RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
235 Promenade Street, Providence, RI 02908-5767 TDD 401-222-4462

November 15, 2002

James Shafer, Remedial Project Manager
U.S. Department of the Navy
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway
Code 1823-Mail Stop 82
Lester, PA 19113-2090

RE: Old Fire Fighter Training Area Draft Phase II Predesign Investigation, Naval Station Newport, Newport, Rhode Island

Dear Mr. Shafer,

The Rhode Island Department of Environmental Management, Office of Waste Management has reviewed the Draft Phase II Predesign Investigation Study for the Old Fire Fighter Training Area, dated 30 September 2002. Attached are comments generated as a result of this review.

If the Navy has any questions concerning the above, please contact this Office at 401-222-2797, ext. 7111.

Sincerely,

Paul Kulpa

Paul Kulpa
Office of Waste Management

cc: Mathew DeStefano, DEM OWM
Richard Gottlieb, DEM OWM
Kymberlee Keckler, EPA Region I
Melissa Griffin, NSN

2017

Comments on
Draft Phase II Remedial Investigation
Old Fire Fighting Training Area

1. **Table 4-1, Summary of Soil and Sediment Analytical Results**

   The table only contains analytical results taken from sediment samples. Correct the title and include a table with soil analytical results.

2. **Appendix E, Section 3.2 Reference Samples;**
   Page 2.

   The report states that reference samples of diesel and kerosene were used at the site. Please explain why these fuels were chosen as reference samples.

3. **Appendix E, Section 3.2 Reference Samples;**
   Page 2.

   The reference samples used in the comparisons were based upon analysis performed at another site. The report should indicate whether the same gas chromatograph conditions, operating temperature, temperature ramp, flow rates, etc. were used on both the reference and site samples (the chromatograph operations conditions for all of the samples should be included in an Appendix)

4. **Appendix E, Section 3.2 Reference Samples;**
   Page 2.

   Please indicate if the same GC was used for the reference and site samples.

5. **Appendix E, Section 3.2 Reference Samples;**
   Page 2.

   The report notes that additional GC finger print reference samples were obtained from Battelle Reference Lab. Please indicate if the same operating parameters were employed for the site and reference laboratory samples.

6. **Appendix E, Section 3.3, Chemical Analysis;**
   Page 2.

   The report notes that the samples were prepared and analyzed in accordance with methods by Stout, et al. Please indicate why standard EPA test methods were not utilized in the analysis. In addition, the report should include a comparison of the

two test methods, noting any difference with respect to the standard EPA test method.

7. **Appendix E, Section 3.3.4, Biomarker Fingerprints; Page 3.**

"petroleum or coal (Stout et al).

Please submit a copy of the pages referenced in the citation.

8. **Appendix E, Section 4.1 General Hydrocarbon Pattern; Page 4.**

"...were detected in SO11 and AQ11."

This is a public document, therefore, this section of the report should state where sample SO11 and AQ11 were collected from. This statement applies to the other samples discussed in Appendix E, (i.e. in addition to the sample identification number the location of the sample, storm drain, test pit, sediment, should be included in the discussion).

9. **Appendix E, Section 4.1; Page 4.**

In a forensic study the gas hydrocarbon gas chromatograph fingerprints of the various petroleum compounds are normally compared to the site chromatographs in order to identify the petroleum product responsible for the observed contamination. At his site a wide variety of petroleum compounds were used as fuels for fire fighting exercises. However, the forensic study was limited to comparing site gas chromatograph fingerprints to a kerosene and diesel standards. This limitation brings into question the utility of the study. Therefore, the forensic study should be expanded to include the complete range of petroleum standards.

10. **Appendix E, Section 4.1; Page 4.**

Please indicate which compounds are represented by the isoprenoid hydrocarbons.

11. **Appendix E, Section 4.1; Page 4.**

."... the absence of normal alkenes and the dominant presence of isoprenoid indicates advance biodegradation."

The report is a public document, therefore please indicate how it was possible to determine that the GC represented a degraded diesel, as opposed to a different petroleum fraction.

12. **Appendix E, Section 4.1;**
Page 4.

."... the absence of normal alkenes and the dominant presence of isoprenoid indicates advance biodegradation."

It is assumed that this statement was made based upon comparing the site samples to standard samples of diesel, which were biodegraded. Please include the GC and relevant chemical composition for the biodegraded diesel.

13. **Appendix E, Section 4.1;**
Page 4.

."...residual petroleum hydrocarbons..."

The report is a public document, therefore the term residual petroleum hydrocarbons should be defined.

14. **Appendix E, Section 4.1;**
Page 4.

This section of the report states that sample S 15 is representative of a weather petroleum product. The report should state which weather petroleum product is represented by this sample, i.e. weather gasoline, jet fuel # 3 oil, # 6 oil, etc and provide the documentation for this statement.

15. **Appendix E, Section 4.1;**
Page 4.

The report notes that pyrogenic PAHs were noted in the catch basin. The report should list all the PAHs, which are considered to be pyrogenic as well as, the PAHs which are considered petrogenic..

16. **Appendix E, Section 4.1;**
Page 4.

"...with various levels of naturally occurring organic mater." Please indicate which peaks on the reference GC represent naturally occurring organic matter. The report should also indicate whether this naturally occurring organic matter was positively identified in the mass spec.

17. **Appendix E, Section 4.2;**
Page 4.

This section includes a discussion of a GC associated with an urban sediment sample (2d.471). Please indicate where this sample was taken from.

18. **Appendix E, Section 4.2;**
Page 4.

Figure 2 contains a series of high resolution GCs for site sample, a reference sample and a sample representing urban runoff. Please indicate whether all of these samples were run on the same GC with the same operation parameters, (temperature ramps, flow rates), etc.

19. **Appendix E, Section 4.2;**
Page 4.

"The high relative abundance of two ring PAH after a protracted period in the subsurface soil suggest that water washing was not a primary mechanism of PAH degradation."

The general public is not aware of which compound constitute two ring PAHs. Therefore, as this is a public document, please provide a list of the two ring PAHs discussed in this section of the report and/or reference Table 2.

20. **Appendix E, Section 4.2;**
Page 4.

"The high relative abundance of two ring PAH after a protracted period in the subsurface soil suggest that water washing was not a primary mechanism of PAH degradation."

The report is a public document. Therefore, please explain why the component of PAHs which are expected to be washed away, are still present.

21. **Appendix E, Section 4.2;**
Page 4.

"...the ratio of light to heavy PAH..."

The report is a public document, therefore please provide define the terms light and heavy PAHs and provide a list of PAHs in each group.

22. **Appendix E, Section 4.2;**
Page 5.

This section of the report includes a discussion of the PCA, which was used on the site samples. The report notes that in the PCA process certain chemical components were used to delineate the different fuels and samples. Please include a table listing which chemicals were used in this analysis.

23. Appendix E, Section 4.2;
Page 5.

This section states the asphalt was evident in a number of samples. Please indicate whether this was from road asphalt or from highly weathered heavy oil, which may be referred to as "asphalt".

24. Appendix E, Section 4.2;
Page 5.

The report notes that due to the hydrocarbon pattern certain samples appeared to contain asphalt. It is assumed that this statement was made due to knowledge of the chemical composition of asphalt and the GC normally associated with asphalt. The report should include this list of compounds and the associated GC. Please provide documentation for both the list and the GC.

25. Appendix E, Section 4.4;
Page 6.

The report is a public document therefore please define and discuss the meaning of the following terms: :triterpan biomarker, homohopane series, T, NH, H, Tm.