Discharge ☐ New Discharge (describe basis for information presented, see page 9.b Instructions for Question V)

	POLLUTANT GROUP D PCB's**	Minimum Acceptable Detection Level (µg/l)	1. Detection Level Used (µg/l)	2. EPA Method Number Used	3. Level Present					4. Units		5. If you have any reason to expect the pollutant to be normally present in this discharge, check the appropriate block or describe another reason.						
					a. Max Daily Value		b. Average of Analyses		c. Number of Analyses			Raw Material	Manufactured	Stored	Intermediate Product	By-Product	Intake Water	Other (Explain)
					Concentration	Mass	Concentration	Mass		Concentration	Mass							
18P	PCB-1242	20																
19P	PCB-1254	20																
20P	PCB-1221	20																
21P	PCB-1232	20																
22P	PCB-1248	20																
23P	PCB-1260	20																
24P	PCB-1016	20																

3.a Maximum Daily Value - Report the highest daily value from the last year of data. For composite samples, this value is the total mass or average concentration found in a composite sample taken over the operating hours of the facility during a 24 hour period. For grab samples, this value is the arithmetic or flow-weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24 hour period.

3.b Average of Analyses - Determine the average of all samples taken within the past year, and report both mass and concentration.

** See Instructions for Question VI with regard to GC/MS 6-peak pollutants.

V. ANALYSIS OF EFFLUENT/INTAKE QUALITY - INDUSTRIAL WASTEWATER

NPDES Number PA _____

☐ Outfall Number _____ ☐ Intake Sample (specify location of sample)

☐ Existing Discharge ☐ New Discharge (describe basis for information presented, see page 9.b Instructions for Question V)

	POLLUTANT GROUP E Radioactivity	Minimum Acceptable Detection Level (µg/l)	1. Detection Level Used (µg/l)	2. EPA Method Number Used	3. Level Present					4. Units		5. If you have any reason to expect the pollutant to be normally present in this discharge, check the appropriate block or describe another reason.						
					a. Max Daily Value		b. Average of Analyses		c. Number of Analysis									
					Concentration	Mass	Concentration	Mass		Concentration	Mass	Raw Material	Manufactured	Stored	Intermediate Product	By Product	Intake Water	Other (Explain)
1R	Radioactivity: (1) Alpha, Total	Not Available																
2R	(2) Beta, Total	"																
3R	(3) Radium, Total	"																
4R	(4) Radium 226, Total	"																

3.a Maximum Daily Value - Report the highest daily value from the last year of data. For composite samples, this value is the total mass or average concentration found in a composite sample taken over the operating hours of the facility during a 24 hour period. For grab samples, this value is the arithmetic or flow-weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24 hour period.

3.b Average of Analyses - Determine the average of all samples taken within the past year, and report both mass and concentration.

INSTRUCTIONS FOR COMPLETING FORM

VI. INFORMATION ON OTHER POTENTIALLY TOXIC POLLUTANTS KNOWN OR EXPECTED TO BE PRESENT

The pollutant groupings for Question V do not include all of the toxic substances which may possibly be present in industrial discharges. In order to more fully evaluate the potential toxic impacts of the facility's discharges, qualitative effluent data for the types of chemicals described below are to be reported using the tabular format provided. Any additional required information (also described below) is to be submitted using attached sheets.

Sampling and laboratory analytical procedures for these chemicals are to conform with the attached Sampling and Analytical Testing Instructions for Industrial Discharges, to the maximum extent possible.

Based on the information presented, the Department will decide whether or not effluent limitations or other control requirements are necessary for these pollutants.

A. Water Conditioning Chemical Additives

These include chemicals used to control scale, corrosion, and biological growths in potable water, plant service water, and cooling water systems. List the main chemical ingredients when answering Question VI.

In addition to the tabular information for Question VI, provide the following:

1. Name and address of the chemical additive manufacturer(s)
2. Trade name(s) of the additive
3. Material Safety Data Sheets or other available information on the mammalian or aquatic toxicological effects
4. Available data on the degradation or decomposition of the additive in the aquatic environment

B. Dioxin

If you use or manufacture any one of the following compounds:

(a) 2,4,5 trichlorophenoxy acetic acid (2,4,5-T),

(b) 2-(2,4,5 trichlorophenoxy) propanoic acid (silvex, 2,4,5-TP),

(c) 2-(2,4,5 trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon),

(d) o,o-dimethyl o-(2,4,5-trichlorophenyl) phosphorothioate (Ronnel),

(e) 2,4,5-trichlorophenol (TCP) or

(f) hexachlorophene (HCP)

or if you know or have reason to believe that 2, 3, 7, 8-tetrachloro dibenzo-p-diozin (TCDD) is, or may be present in your discharge, then you must report qualitative data per outfall suspected. The data is to be generated by using a screening procedure for dioxins which uses gas chromotography with an electron capture detector. A TCDD standard for quantitation is not required. Report the results as either:

"no measurable baseline deflection at the retention time of TCDD" or

"a measurable peak within the tolerances of the retention time of TCDD"

C. Specific Substances which must be Identified if Known or Expected to be Present

1. Table 3 Substances - although primarily for use in conjunction with Question VII, if any of these substances are expected to be discharged then they must be analyzed and reported. Disregard those which are effectively addressed under Question V (for example, silver nitrate would be reported under Question V as 11M-Silver)

2. Table 4 Substances - EPA's NPDES program regulations 40 CFR 122.21(g)(7) require these substances to be identified if known or expected to be discharged. As applicable, analyze and report on those which are so identified.

D. Any Other Toxic Chemicals Known or Expected to be Present in the Discharge

1. GC/MS 5-Peaks - When performing the required GC/MS analysis on Primary Industry process wastewater, identify the five (5) highest GC/MS peaks for pollutants not otherwise included under Groups C_1-C_4 and D of Question V. Quantify their levels of presence to the maximum extent possible.

2. Other Chemicals - Base this upon your knowledge of the use or manufacturing of various chemicals or other materials at your facility which are likely to be present in any of your discharges.

NPDES Number PA _____

VI. INFORMATION AND ANALYSIS OF EFFLUENT QUALITY FOR OTHER POTENTIALLY TOXIC POLLUTANTS KNOWN OR EXPECTED TO BE PRESENT IN THE DISCHARGE

(Read instructions carefully and use the tabular format and additional pages, where necessary, to present the required information)

Outfall	Chemical Substance or Compound	Reason for Presence in Discharge	Average Effluent Concentration (µg/l)	Analytical Detection Level (µg/l)

INSTRUCTIONS FOR COMPLETING FORM

VII. HAZARDOUS SUBSTANCE REPORTING REQUIREMENT EXEMPTION (Optional)

Section 311 of the Clean Water Act, establishes spill reporting requirements, civil penalties and liability for cleanup costs for spills of oil and hazardous substances. When the quantity of that discharge in a 24-hour period exceeds the quantity listed in Table 3, the incident must normally be reported as a spill.

EPA's regulations 40 CFR 117 recognize, however, that it may be possible for a permitted discharge which is not a spill to exceed those quantities listed. Therefore, EPA allows a reporting exemption if the origin, source and amount of the discharged substances are identified in the NPDES permit application or in the permit and if the permit contains a requirement for treatment of the discharge and the treatment is in place.

Such discharge must be a continuous or anticipated intermittent discharge from an outfall identified in the permit or permit application and caused by normal events occuring within the scope of the relevant operating or treatment systems. This does not mean discharge as a result of a spill.

If you normally discharge any of the pollutants listed in Table 3 equal to or exceeding the quantity listed in lbs. per day in accordance with the above considerations, you should fill out Question VII answering the following questions for the substances of concern:

1. **The substance name and the amount (quantity, frequency and duration) of each substance which may be discharged.**

2. **The origin and source of the discharge of the substance.**

   For example, "Wastewater from cleaning Tank #4 will enter floor drains that discharge to the plant's wastewater treatment plant."

3. **The treatment to be provided for the discharge (describe by using the following codes):**

   a. **An onsite treatment system separate from any treatment system treating your normal discharge which is capable of reducing the amount of the pollutant.**

   b. **A treatment system designed to treat your normal discharge and which is additionally capable of treating the amount of the substance identified in this question; or**

   c. **Any combination of the above.**

VII. HAZARDOUS SUBSTANCE SPILL REPORTING REQUIREMENT EXEMPTION (Optional)

(See Instructions)

1. Name of Table 4 Substance	Outfall	Amount Per Outfall			2. Origin and Source	3. Treatment Provided		
		Quantity lb/24 hrs	Frequency	Duration		a	b	c

INSTRUCTIONS FOR COMPLETING FORM

VIII. ANTICIPATED ENVIRONMENTAL PROTECTION IMPROVEMENTS OR RELATED CHANGES

A. Check the appropriate box. If you answered yes complete all four questions. If no, go to B.

B. Check the box if you are planning any water pollution, air, solid waste or other environmental project which affects the quantity or quality of any outfalls proposed or present and attach the description and schedules for construction.

You may also use this section of the application form to explain any anticipated production or process changes which may ultimately affect your wastewater volume or quality.

VIII. ANTICIPATED ENVIRONMENTAL PROTECTION IMPROVEMENTS OR RELATED CHANGES

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☐ YES *(complete the following table)* ☐ NO *(go to B)*

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
	a. No	b. Source of Discharge		a. Required	b. Projected

B. OPTIONAL: You may attach additional sheets describing any additional environmental pollution control programs *(or other production projects)* which may affect your discharges which you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction.

☐ MARK "X" IF DESCRIPTION OF ADDITIONAL PROGRAMS IS ATTACHED

IX. BIOLOGICAL TOXICITY TEST DATA

Do you know or have reason to believe that any acute or chronic biological toxicity tests were made in the last three (3) years on any of the facility's discharges, or on a receiving water in relation to a discharge?

☐ Yes ☐ No

If yes, attach any information which you have available on the purpose and nature of such testing, and the test results.

X. CONTRACTED ANALYTICAL ASSISTANCE

Did a contract laboratory or consulting firm perform any of the analyses required by this application?

☐ Yes, their name(s), address(es) and list(s) of the analyses performed are given below: ☐ No

Name _____ Types of Analyses Performed: _____

Address _____

_____

_____

Phone (____) _____-_____

Name _____ Types of Analyses Performed: _____

Address _____

_____

_____

Phone (____) _____-_____

Name _____ Types of Analyses Performed: _____

Address _____

_____

_____

Phone (____) _____-_____

XI. OTHER INFORMATION

A. For New Dischargers:

1. Check the appropriate box and submit the report when yes is checked.

2. No studies need be conducted to respond to this item. Only data which is already available needs to be submitted.

This information will be used to inform the permit writer of appropriate treatment methods and their associated permit conditions and limits.

XI. OTHER INFORMATION

A. For New Dischargers Only: ☐ Check if Not Applicable

1. Have there been any technical evaluations performed concerning your anticipated wastewater treatment or control facilities (including engineering reports or pilot plant studies)? Check the appropriate box below.

☐ Yes ☐ No

If yes, briefly describe such evaluations and the resulting reports which have been prepared.

2. Provide the name and location of any existing plant(s) which, to the best of your knowledge, resembles your planned operation with respect to items produced, production processes, wastewater constituents or wastewater treatment.

Name	Location

B. For All Dischargers: (Optional)

Use attached sheets to expand upon responses to any of the above Questions I-X, or to call attention to any other information you feel should be considered in establishing permit limitations for the proposed or existing facility.

XII. CERTIFICATION AND SIGNATURE OF APPLICANT

WHO SHOULD SIGN?

For a Corporation: by a responsible corporate officer. For purposes of this section, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25,000,000 *(in second-quarter 1980 dollars)*, if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

For a Partnership or Sole Proprietorship: by a general partner or the proprietor, respectively.

For a Municipality, State, Federal, or Other Public Agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal Agency includes: (i) the chief executive officer of the Agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the Agency.

Note: The Department does not require specific assignments or delegation of authority to responsible corporate officers identified. The Department will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the Department to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate position rather than to specific individuals.

The Clean Water Act provides for severe penalties for submitting false information on this application form.

Section 309(c)(12) of the Clean Water Act provides that "Any person who knowingly makes any false statement, representation, or certification in any application, . . . shall upon conviction, be punished by a fine of no more than $10,000 or by imprisonment for more than six months, or both."

XII. CERTIFICATION AND SIGNATURE OF APPLICANT

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

_____
Print Name and Title of Person Signing

Sworn and subscribed to before me this

_____ day of _____ , 19 ___

( )
_____
Telephone Number of Person Signing

_____
Notary Public

_____
Signature of Applicant

Notary Seal

_____
Date Application Signed

Please note below the name, address and telephone number of the individual that should be contacted in the event additional information is required:

Name: _____

Address: _____

_____

Telephone: ( ) _____

TABLE 2
TESTING REQUIREMENTS FOR QUESTION V POLLUTANT GROUPS BY INDUSTRIAL CATEGORY

INDUSTRY CATEGORY	GROUP A	GROUP B	GROUP C				GROUP D	GROUP F
			C_1 Volatile	C_2 Acid	C_3 Base/ Neutral	C_4 Pesticide **	PCB's	Radio-activity
PRIMARY INDUSTRIES								
Adhesives and sealants	X	X	X	X	X	-		
Aluminum forming	X	X	X	X	X	-		
Auto and other laundries	X	X	X	X	X	X		
Battery manufacturing	X	X	X		X	-		
Coil coating	X	X	X	X	X	-		
Copper forming	X	X	X	X	X	-		
Electric & elec. components	X	X	X	X	X	X		X
Electroplating	X	X	X	X	X	-		
Explosives manufacturing	X	X	-	X	X	-		
Foundries	X	X	X	X	X	-		
Gum & wood chemicals, except	X	X	X	X	-	-		
- Tall Oil Resin (D)	X	X	X	X	X			
- Resin Based Derivatives (F)	X	X	X	X	X			
Inorganic chemicals mfg.	X	X	X	X	X	-		
Iron & steel manufacturing	X	X	X	X	X	-		
Leather tanning & finishing	X	X	X	X	X	-		
Mechanical products mfg.	X	X	X	X	X	-		
Nonferrous metals mfg.	X	X	X	X	X	X		
Ore mining/dressing, except	X	X	-	-	-	-		X
- Base/Precious metals (B)	X	X	-	X	-	-		X
Organic chemicals mfg.	X	X	X	X	X	X		
Paint and ink formulation	X	X	X	X	X	-		
Pesticides	X	X	X	X	X	X		
Petroleum refining	X	X	X	-	-	-		
Pharmaceutical preparations	X	X	X	X	X	-		
Photographic equipment and supplies	X	X	X	X	X	-		
Plastic & synthetic materials mfg	X	X	X	X	X	X		
Plastic processing	X	X	X	-	-	-		
Porcelain enameling	X	X	-	-	-	-		
Printing & publishing	X	X	X	X	X	X	X	

TABLE 2 (continued)

TESTING REQUIREMENTS FOR QUESTION V POLLUTANT GROUPS BY INDUSTRIAL CATEGORY

INDUSTRY CATEGORY	GROUP A	GROUP B	GROUP C				GROUP D	GROUP E
			C_1 Volatile	C_2 Acid	C_3 Base/ Neutral	C_4 Pesticide **	PCB's	Radio-activity
PRIMARY INDUSTRIES (cont'd)								
Pulp & paperboard mills, except	X	X	X	X	X	X		
- Subparts J, U	X	X	X	X	X			
- Subparts E, F, Q	X	X	X	X	-	-		
- Subparts B, C, H, R	X	X	-	X	-	-		
- Subparts G, I, K, O, S, T	X	X	X	-	-			
Rubber processing	X	X	X	X	X	-		
Soap & detergent mfg.	X	X	X	X	X			
Steam electric power, except	X	X	X	X	X		X	X
- once-thru cooling, and bottom/fly ash transport	X	X	X	X	-	-	X	X
Textile mills, except	X	X	X	X	X			
- Greige mills (C)	X	X	-	-	-			
Timber products processing	X	X	X	X	X	X		
SECONDARY INDUSTRIES								
Dairy Products	X							
Grain Mills	X							
Canned preserved fruits/vegetables	X							
Sugar processing	X							
Cement manufacturing	X							
Feedlots	X							
Ferro Alloys	X	X						
Glass Manufacturing	X	X						
Asbestos Manufacturing	X							
Meat Products	X							
Phosphate Manufacturing	X							
Hospitals	X	X	X	X	X			X
Oil & Gas Extraction *								
Research Laboratory	X	X	X	X	X			
Universities & Colleges	X	X	X	X	X			
Landfill Leachate	X	X	X	X	X	X	X	
Other Types of Discharges	X	X						

* Contact the Bureau of Oil and Gas Management for Testing Requirements.

** For Group C_4 Pesticides you are not required to test for TCDD (dioxin) unless your response to Question VI B indicates a need to do such testing.

TABLE 3. REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES (See Question VI.C and VII

	MATERIAL	QUANTITY lbs/24 hours
1.	Acetaldehyde	1,000
2.	Acetic acid	5,000
3.	Acetic anhydride	5,000
4.	Acetone cyanohydrin	10
5.	Acetyl bromide	5,000
6.	Acetyl chloride	5,000
7.	Acrolein	1
8.	Acrylonitrile	100
9.	Adipic acid	5,000
10.	Aldrin	1
11.	Allyl alcohol	100
12.	Allyl chloride	1,000
13.	Aluminum sulfate	5,000
14.	Ammonia	100
15.	Ammonium acetate	5,000
16.	Ammonium benzoate	5,000
17.	Ammonium bicarbonate	5,000
18.	Ammonium bichromate	1,000
19.	Ammonium bifluoride	100
20.	Ammonium bisulfite	5,000
21.	Ammonium carbamate	5,000
22.	Ammonium carbonate	5,000
23.	Ammonium chloride	5,000
24.	Ammonium chromate	1,000
25.	Ammonium citrate	5,000
26.	Ammonium fluoroborate	5,000
27.	Ammonium fluoride	100
28.	Ammonium hydroxide	1,000
29.	Ammonium oxalate	5,000
30.	Ammonium silicofluoride	1,000
31.	Ammonium sulfamate	5,000
32.	Ammonium sulfide	5,000
33.	Ammonium sulfite	5,000
34.	Ammonium tartrate	5,000
35.	Ammonium thiocyanate	5,000
36.	Ammonium thiosulfate	5,000
37.	Amyl acetate	5,000
38.	Aniline	5,000
39.	Antimony pentachloride	1,000
40.	Antimony potassium tartrate	100
41.	Antimony tribromide	1,000
42.	Antimony trichloride	1,000
43.	Antimony trifluoride	1,000
44.	Antimony trioxide	1,000
45.	Arsenic disulfide	5,000
46.	Arsenic pentoxide	5,000
47.	Arsenic trichloride	5,000
48.	Arsenic trioxide	5,000
49.	Arsenic trisulfide	5,000
50.	Barium cyanide	10
51.	Benzene	1,000
52.	Benzoic acid	5,000
53.	Benzonitrile	5,000
54.	Benzoyl chloride	1,000
55.	Benzyl chloride	100
56.	Beryllium chloride	5,000
57.	Beryllium fluoride	5,000
58.	Beryllium nitrate	5,000
59.	Butylacetate	5,000
60.	n-Butylphthalate	10
61.	Butylamine	1,000
62.	Butyric acid	5,000
63.	Cadmium acetate	100
64.	Cadmium bromide	100
65.	Cadmium chloride	100
66.	Calcium arsenate	1,000
67.	Calcium arsenite	1,000
68.	Calcium carbide	10
69.	Calcium chromate	1,000
70.	Calcium cyanide	10
71.	Calcium dodecylbenzene -sulfonate	1,000
72.	Calcium hypochlorite	10
73.	Captan	10
74.	Carbaryl	100
75.	Carbofuran	10
76.	Carbon disulfide	100
77.	Carbon tetrachloride	5,000
78.	Chlordane	1
79.	Chlorine	10
80.	Chlorobenzene	100
81.	Chloroform	5,000
82.	Chloropyrifos	1
83.	Chlorosulfonic acid	1,000
84.	Chromic acetate	1,000
85.	Chromic acid	1,000
86.	Chromic sulfate	1,000
87.	Chromous chloride	1,000
88.	Cobaltous bromide	1,000
89.	Cobaltous formate	1,000
90.	Cobaltous sulfamate	1,000
91.	Coumaphos	10
92.	Cresol	1,000
93.	Crotonaldehyde	100
94.	Cupric acetate	100
95.	Cupric acetoarsenite	100
96.	Cupric chloride	10
97.	Cupric nitrate	100
98.	Cupric oxalate	100
99.	Cupric sulfate	10
100.	Cupric sulfate ammoniated	100

TABLE 3. REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES (See Question VI.C and VII continued)

	MATERIAL	QUANTITY lbs/24 hours
101.	Cupric tartrate	100
102.	Cyanogen chloride	10
103.	Cyclohexane	1,000
104.	2,4-D acid (2,4-Dichlorophenoxyacetic acid)	100
105.	2,4-D esters (2,4-Dichlorophenoxyacetic acid esters)	100
106.	DDT	1
107.	Diazinon	1
108.	Dicamba	1,000
109.	Dichlobenil	100
110.	Dichlone	1
111.	Dichlorobenzene	100
112.	Dichloropropane	1,000
113.	Dichloropropene	100
114.	Dichloropropene-dichloproropane mix	100
115.	2,2-Dichloropropionic acid	5,000
116.	Dichlorvos	10
117.	Dieldrin	1
118.	Diethylamine	100
119.	Dimethylamine	1,000
120.	Dinitrobenzene	100
121.	Dinitrophenol	10
122.	Dinitrotoluene	1,000
123.	Diquat	1,000
124.	Disulfoton	1
125.	Diuron	100
126.	Dodecylbenzesulfonic acid	1,000
127.	Endosulfan	1
128.	Endrin	1
129.	Epichlorohydrin	1,000
130.	Ethion	10
131.	Ethylbenzene	1000
132.	Ethylenediamine	5,000
133.	Ethylene dibromide	1,000
134.	Ethylene dichloride	5,000
135.	Ethylene diaminetetracetic acid (EDTA)	5,000
136.	Ferric ammonium citrate	1,000
137.	Ferric ammonium oxalate	1,000
138.	Ferric chloride	1,000
139.	Ferric fluoride	100
140.	Ferric nitrate	1,000
141.	Ferric sulfate	1,000
142.	Ferrous ammonium sulfate	1,000
143.	Ferrous chloride	100
144.	Ferrous sulfate	1,000
145.	Formaldehyde	1,000
146.	Formic acid	5,000
147.	Fumaric acid	5,000
148.	Furfural	5,000
149.	Guthion	1
150.	Heptachlor	1
151.	Hexachlorocyclopentadiene	1
152.	Hydrochloric acid	5,000
153.	Hydrofluoric acid	100
154.	Hydrogen cyanide	10
155.	Hydrogen sulfite	100
156.	Isoprene	100
157.	Isopropanolamine dodecylbenzenesulfonate	1,000
158.	Kelthane	10
159.	Kepone	1
160.	Lead acetate	5,000
161.	Lead arsenate	5,000
162.	Lead chloride	100
163.	Lead fluoborate	100
164.	Lead flouride	100
165.	Lead iodide	100
166.	Lead nitrate	100
167.	Lead stearate	5,000
168.	Lead sulfate	100
169.	Lead sulfide	5,000
170.	Lead thiocyanate	5,000
171.	Lindane	1
172.	Lithium chromate	1,000
173.	Malathion	100
174.	Maleic acid	5,000
175.	Maleic anhydride	5,000
176.	Mercaptodimethur	10
177.	Mercuric cyanide	1
178.	Mercuric nitrate	10
179.	Mercuric sulfate	10
180.	Mercuric thiocyanate	10
181.	Mercurous nitrate	10
182.	Methoxychlor	1
183.	Methyl mercaptan	100
184.	Methyl methacrylate	1,000
185.	Methyl parathion	100
186.	Mevinphos	10
187.	Mexacarbate	1,000
188.	Monoethylamine	100
189.	Monomethylamine	100
190.	Naled	10
191.	Napthalene	100
192.	Napthenic acid	100
193.	Nickel ammonium sulfate	5,000
194.	Nickel chloride	5,000
195.	Nickel hydroxide	1,000
196.	Nickel nitrate	5,000
197.	Nickel sulfate	5,000
198.	Nitric acid	1,000
199.	Nitrobenzene	1,000
200.	Nitrogen dioxide	10

TABLE 3. REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES (See Question VI.C and VII) (continued)

	MATERIAL	QUANTITY lbs/24 hours
201.	Nitrophenol	100
202.	Nitrotoluene	1,000
203.	Parafomaldehyde	1,000
204.	Parathion	1
205.	Pentachlorophenol	10
206.	Phenol	1,000
207.	Phosgene	10
208.	Phosphoric acid	5,000
209.	Phosphorus	1
210.	Phosphorus oxychloride	1,000
211.	Phosphorus pentasulfide	100
212.	Phosphorus trichloride	1,000
213.	Polychlorinated biphenyls (PCB)	10
214.	Potassium arsenate	1,000
215.	Potassium arsenite	1,000
216.	Potassium bichromate	1,000
217.	Potassium chromate	1,000
218.	Potassium cyanide	10
219.	Potassium hydroxide	1,000
220.	Potassium permanganate	100
221.	Propargite	10
222.	Propionic acid	5,000
223.	Propionic anhydride	5,000
224.	Propylene oxide	100
225.	Pyrethrins	1
226.	Quinoline	5,000
227.	Resorcinol	5,000
228.	Selenium oxide	10
229.	Silver nitrate	1
230.	Sodium	10
231.	Sodium arsenate	1,000
232.	Sodium arsenite	1,000
233.	Sodium bichromate	1,000
234.	Sodium bifluoride	100
235.	Sodium bisulfite	5,000
236.	Sodium chromate	1,000
237.	Sodium cyanide	10
238.	Sodium dodecylbenzene-sulfonate	1,000
239.	Sodium fluoride	1,000
240.	Sodium hydrosulfide	5,000
241.	Sodium hydroxide	1,000
242.	Sodium hypochlorite	100
243.	Sodium methylate	1,000
244.	Sodium nitrite	100
245.	Sodium phosphate (dibasic)	5,000
246.	Sodium phosphate (tribasic)	5,000
247.	Sodium selenite	100
248.	Strontium chromate	1,000
249.	Strychnine	10
250.	Styrene	1,000
251.	Sulfuric acid	1,000
252.	Sulfur monochloride	1,000
253.	2,4,5-T acid (2,4,5-Trichloro-phenoxyacetic acid)	1,000
254.	2,4,5-T amines (2,4,5-Trichloro-phenoxy acetic acid amines)	5,000
255.	2,4,5-T esters (2,4,5-Trichloro-phenoxy acetic acid esters)	1,000
256.	2,4,5-T salts (2,4,5-Trichloro-phenoxy acetic acid salts)	1,000
257.	2,4,5-TP acid (2,4,5-Trichloro-phenoxy propanoic acid)	100
258.	2,4,5-TP acid esters (2,4,5-Trichloro-phenoxy propanoic acid esters)	100
259.	TDE (Tetrachloro-diphenyl ethane)	1
260.	Tetraethyl lead	10
261.	Tetraethyl pyrophosphate	10
262.	Thallium sulfate	100
263.	Toluene	1,000
264.	Toxaphene	1
265.	Trichlorofon	100
266.	Trichloroethylene	1,000
267.	Trichlorophenol	10
268.	Triethanolamine dodecyl-benzenesulfonate	1,000
269.	Triethylamine	5,000
270.	Trimethylamine	100
271.	Uranyl acetate	100
272.	Uranyl nitrate	100
273.	Vanadium pentoxide	1,000
274.	Vanadyl sulfate	1,000
275.	Vinyl acetate	5,000
276.	Vinylidene chloride	5,000
277.	Xylene	1,000
278.	Xylenol	1,000
279.	Zinc acetate	1,000
280.	Zinc ammonium chloride	1,000
281.	Zinc borate	1,000
282.	Zinc bromide	1,000
283.	Zinc carbonate	1,000
284.	Zinc chloride	1,000
285.	Zinc cyanide	10
286.	Zinc fluoride	1,000
287.	Zinc formate	1,000
288.	Zinc hydrosulfite	1,000
289.	Zinc nitrate	1,000
290.	Zinc phenolsulfonate	5,000
291.	Zinc phosphide	100
292.	Zinc silicofluoride	5,000
293.	Zinc sulfate	1,000
294.	Zirconium nitrate	5,000
295.	Zirconium potassium flouride	1,000
296.	Zirconium sulfate	5,000
297.	Zirconium tetrachloride	5,000

TABLE 4. ASBESTOS AND CERTAIN HAZARDOUS SUBSTANCES REQUIRING IDENTIFICATION IF EXPECTED TO BE PRESENT

(See Question VI.C)

Asbestos
Acetaldehyde
Allyl alcohol
Allyl chloride
Amyl acetate
Aniline
Benzonitrile
Benzyl chloride
Butyl acetate
Butylamine
Captan
Carbaryl
Carbofuran
Carbon disulfide
Chlorpyrifos
Coumaphos
Cresol
Crotonaldehyde
Cyclohexane
2,4-D (2,4-Dichloro-phenoxyacetic acid)
Diazinon
Dicamba
Dichlobenil
Dichlone
2,2-Dichloro-propionic acid
Dichlorvos
Diethyl amine
Dimethyl amine
Dintrobenzene
Diquat
Disulfoton
Diuron
Epichlorohydrin
Ethion
Ethylene diamine
Ethylene dibromide
Formaldehyde
Furfural
Guthion
Isoprene
Isopropanolamine
Keithane
Kepone
Malathion
Mercaptodimethur
Methoxychlor
Methyl mercaptan
Methyl methacrylate
Methyl parathion
Mevinphos
Mexacarbate
Monoethyl amine
Monomethyl amine
Naled
Napthenic acid
Nitrotoluene
Parathion
Phenolsulfonate
Phosgene
Propargite
Propylene oxide
Pyrethrins
Quinoline
Resorcinol
Strontium
Strychnine
Styrene
2,4,5-T (2,4,5-Trichlorophenoxy-acetic acid)
TDE (Tetrachloro-diphenyl ethane)
2,4,5-TP (2-(2,4,5-Trichlorophenoxy) propanoic acid)
Trichlorofon
Triethanolamine
Triethylamine
Trimethylamine
Uranium
Vanadium
Vinyl acetate
Xylene
Xylenol
Zirconium

Appendix C

Sample Compliance Schedules

B. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

-September 15, 1988 - As specified by Part III, Item 10, submit a study that identifies sources of adverse impact to the receiving stream, prioritizes remediation efforts and provides plan of actions for remediation to counteract these sources.

-November 1, 1988 - Submit a Preliminary Engineering Report as specified in Part III, Item 5.

-February 15, 1989 - Submit plans and specifications in accordance with DHEC approved Preliminary Engineering Report specified in Part III, Item 5.

-September 1, 1989 - Complete construction.

-September 15, 1989 - Achieve compliance with Phase II permit limitations
- Provide a report addressing the work completed on the remediation of the adverse impacts to the receiving stream. This report should also include a schedule for the completion of any remaining remediation activities.

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next schedule requirement.

SAMPLE COMPLIANCE SCHEDULE

	Activity	Completion Date
(a)	Submit complete applications for all permits pursuant to N.J.A.C. 7:27-8.1 to NJDEP with a copy to EPA	Completed
(b)	Place purchase orders for timed pneumatic valves and conservation vents for capsule washers	Completed
(c)	Commence installation of pneumatic valves and conservation vents for capsule washers	Completed
(d)	Complete installation of pneumatic valves and conservation vents for capsule washers	By June 30, 1989
(e)	Select wet scrubbers configuration and place purchase order for wet scrubbers for Lydon dryers	By May 5, 1989
(f)	Commence installation of wet scrubbers for Lydon dryers	By August 15, 1989
(g)	Complete installation of wet scrubbers for Lydon dryers	By September 15, 1989 ("Final Construction Date")
(h)	Submit complete protocol for stack test of Lydon dryers pursuant to NJDEP permit requirements and NJDEP Test Method Number 3, Parts 3.7, 3.8, or 3.9, as determinded by NJDEP.	By September 1, 1989
(i)	Complete stack test of Lydon dryers	By October 15, 1989
(j)	Submit report to EPA on stack test results, demonstrating compliance with N.J.A.C. 16.6(a) .	By November 30, 1989 ("Final Compliance Date"

SAMPLE COMPLIANCE SCHEDULE

III. Sinter Plant

A. Applicable Emissions Limitations

1. Emissions from the sinter plant at Defendant's Karefull Works shall comply with the emission limitations in 25 Pa. Code §§123.41, 123.3 and 123.1 as follows:

   a. Visible emissions from any sinter plant stack shall not equal or exceed 20% opacity for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period and shall not equal or exceed 60% at any time, as set forth in 25 Pa. Code §123.41.

   b. Visible emissions from any part of sinter plant operations shall not equal or exceed 20% opacity for a period of periods aggregating more than three (3) minutes in any sixty (60) minute period and shall not equal or exceed 60%, as set forth in 25 Pa. Code §123.41.

   c. Mass emissions from the sinter plant windboxes and from all gas cleaning devices installed to control emissions at the sinter plant shall not exceed ____ grains (filterable) per dry standard cubic foot (the applicable emission limitation).

   d. Fugitive emissions from any source of such emissions at the sinter plant shall not exceed the emissions limitation set forth in 25 Pa. Code §123.1

2. The air pollution control equipment described below shall be installed in accordance with the following schedule:

Submit permit application to DER and to EPA for approval	November 1, 1980
Issue purchase orders	May 1, 1981
Commence installation	November 1, 1981
Complete installation and start up	September 1, 1982
Achieve and demonstrate compliance	November 1, 1982

SAMPLE COMPLIANCE SCHEDULE

B. Sinter Plant Compliance Program

1. In order to bring Defendant's sinter plant into compliance with the requirements specified in paragraph III.A.1.c. above, Defendant shall install the following air pollution control equipment on sintering line #1.:

   a. Defendant shall install an air pollution control device which complies with the emission limitation of paragraph III.A.1.c. on #1 sinter plant windbox to control sinter plant windbox stack emissions.

   b. Defendant shall install a scrubber or a baghouse (or separate baghouse, as appropriate) on #1 sinter line and appropriate ductwork to replace the existing cyclone for control of emissions from the discharge end of #1 sinter line.

   c. Installation of this equipment in no way relieves the defendant of the requirement of achieving and maintaining compliance with the emission limitations set out in paragraph III.A.1.

SAMPLE COMPLIANCE SCHEDULE

The payment of the penalty amount due on (date) shall be excused by the plaintiff if the plaintiff finds that the following conditions have been met.

a) By (date) , defendant shall install and operate a coke-side shed (as described in paragraph I.B.1.b.) on each battery to control pushing emissions. Each shed shall be evacuated continuously to capture and clean emissions from both the pushing operation and all door leaks.

b) Defendant shall achieve, maintain and demonstrate compliance with the emission limitation set forth in paragraph I.A.1.d. with respect to mass emissions attributable to coke oven pushing operations by (date) . Defendant shall achieve and demonstrate compliance with the emissions limitation set forth in 25 Pa. Code §123.44(a)(3) with respect to door emissions under the shed by (date).

c) Defendant shall certify completion of the conditions listed in subparagraphs (a) and (b) above to the plaintiff by certified letter. This notification should be sent by U.S. Mail, return receipt requested to (name, title and address) by (date).

Appendix D

Sample Permit-by-Rule Procedure

Subchapter C. GENERAL REQUIREMENTS FOR PERMITS AND PERMIT APPLICATIONS

GENERAL

Sec.
287.101. General requirements for permit.
287.102. Permit by rule.

GENERAL

§ 287.101. General requirements for permit.

(a) Except as provided in subsection (b), a person or municipality may not own or operate a residual waste disposal or processing facility unless the person or municipality has first applied for and obtained a permit for the activity from the Department under this article.

(b) A person or municipality is not required to obtain a permit under this article, comply with the bonding or insurance requirements of Subchapter E (relating to bonding and insurance requirements) or comply with Subchapter B (relating to duties of generators) for one or more of the following:

(1) Agricultural waste produced in the course of normal farming operations, if the waste is not hazardous. An agricultural waste will be presumed to be produced in the course of normal farming operations if its application is consistent with that for normal farming operations.

(2) The use of food processing waste or food processing sludge in the course of normal farming operations if the waste is not hazardous and if the land application of food processing waste or food processing sludge complies with the operating requirements of Chapter 291 (relating to land application of residual waste), unless waived or modified by the Department.

(3) The beneficial use of coal ash under Subchapter H (relating to beneficial use).

(4) The activities described in § 287.2(e)—(h) (relating to scope).

(5) The processing or disposal of residual waste described in § 287.2(b) that is subject to a permit issued by the Department under Article VIII (relating to municipal waste).

(6) The use as clean fill of the materials in subparagraphs (i) and (ii) if they are separate from other waste. The person using the material as clean fill has the burden of proof to demonstrate that the material is clean fill.

(i) The following materials, if they are uncontaminated: soil, rock, stone, gravel, brick and block, concrete and used asphalt.

(ii) Waste from land clearing, grubbing and excavation, including trees, brush, stumps and vegetative material.

(c) Subsection (b) does not relieve a person or municipality of the requirements of the environmental protection acts or regulations promulgated thereto.

(d) The Department will not require a permit under this article for cleanup or other remediation at the site of a spill, release, fire, accident or other unplanned event, unless the site is part of a permit area for an active facility or the proposed permit area in an application. In requiring cleanup or other remediation at the site, the Department may require compliance with only those provisions of this article that the Department determines necessary to protect human health, safety, welfare and the environment.

§ 287.102. Permit by rule.

(a) *Purpose.*

(1) This section sets forth classes of facilities that are subject to permit by rule. A facility will not be deemed to have a permit by rule if it causes or allows violations of the act, the regulations promulgated thereunder, the terms or conditions of a permit issued by the Department or causes a public nuisance. A facility that is subject to permit by rule under this section is not required to apply for a permit under this article or comply with the operating requirements of this article, if that facility operates in accordance with this section.

(2) A facility is not subject to permit by rule under this section unless it meets the following:

(i) The facility complies with Chapter 299 (relating to storage and transportation of residual waste).

(ii) The facility has necessary permits under the applicable environmental protection acts, and is operating under the acts and the regulations promulgated thereunder, and the terms and conditions of permits.

(3) A facility is not subject to permit by rule under this section unless the operator maintains the following at the facility in a readily accessible place:

(i) A copy of a Department approved Preparedness, Prevention and Contingency (PPC) plan that is consistent with the Department's most recent guidelines for the development and implementation of PPC plans.

(ii) Daily records of the weight or volume of waste that is processed, the method and location of processing or disposal facilities for wastes from the facility, and waste handling problems or emergencies.

(4) Subchapter D (relating to permit review procedures and standards) is not applicable to facilities which are deemed to have a permit under this section.

(5) Subchapter F (relating to civil penalties and enforcement) is applicable to facilities subject to this section.

(6) The Department may require a person or municipality subject to permit by rule to apply for, and obtain, an individual or general permit, or take other appropriate action, when the person or municipality is not in compliance with the conditions of the permit by rule or is conducting an activity that harms or presents a threat of harm to the health, safety or welfare of the people or the environment of this Commonwealth.

(b) *Captive processing facility.* A facility that processes residual waste that is generated solely by the operator shall be deemed to have a residual waste processing permit under this article if, in addition to subsection (a), the following conditions are met:

(1) Remaining waste is managed under the act and the regulations promulgated thereunder.

(2) Processing does not have an adverse effect on public health, safety, welfare or the environment.

(3) Processing occurs at the same manufacturing or production facility where some or all of the waste is generated.

(4) The operator performs the analyses required by §§ 287.131—287.133 (relating to scope; chemical analysis of waste; and source reduction strategy), and maintains these analyses at the facility. These analyses are not required to be submitted to the Department except upon written request.

(5) If the waste is burned, it meets the following:

(i) The waste is burned in an enclosed device using controlled flame combustion.

(ii) The waste has more than 5,000 BTUs per pound.

(iii) The combustion unit recovers, exports and delivers for use at least 50% of the energy contained in the waste.

(iv) The amount of energy recovered, exported and delivered by the process exceeds the amount of energy expended in the combustion of the waste.

(6) If processing is part of an industrial or other wastewater treatment process permitted by the Department under The Clean Streams Law, one of the following applies:

(i) The facility discharges into a water of the Commonwealth under an NPDES permit or a permit issued under The Clean Streams Law, and is in compliance with the permit.

(ii) The facility discharges into a publicly owned treatment works, and is in compliance with the permit.

(c) *Wastewater treatment facility.* A processing facility, other than a transfer or composting facility, shall be deemed to have a residual waste processing permit under this article if, in addition to subsection (a), the following apply:

(1) The operator performs the analyses required by §§ 287.131—287.134 (relating to waste analysis) and maintains the analyses at the facility. These analyses are not required to be submitted to the Department except upon written request.

(2) Processing is solely part of an industrial or other wastewater treatment process permitted by the Department under The Clean Streams Law and one of the following apply:

(i) The facility discharges into a water of the Commonwealth under an NPDES permit, and is in compliance with the permit.

(ii) The facility discharges into a publicly owned treatment work, and is in compliance with the permit.

(3) The operator submits a written notice to the Department that includes the name, address and the telephone number of the facility, the individual responsible for operating the facility, and a brief description of the facility.

(d) *Transfer facilities that collect used oil.* A State inspection facility, oil retailer, retail service station or other site which accepts used oil for recycling shall be deemed to have a residual waste transfer facility permit by rule under this article if the following are met:

(1) The facility processes used oil only as a transfer facility, and does not blend oil for offsite reuse.

(2) The facility maintains on the premises used oil collection tanks that are properly sheltered and protected to prevent spillage, seepage or discharge of the used oil into the water, land and air of this Commonwealth and of sufficient size to handle returns of used oil.

(3) The facility shall maintain on the premises, within a very close proximity to the collection tanks, collection facilities for the safe and proper disposal of used oil containers.

(4) A person may not deposit, dispose of or cause to be deposited or disposed of, used oil into sewers, drainage systems, surface waters or groundwaters, watercourse or marine waters in the Commonwealth, or on to public or private land within this Commonwealth.

(5) A person may not discharge water, antifreeze, other residual waste or other contaminants into a used oil collection tank or used oil storage facility.

(e) *Incinerator.* A residual waste incinerator located at the generation site shall be deemed to have a residual waste permit under this article if, in addition to the requirements of subsection (a), it meets one of the following:

(1) The facility is not required to obtain a permit under the Air Pollution Control Act (35 P. S. §§ 4001—4015) and the regulations promulgated thereunder.

(2) The facility has a capacity of less than 500 pounds per hour and is permitted under the Air Pollution Control Act.

(f) *Beneficial use.* The beneficial use of residual waste which the Department has approved, in writing, prior to July 4, 1992, shall be deemed to have a residual waste processing or disposal permit if the person or municipality uses the residual waste in accordance with the terms and conditions of the written approval and the Department has not revoked the approval.

(g) *Waste oil energy recovery.* A facility that burns waste oil for energy recovery shall be deemed to have a residual waste processing permit if, in addition to subsection (a), the following conditions are met:

(1) The facility does not burn, or otherwise process, hazardous waste oil, or waste oil which contains greater than 1,000 ppm of total halides.

(2) The waste oil is burned in an enclosed device using controlled flame combustion.

(3) The waste oil has more than 8,000 BTUs per pound.

(4) The combustion unit recovers, exports and delivers for use at least 50% of the energy contained in the waste oil.

(5) The amount of energy recovered, exported and delivered by the process exceeds the amount of energy expended in the combustion of the waste oil.

(6) The facility has been issued a permit by the Department under the Air Pollution Control Act, if a permit is required by the act.

(7) The operator performs the analyses required by §§ 287.131—287.134 and maintains these analyses at the facility. These analyses are required to be submitted to the Department upon written request.

(h) *Mechanical processing facility.* A facility for the processing of residual waste only by mechanical or manual sizing or separation for prompt offsite reuse shall be deemed to have a residual waste processing permit by rule if it meets the requirements of subsection (a) and submits a written notice to the Department that includes the name, address and the phone number of the facility, the individual responsible for operating the facility and a brief description of the waste and the facility.

§ 287.103. Emergency disposal or processing.

(a) Notwithstanding any provision of this article or a term or condition of a permit for a solid waste processing or disposal facility, the Department may allow the prompt disposal or processing of waste at a permitted facility if the following are met:

(1) The waste was created, spilled or released during or as a result of an emergency. For purposes of this section, the term "emergency" means a fire, spill, accident or other sudden and unplanned event that harms or threatens public health and safety, public welfare, the environment or causes or threatens to cause personal injury. The term does not include increases in concentrations of contaminants in groundwater from background levels from a solid waste management facility, materials storage tank or similar source.

(2) The compliance status of the operator or a related party under section 503(c) and (d) of the act (35 P. S. § 6018.503(c) and (d)) does not require or allow denial of an application for permit modification, if a permit modification were sought.

(3) Disposal or processing of the waste at the facility, based on accurate and sufficient information about the waste:

(i) Is generally consistent with the types of waste that are permitted to be disposed or processed at the facility, as well as the design of the facility.

(ii) Would not harm or threaten public health and safety, public welfare or the environment or cause personal injury.

(iii) Would not adversely affect the ability of the liner system to prevent groundwater degradation.

(4) Disposal or processing of the waste at the facility is not prohibited by Article VII (relating to hazardous waste management).

(b) In approving the emergency disposal or processing of residual waste under this section, the Department may modify the facility's permit under section 503(e) of the act (35 P. S. § 6018.503(e)) to impose terms and conditions which are necessary to implement the provisions and purposes of the act, the environmental protection acts and the regulations promulgated thereunder, including this article.

(c) Waste may be stored pending processing or disposal under § 299.117 (relating to emergency storage).

Appendix E

Sample Variance Procedure

304. DELAYED COMPLIANCE ORDERS

A. **General.** Whenever the Director finds, on the basis of any information available to him, that any source is currently unable to comply with any provision of this Article which is more stringent than the comparable provision of Article XVIII, Rules and Regulations of the Allegheny County Health Department, he may order the person responsible for the source to comply with this Article as expeditiously as practicable but in no event later than three (3) years after the compliance date for such provision specified by this Article or no later than the attainment date for the affected national ambient air quality standard specified by that portion of the Pennsylvania Implementation Plan applicable to Allegheny County, whichever is earlier.

B. **Public Notice and Hearing.** A Delayed Compliance Order shall be issued only after at least thirty (30) days notice to the public summarizing the content of the proposed Order and the opportunity for a public hearing.

C. **Intergovernmental Consultation.** A Delayed Compliance Order shall be issued only after consultation with affected State, local and areawide agencies responsible for air pollution control, transportation planning, energy planning, community development and housing planning, solid waste management, and water quality management, elected officials of affected local governments, affected federal land managers, and public interest organizations having a major interest in the Order. In addition, at least forty-five (45) days prior to issuance, the proposed Order shall be submitted to the areawide clearinghouse established under the Office of Management and Budget Circular A-95 for review and comment. Only a general purpose unit of local government, regional agency or council of governments adversely affected by the Order may petition the courts for review of a Delayed Compliance Order because of a failure to comply with the requirements of this subsection.

D. **Form.** A Delayed Compliance Order issued pursuant to this Section shall:

1. Be in written form and be signed by the Director or the Deputy Director, Bureau of Air Pollution Control;

2. Set forth the basis for such Order and a finding that the source is currently unable to comply with this Article;

3. Set forth a schedule and timetable, including increments of progress, for compliance with this Article which is as expeditious as practicable;

4. Require the use of the best practicable system (s) of emission reduction during the life of the Order and such other reasonable and practicable measures as are necessary to avoid an imminent and substantial endangerment to public health;

5. Require that the source comply with this Article during the life of the Order insofar as the source is able to do so;

6. Require sampling or monitoring of emissions or other process parameters and the periodic submission of data, reports or other information as is necessary to determine whether the requirements of the Order are being achieved in a timely manner;

Delayed Compliance Orders (Cont'd)

7. In the case of a major source, notify the source of the applicability of Section 120 of the Clean Air Act, concerning Noncompliance Penalties;

8. Notify the person responsible that he has the right to a hearing as provided by Section 301.D of this Article, and that the Order will become final unless such hearing is requested; and,

9. Notify the person responsible that failure to comply with the Order within the times specified therein is a violation of this Article giving rise to the remedies provided by Section 305 of this Article.

E. **Federal Approval.** In the case of a major source, no Delayed Compliance Order shall become effective until the federal Environmental Protection Agency has determined that the Order has been issued in accordance with the requirements of the Clean Air Act. In the case of any other source, a Delayed Compliance Order shall cease to be effective upon a determination by the federal Environmental Protection Agency that the Order was not issued in accordance with such requirements.

F. **Service.** A Delayed Compliance Order shall be served upon the person responsible in the manner provided by Section 301.C of this Article.

G. **Hearings.** Any person aggrieved by a Delayed Compliance Order shall, upon request, be granted a hearing as provided by Section 301.D of this Article.

H. **Termination.** The Director may terminate a Delayed Compliance Order upon a determination, made on the record after at least thirty (30) days public notice and the opportunity for a public hearing, that the inability of the source to comply with this Article no longer exists; provided, however, that the order shall not be terminated in such manner as to impose an undue hardship upon the source.

I. **Emergency Power Unaffected.** Notwithstanding any other provision of this Article, the issuance of a Delayed Compliance Order shall in no manner preclude or affect the power of the Director to issue an Emergency Order under Section 303 of this Article.

J. **Violations.** Failure to comply with a Delayed Compliance Order within the times specified therein shall be a violation of this Article giving rise to the remedies provided by Section 305 of this Article. In addition to such remedies, the Director may immediately revoke such Order and may pursue any other remedy as if such Order had never existed.

K. **Other Remedies Precluded.** A Delayed Compliance Order which has become effective as provided by Subsection E above shall become part of the State Implementation Plan for the Commonwealth of Pennsylvania for purposes of Sections 110 (concerning Implementation Plans), 304 (concerning Citizen Suits) and 307 (concerning Administrative Proceedings and Judicial Review) of the Clean Air Act. Therefore, so long as a source is in compliance with all requirements of such Order, no further enforcement action shall be pursued by the Department for violations of this Article occurring during the life of the Order.