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PENNSYLVANIA MEETS THE INDUSTRIAL WASTE CHALLENGE

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The lack of control over industrial waste is devastating Pennsylvania's environment. In order to protect Commonwealth waters, the Pennsylvania Department of Environmental Resources (PA.DER) should enact a regulation which controls industrial waste in a manner similar to the PA.DER programs already established for hazardous waste¹ and municipal waste programs.² To curb the industrial waste problem, PA.DER drafted the residual waste regulation.³

The Pennsylvania Solid Waste Management Act (PA.SWMA) empowers PA.DER to promulgate regulations for the management of nonhazardous waste.⁴ Under PA.SWMA, permits are required to dispose and process nonhazardous waste.⁵ Storage and transportation of nonhazardous waste are exempt from permit requirements, but PA.SWMA requires the development of standards for these activities.⁶

PA.SWMA creates two categories of non-hazardous waste: municipal waste and residual waste.⁷ PA.DER promulgated a regulation governing municipal waste disposal, which was adopted into law in April, 1988.⁸ The current municipal waste regulation focuses on ground-water protection achieved through groundwater monitoring, leachate management and waste analysis.⁹ PA.DER designed the residual waste regulation to be consistent with the municipal waste regulation in the basic procedural aspects and the enforcement of the regulation.¹⁰

PA.DER established a residual waste regulation which achieves environmental protection with practicality of application in the real world. This comment will highlight certain provisions of the residual waste regulation, the complaints voiced by the regulated community concerning the regulation's application and PA.DER's responses to these complaints.¹¹ After providing some background information on the severity of the industrial waste disposal problem, this comment will set forth the obligations

imposed on residual waste generators and residual waste facility operators. Second, this comment will discuss PA.DER's transition scheme for existing residual waste facilities that wish to continue operating under the new residual waste regulations. Third, this comment will compare and contrast the three types of landfills established by the regulation. Fourth, this comment will examine how the regulation plans to handle the beneficial use of residual waste. Finally, this comment will discuss the waste minimization requirements imposed by the regulation. By discussing these sections, we hope to provide the regulated community with details on what is expected of them under the regulation if it is enacted and to show them the efforts taken by PA.DER to ease industries' concerns.

BACKGROUND

Industrial waste disposal is a significant, often overlooked problem. The United States Environmental Protection Agency (EPA) regularly reports on the status of waste disposal in the nation, and its tabulations indicate the size of the industrial waste problem. According to EPA figures, industrial waste represents 94 percent of all combined waste, including municipal, hazardous and industrial waste.¹² Industrial waste clearly comprises the majority of waste disposed in the United States.

EPA reports that industrial waste is presently being disposed of without adequate safeguards to protect the environment.¹³ The lack of synthetic clay liners in industrial waste impoundments¹⁴ and landfills illustrates the problem.¹⁵ A mere 5 percent of industrial waste impoundments have a synthetic liner system and only 17.4 percent have a natural clay liner.¹⁶ Furthermore, impoundments tend to under-utilize groundwater monitoring systems.¹⁷ Meanwhile, the situation is worse for industrial waste landfills. A mere 1.3 percent have synthetic liners and only 11.3 percent have natural liners.¹⁸ Only 3.2 percent of landfills use a leachate collection system.¹⁹

Despite such alarming reports from EPA, industrial waste disposal is addressed superficially by federal law. The most comprehensive waste disposal regulation promulgated by the

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federal government is the Resource Conservation and Recovery Act (RCRA).²⁰ RCRA, however, primarily focuses on hazardous waste and barely addresses nonhazardous waste.²¹ RCRA requires a permit for disposing, treating or storing hazardous waste and a license for transporting it.²² Yet, RCRA does not require permits for the disposal, treatment or storage of waste categorized as nonhazardous.²³ Instead, RCRA delegates the authority to develop a nonhazardous waste disposal plan to the states.²⁴ In fact, RCRA treats all nonhazardous waste equally; municipal waste and industrial waste are not differentiated.

The development of a regulatory system for the disposal of nonhazardous waste is imperative since the distinction between hazardous and nonhazardous waste is subtle.²⁵ Under the EP toxicity test,²⁶ a waste is classified as hazardous if the leaching analysis for the hazardous constituent is 100 times the drinking water standard for that constituent.²⁷ Subsequently, a waste would be classified as nonhazardous if the leaching analysis resulted in a value of 99 times the drinking water standard.²⁸ Nonhazardous industrial wastes may contain the same constituents as hazardous wastes, but in smaller quantities. Nonhazardous waste, therefore, has the same potential for adverse environmental impact as hazardous waste.

Pennsylvania recognizes that nonhazardous waste disposal poses a threat to the environment, especially the Commonwealth's groundwater and streams. PA.DER conducted a preliminary analysis of the Commonwealth's environmental problems.²⁹ The results obtained pointed to nonhazardous waste as the source of 50 percent of all the chemicals released into the environment.³⁰ This percentage included air and water contamination.³¹ The PA.DER analysis demonstrates the inadequacy of current governmental regulation of nonhazardous industrial waste disposal in Pennsylvania.

PA.DER drafted a regulation which purports to address industrial nonhazardous waste.³² Pennsylvania's residual waste³³ regulation divides industrial waste into eight categories. The most abundant category is ash residues from coal burning plants and from industrial waste incineration.³⁴ Ash residues account for 40 percent of the total amount of residual waste produced in Pennsylvania.³⁵ The other categories include the following: metallurgical process waste; sludges and scales; chemical

wastes; generic wastes; special wastes; industrial equipment; construction/demolition waste and noncoal mine waste.³⁶

Pennsylvania's existing residual waste disposal facilities cannot manage the abundance of waste contained in these eight industrial waste categories. The Commonwealth's industry generates sixteen million tons of industrial waste annually.³⁷ In Pennsylvania, industry is generating almost twice as much waste as hazardous and municipal waste combined.³⁸ Presently, inadequate facilities are disposing or processing most of the industrial waste, leaving the public and the environment vulnerable.³⁹ Many existing disposal impoundments and landfills are unlined.⁴⁰ Furthermore, PA.DER estimates that as many as 1000 residual waste disposal and processing facilities currently are operating without a permit.⁴¹ PA.DER fears the continuing improper management of industrial waste will result in widespread contamination of surface water and groundwater.

While the extent of contaminated surface and groundwater in Pennsylvania remains unknown, documented examples demonstrate the need for a comprehensive industrial waste regulation. The Palmerton Zinc site in Pennsylvania consists of a thirty-three mile mountain of slag deposited by surrounding industries engaged in zinc smelting.⁴² The slag consists of a dangerous mix of zinc, cadmium and other heavy metals, the leachate from which contaminates Palmerton's groundwater.⁴³ Moreover, nearby streams are endangered by surface water runoff from the mountain.⁴⁴ Another disquieting example is located in Ambler. The leachate and surface water runoff from asbestos piles seep into and contaminate the area's groundwater and the nearby Wissahickon Creek.⁴⁵

REQUIREMENTS IMPOSED ON GENERATORS OF RESIDUAL WASTE

A residual waste generator is not required to obtain a permit to generate the waste. However, the generator is regulated in other ways under Subchapter B of the residual waste regulation.⁴⁶ The requirements imposed on a generator depend on whether the generator is classified as a large quantity generator or a small quantity generator. A large quantity generator produces more

than one metric ton of residual waste in any single month of the previous year.⁴⁷

A large quantity generator must file a biannual report with PA.DER indicating the amount and the type of residual waste they produce.⁴⁸ In addition, a large quantity generator is required to conduct a chemical analysis of the waste in order to ensure that the waste is disposed in the proper facility.⁴⁹ The chemical analysis consists of a detailed examination which fully characterizes the physical properties and the chemical composition of the wastes.⁵⁰ Furthermore, large quantity generators are also required to create and participate in a source reduction strategy.⁵¹

In contrast, the requirements imposed on a small quantity generator are less rigorous. A small quantity generator is not required to submit reports to PA.DER. These generators, however, are required to maintain records on the waste they produce for a five year period.⁵² The operator of the facility shall make the records available for inspection upon the request of PA.DER.⁵³

REQUIREMENTS FOR OPERATORS OF RESIDUAL WASTE FACILITIES

One of the chief objectives of the residual waste regulation is to assure the safe management of residual waste in Pennsylvania. Section 287.101 of the regulation requires a residual waste processing or disposal facility operator to obtain a permit from PA.DER.⁵⁴ The facility operator must fulfill several application requirements. First, the operator must furnish PA.DER with the facility's compliance history. This history includes descriptions of any violation notices, administrative orders, civil penalties, court proceedings or consent orders.⁵⁵ Next, the operator must conduct an environmental assessment, which will include a detailed study of the potential impact that the proposed facility may have on the environment and the public health.⁵⁶ Finally, the operator must furnish PA.DER with data concerning the chemical composition of the waste accepted by the disposal facility.⁵⁷

Certain classes of residual waste processing facilities are not required to apply for a permit or comply with the operating requirements of the regulation.⁵⁸ However, facilities of these classes are subject to "permit by rule."⁵⁹ The regulation provides for five classes of processing

facilities that will be issued a permit under the permit by rule provision. The facilities included in the first class are those that utilize technology to reduce the bulk or volume of residual waste.⁶⁰ The second class covered by the permit by rule provision are those facilities that have a used oil collection site.⁶¹ The third class includes facilities receiving waste from a residual waste incinerator located at the generation site which was not required to obtain a permit under the air pollution act.⁶² Also, the permit by rule provision collects in the fourth class those facilities that engaged in a beneficial use⁶³ of residual waste approved by PA.DER prior to the enactment of this regulation, and in the fifth class, facilities that burn waste oil for energy recovery.⁶⁴

TRANSITION SCHEME FOR EXISTING FACILITIES

All existing residual waste disposal and processing facilities that wish to continue operating under the new residual waste regulation will have to meet some preliminary requirements until their facilities are permitted under the new regulation. The regulation provides for a two-step process to ease PA.DER's burden of issuing permits to existing facilities.⁶⁵ First, the facility must file notice with PA.DER demonstrating that its current disposal operations are not causing groundwater contamination.⁶⁶ Next, the facility must submit an application for a permit under the new regulation.⁶⁷

The transition scheme impacts differently on waste disposal facilities operating under existing permits and facilities operating without permits. Unpermitted facilities have less time to comply with the regulation's requirements than permitted facilities. The operator of an unpermitted facility must file a notice that the area's groundwater is not being contaminated with PA.DER within six (6) months of the regulation's effective date.⁶⁸ After receiving written notice from PA.DER, the operator must file a completed permit application or a closure plan⁶⁹ within six (6) months.⁷⁰ While PA.DER reviews the permit application, the facility must maintain the status quo; it may not expand or introduce a new waste stream.⁷¹ Furthermore, the facility may not alter its usual disposal or processing technique at the site.⁷²

A permitted facility, on the other hand, must file a preliminary application for permit

modification, or pursue a closure plan, within two (2) years.⁷³ The facility's preliminary application must contain a description of the differences between the existing permit and the new regulations.⁷⁴ The facility may continue to operate under the prior permit once the preliminary application is filed. In five (5) years, however, all existing facilities must either have a permit in accordance with the regulation or have an application pending with PA.DER.⁷⁵ Otherwise, the facility must close.⁷⁶

Residual waste disposers objected to the transition scheme proposed in the residual waste regulations. Industry wanted to extend the time frames in the transition scheme, claiming that they were unreasonable.⁷⁷ In the final regulation, PA.DER granted the extension and the deadline for unpermitted facilities to complete a permit application to three years.⁷⁸ For permitted facilities, PA.DER extended the deadline for a completed application to five years.⁷⁹

The transition scheme deadlines were not the only matters in controversy. Facility operators also were concerned with the costs they would incur while undergoing compliance.⁸⁰ Many larger residual waste disposal facilities already had liner systems and ground water monitoring systems pursuant to the Pennsylvania Clean Streams Act or the Solid Waste Disposal Act.⁸¹ Therefore, industry asked PA.DER to consider modifying the requirements of the regulation if the facility could demonstrate that its disposal operations did not contaminate the environment.⁸² PA.DER offered Section 287.115(c) as a solution. With PA.DER approval, a permitted residual waste landfill can receive a waiver or modification of liner and groundwater monitoring requirements.⁸³ According to that section, the landfill operator must demonstrate to PA.DER that its present system offers equivalent environmental protection.⁸⁴ Pa.DER will evaluate the effectiveness of the existing system's leachate control by comparing the amount of contaminants in the waste and in the groundwater to ensure that leachate levels are within the acceptable parameters.⁸⁵

LANDFILL AND WASTE CLASSIFICATION

Although PA.DER designed the residual waste regulation in a manner consistent

with the municipal waste regulation, the two programs established different design and operating requirements for their landfills. The municipal waste regulation requires all municipal landfills to install double liner systems.⁸⁶ Municipal waste landfills accept a conglomeration of waste types ranging from paper products to toxic household products which make them impossible to classify. The inability to classify the waste necessitates the double liner requirement. The residual waste regulation, on the other hand, does not always require residual waste landfills to have double liner systems. The difference between the regulations may be attributed to the nature of the kinds of wastes disposed of in each landfill. Residual waste landfills often contain one kind of waste.⁸⁷ The exact danger posed by the one waste is readily ascertainable. The regulation organizes landfills and wastes into three classes so that particular wastes may be assigned to corresponding landfills; a Class I, II or III landfill.⁸⁸ In this manner, the landfill can be tailored to fit the type of waste received.⁸⁹

The residual waste landfills are divided into three classes. Class I landfills receive the most toxic residual waste, and therefore are required to have a double liner system and a leachate control plan.⁹⁰ The leachate control plan has two components. First, the plan should detail all the equipment used for collecting and handling leachate from landfills, and the impoundments used for storing or treating the leachate.⁹¹ Second, the operator must list any water quality permits necessary to discharge the treated leachate currently in his possession.⁹²

The requirements are less stringent for the Class II landfills. A Class II landfill takes waste that is characteristically less toxic than the waste disposed in Class I landfills,⁹³ and therefore is required to have only a single clay or synthetic liner system.⁹⁴ Like a Class I landfill, a Class II landfill must also have a leachate control plan.⁹⁵

Class III residual waste landfills have no liner requirements.⁹⁶ Instead of a liner, these landfills rely on natural attenuation to protect the groundwater from contamination.⁹⁷ Natural attenuation is when the soil particles beneath the landfill absorb certain contaminants from the leachate before they reach the groundwater.⁹⁸ Only waste with contaminants that do not penetrate the natural attenuation process is disposed in Class III landfills.⁹⁹

The three-tiered residual waste landfill classification scheme requires the landfill operator to examine the waste to ensure that it is being disposed in the proper landfill class. PA.DER made the waste classification rules simple in order to expedite permit reviews.¹⁰⁰ The waste classification rules compare the results of the leachate analysis to the drinking water standards contained in the Federal Safe Drinking Water Act.¹⁰¹

According to the regulation, a Class III landfill will accept only waste with a leachate analysis result which does not exceed twenty-five (25) times the drinking water standard for that contaminant.¹⁰² Therefore, Class III landfills will accept only waste containing toxics of heavy metals and other cations for disposal.¹⁰³ If other toxics are present in the leachate results, the waste may not be disposed in a Class III facility. Finally, the regulation assigns to Class II landfills waste whose leachate analysis results do not exceed fifty (50) times the drinking water standard for that contaminant.¹⁰⁴

Industry was concerned with PA.DER's choice of using drinking water standards for the three-tier classification scheme because some MCLG values are zero.¹⁰⁵ If the leachate analysis results reveal a trace amount of a contaminant with a zero MCLG value, the waste will be disposed in a Class I landfill. Industry also indicated that SMCL values were not a good comparative standard. The SMCL standard merely focuses on the odor and discoloration of the water.¹⁰⁶

PA.DER responded to the concerns voiced by industry by modifying its standards in the final draft of the regulation. The regulation uses MCLG values as a comparative standard in all cases except when the value is zero.¹⁰⁷ If the value is zero, the regulation uses SMCL values as the comparative standard.¹⁰⁸ Also, PA.DER modified the final draft to permit leachate values that exceed the SMCL standards if the landfill operator demonstrates that the groundwater is not being polluted.¹⁰⁹ The PA.DER modifications placated many of industrial concerns.

Another industrial concern focused on the fact that the MCLG values and SMCL values are subject to change.¹¹⁰ If these values change, thereby upsetting a landfill's classification from, for example, a Class II to a Class I landfill, is the facility required to install a double liner?

According to PA.DER, the facility could operate without making any changes provided the facility does not contaminate the groundwater.¹¹¹ The facility would not be required to expend funds to install a double liner system to remain in compliance.

THE BENEFICIAL USE OF RESIDUAL WASTE

Some residual waste may be put to a beneficial use rather than simply thrown away.¹¹² The residual waste regulation does not require a beneficial user to undergo the complete application process. Instead, general permits are used to regulate beneficial uses, eliminating the delays and administrative burdens associated with an individual permitting program.¹¹³

While drafting the regulation, PA.DER changed the regulation process for the beneficial use of residual waste from a permit by rule process to a general permit process.¹¹⁴ From a policy point of view, the reason for using a general permit or a permit by rule are the same. In comparison, both a general permit and a permit by rule regulate similar activities. The purpose of both permit types is to allow certain classes of activities without a burdensome case by case application process.¹¹⁵ With beneficial users, however, PA.DER must make a determination to show that the proposed activity will cause only a diminutive impact on the environment.¹¹⁶

PA.DER's authority to implement the general permit differs from its authority to grant a permit by rule. While permit by rule is an example of PA.DER's legislative powers, the general permit is an example of PA.DER's adjudicatory powers.¹¹⁷ Therefore, the fundamental difference is the protection available to a member of the general public who wishes to challenge the agency's decision to permit the class of activity.¹¹⁸ If the PA.DER issues a general permit (an adjudication), the public always has the opportunity to appeal the issuance.¹¹⁹ However, if a permit by rule is used, the rule must go through the entire regulatory process and be subject to extensive public scrutiny.¹²⁰ This difference makes it quicker to implement a general permit while allowing the agency to have more control over the categories and classes of activities being regulated, as well as the contents of the permits themselves.¹²¹ Hence, PA.DER adopted the general permit process.

In order to put residual waste to a beneficial use, the generator must submit an application for a general permit to PA.DER.¹²² The application must include a description of the waste, the proposed beneficial use, and the production and manufacturing processes involved.¹²³ After reviewing the submitted information, PA.DER will decide whether to propose a general permit for the proposed beneficial use.¹²⁴ The general permit application will be published in the Pennsylvania Bulletin and subject to a comment period.¹²⁵ The general permit process would establish several general permits for a specified beneficial use. For example, a general permit may exist for the beneficial use of foundry sand as a structural fill, and a second general permit would exist for the use of coal ash as a structural fill.

In every system, the possibility of abuse exists. PA.DER is concerned with individuals using the beneficial use provision as a disguise for illegal disposal.¹²⁶ For example, sham disposal practices are conceivable in cases involving direct land application such as structural fills. PA.DER should not authorize activity that unreasonably endangers human health and welfare or the ecological systems.¹²⁷ The protection afforded in a case by case permit process should not be sacrificed without a system which would achieve a similar level of protection with the general permit process.¹²⁸ When a direct land application is involved, PA.DER should review the beneficial use request with a higher degree of scrutiny to ensure that the contaminants present in the waste will not contaminate the environment.¹²⁹ For these reasons, PA.DER needs a risk assessment plan.

In order to be effective, the risk assessment must be comprehensive and characterize the potential adverse effects to the environment and to human health, safety and welfare.¹³⁰ The risk assessment should include an identification of potentially harmful constituents, an estimate of the extent of harmful exposure, and a description of the nature of the risk to the health, safety and welfare.¹³¹ PA.DER realized, however that a conventional risk assessment requirement would be burdensome to both the individuals making the requests and to PA.DER's personnel reviewing the requests.¹³²

PA.DER formulated a compromise in the final residual waste regulation. The residual

waste regulation requires the persons proposing a beneficial use to assess the potential for adverse impacts on the public and on the environment when the proposed beneficial use involves direct land application.¹³³ The applicant for the beneficial use must submit an evaluation identifying the following: (1) the constituents contained in the waste that potentially may impact the environment adversely, and (2) the potential pathways of human exposure to these harmful constituents.¹³⁴

Industry criticizes the PA.DER proposal for several reasons. Industry claims that there is no economic incentive for the beneficial use of residual waste because the approval process is too cumbersome.¹³⁵ Moreover, industry advocates substituting a notification system for the formal approval process contained in the regulation.¹³⁶ In response to the concerns of industry, PA.DER articulated a desire to quickly review individual requests under a final general permit in order to ensure compliance.¹³⁷ Without the quick review, PA.DER is concerned that the beneficial user would be responsible for self-enforced compliance with the requirements listed in the general permit.¹³⁸ Naturally, PA.DER wants to enforce the general permits.¹³⁹

WASTE REDUCTION

In order to reduce waste, a producer must decrease the amount of hazardous or solid waste that is generated. A waste reduction policy focuses on in-plant changes that eliminate the generation of unnecessary waste. PA.DER modeled its residual waste reduction program, referred to in the regulation as the waste minimization opportunity assessment, after the federal hazardous waste reduction program in RCRA.¹⁴⁰ RCRA establishes hazardous waste reduction as a national policy.¹⁴¹ Hazardous waste generators satisfy the RCRA requirements by certifying on the hazardous waste shipping manifest that they attempted to generate less waste.¹⁴² PA.DER wants the generator to explore various alternative production methods aimed at reducing the amount of waste generated in the industrial process.¹⁴³ The purpose of this section of the regulation is to provide industry with information about cost-saving that may be realized through waste minimization.¹⁴⁴

The Pennsylvania program requires the generator to prepare a source reduction strategy for each type of waste.¹⁴⁵ The strategy shall list previous waste reduction activities and mention whether a source reduction program is currently in effect.¹⁴⁶ Such an option for waste minimization shall be implemented upon a feasibility evaluation.¹⁴⁷ The strategy must be updated every five years or when the amount of waste generated changes significantly.¹⁴⁸

Industry expressed displeasure with the waste reduction requirements contained in the proposed regulation. The requirements in the annually updated waste minimization opportunity assessment seemed burdensome.¹⁴⁹ The proposed regulation required each waste generator to go through an extensive analysis of wastes generated, reduction options and cost benefit relations.¹⁵⁰ Industry envisioned a flood of data and having little opportunity to do anything other than file it away.¹⁵¹ The costs incurred to formulate and manage this information would be substantial for both PA.DER and the regulated community.¹⁵² Therefore, industry predicted that most waste minimization opportunity assessments would end up as camouflage for continuing existing practices.¹⁵³ These commentators felt that industry already minimized waste to the greatest possible extent to cut costs and to remain competitive.¹⁵⁴

In response to its own concerns and those of industry, PA.DER cut the waste minimization requirements.¹⁵⁵ PA.DER agreed that the requirements were too burdensome and complex.¹⁵⁶ The new requirements afford greater flexibility and provide incentives for reduction.¹⁵⁷ A waste still must initiate a minimization plan.¹⁵⁸ Generators will indicate what steps are taken toward waste reduction and follow up to ensure that the plan is implemented.¹⁵⁹ The generator does not need, however, to update the source reduction plan annually. PA.DER feels this modified requirement achieves waste reduction without overburdening the agency or individual generators.¹⁶⁰

CONCLUSION

Through the Pennsylvania residual waste regulation, PA.DER is attempting to strike a balance between environmental protection and the regulated community. PA.DER gave

the comments submitted by industry careful consideration and made accommodations to the regulation where possible. Industry's major concern is the cost they will incur complying with the regulation. PA.DER did everything possible to cut costs and reporting requirements imposed on industry. The regulation requires some industry sacrifices, however, to secure environmental protection.

The agency realizes that in order for the regulation to be effective, it must be environmentally protective and also applicable to real world situations. This dual purpose is apparent throughout the regulation.

The permit requirement and the transition scheme will enable industry to make a smooth transition in complying with the regulation. Furthermore, these sections exemplify how the regulation is both practical in its application and beneficial to the environment. The regulation requires all residual waste disposal and processing facilities to obtain a permit from PA.DER. An estimated 1000 residual waste sites currently operating without a permit will have to obtain one. To ease industry's burden, the regulation provides a permit by rule for special classes of facilities, a permitting transition scheme and a general permit process for the beneficial use of specified classes of residual waste.

The landfill and waste classification systems also further the dual purpose of the regulation. The classification system provides for three waste classes and three landfill classes. The classification system protects the environment by requiring a leachate analysis of the waste and requiring disposal in a suitable landfill. These sections of the regulation are practical in that they do not require all residual waste to be disposed in costly double liner landfills.

In order to reduce the amount of residual waste requiring disposal, the regulation institutes a source reduction program, allows for the beneficial use of waste. The source reduction section requires all generators to institute a waste minimization program. Moreover, the beneficial use permits reduce the amount of waste that needs disposal by putting the waste to a secondary use. These sections help to reduce the quantity of waste competing for landfill space. Thus, industry will save money in disposal costs.

The residual waste regulation would put industrial waste disposal precautions on par with the precautions already in effect with hazardous waste and municipal waste. By requiring permits, instituting a practical transition scheme, classifying waste and

landfills, permitting beneficial uses, and requiring a waste reduction plan, The residual waste regulation provides a balanced approach in protecting Commonwealth waters while remaining practical in its application to residual waste disposal.

1 Hazardous Waste Regulation, 25 Pa.Code 260.1-270.42 (1990)

2 Municipal Waste Regulation, 25 Pa. Code chapters 271, 273, 275, 277, 279, 281, 283, and 281 (1988).

3 Currently, the residual waste regulation is merely a draft. To be enacted into law, the regulation must be approved by the Environmental Quality Board. The regulation was published for first time in the *Pennsylvania Bulletin* in February 24, 1990 and allotted a 60 day public comment period. PA.DER has responded to the comments received during this first comment period in the Comment/Response Document: Report to the Environmental Quality Board on the Proposed Residual Waste Regulation. These responses resulted in numerous textual changes to the regulation. As a result, the Environmental Quality Board required PA.DER to publish the residual waste regulation for a second time to give the public the opportunity to respond to the changes made to the regulation.

4 Solid Waste Management Act, 35 Pa. Cons. Stat. 6018.101 (1989).

5 35 Pa. Cons. Stat. 6018.301. PA.SWMA differentiates between waste disposal and waste processing. Disposal is defined as incineration, injection, dumping, spilling, leaching or placing of waste into or on the land or water so that waste contaminants enter the environment. 35 Pa. Cons. Stat. 6018.103. Processing is any technology used to reduce the volume of residual waste or to convert some or all of the waste for offsite reuse. *Id.*

6 *Id.* If the residual waste is contained for less than one year it is considered to be stored. Final Rulemaking, Residual Waste Regulation: Environmental Quality Board Meeting, 13 (June 18, 1991); Proposed 25 Pa. Code 287.1 [hereinafter Residual Regulation].

7 Residual waste is defined as nonhazardous waste from industrial, agricultural and mining operations. Dernbach, *Industrial Waste: Saving the Worst for Last?*, 20 *Envtl. L. Rep.* 10283, 10287 (1990). Municipal waste is waste generated from municipal, commercial and institutional establishments. *Id.*

8 Municipal Waste Regulation, 25 Pa. Code chapters 271, 273, 275, 277, 279, 281, 283, and 281 (1988).

9 *Id.*

10 PA.DER also designed the residual waste regulation to be consistent with the hazardous waste regulations currently in effect. 20 Pa. Bull. at 1111. The management of both residual waste and municipal waste raises identical issues. Therefore, PA.DER has made the two regulatory programs consistent.

11 The residual waste regulatory package covers every aspect of residual waste management. Therefore, to discuss the entire package would be an overwhelming task.

12. Dernbach, *supra* note 7, at 10284.

13. *Id.*

14. An impoundment is designed to hold liquid waste or wastes containing liquids. This term includes storage ponds. Proposed 25 Pa. Code 287.1, 20 Pa. Bull. 1129.

15 Synthetic liners generally are made of polymer sheets 1.5 millimeters thick. O'Leary, Walsh & Ham, *Managing Solid Waste*, *Sci. Am.*, Dec. 1988, at 41.

16. Dernbach, *supra* note 7, at 10285.

17. *Id.*
18. Dernbach, *supra* note 7, at 10285.
19. *Id.* Pollutants migrate from the landfill to the groundwater. The leachate solution is formed when rain water percolates thorough the landfill dissolving contaminates from the waste. O'Leary, Walsh & Ham, *supra* note 4, at 40. The leachate collection system is used to assure that the leachate does not migrate to the groundwater. The groundwater monitoring system is utilized to detect when the liner system is allowing contaminates to leach through the soil. *Id.* at 41.
20. Resource Conservation and Recovery Act, 42 U.S.C. 6901 *et. al.* (1976)(Amended in 1984).
21. The majority of industrial waste generated in the United States is classified as nonhazardous by EPA. Dernbach, *supra* note 7, at 10284.
22. RCRA 3005, 42 U.S.C. 6925 (1984).
23. Dernbach, *supra* note 7, at 10285.
24. RCRA 4006, 42 U.S.C. 6946 (1980). As an incentive, federal aid is offered to those states that assume this responsibility. RCRA 4007, 42 U.S.C. 6947. However, these state plans are subject to EPA's approval. *Id.*
25. The legal definition of hazardous waste is narrow and specifies a limited list of chemicals considered to be hazardous. Hazardous wastes are characteristically ignitable, reactive, corrosive or EP toxic. Pennsylvania Environmental Quality Board, preamble to the proposed residual waste regulation, 20 Pa. Bull. 1107, 1109 (Feb. 24, 1990).
26. The EP toxicity test refers to an extraction procedure conducted on a representative sample of waste to determine if the waste contains contaminants at a concentration which is determined to be hazardous. 40 C.F.R. 261.24.
27. 20 Pa. Bull. at 1109.
28. 20 Pa. Bull. at 1109. However, the preliminary analysis conducted by PA.DER revealed that the problems associated with the disposal of waste is not limited to the contamination of the area's groundwater and streams. Problems also arise as a result of fugitive air emissions from the treatment, storage and disposal of the waste. *Id.*
29. Dernbach, *supra* note 7, at 10287.
30. Dernbach, *supra* note 7, at 10287.
31. *Id.*
32. Residual Waste Regulation, *supra* note 6.
33. In Pennsylvania vernacular, residual waste is the term used to describe industrial nonhazardous waste.
34. 20 Pa. Bull. at 1109.
35. *Id.*
36. *Id.* at 1109-10. Generic wastes include leather, rubber, elastomers, wood, paper, textiles, glass, plastics and agricultural wastes. Special wastes include oil contaminated wastes, PCB and asbestos containing wastes, spent catalysts and spill residues. *Id.*
37. *Id.* at 1108.
38. *Id.*

39. 20 Pa. Bull. at 1110.
40. *Id.*
41. *Id.*
42. 20 Pa. Bull. at 1109.
43. *Id.*
44. *Id.*
45. 20 Pa. Bull. at 1109. Asbestos is categorized as a nonhazardous waste. The Wissahickon Creek is located along one of the borders of the asbestos site.
46. Residual Regulation, *supra* note 6, 287.51-56, at 20-4.
47. Residual Regulation, *supra* note 6, 287.55, at 24.
48. Residual Regulation, *supra* note 6, 287.52, at 20.
49. Residual Regulation, *supra* note 6, 287.54, at 22.
50. *Id.* The generator is required to submit the results of the chemical analysis to PA.DER and to the operator of the disposal or processing facility that receives its waste. *Id.*
51. Residual Regulation, *supra* note 6, 287.53, at 21. The source reduction strategy must be updated every five (5) years. *Id.*
52. *Id.*
53. *Id.*
54. Residual Regulation, *supra* note 6, 287.101, at 24.
55. Residual Regulation, *supra* note 6, 287.125, at 48.
56. Residual Regulation, *supra* note 6, 287.127, at 50.
57. *Id.*
58. Residual Regulation, *supra* note 6, 287.102, at 25.
59. *Id.* Permit by rule status is granted to a facility that complies with the requirements for the storage and transportation of residual waste and that possesses the necessary permits under the environmental protection acts. However, if the facility is not in compliance with the permit by rule or the disposal activity threatens the environment, the PA.DER may require the operator to obtain an individual permit. Residual Regulation, *supra* note 6, 287.102(a)(6), at 26.
60. Residual Regulation, *supra* note 6, 287.102(b).
61. Residual Regulation, *supra* note 6, 287.102(c), at 27.
62. Residual Regulation, *supra* note 6, 287.102(d).
63. Residual Regulation, *supra* note 6, 287.102(e), at 28. For an example of a beneficial use see note 112.
64. Residual Regulation, *supra* note 6, 287.102(f).

65. 20 Pa. Bull. at 1114.
66. See, Residual Regulation, *supra* note 6, 287.111, at 29 (for unpermitted facilities); Residual Regulation, *supra* note 6, 287.115, at 39 (for permitted facilities).
67. See, Residual Regulation, *supra* note 6, 287.113, at 35 (for unpermitted facilities); Residual Regulation, *supra* note 6, 287.115, at 39 (for permitted facilities).
68. Residual Regulation, *supra* note 6, 287.111, at 29.
69. Residual Regulation, *supra* note 6, 287.117, at 43.
70. Residual Regulation, *supra* note 6, 287.111, at 29. Three (3) years after the regulation's effective date, a residual waste processing or disposal facility may not dispose or process waste unless the operator obtained permit under the new regulation or a completed application for a permit is pending with PA.DER. Residual Regulation, *supra* note 6, 287.113(d), at 36. An application is pending if the PA.DER has not rendered a decision whether or not to issue the permit. If the PA.DER denies a permit application for an unpermitted facility, the facility must immediately cease accepting waste. The same is true if the facility does not make changes to the application within six (6) months of a PA.DER request. *Id.*
71. Solid Waste Advisory Committee Meeting (Jan. 10, 1991) [hereinafter S.W.A.C. Meeting]
72. *Id.*
73. Residual Regulation, *supra* note 6, 287.115, at 39.
74. Residual Regulation, *supra* note 6, 287.115(b), at 40. This description should address: (1) the surface water drainage design; (2) the sedimentation pond design; (3) the waste analysis; (4) the surface water and ground monitoring and (5) bonding and insurance. For landfill facilities and disposal impoundments, the application should also address leachate treatment requirements, liner system requirements and cap and drainage layer requirements. *Id.*
75. Residual Regulation, *supra* note 6, 287.115, at 41.
76. *Id.*
77. S.W.A.C. Meeting, *supra* note 71. The original deadline for unpermitted facilities to apply for a permit was two (2) years. For permitted facilities, the deadline was four (4) years.
78. *Id.* See, Residual Regulation, *supra* note 6, 287.113 at 36; Proposed 25 Pa. Code 287.116, 20 Pa. Bull. 1136.
79. *Id.* See Residual Regulation, *supra* note 6, 287.115, at 41; Proposed 25 Pa. Code 287.113, 20 Pa. Bull. 1135.
80. S.W.A.C. Meeting, *supra* note 71.
81. *Id.*
82. *Id.*
83. Residual Regulation, *supra* note 6, 287.115(c), at 40.
84. *Id.* The operator is required to provide the department with data on the contaminants from one or more monitoring points and the property's boundary yearly. Furthermore, the operator must prove that the chemical composition of disposed waste at the facility does not change. *Id.*
85. S.W.A.C. Meeting, *supra* note 71. The parameters used by PA.DER are based on the drinking water standards and the background levels at the property's boundary. Residual Regulation, *supra* note 6, 287.115(c), at 40.
86. 20 Pa. Bull. at 1112. A double liner system frequently consists of two synthetic liners or one synthetic liner and a natural layer of clay running under the landfill. *Id.* at 1117.

112 For example, residual waste can be beneficially used in foundry sand which can be shaped into bricks. Other beneficial uses include direct application of waste to land, structural fills, soil additives and soil substitutes.

113 Residual Regulation, *supra* note 6, 287.601-.652, at 98-113.

114 See 20 Pa. Bull. 1161.

115 Interview with Cathy Curran Myers, Director of the Bureau of Regulatory Counsel for the Pennsylvania Department of Environmental Resources (June 28, 1990)[hereinafter Curran Myers].

116 *Id.*

117 *Id.*

118 *Id.*

119 Curran Myers, *supra* note 115.

120 *Id.*

121 *Id.* For a permit by rule, PA.DER would have to publish the proposed permit for a sixty (60) day comment/response period. Before the permit by rule is executed, PA.DER would have to show that they considered the comments submitted by the public and made changes to the contents of the permit accordingly.

122 Residual Regulation, *supra* note 6, 287.621(a), at 102. PA.DER also may initiate the issuance or modification of a general permit for beneficial use. Residual Regulation, *supra* note 6, 287.625, at 105.

123 Residual Regulation, *supra* note 6, 287.621, at 102.

124 Residual Regulation, *supra* note 6, 287.624, at 104.

125 Residual Regulation, *supra* note 6, 287.623, at 103. The application must be administratively complete before it is published. Residual Regulation, *supra* note 6, 287.625, at 105.

126 S.W.A.C. Meeting, *supra* note 71.

127 *Id.*

128 Curran Myers, *supra* note 115.

129 Interview with Ron Hassinger, Waste Determinations for the Bureau of Waste Management for the Pennsylvania Department of Environmental Resources (Aug. 28, 1991). Direct land application places the residual waste directly into the environment. Structural fills, soil additives and soil substitutions are examples of land application.

130 *Id.*

131 *Id.*

132 *Id.*

133 Residual Regulation, *supra* note 6, 287.621(b)(5)(iv), at 103. Some examples of direct land application that is covered by this section of the regulation are construction materials, soil substitutes, soil additives and anti-skid material.

134 *Id.*

135 S.W.A.C. Meeting, *supra* note 71.

136 *Id.* A notification system would require industry to simply notify PA.DER of the beneficial use. PA.DER would not be responsible for reviewing the use in any way.

137 *Id.*

138 *Id.*

139 *Id.*

140 See Residual Regulation, *supra* note 6, 287.53, at 21.

141 RCRA 3002, 42 U.S.C. 6922(b)(1984).

142 *Id.*

143 S.W.A.C. Meeting, *supra* note 71

144 *Id.*

145 Residual Regulation, *supra* note 6, 287.53(b), at 21.

146 Residual Regulation, *supra* note 6, 287.53(b)(1), at 21.

147 S.W.A.C. Meeting, *supra* note 71.

148 Residual Regulation, *supra* note 6, 287.53(c), at 21-2.

149 The comment/response document for the proposed residual waste regulation, 153-57 (Feb. 26, 1990).

150 *Id.*

151 *Id.*

152 *Id.*

153 *Id.*

154 The comment/response document for the proposed residual waste regulation, 153-57 (Feb. 26, 1990).

155 S.W.A.C. Meeting, *supra* note 71.

156 *Id.*

157 *Id.*

158 *Id.*

159 *Id.*

160 S.W.A.C. Meeting, *supra* note 71.