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April 17, 2017

Mr. Robert Simeone
BRAC Environmental Office
Unit 100 Room 334
30 Quebec Street
Ayer, Massachusetts 01432-4429

Re: Comments on 2016 Shepley's Hill Landfill (SHL) Annual
Operation, Maintenance and Monitoring Report
Former Fort Devens Army Installation
Devens, Massachusetts

Dear Mr. Simeone:

On behalf of People of Ayer Concerned about the Environment (PACE), Engineering & Consulting Resources, Inc. (ECR) prepared the following comments on the above-referenced document prepared in March 2017 by KOMAN Government Solutions, LLC of Westboro, MA (KGS):

Our comments are as follows:

- PACE and ECR acknowledge and appreciate the Army's efforts and success in increasing the annual average flow rate from the extraction wells to 53 gallons per minute. The achievement of this flow rate without major expansion of the treatment plant is noteworthy.
- Section 2.3.2 should further discuss the fact that many landfill gas vents and monitoring points yielded readings above 100% of the Lower Explosive Limit (LEL). Although similar readings have been obtained in the past, the existence of potentially explosive conditions merits further discussion in the text, particularly regarding potential safety issues.
- The trend analysis summarized in the table in Section 5.4.2 only used data from Long Term Monitoring (LTM) semi-annual and annual data sets only (see note at bottom of table). Why were data collected during non-LTM events excluded from the analysis?
- The table in Section 5.4.2 that summarizes Arsenic Concentration Trends indicates that more wells had increasing trends than decreasing trends. Although not implicitly stated, the table implies that overall arsenic concentrations are not showing significant decreases. However, half of the wells with "increasing" trends (six¹ of the twelve wells identified) are located in areas outside the arsenic plume, and had maximum arsenic concentrations of less than 5 parts per billion² (i.e., less than half the cleanup standard of 10 parts per billion). Some of the results used are below reporting limits, which adversely affects the

¹ SHL-8D, SHL-8S, SHM-10-02, SHM-10-03, SHM-10-04, and SHM-10-08

² Based on data used in the trend analysis.

results of the Mann-Kendall analysis.¹ The minor parts-per-billion level fluctuations in arsenic concentrations in these six wells are more likely due to natural variability in arsenic background concentrations rather than a trend of any significance. Unless the Army believes that these data indicate that the arsenic plume is expanding to these new areas, the trend results from these wells only serve to lead to a misleading conclusion that overall arsenic concentrations are increasing rather than decreasing. It is therefore ECR's opinion that these wells should be removed from the summary table. Further, the future use of trend analysis for wells where all arsenic concentrations are below the current cleanup standard is, in our opinion, not meaningful and should be discontinued.

- The table in Section 5.4.2 identifies well SHM-96-5B as having an increasing trend, which appears unlikely given the results shown on the graph for this well in Appendix G (see attached copy), and the results of the 2015 analysis that indicated that this well had a decreasing trend. Appendix H does not include the results of the Mann-Kendall analysis for this well. Please add the missing trend analysis to Appendix H, double-check the results of the trend analysis, and revise the table in Section 5.4.2 as necessary.
- The table in Section 5.4.2 identifies well SHM-10-15 as having insufficient evidence of a trend; however, the results for the Mann-Kendall analysis in Appendix H indicate that a decreasing trend was identified. Please correct the table in Section 5.4.2.
- It is noted that the Mann-Kendall trend analysis is biased toward concluding that a trend does not exist (i.e., the lack of a trend is the null hypothesis). Data from wells such as SHM-13-04 and SHL-22 (see attached copies of graphs taken from Appendix H) clearly indicate decreased concentrations over time, yet the Mann-Kendall analysis does not identify these as statistically significant decreasing trends.
- The conclusion in Section 6.1.3 that the "majority" of wells exhibited no statistically significant trends is not supported by the data presented in the summary table in Section 5.4.2. Of the 42 well locations shown in the table, 20 (i.e., less than half) are identified as having no statistically significant trend. Although trend analysis was performed on the EPA wells, ECR agrees that they do not merit inclusion in the summary table because a sufficient number of sampling rounds have not yet been conducted at these wells to adequately identify trends.
- As part of the Army's efforts to improve treatment plant operation, it is our understanding that measures to further de-water sludge were explored. What were the results of those efforts, and is data available on the water content of the sludge that is removed from the site?
- The average annual inorganic concentrations in the Arsenic Treatment Plant (ATP) influent reported in Section 3.1.2 (52.4 milligrams per liter [mg/L]) and Section 3.3.1.1 (57.12 mg/L) do not agree. It appears that the value reported in Section 3.1.2 is in error.
- In Section 5.2.1 it is stated that the minimum hydraulic head differential measured across the barrier wall in the fall of 2016 was -0.01 foot; however, Table 5-2 indicates that a lower head differential of -0.62 was observed in the PZ-05/PZ-06 couplet.

¹ http://vsp.pnnl.gov/help/Vsample/Design_Trend_Mann_Kendall.htm

- In Section 5.4.1 it is stated that the highest arsenic concentration detected during the June 2016 sampling event was 2,500 parts per billion (ppb); however, Figure 5-4 indicates that results from both SHM-05-40X (2,800 ppb) and EPA-PZ-2012-3B (3,500 ppb) exceed this value.
- Appendix H contains two graphs for SHM-93-22C that are generally similar but not identical. One of the graphs is labeled "SHM-96-5B" along the x-axis.

PACE and ECR appreciate the opportunity to provide comment on this document, and we look forward to the Army's response. Please feel free to contact me at (978) 500-3199 if you have any questions or comments regarding this letter.

Sincerely,
Engineering & Consulting Resources, Inc.

**Richard
Doherty**

Digitally signed by Richard
Doherty
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Richard E. Doherty, P.E., L.S.P.
President

Attachments: copy of SHM-96-5B arsenic concentration graph
 copy of SHM-13-04 and SHL-22 Mann-Kendall graphs

cc: Ms. Carol Keating, USEPA
 Mr. David Chaffin, MassDEP
 Ms. Pamela Harting-Barrat, USEPA
 Ayer Board of Health
 Ayer Board of Selectmen
 Mr. Robert Pontbriand, Ayer Town Administrator
 Mr. Mark Wetzel, Ayer DPW
 Ms. Julie Corenzwit, PACE
 Ms. Laurie Nehring, PACE

Historic Arsenic Concentrations
SHM-96-5B
Nearfield Area

