DELAWARE SOLID WASTE AUTHORITY

Richard P. Watson P.E., BCEE
Chief Executive Officer

Robin M. Roddy P.E., BCEE
Chief Operating Officer

January 21, 2026

Ms. Alison Kiliszek
DNREC Division of Waste and Hazardous Substances
Compliance and Permitting Section
89 Kings Highway
Dover, DE 19901

Dear Ms. Kiliszek:

RE: Comments to Proposed Amendments to Delaware's Regulations Governing Solid Waste

On December 1, 2025, DNREC published proposed amendments to 7 DE Admin. C. § 1301, Delaware's Regulations Governing Solid Waste and held a virtual public hearing on January 6, 2026, which DSWA was in attendance. Accordingly, and after careful review of the proposed amendments and consultation with industry experts and consultants, DSWA respectfully submits the following comments:

Section 5.0 Sanitary Landfills

There are several instances where the units defining liner thickness have been changed from "mils" to "millimeters." These units are not equivalent, and we believe "mils" is the correct unit to use in this case because it is commonly used to define thickness of geosynthetic materials that would make up a liner system. A "mil" is an imperial unit for a thousandth of an inch, not an abbreviation for millimeter. Specifically, refer to sections 5.3.2.1.1.1, 5.3.2.3.1.2, 5.3.2.3.1.3, 6.3.2.1.1.1, 6.3.2.3.2, and 6.3.2.3.3.

Section 5.1.4.8.2 In section 5.1.4.8.1 the seismic impact zone definition has been changed to be defined by a 2% or greater probability of exceeding 0.10g in 50 years, changed from 10% in 250 years, which is approximately equivalent. However, the following section 5.1.4.8.2 addresses maximum horizontal acceleration, and changes the probability from 90% to 98% but does not change the corresponding return period. Please confirm if 250 years should be changed to 50 years in section 5.1.4.8.2, similar to the change in section 5.1.4.8.1.

Section 5.1.4.12 Restriction on new sanitary landfill cell locations has been added. DSWA requests a definition of both 'environmentally unique' and 'valuable' as they relate to this restriction.

DSWA also suggests adding the following qualifying language to read as follows, *"In an area that is environmentally unique or valuable, unless appropriate measures are taken to protect sensitive flora and fauna."*

Section 5.3.1.3 The previous regulatory language stated "The bottom of the liner, (or the secondary liner in a double composite system) shall be at least five (5) feet above the seasonal high water table as measured in the uppermost aquifer beneath the landfill. This 5-foot requirement may be reduced for a more stringent liner system design which provides enhanced protection of groundwater."

DSWA requests the current language allowing for a variance be maintained. As we've previously discussed, reducing the 5-foot separation requirement is critical to DSWA's efforts to efficiently construct landfill cells. Cooperative efforts were made between DSWA and DNREC in the late 1990's to amend the solid waste regulations to allow for a variance to the groundwater separation requirement in exchange for a more stringent liner system. Camp Dresser & McKee, now CDM Smith, was DSWA's consultant at the time and has summarized the historical, technical, and practical details surrounding the issue in the attached memorandum dated April 24, 2023. The documentation within Attachment 1 explains why groundwater separation offers no appreciable protection against groundwater contamination while increasing construction costs and reducing disposal capacity. The ineffectiveness of groundwater separation as a means of protecting groundwater is evident in its absence from the Federal RCRA Subtitle D regulations governing municipal solid waste landfills.

Even though DSWA and DNREC have worked closely to develop a design for Cell 6 and 7 that currently meets the proposed language, DSWA requests the existing variance language be maintained as it may be critical for future expansions.

Section 5.3.1.3.2.2 Requires the demonstration that sea level rise has been included as a factor when evaluating the potential for a hydraulic connection with the uppermost aquifer.

DSWA requests more direction as sea level rise may be difficult to evaluate and how many years in the future need to be projected?

Sections 5.4.4.7, 5.5.3.5, 5.6.3.2, 5.7.3.4 DNREC's ability to initiate "its own sampling event" has been added. DSWA has safety concerns with DNREC personnel accessing and conducting sampling events on its facilities without advance notice. Advance notice is requested to allow DSWA to provide safe access and oversight.

DSWA suggests modifying the above referenced language to read, *"The Department reserves the right to initiate its own sampling event with advanced notification."*

Section 5.9.2.10 The requirement that substitute equipment be obtained within 24 hours of a maintenance issue or breakdown is overly prescriptive and may not be feasible under all circumstances, particularly in cases involving specialized equipment, supply chain limitations, or weather conditions. DSWA recommends revising this provision to require that substitute equipment be obtained as soon as feasibly possible, while still ensuring that landfill operations remain protective of human health and the environment and consistent with the approved Plan of Operation.

Section 5.9.2.13 Describes procedures for excluding the receipt of radioactive material has been added. DSWA understands that DNREC interprets this proposed language to require the use of drive through detection equipment. Such equipment can be overly burdensome to operate and maintain and could negatively affect operations due to equipment sensitivity resulting in unnecessary user downtime. Moreover, false positives as a result of equipment sensitivity may result in excessive stoppages at scale houses, which in turn will place an undue

burden on landfill haulers and customers. DSWA believes that appropriate screening for radioactive waste could instead be accomplished simply by adding "radioactive material" to Section 5.9.2.12.

DSWA suggests adding "radioactive material" to Section 5.9.2.12.1 to read, *"Owners and operators of all sanitary landfill cells must implement a program at the facility for detecting and preventing the disposal of regulated hazardous wastes, polychlorinated biphenyls (PCB) wastes and radioactive material."*

DSWA also suggests adding "radioactive material" to Section 5.9.2.12.1.1 to read, *"Random inspections of incoming loads unless the owner or operator takes other steps to ensure that incoming loads do not contain regulated hazardous wastes, PCB wastes or radioactive material."*

Section 5.9.2.14 Detailing specific requirements for Weekly Inspections has been added. This added language would require a "Qualified Person" to conduct inspections for "structural weakness." Given the definition of "Qualified Person," this can be interpreted to mean a Professional Engineer with instrumentation evaluating the entirety of the landfill structure on an almost continuous basis. This is certainly unnecessary, and indeed we understand DNREC staff do not intend the new language to be so interpreted. Moreover, the costs of such monitoring would be exorbitant. Accordingly, DSWA is seeking a more pragmatic approach, while satisfying the intent of conducting weekly operational inspections and observations for irregularities.

DSWA suggests the following language revision *"...weekly inspections shall be conducted by trained landfill personnel at intervals not to exceed seven (7) days. At a minimum, weekly inspections shall include observations for any appearance of actual or potential irregularities and other conditions that can disrupt the operation or safety of the sanitary landfill".*

Section 5.9.2.15 We believe that an annual landfill inspection by a Delaware-licensed professional engineer is duplicative measure. Landfill design and construction are thoroughly reviewed during the landfill cell permitting, daily construction inspections, routine regulatory inspections, and subsequently certified by the DNREC approval of the Construction Quality Assurance (CQA) report. Additionally, Delaware landfills are performance based and adhere to strictly enforced regulatory requirements including extensive monitoring of groundwater, stormwater, landfill gas, leachate, erosion and sediment control, among other items. Requiring a full annual engineering inspection doesn't provide significant value or an increase in environmental protection. Engineering reviews are more appropriately conducted in response to significant changes or issues that may occur during the life of the landfill, rather than on a fixed annual basis. The regulations listed under this section are very similar to the Coal Combustion Residual (CCR) landfills which were originally instituted due to the lack of regulatory oversight. This requirement for a regulated Subtitle D landfill, although possible, seems excessive.

Section 5.10.4.7 DSWA suggests the following language, *"Within 120 days of the closure of all permits associated with cap construction for the landfill or landfill cell, the owner or operator shall submit a final report for the Department's approval, unless the Department approves a longer period of time."*

Section 10.0 Transfer Stations

Sections 10.5.3.2, 10.6.3.3 DNREC's ability to initiate "its own sampling event" has been added. DSWA has safety concerns with DNREC personnel accessing and conducting sampling events at its facilities without advance notice. Advance notice is requested to allow DSWA to provide safe access and oversight.

DSWA suggests modifying the above referenced to read, *"The Department reserves the right to initiate its own sampling event with advanced notification."*

Section 10.7.2.9 Describes procedures for excluding the receipt of radioactive material has been added. DSWA understands that DNREC staff interpret this section to require the use of drive through detection equipment. Such equipment can be overly burdensome to operate and maintain and could negatively affect operations due to equipment sensitivity resulting in unnecessary user downtime. Moreover, false positives as a result of equipment sensitivity may result in excessive stoppages at scale houses, which in turn will place an undue burden on haulers and customers. DSWA believes that appropriate screening for radioactive waste could be accomplished by adding "radioactive material" to Section 10.7.2.8.

DSWA suggests adding "radioactive material" to Section 10.7.2.8.1 to read, *"Owners and operators of transfer stations must implement a program at the facility for detecting and preventing the disposal of regulated hazardous wastes, polychlorinated biphenyls (PCB) wastes and radioactive material."*

DSWA also suggests adding "radioactive material" to Section 10.7.2.8.1.1 to read, *"Random inspections of incoming loads unless the owner or operator takes other steps to ensure that incoming loads do not contain regulated hazardous wastes, PCB wastes or radioactive material.*

We appreciate your serious consideration of these comments. Please contact me if you have any questions.

Sincerely,

Robin M. Roddy, P.E., BCEE
Chief Operating Officer

Attachments

c: R.P. Watson, P.E., BCEE
L. K. Baer, P.E., BCEE
M. D. Parkowski
J. Koskey, CPA

J. M. Munyan, P.E., BCEE
B. Roth, E.I.T.
A. Steuerwald, P.E.
M. R. Lenkiewicz, P.E., BCEE
J. W. Wagner. P.E., BCEE
C. A. Velazquez, E.I.T.
N. Shabbir

ATTACHMENT 1

DELAWARE SOLID WASTE AUTHORITY

Richard P. Watson, P.E., BCEE
Chief Executive Officer

Robin M. Roddy, P.E., BCEE
Chief Operating Officer

April 27, 2023

Ms. Alison Kiliszek
DNREC Division of Waste and Hazardous Substances
Compliance and Permitting Section
89 Kings Highway
Dover, DE 19901

Dear Ms. Kiliszek:

RE: Comments to Proposed Amendments to Delaware's Regulations Governing Solid Waste

On March 12, 2023, DNREC published proposed amendments to 7 DE Admin. C. § 1301, Delaware's Regulations Governing Solid Waste. As the sole entity responsible for solid waste management in the state of Delaware, Delaware Solid Waste Authority (DSWA) requested a meeting with DNREC to seek clarification on several of the proposed amendments as well as to discuss the potential impacts on solid waste design and operation in Delaware resulting from the proposed amendments. A meeting between DSWA and DNREC to discuss comments and questions was held on April 10, 2023. Additionally, several DSWA staff members attended the DNREC public workshop on the matter held on April 12, 2023. It became clear following our meeting and the public workshop that often the words and phrases chosen by DNREC in these amendments do not in every case reflect the intent as expressed by DNREC staff. However, we must assume that words and phrases will at some point be interpreted and enforced in accordance with their literal meanings, and our comments herein are, in part, intended to address this concern. Accordingly, and after careful review of the proposed amendments and consultation with industry experts and consultants, DSWA respectfully submits the following comments:

Section 5.0 Sanitary Landfills

Line 2219 Restriction on new sanitary landfill cell locations has been added. DSWA requests a definition of both 'environmentally unique' and 'valuable' as they relate to this restriction.

DSWA also suggests adding the following qualifying language to Line 2219 to read as follows, *'In an area that is environmentally unique or valuable, unless appropriate measures are taken to protect sensitive flora and fauna.'*

Line 2280 Text from Section 5.3.1.3 allowing DNREC to approve exemptions from the 5-ft groundwater to liner separation requirement for a more stringent liner system has been deleted. The text proposed for deletion has been critical to DSWA's efforts to efficiently construct landfill cells. For the reasons set forth below, DSWA requests that DNREC retain the current version of Section 5.3.1.3.

Cooperative efforts were made between DSWA and DNREC in the late 1990's to amend the solid waste regulations to allow for exemptions to the groundwater separation requirement for more stringent liner systems. Camp Dresser & McKee, now CDM Smith, was DSWA's consultant at the time and has summarized the historical, technical and practical details surrounding the issue in the attached memorandum dated April 24, 2023. CDM Smith is also currently designing the Cell 6 landfill expansion at the Southern Solid Waste Management Center and has detailed the impact and undue hardships the 2023 proposed regulation amendments would impose on that expansion. Some of the salient points in the CDM Smith memorandum include:

- Federal regulations governing municipal solid waste landfills do not require any groundwater separation.
- Separation from the groundwater table was originally thought to provide leachate abatement through natural attenuation. This approach was found to be ineffective, especially in areas similar to the SSWMC location where permeable soils are present.
- Several surrounding states including Maryland, Pennsylvania and Virginia do not require specified groundwater separation distances.
- DSWA has more than 20 years of groundwater data to demonstrate that a more stringent liner system in lieu of groundwater separation has been extremely effective and has resulted in no adverse impacts on the groundwater.
- Significant impacts and undue hardships will result from requiring a 5-ft separation distance for new landfill cells including; environmental disruption from the importation of large volumes of fill, major transportation impacts, decreased landfill capacity, and substantial costs.

CDM Smith's memorandum also cites and includes references by attachment demonstrating DNREC's concurrence with DSWA's original rationale that a more stringent liner system provides better groundwater protection than a specified separation distance. Specifically, see letter from Ramesh Dwivedy, Ph.D, P.E., DNREC Manager, dated September 29, 1998 and the document entitled 'Response to Public Comments' produced by DNREC after the hearing held on January 7, 1999, under cover by Janet Manchester, DNREC Environmental Scientist dated February 26, 1999.

DSWA suggests that the proposed deletion of this text be dropped from the amended regulation.

Line 2642, 2676, 2715, 2872 DNREC's ability to initiate 'its own sampling event' has been added. DSWA has safety concerns with DNREC personnel accessing and conducting sampling events on its landfills without advance notice. Advance notice is requested to allow DSWA to provide safe access and oversight.

DSWA suggests modifying the above referenced lines to read, *'The Department reserves the right to initiate its own sampling event with advanced notification.'*

Line 3214 Section 5.9.2.13 which describes procedures for excluding the receipt of radioactive material has been added. DSWA understands that DNREC interprets this proposed language to require the use of drive thru detection equipment. Such equipment can be overly burdensome to operate and maintain and could negatively affect operations due to equipment sensitivity resulting in unnecessary user downtime. Moreover, false positives as a result of equipment sensitivity may result in excessive stoppages at scalehouses, which in turn will place an undue burden on landfill haulers and customers. DSWA believes that appropriate screening for radioactive waste could instead be accomplished simply by adding 'radioactive material' to Section 5.9.2.12.

DSWA suggests adding 'radioactive material' to Section 5.9.2.12.1 to read, *'Owners and operators of all sanitary landfill cells must implement a program at the facility for detecting and preventing the disposal of regulated hazardous wastes, polychlorinated biphenyls (PCB) wastes and radioactive material.'*

DSWA also suggests adding 'radioactive material' to Section 5.9.2.12.1.1 to read, *'Random inspections of incoming loads unless the owner or operator takes other steps to ensure that incoming loads do not contain regulated hazardous wastes, PCB wastes or radioactive material.'*

Line 3222 Section 5.9.2.14 detailing specific requirements for Weekly Inspections has been added. This added language would require a "Qualified Person" to conduct inspections for "structural weakness." Given the definition of "Qualified Person," this can be interpreted to mean a Professional Engineer with instrumentation evaluating the entirety of the landfill structure on an almost continuous basis. This is certainly unnecessary, and indeed we understand DNREC staff do not intend the new language to be so interpreted. Moreover, the costs of such monitoring would be exorbitant. Accordingly, DSWA is seeking a more pragmatic approach, while satisfying the intent of conducting weekly operational inspections and observations for irregularities.

DSWA suggests the following language to replace the Lines 3223 through 3226. *'...weekly inspections shall be conducted by trained landfill personnel at intervals not to exceed seven (7) days. At a minimum, weekly inspections shall include observations for any appearance of actual or potential irregularities and other conditions that can disrupt the operation or safety of the sanitary landfill.'* No changes to the remainder of the section.

Line 3361 The requirement to submit the final report within 60 days of completion of closure of a landfill or a landfill cell has been added. As previously expressed by DSWA, 60 days does not allow for sufficient time to collect, review and verify the type and volume of data and information necessary to certify that the cap has been completed in accordance with the

construction quality assurance plan, all construction and material specifications, and the design drawings. A typical capping project results in volumes of information, and sufficient time is needed for a licensed professional engineer to properly review and certify the data, as required by the regulations.

DSWA suggests the following language to replace Line 3361, *'Within 120 days of the closure of all permits associated with cap construction for the landfill or landfill cell, the owner or operator shall submit a final report for the Department's approval, unless the Department approves a longer period of time.'*

Line 3473 A very prescriptive restriction (no more than 24 hours) on allowable standing water during Interim-Closure Care has been added. DSWA understands and agrees with the importance of limiting large volumes of standing water on closed areas of the landfill and recognizes that prolonged standing water could present environmental concerns and/or be indicative of other potential issues. However, restricting standing water to 24 hours is overly prescriptive and provides an unreasonable timeframe for effective and safe repair.

DSWA suggests the following language to replace Line 3473, Section 5.11.3.1, *'Standing water shall be minimized to the greatest extent practicable. If standing water reoccurs at the same location after two (2) or more non-consecutive rain events, the owner or operator shall remedy the situation in a timely manner.'*

Line 3528 A very prescriptive restriction (no more than 24 hours) on allowable standing water during Post Closure Care has been added. DSWA understands and agrees with the importance of limiting large volumes of standing water on closed areas of the landfill and recognizes that prolonged standing water could present environmental concerns and/or be indicative of other potential issues. However, restricting standing water to 24 hours is overly prescriptive and provides an unreasonable timeframe for effective and safe repair.

DSWA suggests the following language to replace Line 3528, Section 5.12.3.1, *'Standing water shall be minimized to the greatest extent practicable. If standing water reoccurs at the same location after two (2) or more non-consecutive rain events, the owner or operator shall remedy the situation in a timely manner.'*

Section 10.0 Transfer Stations

Line 5701 A comprehensive groundwater monitoring and corrective action requirement has been added to the transfer station section of the regulations. DSWA's transfer stations are designed, constructed and operated to minimize the potential for impacts on groundwater quality. DSWA's transfer stations are self-contained units and operations are conducted inside of buildings. DSWA transfer stations are also equipped with collection and containment systems to manage washdown water and leachate and to prevent this water and leachate from entering the environment. Furthermore, a groundwater impact evaluation was performed by Malcolm Pirnie, Inc. dated July 1, 2002, and was submitted to DNREC during the design phase of the Milford Transfer Station and Route 5 Transfer Station. This technical evaluation deems the need for Hydrogeologic Assessments at those transfer stations unnecessary. A copy of the evaluation is attached for your review and information along with the response from DNREC's

Environmental Program Manager, Jamie Rutherford dated August 5, 2002. Ms. Rutherford concurred with the Malcom Pirnie assessment and stated,

> *'Based upon the assertions of the subject Malcolm Pirnie letter sent on behalf of the DSWA, the Solid and Hazardous Waste Management Branch concurs that the project has little potential to impact groundwater quality.'*

DSWA also requested ARM Brickhouse, DSWA's environmental monitoring contractor to review the proposed regulations and comment on the necessity of groundwater monitoring at DSWA's transfer stations. Please see the attached letter dated from ARM Brickhouse dated April 27, 2023.

In an effort to account for transfer stations that have been designed and constructed to result in little potential impact to groundwater quality, DSWA suggests the following language for new subsection 10.6.1.1.

> *10.6.1.1 'The requirements of this Subsection shall not apply to a facility that demonstrates that the permitted activity is unlikely to impact groundwater in the area.'*

Line 5798 and 5743 DNREC's ability to initiate 'its own sampling event' has been added. DSWA has safety concerns with DNREC personnel accessing and conducting sampling events on its landfills without advance notice. Advance notice is requested to allow DSWA to provide safe access and oversight.

DSWA suggests modifying the above referenced lines to read, *'The Department reserves the right to initiate its own sampling event with advanced notification.'*

Line 5856 Section 10.7.2.9 which describes procedures for excluding the receipt of radioactive material has been added. DSWA understands that DNREC staff interprets this section to require the use of drive thru detection equipment. Such equipment can be overly burdensome to operate and maintain, and could negatively affect operations due to equipment sensitivity resulting in unnecessary user downtime. Moreover, false positives as a result of equipment sensitivity may result in excessive stoppages at scalehouses, which in turn will place an undue burden on landfill haulers and customers. DSWA believes that appropriate screening for radioactive waste could be accomplished by adding 'radioactive material' to Section 10.7.2.8.

DSWA suggests adding 'radioactive material' to Section 10.7.2.8.1 to read, *'Owners and operators of transfer stations must implement a program at the facility for detecting and preventing the disposal of regulated hazardous wastes, polychlorinated biphenyls (PCB) wastes and radioactive material.'*

DSWA also suggests adding 'radioactive material' to Section 10.7.2.8.1.1 to read, *'Random inspections of incoming loads unless the owner or operator takes other steps to ensure that incoming loads do not contain regulated hazardous wastes, PCB wastes or radioactive material.'*

Please note that there are several typographical errors in Section 10.7, referring to 'Transfer Stations' as 'Sanitary Landfills' or 'landfill cells'.

We appreciate your serious consideration of these comments. Please contact me if you any questions.

Sincerely,

Robin M. Roddy, P.E., BCEE
Chief Operating Officer

Attachments

C: R. P. Watson, P.E., BCEE
M. D. Parkowski
J. Koskey, CPA
J. M. Munyan, P.E., BCEE
L. K. Baer, P.E., BCEE

Prw/RMR/DNREC SW Regulations Comments Final

Attachment 1

Correspondence Between DSWA and DNREC

DELAWARE SOLID WASTE AUTHORITY

N.C. Vasuki, P.E., DEE
Chief Executive Officer

Pasquale S. Canzano, P.E., DEE
Chief Operating Officer

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September 21, 1998

Mr. Ramesh Dwivedy
Solid Waste Branch
Department of Natural Resources and Environmental Control
89 Kings Highway
Dover, Delaware 19901

RE: Separation of Liner and Seasonal High Groundwater Elevation
Cell 4 Disposal Area
Southern Solid Waste Management Center

Dear Mr. Dwivedy

Thank you for your consideration and comments during the September 10, 1998, meeting between DSWA, DNREC, Camp Dresser & McKee (CDM) and Schnabel. As we discussed, the Cell 4 expansion is currently being designed by CDM and will be a 30-acre expansion located north of and adjacent to the Cell 3 at the Southern Solid Waste Management Center (SSWMC). As detailed in their August 19, 1998, letter to DNREC, CDM has proposed a design alternative to Section 5.C.1.c of the Delaware Regulations Governing Solid Waste. This particular section requires the bottom of the liner to be at least five (5) feet above the seasonal high water table. The proposed design alternative provides better protection to the groundwater and is extremely cost effective.

The Cell 4 Hydrogeologic and Geotechnical Investigation Report which was transmitted to DNREC on August 27, 1998, is assumed to be an acceptable report with the exception of the time travel issue which is being addressed by Schnabel. This report establishes EL 48.0 as the seasonal high groundwater elevation for the design purposes of Cell 4. CDM's design alternative as detailed in their August 19, 1998, letter to DNREC proposes to construct the subgrade of Cell 4 slightly above the SHGE (within 0.5'). Over the course of the life of Cell 4, some areas of the liner system will reside slightly below the SHGE. The maximum depth of the liner system below the SHGE is estimated to be only 2.2 feet. There are significant advantages to designing and constructing Cell 4 in this manner. These advantages include:

1128 S. BRADFORD STREET • P.O. BOX 455 • DOVER, DELAWARE 19903-0455
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CITIZENS' RESPONSE LINE (800) 404-7080

- Providing better protection to the groundwater than the liner system required by the state regulation and, in fact, will meet RCRA Subtitle C regulations for hazardous waste containment.

- Eliminating public concern of safety and disturbance related to the delivery of flyash or other borrow material by dump trucks. During the construction of Cell 3, nearly 800 trucks daily were delivering flyash. Reduction in truck traffic will result in lower air emissions.

- Increasing the life of the expansion by more than one year.

- Savings of approximately $2.7 million in construction costs.

DSWA appreciates DNREC's consideration of this important issue and understands DNREC will support a regulation change that would allow flexibility with respect to the liner and SHGE separation requirements. As discussed in the September 10 meeting, the first workshop to discuss regulation change language will be on October 22, 1998. A hearing and another workshop will follow, likely in December 1998 DNREC anticipates the regulation changes taking effect by March 1999. DSWA anticipates submitting a Cell 4 permit application by June 1999 and anticipates obtaining a permit by November 1999.

DSWA also acknowledges DNREC's concern with the specific portion of the proposed design alternative that would position a small fraction of the liner below the SHGE in the post settlement condition. If the Cell 4 subgrade was designed to allow the liner system to reside slightly above the SHGE in the post settlement condition, 53,240 cy of additional fill would be required. The cost of the additional fill is approximately $372,680 and the additional fill would reduce landfill capacity by approximately 2 months.

Based on the current monthly tonnage received at SSWMC, the capacity in the Cell 3 disposal area will be exhausted in early 2002. CDM has developed a design and construction schedule that will allow Cell 4 to be constructed before Cell 3 is exhausted. Maintaining the design schedule is critical to ensure sufficient permitting, bidding and construction time. DSWA and CDM must continue with the Cell 4 design prior to any regulation change taking effect. DSWA needs to give CDM direction regarding the Cell 4 subgrade design by September 24, 1998, to comply with the design schedule. DSWA intends to move forward with the understanding that DNREC supports a regulation change that would allow flexibility with respect to the liner and SHGE separation requirements.

We look forward to discussing this topic with you further after DNREC internally meets to review this issue.

If you have questions or need additional information, please contact me.

Very Truly Yours,

Robin M. Roddy
Senior Engineer

c: N. C. Vasuki, P.E., DEE
P. S. Canzano, P.E., DEE
R. P. Watson, P.E., DEE
A. M. Germain, P.E.
M. S. Mallamo, P.E.
Robert Hartman (DNREC)
Chris Gabel (CDM)

prw/PD\RMR\REGS394

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF AIR & WASTE MANAGEMENT
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

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WASTE MANAGEMENT
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SOLID WASTE: (302) 739-3820
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___RJP___WGB___LVM
___LJD___TPH___MSM
___TAD___DRA___LOJ
___HFD___AMT___DAF
___SEM___RVS___ARS
___MJT___TSC___DPP
___MAA

September 29, 1998

Ms. Robin M. Roddy
Project Engineer
Delaware Solid Waste Authority
1128 S. Bradford Street
P.O. Box 455
Dover, Delaware 19903-0455

Re: Separation of Liner and Seasonal High Groundwater Elevation (DSWA letter 8/21/98)

Dear Ms. Roddy:

The Delaware Solid Waste Authority has requested to use an alternative design for cell 4 at the Southern Solid Waste Management Center (SSWMC) landfill. Specifically, the Authority requests relief from the minimum groundwater separation distance specified in the Delaware Regulations Governing Solid Waste (DRGSW), Section 5.C.1.c. which states:

The bottom of the liner (or the secondary liner, in a double liner system) shall be at least five (5) feet above the seasonal high water table as measured in the uppermost aquifer beneath the landfill"

Instead of the five foot separation distance, the Authority has proposed installing an additional liner on prepared subgrade above the seasonal high water table. Additionally, the Authority predicts that once significant amounts of waste are placed into the cell, some areas of the liner system will settle below the seasonal high water table.

We agree that the five foot separation distance is not required under 40 CFR Part 258, and as you know, we are now proposing a change to Section 5.C.1.c. of the Delaware Regulations Governing Solid Waste to allow for better designs which are indeed more protective of groundwater and of public health. We hope to have this change implemented by the time the permit for cell 4 is ready for public comment. Except for the concerns that we have about post-settlement of some of the liner below the seasonal high water table, the conceptual design submitted by the Authority appears that it could provide better protection of groundwater and of public health.

While we agree in principle with what the Authority is trying to do to enhance the design of cell 4, we are not prepared at this time to accept the Authority's proposal to build a landfill designed to settle below the seasonal high groundwater elevation. Insofar as possible, we plan to require that the witness zone reflect an actual leakage rate from the primary liner. If the Authority desires to pursue the design which allows settlement into the water table, the Department will require substantiation that such a system can work to our satisfaction.

We welcome your comments concerning this letter.

Sincerely,

Ramesh C. Dwivedy, Ph.D., P.E.
Manager
Solid Waste Management Branch

RD98070

cc: N.C. Vasuki, Chief Executive Officer, DSWA
Pasquale A. Canzano, Chief Operating Officer, DSWA
Nicholas A. Di Pasquale, Director, Division of Air and Waste Management
Nancy Marker, Program Manager, Solid & Hazardous Waste Management Branch

DELAWARE SOLID WASTE AUTHORITY

N.C. Vasuki, P.E., DEE
Chief Executive Officer

Pasquale S. Canzano, P.E., DEE
Chief Operating Officer

October 8, 1998

Mr. Christopher Gabel
Camp Dresser & McKee
7611 Little River Turnpike, Suite 600 West
Annandale, Virginia 22003

Dear Chris:

RE: Cell 4 Design
Southern Solid Waste Management Center

The attached letter from DNREC dated September 29, 1998, is in response to Camp Dresser & McKee's proposed Cell 4 design alternative. As you know, the alternative design offers a double composite liner system in lieu of the separation requirement between the bottom liner and the seasonal high water table specified under Section 5.C.1c. of the Delaware Regulations Governing Solid Waste. A regulation change will be necessary to obtain permitting for the proposed design alternative.

Per the attached letter, DNREC supports a regulation change to allow better designs which are more protective of the groundwater and of public health. However, DNREC has concerns about the postsettlement condition which will cause a portion of the liner to reside below the seasonal high groundwater table. DNREC is not prepared to accept a subgrade and liner design which allows the liner system to settle into the water table.

Please proceed with the Cell 4 conceptual design described in your letter to DNREC dated August 19, 1998, with the exception of the ingradient condition in the postsettlement condition. Please allow the liner in the postsettlement condition to reside slightly above the seasonal high water table.

If you have any questions, please contact me.

Sincerely,

Robin M. Roddy
Senior Engineer

c: N. C. Vasuki, P.E., DEE
P. S. Canzano, P.E., DEE
R. P. Watson, P.E., DEE
A. M. Germain, P.E.
D. A. Fluman
M. S. Mallamo, P.E.

prw/C:\RMR\C4VAR1

1128 S. BRADFORD STREET • P.O. BOX 455 • DOVER, DELAWARE 19903-0455
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CITIZENS' RESPONSE LINE (800) 404-7080

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF AIR & WASTE MANAGEMENT
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

WASTE MANAGEMENT
SECTION

HAZARDOUS WASTE (302) 739-3689
SOLID WASTE (302) 739-3E
FAX. (302) 739-50

September 29, 1998

Ms. Robin M. Roddy
Project Engineer
Delaware Solid Waste Authority
1128 S. Bradford Street
P.O. Box 455
Dover, Delaware 19903-0455

Re: Separation of Liner and Seasonal High Groundwater Elevation (DSWA letter 8/21/98)

Dear Ms. Roddy:

The Delaware Solid Waste Authority has requested to use an alternative design for cell 4 at the Southern Solid Waste Management Center (SSWMC) landfill. Specifically, the Authority requests relief from the minimum groundwater separation distance specified in the Delaware Regulations Governing Solid Waste (DRGSW), Section 5.C.1.c. which states:

The bottom of the liner (or the secondary liner, in a double liner system) shall be at least five (5) feet above the seasonal high water table as measured in the uppermost aquifer beneath the landfill"

Instead of the five foot separation distance, the Authority has proposed installing an additional liner on prepared subgrade above the seasonal high water table. Additionally, the Authority predicts that once significant amounts of waste are placed into the cell, some areas of the liner system will settle below the seasonal high water table

We agree that the five foot separation distance is not required under 40 CFR Part 258, and as you know, we are now proposing a change to Section 5.C.1.c. of the Delaware Regulations Governing Solid Waste to allow for better designs which are indeed more protective of groundwater and of public health. We hope to have this change implemented by the time the permit for cell 4 is ready for public comment. Except for the concerns that we have about post-settlement of some of the liner below the seasonal high water table, the conceptual design submitted by the Authority appears that it could provide better protection of groundwater and of public health.

While we agree in principle with what the Authority is trying to do to enhance the design of cell 4, we are not prepared at this time to accept the Authority's proposal to build a landfill designed to settle below the seasonal high groundwater elevation. Insofar as possible, we plan to require that the witness zone reflect an actual leakage rate from the primary liner. If the Authority desires to pursue the design which allows settlement into the water table, the Department will require substantiation that such a system can work to our satisfaction.

We welcome your comments concerning this letter.

Sincerely,

Ramesh C. Dwivedy, Ph.D., P.E.
Manager
Solid Waste Management Branch

RD980670

cc: N.C. Vasuki, Chief Executive Officer, DSWA
Pasquale A. Canzano, Chief Operating Officer, DSWA
Nicholas A. Di Pasquale, Director, Division of Air and Waste Management
Nancy Marker, Program Manager, Solid & Hazardous Waste Management Branch

DELAWARE SOLID WASTE AUTHORITY

N.C. Vasuki, P.E., DEE
Chief Executive Officer

Pasquale S. Canzano, P.E., DEE
Chief Operating Officer

October 9, 1998

Mr. Ramesh Dwivedy
Solid Waste Branch
Department of Natural Resources and Environmental Control
89 Kings Highway
Dover, Delaware 19901

Dear Mr. Dwivedy:

RE: Separation of Liner and Seasonal High Groundwater Elevation
Cell 4 Disposal Area
Southern Solid Waste Management Center

DSWA is in receipt of your letter dated September 29, 1998, and appreciates the time and consideration given to the issue of the proposed design alternative for the Cell 4 disposal area at Southern Solid Waste Management Center (SSWMC).

Given DNREC's concerns regarding the liner system residing in an ingradient condition, the Delaware Solid Waste Authority (DSWA) has given Camp Dresser & McKee (CDM) direction to proceed with a design alternative that will include a double composite liner system designed to reside slightly above the SHGE in the postsettlement condition. This design will provide better protection to the environment and will alleviate DNREC's concerns of groundwater infiltration into the witness zone.

DSWA and CDM understand the reasons DNREC has stated for not allowing a liner design with ingradient potential (i.e. concern of groundwater intrusion of the leak detection layer.) Nonetheless, we maintain our opinion that the proposed design offers the most efficient use of the site for waste disposal and provides superior protection of the groundwater in comparison to the liner system required by the solid waste regulations. The potential for ingradient conditions on the liner system is limited to a small area of the liner system and will only occur during seasonal high groundwater conditions after settlement has occurred. We feel the concern of groundwater infiltration into the leak detection layer is over stated given that the proposed secondary liner is a composite system of GCL and HDPE and that ingradient conditions will rarely occur over the life of Cell 4.

However, the design alternative mentioned above that allows the liner to reside slightly above the SHGE in the postsettlement condition still provides superior containment, significantly reduces construction costs, increases the life of the cell and eliminates public concern of safety and disturbance related to delivery of borrow material by dump trucks.

DSWA understands that DNREC supports a regulation change that would allow this type of design. DSWA looks forward to participating in the regulation change process and working closely with DNREC during the design of Cell 4. DSWA anticipates submitting a Cell 4 permit application by June of 1999.

If you have any questions or comments, please contact me.

Sincerely,

Robin M. Roddy

Robin M. Roddy
Senior Engineer

c: N. C. Vasuki, P.E., DEE
P. S. Canzano, P.E., DEE
R. P. Watson, P.E., DEE
A. M. Germain, P.E.
M. S. Mallamo, P.E.
Bob Hartman (DNREC)
Chris Gabel (CDM)

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DELAWARE SOLID WASTE AUTHORITY

N.C. Vasuki, P.E., DEE
Chief Executive Officer

Pasquale S. Canzano, P.E., DEE
Chief Operating Officer

January 7, 1999

Mr. Robert Thompson
Hearing Officer
Department of Natural Resources and Environmental Control
89 Kings Highway
Dover, DE 19901

Dear Mr. Thompson,

RE: Proposed Revisions to Regulations Governing Solid Waste
Public Hearing – January 7, 1999

Delaware Solid Waste Authority (DSWA) supports DNREC's proposed language modifications to Section 5.C.1(c) of the current Regulations Governing Solid Waste. This section addresses the separation distance between the landfill bottom liner and the seasonal high groundwater elevation. Attached please find correspondence between DSWA, DNREC and Camp Dresser & McKee that provides technical justification for the proposed regulation change.

DSWA supports CDM's position and believes this regulation change would allow cost effective landfill designs that better protect the environment.

If you have any questions, please feel free to contact me.

Very truly yours,

Robin M. Roddy
Senior Engineer

Attachments

c: N. C. Vasuki, P.E., DEE
P. S. Canzano, P.E., DEE
R. P. Watson, P.E., DEE
A. M. Germain, P.E.
Robert Hartman (DNREC)
Janet Manchester (DNREC)

prw/PDRMR\HEARING2

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WASTE MANAGEMENT
SECTION

HAZARDOUS WASTE (302) 739-3689
SOLID WASTE: (302) 739-3820
FAX: (302) 739-5060

February 26, 1999

Ms. Robin M. Roddy
Delaware Solid Waste Authority
1128 South Bradford Street
Dover, DE 19903

RE: Revisions to Regulations Governing Solid Waste

Dear Robin:

The purpose of this letter is to provide a response to those people who submitted comments on the proposed revisions to the Regulations Governing Solid Waste. Some of the comments were submitted prior to the public hearing, and some were submitted at the time of the hearing, on January 7, 1999.

The staff of the Solid Waste Management Branch gave careful consideration to all of the comments and in some cases made changes to the proposed revisions. The enclosed document, "Response to Public Comments," contains the branch's response to each comment. This document was submitted to the Hearing Officer who recommended to the Secretary of DNREC that the proposed revisions, as amended subsequent to the public hearing, be adopted and promulgated. The Acting Secretary, Mary L. McKenzie, subsequently signed an Order adopting the regulation revisions. The revisions will be published in the State's Register of Regulations on March 1, 1999, and will become effective on March 10, 1999.

Thank you for your participation in the regulatory revision process. If you have any questions or any further recommendations for improvement of our regulations, please contact me at 302-739-3820.

Sincerely,

Janet T. Manchester
Environmental Scientist
Solid Waste Management Branch

JTM:krc
Enclosure

Response to Public Comments

Re: Proposed Changes in the Delaware Regulations Governing Solid Waste

The Delaware Department of Natural Resources and Environmental Control (DNREC) has proposed modifications to the Regulations Governing Solid Waste (which were last amended in December 1994).

As part of the participation process, DNREC established dialogues with the regulated community. Proposed modifications to the regulations were published in the Delaware Register of Regulations, Vol. 2, Issue 4, Thursday, October 1, 1998. A workshop was held on October 22, 1998, at which time DNREC explained the proposed regulation changes and received and responded to comments from the public. DNREC made some revisions to their proposed changes as a result of the comments received. The revised proposed modifications were published in the Delaware Register of Regulations, Vol. 2, Issue 6, Tuesday, December 1, 1998. A public hearing was duly noticed and conducted on January 7, 1999. At the hearing DNREC issued four corrections to the draft regulations which were published in the Delaware Register, including reasons for making these changes. During the hearing DNREC identified several written comments which it had received and received comments from several members of the public at the hearing. The hearing record was closed at the conclusion of the hearing.

Following is a table listing the commenters, their affiliations, dates of comment and comment numbers. The comments and DNREC's responses follow the table.

Commenter	Affiliation	Date of Comments	Comment #
Robin M. Roddy	Delaware Solid Waste Authority	January 7, 1999 January 6, 1999	1 2
John H. Culver	Culver Enterprises	December 14, 1998	3-5
Richard A. Fleming	none indicated	December 29, 1998	6-13
Barbara A. Riebe	Conectiv	January 7, 1999	14
John Jackson Linda McGrail	Christiana Care	January 7, 1999	15
Debbie Heaton	Sierra Club	January 7, 1999	16-24

1. DSWA (Delaware Solid Waste Authority) supports DNREC's proposed language modifications to Section 5.C.1(c) of the current Regulations Governing Solid Waste. This section addresses the separation distance between the landfill bottom liner and the seasonal high groundwater elevation. Attached please find correspondence...that provides technical justification for the proposed regulation change. This regulation change would allow cost effective landfill designs that better protect the environment.

Response: DNREC believes that the required five-feet of separation between the water table and the base of a landfill does not provide adequate protection to underlying ground water, especially in cases where the unsaturated material is permeable, unconsolidated

sediments. The requirement for a separation between the top of the water table and base of a landfill is a hold-over from the time before landfills were required to have liners and leachate collection systems. When DNREC first adopted landfill regulations in 1974, a three-foot separation was required. In 1988, the five-foot separation requirement was adopted.

Many states never adopted a landfill separation distance; some allowed flexibility based on specific site conditions or landfill designs. The federal regulations promulgated in 1991 pursuant to RCRA Subtitle D, which established minimum design specifications for municipal solid waste landfills (including a composite liner), do not require a separation distance between the base of a landfill and the water table.

DNREC believes that more rigorous landfill liner designs—such as a double composite liner system—provide greater protection of underlying ground water than a single composite liner and the five-foot separation requirement. In fact, where the water table is close to the land surface, the more rigorous liner design is preferable from the standpoint of protecting the environment than the conventional single composite and separation distance (which is why it proposed the change to allow it).

2. DSWA respectfully requests that the following language modifications be included in the proposed changes to the current regulations. Section 5.C.3.a(3), modify to read:

   The minimum post-loading slopes of the liner shall either be:

   1) two (2) percent on controlling slopes and one-half (0.5) percent on remaining slopes.

   OR

   2) the controlling and remaining slopes shall be designed to prevent the head on the liner, excluding sump areas, from exceeding a depth of twelve (12) inches including post settlement conditions.

   Attached please find a letter and supporting calculations...(which) provides technical support for the requested language modification.

Response: DNREC agrees and notes that this issue is related to the option for eliminating the five-foot separation between a landfill liner and the water table, in favor of enhanced liner system protection. Where the water table is high and a more rigorous liner system is required in lieu of the separation between the landfill and water table, the 0.5% slope on the base of the landfill cannot be attained—unless substantial fill material is employed to build up the land surface. This would significantly increase construction costs and transportation impacts and decrease landfill capacity—the same problems which the elimination of the water table/liner separation requirement was intended to mitigate.

The 0.5% slope requirement seems to be a holdover from decades ago, when it was introduced by transfer from sewer line requirements. The intent was to minimize the likelihood of sedimentation in and clogging of the pipe. This requirement is not found in the federal regulations promulgated pursuant to Subtitle D.

The Delaware Regulations Governing Solid Waste already include a requirement that leachate collection systems be designed to operate without clogging (Section 5.D.2.a.) In fact, it can be demonstrated that a lesser slope would still be adequate to convey leachate on the liner to a collection sump without hydraulic head buildup on the landfill liner.

Further, the leachate collection line can be examined for sedimentation and clogging and cleaned out under a program of routine landfill maintenance. Therefore, it makes sense to provide an option to the default design standard, so long as the modification can still achieve the landfill design objective. This option will be incorporated into the industrial solid waste landfill rules too.

3. The requirement (in the Infectious Waste) section for the word "Sharps" on the sharps container should be eliminated, because the federal OSHA regulations for labeling such containers require only the biohazard symbol. The commenter represents three companies that manufacture sharps containers—two of which do not include the word "sharps" on the container.

Response: DNREC concurs that compliance with the applicable federal requirement (a biohazard symbol on sharps containers) should provide adequate notice to medical personnel and the public. However, many medical practitioners reportedly use empty milk jugs or salt containers for storing used sharps. DNREC believes that specific labeling of used sharps containers should be required. It shouldn't be difficult to attach a label or use an indelible marker to identify containers for used sharps with the word "sharps".

4. The citation to the code of federal regulations which deals with "infectious substances" is incorrect. This citation should be: 40CFR 173.196. Such references should be generic rather than identifying specific requirements which are subject to change and be out of date or inappropriate. Suggest that such citations, where they occur, should refer to "the appropriate section of __CFR, current edition".

Response: DNREC appreciates the comment and will use the correct citation to the federal regulation. Although adoption of a generic reference to applicable regulations would prevent the federal and state regulations from being in conflict (which will happen every time the federal regulations change), the specific reference is preferred for legal purposes. It gives anyone a specific reference to look up for the purposes of compliance. In order to minimize the amount of incongruities with federal regulations, the Regulations Governing Solid Waste will be reviewed for modification on an annual or bi-annual basis.

5. Solid Waste Transporter Permits should be issued for periods of multiple years (rather than the current one year). Doing so would reduce the time and costs for preparation of permit applications and the review by DNREC. The State could charge for multiple years and include safeguards in the permit for revocation of the permit if the permittee was convicted of certain crimes.

Response: These regulations do not establish specific time limits for Solid Waste Transporter permits. DNREC recognizes the potential savings in time and money for preparation and review afforded to all parties by multi-year permits for solid waste transporters (such as have been issued for solid waste facilities) and will consider

development of a multi-year waste transporter permit system which is protective of human health and the environment.

6. There should be a separate regulatory discussion of requirements covering materials recovery facilities from requirements covering thermal recovery facilities.

Response: DNREC appreciates the comment and will consider making such a distinction in a future amendment to these regulations. While the prospect of an application for a waste-to-energy facility fueled by municipal solid waste appears remote over the next several years, thermal recovery facilities fueled by waste wood, scrap tires or animal manure are now being discussed. This matter will be explored at a future time.

7. The proposed language should be reviewed to ensure that it is appropriate vis-à-vis potential future waste-to-energy facilities using animal waste.

Response: DNREC will consider developing appropriate requirements as part of the solid waste regulations in a future regulatory review and modification process.

8. Add a requirement that regulatory activities be in accord with Delaware's Freedom of Information Act.

Response: All State agencies are required to abide by the provisions of the Delaware Freedom of Information Act (29 Delaware Code, Chapter 100). In addition, DNREC has specific guidelines for administration of the Freedom of Information Act.

9. Consider language clarifying how these regulations will interact with those covering Coastal Zone permitting.

Response: Requirements specified in the Coastal Zone Act, as well as permits administered pursuant to regulations promulgated under that act, must be complied with independently. (See responses to questions 4 and 8).

10. DNREC should expand and clarify the requirements for assessing projected environmental impacts. The items listed for air quality assessments are particularly insufficient.

Response: The existing language allows for broad interpretation of the rules and permits DNREC to exercise judgment in requiring specific types of analysis or degree of detail. This is often more helpful than a detailed set of requirements. DNREC would be happy to receive further suggestions and examples of expanded requirements for such assessments. These will be considered in a future modification of the regulations.

11. DNREC should clarify/add language covering odor control and DNREC on-site inspection of liner installation.

Response: DNREC has attempted to clarify "odor" requirements related to landfills on numerous occasions. The proposed language is an improvement of the current requirement. Suggestions for improvement are welcome and will be pursued in subsequent modifications of the regulations. Liner inspections by DNREC would require additional staff with specific expertise. It is more practical to require that liner inspections be conducted by independent third parties with specific expertise and certifications in this matter.

12. DNREC should be prepared to explain to the public the rationale for material inclusion and/or exclusion in the table on page 5-19.

Response: The parameters in the table on page 5-19 were listed in the federal Subtitle D regulations, which were adopted in 1991. The approval by EPA of State municipal solid waste landfill permitting programs was contingent on the inclusion of these parameters. In fact they were the metal and organic compounds for which public drinking water standards had been established (pursuant to requirements of the Safe Drinking Water Act) at the time that the Subtitle D regulations were adopted.

13. DNREC should explain the rationale for the proposal for relaxation of the minimum separation of liner and water table.

Response: The proposed change would allow substitution of extra protection in the design of a liner system (beyond that required generally) for the separation between the base of the liner and the seasonal high water table. This would allow better protection of the ground water, while allowing landfilling to occur where the water table is within five feet of the land surface (without the need to build up the land surface to accomplish the separation distance now required). Building up the land surface is costly, environmentally disruptive (due to the need to haul in large volumes of fill material), and reduces the available capacity of the landfill (thereby requiring the development of additional landfill space sooner). (Refer also to responses to comments 1 and 15).

14. DNREC should exempt utility vehicles which may transport small quantities of waste (including petroleum-contaminated soils) resulting from normal maintenance activities on an intracompany basis (i.e., transport to a waste collection point for subsequent disposal) from the requirement to obtain a solid waste transporter permit.

Response: The Regulations Governing Solid Waste already exempt vehicles of less than 26,000 pounds from the requirement to obtain a solid waste transporter permit. However, recognizing that some petroleum-hydrocarbon-contaminated soils are transported in small quantities to central collection points for appropriate disposition as a matter of normal maintenance practices—and that no transportation of such materials in small quantities is known to have resulted in a problem—the exemption which now occurs in the regulation will be preserved. That is, the vehicles of less than 26,000 pounds are exempt from the requirement to obtain a solid waste transporter permit, unless they are hauling infectious waste or waste containing asbestos.

15. The Guidelines for Determining Infectious Waste, which were developed by the Ad Hoc Infectious Waste Task Force in 1997 should be included in the regulations. These guidelines resolved a conflict involving possible enforcement, provided for on-going disposal procedures recognized by all parties and saved the Delaware healthcare community millions of dollars. DNREC should notify the participants of that committee and other interested members of the healthcare community (through Penny Vlach, Director for Member and Affiliated Services at the Delaware Healthcare Association) of any changes to these regulations which are to be considered in the future.

Response: DNREC will include the referenced guidelines as policy for interpretation of the infectious waste regulations. DNREC will also notify members of the healthcare community of any future proposals for changes to the infectious waste regulations, including specific notification of the Delaware Healthcare Association.

16. DNREC should protect the people and the environment of Delaware by developing and implementing a real recycling program with goals, public outreach/education and state purchasing guidelines supporting products manufactured with recycled content.

Response: The Delaware Solid Waste Authority (DSWA) is charged with developing and implementing a Statewide Solid Waste Management Plan, including the disposal and recycling of solid waste. DSWA adopted a plan with recycling goals in 1994 and is in the process of seeking input for revision of the plan at this time. DNREC has recommended that the revised plan include provisions to improve the rate of waste recycling. The Division of Administrative Services is responsible for state purchasing. However, DNREC has been participating on the State Materials Management Team in developing a program to encourage/require the purchasing of products manufactured with recycled materials.

17. DNREC should amend the definitions of "resource recovery", "thermal recovery" and "materials recovery" to conform with work done several years ago by the Bear Glasgow League of Civic Organizations. If these definitions are not in concert with the language of the enabling legislation, then that should be changed as well.

Response: The definitions in the regulations do conform to those in the enabling legislation. The language in the statute would have to be changed first. DNREC will review the proposed definitions and evaluate whether to seek a statutory change in the future.

18. The inclusion of the definitions of 100-year flood and 100-year flood plain (as clarifications for prohibition of waste facility siting) are welcome. However, there are already facilities sited very close to the Delaware River that could cause significant damage and possible health threats should the river rise in the future.

Response: The proposed regulation would prohibit waste disposal within the 100-year floodplain. However, this requirement does not apply to future changes in the 100-year

flood stage. If the delineated 100-year floodplain changes, the area where waste facilities are prohibited will also change at that time.

19. The requirements for conducting an air assessment should be spelled out in detail, similar to those required for a hydrogeologic assessment, because land use planning in Delaware allows instances where an incinerator could be close to communities filled with children and their homes.

Response: DNREC welcomes suggestions for such language. These will be considered in a future review of the regulations.

20. The Sierra Club is concerned that 5 feet of separation between the uppermost aquifer and the bottom of the landfill during its seasonal high water table might not provide enough protection to the aquifer over the long run. The southern section of the state is the focus of our concern since they have a higher water table there and the ground is their primary source of drinking water.

Response: DNREC agrees that 5 feet of separation between the base of a landfill and the water table is inadequate to protect the quality of ground water in an underlying unconfined aquifer. This is why the landfills are required to have liners. However, in order to provide even greater protection to the ground water where the water table is close to the surface, DNREC has proposed more stringent liner designs as a means of providing greater protection. Such stringent designs would be a reasonable trade-off to the 5-foot separation requirement.

21. The revisions to the regulations is turning into a corrective measure after a situation has been experienced that was not completely covered by the regulations. The regulations should be forward thinking and deal with situations and provide guidance for solid waste situations that will happen in the near future.

Response: DNREC agrees that many of the changes proposed are being made in response to situations which have arisen since the regulations were last modified five years ago. We are now proposing modifications which, based on experience, seem to offer improved protection to Delaware's environment and citizens or improved means of operation with adequate protection. We appreciate the specific suggestions made and welcome any other specific recommendations.

22. These revised regulations are not addressing: post closure activities such as mining of closed landfill cells, and more complete regulation governing the siting, operation and certification of waste incinerators.

Response: DNREC agrees that the current modifications proposed do not address these issues. These matters will be considered in a future revision of the regulations.

23. These revised regulations do not reflect changes in legislation resulting from last years passage of Senate Bill 98 restricting future siting of incinerators in the State's coastal zone.

Response: Regulations must always be administered in accordance with the laws of the State. DNREC already has procedures in place to ensure that Coastal Zone requirements are met before any facility permit is issued.

24. These regulations should be reviewed for consistency. Previous updates have left a number of inconsistencies, such as reference to a Coastal Zone Act Permit under transfer stations (page 4-31 – 1.h.), but not in other sections. Also, under Special Waste Management (Section 11), the provision that the roads should be capable of withstanding the anticipated loads is mentioned , but not in other sections where the amount of truck traffic is also a concern.

Response: DNREC agrees that the regulations should be reviewed for consistency. This will be done the next time that these regulations are revisited for amendment. The current inconsistencies do not pose any threat to the environment or hinder the administration of the regulatory program. Therefore, the consistency review can wait until the next series of modifications.

Hydrogeological Assessment

(Checklist Item #6)

Route 5 Solid Waste Transfer Station
Operating Permit Renewal Application

Section 4.2.1.5 of the Delaware Regulations Governing Solid Waste (DRGSW) requires that a hydrogeological investigation be performed at the proposed site and approved by the Department before a construction permit will be issued. All previously proposed and subsequently approved improvements at the Route 5 Transfer Station have been completed and as such there is no need for a new construction permit or the associated hydrogeological assessment.

For reference a copy of the last approved hydrogeological assessment, which was prepared by Malcolm Pirnie, Inc., and submitted as part of the most recent Route 5 Transfer Station permit renewal application in February 2013 has been included with this application. The Route 5 Transfer Station will continue to operate in accordance with this approved hydrogeological assessment.

Hydrogeological assessment if deemed necessary by the Department (Checklist Item #6)

Route 5 Solid Waste Transfer Station

Prepared For:
Delaware Solid Waste Authority
1128 S. Bradford Street
Dover, Delaware19903

Prepared By:
MALCOLM PIRNIE, INC.
824 Market Street, Suite 710
Wilmington, DE 19801

The facility has been designed to contain the release of leachate and washdown waters generated within the transfer station building. These facility wastewaters, as well as other liquids and fluids used in the operation and maintenance of the facility, will be managed in a manner to prevent release and exposure to the environment. The requirement for a hydrogeological assessment was deemed unnecessary by the DNREC, as further described in the attached letters, and the proposed facility design is consistent with that determination.

MALCOLM PIRNIE

MALCOLM PIRNIE, INC.
INDEPENDENT ENVIRONMENTAL ENGINEERS, SCIENTISTS & CONSULTANTS

July 1, 2002

Mr. Robert Hartman
Delaware Department of Natural Resources and Environmental Control
Division of Air and Waste Management
Solid & Hazardous Waste Management Branch
89 Kings Highway
Dover, DE 19901

RE: Delaware Solid Waste Authority (DSWA), Proposed Indian Mission Corners (Route 5) and Milford Transfer Station Sites

Dear Mr. Hartman:

On behalf of the Delaware Solid Waste Authority (DSWA), and as per our meeting on June 14, 2002, we hereby request a determination from the Delaware Department of Natural Resources and Environmental Control (DNREC) Solid & Hazardous Waste Management Branch (SHWMB) regarding the applicability of a hydrogeologic assessment for the Route 5 and Milford Transfer Station Projects. Based on our review of the project, and its limited potential to have an impact on groundwater quality, we are requesting that DNREC waive the requirement for the hydrogeologic assessments. The basis for this request is as follows:

- At both facilities, all solid wastes will be handled inside the transfer station building, thereby mitigating the risk of waste-related discharges to the ground surface and/or groundwater at the site. In addition, unlike a landfill, wastes will not be disposed of at these facilities.
- Leachate from the facility wash down water will be contained within the building and its liquids collection system. All liquids/leachate will be collected in a leachate holding tank and will be removed periodically and disposed of. Sanitary sewerage will also be discharged to the leachate holding tank. In the event the Milford Site cannot be connected to the public sewer system, a leachate/sewer system similar to that described for the Route 5 Site will also be used at the Milford Site.
- At both facilities, stormwater systems will be designed not to impact either surface or groundwater quality.
- Given the agricultural nature of the Route 5 Site, and the documented presence of nitrogen-bearing contaminants in the water table aquifer[1], drinking water will likely be supplied from a well drilled into a deeper aquifer such as the Manokin. Therefore a study of the water table aquifer for on-site water supply and/or human health risk is not warranted.

- Groundwater flow in the Columbia/water table aquifer (WTA) at the Route 5 Site is predicted to be in a southerly direction towards Unity Branch (Figure 1). While not quantitatively determined, this assumption is based on site topography and the findings of numerous researchers (regarding the relationship between the WTA and stream flow in the Coastal Plain). For instance, Talley (1982)[2] states, " This aquifer ... provides a source of recharge to underlying aquifers and base flow to streams", and Shedlock et. al. (1999)[3] states "groundwater discharge (base flow) provides between 48 and 88 percent of stream flow in the study area." However, the direction of flow could be influenced locally due to pumping wells (i.e. irrigation wells).

  At the Route 5 Site, the saturated thickness of the WTA (which lies within the Pleistocene-aged Lynch Heights and/or Omar Fm.) is approximately 100 feet[4]. Beneath the unconformity located at the base of these Pleistocene-aged formations lie the Miocene-aged Bethany Fm. (interbedded confining units grading to the Pokomoke aquifer in the southeastern portion of the county), Manokin Fm. (containing the Manokin aquifer which is hydraulically connected to the Pokomoke aquifer east of the Site), St. Marys Fm. (confining layer), Choptank Fm. (containing various interbedded/discontinuos aquifers) and Calvert Fm. (containing the Frederica, Federalsburg and Cheswold aquifers). Deeper formations range in age from Oligocene to Jurassic/Triassic (post rift and rift basin rocks respectively) and contain a number of aquifers[5]. These aquifers are not often tapped in the vicinity of the Site due to depth and an increase in salinity with depth.

- Groundwater in the WTA at the Milford Site is predicted to flow in a southeasterly direction towards Herring Branch (Figure 2). As above, this statement is supported by local topography, the aforementioned relationship between the Columbia/WTA and stream flow, and the location of the Site with respect to Herring Branch. However, as with the Route 5 Site, the local direction of flow at the Milford Site could be influenced by nearby pumping wells.

  At the Milford site, the saturated thickness of the WTA (located within the Columbia Fm.) is approximately 70 feet[6]. Beneath the unconformity located at the base of the Columbia Fm. lies the Miocene-aged St. Marys Fm. (confining layer) followed by the Choptank Fm. (containing various interbedded/discontinuos aquifers) and Calvert Fm. (containing the Frederica, Federalsburg and Cheswold aquifers). The Bethany Fm is not present in the vicinity of the Milford Site. As described above, deeper formations range in age from Oligocene to Jurassic/Triassic (post rift and rift basin rocks respectively) and

contain a number of aquifers[7]. These aquifers are not often tapped in the vicinity of the Site due to depth and an increase in salinity with depth.

Due to the schedule of ongoing site work, we request that the SHWMB provide a written response to this request for determination by July 12, 2002.

Thank you for your assistance with this project. If you have any questions, please contact me at (302) 884-6901.

Very truly yours,

MALCOLM PIRNIE, INC.

Joseph C. Barbagallo, P.E.
Project Manager

Matthew P. Lesley, P.G.
Project Hydrogeologist

Enclosure

c: D. Sammons, DSWA

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[1] Shedlock, R.J., Denver, J.M., Hayes, M.A., Hamilton, P.A., Koterba, M.T., Bachman, L.J., Phillips, P.J. and Banks, W.S.L. (1999) *Water-quality Assessment of the Delmarva Peninsula, Delaware, Maryland, and Virginia: Results of Investigations, 1987-91*. U.S. Geological Survey water-supply paper (2355-A).
[2] Talley, J.H. (1982). *Geohydrology of the Milford Area, Delaware*. Delaware Geological Survey, Hydrologic map Series No. 4.
[3] Shedlock, R.J., Denver, J.M., Hayes, M.A., Hamilton, P.A., Koterba, M.T., Bachman, L.J., Phillips, P.J. and Banks, W.S.L. (1999). *Water-quality Assessment of the Delmarva Peninsula, Delaware, Maryland, and Virginia: Results of Investigations, 1987-91*. U.S. Geological Survey water-supply paper (2355-A).
[4] Andres, A.S. (1987). *Geohydrology of the Northern Coastal Area, Delaware*. Delaware Geological Survey, Hydrologic Map Series No. 5, Sheet 2 - Geohydrology of the Columbia Aquifer.
[5] Numerous sources, including those listed above and: Andres, S.A. (1986) *Geohydrology of the Northern Coastal Area*. Delaware Geological Survey, Hydrologic Map Series No. 5, Sheet 1 - Basic Geohydrologic Data, Benson, R.N. at. Al. (1990). *Geologic and Hydrogeologic Studies of the Oligocene - Pleistocene Section Near Lewes, DE*, Delaware Geological Survey Report of Investigations No. 48., Groot, J.J and Jordan, R.R. (1999) *The Pliocene and Quaternary Deposits of Delaware: Palynology, Ages and Paleoenvironments*. Delaware Geological Survey Report of Investigations No. 58, and Hodges, Jr., A.L. (1984). *Hydrology of the Manokin, Ocean City and Pokomoke Aquifers of Southeastern Delaware*. Delaware Geological Survey Report of Investigations No. 38.
[6] Talley, J.H. (1982). *Geohydrology of the Milford Area, Delaware*. Delaware Geological Survey, Hydrologic map Series No. 4.
[7] See footnote No. 5.

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF AIR & WASTE MANAGEMENT
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

SOLID & HAZARDOUS WASTE
MANAGEMENT BRANCH
TELEPHONE (302) 739-3689
FAX NO. (302) 739-5060

August 5, 2002

Hand Delivered

Mr. Drew R. Sammons, P.E.
Senior Engineer
Delaware Solid Waste Authority
1128 S. Bradford Street
P.O. Box 455
Dover, Delaware 19903-0455

Subject: Hydrogeologic Assessment for Route 5 and Milford Transfer Station Sites
Reference: Malcolm Pirnie Letter dated 7/2/02

Dear Mr. Sammons:

Based upon the assertions of the subject Malcolm Pirnie letter sent on behalf of the DSWA, the Solid & Hazardous Waste Management Branch concurs that the project has little potential to impact groundwater quality. In accordance with the provisions of the *Delaware Regulations Governing Solid Waste*, Section 4.E.1.e, hydrogeological assessments are hereby deemed unnecessary for the transfer stations known as "Route 5" and "Milford Transfer Station". This determination is subject to change if wastes other than tires, white goods and yard waste are to be stored or processed outside, or if our review of the engineering drawings and plan of operations (which have not been submitted yet) reveal a substantial risk for contaminate release to groundwater.

If you have any questions or concerns about this letter, please immediately contact Bob Hartman at (302) 739-3689

Sincerely,

Jamie H. Rutherford
Environmental Program Manager I
Solid & Hazardous Waste Management Branch

JHR: RH: jmr
RH02055.doc

cc: Nancy Marker, Environmental Program Manager II, SHWMB
Joseph Barbagallo, Project Manager, Malcolm Pirnie

Delaware's good nature depends on you!

MALCOLM PIRNIE

MALCOLM PIRNIE, INC.
INDEPENDENT ENVIRONMENTAL ENGINEERS, SCIENTISTS & CONSULTANTS

September 18, 2002

Mr. Robert Hartman
Delaware Department of Natural Resources and Environmental Control
Division of Air and Waste Management
Solid & Hazardous Waste Management Branch
89 Kings Highway
Dover, DE 19901

RE: Delaware Solid Waste Authority (DSWA), Proposed Indian Mission Corners (Route 5) and Milford (Route 113 South) Transfer Station Sites

Dear Mr. Hartman:

This letter serves to inform you that the design of each of the referenced solid waste transfer stations will include an on-site wastewater treatment system (septic system) as required by the DNREC Groundwater Discharges Section (GDS). The inclusion of this design feature is a modification of the design approach described to DNREC in our July 2, 2002 letter requesting a waiver of the requirement for a hydrogeologic assessment. The DNREC Solid & Hazardous Waste Management Branch (SHWMB) in its response dated August 5, 2002 granted this request.

Discharges to the septic systems will be restricted to sanitary sewerage, as combining sanitary sewage with the facility wastewaters (wash down water) will not be approved by DNREC GDS. The septic system design, including the required site evaluation, permitting, construction and operation, will be done in accordance with DNREC *Regulations Governing the Design, Installation and Operation of On-site Wastewater Treatment and Disposal Systems*.

The results of recent septic evaluations indicate that subsurface conditions are favorable for the on-site treatment of sanitary wastewater over a wide area at each site. In addition, the septic systems will be minimally sized (for 10 users or less) and will be located in areas where most of the available land surface will remain pervious. Finally, since the leachate and sanitary waste streams will not be combined (as was originally intended), and since a properly designed and properly operating septic system can mitigate the environmental concerns associated with sanitary wastewater, the installation and operation of a septic system at each site should not adversely effect groundwater quality. Therefore, we do not consider SHWMB's August 5, 2002 waiver to be impacted by this DNREC DGS requirement. We request written confirmation from DNREC SHWMB indicating their concurrence on this issue.

MALCOLM PIRNIE

Due to the schedule of ongoing site work, we request that the SHWMB provide a written response to this request by September 30, 2002.

Thank you for your assistance with this project. If you have any questions, please contact me at (914) 641-2781 or Matt Lesley at (302) 884-6901.

Very truly yours,

MALCOLM PIRNIE, INC.

Joseph C. Barbagallo, P.E.
Project Manager

Matthew P. Lesley, P.G.
Project Hydrogeologist

Enclosure

c: D. Sammons,P.E., DSWA

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STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
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89 KINGS HIGHWAY
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SOLID & HAZARDOUS WASTE
MANAGEMENT BRANCH

TELEPHONE (302) 739-3689
FAX NO. (302) 739-5060

September 27, 2002

Mr. Drew R. Sammons, P.E.
Senior Engineer
Delaware Solid Waste Authority
1128 S. Bradford Street
P.O. Box 455
Dover, Delaware 19903-0455

Subject: Hydrogeologic Assessment for Route 5 and Milford Transfer Station Sites
Reference: Malcolm Pirnie Letter dated 9/18/02

Dear Mr. Sammons:

Based upon the assertions of the subject Malcolm Pirnie letter sent on behalf of the DSWA, the Solid & Hazardous Waste Management Branch concurs that the addition of a septic system to each site should not adversely effect groundwater quality as long as the system is restricted to sanitary sewage. Provisions must be included in the operation plan that specifically prohibit placing leachates, equipment/facility wash waters, and waste liquids from transfer station operations into the septic system. Design of the system must include reasonable features that limit access to the system and which do not promote discharge of prohibited materials to the system. This determination is subject to change if our review of the engineering drawings and plan of operations (which have not been submitted yet) reveal a substantial risk for a contaminate release into groundwater.

If you have any questions or concerns about this letter, please contact Bob Hartman immediately at (302) 739-3689.

Sincerely,

Jamie H. Rutherford
Environmental Program Manager I
Solid & Hazardous Waste Management Branch

JHR:RH:jmr
RH02085.doc

cc: Nancy Marker, Environmental Program Manager II, SHWMB
Matthew Lesley, Project Hydrogeologist, Malcolm Pirnie

Delaware's good nature depends on you!