



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



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February 14, 2020 updated April 13, 2020

Sherwood McKenney

Waste Management Disposal Services of Maine, Inc.

P.O. Box 629

Norridgewock, ME. 04957

RE: MEDEP Follow-up Comments, WMDSM Crossroads Landfill Proposed Phase 14,
Volume I

License application # S-010735-WD-YB-N

Dear Sherwood,

Please find below the Department's follow-up comments on Waste Management's Crossroads Landfill Proposed Phase 14 application, Volume I, that is currently under review by the Department. Follow up comments appear in green text. The application was accepted by the Department for processing as of November 18, 2019. Please provide an estimate of time for Waste Management to respond these comments. We will continue our review of these and other elements of the application while we wait for the response. Please let me know, if any of the comments is unclear or if a meeting would assist Waste Management to develop a response.

Note: Additional comments may be made as review progresses. Comment numbers correspond to the section numbers in Volume I.

Section #

1. No comments
2. No comments
3. Please indicate the year for which projected costs are planned. For example, design costs are likely provided in 2019 dollars, while construction cost may be projected in 2021 dollars, etc. Please include the dollar per acre. Acceptable response.
4. MEDEP requires that geological interpretations, such as are presented in this application, be completed by Maine Certified Geologist. Please mention that this was done and provide proof of it somewhere in the application. Acceptable response.

5. Please confirm, whether or not, the “transporter management program” (page 8) refers to the “Transporter Rules and Regulations” submitted as *Attachment C* of the Host Community Agreement. If not, please explain the differences. **Acceptable response.**
6. WMDSM should add a section in the proposed landfill operations manual to discuss management of potential site impacts (waste spills, sediment from vehicle tires, winter maintenance activities) to sensitive resources post-construction, ie., Phase 14 access road stream crossing and adjacent wetlands. WMDSM should propose to update the SWPPP to include inspection of the access road routinely prior to storms (This may become license condition). **Acceptable response-updating of the operations manual to address operational issues associated with Phase 14 will be added to the license as a license condition, should the Department approve the application.**
7.
 - a. Chapter 400.4.F(1)(d), second paragraph (page 16), states: “In addition, Phase 14 activities will benefit from the existence of mature vegetation that will further reduce sound impacts.” Please describe the sound impacts after the Phase 14 activities rise above the vegetation. **Acceptable response. The Department will review the noise study upon receipt.**
 - b. Chapter 400.4 F(1)(d), Monitoring Results During Phase 8 Operation (page 17). This paragraph describes sound levels above 60 dBA that are attributed to 1-minute sound spikes. After excluding these spikes, the sound levels are calculated to be less than 60 dBA. Short duration, high-level sounds can be more bothersome to the surrounding community than constant or regular background drone noises. Please reassess without eliminating sound spikes when assessing sound levels.
 - c. Chapter 400.4.F(1)(d), next to last paragraph (page 18), states: “...noise reduction can be expected from the approximately 300 feet of vegetation strip...”, but please describe the impact on the surrounding receptors when Phase 14 activities rise above the vegetation.
 - d. Chapter 400.4.F(1)(d), last paragraph (page18). Please replace “will be” with “are estimated to be” or “probably will be”, when describing predicted sound levels at nearby properties. Please describe if any testing is proposed to verify these estimations.
 - e. Appendix 7C, Figure 3. The yellow boxes indicating residences or buildings do not seem to match up with structures in aerial images. For example, there are no residences/structures on Airport Road northeast of the proposed landfill (where the “Airport Road” label is) or in the area to the southwest, along Mercer Road. Please check that the residence/structures are accurately located. Please center the landfill in this figure and include more residences/structures to the east and north. **Acceptable response.**

- f. Appendix 7C, 2.2 Study Area Characteristics, Vegetation (page 3). Please include a discussion of the visibility of the landfill in the winter compared to in the summer. Were field observations obtained during worst-case times of the year? **Acceptable response.**
 - g. Appendix 7C, 3.2 Visual Characteristics of Phase 14 Development, Post-Closure Period, second paragraph (page 6). The vantage points chosen for evaluation are appropriate, but please also evaluate the view from the school/cemetery area. **Acceptable response. However, given that Phase 14 may be visible from these public viewing areas, the Department will include a license condition that requires minimizing the visual impact of operations from these and other vantage points, should the Department approve the application.**
 - h. Appendix 7C, 3.2 Visual Characteristics of Phase 14 Development, Post-Closure Period, second paragraph, last sentence (page 6). Based on Google Earth images, Phases 10 and 11 at Norridgewock had exposed black plastic for at least 13 to 15 years after completion. Please explain how this will be different for Phase 14. **Acceptable response. Please explain why WM believes that the consolidation of the underlying clay will be more rapid at Phase 14 than Phases 10 and 11.**
 - i. Appendix 7C, 3.2 Visual Characteristics of Phase 14 Development, Post-Closure Period, third paragraph (page 6). This paragraph discusses WMDSM's ability to construct and maintain visual barrier berms with trees planted on top in certain areas. Please discuss whether WMDSM will do this or not. MEDEP suggests adding visual barriers to the gaps in previous barriers along Route 2 and the entrance road to the landfill. **This will be added as a license condition, should the Department approve the application.**
 - j. WMDSM should propose additional measures to mask visual and noise impacts "during the final years of operation" when operations would be above the vegetation buffers. Suggestions include, but should not be limited to: (1) strict adherence to daily cover requirements; (2) use of available intermediate cover materials to reduce glare and enhance blending of the colors of materials employed with the natural environment; (3) phased final cover should be applied as soon as possible on areas where final grades have been reached; (4) area focused back-up alarms on equipment to reduce travel of noise; (5) improve the buffer of trees along the route 2 travel corridor to improve screening and ensure maintenance of existing buffer as older trees begin to decline; and (6) periodic monitoring of noise for the period of time operations occur at elevations above the natural tree height at the closest residential location. **The Department will review the noise study upon receipt.**
- 8.
- a. A license condition may be added to the license to require the New Source Review license amendment prior to commencement of operations in Phase 14. **As a modification to the facility's Title V license is not required prior to the construction of Phase 14, and WMDSM has submitted a letter to MEDEP on 23 March 2020 providing the landfill**

- capacity including Phase 14, with respect to the pending Title V renewal application, no license condition should be necessary pending the outcome of the Department's review.
- b. The Department acknowledges that WMDSM has previously not accepted significant quantities of odorous wastes. However, WMDSM should revise its operations manual to include procedures related to landfilling of such wastes, ie., sludges, MSW, MSW by-pass and residuals, in order to minimize odors associated with handling of the wastes, when they are received. **Acceptable response-as above, a license condition for update of ops manual will be included in the license, should the Department approve the application.**
9. Elements of this section are subject to engineering review. Comments may be offered at a future time in the review process.
 10. A license condition may be added to the license to require NRPA and ACOE permits/licenses are obtained prior to commencement of construction of Phase 14. **Acceptable response-no license condition should be necessary pending the outcome of the Department's review.**
 11. Elements of this section are subject to engineering review. Comments may be offered at a future time in the review process.
 12.
 - a. There are a lot of conclusions and assertions in this section, but no reference to the document that these statements come from. Please include a reference to the Geologic and Hydrogeologic Assessment in Volume III to support these assertions. MDEP will need further review of Volume III before we can comment on the assertions, so we may have further comments on this section. **Please submit a red-line strike-out text.**
 - b. Third paragraph states (page 24): "The groundwater beneath Phase 14 flows away from public water supply protection areas and the significant sand and gravel aquifers." Some of the groundwater flow from Phase 14 is to the southeast, such as in the phreatic and till units, and, although it is not towards the aquifers which lie to the north and west of the landfill, it cannot be described as "away from". It is more accurate to state that groundwater flow is not towards the aquifers or does not intersect the aquifers but WMDSM should not state that flow is "away from" them. **Please submit a red-line strike-out text.**
 - c. Chapter 400.4.K(1)(b) (page 25). The solid waste disposal facility may not pose an unreasonable threat to the quality of a significant sand and gravel aquifer. The application states, "There is no hydraulic connection between groundwater in the Phase 14 area and the significant sand and gravel aquifers because groundwater flow in all hydrostratigraphic units in the Phase 14 area is primarily to the south-southwest, away from the aquifers." See Comment 12 b. above. **Please submit a red-line strike-out text.**

- d. Chapter 400.4.K(1)(c), The solid waste disposal facility may not pose an unreasonable threat to the quality of an underlying fractured bedrock aquifer. The third paragraph (page 26) should specify how the leachate is transferred and transported to Sappi or Anson-Madison WWTP (assumed by tanker truck) and any risk of release posed, by the method selected, during this process. Please compare with other available methods. **Acceptable response.**

Chapter 400.4.K(1)(c). fifth paragraph (page 26). There are statements that the Presumpscot clay is “almost impermeable and greatly impedes flow” and “the bedrock would be protected by this naturally occurring Presumpscot clay”. The Presumpscot Formation is known as an aquitard, but caution is recommended at assuming that groundwater below an aquitard would be protected from contamination. Current understanding of aquitards is that fracturing, unobserved sand lenses, root systems or other pathways can allow for rapid migration of contamination across and aquitard. MEDEP has experience suggesting that, “impermeable clay” deposits have allowed for the transport of contaminants to sensitive aquifers below them. The fact that usable monitoring wells were installed within the Presumpscot Formation indicates that, it may allow for the transport of water through it. MEDEP accepts that the Presumpscot Formation may impede flow and it may be protective, but it is far from certain. Please revise these statements to include caveats or cautionary language. **More on this to be issued with the comments to follow.**

- a. Chapter 400.4.K(1)(c) (page 26). The proposed landfill design does not appear to include a liner leak-detection system. Given the performance standard of Chapter 401.1(C), is one planned? **Unacceptable response. Because it is impossible to know that there are no fractures in the clay units and we can’t guarantee that rapid transport will not occur across an aquitard, please add more conservative language, such as, “the bedrock would probably be protected...” instead of “the bedrock would be protected...”. Please submit a red-line strike-out text.**
13. WMDSM must submit an updated contract and/or agreement for services for treatment of leachate generated on site. **Acceptable response. A license condition will be added, if a written contract renewal is not submitted to the Department prior a license decision, should the Department approve the application.**
 14. Elements of this section are subject to engineering and geology review. Comments may be offered at a future time in the review process.
 15. through 17. Please submit detailed responses to the conditions of the Department’s Phase 14 Public Benefit Determination (#S-010735-W5-XY-N). A license condition may be added to the license for any unresolved issues relating to implementation of the programs developed. **Acceptable response-the Department may add a license condition, should the Department approve the application.**

18. No comments
19. No comments
20. No comments
21. No comments
22. Please provide a detailed breakdown to support the estimates provided on Schedule A of the amendment to the Trust Agreement dated April 21, 1993, as revised January 28, 2020 (submitted separately from the application). **Acceptable response**
23. No comments
24. N/A
25. No comments
26.
 - a. Restrictive Siting Criteria, SWMR 401.1.C(3)(a)(iv), second paragraph (page 47), states: “Where present in the Phase 14 area, the silty fine sand typically ranges in thickness from approximately 1 to 6 ft.” How was “typically” determined? Please state the actual range in thickness (0 to 21.9 ft) or that a certain percentage are below a value (e.g. 75% of the data are below 7.5 ft thick). **Please submit a red-line strike-out text.**
 - b. Restrictive Siting Criteria, SWMR 401.1.C(3)(a)(iv) discussion, third paragraph (page 47). Please see Comment 12 e. above regarding the description of aquitards. **Unacceptable response-please see follow-up comments to Comment 12 d above.**
 - c. Restrictive Siting Criteria, SWMR 401.1.C(3)(a)(vii) (page 47). [This section is mislabeled as “(vi)”] “The water supply well locations are shown in Figure S26-2 of APPENDIX 26A, as provided by the Maine Geological Survey Water Well Database.” We thought the water supply well locations were obtained in the field with a GPS unit by WMDSM. The MGS Well Database is not accurate regarding the location of the wells, because they are based on tax maps and reasonable guesses at the locations, not GPS-acquired locations. Please describe how the residential well locations were measured. **Acceptable response.**
 - d. Restrictive Siting Criteria, SWMR 401.1.C(3)(b) (page 48). The geometric mean of the hydraulic conductivity of the clay unit is $7.47E-07$, but this restrictive siting criterion doesn’t mention the geometric mean. It states that, “The in-situ soils must have an undisturbed hydraulic conductivity less than or equal to 1×10^{-5} cm/s”. The hydraulic conductivity values of the clay unit in Vol. III are $1.56E-5$ and $1.87E-5$ cm/S for PZ-16M, demonstrating that the clay in the vicinity of this piezometer does not meet the restrictive siting criteria. Please mention this exception and propose how the exceedance of this restrictive siting criterion will be addressed. **Please confirm that WM asserts: the reason PZ-16M has a higher hydraulic conductivity than the**

other wells is because it was installed improperly. There were 40 wells installed in clay (1996 report) at other nearby phases which gave hydraulic conductivity values between $1E-5$ and $1.76E-3$ cm/s. The geometric mean for the hydraulic conductivity of all the 1996 wells (63 wells) is $2.3E-5$, so it appears that the conductivity at PZ-16M well is not an anomaly, in fact, it is possible that the low-conductivity wells at Phase 14 may be over-represented. Please mention that one well exceeds 1×10^{-3} cm/s. The hydraulic conductivity of the clay and the risks of rapid transport across an aquitard due to fracturing is a concern that will be further discussed in Section III. Please submit a red-line strike-out text.

END OF COMMENTS

Sincerely,



Linda J. Butler
Licensing & Compliance Specialist
Division of Technical Services
Bureau of Remediation and Waste Management

PC: Molly King, Kathy Tarbuck, Gail Lipfert, MEDEP
Scott Luettich, Geosyntec Consultants
Richard LaBelle, Town of Norridgewock
Robert Grillo, CMA Engineers