United States Environmental Protection Agency

Office of Solid Waste and Emergency Response

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[ ] C- For review &/or comment
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OSWER Directive #9523.00-14
OSWER Directive #9523.00-15

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EPA

United States Environmental Protection Agency
Washington, DC 20460

OSWER Directive Initiation Request

1 Directive Number: 9523.00-17

2. Originator Information

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3 Title

Summary of Assistance Branch Permitting Comments

4 Summary of Directive (include bnef statement of purpose)

This is the fourth in a series of periodic reports which summarize issues that HQ staff have addressed in thier reviews of RCRA Part B permit applications, permits, and closure plans. This report covers issues that are of national interest from reviews conducted by the Assistance Branch from January 1987 through March 1988. (continued below)

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9 Signature of Lead Office Directives Coordinator	Date
Jennifer A. Barker, Office of Solid Waste	09/07/88
10 Name and Title of Approving Official	Date
Sylvia K. Lowrance, Director, Office of Solid Waste	09/02/88

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(Summary continues) This report provides current EPA policy and guidance to the Regions and States.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP - 2 1988

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

SUBJECT: Summary of Assistance Branch Permitting Comments

FROM: Sylvia Lowrance, Director
Office of Solid Waste (OS-300)

TO: Hazardous Waste Management Division Directors
Regions I-X

Attached is the fourth in a series of periodic reports which summarize major issues that Assistance Branch members have addressed in their reviews of specific Part B applications, permits and closure plans. (These reports were formerly called the "PAT Summary Reports"; previous reports were issued in March 14, 1986 (OSWER Policy Directive No. 9523.00-14), March 30, 1987 (OSWER Policy Directive No. 9523.00-12), and March 30, 1988 (OSWER Policy Directive No. 9523.00-15)). These reports cover issues that are of generic national interest rather than strictly site-specific interest. The attached report includes reviews conducted by the Disposal and Remediation Section and the Alternative Technology and Support Section from January 1987 to March 1988. In order to ensure that the report reflects current EPA policy and guidance, we obtained review comments from within OSW and from the Office of General Counsel.

We hope that the recommendations provided in this document will be helpful for permit writers encountering similar situations at other RCRA facilities. By sharing the Assistance Branch's suggestions from a few sites, we hope that permit decision making will be somewhat easier and faster at many more sites nationally. We encourage you to distribute this report to your staff and State permit writers. To make that easier, I have attached multiple copies of the report.

Attachment A to the report lists the facility names, Regions, coordinators, and dates for the reviews summarized in this report. Attachment B provides a list of guidance documents and directives used in preparing the reviews.

If you have any questions, comments, or suggestions on the Summary of Assistance Branch Permitting Comments, please contact James Michael at FTS 382-2231.

Attachments

cc: RCRA Branch Chiefs
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OSW Directive No. 9523.00-17

Summary of Assistance Branch Permitting Comments

Table of Contents

OSW Directive No. 9523.00-17

SUMMARY OF ASSISTANCE BRANCH PERMITTING COMMENTS

January 1987 - March 1988

This is fourth in a series of documents summarizing some of the comments provided to Regional permit writers by staff of OSW's Asssistance Branch on permitting. It was formerly called the "PAT Summary Report".

This summary is organized into three sections. The first section, Issue Resolution, provides examples of issues that have been raised at one or more facilities. This section covers special situations where regulations or policy decisions were applied to actual circumstances. The second section, Recommendations, addresses comments routinely made to answer questions on items often overlooked or poorly understood, and to convey technical information. This section should be generally helpful to the permit writer. Finally, there is a section describing new guidance that may be of interest to the Regions.

ISSUE RESOLUTION

Ancillary Equipment on Tank Systems

1) Secondary Containment for Flanges and Joints

Threaded joints and flanges used in tank system piping vary widely. Frequently, the Assistance Branch staff is asked to clarify if a specific design is exempt from the requirement for secondary containment.

An owner/operator asked if a joint consisting of a flange bolted to a second flange is required to have secondary containment. Bolted flange joints, that are above ground and inspected daily, are not required to have secondary containment; however, the completed and installed system must be tested for tightness prior to use.

Secondary containment is intended to apply to any threaded joint system, including threaded joints fabricated of special materials such as teflon or plastic. Any joint where waste may come in contact with the thread must have secondary containment.

2) Secondary Containment for Ancillary Equipment

A facility submitted a design for a secondary containment system for the waste lines entering a neutralization tank. The proposed secondary containment system was an existing

trench that conveyed non-hazardous wastewater to the same neutralization tank. The Assistance Branch was asked to determine if the existing trench was acceptable as secondary containment.

The hazardous waste pipe was to be suspended over the existing trench which was adequately sized to contain both the flow in the pipe, should a leak occur, and the maximum volume of wastewater. Secondary containment, however, must be dry in order to detect any leaks from the hazardous waste line. Once a release is detected, any waste must then be removed. The proposed system, therefore, was not acceptable.

The facility modified its proposal to include a dry trough below the hazardous waste pipe. The second proposal met the full intent of the secondary containment requirement and was deemed acceptable.

New Tank Systems

1) The Status of New Tank Systems at Facilities Permitted between the Promulgation and Effective Dates of the New Tank System Regulations

Any tank system installed after July 14, 1986 is, by definition, a new tank system. About six months fall between this date and the effective date of the revised Federal regulations (January 12, 1987). For tanks subject to RCRA standards but not HSWA, this time lapse is even more pronounced in States that had pre-HSWA authorization and have additional time to adopt equivalent tank system regulations. Can permits issued during this time lag reflect the intent of the revised tank regulation?

In the case of a State-issued permit, the permit must reflect the State statutory or regulatory requirement in effect prior to final permit disposition. If a State has a regulation analogous to Section 270.41(a)(3) (Reference 5) the Director can modify a permit in order to include new statutory requirements or regulations applicable to the permit upon the effective date of the legal authority. Thus, a permit issued for a tank system can be modified to reflect the revised standards when they go into effect.

After the permit modification, any tank system installed after July 14, 1986 would be considered a "new" tank system which must have secondary containment. The phase-in period allowed for 'existing' tank systems would not apply.

The State Director has the option to use a State law analogous to the "omnibus provision" (Section 270.32(b)(2)) to reflect the requirements of the regulations during this lag time. OSWER Policy Directive #9523.00-15 (Refer ence 11) clarifies when to use the (Federal) omnibus provision.

It should be noted that new underground tanks are regulated under HSWA. At this time, no States are authorized to apply these requirements.

Variances for Classification as a Boiler

The Assistance Branch was requested to determine if specific units which do not meet the definition of boiler were eligible for a variance to be classified as a boiler under Section 260.32. Two proposals were reviewed and the following issues were specifically addressed. An evaluation of all the applicable criteria, however, was conducted in each case prior to making the final determination. At both facilities, the inability of either unit to meet any of the criteria for classification as a boiler supports the final determination that these units are not eligible for a variance.

1) Integral Boiler Design of the Combustion and Energy Recovery Sections.

In order for a controlled flame combustion unit to meet the definition of a boiler given in Section 260.10, the combustion chamber and the energy recovery section must be of integral design. Two facilities have units which they refer to as "post-combustion chambers" located between the combustion section and the energy recovery section. The post-combustion chambers are insulated flow passages between the main combustion chamber and the heat recovery section. The owners of these units requested variances. They contend that these passages are not ducts or other connectors which, as stated in the regulations, are not permissible as components between the combustion and energy recovery sections in units which meet the integral design requirement of a boiler.

The owners assert that additional thermal oxidation of wastes occurs in the post-combustion chambers, providing high hazardous waste destruction, and that combustion therefore continues until the gases reach the energy recovery section.

The oxidation of additional waste products, however, does not mean that combustion occurs. Combustion, as defined

in Webster's New Collegiate Dictionary, is a specific process which is "accompanied by the evolution of light and heat". In fact, information on the performance of these units showed a net loss of heat over the length of the chamber instead of a heat gain as would occur during combustion. The conditions in the chamber that promote the oxidation of trace organics is part of a good incinerator design. The Assistance Branch found that these units do not meet this criteria for a boiler.

2) Integral Boiler Design Based Upon the Operation of a Control System Between the Combustion and Energy Recovery Sections

40 CFR Section 260.10, which defines boilers, provides an example of units that do not meet the integral design requirement as units "in which the combustion chamber and the primary energy recovery section(s) are joined only by ducts or connections carrying flue gas..." An owner/operator maintained that his unit was a boiler because the combustion section was connected to the energy recovery unit not only by a duct but by a control system as well. The Assistance Branch evaluated the owner's contention that his unit was a boiler.

The control system in this unit does connect the steam raising portion with the combustion chamber. The control system, however, was designed for safety purposes to reduce the risk of explosion and other unsafe conditions. Under unsafe conditions this type of automatic control system would shut the unit down.

True boilers have control systems designed to regulate steam output. Boiler control systems would typically provide at least a 3 to 1 turn down control on steam production by varying the fuel, air and water. When evaluating the appropriateness of any unit to meet the definition of a boiler, the common and customary usage of similar units is important. The lack of steam control by this unit's control system is typical of incinerators. The Assistance Branch noted that the lack of a true boiler control system supported the denial of the boiler petition.

3) Variance Petition under Section 260.32 for Classification as a Boiler Based upon Innovative Design of the Unit

An owner submitted a petition for classification of his unit as a boiler. He maintained that the innovative techniques employed during the construction of his unit should be a factor in the evaluation of his petition since

the boiler classification variance was meant to allow for new or unusual units which EPA did not have the opportunity to consider when developing the boiler definition. During the review of the petition, the Assistance Branch evaluated the performance of the innovative component in order to determine if it was significantly different from that of the current technology.

The innovative component was the insulation around the post-combustion chamber. The insulation was constructed of 8 inches of compressed refractory material installed by a unique, soon to be patented process. The owner of the unit and the designer of the process stated that the use of this material was innovative.

The performance of the insulation was both theoretically and practically evaluated. Actual performance was considerably less than what was anticipated from the theoretical calculations. Based on the theoretical heat transfer calculations, the performance of the innovatively applied insulation was not significantly better than that for insulation designed and installed according to current incinerator industry standards. While the installation technique for the insulation may be "innovative", the insulation process did not provide any improvement over current practice. Thus, even though the insulation was different from the type normally used, the difference was deemed insignificant since it achieved results similar to conventional insulation.

4) Thermal Efficiency Requirement for Boilers

Section 260.10 states that any "boiler" must "maintain a thermal energy recovery efficiency of at least 60 percent". As part of a demonstration to support a waiver petition for classification as a boiler, a unit was described as operating with a 65% energy recovery. The Assistance Branch evaluated this claim.

The unit in question is not able to measure the fuel flow rate and the waste addition varies by 50 percent. Without appropriate documentation, the thermal efficiency data is unsupported. The determination of boiler efficiency should be conducted under controlled conditions following one of the methods certified by the American Society of Mechanical Engineers.

Incinerators

1) Use of Thermal Relief Vents

Design drawings in a permit application for a new incinerator included a thermal relief vent between the combustion chamber and the air pollution control equipment. The Assistance Branch was requested to determine if the use of a vent to bypass the air pollution control equipment should be allowed.

The thermal relief vent was proposed to protect the air pollution control equipment from excessive heat during emergency situations such as failure of power and water cooling systems. OSWER Policy Directive #9488.00-3 (Reference 1) discusses the acceptability of these vents in new incinerators. Indiscriminate use of relief vents is deemed to be a violation, however, EPA has recognized that they may occasionally be needed to protect employees and air pollution control equipment. Thermal relief vents, therefore, are allowed in the design of new incinerators.

The permit, however, should require the design to include the necessary backup systems to reduce the use of these vents. The system should have interlocks such that the vent can only open after the waste feed has been cut off. The operating plan should include a list of parameters and cut-off points at which the vent may be used. A review of the permittee's operating plan should be made to identify and eliminate the use of the thermal relief vent in situations where it may not be absolutely necessary.

Minimum Technology Requirements for Vertical and Lateral Expansions

1) Application of Minimum Technology Requirements to Vertical Expansions.

A facility planned to expand its landfill vertically. During the public comment period on their draft permit, the applicability of minimum technological requirements to such an expansion was raised. The Assistance Branch was requested to evaluate the issue.

The facility opened the landfill trench in question in 1978 under a TSCA permit. Currently the unit accepts RCRA waste under interim status. The proposed vertical expansion would not exceed the capacity of the unit stated in the Part A application, and there are no limits in the

existing permits on the elevation of RCRA wastes placed in the unit. The proposed expansion will extend 21 feet vertically above the original grade limitation for TSCA wastes; however, no waste will be placed beyond the existing lateral boundaries.

The Assistance Branch found that the proposed vertical expansion is permissible without meeting the minimum technological requirements because: (1) The proposed vertical expansion does not exceed the unit boundaries; and (2) The landfill was in use and operational prior to the date of the enactment of HSWA, therefore, the above-grade expansion does not fit the definition of a new unit.

May 1985 guidance (Reference 4), however, states that a vertical expansion beyond any hazardous waste permit capacity or elevation limits affects the operational status of the unit. If the operation of the unit was limited on November 8, 1984, a subsequently proposed vertical expansion would constitute a "new unit" and is subject to minimum technology requirements. This facility has no vertical RCRA hazardous waste permit limits; therefore, the minimum technology requirements do not apply to this vertical expansion.

2) Lateral Expansion During Closure.

After a RCRA Facility Investigation (RFI), an owner/operator planned to close several solid waste management units by consolidating the waste from two waste soil piles with the residue in a surface impoundment regulated under interim status. The volume of the resulting waste mixture is estimated to exceed the existing capacity of the impoundment. The Region was concerned that the proposed closure plan would not be permissible.

The consolidation of waste material is an acceptable closure activity. If the proposed consolidation necessitates the placement of any hazardous waste beyond the boundary of the regulated unit or beyond any limits imposed by a RCRA permit since November 8, 1984, the action results in a lateral expansion which must meet the minimum technological requirements. Moreover, if the consolidation into the surface impoundment occurs after November 8, 1988, the surface impoundment must meet minimum technology requirements. Finally, if waste from any of the units being placed in the impoundment are subject to the land disposal ban, then the waste may not be placed in the impoundment unless it is treated in accordance with 40 CFR 268 Subpart D or the owner/operator has sucessfully petitioned under 40 CFR 268.6.

Waiver Petitions from Minimum Technological Requirements - 3004(o)(2)

A facility may petition for a waiver from minimum technological requirements under Section 3004(o)(2) if their alternate design and specific operating practices, when viewed in combination with the characteristics of the site location, will prevent the migration of hazardous constituents into ground or surface water as effectively as the required design. The Assistance Branch is often asked to evaluate facility specific factors to see if they meet the conditions of the waiver. During two recent evaluations, the following issues were raised.

1) Minimum Technology Waiver Petition due to Alternate Design and Operational Factors

An owner/operator of an existing surface impoundment proposed to install a liner system consisting of a 36-ml hypalon sheet over a leachate collection system constructed over two existing 4-inch layers of bentonite separated by a drainage layer. The owner contends that this design is at least as effective as the minimum technology requirements (MTR). The MTR specify a 36-inch clay layer because a liner of such thickness would be constructed by the placement of several clay lifts. Discontinuities in an individual lift would be unlikely to occur in the same area on subsequent lifts. The existing 4-inch layer is applied in one lift and does not provide any safeguard over any irregularities that might allow leakage.

While the new design alone was insufficient, the owner/operator also planned to use operational factors which he claimed would make the alternate design as effective as the minimum technology requirements. The impoundment has a limited life span with planned closure in 1989 which makes the unit a short-term operation. The leachate system does not show any evidence of a leak, and no ground-water contamination has been found. If a leak were to occur, the owner plans to drain the impoundment. While the liquids stored in the impoundment are listed hazardous wastes, they do not exhibit any of the characteristics for which the wastes were listed. The Permit Assistance Staff recommended that the waiver be granted contingent upon the short-term operation of the unit.

2) Waiver Petition Demonstrating Design and Operating Practices which Prevent Migration

A facility petitioned for an alternate design and operation approach that prevents the migration of contaminated ground water from under the unit. The Assistance Branch was asked to determine if the proposed design met the intent of the 3004(o)(2) waiver provision.

The owner of the surface impoundment proposed to install intragradient cut-off walls downgradient of their surface impoundment. The collected, contaminated ground water would be removed from behind the walls and treated. Migration of contaminated ground water beyond the waste management area, therefore, would be prevented.

Section 3004(o)(2) allows a waiver only if the owner can demonstrate that the proposed alternative will "prevent the migration of any hazardous constituents into the ground water". The term "ground water" is intended to mean any ground water and not ground water beyond the waste management area. In order to meet the equivalency test required by this waiver, the alternate liner design must be as effective as the minimum technology requirements for liner design in preventing the migration of any constituent through the liner. The Assistance Branch recommended denial of this waiver request.

RD&D Permits

1) Qualifying for a RD&D Permit for an Incinerator

Research, development and demonstration permits, regulated by Section 270.65, were intended to be available for processes and units which treat hazardous wastes with innovative technologies. Several Regions have received applications for RD&D permits for technologies already established for treating hazardous waste and which are specifically regulated elsewhere under RCRA. The Assistance Branch was asked to determine if incinerators, in particular, could be eligible for a RD&D permit and under what circumstances they would qualify.

The purpose of RD&D permits is to produce data on technical or economic feasibility of experimental processes or technologies; however, existing treatment methods may qualify if the permit is intended to allow treatment of waste streams not previously treated by this type of unit, or if the operating conditions would be modified for different or expanded uses of the technology. The Assistance Branch, after discussion with the Office of General Counsel, clarified that incinerators are eligible for RD&D permits (Reference 8) if they further the

knowledge on treatability, design and/or combustion research through experimental (but not commercial) research applications.

In one such instance, a research facility applied for an RD&D permit for an incinerator and they proposed to conduct a study on the products of incomplete combustion (PICs) from incinerators. They also proposed to produce a biological system study on the fate and transport of PICs in the environment. The results of these proposed studies would add to the body of information on the characteristics and quantity of residuals emitted from incinerators. Based upon the proposed study of the effects of PICs on biological systems, the proposed incinerator was determined to be eligible for a RD&D permit.

2) Operating Time for RD&D Permits

Section 270.65(a)(1) states that an RD&D permit can be issued for up to 365 days of operation. A particular facility wishes to continue operation under its RD&D permit for longer than one calendar year. A Region asked the Assistance Branch for appropriate wording on the permit.

While RD&D permits are limited to 365 days of actual operation, many experimental units operate sporadically for a few days and are then shut down for longer periods while the results are evaluated. In some cases, 365 days of operation may extend over numerous years. In order to keep track of the unit's operation, guidance (Reference 3) suggests that permit writers may include a calendar-based expiration date in RD&D permits in cases when warranted.

RD&D permits may be renewed up to three times. The appropriateness of the justifications for an extension should be considered with any future permit renewal applications. The application will be evaluated based upon the initial results of operation, the need for more data, any changes in operating conditions and the occurrence of any enforcement actions.

RECOMMENDATIONS

Tank Systems

1) Applying Regulations Promulgated Under Two Authorities

The universe of hazardous waste tank systems currently affected by the July 14, 1986 regulatory amendments varies from State to State. The tank system regulations were promulgated under two authorities. Those applicable to RCRA tank systems are now in effect only in States that do not have authorized RCRA base programs. States authorized for the base RCRA program must amend their programs before the regulations become effective. Those provisions applicable to HSWA regulated tank systems are effective in all States. The Assistance Branch is often asked to clarify which provisions apply universally and which apply only in unauthorized states.

The following requirements apply in all States:

- interim status requirements applicable to small quantity generator tank systems (Section 3001(d))

- leak detection for all new underground tanks that cannot be entered for inspection (Section 3004(o)(4))

- permitting standards for underground tanks that cannot be entered for inspection (Section 3004(w))

Regulations applicable to above-, on-, in-, and enterable underground tanks currently apply only in unauthorized States. Authorized States have until July, 1988 (if only regulatory changes are needed) or July, 1989 (if statutory changes must be made) to amend their programs to reflect the Federal requirements. Further information is provided in the Implementation Strategy for Tank Systems (Reference 12).

Incinerators

1) Selection of Principle Organic Hazardous Constituents (POHCs)

Current research by the University of Dayton Research Institute has led to a new incinerability ranking of Appendix VIII compounds based upon thermal stability data (Reference 9). Until now, incinerability ranking of Appendix VIII compounds has been based upon a compound's heat of combustion.

Guidance is being developed to reflect the new ranking of compounds. A Regional Office proposed to specify at least one POHC based on each of these rankings as an interim approach. The Assistance Branch agreed that this approach is acceptable, and suggested additional criteria, such as chemical structure, toxicity and concentration, which may also be used.

2) Use of Surrogate Wastes During a Trial Burn

Surrogate wastes are mixtures of chemicals combined to exhibit the characteristics of the actual waste materials and to contain the same hazardous chemicals expected to be burned by an incinerator. Surrogate wastes are often proposed by facilities for use during the trial burn. Simulating the burning characteristics of any individual waste, however, is very difficult. As a result of this difficulty, facilities should use actual wastes during the trial burn if they are available. In cases where the principle organic hazardous constituents (POHC) concentrations in the actual waste are not high enough to determine the destruction and removal efficiency (DRE), the wastes may be spiked.

If the facility cannot modify its plan to burn actual wastes, such as in the case of a commercial incinerator, the owner/operator should provide justification for the use of surrogates. If any facility must use surrogate wastes, the surrogate waste should be as much like the actual waste as possible. If an incinerator is planning to burn solid waste, surrogate solids should be mixed with the POHC feed.

3) Destruction and Removal Efficiency (DRE) Calculations

A facility planned to include in their DRE calculations the POHC input into the system from city water used to prepare a lime slurry for removing acid gases by their scrubber. During a review of the trial burn plan, the Assistance Branch evaluated their methodology for the DRE determination.

According to Section 264.343(a)(1), the mass feed rate of POHC input used for DRE calculations must equal the mass feed rate in the waste stream only. In order to complete the determination, all the POHCs in the exhaust gases must be included in the calculations. Any additional POHCs volatilized from the slurry used in the scrubber system must be included if they are released with the emission gases.

4) Sampling During a Trial Burn

In their trial burn plan, a facility proposes to obtain one grab sample per test run for residue analysis. The proposed frequency of sample collection is inadequate for the collection of a representative sample from any test run. An acceptable plan would be to collect grab samples at frequent intervals over the entire test period. These samples should be composited before analysis.

5) Use of Sampling Trains in Modified Method 5 (MM5)

Several facilities planned to use a single MM5 train to sample for both particulates and semi-volatile POHCs during a trial burn. This approach is incorrect. The drying of the filter for the particulate analysis results in the potential loss of semi-volatile compounds. The correct procedure involves the use of two separate trains, one for particulate sampling and one for the sampling of semi-volatile organics.

Ground-water Monitoring

1) Confirming Ground-water Contamination

A draft permit condition for a detection monitoring program required three sampling events to confirm ground-water contamination. Under Part 264 Subpart F, only one confirmatory sampling event is necessary to trigger a compliance monitoring program.

The Subpart F requirement for triggering a compliance monitoring program is based upon one sampling event and one confirmatory sampling. A slug of contamination detected in the initial sampling could pass the compliance point during the time it takes to obtain results from additional confirmatory sampling events.

2) Disposal of Purged Water.

The ground-water sampling and analysis plans at many facilities have no procedures for handling purged water. Purged water from monitoring wells should not be discarded onto the ground because the purged water could contain hazardous waste. It should be tested for hazardous characteristics in order to determine an appropriate disposal method, particularly if previous sampling events indicated the presence of hazardous constituents. Alternately, collected purge water can be disposed back into surface impoundments that are permitted to receive any constituents expected in leachate or contaminated ground water.

Ground-water Modeling

1) Determination of Site-specific Permeability for Application in a Model.

A facility proposed to use a model to support their no-migration waiver petition. They obtained several soil samples in order to determine a soil permeability factor. A mean value was calculated for input into the model.

Modeling efforts to determine the potential for migration of hazardous constituents to or in ground water should use the worst-case value measured representative of a site in order to incorporate a margin of safety. The applicant was asked to re-run the model using the highest value of the coefficient of permeability.

2) Selection of Critical Constituents for Use in a Transport Model

A waiver applicant planned to demonstrate no migration into ground water by selecting critical constituents for use in their modeling effort. Inputs included half-life and retardation factors. The applicant selected acrolein and acrylonitrile based upon their relatively long half-lives in ground water.

However, the high retardation factors which indicate slow movement, make the selection of these two chemicals unrepresentative of the worst case. The most appropriate constituent(s) for modeling must be based on an evaluation of all relevant factors. Concentration of the constituents in the waste and their retardation factors should be evaluated along with half-life when selecting constituents with the greatest potential to migrate. The Assistance Branch recommended that other constituents be chosen in this case.

3) Use of Appropriate Models based upon Site Characteristics

A waiver applicant proposed to use a one-dimensional model to demonstrate no migration of hazardous constituents into ground water. The hydrogeological and soil characteristics of the site displayed several non-uniformities and could be described as a fairly complex system.

A one-dimensional model, as proposed by the applicant, can be very limiting. The attributes of the model must reflect the conditions observed at the site. Also, data representative of the whole site should be collected for input into the chosen model. Given the complexities of the site, a more sophisticated model, such as a 2- or 3-D model, would be necessary to support a demonstration of a 'no migration'.

Landfill Design

1) Composite Bottom Liner Equivalency

A facility proposed to install a 60-ml high density polyethylene (HDPE) liner over a compacted clay layer with a permeability not exceeding 1 x 10^{-6} cm/sec as the lower liner for a new cell. The Assistance Branch was asked to determine if the proposed liner was equivalent to the current requirement under Section 264.301(c) for a 3 foot compacted clay-only liner with a permeability not greater than 1 x 10^{-7} centimeters per second.

The staff felt that a composite liner with a clay component of 1 x 10^{-6} cm/sec permeability was equivalent to a clay liner with lower permeability. Regulations proposed on March 28, 1986 (Reference 6), when they become effective, will be more restrictive. They will require a composite bottom liner consisting of a flexible membrane liner over a 3 foot clay layer with a permeability not more 1 x 10^{-7}. Until then, the clay-only liner requirement is the standard applied to evaluate liner equivalency.

2) Evaluation of a Steep Slope Using the Universal Soil Loss Equation

A facility proposed to install a cover with a slope that significantly exceeds the recommended 3-5% grade. The owner maintains that the annual soil loss, based upon the Universal Soil Loss Equation, would be just less than the 2 tons/acre/year limit recommended by EPA. The Assistance Branch was asked to review the facility's calculations.

The five factors used in the soil loss equation are subjective and selected based upon the site engineer's best judgement. If slightly larger factors were applied than the ones selected by the applicant, the soil loss would be substantially greater (as much as 33 tons/acre/year). In order for the Assistance Branch to accept the applicant's predicted soil loss, the anticipated loss should be significantly less than 2 tons/acre/year so that any underestimation of the selected factors would not result in an actual loss of more than the soil loss limit. The Assistance Branch requested additional documentation from the applicant.

3) Demonstration of Material Durability

An applicant conducted a demonstration of material durability by using polyethylene tanks to perform the compatibility testing on their HDPE liner components. The polyethylene tank material absorbs the same kinds of chemicals as the HDPE samples, thereby reducing the constituent level in the test leachate. This could lead to an unrealistic strength data after immersion testing. The Assistance Branch recommends that glass vessels be used for immersion testing.

4) Minimum Technological Requirements for Secondary Soil Liner

A facility planned to construct a side slope liner by scarifying and remolding the exposed soils prior to placement of the synthetic membrane. Section 264.301(c) requires that this liner be constructed "with at least a 3 foot thick layer of recompacted clay or other natural material with a permeability of no more than 1×10^{-7} cm/sec." Scarifying and remolding alone do not meet the requirements for recompaction.

Permit Conditions

1) Specification of an Adequate Number of Emergency Coordinators

Assistance Branch review of a Part B application addressed the contingency plan for the facility. This facility had only one emergency coordinator designated in their plan.

The regulations in Section 264.55 require that an emergency coordinator be available at all times. At the minimum, one additional employee must be designated and trained as emergency coordinator to provide around-the-clock and vacation coverage. At this particular facility, the Assistance Branch recommended that two more emergency coordinators be designated in order to provide adequate coverage.

2) Requirement for Additional Testing as a Permit Condition

In a draft permit, a State required that all stabilized wastes that have passed the paint filter test also be subjected to an unconfined compressive strength test at 50 psi. While a Region can specify permit conditions for additional testing, the current Federal policy and the proposed rule on containerized liquids are less stringent than the draft State permit condition. The State is allowed, however, to be more stringent than the EPA. Note that under the Federal policy, the compressive strength test is necessary only if the Region is unsure that true chemical stabilization has occurred.

AVAILABILITY OF NEW GUIDANCE

Tank Systems

EPA guidance document, "Compilation of Persons Who Design, Test, Inspect, and Install Storage Tank Systems" (EPA/530-SW-88-019) is now available. The document provides a list of individuals and firms who provide the services of an independent, qualified, registered professional engineer, corrosion expert, or qualified installation inspector as required in the July 14, 1986 regulations for hazardous waste tank systems.

Attachment A

Assistance Branch Staff Reviews Included in this Summary

Facility Name	Region	Staff Coordinator	Review Date
Buckner Barrel	II	Chester Oszman	May 1987
Ciba-Geigy (Glen Falls, N.Y.)	II	Chris Rhyne	June 1987
Ciba-Geigy (Queensbury, N.Y.)	II	Chris Rhyne	March 1988
Fort Barton Industries	I	Sonya Stelmack	February 1987
General Dynamics	I	Sonya Stelmack	June 1987
General Electric (Waterford, N.Y.)	II	Chris Rhyne	February 1988
Eli Lilly and Company	V	Chester Oszman	June 1987
Envirosafe Services (Grand View, Idaho)	X	Amy Mills	February 1987
Memtek Corporation	I	Nestor Aviles	January 1987
Monsanto (Chocolate Bayou, TX)	VI	Dave Eberly	April 1987
Moore Business Forms and	VI	Nestor Aviles	May 1987
National Institute of Health (NIH)	III	Nestor Aviles	February 1988
SCA Chemical Services	II	Chris Rhyne	December 1987
SOHIO	VI	Chris Rhyne	October 1987
Union Carbide Agriculture Products Company	III	Chris Rhyne	July 1987
U.S. Ecology	IX	Chris Rhyne	February 1988
USPCI	VIII	Dave Eberly	January 1988

Attachment B

List of Guidances Used in Preparing the Assistance Branch Reviews

1. "Acceptability of Thermal Relief Vents on Hazardous Waste Incinerators", OSWER Policy Directive #9488.00-3.

2. Compilation of Persons Who Design, Test, Inspect, and Install Storage Tank Systems, February 29, 1988, EPA/530-SW-88-019.

3. Guidance Manual for Research, Development, and Demonstration Permits under 40 CFR Section 270.65, July 1986, EPA/530 SW-86-008, OSWER Policy Directive #9527.00-1A.

4. Guidance on the Implementation of the Minimum Technological Requirements of HSWA of 1984, Respecting Liners and Leachate Collection Systems; EPA/530-SW-85-012.

5. "Hazardous Waste; Codification Rule for the 1984 RCRA Amendments" 52 FR 45788, July 15, 1985.

6. "Hazardous Waste Management System; Proposed Codification of Statutory Provisions", 50 FR 10706.

7. "Hazardous Waste Management System; Preamble to the Final Codification Rule", 50 FR 28706.

8. "Incinerator Eligibility for RD&D Permits" Memorandum from Susan Bromm, Acting Director, Permits & States Programs Division, March 8, 1988.

9. "Predicting Emissions from the Thermal Processing of Hazardous Wastes", Hazardous Wastes and Hazardous Materials, June 30, 1986.

10. Questions and Answers Regarding the July 14, 1986 Hazardous Waste Tank System Regulatory Amendments, August 1987, EPA/530-SW-87-012.

11. "Summary of Permit Assistance Team Comments", 1988, OSWER Policy Directive #9523.00-15.

12. "Implementation Strategy for the Hazardous Waste Tank System Regulations". EPA/530-SW-87-018. May 1987.