Engineering & Consulting Resources, Inc.
www.ecr-consulting.com

ECR, Inc.
PO Box 905
Acton, MA 01720
(978) 500-3199
info@ecr-consulting.com

July 12, 2017

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

Re: Comments on Shepley's Hill Landfill (SHL) Draft Work Plan, Supplemental Investigation To Demonstrate Plume Capture
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 by KOMAN Government Solutions, LLC of Westboro, MA (KGS), in June 2017.

- Section 1.3 Supplemental Site Investigation, *EPA SOW Investigation*: The sentence in the second paragraph that begins with "As such ..." presumes that the conclusion of the proposed work will be that sufficient plume capture has already been achieved. Please reword the sentence to state that the purpose of the work is to evaluate whether or not satisfactory capture of the plume has been achieved. Please make similar revisions to the following paragraph of Section 1.3, which presumes that the current remedy is protective in the long term, to be consistent with EPA's conclusions from the most recent Five-Year Review.

- Section 2.1 EPA SOW Investigation Activities, *EPA Phase 1 Task 1* and Table 2: It is well-documented that use of a 0.45 micron filter removes colloids that are mobile in groundwater.[1] The collection of both filtered and unfiltered samples would provide more reliable information. EPA's 2010 Low-Flow Sampling Standard Operating Procedure (SOP) states ""filtered water samples are not an acceptable substitute for unfiltered samples when the monitoring objective is to obtain chemical concentrations of total mobile contaminants in groundwater for human health or ecological risk calculations."[2] At a minimum, it would be preferable to omit filtering for samples where the final turbidity reading is less than 5 NTU as recommended by EPA's Science Advisory Board.[3] A groundwater sample collected consistent with EPA's low-flow sampling procedure and with

1 Puls and Barcelona, *Ground Water Sampling for Metals Analysis,* Superfund Ground Water Issue, US EPA, March 1989, and EPA Science Advisory Board (SAB), Environmental Engineering Committee (EEC), Special Topics Subcommittee, *To Filter or not to Filter, that is the question, September 15, 1997.*

2 US EPA, 2010, *Low Stress Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells,* EPA Region 1, January 19, 2010.

3 SAB EEC 1997.

a turbidity of less than 5 NTU should provide an adequate representation of mobile metals content.

- Section 2.3, Data Quality Objectives, *Step 5:-Develop the Analytical Approach*: In this section, it is proposed that capture of greater than 90% of the groundwater exiting SHL will meet the requirements for capturing "essentially all" of the arsenic plume. The proposed 90% value is offered without explanation or supporting information. Because of the importance of this value to the objective of the proposed work, we recommend that it be discussed in greater detail and any supporting information be presented in the Work Plan. In particular, what would be the quantity of arsenic-impacted groundwater that would be allowed to escape capture if this value is adopted, and what would be the ultimate remedy for the impacted groundwater that is allowed to escape? We also recommend that consideration be given to the severity of arsenic impact to groundwater that is allowed to escape capture, as well as its downstream fate, rather than relying solely on a percentage of all groundwater exiting SHL to evaluate the effectiveness of the system.

- Section 2.3, Data Quality Objectives, *Step 5:-Develop the Analytical Approach*: This section includes an evaluation of changes in dissolved arsenic and "geochemical groundwater concentrations" as part of the evaluation of system effectiveness. The method of evaluating these changes should be presented and discussed in the Work Plan. In particular, it is recommended that a more accurate evaluation would result from not including a null hypothesis of no significant concentration changes. The use of a null hypothesis introduces a bias in the evaluation toward the lack of significant changes in concentration. The standard for identifying a significant change should be "more likely than not" rather than requiring statistical significance to overturn a pre-conceived null hypothesis.

- Section 2.3, Data Quality Objectives, *Step 5:-Develop the Analytical Approach*: In the last sentence of this section, please add "and configuration" after "operation." If plume capture is not adequate, the configuration of the system should be evaluated as well as the operation.

- Section 3.1 Pre-sampling Methods and Procedures, *Equipment and Supplies*: This section specifies that a submersible pump, if utilized, would be a bladder pump. For consistency, please add the bladder pump requirement to Section 2.1; Phase 1; Tasks 1, 2 and 3; all of which only require a stainless steel submersible pump.

- Section 3.2 Field Procedures, *Direct Push Technology Drilling*: The provision for abandoning sampling in the event that running sands are encountered appears overly stringent, and could seriously impair the investigation if running sands are widely present. We suggest that the use of make-up water be allowed where required and properly noted so that sampling and data collection can continue.

- Section 3.3 Post-sampling Activities, *Investigation-Derived Waste*: Section 3.2 (under "GeoProbe Groundwater Sampling") states that Section 3.3 discusses the disposal of sampling tubing; however, reference to tubing disposal was not found in Section 3.3. Please add text to Section 3.3, and consider recycling of what could be a significant amount of plastic tubing.

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.

RE Doherty

Richard E. Doherty, P.E., L.S.P.
President

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