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(FORM UPDATED: 08/11/2010)

WISCONSIN STATE LEGISLATURE ...
PUBLIC HEARING - COMMITTEE RECORDS

2005-06

(session year)

Senate

(Assembly, Senate or Joint)

Committee on ... Natural Resources and Transportation (SC-NRT)

COMMITTEE NOTICES ...

- Committee Reports ... **CR**
- Executive Sessions ... **ES**
- Public Hearings ... **PH**

INFORMATION COLLECTED BY COMMITTEE FOR AND AGAINST PROPOSAL

- Appointments ... **Appt** (w/Record of Comm. Proceedings)
- Clearinghouse Rules ... **CRule** (w/Record of Comm. Proceedings)
- Hearing Records ... bills and resolutions (w/Record of Comm. Proceedings)
  (**ab** = Assembly Bill) (**ar** = Assembly Resolution) (**ajr** = Assembly Joint Resolution)
  (**sb** = Senate Bill) (**sr** = Senate Resolution) (**sjr** = Senate Joint Resolution)
- Miscellaneous ... **Misc**

* Contents organized for archiving by: Mike Barman (LRB) (July/2012)

Senate

Record of Committee Proceedings

Committee on Natural Resources and Transportation

Clearinghouse Rule 04-077

Relating to landfilling of solid waste.
Submitted by Department of Natural Resources.

April 15, 2005 Referred to Committee on Natural Resources and Transportation.

May 26, 2005 **PUBLIC HEARING HELD**

Present: (5) Senators Kedzie, Stepp, Kapanke, Wirch and Breske.
Absent: (0) None.

Appearances For
- Sue Bangert — WI Department of Natural Resources
- Dennis Mack — WI Department of Natural Resources
- Peter Peshek — Oynx Landfill

Appearances Against
- Caryl Terrell, Madison — Sierra Club - John Muir Chapter

Appearances for Information Only
- None.

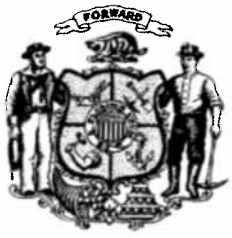
Registrations For
- Greg Hubbard — Waste Management

Registrations Against
- Ron and Judy Sommers, Bristol
- Connie Bevry, Bristol
- Charlene Lemoine, Brookfield — Waukesha County Environmental Action League

June 17, 2005 **NO ACTION TAKEN**

Dan Johnson
Committee Clerk

WISCONSIN STATE LEGISLATURE



REPUBLIC SERVICES, INC.

April 25, 2005

Senator Neal Kedzie
State Capitol
P.O. Box 7882
Madison, WI 53707 – 7882

Dear Senator Kedzie,

During a meeting we had last month you had expressed an interest in how the Wisconsin Department of Natural Resources was imposing conditions of approval on operating permits for sanitary landfills prior to the formal rule making and adoption of the rule. I wanted to respond to your inquiry and provide you with a recent draft Plan of Operation Approval we have received for the Mallard Ridge Recycling and Disposal Facility from the Wisconsin DNR that includes conditions of approval pertaining to the 1,200 ft rule that is currently being reviewed by your committee.

In summary, I am responding to your inquiry regarding DNR's interest to impose conditions of approval prior to the rule being formally adopted. It is important to note that DNR has many opportunities to add, modify or amend approvals during the operating life of a landfill. Using a Plan of Operation approval is just a convenient way to provide for adding such conditions.

Please call should you have questions regarding the enclosed. I can be reached at 262 724 3257.

Thank you for your time and courtesies.

Sincerely,

Michael C. Ettner
General Manager
Republic Services of WI

Cc: Dan Johnson, Chief of Staff, Senator Kedzie
Dan Otzelberger, Republic Services of WI

REPUBLIC
SERVICES, INC.

April 22, 2005

Mr. Robert Grosch
State of Wisconsin
Department of Natural Resources
141 NW Barstow St.
Room 180
Waukesha, WI 53188

RE: Draft Plan of Operation Approval
Mallard Ridge Recycling and Disposal Facility (RDF) - Southern Expansion
License No. 03244

Dear Mr. Grosch:

The purpose of this letter is to provide written comment to the Wisconsin Department of Natural Resources regarding the draft Plan of Operation Approval for the Mallard Ridge RDF Southern Expansion. Republic Services, Inc. (Republic) appreciated the opportunity to meet with you on April 14, 2005 to review and comment on the draft approval. The opportunity to jointly review existing conditions from past approvals along with the proposed conditions in the draft approval for the Southern Expansion will result in a complete and accurate final Plan of Operation Approval.

[redacted] Of special concern is the inclusion of conditions that under the proposed rule change are only applicable to landfills with leachate collection lines that exceed 1,200 feet from the end of each cleanout to the toe of the opposite slope. This letter serves as a reminder to the Department that the design for the proposed Southern Expansion does not include leachate collection lines greater than 1,200 feet.

Republic referenced document WA-47-04 from the Department's web site to identify which conditions from the draft approval are proposed rule changes that are only applicable to landfills with leachate collection lines greater than 1,200 feet. The following list of conditions from the draft approval appears to fit these criteria.

Conditions 10.d. and 10.e.

Conditions 13.a., 13.b., and 13.c.

Conditions 14.a.and 14.b.

Conditions 17.b., 17.c., and 17.d.

Republic is of the strong opinion that these conditions should not be included in the final Plan of Operation Approval since the design for the proposed Southern Expansion does not include leachate collection lines greater than 1,200 feet. One could also argue that additional conditions within the draft approval should not be included until the proposed rule change becomes effective. However, Republic understands and agrees that these conditions represent sound design, construction, and operating standards for landfills with leachate collection lines of any length.

If you have any questions regarding the contents of this letter, feel free to contact me at 262-724-3257.

Sincerely,

Daniel Otzelberger, P.E.
Area Engineer

Cc: Ken Hein, WDNR
Mike Ettner
MR Master File
MR Siting Committee File

PROJECT SUMMARY
MALLARD RIDGE RDF SOUTHERN EXPANSION

GENERAL INFORMATION

AUTHORIZED CONTACT: Mr. Michael Ettner, General Manager
Republic Services, Inc.
Mallard Ridge Recycling and Disposal Facility
W8470 State Road 11
Delavan, WI 53115
Phone: (262) 724-3257

LICENSEE AND PROPERTY OWNER: Republic Services of Wisconsin, Limited Parnership

SITE LOCATION: Republic Services, Inc.(Republic) is proposing a contiguous expansion of the Mallard Ridge Landfill to be located approximately 4 miles west of the City of Delavan, in the S 1/2 of the SW 1/4 of the SE 1/4 of Section 4, E 1/2 of the NE 1/4 of the NW 1/4 of Section 9, and the N 1/2 of the NW 1/4 of the NE 1/4 of Section 9, Township 2 North, Range 15 East, Town of Darien, Walworth County, Wisconsin.

ACREAGE AND ACCESS: The licensed disposal area will be approximately 48 acres of an approximately 714-acre parcel of land owned by Republic, in addition to the licensed landfill acreage already approved. The expanded landfill also includes an additional 7 acres of vertical expansion over the existing landfill previously approved. Access to the facility will be via the existing route for the site, which is State Road 11.

PROPOSED CAPACITY AND SITE LIFE: The proposed expansion will provide 8,094,000 cubic yards of design capacity. The expansion will provide less than 15 years of additional site life. It is anticipated that the average annual volume of waste received at the Southern Expansion, including daily cover, will be approximately 600,000 cubic yards or greater. This equates to approximately 11,500 cubic yards per week, or approximately 50,000 cubic yards per month.

WASTE TYPES AND GENERATORS SERVED: The site will accept residential solid waste, commercial solid waste, demolition waste, foundry sand, industrial processed waste, asbestos, and special waste. Hazardous wastes will not be accepted at the site. The anticipated general service area includes Columbia, Dane, Green, Iowa, Jefferson, Kenosha, Lafayette, Racine, Richland, Rock, Sauk, Walworth and Waukesha Counties in Wisconsin; and Boone, Dekalb, Kane, Lake, Lee, Ogle, McHenry, Stephenson and Winnebago Counties in Illinois.

The airspace capacity includes daily cover. The waste to general fill ratio is 7:1, or the daily cover is 1/8 of the total airspace volume. Republic may use various solid waste types for alternate daily cover, such as foundry sand, shredder fluff and contaminated soil. These can be stockpiled near the active fill areas and used as needed. Intermediate cover will consist of clean general fill soil, whether from soil excavations, clean demolition soils, or an alternative intermediate cover material.

A Special Waste Acceptance Plan is approved for the site as part of the plan of operation. This plan will be used to screen industrial waste (referred to as "special wastes") other than demolition material. The program calls for specific testing protocols and disposal procedures based on the waste type. Under this program the landfill is able to accept many specifically categorized special wastes without additional Department review. The program identifies certain waste types that must receive prior Department approval on a case-by-case basis.

PERIOD OF LONG TERM CARE RESPONSIBILITY: Republic must, by law, set aside funds sufficient to care for the landfill for a period of 40 years following landfill closure. The owner of any landfill is responsible for its closure, for any remedial actions required by the Department, and for its perpetual long-term care.

SITE CHARACTERISTICS

For a detailed description of the site characteristics refer to the Feasibility Determination for the proposed Southern Expansion to Mallard Ridge Landfill issued by the Department on June 25, 2004.

FACILITY DESIGN

DESIGN CONCEPTS: The landfill expansion is designed as a contiguous horizontal expansion with a vertical overlay of the existing Mallard Ridge Landfill. Design features include, in general, a composite liner and final cover, leachate collection system, gas management system, and surface water management systems. Site monitoring includes groundwater, leachate, air, landfill gas, and waste materials.

Preliminary construction approval was granted to allow Republic to take advantage of the 2005 construction season prior to issuance of the plan of operation approval. Initial construction activities for the expansion allowed by the preliminary construction approval include installation of silt fencing and other erosion controls, clearing and grubbing of the site, soil excavation, and sedimentation basin construction. The approved items of construction were allowed because the site is already disturbed by previous operations and the approved items did not constitute an irrevocable commitment of resources.

SUBBASE GRADES: The proposed subbase grades, which are at the bottom of the 4-foot-thick compacted clay liner, are designed with 3:1 and 5:1 sideslopes on the landfill perimeter berm. The landfill sideslopes are approximately 60 feet high with a majority of the slope constructed by excavation. An average of about 10 feet of perimeter berm height will consist of fill material. The western sideslope will be 24 feet below the top of the northern and southern berms and consist entirely of excavation in order to account for the potential future expansion toward the westerly direction. The soil excavated to reach subbase grades will be used for the construction of the landfill perimeter berm, screening berms, with the excess soil being stockpiled for future final cover construction or for daily and intermediate covers. The depth to bedrock across the base is greater than 10 feet below the subbase grades as specified in NR 504.06(2)(c). The subbase of the landfill was determined by locating the lowest point at which the bottom of the clay liner would be a minimum of 10 feet above the high water table. For the Southern Expansion, the lowest liner subbase elevation is approximately 11.5 feet above the water table. Elevations of the subbase excavation range from approximately 905.5 feet mean sea level (M.S.L.), below the leachate collection sump in Phase 2, to elevation 922 M.S.L.

BASE GRADES: The base grades direct leachate flow to the leachate collection system. The base grades (top of the 4-foot-thick composite clay liner) over the base of the landfill range from elevation 926 M.S.L. at the north end of Phase 4 to approximately elevation 909.5 M.S.L. in the Phase 2 sump. The base of the landfill will have a minimum slope of 2 percent and a maximum horizontal flow distance of approximately 125 feet to the leachate collection pipes spaced 250 feet apart across the base of the landfill. The leachate collection pipes will have a minimum 0.5 percent slope. Leachate will flow by gravity to a collection sump in each phase, located along the eastern and southern sides of the landfill.

COMPOSITE LINER: The liner will consist of 4 feet of compacted clay overlain by a textured (on both sides) 60-mil high density polyethylene (HDPE) geomembrane on the sidewalls and a smooth 60-mil HDPE geomembrane on the base. A geotextile cushion (12 oz/sy) will be placed over the geomembrane. The clay used in the liner will meet the specifications listed in s. NR 504.06(2)(a), Wis. Adm. Code and will be placed in accordance with s. NR 504.06(2)(f), Wis. Adm. Code. The 60 mil-HDPE geomembrane will be placed directly on top of the completed, tested and smoothed clay liner base and sidewalls. The geomembrane and geotextile will extend up the sideslopes to the top of the berm anchor trench. The features of the landfill facility have been designed to prevent penetrations of the composite liner system.

LEACHATE COLLECTION AND MANAGEMENT SYSTEM: The leachate collection system is designed to route leachate off the composite liner to a collection sump for removal from the landfill. The leachate collection system consists of a 1-foot-thick select aggregate fill drainage layer, leachate collection and transfer piping, collection sumps, inclined cleanout risers and pumping system, manholes, and leachate head wells.

DRAINAGE LAYER: A select aggregate drainage layer will be placed over the geotextile cushion on the geomembrane liner on the base and sidewalls. The drainage layer will have a minimum slope of 2 percent to the leachate collection trenches and pipes. The 1-foot thick granular drainage blanket is proposed to have a minimum hydraulic conductivity of $1x10^{-2}$ cm/s. The granular drainage layer will consist of pea gravel a minimum of 3/8 inch in diameter and will placed directly on the geotextile cushion. The granular drainage blanket has been designed to meet the requirements listed in s. NR 504.06(5)(t), Wis. Adm. Code.

LEACHATE LEVEL MONITORING: Leachate headwells will be installed to measure the leachate head and monitor performance of the leachate extraction system. There will be two leachate headwells in each phase of the landfill, for a total of 8 monitoring points for the Southern Expansion area. The headwells will consist of 4-inch diameter SDR 11 HDPE solid-wall pipe placed on the perimeter berm sideslope and will extend across the base of the landfill to designated locations, with an 8-foot perforated section at the lower end of the headwell. The rest of the headwell will be nonperforated pipe extending up the sidewall to the surface. To determine leachate level in the pipe, a transducer is placed in the pipe down to the elbow at the perimeter berm toe of slope. The headwell piping will be placed directly on top of the geotextile cushion above the geomembrane liner. The pipe will be covered by a minimum of 2 feet of select aggregate fill.

LEACHATE COLLECTION SYSTEM: The leachate collection piping will be placed in vee-trenches in accordance with s. NR 504.06(5)(d), Wis. Adm. Code and will consist of 6- inch-diameter perforated SDR 11 HDPE pipes. A minimum of 6 inches of bedding maerial will be placed below the perforated collection pipe in the trenches. Select aggregate fill will be placed around the perforated pipe and mounded a minimum 18inches above the pie. The aggregate fill and pipe bedding design will provide adequate hydraulic conductivity for leachae collection. The landfill base design has a maximum leachate flow distance of approximately 125 feet or less to the collection pipes, which have a minimum 0.5 percent slope toward the leachate collection sumps located in each phase. Perimeter cleanouts will allow each collection pipe to be cleaned out in both directions. The first 50 feet(slope length) of each cleanout pipe, starting from the toe of the slope, is perforated to allow for gas collection in the pipes. The maximum cleanout length will not exceed 1,200 feet.

Leachate is collected in leachate collection sumps located in each phase on the eastern and southern sides of the Southern Expansion. Leachate is pumped from the sumps via a sideslope riser pipe, an inclined 18-inch-diameter SDR 17 HDPE pipe, to an access vault at the

top of the landfill perimeter berm. From each vault, a submersible pump is lowered down the inclined riser pipe into the sump. The pump will automatically turn on and begin pumping at a preset elevation. The leachate is pumped up the inclined riser pipe through a flexible hose and is directed into a leachate transfer pipe(forcemain) at the top of the berm. The forcemain transfer line will consist of double-walled piping to contain leachate in the event the interior transfer pipe should leak or break. The leachate is then collected in an underground storage tank, which also collects leachate from the Northern Expansion. A new leachate forcemain will be constructed within the landfill perimeter to replace the existing transfer pipe which must be abandoned for the new expansion. From the storage tank, the leachate will be pumped through existing metering and lift station manholes into an existing forcemain pipe and conveyed to the Walworth County Metropolitan Sewerage District (WALCOMET) Wastewater Treatment Plant in Delavan, Wisconsin. Leachate can also be hauled by truck from the storage tank to the WALCOMET plant.

LEACHATE MANAGEMENT: The leachate collected from the Southern Expansion will be treated by WALCOMET wastewater treatment plant through an existing agreement. The Mallard Ridge RDF currently does not recirculate leachate within the Northern Expansion or either of the closed landfills. Republic is evaluating the option to recirculate leachate in the future. A plan modification request would be submitted to the WDNR with the necessary design and operational considerations. Several recirculation methods may be proposed including surface application, vertical injection systems and horizontal injection systems. For all methods, a 100-foot setback from the outboard slope at each location will be used. The source of the leachate to be recirculated would include leachate generated from the Southern Expansion and possibly the existing Northern Expansion.

PHASES: Construction of the Southern Expansion will occur in four phases with Phase 4 being built in two construction events, Cell A and Cell B. Construction for Phase 1 is projected to begin during the spring of 2005. The facility will be constructed from the north to the south and west in the four development phases. Filling of the Southern Expansion will be completed in a horizontal and vertical phasing process as shown on the drawings. Temporary phase delineation/containment berms will be used to prevent surface water from entering or exiting the active fill area. The berms will be constructed with compacted select clay fill above the select clay liner. The berm will be 3 feet high with a 3:1 sideslope and will be constructed with the clay and covered with geomembrane and geotextile layers. When the next phase is constructed, the geomembrane from the new phase will be welded to the existing geomembrane liner at the toe of the delineation berm across the entire length of the landfill.

FINAL COVER: The proposed final grades extend at a 4H:1V sideslope and minimum 5 percent top slopes. The final grades, along with the final cover system and surface water management system, will effectively reduce the infiltration of precipitation and thus reduce the quantity of leachate generated within the landfill. Republic is proposing to use a composite final cover design with a geosynthetic clay liner (GCL) for the Southern Expansion. The final cover system has been designed to meet the requirements of s. NR 504, Wis. Adm. Code. The final cover system will consist of the following components from bottom to top:

6-inch thick grading layer
24-inch-thick soil barrier layer
GCL
40-mil thick textured LLDPE (or equivalent) geomembrane layer
Geonet/Geotextile composite drainage layer
30-inch-thick general fill rooting zone layer
6-inch-thick topsoil layer

The use of GCL and soil barrier layer in the final cover proposal will follow the WDNR guidance document for GCLs and meet the requirements specified in the CQA Plan (Appendix D) found in the Plan of Operation.

STORM WATER MANAGEMENT: The proposed site development for the Southern Expansion will not significantly alter the surface water drainage patterns in the area. Currently, the surface water from the Northern Expansion is collected in a series of diversion berms and ditches and downslope flumes that drain into perimeter ditches. The ditches run along the eastern and western sides of the landfill and transport the water to existing sedimentation basins. The storm water control system of the Southern Expansion will also consist of diversion berms and ditches, downslope flumes, perimeter ditches, and on-site sedimentation and/or infiltration basins. Storm water control features are designed in accordance with s. NR 504.09. Surface water in contact with active fill areas will be collected and treated as leachate. Detailed calculations for the surface water management system are included in the October 2003 Feasibility Report and in the Plan of Operation.

Diversion berms/ditches are designed to collect and transfer surface water above the final cover system to downslope flumes. Diversion berms concentrate and control flow of surface water from the landfill. Three downslope flumes carry surface water from the diversion berms/ditches to the perimeter drainage ditches. The downslope pipes will be HDPE pipe, with smooth insides, which terminate into energy dissipaters before discharging into the perimeter drainage ditches. The perimeter ditches direct surface water around the expansion to the sedimentation/infiltration basins located on the eastern, southern and northern sides of the landfill. The perimeter ditches are designed as vee-notched or flat-bottom grass-lined ditches to reduce velocities and to minimize erosion. Culverts will be installed under service roads or access roads. The culverts will be HDPE pipes and were designed to prevent excessive backwater in the ditches.

Surface water runoff from the landfill will be routed to the sedimentation/infiltration basins from the perimeter drainage ditches. The basins have been designed to hold the surface water runoff from 25-year and 100-year, 24-hour storm events. Existing sedimentation basin No.1 was modified to account for additional volume by adding a second outlet structure and by increasing the height of the berm. The existing sedimentation basin No.3 will be removed for Phase 1 construction and a new sedimentation basin No.4 will be constructed at the northwestern corner of the Southern Expansion. Sedimentation basin No.5 will be located along the western side of the landfill and will collect water from a small area below the western diversion berm of the Southern Expansion. All basins were designed to comply with the requirements of s. NR 504.09(1). Surface water management calculations are included as Appendix J in the Plan of Operation.

In addition to permanent storm-water management features, temporary surface water controls will also be used during landfill operations to prevent surface water runoff from entering the active disposal area and to limit erosion of the final cover. Temporary control features may include diversion berms, downslope flumes, erosion fences, culverts, and/or storage/seepage basins.

GAS MANAGEMENT SYSTEM: The Mallard Ridge RDF is subject to the New Source Performance Standard (NSPS) for municipal solid waste landfills contained in the federal code, 40 CFR 60, and administered by the United States Environmental Protection Agency (USEPA). Under the federal code, the Mallard Ridge RDF requires an operating permit and a permit application was submitted to the WDNR in January of 1996. In May 1996, Mallard Ridge RDF submitted a Nonmethane Organic Compound emission rate report to the WDNR. As required,

Mallard Ridge RDF submitted a collection and control system design plan to the Administrator, USEPA, for approval. An updated collection and control system design, monitoring, record keeping, and reporting plan has been prepared for the proposed Southern Expansion (Appendix K of Plan of Operation). The design plan was prepared to satisfy the WDNR's Solid Waste requirements and the requirements in NSPS. An Air Pollution Control Construction Permit was issued on April 5, 2004 for the proposed Southern Expansion. A gas collection system is currently in place at the existing Mallard Ridge RDF. The collected gas from the existing gas wells, along with the gas from future gas extraction wells, will be transported to an existing gas recovery facility where collected gas is converted to electricity. The gas recovery facility and the blower/flare station will be upgraded to accommodate the Southern Expansion as needed.

During each phase of final cover construction, vertical gas extraction wells will be drilled. The wells will be constructed within a 36-inch-diameter borings drilled through the waste and extending to within 10 feet of the leachate collection system. The wells will be spaced assuming a radius of influence of 150 feet. Gases will be transferred through a header pipe, sloped at a minimum 2 percent, and condensate within the gas system will be collected and treated with leachate. The condensate generated by the cooling of landfill gas will be removed from the transfer pipes by knockouts in six locations within the landfill. Two of the condensate knockouts are located in the Northern Expansion, and four new condensate knockouts will be constructed with the Southern Expansion. In addition, the existing gas transfer pipe is sloped to a knockout located next to the existing blower building. Gas monitoring probes will be installed outside the limits of waste fill to monitor for gas migration. By constructing the proposed gas extraction system in accordance with s. NR 504.08 and by monitoring in accordance with s. NR 507.22, the Southern Expansion is expected to be in compliance with NSPS.

The gas extraction wells will be constructed of a solid-walled section of 8-inch-diameter Schedule 80 PVC or SDR11 HDPE pipe, coupled with a perforated section of 8-inch-diameter pipe of the same material. The annular space around the perforated portion of the pipe will be filled with stone. The top of each well will be sealed to prevent gas from escaping directly into the air. The well head assembly will include a section of flexible tubing to allow for differential settlement between the well and the lateral piping. Each well will have sample ports for gas sampling and flow rate and pressure measurements. The layout of the gas extraction wells was developed in accordance with s. NR 504.08. The gas extraction wells will be installed over the life of the site as substantial areas reach final grades. The composite liner and final cover system will function as a barrier to gas migration and provide increased gas extraction efficiencies.

The gas header system will transport the landfill gas from the gas extraction wells to the existing gas recovery facility located southeast of the Southern Expansion. The gas header system will be constructed using SDR17 HDPE piping and will be installed incrementally with the gas extraction wells as substantial areas of the site reach final grades of waste. The gas header piping has been designed with the maximum slope possible to allow for potential settlement and will be placed in a trench in the waste just below the final cover soil. The leachate collection system cleanout lines will be connected to the gas collection system to draw gas from the leachate collection system. The cleanout lines will be perforated for 50 feet up the slope from the tore of the landfill berm to allow for gas collection prior to placement of the final cover. In this way, collection of gas will be more efficient and will help to control odors. The header piping is designed with several looped layouts to sustain the removal of gas if a section becomes inoperable. Isolation valves are specified at several locations so that sections of the header pipe can be isolated. Gas flow will be regulated using valves. Gas flow and concentration will be monitored to maximize the efficiency of the gas control system.

As the landfill gas cools, moisture in the gas condenses and must be removed from the gas header piping system to prevent hydraulic blocking of the piping and impeding the gas flow. The condensate collected in the lateral and header pipes will drain by gravity to condensate knockouts located within the limits of waste next to the landfill perimeter berms. Four new knockouts will be located within the Southern Expansion. The condensate will flow by gravity from the knockouts into straw drains, which discharge to leachate collection pipe cleanout risers. From there the condensate will drain to the leachate collection sumps where it is collected and disposed as leachate.

Gas probes located around the existing landfill monitor the site for potential subsurface methane migration. A series of new gas monitoring probes will be installed around the perimeter of the Southern Expansion. Three existing gas probes will be abandoned in the area of construction for the Southern Expansion. The gas probes will be installed as the construction of each phase proceeds. The probes will be constructed of 1-inch-diameter PVC slotted pipe placed in a 6-inch-diameter borehole which is drilled to the water table. The probe will extend above the surface and will be sealed and capped.

FACILITY OPERATION

DISPOSAL OPERATION: The Southern Expansion site is designed to accept non-hazardous municipal, commercial, and industrial wastes. No hazardous or liquid wastes will be disposed at the site. The Mallard Ridge RDF has an approved Special Waste Management Plan to ensure that the waste is properly identified and that the waste is acceptable for disposal at the Mallard Ridge RDF. The types and volumes of solid waste that will be accepted at the Southern Expansion are as follows:

1. Residential and commercial solid waste
2. Demolition solid waste
3. Contaminated soil
4. Foundry sand
5. Industrial processed waste
6. Asbestos
7. Special waste

No toxic waste, hazardous waste or liquid waste will be accepted for disposal at this site. Refuse filing at the site will occur in four developmental phases from north to south and west across the site. Waste transport vehicles will enter the Southern Expansion site using the same entrance as for the existing site on State Highway 11. The existing office, scale and operations building will also be used. Public access to the landfill will be limited to the public areas located on the eastern side of the southern Expansion. The public access area may be relocated to an area south of the scale. The main access road will be cleaned as necessary to limit soil from being carried onto public roads.

NUISANCE CONTROL: Reducing nuisances depends on good maintenance policies that are practiced during operation. The factors to be addressed for reducing nuisances include:

1. Aesthetics: To provide visual screening along the southern edge of the site two temporary stockpile/screening berms will be constructed between the southern edge of the Southern Expansion and State Highway 11.
2. Dust: Dust will be minimized by wetting roads with water or commercially available compounds and by vegetating areas.
3. Litter and windblown debris: Windblown debris will be cleaned up and disposed on a regular basis.

4. Disease vectors: Proper waste compaction and placement of cover soil will control insects and rodents. Site drainage will be maintained to limit breeding habitats for mosquitoes.
5. Odor: Daily cover will used to control odors. Highly putrescible waste will be covered immediately after placement. A gas extraction system will collect gas.
6. Noise: The site operations equipment will have proper muffler equipment to limit noise. The site will be operated in accordance with local noise ordinances.
7. Salvage: No salvaging will be permitted at the landfill.

INCLEMENT WEATHER OPERATIONS: Various measures will be taken for inclement weather conditions to ensure minimal disruption to landfill operations. Surface water runoff will be managed away from the active fill areas with temporary and permanent berms. Perimeter ditches will be used to manage runoff around the expansion site. Access roads will be maintained year round. During windy weather, the active disposal area will be moved to a screened location when available and/or portable wind screens will be used. Dust will be controlled during dry conditions by wetting down access roads or by using commercial dust control compounds.

PERSONNEL AND EQUIPMENT: Republic will provide management and operating staff for the Southern Expansion. Site personnel will be familiar with regulatory approvals and permits for the facility for purposes of site operation and reporting requirements. Republic will provide the necessary equipment to operate the landfill and to maintain the grounds. Records will be kept per s. NR 506.17 and will be the responsibility of site personnel.

WASTE FILLING PROCEDURES: Daily landfill operations will be generally confined to as small an area as possible. Waste filling operations will be performed such that a sump in the filling area can collect contact surface water which can drain to the leachate collection sump. In each phase, initial waste placement will begin at the lower face of the previously filled phase and will work across the base of the landfill. The overall progression of the waste placement is to form a ramp into the base and then place the first lift of waste over new liner areas for protection of the liner system. Waste will be placed at the end of the access ramp and pushed into the new cell with low-ground-pressure equipment and then compacted. A minimum of 4 feet of select waste will be placed initially over the base of the liner and a minimum of 10 feet over the perimeter berm by December 1 of each year when clay liner was constructed. A temporary access road will be developed within each new phase as needed. Waste may be placed into a newly constructed phase at the same time as waste continues to be placed in the previous phase. The working face will be confined to the smallest area possible that will allow vehicles to unload. Waste will be spread and compacted into lifts immediately after unloading to reduce windblown litter. At the end if each working day a layer of cover soil or other approved alternate cover material will be placed on all exposed waste. Records will be kept on site to document waste tonnage and volumes. The waste volume information will be summarized and reported annually to the WDNR. Prior to placement of final cover, waste grades will be surveyed and regraded as necessary to accommodate the final cover.

WASTE SCREENING: Incoming waste loads will be weighed at the landfill scale. If the gate attendant identifies unauthorized waste in a load, the load will not be accepted for disposal. The site manager will be consulted in instances when the gate attendant questions the acceptability of a waste load. The entrance gate will be locked during non-operating hours. No salvaging will occur at the site.

Litter will be controlled through daily maintenance of the site at the working face as is currently done at Mallard Ridge RDF. In addition, the following will be done to minimize litter problems:

1) Maintain a small working face;
2) Cover portions of the active area as they are filled;
3) Taking advantage of prevailing wind directions and orienting daily landfill operations accordingly;
4) Collecting windblown litter; and
5) Position temporary fences around the working face to intercept blowing debris.

ENVIRONMENTAL MONITORING

Environmental and performance monitoring will extend through active site operation and long-term care as generally described in NR514.06(7) and NR 507. The Environmental Sampling and Analysis Plan provides for the measurement of groundwater levels and quality, leachate levels and leachate quality, landfill gas volumes, pressures, gas quality, gas migration potential, and landfill gas condensate volumes and quality. Samples will be collected, preserved, and analyzed in accordance with established methods. Monitoring data will be reported to the Department on diskettes in a format supplied by the Department, as specified in s. NR 507.26(3), Wis. Adm. Code. The monitoring requirements listed in the tables below supersede those of previous approvals for license number 03244.

Supplemental leachate monitoring as part of leachate recirculation will be specified with the approval of the plan for leachate recirculation, as required by conditions of this approval.

(SEE Section 5.7 and 5.8in the PLAN OF OPERATION)

TABLE 1: GROUNDWATER MONITORING - License #03244		
Wells (DNR ID)	**Frequency**	**Parameters**
Subtitle D Wells: MW-126 (120) MW-144 (260) MW-202 (313) W-8R (271) MW-158 (104), until abandoned MW-160 (106), until abandoned	**Semiannual** (March, September) **Semi-annual**	00010 Field Temperature in □C 00094 Field Conductivity @25□C 00400 Field pH 00940 Chloride 22413 Total Hardness, Filtered 39036 Total Alkalinity, Filtered 72020 Groundwater Elevation Note sample odor (00001), color (00002) and turbidity (00003), if present VOCs (using EPA Methods 8021 or 8260)
NR 500 Monitoring Wells: W-7R (250) W-7AR (249) W-55RRR (322) W-55AR (271) W-8A (315) MW-103 (251) MW-103A (252) MW-144A (261) MW-150 (262) MW-150A (263) MW-155 (108) MW-161 (116) MW-162 (118) MW-202A (314) MW-203 (316) MW-204 (317)	**Semi-annual** (March, September) **Annual** (March)	00010 Field Temperature in □C 00094 Field Conductivity @25□C 00400 Field pH 00940 Chloride 22413 Total Hardness, Filtered 39036 Total Alkalinity, Filtered 72020 Groundwater Elevation Note sample odor (00001), color (00002) and turbidity (00003), if present VOCs (using EPA Methods 8021 or 8260)
Water Level Wells, until abandoned: MW-163 (101) MW-163A (318) MW-164 (102) MW-164A (319)	**Semiannual** (March, September)	00094 Specific Conductance 72020 Groundwater Elevation Note sample odor (00001), color (00002) and turbidity (00003), if present

TABLE 2: LEACHATE MONITORING - License #03244

Sample Location (DNR ID)	Frequency	Parameters
LEA - 2 (432)	**Semiannual** (March, September)	00094 Field Conductivity @25 C 00150 Total Suspended Solids 00310 BOD_5 00340 COD, Unfiltered 00400 Field pH 00410 Total Alkalinity, Unfiltered 00610 Total Ammonia Nitrogen 00625 Total Kjeldahl Nitrogen 00900 Total Hardness, Unfiltered 00929 Total Sodium 00940 Chloride 00945 Total Sulfate 01027 Total Cadmium 01051 Total Lead 01055 Total Manganese 71900 Total Mercury 74010 Total Iron VOCs (using EPA Methods 8021 or 8260)
	Annual (March)	SVOCs per Table 6 (using EPA SW 846 Method 8270)
	Monthly (reported semiannually in March and September)	00032 Leachate Volume Pumped
LHW-1 (631) LHW-2 (632) LHW-3 (633) LHW-4 (634) LHW-5 (635) LHW-6 (636) *- new well *LH-S1 (637) *LH-S2 (638) *LH-S3 (639) *LH-S4 (640) *LH-S5 (641) *LH-S6 (642) *LH-S7 (643) *LH-S8 (644)	**Monthly** (reported semiannually in March and September), **or** **Quarterly** (March, June, September, December) after final closure	00023 Leachate Head Elevation 00024 Leachate Depth
Interstitial Space (if liquid is present)	**Quarterly** (March, June, September, December)	00094 Field Conductivity @25 C 00400 Field pH

TABLE 3: LANDFILL GAS MONITORING - License #3244

Sample Location (DNR ID)	Frequency	Parameters
Gas Extraction Wells: GW-101 (701) GW-102 (702) GW-103 (703) GW-104 (704) GW-105 (705) GW-106 (706) GW-107 (707) GW-108 (708) GW-109 (709) GW-110 (710) GW-111 (711) GW-112 (712) GW-113 (713) GW-114 (714) GW-115 (715) GW-116 (716) GW-117 (717) GW-118 (718) GW-119 (719) GW-120 (720) GW-121 (721) GW-122 (722) GW-123 (723) GW-124 (724) GW-125 (725) GW-126 (726) GW-127 (727) GW-128 (728) GW-129 (729)* GW-130 (730)* GW-131 (731)* GW-132 (732)* GW-133 (733)* GW-134 (734)* GW-135 (735)* GW-136 (736)* GW-137 (737)* GW-138 (738)* GW-139 (739)* GW-140 (740)* GW-141 (741)* GW-142 (742)* GW-143 (743)* GW-144 (744)* GW-145 (745)* GW-146 (746)* GW-147 (747)* GW-148 (748)* GW-149 (749)* GW-150 (750)* GW-151 (751)* GW-152 (752)* GW-153 (753)* GW-154 (754)* GW-155 (755)* GW-156 (756)* GW-157 (757)* GW-158 (758)* GW-159 (759)* GW-160 (760)* GW-161 (761)* * - well to be installed	**Monthly**	85547 Percent Methane 85550 Percent Oxygen 46385 Wellhead Pressure (in. water) 46386 Gas Flow Rate (CFM) 46388 Gas Temperature
Gas Condensate: COND-02 (GC01) (732) (condensate trap CK-1)	**Quarterly** (March, June, September, December) **Annual** (March) **Monthly**	00094 Field Conductivity @ 25°C 00400 Field pH 00150 Total Suspended Solids 00340 COD, Unfiltered VOCs (using EPA Methods 8021 or 8260) 99187 Gas Condensate (gallons)
Gas Probes: GP-10 (710) GP-16 (716)* GP-11 (711) GP-17 (717)* GP-12 (712) GP-18 (718)* GP-13 (713) GP-19 (719)* GP-15 (715)* *- new probe	**Quarterly** (March, June, September, December)	85547 Percent Methane 85550 Percent Oxygen 46389 Soil Gas Pressure (inches water) 00021 Ambient Air Temperature 00025 Barometric Pressure 00024 Trend in Barometric Pressure
Blower: Gas Blower (GB01) (731)	**Monthly**	85547 Percent Methane 85550 Percent Oxygen 99181 Percent Nitrogen in Air 46382 Header Pressure (inches of water)

TABLE 3: LANDFILL GAS MONITORING - License #3244		
		46386 Gas Flow Rate (cfm) 00021 Ambient Air Temperature 00025 Barometric Pressure 00024 Trend in Barometric Pressure
	Annual (March)	VOCs (using EPA Method 0030)

TABLE 4: LYSIMETER MONITORING - License #03244		
Sample Location (DNR ID)	**Frequency**	**Parameters**
LYS - N01 (531) LYS - N02 (532) (if liquid is present)	**Annual** (March)	74064 Lysimeter discharge in gallons

TABLE 5: SURFACE WATER MONITORING - License #03244 & #00140		
Sample Location (DNR ID)	**Frequency**	**Parameters**
Sedimentation Basin No. 1 SED-01 (230)	**Quarterly** (March, June, September, December)	00150 Total Suspended Solids Visual observation of color, odor, turbidity, floating solids, foam and oil sheen

TABLE 6: SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYTE LIST

Analyte[1]	CAS[2] Number	Systematic Name[3]/Common Name	GEMS Parameter Number[4]
Acenaphthene	83-32-9	Acenaphthylene, 1,2-dihydro-	34205
Acenaphthylene	208-96-8	Acenaphthylene	34200
Acetophenone	98-86-2	Ethanone, 1-phenyl-	81553
Anthracene	120-12-7	Anthracene	34220
Benz(a)anthracene	56-55-3	Benz[a]anthracene Benzanthracene	34526
Benzo(b) fluoroanthene	205-99-2	Benz[e]acephenanthrylene	34230
Benzo(k)fluoroanthene	207-08-9	Benzo[k]fluoranthene	34242
Benzo(g,h,i)perylene	191-24-2	Benzo[ghi]perylene	34521
Benzo(a)pyrene	50-32-8	Benzo[a]pyrene	34247
Benzyl alcohol	100-51-6	Benzenemethanol	77147
Bis(2-chloroethoxy)methane	111-91-1	Ethane, 1,1'-[methylenebis (oxy)]bis[2-chloro-	34278
Bis(2-chloroethyl)ether	111-44-4	Ethane, 1,1'-oxybis[2-chloro- Dichloroethyl ether	34273
Bis(2-chloro-1-methylethyl)et	108-60-1	Propane, 2,2'-oxybis[1-chloro- Bis(2-chloroisopropyl)ether	73522
Bis(2-ethylhexyl)phthalate	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	39100
4-Bromophenyl phenyl ether	101-55-3	Benzene, 1-bromo-4-phenoxy-	34636
Butyl benzyl phthalate	85-68-7	1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester	34292
p-Chloro-m-cresol	59-50-7	Phenol, 4-chloro-3-methyl- 4-Chloro-3-methylphenol	34452
2-Chloronaphthalene	91-58-7	Naphthalene, 2-chloro-	34581
2-Chlorophenol	95-57-8	Phenol, 2-chloro-	34586

p-Chlorophenyl phenyl ether	7005-72-3	Benzene, 1-chloro-4-phenoxy- 4-Chlorophenyl phenyl ether	34641
Chrysene	218-01-9	Chrysene	34320
m-Cresol	108-39-4	Phenol, 3-methyl- 3-Methylphenol	77151
o-Cresol	95-48-7	Phenol, 2-methyl- 2-Methylphenol	77152
p-Cresol	106-44-5	Phenol, 4-methyl- 4-Methylphenol	77146
Dibenz(a,h)anthracene	53-70-3	Dibenz[a,h]anthracene	34556
Dibenzofuran	132-64-9	Dibenzofuran	81302
Di-n-butyl phthalate	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester	39110
m-Dichlorobenzene	541-73-1	Benzene, 1,3-dichloro- 1,3-Dichlorobenzene	34566
o-Dichlorobenzene	95-50-1	Benzene, 1,2-dichloro- 1,2-Dichlorobenzene	34536
p-Dichlorobenzene	106-46-7	Benzene, 1,4-dichloro- 1,4-Dichlorobenzene	34571
3,3'-Dichlorobenzidine	91-94-1	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-	34631
2,4-Dichlorophenol	120-83-2	Phenol, 2,4-dichloro-	34601
Diethyl phthalate	84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester	34336
2,4-Dimethylphenol	105-67-9	Phenol, 2,4-dimethyl- m-Xylenol	34606
Dimethyl phthalate	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester	34341
4,6-Dinitro-o-cresol	534-52-1	1,2-Benzenedicarboxylic acid, dimethyl ester 4,6-Dinitro-2-methylphenol	79533
2,4-Dinitrophenol	51-28-5	Phenol, 2,4-dinitro-	34616
2,4,-Dinitrotoluene	121-14-2	Benzene, 1-methyl-2,4-dinitro-	34611

2,6-Dinitrotoluene	606-20-2	Benzene, 2-methyl-1,3-dinitro-	34626
Di-n-octyl phthalate	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester	34596
Diphenylamine	122-39-4	Benzeneamine, N-phenyl-	77579
Fluoroanthene	206-44-0	Fluoranthene	34376
Fluorene	86-73-7	9H-Fluorene	34381
Hexachlorobenzene	118-74-1	Benzene, hexachloro-	39700
Hexachlorobutadiene	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	34391
Hexachlorocyclopentadiene	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	34386
Hexachloroethane	67-72-1	Ethane, hexachloro-	34396
Indeno(1,2,3-cd)pyrene	193-39-5	Indeno[1,2,3-cd]pyrene	34403
Isophorone	78-59-1	2-Cyclohexen-1-one, 3,5,5-trimethyl-	34408
1-Methylnaphthalene	90-12-0	Naphthalene, 1-methyl-	81696
2-Methylnaphthalene	91-57-6	Naphthalene, 2-methyl-	77416
Naphthalene	91-20-3	Naphthalene	34696
m-Nitroaniline	99-09-2	Benzenamine, 3-nitro- 3-Nitroaniline	77286
o-Nitroaniline	88-74-4	Benzenamine, 2-nitro- 2-Nitroaniline	78142
p-Nitroaniline	100-01-6	Benzenamine, 4-nitro- 4-Nitroaniline	73605
Nitrobenzene	98-95-3	Benzene, nitro-	34447
o-Nitrophenol	88-75-5	Phenol, 2-nitro- 2-Nitrophenol	34591
p-Nitrophenol	100-02-7	Phenol, 4-nitro- 4-Nitrophenol	34646
N-Nitrosodimethylamine	62-75-9	Methanamine, N-methyl-N-nitroso-	34438

N-Nitrosodipropylamine	621-64-7	1-Propanamine, N-nitroso-N-propyl- N-Nitroso-N-dipropylamine	34433
Pentachlorophenol	87-86-5	Phenol, pentachloro-	39032
Phenanthrene	85-01-8	Phenanthrene	34461
Phenol	108-95-2	Phenol	34694
Pyrene	129-00-0	Pyrene	34469
Pyridine	110-86-1	Pyridine	77045
2,3,4,6-Tetrachlorophenol	58-90-2	Phenol, 2,3,4,6-tetrachloro-	77770
1,2,4-Trichlorobenzene	120-82-1	Benzene, 1,2,4-trichloro-	34551
2,4,5-Trichlorophenol	95-95-4	Phenol, 2,4,5-trichloro-	77687
2,4,6-Trichlorophenol	88-06-2	Phenol, 2,4,6-trichloro-	34621

1 Analyte names are EPA Registry names see: http://www.epa.gov/srs
2 Chemical Abstracts Service registry number.
3 Systematic Names are from the EPA Registry see: http://www.epa.gov/srs
4 DNR GEMS parameter numbers for the substances in this table can also be found at http://www.dnr.wi.gov/org/aw/wm/monitor/Downloads/

CLOSURE AND LONG TERM CARE COSTS

Closure and long-term care activities and cost estimates have been prepared in accordance with the requirements of s. NR 514.06(10), (11), and (15). For 40 years following completion of closure, Republic will be responsible for site maintenance. Actions to be taken during closure and long term care, along with the associated cost estimates, are summarized below. Major activities associated with final closure of the facility include installation of remaining portions of the gas management system, placement of the final cover system, establishment of vegetative cover, and construction of surface water control features. The final cover system on the landfill will be constructed in phases. After final waste placement is completed, the grading layer, gas extraction system, soil barrier layer, GCL, geomembrane layer, geonet/geotextile composite drainage layer, exterior drainage layer pipes, rooting zone, and topsoil layer will be constructed. Construction of the final cover system will be tested and documented. Following placement of final cover materials, the area will be fertilized, seeded, and mulched in order to establish vegetation.

Premature closure costs per s. NR 520.07 would occur when Phase 2 is active and final cover would be required over the Phase 1 and 2 areas. The premature closure cost estimate includes installing the final cover system, seeding and vegetating the final cover, completing construction of the gas extraction system, and preparing a closure documentation report. Final cover installation includes hauling, placing, and compacting as necessary the soil components of the final cover, installing the geosynthetic materials, and constructing the surface water management features. The premature closure cost estimate is presented below and a contingency is also included in the estimate. Unit costs and lump sum price values are from Republic. After the site is closed, the designed grades and final cover system will allow the land to be used for open green space. The final use is intended to prohibit agricultural uses or building construction.

Long term care costs are based on the assumption that the entire facility as proposed is closed and will be maintained and monitored. Estimated costs for performing long-term care activities are listed below. The long-term care monitoring program is outlined in the Plan of Operation and includes procedures for site inspection, site maintenance, monitoring of waste settlement and soil erosion, surface water management features, landfill gas system features, leachate collection system features, grounwater monitoring system features, and for miscellaneous repairs. Republic will submit a financial assurance mechanism to the WDNR to provide proof of financial responsibility for closure and long-term care of the landfill site in accordance with s. NR 520.

CLOSURE COSTS:

FINAL COVER ITEM	Quantity	Unit cost	Estimated Cost
Mobilization	1 each	$16,500 each	$16,500

Grading layer (6 in.)	25,000 cy	$2.55/cy	$63,800
Soil Barrier (24 in.)	100,000 cy	$2.55/cy	$255,000
GCL	1,346,000 sf	$0.36/sf	$484,600
Geomembrane	1,346,000 sf	$0.28/sf	$376,900
Geocomposite	1,346,000 sf	$0.32/sf	$430,700
Rooting zone (30 in.)	126,600 cy	$2.55/cy	$317,700
Diversion berm	5,000 lf	$4.00/lf	$ 20,000
Topsoil (6 in.)	25,000 cy	$3.72/cy	$93,000
Seed,fertilizer,mulch	33 acre	$1,700/acre	$56,100
Rock picking	1 each	$2,000/each	$2,000
Downslope flumes	3 each	$10,000/each	$30,000
Perimeter drainpipe	3,600 lf	$5.00/lf	$18,000
Access road	2,000lf	$28.00/lf	$56,000
Gas extraction wells	20 each	$7,000/each	$140,000
Gas header pipe	6,900 lf	$25.00/lf	$172,500
Gas header cleanout	400 lf	$17.60/lf	$7,000
Gas header bedding	6,900 lf	$1.00/lf	$6,900
Condensate removal	2 each	$3,100/each	$6,200
Final cover system		Subtotal cost	$2,552,900
ENGINEERING FEES			
Drawings and bids	1 each	$12,000/each	$12,000
Project management	1 each	$5,000/each	$5,000
Construction QA/QC	33 acre	$9,000/acre	$297,000
Surveying	33 acre	$1,500/acre	$49,500
		Subtotal	$2,916,400
		Contingency (10%)	$291,600
		Total	$3,208,000

ANNUAL LONG TERM CARE COSTS:

Item	Quantity	Unit Cost	Average Cost/Yr(1)

Cover System Maintenance			
Erosion Damage(10%of 48)	4.8 acre	$1,400/acre	$ 6,720
Mowing	1 each	$6,000/each	$ 6,000
Sediment Basin Cleaning(2)	2 each	$600/each	$ 1,200
LEACHATE SYSTEM			
Leachate Disposal	1,314,000 gal	$0.018/gal	$ 23,652
Leachate System O&M	1 each	$4,000/each	$4,000
Leachate line cleaning	1 each	$4,000/each	$4,000
Leachate Pump&Controls(3)	1 each	$3,000/each	$3,000
GAS EXTRACTION SYSTEM			
Operation and Maintenance	1 each	$2,500/each	$2,500
Blower&Flare Replacement(4)	1 each	$2,000/each	$ 2,000
Gas Well Replacement(5)	1 each	$4,200/each	$4,200
Air Monitoring(NSPS)	4 each	$1,600/each	$6,400
OTHER ENVIRONMENTAL MONITORING COSTS			
Groundwater/gas monitoring	1 each	$40,000/each	$40,000
Manhole Inspections	12 each	$50/each	$600
Annual Site Inspection	8 hr	$50/hr	$400
Headwell Inspections	12 each	$200/each	$2,400
		Long-term Subtotal	$ 107,072
		Contingency (10%)	$ 10,707.20
		ANNUAL TOTAL	$117,779.20

40-YEAR LONG-TERM CARE COST $4,711,168

Notes:

1. Annual costs are in 2003 dollars.
2. Sediment ponds 4 and 5 will be cleaned each year. Pond 1 cleaning is included in the Northern Expansion long-term care.
3. Assume one leachate pump with controls will be replaced each year.
4. Assume blower and flare will be replaced once every 20 years (prorated with the existing landfill).
5. Assume three extraction wells will be replaced every five years.

BEFORE THE
STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

CONDITIONAL PLAN OF OPERATION
APPROVAL FOR THE
MALLARD RIDGE LANDFILL SOUTHERN EXPANSION (LICENSE NO. 3244)

FINDINGS OF FACT

The Department finds that:

1. Republic Services of Wisconsin, Limited Partnership (Republic) has proposed to establish and operate a Southern Expansion of the existing Mallard Ridge Recycling and Disposal Facility located in the S 1/2 of the SW 1/4 of the SE 1/4 of Section 4, E 1/2 of the NE 1/4 of the NW 1/4 of Section 9, and the N1/2 of the NW 1/4 of the NE 1/4 of Section 9, T2N, R15E, Town of Darien, Walworth County, Wisconsin.

2. The Department issued a conditional plan of operation approval for the existing Mallard Ridge RDF (License No. 3244) on June 18, 1993.

3. The Department issued a determination of need and feasibility approval for a contiguous expansion to the existing facility on June 25, 2004.

4. On January 12, 2005 the Department received a two-volume Plan of Operation Report with accompanying engineering drawings prepared by RMT, Inc., on behalf of Republic for the landfill expansion.

5. The Department declared the plan of operation complete on July 8, 2004.

6. The Department received the correct review fee of $7,000 for the plan of operation on August 4, 2004.

7. The information submitted to the Department in connection with the Plan of Operation review includes the following:

   a. A report and appendices entitled "Plan of Operation Report-Southern Expansion, Mallard Ridge Recycling and Disposal Facility, Walworth County, Wisconsin, January 2005" and 27 accompanying plan sheets, dated January, 2005.

   b. A letter dated January 24, 2005 regarding revised text for subsection 6.4 Financial Responsibility.

   c. An e-mail memo and letter containing additional information submitted by Republic dated , 2005 regarding the environmental monitoring plan.

   d. A proposal for preliminary construction, submitted by Republic on January 12, 2005, included in the cover letter for the Plan of Operation report and the Department's approval dated February 16, 2005.

e. Revised Long-term Care Costs submitted by Republic dated , 2005.

8. Additional documents considered in the review of the plan of operation include the following:

a. The Department's June 25, 2005 Feasibility Determination.

b. The Department's June 18,1993 plan of operation approval for the Mallard Ridge RDF.

c. Department files for the Republic Mallard Ridge RDF (#3244).

9. Additional facts relevant to the review of the plan of operation include the following:

a. Republic proposed a design with leachate collection cleanout lengths that do not exceed the maximum length specified in NR 504.06(5)(g), Wis. Adm. Code, in all proposed collection pipe locations.

b. Republic proposed a design with leachate collection pipe separation distances that do not exceed those specified in NR 504.06(5)(a), Wis. Adm. Code.

c. The proposed design would be a solid waste landfill that is proposed to accept putrescible waste, practice leachate recirculation, promote waste decomposition and landfill gas production through leachate recirculation, and extract landfill gas at rates that prevent the loss of odors and landfill gas.

d. There is uncertainty in the longevity and survivability of leachate collection pipe materials in solid waste landfills with large depths of fill that impose large overburden stresses on the pipes.

e. The proposed alignments of the leachate collection lines minimizes friction and other impediments to complete insertion of cleanout hoses and video inspection hardware.

f. The potential effects of a landfill on groundwater quality are controlled by use of efficient leachate collection designs, where highly permeable drain layers reduce the head of leachate on the liner and, in consequence, reduce leakage rates though defects in geomembrane components of liners.

g. The potential effects of a landfill on groundwater quality are controlled by reducing leakage through the geomembrane component of a liner to the maximum extent possible. Current technology allows this by detection of leaks at defects in geomembranes. Defects are inevitable in geomembranes due to placement and construction of clay liner, geomembrane, and gravel drain layers.

h. Preliminary construction approval was granted to allow Republic to take advantage of the construction season prior to issuance of the plan of operation approval. Allowable construction items included clearing and grubbing, subgrade

grading, and preliminary surface water controls. The approved items of construction were allowed because the site is already disturbed by previous grading operations and the approved items did not constitute an irrevocable commitment of resources or irrevocable commitment to the proposed design and construction of the landfill.

10. The applicant has greater than 10% interest in the Kestrel Hawk RDF located in the City of Racine, Wisconsin. Republic has provided the Department with proof of financial responsibility for the Kestrel Hawk RDF to ensure the availability of funds to comply with the plan of operation using a method under s. 289.41, Stats.

11. With the exception of the Kestrel Hawk RDF, neither the applicant, nor any person owning a 10% or greater legal or equitable interest in the applicant, or the assets of the applicant:

    a. Is in noncompliance with a plan approval or order issued by the Department for a solid or hazardous waste facility in Wisconsin;
    b. Owns or previously owned a 10% or greater legal or equitable interest in a person, or in the assets of a person, who is not in compliance with a plan approval or order issued by the Department for a solid or hazardous waste facility in Wisconsin.

12. The applicant has demonstrated to the Department that the storm water control requirements for the Mallard Ridge RDF Southern Expansion are at least as stringent as the applicable regulations under sub ch. II of ch. NR 216, Wis. Adm. Code.

13. If the special conditions set forth below are complied with, the proposal will meet the requirements of chs. NR 500-538, Wis. Adm. Code.

CONCLUSIONS OF LAW

1. The Department has authority under s. 289.30, Stats. to approve a plan of operation with special conditions if the conditions are needed to ensure compliance with chs. NR 500 to 538, Wis. Adm. Code.

2. The Department has authority under s. NR 140.28, Wis. Adm. Code, and ss. 160.19(8) to (10), Stats., to grant exemptions to groundwater quality standards and to establish corresponding alternative concentration limits.

3. The Department has authority under s. NR 140.20, Wis. Adm. Code, and s. 160.15(3), Stats., to establish preventive action limits for groundwater indicator parameters at waste disposal facilities.

4. The Department has authority under NR 500.08(4), Wis. Adm. Code, to approve exemptions to the requirements of chs. NR 500 to 590, Wis. Adm. Code in special cases except as otherwise provided

5. The conditions of approval set forth below are needed to ensure compliance with chs. NR 500 to 538, Wis. Adm. Code.

6. In accordance with the foregoing, the Department has the authority under ch. 289, Stats., to issue the following conditional approval.

GRANT OF EXEMPTION

1. An exemption is granted to the requirements of s. NR 140.28, Wis. Adm. Code for certain groundwater monitoring parameters as specifically indicated in the groundwater monitoring and sampling requirements of this Plan of Operation Approval.

CONDITIONAL PLAN OF OPERATION APPROVAL

The Department hereby approves the Plan of Operation for the Republic Mallard Ridge RDF Southern Expansion subject to compliance with chs. NR 500-538, Wis. Adm. Code, and the following conditions:

General

1. All aspects of construction and operation of the landfill shall be performed in accordance with the plan of operation, the requirements of chs. NR 500 to 538, Wis. Adm. Code, and the conditions of the approval. In the case of any discrepancies between the approval conditions and the plan of operation, the approval conditions shall take precedence.

2. Any proposed changes to the plan or this approval shall be presented to the Department. If the changes are compatible with the desired performance of this landfill, as determined by the Department, an addendum will be added to this approval to indicate acceptance of those changes. Written Department approval is necessary prior to implementing any changes with the exception of minor field modifications that are documented in accordance with NR 516.04(3)(d), Wis. Adm. Code. All field modifications shall be discussed with the Department prior to implementation. Other changes may be handled as expedited plan modifications under s. NR 514.09, Wis. Adm. Code as appropriate.

3. The following conditions were issued as part of previous approvals pertinent to Mallard Ridge RDF and are included herein as active to this Plan of Operation:

    a. Regarding the Special Waste Plan:
        i. Republic has prepared a Special Waste Plan Modification, dated July 8, 2004, and is provided in Appendix R of the Plan of Operation;
        ii. Special Waste Plan Modification dated May 22, 2003 describing the use of shredder fluff as alternative daily cover;
        iii. Plan of Operation approval dated June 18,1993 regarding foundry wastes and foundry system sands; and

iii. Special Waste Plan Modification dated August 6, 2002 describing the use of gypsum waste as alternative daily cover.

b. Regarding Construction and Environmental Monitoring:
   i. Plan Modification approval dated March 20, 2002 regarding the use of Geosynthetic Clay Liner as alternative to Compacted Clay Liner in final cover construction;
   ii. Plan Modification dated May 18,1995 regarding savanna restoration;
   iii. Plan of Operation dated June 18, 1993 regarding supplemental or synthetic daily cover; and
   iv. Attachment #1 to this Plan of Operation summarizes the status of conditions previously issued in the Mallard Ridge Feasibility Determination and Plan of Operation approval.

4. The constructed design capacity for this landfill shall comply with the design capacity of 8,094,000 cubic yards specified in the feasibility determination for this landfill, dated June 25, 2004. Base grades and waste final grades shall be adjusted as needed to assure that constructed design capacity conforms to approved design capacity. Revised plans with amended base grades or final grades shall be submitted to the Department no later than date of submittal of the Phase 1 construction documentation.

Operations

5. Alternate daily cover material shall not be used as daily cover or interim cover on exterior side slopes or final grades and shall not contain free liquids.

6. All pumps and flow recording devices shall be tested and maintained to ensure that leachate is pumped out of the landfill continuously and the reported flows are accurate. The pump run time meters shall be calibrated annually.

7. In case of malfunction of leachate extraction pump, the pump shall be made operational or replaced within two days of detecting the malfunction.

8. All manholes shall be inspected quarterly for the presence of liquid. Liquids found shall be pumped out and treated as leachate. The source of the liquid shall be determined and repairs completed to inhibit liquid accumulation in the manholes.

9. Republic shall remove accumulated sediment from behind silt fences, and make necessary repairs to the fencing, as soon as practicable after each storm event.

DESIGN

10. The construction and documentation of the liner and leachate collection systems shall be revised to include the following:

    a. The granular drainage layer shall be extended up the entire sideslope length during construction of each liner construction phase.

b. Material used for the 1 foot granular drainage layer shall meet or exceed a hydraulic conductivity of 1 cm/sec.

c. Pipe bedding material shall be composed of coarse, uniform gravel with a hydraulic conductivity that is greater than or equal to the hydraulic conductivity of the leachate collection blanket.

d. The maximum anticipated construction, operation and post-closure overburden loads over the leachate collection piping shall be calculated and utilized in selecting the pipe material and wall thickness, based on 6-inch pipe diameter and an appropriate in-field consolidated density. Calculations and specifications for selected pipe material shall be submitted with the preconstruction report for each liner phase.

e. Leachate collection piping shall include sweep bends at all changes of alignment, using a minimum radius of 10 pipe diameters.

f. The construction documentation of liner phase 1 shall include a plan for the maintenance of transducers used in the leachate headwells and leachate collection sumps. The plan shall include details for verifying calibration of the transducers at periodic intervals, based on manufacturers' recommendations and operator experience, and repair or replacement as needed.

11. Final cover design shall include the following:

a. A stockpiling plan for soil barrier layer soil, foundry sand, and treated biosoils shall be developed and submitted to the Department for review and approval. The stockpiling plan shall include directions on maintaining soil, foundry sand, and biosoils in a manner that allows correlation between soil index properties and compaction properties and each segregated mass of soil. The stockpiling plan shall include details of lined storage plans and controls for contaminated runoff or shall provide justification for storing solid wastes in an unlined storage pad.

b. Foundry sand proposed for use as clay replacement or in a soil barrier layer shall meet specifications of:

Bentonite content greater than 6% by dry weight
PI greater than 3
LL greater than 20

c. Republic proposes to use a final cover design that includes a geosynthetic clay liner (GCL) component for the Southern Expansion. Construction of any final cover phase shall not commence until after Department review and approval of a submittal that specifies GCL properties and acceptable shear strength. The submittal shall include reference to any Department code requirements or guidance when proposing specific requirement for materials or construction of the final cover using GCLs.

d. The preconstruction report required by NR 516.04(5), Wis. Adm. Code, for any final cover phase shall include a hydraulic analysis of the geocomposite drain. The analysis shall include use of specific properties of the geocomposite drain product selected for use, including flow capacity after long-term compression and application of suitable reduction factors. Acceptable geocomposite drain products and flow lengths shall contain the maximum head within the drain thickness. Drain calculations shall include infiltration rates based on soil characteristics and a vertical hydraulic gradient through the rooting zone soils of one. Drain calculations shall assess the effect on maximum head in previously installed downslope phases of the final cover and the use of discharge features which subdivide drain lengths.

12. In the event leachate recirculation is proposed for the Mallard Ridge RDF, a detailed leachate recirculation plan shall be submitted to the Department for review and approval. The plan will be submittedd prior to implementation of leachate recirculation practices and shall include, at a minimum:

a. A narrative which explains the design rationale for the proposed system. The design rationale shall address the leachate loading rate; distribution frequency; leachate distribution system including well or pipe spacing and placement, well or pipe length, screened interval, sealing material and bedding material; anticipated flow characteristics; and restricted areas where leachate will not be recirculated.

b. Plan sheets to show the conceptual layout of the leachate recirculation distribution system and design details.

c. Calculations of proposed loading rates. Proposed loading rates for leachate recirculation shall be calculated for each leachate drainage basin. Calculation methods shall be defined so that supplemental calculations can be performed to accommodate changes due to field observations, waste characteristics, weather, and other factors. Factors to be addressed shall include recirculated volumes of leachate, precipitation based on local records and on-site data, field capacities and absorptive capacities of the landfilled waste, waste filling rates, separation distances and elevations of distribution piping or wells, and loss of water by waste decomposition processes and water vapor in landfill gas.

d. Calculation of effects on flow rates in the leachate collection system and maximum leachate head on the liner. The location of leachate head level monitoring devices relative to the collection pipes and base grade slope lengths shall be used to determine the maximum leachate head in the facility. Proposed loading rates for leachate recirculation shall be determined which limit maximum leachate head on the liner to 12 inches.

e. An operational plan which addresses the following: daily operations; how leachate seeps, odors and build-up will be prevented or contained and actions to be taken if nuisance conditions occur; how any enhanced methane production will be managed by gas extraction systems; and care and maintenance of the tanks, pumps and distribution systems.

f. A description of warning symptoms and failure thresholds which will be used to initiate investigation, stand-by, termination, and changes to the leachate recirculation system. Warning symptoms shall result in a reduction or suspension of leachate recirculation, investigation, and changes to be implemented before resuming leachate recirculation. Failure thresholds shall result in termination of leachate recirculation, investigation, and changes that will be submitted to the department for review and approval prior to resumption of leachate recirculation.

g. A monitoring plan which tracks volumes of leachate extracted and recirculated and volumes of precipitation for the entire site; leachate heads on the liner; gas volumes; and leachate characteristics. The monitoring plan shall propose parameters and frequencies for monitoring of leachate from cells subject to leachate recirculation.

h. A plan which specifies documentation and record-keeping of the construction, operation and monitoring of the leachate recirculation system. This plan shall specify the information that will be sent to the department and the frequency of those submittals.

Landfill gas extraction details, including diagrams and narrative concerning gas extraction equipment, fittings, and devices to be used to extract gas produced as a result of leachate recirculation.

Construction

13. The potential effect of primary and secondary settlement of subsoils on the design slope of leachate collection lines in Phases 2 to 4 of liner construction shall be evaluated. The evaluation shall include:

    a. A minimum of one boring in the area of Phases 2 to 4 drilled to physically characterize subbase conditions for landfill foundation assessment of stability and settlement. Boring shall be extended to a minimum of 50 feet below proposed subbase grades or to competent bedrock, whichever is shallower. Samples shall be taken at each significant soil layer.

    b. A minimum of one consolidation test for each major soil type in the subgrade.

    c. Computation of 100% of the primary consolidation settlement and the secondary consolidation settlement of each major soil type and the compacted clay liner. Secondary settlement shall be calculated using a 100-year time frame.

14. Liner construction documentation reports shall document leachate collection pipe installation, to include the following information, at a minimum:

    a. Observations of collection trench and leachate collection pipe installation. Observations shall verify that collection pipe is handled and placed in a manner that prevents holes from being blocked by mud and that assures that holes are located 45 degrees from the springline. Records shall note any changes in alignment of collection trenches or leachate collection pipes and construction methods which produce obstructions or interference with pipe cleaning

equipment. Specifications of pipe, specialty fittings, and sweep bends installed in construction shall be included in tables or appendices to reports. Documentation of sweep bends shall include the fabricated or field-achieved radius of bend and conformance with minimum radii of bend specified by approved plans or required by the department's plan approval. Reports shall describe methods used to provide support and cover for collection pipe, specialty fittings and sweep bends.

b. Documentation of the presence of registered engineers or qualified technicians providing quality assurance monitoring during all aspects of installation of leachate collection pipe and pipe bedding and placement of aggregate cover over the pipe.

15. A minimum of one hydraulic conductivity test shall be performed on samples of drainage media used for the leachate collection blanket and for the leachate collection trench backfill. The test procedure and any adaptations used to accommodate high-capacity drainage material shall be identified.

16. A construction quality assurance plan for locating leaks in installed geomembrane shall be implemented in each phase of liner construction. The quality assurance plan shall include continuous observation of all aspects of the geomembrane integrity testing by qualified professional engineers or technicians. The quality assurance plan shall include use of nondestructive methods to detect, locate, and verify repairs of defects in geomembrane. The quality assurance plan may include electrical resistivity testing or other testing methods acceptable to the department. Documentation of the testing method shall include description of the procedures and photo documentation. Documentation of all detected defects and repairs shall include the testing data for geomembrane sheet and welding and photo documentation of each defect prior to and after repairs.

17. Cleaning of leachate collection lines shall comply with the following requirements as well as the requirements of NR 506.07(5)(c), Wis. Adm. Code:

a. Leachate collection lines shall be cleaned with water jet cleanout devices initially after placement of the leachate drain layer and annually thereafter.

b. Pipe cleaning procedures shall be used to insert cleanout devices from each access point to, at a minimum, the toe of the opposite sideslope. Pipe cleaning procedures shall be conducted so that debris in the pipe is conveyed to sediment traps.

c. A video camera inspection shall be conducted on all leachate collection pipes where problems are encountered in order to assess corrective actions.

d. A summary report shall be submitted with the annual report for the site after each pipe cleaning and video camera inspection event. The report shall summarize any specialty equipment or chemicals used in collection pipe cleaning. The report shall include a description of all observations, including selected still picture views from the video camera inspection. The report shall summarize the investigation of blockages or other difficulties in cleaning pipes. The report shall

propose remediation if the leachate collection pipes are not restored to function and blockages are not cleared.

18. For each phase of construction, temporary phase delineation barriers, containment berms, rain flaps or other techniques proposed to separate waste, waste contact water and leachate in developed areas from undeveloped areas shall be documented in the construction documentation reports.

19. The gas extraction system shall be installed and made operational prior to initiating final cover construction. The gas header pipe located below the final cover may be considered temporary before the permanent header system is built as shown in the plan of operation engineering drawings. Any modifications need to be made so that the gas extraction system can be installed prior to final cover construction shall be submitted to the Department 30 days prior to installing the initial phase of the gas collection system.

20. Republic shall notify the Department's environmental engineer assigned to this site a minimum of one week prior to beginning each of the construction events listed below for the purpose of allowing the Department to inspect the work. A fee shall be paid to the Department for each required inspection in accordance with s. NR 520.04(5), Wis. Adm. Code. The inspection fees shall be paid at the time the construction documentation review fee is submitted to the Department.

Liner Construction Events

a. Clay placement

b. Geomembrane deployment and seaming

c. Sump construction/side slope riser placement

d. Drainage blanket placement/leachate line installation

Final Cover Construction Events

e. Soil barrier layer placement

f. Geomembrane and GCL installation/seaming

g. Geonet/geotextile composite drainage layer

h. Root zone and topsoil placement

Gas System Construction Events

i. Gas extraction well placement

j. Gas header pipe installation

k. Knock-out and straw drain installation and connection to cleanout

21. Final cover placement may be delayed up to two years after attaining final waste grades in each phase of closure provided that the requirements of s. NR 514.07(3), Wis. Adm. Code are met. At no time shall the waste grades exceed the approved final waste grades for this facility.

22. Republic shall vegetate all exposed soil areas and soil stock piles as soon as practical in order to reduce exposed soil areas and the potential for stray dust.

Environmental Monitoring

23. Environmental monitoring during both the active and the post-closure long term-care periods shall be performed in accordance with Tables 1 through 5 of the attached project summary document, and the requirements of chs. NR 500 to 526 and ch. NR 140, Wis. Adm. Code, plus air quality monitoring performed in accordance with the appropriate Department permit. This monitoring program shall supersede environmental monitoring programs described in previous approvals for monitoring at site license number 03244. These monitoring requirements shall remain in effect until such time as the Department changes or amends this schedule through a plan modification.

24. The following alternative concentration limits (ACL) shall apply to the ground water quality standard exemptions granted in the Department's June 25, 2004 feasibility determination for this facility. Ground water quality standards presented in ch. NR 140, Wis. Adm. Code shall remain in effect for all parameters of public health or welfare concern unless an ACL is established by the Department for a specific parameter at a specific monitoring well.

Parameter – Units (DNR ID Number)	Well Name	DNR ID#	ACL
Manganese - ug/L (01056)	MW-202A	314	93
Nitrate + Nitrite as N (00631) - mg/L	MW-202	313	6.4
	MW-203	316	7.0
	MW-204	317	7.3
	W-8A	315	5.1
	MW-150	262	7.5
	MW-161	116	6.6
	W-7R	250	6.7
	W-8R	271	6.7
	W-41R	301	6.1

25. The following preventive action limits (PALs) shall apply to the ground water indicator parameters at the specified monitoring wells in the routine ground water monitoring program.

Well Name	DNR Well ID#	Alkalinity mg/L (39036)	Hardness mg/L (22413)	Sodium mg/L (00930)	Field Conductivity umhos/cm@25C (00094)
MW-202	313	460	500	24	1,100
MW-202A	314	450	520	14	980
W-8A	315	470	520	18	1,000
MW-203	316	460	500	16	930
MW-204	317	440	490	17	840

26. Future gas probe GP-17 shall be relocated from its currently proposed location on Plan Sheet 12 to a new location no further than 200 feet from the limits of waste and no further than 150 feet from monitoring well nest MW-202/202A.

27. Republic shall provide all environmental monitoring data required in attached Tables 1 through 5 of the attached project summary document in an electronic format specified by the Department.

Inspection and Reporting

28. Republic shall submit an annual report to the Department no later than April 30th of each year that summarizes the following activities from the previous calendar year:

    a. Special waste disposal activities; the report shall contain at a minimum the following:

        i. The total volume for each special waste category accepted for disposal.

        ii. A list of all special wastes approved for disposal.

        iii. A list of wastes not approved for disposal.

        iv. Any problems encountered during the calendar year with the disposal of special wastes.

    b. Leachate collection line cleaning.

    c. The inspection of the secondary containment manholes.

    d. Leachate headwell transducer maintenance, calibration and replacement.

29. Republic shall include, as part of the landfill operating record required by s. NR 506.17, Wis. Adm. Code, the following information:

    a. Quarterly visual inspections of stormwater discharge documentation.

    b. Special waste disposal records.

    c. Alternate daily cover records.

30. For the first two years after construction, Republic shall submit to the Department the quarterly visual inspection documentation of the storm water discharge from the previous calendar year along with the annual report.

Financial Responsibility and Long Term Care

31. Revised proof of financial responsibility for closure and long term care shall be provided with the construction documentation of Phase 1 liner, in accordance with ch. NR 520, Wis. Adm. Code. The proof of financial responsibility shall be established based upon the approved costs contained in the attached summary document.

32. Revised closure costs shall be submitted to the Department for review and approval no later than the date of submittal of the construction documentation for liner Phase 1. The revised costs shall assume the use of soil borrow sources off of the Republic property. The revised costs shall be based on documentation for costs of purchase, transport, and installation of soils and geosynthetics under the assumption that the Department would have to contract for premature closure of the Mallard Ridge Southern Expansion.

33. Republic shall continue to collect and treat leachate and landfill gas as they are produced until otherwise directed by the Department in writing.

34. Republic, as owner of the Mallard Ridge RDF, is responsible for its closure, for any remedial activities required by the Department, and for its perpetual long-term care.

The Department retains the jurisdiction either to require the submittal of additional information or to modify this approval at any time if, in the Department's opinion, conditions warrant further modifications. Unless specifically noted, the conditions of this approval do not supersede or replace any previous conditions of approval for this facility.

NOTICE OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed.

For judicial review of a decision pursuant to ss. 227.52 and 227.53, Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent.

Dated: _____

DEPARTMENT OF NATURAL RESOURCES
For the Secretary,

_____
Franklin C. Schultz
Waste Management Team Supervisor
Southeast Region

_____
Robert P. Grosch, P.E.
Waste Management Engineer
Southeast Region

_____
Philip Fauble, P.G.
Waste Management Hydrogeologist
Southeast Region

_____
Kenneth Hein
Waste Management Specialist
Southeast Region

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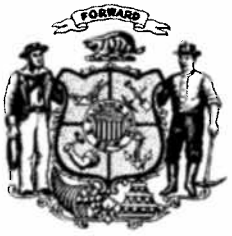

April 27, 2005

TO: Chairman Gunderson and the Members of the Assembly Natural Resources Committee

FR: Mike Ettner on behalf of Republic Services, Inc. and Lynn Morgan
on behalf of Waste Management

RE: Landfill Design and Operation Rule/CR 04-077

Thank you for the opportunity to testify on behalf of our waste service companies and the thousands of communities, homes and businesses we serve throughout Wisconsin. On behalf of those interests, we respectfully request that you delay promulgation of this rule to allow exploration of two recent developments.

Under Suzanne Bangert's leadership, DNR undertook one of the most intensive, collaborative and principle-driven rulemakings in recent memory, working for nearly three years with multiple committees of interested parties. Our companies devoted thousands of hours to that effort. The resulting rule contained many compromises, but they were compromises we could live with.

Two new developments, though, have created uncertainty about the scope and impact of the rule. First, in adopting this rule the Natural Resources Board directed DNR to fast-track changes to rules requiring landfills to show proof of financial resources to care for their sites. While the directive appeared tied to this rule, the scope and intent of that new rulemaking are unknown. It is also

unclear how that directive relates to DNR's intent to undertake a broad and detailed review of financial assurance, a review in which we have committed to assisting and participating. Until a committee to fulfill the DNR Board's financial assurance directive is appointed and develops a work plan, that picture will be incomplete.

Second, following the public hearing certain technical requirements for the maintenance and inspection of piping within landfills were expanded to cover all sites, not just those electing to install longer lines. Because the expanded provision was not subject to hearing, the many companies and counties affected have not had an opportunity to discuss its practicality, expense and benefits with the agency.

Thank you for your time and consideration.

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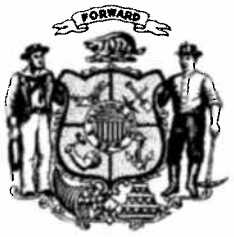


Testimony
of
Suzanne Bangert, Director
Wisconsin Department of Natural Resources
Bureau of Waste Management
Before the
Senate Committee on Natural Resources and Transportation
CR 04-077

Thursday, May 26, 2005

Mr. Chairman and members of the committee, thank you for the opportunity to testify today in support of Clearinghouse Rule 04-077 which relates to landfilling of solid waste. My name is Suzanne Bangert, and I am the Director of the Bureau of Waste Management at the Department of Natural Resources (the DNR).

The rule revisions before you represent needed updates to technical standards for designing and operating landfills in Wisconsin.

The key elements of these rule revisions include:

- increasing the allowable maximum length of the pipes that collect leachate from the bottom of the landfill from 1200 feet to 2000 feet;
- updating and strengthening the technical specifications for the leachate collection system and other engineered systems, leachate handling techniques, landfill construction practices and quality control; and
- instituting an important shift in landfill practices away from perpetual "dry-tomb" storage of biologically undecomposed waste, toward landfills that reach biologic stability much more quickly.

I'd like to provide a little more explanation about each of these three aspects of the rule revisions.

Longer leachate lines will allow for larger landfills to be designed and built, although they do not necessarily mean that all landfills will be built larger. These designs will allow operators to take advantage of economies of scale to reduce costs. They will also allow more efficient and creative use of existing infrastructure at existing sites, potentially decreasing the number of new

landfills that have to be built in the state. This will result in improved efficiencies in land use in Wisconsin.

The upgraded technical standards are needed to ensure that Wisconsin's landfills continue to protect the environment and public health. Wisconsin has been a leader in landfill design standards. Our standards served as the model for the federal landfill standards in the past. These revisions reflect advances in landfill technologies and industry practices since the rules were last revised 10 years ago. They should be in place even in the absence of any other changes to landfill regulations.

Finally, in conjunction with the waste management industry and academia, we are turning increased attention to the problem of undecomposed organic wastes in landfills. The industry has been very successful in reducing landfills' environmental impacts by using modern liners and covers to isolate wastes – so successful, in fact, that the industry refers to its facilities as "dry tombs." The problem with dry tomb landfills is that the organic wastes in them remain largely undecomposed. They represent a continuing and large potential source of methane gas, as well as a potential source of groundwater pollutants. The dry tomb approach exacerbates the need for long-term management of these problems and represents a long-term financial liability to the waste management industry, and potentially to the public. To address this issue, the rule revisions include a requirement that landfill owners implement a plan for biological waste stabilization of their landfills to reduce these risks and potential liabilities. This might include diverting organic wastes to more productive uses such as composting for landscaping or agriculture; it might include stabilizing the waste before it is landfilled; or increasing the rate at which landfilled organic waste is decomposed within the landfill. The rule revisions also include provisions for the controlled addition of liquids to landfills as a means of accelerating the stabilization of these wastes.

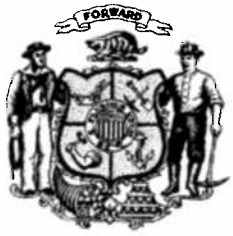
One element that is not in this rule is a change to landfill owner financial responsibility, either for long-term care or for future remediation. Discussions with stakeholders in this area did not result in clear identification of the need or agreed upon approaches to this issue. Currently by law, landfill owners are responsible for any long-term care and remediation for their site. They are required to put in place a financial instrument that assures routine care and maintenance of

their landfill for 40 years after closure. This is 10 years more than the national standard set by the U.S. Environmental Protection Agency. Furthermore, even though they do not have to demonstrate financial assurance beyond the 40 years, landfill owners are responsible for any long-term care and remediation of their site in perpetuity. They are required to establish remedial financial assurance, if it becomes necessary. Since financial responsibility is important, we will continue to discuss with stakeholders how it is appropriately addressed.

We believe that taken as a whole, these rule changes signify an important step forward in the management of solid wastes in Wisconsin by improving efficiencies in land use, improving business efficiencies and saving money, ensuring continued environmental and public health protections and reducing environmental and financial risks to future generations. I'd be happy to answer any questions you might have.

Thank you.

WISCONSIN STATE LEGISLATURE



WASTE MANAGEMENT

To: Chairman Neal Kedzie and the Members of the Senate Natural Resources and Transportation Committee.

From: Waste Management, Inc.

Date: May 26, 2005

Re: Landfill Design and Operation Rules—CR 04-077

Thank you Chairman Kedzie and Members, for holding a public hearing on this very important administrative rule. We appreciate the opportunity to let you know of our initial concerns regarding this rule and the positive steps DNR has taken to address those concerns in recent weeks.

Under Suzanne Bangert's leadership, DNR undertook one of the most intensive, collaborative and principle-driven rulemakings in recent memory, working for nearly three years with multiple committees of interested parties. Our company devoted thousands of hours to that effort. The resulting rule contained many compromises with which we could live.

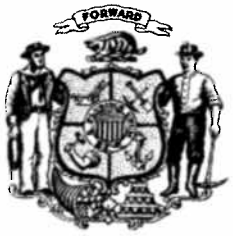
After our work was completed, though, two developments created uncertainty about the scope and impact of the rule. First, in adopting this rule the Natural Resources Board directed DNR to fast-track changes to rules requiring landfills to show proof of financial resources to care for their sites by February, 2006. While the directive appeared tied to this rule, the scope and intent of that new rulemaking was unknown. It was also unclear how that directive related to DNR's intent to undertake a complete review of financial assurance, a review to which we have committed.

Second, following the public hearing certain technical requirements for maintenance and inspection of piping within landfills were expanded to cover all sites, not just those electing to install longer lines. Because the expanded provision was not subject to hearing, the companies and counties affected have not had an opportunity to discuss its practicality, expense and benefits with the agency.

We believe that both concerns can and will be addressed separately from the rule before you today, and we respectfully request that you allow the rule to advance. The Department has provided assurances that it will seek a complete discussion of financial assurance issues, and has committed to developing mutually satisfactory guidance for the implementation of the technical requirements regarding landfill piping.

We would like to once again thank the Committee for holding this hearing and for listening to our concerns. Your oversight has spurred all parties to seek beneficial resolution to these issues.

WISCONSIN STATE LEGISLATURE



Clearinghouse Rule 04-077
Landfill Design & Operation

Rule Summary:

- Allow pipes of up to 2,000' to collect landfill liquids, now limited to 1,200'. Longer lines were allowed prior to 1996 and have been granted through waivers.
- Set conditions for projects that circulate landfill liquids back into the waste.
- Require landfill operators to speed up or manage break down of wastes so that sites stabilize sooner.
- Set standards for research & development projects.

Unresolved Issues:

- **Inadequate public hearing**. Post-hearing rule changes expanded costly new requirements to cover more sites, without giving the operators of those sites the opportunity to comment. The hearing draft mandated video camera inspection and full-length cleaning of landfill pipes longer than 1,200'. The final rule applies those requirements to all sites but has never been subjected to public hearing (NR 506.07 (5)).

- **Waste stabilization plans vague**. The rule requires landfills to submit plans by January, 2007 "for significantly reducing the amount of degradable organic material remaining after site closure." No further detail is provided. DNR intends to offer a rule regarding plan content, enforcement, and evaluation by February, 2006 (NR 514.07(9).

- **Costly and redundant landfill liner testing**. Adds a requirement for an unproven method of searching for liner defects that has not been proven to have benefits commensurate with its significant cost (NR 514.07(1)(l), NR 516.07 (2)(d).