

PROJECT SUMMARY AND ENVIRONMENTAL ANALYSIS OF THE PROPOSED SEVEN MILE CREEK LANDFILL – SECTOR 2 NORTHEAST EXPANSION

Proposed Facility: Advanced Disposal Services – Seven Mile Creek Landfill, LLC
Sector 2 Northeast Expansion, License No. 3097, Facility Identification Number (FID #) 618045450

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Site Location, Acreage, Capacity, Site Life and Access

Advanced Disposal Services (ADS) has submitted a Feasibility Report for a proposed 4,130,000 cubic yard landfill expansion (proposed expansion) at the Seven Mile Creek Landfill (SMCL) – Sector 2, License No. 3097 (existing landfill). The proposed expansion, if approved, would be located in the SE ¼ of Section 8 and SW ¼ of Section 9, Township 27 North, Range 8 West in the City of Eau Claire and Town of Seymour, Eau Claire County, Wisconsin. The address for the expansion is 8001 Olson Drive, Eau Claire, WI 54703.

The proposed expansion would add approximately 12.5 acres laterally and 22 acres overlaying the existing landfill footprint. The combined disposal area would occupy approximately 34.5 acres of the 331.2-acre parcel owned by ADS. The proposed expansion area is a former forest area.

The design capacity for the proposed expansion is approximately 4,130,000 cubic yards, including refuse, daily cover and intermediate cover. This capacity is estimated to provide approximately 7 years of site life. The existing landfill's approved capacity is 10,562,389 cubic yards and the combined capacity of the existing landfill and the expansion would be 14,692,389 cubic yards.

The entrance to the proposed expansion would be the same as the existing landfill via CTH Q (Olson Drive) and access to the facility would continue to be controlled by an access gate at the entrance that is open only during hours of operation. Access would also be restricted to the facility by existing fencing and natural barriers.

Primary Service Area

The proposed expansion would continue to accept waste from all or part of the following Wisconsin counties: Buffalo, Chippewa, Dunn, Eau Claire, Jackson, Pepin, Pierce, Polk, St. Croix and Trempealeau, and all or parts of the Minnesota counties of Anoka, Dakota, Goodhue, Hennepin, Olmsted, Ramsey, Wabasha, Washington, or

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Winona. Some additional waste may originate from municipalities outside of the above listed counties or portions of counties on a case-by-case basis.

Proposed Waste Types and Leachate Characteristics

The proposed expansion would accept all waste types currently approved for the existing landfill, municipal solid waste (MSW), construction and demolition debris (C&D), and approved non-hazardous special waste (industrial waste, contaminated soil, shredder fluff, etc.). Hazardous waste, as defined in s. NR 661.03, Wisconsin Administrative Code (Wis. Adm. Code), would not be accepted.

MSW – 65% of total anticipated waste

C&D & Special Waste – 35% of total anticipated waste

The proposed expansion mirrors existing construction phasing, filling operations and waste types. Consequently, leachate resulting from waste placement is anticipated to be similar in chemical composition and concentration to the existing landfill. Leachate generated from the existing landfill is hauled off-site for treatment at the cities of Eau Claire, Chippewa Falls, Rice Lake and Menomonie Wastewater Treatment Plants. Additionally, ADS SMCL is allowed to recirculate leachate generated by the Sector 2 Landfill and external sources by means of a Research Development and Demonstration Plan, which is currently being reviewed by the department for renewal. Leachate has not been recirculated at the Sector 2 Landfill from 2014 through 2018.

Authorities/ Approvals

The following approvals and permits are required for the proposed expansion:

- Favorable feasibility determination under ch. NR 512, Wis. Adm. Code
- Plan of Operation Approval under ch. NR 514, Wis. Adm. Code
- Construction Documentation Approval under ch. NR 516, Wis. Adm. Code
- Air Permit(s) under NR 400, Wis. Adm. Code Series (Operating and Construction)
- Local Negotiated Agreements with all participating affected municipalities and compliance with all applicable local rules and approvals. This process is independent from the WDNR plan review process

Administrative Code Exemptions Requested

ADS has requested exemptions from the following Wisconsin administrative code requirements as discussed herein:

Stormwater Management Design

NR 151 and WDNR Conservation Practice Standard 1001: Wet Detention Pond (Technical Standard 1001). ADS has requested an exemption from the permanent pool requirement of the wet detention pond standard. A deviation from the technical standard is not considered an exemption.

Private Water Supply Wells

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An exemption from s. NR 504.04(3)(f), Wis. Adm. Code, is requested. The proposed expansion and the existing Sector 2 footprint are within 1,200 feet of 28 private water supply wells. Advanced Disposal Services requests that the existing NR 504 exemptions granted for 26 private wells be renewed for the proposed expansion. Additionally, an exemption is requested from NR 504.04(3)(f) to allow the proposed expansion footprint to extend within 1,200 feet of two remaining private water supply wells.

Clay Liner Separation Distance from Bedrock

An exemption from s. NR 504.06(2)(c), Wis. Adm. Code, is requested from NR 504.06(2)(c) to allow the proposed expansion liner to be constructed within the 10-foot separation distance to the underlying bedrock surface in some areas.

Minimum Thickness of Clay Liner

An exemption from s. NR 504.06(1)(a), 504.06(2)(e), and 504.06(7), Wis. Adm. Code, is requested from NR 504.06(1)(a) and NR 504.06(2)(e) to allow the proposed expansion horizontal footprint to be constructed using an alternative composite liner system that would consist of two-feet of clay meeting the requirements of NR 504.06(2)(a) with a Geosynthetic Clay Liner (GCL) component.

Clay Liner Separation Distance from Groundwater Table

An exemption from s. NR 504.06(2)(b), Wis. Adm. Code, is requested from NR 504.06(2)(b) to allow a small portion of the existing Sector 2 Landfill liner to be situated within the 10-foot separation distance to the underlying groundwater table surface. Water levels during June 2019 reached historical high levels at SMCL. As a result, the water table appears to have encroached within the 10-foot separation to the subbase liner in the southeast corner of the Sector 2 Landfill. Since the liner in this area is constructed and the landfill filled in this area, no further action is warranted or possible at this time.

Baseline Sampling of New Groundwater Monitoring Wells

An exemption from s. NR 140.28, Wis. Adm. Code, is requested from the Groundwater Quality Standards in NR 140.28, Wis. Adm. Code, based on the results of the first four rounds of baseline groundwater sampling.

- An exemption to NR 140.28(3)(a) is requested for nitrate plus nitrite, as nitrogen (nitrate+nitrite) in samples collected.
- An exemption to NR 140.28(3)(a) and NR140.28(4)(a) is requested for manganese in samples collected.
- An exemption to NR 140.28(3)(b) is requested for cadmium in samples collected.

Existing Groundwater Monitoring Wells

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An exemption from s. NR 140.28 and/or NR 504.04(4)(d), Wis. Adm. Code, is requested from the Groundwater Quality Standards in NR 140.28 (3) and (4), to allow construction of a landfill expansion in an area where the PAL or ES has been attained or exceeded.

Alternate Geotechnical Investigation Program (AGIP)

The following are exemptions requested as part of the Alternate Geotechnical Investigation Program (AGIP) for the proposed expansion that was submitted to the WDNR on October 23, 2018 and accepted by the WDNR on February 4, 2019:

An exemption from s. NR 512.09(1) and NR 512.09(2), Wis. Adm. Code, is requested to utilize existing borings and wells (Table 2 of the AGIP) and to reduce the number of required new borings, water table wells, and piezometers.

An exemption from s. NR 512.09(1)(b), Wis. Adm. Code, is requested to the requirement that borings located outside the limits of waste filling, extend a minimum 25 feet below the anticipated elevation of the bottom of the proposed liner (subbase) nearest to the borehole.

An exemption from s. NR 512.09(4)(e), Wis. Adm. Code, is requested to the requirement to perform quarterly water level measurements following the monthly water level measurements for a 6-month period.

An exemption from s. NR 507.05(1)(e), Wis. Adm. Code, is requested for the requirement to retain soil samples until the WDNR approves the report that included documentation of the soil samples.

An exemption from s. NR 507.06(1)(b) and NR 512.09(1)(d), Wis. Adm. Code, is requested to the requirement that soil samples are collected and standard penetration tests (SPTs) are conducted during installation of six wells/piezometers.

An exemption from s. NR 507.14(4), Wis. Adm. Code, is requested to the requirement for submission of well abandonment documentation for monitoring wells.

An exemption from s. NR 507.14(5), Wis. Adm. Code, is requested to the requirement for submission of information on the most current version of WDNR forms.

Previously Granted Administrative Code Locational Exemptions Requested:

An exemption from s. NR 504.04(3)(d), Wis. Adm. Code, is requested that all exemptions in place for the existing Sector 2 Landfill be renewed for the proposed expansion. The Eau Claire County Tower Ridge Recreational Area is located within 1,000 feet of the southeast corner of the existing waste footprint of Sector 2 but was previously shown to not be visible from the recreation area. Line of sight drawings from the Tower Ridge Recreational Area to the landfill were provided in the 2014 Feasibility Report Addendum No. 1. The footprint of the proposed expansion is greater than 1,000 feet from the Tower Recreation Area however the southeast corner of Sector 2 Landfill is within 1,000 feet of the Recreation Area. An exemption to the restriction of the construction of a landfill within 1,000 feet of a public park or recreational area, unless the landfill is screened by

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natural objects, plantings, fences or other appropriate means so that it is not visible from the park was granted in the Feasibility Report approval letter dated September 30, 2015.

An exemption from s. NR 504.06(2)(c), Wis. Adm. Code, is requested that all exemptions in place for the existing Sector 2 Landfill be renewed for the proposed expansion. An exemption was granted in the September 30, 2015 feasibility determination for the Sector 2 Vertical Expansion to allow the Sector 2 liner to be constructed within the 10-foot separation distance to the underlying competent bedrock surface.

An exemption from s. NR 512.11(1)(b), Wis. Adm. Code, is requested to continue allowing the data presentation of the Ordinary High-Water Mark delineation for Seven Mile Creek to show only the critical locations within 1,500-feet of the limits of waste and not of all points within the radius of the limits of waste. An exemption was granted in the September 30, 2015 feasibility determination for the Sector 2 Vertical Expansion to allow this exemption.

Wetlands

There are no wetlands directly impacted by the proposed expansion and there are no measurable indirect impacts to surrounding wetlands anticipated. There are no direct discharge points to nearby wetlands from the surface water control system.

Surface Waters

No navigable rivers or streams are within 300 feet of the currently permitted Sector 2 Landfill footprint and the proposed expansion. Surface water runoff would be directed to one of five sedimentation basins located around the Sector 2 Landfill and then conveyed into infiltration basins where it would infiltrate into the soil. The infiltration basins are designed to hold rainfall from a 100-year 6-hour storm. In the event of a major storm event, there is an existing overflow to Seven Mile Creek at the west sedimentation basin. Surface water drainage patterns would be modified to accommodate the proposed expansion.

Seven Mile Creek flows from the north along the western edge of SMCL site. Approximately one mile south of SMCL, the Seven Mile Creek flows into the Eau Claire River. The Seven Mile Creek ordinary high-water mark is a minimum of 300 feet west of the Sector 2 footprint at its closest point.

Storm Water Discharge Permit

ADS has previously obtained coverage under the Wisconsin Pollutant Discharge Elimination System (WPDES) Tier 2 Industrial Storm Water General Permit and has developed a Storm Water Pollution Prevention Plan (SWPPP) for the existing facility. An exemption from the permanent pool requirement of the Wet Detention Basin standard (Technical Standard 1001) was requested based on the high hydraulic conductivity of the existing soil within the sedimentation and infiltration basin areas at the Seven Mile Creek Landfill. In addition, ADS believes it was determined that no liner is required to protect groundwater based on review of Technical Standard 1001 liner flow chart found in Appendix D of the Technical Standard. With no liner, trying to maintain a permanent pool at any modified basin would be impractical. Therefore, modified basins would be designed using a permanent pool surface area of zero. This approach was previously approved for the Northeast and Southwest Basins as part of the 2015 Sector 2 Vertical Expansion. The department responded to this exemption request in

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the October 8, 2019 incompleteness determination by reminding ADS that the Waste and Materials Management program does not have the authority to grant exemptions for that program and the respective chapters. If the pond is intended to function as an infiltration pond instead of a wet pond, Technical Standard 1003 would apply.

Air Pollution Control Permits

Air emissions and concentrations are expected to be similar in type to those that are emitted from current operations. Emissions consist of gases generated by decomposition of waste in the landfill, combustion products from the landfill gas management system, motor vehicles operating on the site, and fugitive, dust generated by the wind and vehicle movement. Constituents from the existing landfill and operations potentially being emitted to the atmosphere include methane, carbon dioxide and carbon monoxide, reduced sulfur oxides/compounds, oxides of nitrogen, and nonmethane organic compounds (NMOCs). Site operations would be consistent with current operations at the SMCL disposal area. The proposed expansion is not expected to cause emission of any hazardous air contaminants above the NR 445.03 limitations and would remain in compliance with s. NR 504.04 (4)(f), Wis. Adm. Code.

A revised construction and operation air permit for the proposed expansion would be prepared and submitted to the department's Air Management program under a separate cover as part of on-going permit activities that are being conducted in a parallel path to ongoing construction activities. As of January 14, 2020, the department's Air Management program has not received an application for the expansion related activities.

Federal New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) for Municipal Solid Waste Landfills would be included in the construction permit as applicable. State hazardous air pollution regulations in ch. NR 445, Wis. Adm. Code, may apply to emissions from equipment not covered under the NESHAP.

Present Land Use and Zoning

The SMCL is currently using portions of the 331-acre parcel for solid waste disposal, a composting facility, and associated support facilities. The property contains one closed landfill identified as the Sector 1 Landfill located just south of the Sector 2 Landfill. The Sector 2 Landfill is located hydraulically upgradient and north of the closed Sector 1 Landfill. The land over which the 22-acre vertical overlay of the proposed expansion is currently an existing landfill. The land to be used for the proposed 12.5-acre horizontal component of the expansion is currently used for landfill support features such as a dumpster storage area, an access road, a sedimentation basin and a soil borrow area for the existing landfill.

Eau Claire County classifies the land use within the proposed expansion area as RS: Residential-Single Family and IY: Industrial Yard. The proposed expansion area is bordered by Olson Drive (CTH Q) and the landfill shop to the north, the existing landfill to the South and West, and residential parcels to the East. Present land use within one-mile of the Sector 2 Landfill and the proposed expansion include agricultural, rural residential, private forestland, two salvage yards, the closed Town of Seymour Landfill, the closed Sector 1 Landfill, the present SMCL property, and Eau Claire County forest recreational land known as The Eau Claire County Tower Ridge Recreational Area.

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Land zoning within 1,200 feet and one-mile of the SMCL Sector 2 Landfill is detailed on Figure 4-2 of the Feasibility Report. The proposed Sector 2 Northeast Expansion landfill and adjacent lands are zoned as follows:

A2	Agricultural-Residential District
I1	Non-Sewered Industrial
RH	Rural Housing
F1	Exclusive Forestry
F2	Forestry

The Sector 2 Landfill is zoned as public properties by the City of Eau Claire and Non-Sewered Industrial by the Town of Seymour. The Northeastern expansion area is in the Town of Seymour and is zoned I1, Non-Sewered Industrial, and A-2, Agricultural-Residential District.

Geology and Soils

The existing Sector 2 Landfill and proposed expansion area are underlain by alluvial sand and gravel deposits over sandstone bedrock, with a layer of residual weathered sandstone of varying thickness between the alluvium and the sandstone bedrock. The depositional sequence of materials in the immediate vicinity of the landfill includes geologic materials described below.

The alluvium on the site was deposited from glacial outwash. These deposits are typically classified as and primarily consist of poorly graded sand (SP) and silty sand (SM) with some silt (ML) and clay (CL/CH) layers. The sand content ranges from 53 percent to 100 percent. The mean sand content for the SP classified soils is 96.9 percent while the mean sand content in the SM classified soils is 71.6 percent. The P200 content values range from 0.0 percent to 100.0 percent. The total thickness of the alluvial deposits in the immediate vicinity of the proposed expansion ranges from approximately nine feet to 70 feet. The variability in the thickness is a result of the land surface topography and underlying residual weathered bedrock surface or sandstone bedrock surface. In general, the alluvium deposits thicken towards Seven Mile Creek.

Beneath the alluvium is residual or weathered bedrock. The matrix is complex and highly variable in composition. These deposits are typically classified as sands SP, SM or SP-SM but also include clay and sandy clay. The P200 content values vary greatly from a minimum of 0.0 to 97.1 percent. The thickness of this layer within the proposed expansion areas is highly variable and ranges from as little four feet to greater than 35 feet where competent bedrock was not encountered during drilling. The residual surface ranges from approximately 922 feet Above Mean Sea Level (AMSL) at boring DH-63 to 885 feet AMSL at boring DH-40. The residual bedrock surface is highest in the eastern central portion of the proposed Expansion footprint and lowest in the northwest corner of the proposed expansion footprint.

The uppermost bedrock formation is the Eau Claire/Mount Simon Sandstone and ranges in elevation from approximately 865 feet AMSL in the northwest corner of the proposed expansion footprint to 905 feet AMSL in the east central portion of the proposed expansion footprint. The top of the competent bedrock surface is defined by auger or drill rod refusal during drilling. It is also defined by the respective locations/borings where rock coring was first attempted. Overall the upper extent of the bedrock is of poor to very poor rock quality as defined by Rock Quality Designation (RQD) values with high fracture frequencies. In cores retrieved, RQD values

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ranged from 0.0 percent to 46 percent. The rock quality improved with depth and most notably after coring 25 to 30 feet into the bedrock. No voids were encountered in the bedrock however intervals of poor-quality rock were encountered in the upper portions of the core runs. The full thickness of the Mount Simon Formation was not penetrated during the borings completed for the SMCL investigations. The Mount Simon Sandstone is generally considered the main bedrock aquifer in the area.

Hydrogeology

The average groundwater elevation in the vicinity of the Sector 2 Landfill is generally encountered at a depth of approximately 40 feet below ground surface. Groundwater flow below most of the SMCL facility is towards the west and southwest; except in areas of the eastern portion of the Sector 2 Landfill in which the groundwater flows somewhat northwest. The mapped water table elevations underlying the Sector 2 Landfill range from approximately 850 to 910 feet AMSL.

The bedrock aquifer at the site is the Eau Claire / Mount Simon Formation, which consists of white to light grey coarse-to-fine grained Sandstone with thin to thick pebble conglomerate beds and abundant red and green shale beds towards the base. Regional information suggests that groundwater flow in the vicinity of the site converges on Seven Mile Creek, flowing to the south-southwest on the east side of the creek and to the south-southeast on the west side of the creek.

The proposed expansion area has a relatively stable groundwater flow system, with groundwater recharge occurring upgradient and across the proposed expansion area and discharge occurring at Seven Mile Creek. The horizontal gradient of groundwater flowing beneath the existing landfill and proposed expansion slopes toward Seven Mile Creek and ranges from 0.007 to 0.06 feet/foot. The results are generally consistent with the horizontal gradients calculated and reported in the 2003 and 2014 Feasibility Reports for the existing Sector 2 Landfill

The geometric mean of the Hydraulic conductivity values at the Sector 2 Landfill monitoring wells screened in the alluvium is 4.79×10^{-3} cm/sec; residual bedrock is 1.36×10^{-3} cm/sec and the sandstone bedrock is 9.56×10^{-4} cm/sec, as determined by slug testing completed on the monitoring wells.

Baseline/Background Groundwater Quality

ADS submitted baseline groundwater quality data for the monitoring wells for the proposed expansion in accordance with the requirements in ss. NR 512.09(4)(g), Wis. Adm. Code ch. NR 507, Wis. Adm. Code.

Baseline concentrations above groundwater standards were observed in two or more sample rounds at the monitoring wells listed below:

<u>Substance:</u>	<u>Monitoring Wells:</u>
Manganese	DH-60, DH-61
Nitrate and Nitrite, Nitrogen	DH-60, DH-61
Cadmium	DH-60A

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Manganese is commonly detected in groundwater samples collected from groundwater monitoring wells immediately following their installation. Manganese is often released from soils into groundwater when the soil in contact with groundwater is disturbed, such as when a well is drilled. Manganese was detected at concentrations exceeding the Enforcement Standard (ES) in samples collected from monitoring wells DH-60 (first two rounds) and DH-61 (first three rounds) during the baseline sampling events but have exhibited a decreasing trend in each well. Manganese concentrations in DH-60 were below the PAL and well DH-61 manganese concentrations were below the ES but above the PAL by the fourth baseline sampling event. It is anticipated that the manganese concentrations at wells DH-60 and DH-61 will continue to decrease and remain below the PAL over the remaining baseline sampling events and beyond.

Manganese will be sampled for and analyzed during the remaining baseline sampling events for DH-60 and DH-61 and results will be presented in the Plan of Operations. An ACL for manganese at DH-60 and DH-61 may be proposed as part of the Plan of Operation.

Nitrate plus nitrite, as nitrogen was detected above the ES and PAL at the above monitoring wells installed to assess background groundwater quality for the proposed expansion. Much of the area surrounding the proposed expansion is agricultural fields. Because of the presence of the agricultural fields, and because nitrate + nitrite, as nitrogen was reported in essentially all of the monitoring wells during each of the sampling events, the reported nitrate + nitrite concentrations likely reflect the character of the groundwater due to agricultural practices in this area of the site.

Cadmium is a naturally occurring element but can also be present from a variety of anthropogenic sources. DH-60A is located hydraulically upgradient from the proposed and existing landfill. Consistent historical detections of cadmium at the Sector 2 Landfill have been reported in samples collected at groundwater monitoring wells DH-49, DH-52 and DH-53. Furthermore, consistent historical exceedances of other elemental metals, such as iron and boron, have been reported for wells DH-52 and DH-53 which are hydraulically side-gradient to the landfill and downgradient from agricultural and industrial activities off site. It is reasonable to attribute the detected cadmium concentrations at this well to agricultural or industrial practices upgradient.

Cadmium will be sampled for and analyzed during the remaining baseline sampling events and results will be presented in the Plan of Operations. An Alternative Concentration Limit (ACL) for cadmium at DH-60A may be proposed as part of the Plan of Operation.

As stated earlier, ADS is requesting an exemption from ch. NR 140, Wis. Adm. Code, groundwater quality standards for the substances and wells in the tables 1 and 2 listed above. If the requested exemptions are granted in the feasibility determination, then alternative concentration limits (ACLs) would need to be proposed in the plan of operation report. The ACLs would be used as site-specific groundwater quality standards during detection monitoring to assess if the landfill is impacting groundwater quality with these substances during operation and the post-closure period.

Proposed Landfill Design

The approximate 12.5 acre horizontal and 22.0-acre vertical expansion would be developed in Phases 14A and 14B. The proposed expansion phasing would overlay the waste vertically onto previously constructed cells prior to the full horizontal build out of remaining unconstructed cell, Phase 13C, and Phases 14A and 14B. The final

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elevation of the proposed vertical expansion is proposed to be 1165.5 feet AMSL, which exceeds the current design elevation for the existing landfill by approximately 64 feet.

The proposed expansion and associated systems would be designed to generate, contain, collect, treat and recirculate leachate. The proposed leachate collection system would be commensurate with the existing system, which collects leachate from the composite liner system and routes it to a collection tank. Leachate in the collection tank could be pumped into tankers on-site and manually reapplied or hauled to any of the designated off-site wastewater treatment facilities.

Two landfill liner options have been proposed by ADS in the Feasibility Report:

Option A: The composite liner system from the bottom up would consist of a compacted sub-base, four feet of clay compacted in six-inch lifts, a 60-mil high density polyethylene (HDPE) geomembrane, a protective geotextile and one foot of drainage stone on top providing waste and leachate containment, similar to the existing design.

Option B: The alternative liner system from the bottom up would consist of compacted sub-base, two feet of clay compacted in six-inch lifts, a GCL, a 60 mil HDPE geomembrane, a protective geotextile and one foot of 1 cm/s drainage blanket on top. This design differs from option A by substituting two feet of compacted clay with a GCL.

The proposed subbase and base grades of the composite liner system would meet or exceed the minimum required slopes in s. NR 504.06, Wis. Adm. Code. Leachate would be routed laterally to the lower elevation in the collection trenches within each proposed expansion phase. The twelve-inch drainage blanket allows leachate to drain to the leachate collection trenches. The leachate collection trenches contain a larger stone media and perforated collection pipes conveying liquids to the respective sumps, which are at the lowest elevation of the collection system. Once liquid is collected in the sumps it is conveyed via submersible extraction pumps through side slope riser pipes to the perimeter force main system and then routed to either a leachate lift station or the leachate collection tank. The side slope risers are designed with long sweep bends to allow for access and maintenance of the submersible pumps. Multiple access points would be established on the leachate line header system to direct liquid to either be recirculated back into the waste mass or directed to the leachate collection tank and load out for on or off-site treatment. All leachate collection features outside the waste footprint would be double walled or have secondary containment.

Landfill gas produced by degradation of the waste mass is captured by a series of gas extraction wells. Currently, the Landfill would install additional gas wells to control gas emissions and odors. The gas extraction wells have/would be installed in accordance with s. NR 504.08 requirements. The landfill gas collection system is anticipated to include vertical and horizontal gas extraction wells. HDPE lateral and header piping would be used to connect the new gas wells to the existing gas header. Drip legs (condensate knock out sumps) would be installed along the header piping as needed to prevent condensate buildup from limiting efficient air flow in the piping system. The existing blower and/or an additional or larger blower at the same location would be used to extract the landfill gas. The collected landfill gas would be routed to an on-site gas-to-energy system or flare. The ability of the existing gas blower and flare to handle the gas from the proposed expansion area would be evaluated as part of the Plan of Operation preparation. Additional details on the configuration and layout of the proposed landfill gas management system would also be presented in the Plan of Operation.

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Gas monitoring probes have been installed outside the limits of waste fill to monitor for gas migration. Advanced Disposal Services would obtain an air quality construction permit before increasing the facility's potential emissions due to the additional gases produced by the proposed expansion. Once the proposed expansion is constructed, the construction permit would be transitioned to a Title V operation permit.

The final cover system (also referred to as final cap) would match and expand the existing final cover system. The cap has two department approved options. The first option (Clay Option) would consist of, from the surface down: six inches of topsoil, 2.5 feet of rooting zone, a geocomposite drainage layer, a 40-mil flexible polyethylene geomembrane, and 2 feet of compacted clay. The second option (GCL Option) would consist of, from the surface down: 0.5-foot topsoil, 2.5 feet of rooting zone, a Geocomposite drainage layer, a 40-mil flexible polyethylene geomembrane, and GCL.

Operations

Because the proposed expansion is a contiguous expansion of an existing landfill, existing infrastructure (i.e. access roads, scale, offices, etc.) would continue to be utilized and access roads would be constructed around the proposed expansion horizontal footprint and would connect to the existing perimeter access roads onsite.

Daily operations would be confined to as small a landfill area as possible. Filling would proceed from the low point on the base of each phase, with waste placed and compacted in approximately 10- to 15-foot lifts. Daily cover consisting of soil or an approved alternate daily cover material would be placed over the waste at the end of each day of operation.

Intermediate waste grades and slopes for each phase and cell may vary from the final design waste grades and slopes. Final waste grades would be five feet below the final cover grades shown on Plan Sheet 29, excluding the 0.5-foot grading layer. Intermediate waste grades may at times be as much as 5% higher than the final waste grades, when compared to the total depth of waste at a given location. Prior to the placement of final cover in a given area, waste grades would be surveyed and regraded as necessary to accommodate placement of the composite cover to permitted final grades. At no time during the operating life of the landfill would the waste volume exceed the permitted capacity. It is not uncommon to cut back or fill slight variations in intermediate waste grades just prior to final cover placement. Establishing final waste grades in this manner helps to reduce differential settlement of the final cover.

Upon completion of reaching final waste grades, the final cover and surface water control features would be constructed, vegetated, and maintained as soon as practicable. On site stormwater control features would be maintained. This would require removal of sediments from stormwater settling basins, maintaining vegetation in site ditches, mowing, and possible regrading of site stormwater features if eroded during rain events. Erosion mat or riprap would be placed and maintained as needed.

Nuisance conditions such as dust, odor, and noise would be minimized in accordance with generally accepted standard operating procedures. Dust would be controlled with a water truck as needed while noise would be handled by incorporating noise reduction systems where possible. Odor would be controlled by use of daily cover and keeping the gas control system in working condition. Odor masking agents may be used when appropriate.

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Paper and other wind-blown debris would be collected daily. If needed, temporary litter fences and/ or portable windscreens would be placed around the active area to aid in the control of wind-blown debris.

Upon approval, the proposed expansion would be developed and operated in two additional phases (Phase 14A and 14B) to the northeast of the currently permitted Sector 2 Landfill. Full build out of an individual cell would need to be completed prior to the vertical overlay of that cell. Vertical overlay of constructed cells is expected to begin prior to the full horizontal build out of Phases 13C, 14A and 14B. Each phase would be filled to its approved final waste grades and covered with final cover or a 1-foot-thick layer of intermediate cover. Capping is estimated to commence in the phasing shown on Plan Sheet 29. Temporary phase delineation berms would be constructed between phases to control surface water run-on into the active areas. Details of the filling plan and site development would be shown in the Plan of Operation.

Proposed Soil Borrow Source

The soil borrow sources remain the same as those identified in the 2014 Feasibility Report for the Sector 2 Vertical Expansion. Soil required for landfill construction and operation will include materials for daily and intermediate cover, berm construction, clay liner construction, drainage layer, soil barrier layer for the GCL, protective cover soil, and top soil. Preliminary soil volume quantities are provided in the Feasibility Report and there is an overall deficit of an approved general fill material currently available at the site for the full buildout of the approved and proposed Sector 2 Landfill. Advanced Disposal Services currently owns a large area of land south of the Sector 1 and 2 landfills. As the need arises for additional general fill material, Advanced Disposal Services will pursue permitting a portion of this property as a borrow source. Other soil materials that will be required for the proposed expansion will come from on site or general fill borrow areas adjacent to or near SMCL.

A more detailed volume calculation for the required liner and final cover soil materials and available source materials will be provided in the phasing and closure plan of the Plan of Operation submittal for the proposed Sector 2 Northeast Expansion.

The clay used for construction of the landfill liner and final cover capping layer will consist of imported material. A previously approved clay borrow source is the Kenowski borrow site in Clark County, Wisconsin, approximately 55 miles from the landfill. This site is a commercial borrow source operated by Mrs. Darlene Kenowski. The site was initially approved by the WDNR for the Sector 2 liner construction in a March 28, 2003 modification to the Plan of Operation Approval. At that time, the site consisted of 5 acres with approximately 100,000 cubic yards of material. A Plan Modification Addendum, dated February 8, 2008, was submitted to the WDNR for an additional clay borrow investigation performed at the Kenowski site. The investigation yielded an additional 190,000 to 210,000 cubic yards of clay. The WDNR approved the additional clay source on April 14, 2008 with clay from this borrow site only being exported to SMCL for liner construction (Phases 13A and 13B). An estimated 162,000 cubic yards of clay remains at the Kenowski borrow site after the Phase 13A and 13B liner installations.

Environmental Monitoring

The proposed expansion would include a comprehensive environmental monitoring program that is consistent with, or exceeds, the requirements of ch. NR 507, Wis. Adm. Code, to measure groundwater levels and quality,

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off site surface water, leachate quantity and quality, gas migration potential and gas extraction system performance, and to monitor fugitive dust. Surface water discharges would be monitored in accordance with the Tier 2 industrial storm water permit and the requirements of ch. NR 507.23, Wis. Adm. Code.

Fault Areas, Seismic Impact Zones and Unstable Areas

The proposed expansion would meet the s. NR 504.04(3)(g) (h) and (i), Wis. Adm. Code requirements in regard to fault areas, seismic impact zones and unstable areas. There is no evidence of faults of the Holocene age in the area. The proposed expansion would not be located in a seismic impact zone. The proposed expansion would not be located in an unstable area and is not located in karst terrain.

Proposed Physical Changes

Construction of the proposed expansion would affect approximately 12.5 acres to the northeast of the existing landfill. In addition to the landfill footprint, other areas of land would be altered or developed for storm water management structures, access roads, environmental monitoring systems and landfill equipment storage. The footprint of the proposed expansion area as well as the proposed enlargements of sedimentation/ infiltration basins located east and north of the proposed expansion footprint is already cleared of vegetation and trees. The final cover system will project upward at sideslopes of 4H:1V to an anticipated peak elevation of 1,165.5 feet AMSL. This elevation is approximately 64 feet higher than the approved maximum final grade for the existing Sector 2 Landfill. Based on this information, the proposed expansion may have some aesthetic visual impacts associated with the proposed expansion project, Specifically, the users of the Tower Ridge Recreational Area to the southeast of the proposed expansion may have scenic views impacted during wintertime conditions. Once the area of proposed expansion is filled and covered, any impacts to visual aesthetics should be significantly reduced.

The increase in height may also lead to additional wind-blown material at and around the proposed expansion. Additional screening may likely be needed to minimize visual impacts and control wind-blown debris.

The proposed expansion would use the existing landfill infrastructure, including the office and scale. Access for waste disposal vehicles to the proposed expansion area will be the same as that for the existing SMCL, from County Highway Q (Olson Road) located along the north boundary of the site. Access to the facility is controlled by a gate at the entrance to the access road and by a fence or natural barriers around the perimeter. A service road is located around the perimeter of the existing Sector 2 Landfill which will be realigned accounting for the proposed expansion footprint.

Emissions and Discharges

Engine Exhaust – Engine exhaust from diesel and gasoline-powered vehicles and equipment will vary depending on the number of vehicles or equipment pieces in operation at a given time. Vehicle exhaust will be kept to a minimum by maintaining vehicles in good operating condition. No significant increase in vehicular traffic is expected during landfill operation.

Dust – Dust may be generated from the gravel access or haul roads, earthwork activities, and wind blowing across exposed areas. Dust quantity will vary depending on the number of vehicles or equipment in operation, weather conditions, and amount of exposed area. Dust will be controlled by applying water or commercial dust

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suppressants to access and haul roads during dry weather conditions, and establishing vegetation on completed, disturbed areas. A Dust Control Plan has been developed for the existing landfill and will continue to be used for the proposed expansion.

Noise – Noise impacts associated with the proposed expansion will occur from bulldozers, scrapers, and other earth moving equipment during liner and final cover construction. During operation, noise will be generated by waste hauling trucks and landfill equipment. These will occur during the hours of operation and are not expected to increase over existing noise levels in the vicinity of the site. Hours of operation are determined in the local agreement with the host community.

Leachate – The conveyances for the proposed expansion will be integrated into the existing leachate collection system for the Sector 2 Landfill. Leachate produced from decomposition of the waste contacting precipitation will flow through a drainage blanket to the collection sumps from these sumps, the leachate will be pumped via a forcemain to a leachate storage tank for recirculation or transported off-site for disposal at a wastewater treatment plant. Leachate from the existing landfill is routed and treated in this same manner. The quality and characteristics of the leachate are expected to remain similar to those of the leachate that is currently being collected at SMCL.

Landfill Gas – Landfill gas (e.g., methane) will be generated, during operation of the proposed expansion, from the decomposition of refuse materials. The chemical characteristics of the landfill gas are not expected to change. The proposed expansion overlies the existing composite liner which will be expanded into the proposed expansion horizontal footprint and includes a cover system with an active gas extraction system. These controls will prevent significant subsurface gas migration from the proposed expansion. The existing network of gas probes around the landfill monitor for gas migration. Some existing gas probes within the proposed expansion footprint will be abandoned while additional gas probes will be installed surrounding the expansion footprint. Landfill gas generated by the proposed expansion will be collected and burned via a flare or potentially used as a fuel.

Odors – The control of odors will be achieved by cover soil placement and by operation and proposed expansion of the GCCS as -noted above. The current Odor Control Plan will be updated in the Plan of Operation submittal for the proposed expansion.

Surface Water Runoff – The proposed expansion has been designed to maintain a surface water balance between the existing and post-development conditions. Maximum stormwater discharge will occur under final cover conditions after the landfill has ceased operations.

Groundwater – The risk of groundwater contamination will not increase as a result of the proposed expansion. The potential for contamination from SMCL would be minimized by following NR 500 regulations as well as sound solid waste management practices including the use of a composite liner and cover system, and a leachate collection and management system.

Accumulative effects – The primary accumulative effect of the proposed expansion would be an increase in landfill gas and leachate generated on the property. If properly collected and treated, the gas and leachate should not have a significant impact on the surrounding environment; however, there may be some landfill gas emissions that may not be captured by the gas collection system. Landfill gas emissions would be limited by the landfill's

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air permit. If a leachate release were to occur, ADS would be required to conduct spill response and cleanup actions as necessary.

Biological Impacts

The area of the proposed expansion is already used for landfilling operations or support facilities and features. No significant adverse biological impacts are expected to result from the operation of the proposed expansion. These disturbed areas currently provide minimal value for wildlife habitat and there are no proposed habitats to be created or destroyed as a result of the proposed expansion. The existing and proposed final use of the landfill after closure has been and will remain open green space which may create an open grassland habitat. As indicated in the ERR Log # 19-021 letter provided in the Feasibility Report, it is unlikely that the proposed expansion would have any significant adverse impact on critical habitat areas or endangered or threatened species.

Manipulation of Aquatic Resources

Changes or alterations to aquatic resources were not proposed, and therefore, not evaluated. Aquatic resources are not expected to be affected by the proposed expansion. No wetlands or surface water features are on site. The closest surface water feature is Seven Mile Creek, with is located more than 300 feet west of the Sector 2 footprint and is not expected to be impacted by the proposed horizontal or vertical expansions.

Land Use Impacts

The proposed expansion is within the 331-acre ADS-owned property so its development will not require the displacement of residents, public land withdrawal, or condemnations. The land adjacent to the proposed expansion is used primarily for industrial and agricultural purposes. Residential use is low density, primarily single-family homes on small tracts and farms. Any impact of the proposed landfill operations on land use in the area of the proposed expansion would be like the current operation of the existing landfill.

Socioeconomic Impacts

Adverse social and economic impacts are not expected from the proposed expansion. The operation of the landfill will contribute to the local economy as a source of local employment. The operation of the existing landfill provides significant and direct economic benefits to the community in terms of tax payments, host community fees, and donations of money, goods, or services. SMCL pays real estate taxes on the property it owns. The proposed expansion will continue to provide these benefits throughout the life of the project.

The proposed expansion would not result in significant changes in the waste filling operations, other than an estimated increase of height by approximately 64 feet. Therefore, impacts on adjacent neighbors would be similar to those of the existing landfill. The proposed expansion is consistent with local planning and zoning.

Residents living in the area around the landfill have shared concerns they have regarding the existing operations of the landfill with the department and asked for information what options they may have to address their concerns. Concerns raised by local residents include experiencing nuisances such as odor, litter from waste hauling trucks, windblown wastes and birds. Residents also expressed concerns regarding property values and not being heard by local government officials regarding their concerns.

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Wisconsin landfill siting law gives local municipalities that are located within 1,500 feet of the proposed limits of waste the right to negotiate an agreement between the affected municipality and the landfill applicant which gives authorities in the affected municipality some input and say in landfill operations and the ability to receive some compensation for the impact the landfill causes on the local municipalities and on local residents.

The local negotiation and agreement process should be used to help address concerns raised by local residents. The proposed expansion should not exacerbate the concerns communicated to the department; however, with the proposed expansion, there will continue to be some nuisances from time to time. Nuisances can be minimized when the landfill owner monitors site conditions and is proactive to prevent issues from arising and by taking corrective actions as soon as a potential nuisance is identified. Some nuisances, such as truck traffic and noise from equipment may not be practical to significantly reduce.

Nearby residences should not experience increased truck traffic as the fill rate is expected to remain constant. The entrance and routes will be the same as already approved for the existing SMCL. In addition, operation activity will occur during normal business hours, not during evening hours. No impacts to ethnic or cultural groups are anticipated.

A beneficial aspect of the proposed expansion is that solid waste disposal will continue on an area already used for landfilling. The cost and land disturbance is significantly less for an expansion than for a new landfill located away from the existing facility. The proposed expansion provides efficient disposal capacity in an environmentally acceptable manner; consequently, residential, commercial, and industrial users in western Wisconsin can continue to be served.

Archeological Impacts

In October 2001, the State Historical Registry was contacted regarding the previous vertical expansion. The WDNR historical and archaeology office responded in a letter dated October 15, 2001, indicating further historical and archaeological assessments were not necessary. Based on previous determinations for the proposed expansion and the current use of land adjacent to the site, there are no known archaeological or historic structures in or adjacent to the area of the proposed expansion.

Other Special Resources Impacts

No special resources, including state or local natural areas, archaeological or historical areas, or prime agricultural land would be impacted by the proposed expansion development.

Needs Analysis

In accordance with s. NR 512.17, Wis. Adm. Code, the department will evaluate the need of the proposed expansion and make a determination of need in the feasibility determination. Factors that the department would consider include the available waste disposal capacity in the ADS Seven Mile Creek Landfill service area and overlapping service areas of other viable landfills, the time it is projected to consume the available waste disposal capacity, and the time it may take to site a new landfill that would meet the needs of the ADS Seven Mile Creek Landfill service area. There may be additional considerations, such as potential additional environmental benefits or additional waste disposal needs that ADS Seven Mile Creek Landfill would address.

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Using a method of calculating the available waste capacity for the service area, the average per-capita disposal rate, and population-adjusted total disposal rates per year, the Feasibility Report estimates that without the proposed expansion the available waste disposal capacity for the ADS Seven Mile Creek Landfill service will be depleted within 3 years, as shown in Table 11-8 of the July 2019 Feasibility Report. Through experience, the department has found it typically takes 5 to 7 years to complete the siting process for a new landfill or expansion. Therefore, if the waste disposal capacity for the proposed landfill's service would be depleted within that time, then the proposed landfill would be needed. The department will continue its review of the needs analysis and make a determination of need as part of the feasibility determination.

Summary of Unavoidable Adverse Impacts

Potential adverse impacts that cannot be avoided are the following:

- After the landfill is closed, there will be limitations on the use of the site. For example, construction of buildings on the landfill may be prohibited.
- Truck traffic, dust, noise, and engine emissions will exist to some degree at and around the site. However, these conditions can be minimized using good operational practices. These impacts are expected to be like the impacts from previous and current landfilling activities. Furthermore, although development of the proposed expansion may extend the duration of these impacts, they are not expected to be exacerbated from current landfilling activities.
- The appearance and topography of the site will be altered during operation of the landfill and after the landfill is closed. The alteration will be consistent with the current land uses in the area.
- Odors can periodically occur, but with the use of daily cover, minimizing the active waste disposal area, and operation of an active gas collection and control system, these issues should be limited in duration and intensity.
- A waste mass would remain at the location which would have to be cared for in perpetuity to ensure that it does not cause environmental pollution. Potential environmental impacts from the waste can be prevented and minimized with proper construction of the liner, final cover, leachate extraction and gas extraction systems and with ongoing proper maintenance of those systems as well as landfill gas and groundwater quality monitoring.

Evaluation of Project Significance

The physical changes to the landscape that would occur in the site area of the proposed expansion by its construction, operation and closure of the existing landfill would become a permanent feature of the landscape. ADS would be perpetually responsible for care and maintenance of the landfill as well as any releases from the landfill. The landfill enclosure and extraction systems would need to operate and be maintained for a significant period of time and environmental monitoring would need to continue for a significant period of time to ensure that environmental pollution from the landfill is prevented and minimized.

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ADS is proposing an alternative liner from the design required in s. NR 504.06, Wis. Adm. Code. A department approval of the proposed alternative liner design would be a precedent and may affect future liner proposals from landfill applicants and department decisions regarding liner design. The proposed alternative liner design is described as Option B above and in the Feasibility Report.

The significance of the proposed alternative liner design is that the compacted clay soil thickness is reduced from the minimum of 4-feet required in s. NR 504.06, Wis. Adm. Code, to a thickness of 2 feet. In exchange for the reduced clay thickness, the proposal includes a GCL between the clay and the 60 mil geomembrane. Wisconsin rules do not allow the use of a GCL as part of liner design in landfills other than industrial landfills. Therefore an exemption would be needed for this requirement as well.

Since the adoption of the 5-foot thick clay liner design in Wisconsin administrative code dating back to the 1980s, followed by the adoption of the 4-foot thick clay composite liner design currently contained in s. NR 504.06, Wis. Adm. Code, which was first adopted in the early to mid-1990s; the department has never approved a liner design for an MSW landfill with the clay component less than 4-feet thick.

Information provided by ADS as part of the Feasibility Report includes modeling evaluations conducted by researchers to show how the performance of the proposed alternative liner would be expected to behave compared the standard liner design contained in s. NR 504.06 and to other liner design options. The modeling simulated hypothetical scenarios that may result in breakthrough of liquid and contaminants through the liner. According to the research findings, the proposed alternative liner design would perform as good or better than the code required liner design under the conditions provided for the models. However, conditions or assumptions used in the modeling simulations may not accurately reflect real world conditions.

ADS has indicated a primary reason for requesting the proposed alternative liner design is because the distance of the clay soil borrow source is approximately 60 miles from the landfill. No additional information was provided to compare this distance with average distance of clay borrow sources for other landfills in Wisconsin or elsewhere.

Liners consisting of a clay component of at least 4 feet have been shown to be very effective since their adoption in Wisconsin. A layer of thick clay provides redundancy and resiliency to the liner. While overall methods and procedures for liner construction are typically very good and have improved over the years, liner construction is not perfect and problems associated with liner construction can affect liner integrity. Problems may include failure to achieve proper compaction or density, defects with the clay including intermingled rocks or other soil types, desiccation, damage from equipment and not achieving proper thickness. The lowest foot of the clay and the top foot of the clay are likely the most vulnerable layers and susceptible to damage because the bottom layer is in contact with the natural soil beneath and the top foot is exposed for a period of time and is closest to the heavy equipment on top. If the clay is not sufficiently covered during the winter months, then freeze thaw cycles can cause cracking of the clay.

In addition to surviving construction, the liner is expected to fully function for a very long time after landfill closure. The waste in the landfill may not reach full contaminant stability for hundreds of years or more, meaning the liner and leachate collection systems remain critical components to landfill integrity for a very long time. During the active life of the landfill and its post-closure period, there are a number of events which may significantly impact liner integrity. These include fires or thermal events in the waste mass of the landfill and

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penetrations to the liner, which may cause damage to components of the liner. A liner that consists of a thick clay component would have a greater potential to retain full functionality through construction and during the long post-closure period. While part of the liner may become damaged, there would remain a sufficient thickness of liner to continue functioning as intended to provide the barrier between waste and the groundwater, necessary to be protective.

The department has the authority to grant exemptions to the minimum code requirements when the applicant has demonstrated that the requested exemptions would be warranted. In determining this, the department considers the circumstances provided by the applicant explaining why the applicant cannot achieve the minimum code requirement and how the applicant's proposal is a special case. The department also considers whether granting the exemptions would result in the proposal not complying with the performance standards of s. NR 504.04 (4), Wis. Adm. Code. The department has concerns with the long-term capability of the proposed alternative liner design to prevent impacts to groundwater quality which is a performance standard requirement. Approval of the proposed alternative liner would be significant.

Alternatives to Landfilling

Waste reduction, reuse and recycling are alternatives to land disposal, and these activities have already reduced the volume of waste in the service area. Other alternatives to landfilling, such as incineration and complete waste composting, appear to not be economically feasible.

If the proposed expansion is not developed, the waste that is currently disposed of at the existing landfill would have to be disposed of at another existing or new facility. The increased hauling distance and diminished competition and capacity could result in rising costs for waste disposal in the service area. Given the need for MSW landfill capacity in the area, the impacts of the proposed facility would likely be moved to a different location with the potential for greater impacts to the environment at another location.

Public Participation

On January 17, 2020, the department determined that ADS's Feasibility Report is complete. A public notice to that effect will be published in the Wisconsin State Journal and the Eau Claire Leader Telegram and posted on the department's website on or around January 24, 2020. A 30-day public comment period begins once the department posts the public notice on its website. This comment period will afford the public the opportunity to request an informational or contested case hearing in the matter of this proposal. Upon the completion of any hearing or within 90 days of the issuance of this completeness determination, the department would then issue a feasibility determination and a final decision on the need for an environmental impact statement (EIS).

If a favorable feasibility determination is made, then ADS may submit a plan of operation report containing the proposed engineering details, specifications and operational procedures for the project. Upon the department's approval of a plan of operation report, construction of the facility may commence. Site construction documentation and department inspections would occur throughout various phases of construction. A license to operate the facility as a municipal solid waste landfill would be issued following the department's approval of the site construction documentation report and proof of financial assurance. ADS would also be required to obtain all

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other applicable federal, state and local permits or approvals for construction and operation of the landfill.

WISCONSIN ENVIRONMENTAL POLICY ACT

For Wisconsin Environmental Policy Act (WEPA) compliance under s. 1.11, Wis. Stats. and s. NR 150.35, Wis. Adm. Code, the department has determined that the landfill feasibility review and public input process for the proposed expansion is an integrated analysis action under the provision of s. NR 150.20 (2) 7, Wis. Adm. Code. This project summary contains an environmental analysis of the proposed expansion. The department has made a preliminary determination that an environmental impact statement is not needed for the proposed landfill expansion.

Signed: January 17, 2020



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