

State of Maine
Department of Environmental Protection
Bureau of Remediation and Waste Management

MEMORANDUM

TO: Kathy Tarbuck, P.E.; Project Manager - Technical Services
FROM: Stephen J. Farrar, P.E.; Environmental Engineer Specialist - Technical Services
DATE: June 16, 2016
SUBJ: Juniper Ridge Landfill Expansion
Cells 11 through 16
Operations Manual
File No. 2112.2005

As requested, we have completed an engineering review of clarifications and proposed revisions related to the Operations Manual¹ for the proposed expansion of the Juniper Ridge Landfill (JRL) located in West Old Town. The clarifications and revisions have been prepared in response to recommendations we provided in Section III of our January 20, 2016 memorandum regarding the proposed expansion. They were transmitted either within a March 2016 broader response to our memorandum², under a May cover letter from the Maine Bureau of General Services (BGS)³, or as part of JRL's 2015 annual operations report⁴.

The following addresses the status of Items from Section III of our January 20 memorandum. Items requiring additional action will be typed in **bold** font.

- III.A. Item resolved. The recommended site plan has been added to the Manual.
- III.B. Item resolved. The recommended clarification has been made.
- III.C. Item resolved. Acceptable soft layer materials have been listed in the Manual as recommended.

¹ *Juniper Ridge Landfill Expansion Application - Volume IV Operations Manual* Sevee & Maher Engineers, Inc., July 2015

² *Response to Department Staff's Review Comments on the Juniper Ridge Landfill Expansion - Exhibit C* BGS and NEWSME's Response to DEP's January 20, 2016 Technical Memorandum, transmitted under cover from BGS dated March 4, 2016

³ *Follow-up to Department Staff's Responses to the March 4, 2016 on Staff's Review Comments as Presented in the Department's April 5, 2016 Letter* May 12, 2016

⁴ *2015 Annual Report - Juniper Ridge Landfill - Old Town Maine* Juniper Ridge Landfill, April 2016

- III.D. Item resolved. An appropriate clarification has been added to the Manual.
- III.E. Item resolved. An appropriate clarification has been made.
- III.F. Item resolved. The recommended provisions have been added to the Manual.
- III.G. Item resolved. The recommended additions have been made to the annual reporting requirements.
- III.H. Item resolved. The recommended provision has been added to the Manual.
- III.I.1. Item resolved. The recommended clarification has been made.
- III.I.2. Item resolved. The downspout location was shown on Figure E-3.
- III.I.3. Item resolved. The recommended cross-section has been added to the Cell Development Plans.
- III.I.4. Item resolved. The details were shown on the Cell 11 design drawings.
- III.I.5. Item resolved. The recommended details have been added to the Cell Development Plans.
- III.I.6. Item resolved. The ditch location was selected to provide an adequate slope to divert stormwater.
- III.J.1. Item resolved. The recommended clarification has been provided.
- III.J.2. Item resolved. The recommended detail has been added.
- III.J.3. Item resolved. The recommended clarification has been provided.
- III.J.4. Item resolved. The recommended clarification has been provided.
- III.K. Item resolved. This was an observation only.
- III.L. Item resolved. The requested clarification has been provided. **Procedures and frequencies for monitoring the transducers and response actions to take if elevated leachate levels are measured should be added to the Manual once the specific transducers have been selected.**
- III.M.1. **As agreed, we have given further consideration to the proposed Liner Action Plan. Essentially the proposal uses a ratio of flows from background levels in the leak detection system and hypothetical leaks from the primary liner system as a function of source strength based on specific conductance to establish action levels in terms of specific conductance.**

We continue to recommend a two tiered action leakage rate program (ALR), based on gpad, similar to what is done at most landfills with double liner systems. We propose 20 and 100 gallons per acre per day (gpad) as ALRs with the knowledge that a leak detection system flow rate less than 20 gpad is readily achievable based on data from operating landfills in Maine.

At the same time we understand the value of considering specific conductance when evaluating potential primary liner leakage. In fact measuring specific conductance is generally the first action taken when an ALR is exceeded. The drawback we see with the proposed program is with the ability to establish background flow rates in the leak detection system while at the same time recognizing defects that may exist at the completion of construction. We are willing to reconsider the proposal upon presentation of actual field data as the landfill expansion is developed.

III.M.2. Item resolved. **Leak detection system flow contributions from sources such as construction water, consolidation water, impingement water, and condensation will be estimated prior to placement of waste within each cell.**

III.M.3. Item resolved. Leak detection and leachate collection system flow data will be provided to the Department on a regular basis in EDD format.

The BGS May transmittal addressed two of the remaining action items from our initial January 20, 2016 memorandum as discussed below. The other remaining action items are to be addressed during the detailed design or initiation of operations for individual cells.

II.L.1. Item resolved. Documentation justifying the selected reduction factor for geonet creep has been provided.

II.N.10.a. Item resolved. Sheet C-306 revised to indicate the correct culvert slope has been provided.

Please let me know if there are any questions or if you require additional assistance at this time.

cc: Dick Behr, C.G.
Victoria Eleftheriou, P.E.