Gude Landfill Remediation Design Comments on 90% Design				Compiled By (Entity): NMWDA / County Compiled By (Staff): A.Kays, J.Foster, S.Lezinski Date: 8/25/2020	
Item	**Page No. / Sheet No. / Location**		**Commenter**	**Comment**	**Response**
90% Design - Basis of Design - Report Body					
1	7	2.2	AK	Please note that there will be one more survey to record for this section in the 100%.	Revised as noted.
2	13	4.1	AK	Seventh line; do we want to say 'large' equipment will not be stored in the administrative area? I can see where ATV's or surveying gear could be stored here.	Revised to state that earth moving equipment will not be stored in the administrative area.
3	13	4.1	AK	Twelfth line; reference check C-121 (may be C-122)	The reference was revised.
4	14	4.2	AK	Note Figures 1 and 2 are at the end of the report	Noted.
5	15	4.3	AK	Seventh line; is reference 4.11 (LFG) meant to be 4.13 (ESC)?	The reference was revised.
6	21	4.7.4	AK	Note Figure 4 is at the end of the report	Noted.
7	23	4.7.6	AK	Note Figure 6 is at the end of the report	Noted.
8	28	4.15	AK	Reminder that this will be updated to include the next survey for the 100%	Section 4.15, Future Land Use Evaluation was not updated based on the survey points collected for the 100%. Settlement was discussed in 4.2.1.
9	Page 13	4.1	STL	Line 14. Stockpile Areas…for each phase of work, "within each 20-arce grading unit per County DPS requirements." Based on project discussions, the Contractor will not be able to choose temporary stockpile locations outside of the 20-acre grading unit.	This is correct. No revisions made.
10	Page 22	4.75	STL	The landfill gas collection piping is designed to target a minimum 3 % slope; some areas of the landfill are graded flatter from below 3% to 1%. As noted in 60% Design comments and recent project discussions, the LFG collection piping design should be revisited to maximize the slope to 3%, and in areas where the slope will be flatter, to investigate measures to prevent settlement in order to preserve pipe slope for long term care and maintenance of the facility. JCF - Should any other surveying or pre-design activity required to address this comment?	EA evaluated and revised the landfill gas piping design to reduce the areas of piping with slopes less than 3% and potential differential settlement. No additional survey or pre-design was required to address the comment.
11	Page 25	4.7.7	STL	Line 3. Propane is stored on-site, and is noted for use to supplement the LFG to maintain combustion if the methane concentration falls below 30%. This needs to be verified. On-site propane was originally used as the fuel source for the Flare pilot/igniter only.	Per the updated O&M Manual, Propane is utilized as the fuel source for the pilot to establish the initial flame. The text has been removed.

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12	Page 28	4.15	STL	Verify the use of settlement plates for the final settlement monitoring plan.	Settlement plates will be installed in the vegetative support soil at the end of construction for post-construction monitoring. Discussion has been added to Section 4.2.1 of the BOD.
13	19	4.7.2	SCS	LandGEM projects LFG production at 50% methane content, however LFG collected from the landfill is closer to 35%. 458 scfm at 35% methane is approximately 300 scfm at 50% methane. If the system is oversized, then the bottom capacity of the existing flares will be reached sooner than anticipated. JCF - Should any other surveying or pre-design activity required to address this comment?	Noted. Additional text has been added to the report to address operational concerns related to methane content. The operational ranges and turndown ratio for the flares were confirmed with the manufacturer. The flares should operate down to 167 scfm at 30% methane. No additional pre-design work is required.
14	19	4.7.2	SCS	An evaluation of the existing collection system should be performed to determine the collection efficiency, rather than assuming 75%. This will have a significant impact on future expected gas collection as mentioned in above comment for flare sizing. JCF - Should an evaluation be conducted to determine the likelihood of the existing flares being able to accommodate decreased methane production post-construction? AKNEA - Question, do we proceed with an estimate or require an actual eval. And shouldn't that fall to Aptim?	Since the collection system is to be replaced, further evaluations to determine the efficiency of the existing system are not warranted for the limited information that it would provide. Since the collection system efficiency is planned to increase and the system is oversized, the size of the flare is sufficient. Concerns for the size of the flare are related to the overall life as gas production declines over time. EA recommends re-evaluating the life of the flares once construction is complete. As described in 4.7.7, preliminary estimates indicated the flares are sized to operate for an additional 20 years (2044), not taking into account the practical life of the equipment.
15	21	4.7.4	SCS	Radius of influence for new wells was calculated based on the number of wells proposed to be installed. Industry standard practice for determining radius of influence is based on well depth, and this should be reconsidered. There is no change in these documents from 60%. JCF - Concur. The County recommends additional wells to address offsite migration.	The method utilized to calculate radius of influence considers the depth of the well. EA evaluated well spacing equal to double the well depth and this resulted in approximately 90 additional landfill gas wells (120 new landfill gas wells total). EA thinks this is too conservative and instead added additional wells in areas where offsite migration has been observed.

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16	27-28	4.15	SCS	Long term (decompositional) settlement can be approximated using Sowers' (1973) methodology, or similar empirical approaches, which are based on waste thickness (H), age of waste (time factors t1 and t2), void ratio (e) and compression index (Cα). Although such a method is approximate, it can help identify areas that may be prone to total and/or differential settlement over time which may result in reversal of final grades, flattening of grades, and LFG header piping slope changes. Since larges areas of the top deck will be graded to less than 4%, according to Table 1 - Slope Areas, estimating decomposition settlement that will occur over time is warranted for these areas. Sowers method can be adjusted to reflect topographic mapping in 2009, 2015 and 2018, which will provide the trend of settlement over time. Localized settlement cannot be predicted accurately due to waste variations noted in the report, but it may be conservatively assumed that differential settlement in such areas is 50% of total settlement. JCF - Is there any benefit to using the Sowers' methodology to validate settlement analysis? AKNEA - was there methodology or just a trend extension?	EA performed a settlement analysis with the topographic mapping from 2009, 2015, and 2018, supplemented with the additional survey for the 100% design. EA is using the settlement trends from this analysis as the basis of future settlement prediction before construction. No settlement calculation methodology was used because the historical trends are a more accurate predictor. EA utilized estimated waste consolidation parameters from Sowers' methodology to estimate potential differential settlement from varied loading/unloading of the landfill due to waste relocation and grading. A maximum slope change of 0.3 percent was estimated. That slope change will not impact surface drainage. Long-term settlement from continued waste decomposition will still occur and may impact surface drainage over time. Additional text was added in Section 4.2.1.
17			MDE	The report lacks an executive summary to include a general overview of the site, purpose of the project and nature of proposed work.	An executive summary was added.