

NSWC CRANE
DRAFT 30% SOIL LOADING BATCH REPORT
FOR SOILS BIOREMEDIATION FACILITY

RESPONSE TO COMMENTS

September, 1998

Commentor: Bill Gates

Comment 1: Executive Summary, last paragraph: Provide economic analysis of 30% vs. 25% soil loading.

Response 1: Economic analysis has been provided and discussed in Section 5.0 and the Executive Summary.

Comment 2: Section 2, first paragraph: Change "windrows" to "windrow". Common throughout document.

Response 2: References to "windrows" changed to "windrow" throughout the text of the document.

Comment 3: Section 3, page 3-2, second paragraph: Clarify paragraph to include contaminant reduction goal (95, 99%, or range?), and day achieved (Day 20 or Day 60?).

Response 3: The first sentence of Section 3, page 3-2 has been revised and now states the reduction cleanup goal range of 90-99%. The first sentence has also been modified. The day achieved is stated in the last sentence in the following paragraph.

Comment 4: Section 5, first sentence: Change "35%" to "30%".

Response 4: Comment noted and text has been revised.

Comment 5: Appendix G: Average Windrow Explosive Reduction Summary is 3 pages not 4 pages as listed in Table of Contents.

Response 5: The Average Windrow Explosive Reduction Summary should be four pages. The correct number of pages is provided.

Comment 8: Appendix G: RDX, HMX, and 2,4,6-TNT Reduction Charts are missing.

Response 8: Acknowledged. RDX, HMX, and 2,4,6-TNT Reduction Charts are provided.

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Commentor: Christine D. Freeman

General Comments:

- Comment:** For consistency, change "windrows" to "windrow" (only one windrow in this report) throughout the text.
- Response:** References to "windrows" changed to "windrow" throughout the text of the document.
- Comment:** For consistency, refer to the end date of the windrow as, "Day Last" instead of "Day Final".
- Response:** The end date of the N-30% windrow has been changed from "Day Final" to "Day Last".
- Comment:** For clarification, at the beginning state that Mix 7B information comes from Pilot Scale Operations.
- Response:** The first complete sentence on page I-2 now identifies Mix 7B as a pilot-scale operations windrow.
- Comment:** For consistency, if comparisons are to be made between the 30% pile and PS Mix 7B, then comparisons should be made for each parameter in the report.
- Response:** A comparison was added in Section 2.1 of the report.

Specific Comments:

- Comment 1:** Acronyms and Abbreviations: Add the following to the list: FS-OP Full-Scale Operations Plan for Soils Bioremediation Facility, FS-QAPP Full Scale Quality Assurance Project Plan, PS-TTR Pilot Scale Treatability Test Report, and RSD Relative Standard Deviation. Insert changes in the text after the first reference for each of the above mentioned reports.
- Response 1:** Items noted above have been added to the Acronyms and Abbreviations section. These changes were also made in the text

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after the first reference for each of the above mentioned reports

- Comment 2:** p. I-161 .1: Rewrite the first sentence as follows, "...remediation results for the 60 cubic yard pilot-scale ~~size~~ windrow..."
- Response 2:** The first sentence on page I-I, section 1 .1 has been rewritten as stated above.
- Comment 3:** p I-I 61.2 ¶1: Rewrite the last sentence as follows, ". (SWMUs): Ammunition Burning Ground (~~ABG~~— SWMU 03/10); Rockeye Munitions Facility (~~Rockeye~~)—SWMU-10115); Mine Fill A (MFA)—(SWMU-12/14); and Mine Fill B —(SWMU-13/14).
- Response 3:** The last sentence on page I-I, section 1.2, first paragraph, has been rewritten as stated above.
- Comment 4:** p. I-I 61.2 ¶3:
- a) Elaborate that Mix 7B consisting of 15% chicken manure, 25% soil, 60% straw was the recommend mix from Pilot Scale (because it is compared to later in several sections of the report).
 - b) Rewrite the third sentence as follows, "... incorporated in the ~~approved~~ Full-Scale Operations Plan for Soils Bioremediation Facility (FS OP) [MK, 1998b] approved by the U.S. Environmental Protection Agency, Region V (EPA) and are ..."
- Response 4:**
- a) The fourth sentence in the third paragraph in section 1.2 has been rewritten to include the Mix 7B recipe.
 - b) The third sentence in the third paragraph in section 1.2 has been rewritten as stated above.
- Comment 5:** p. I-2 61.3 ¶1: Reference and show a map of the MFA grids where the soil for the 30% windrow was excavated.
- Response 5:** A sentence has been added to the end of the first paragraph of section 1.3 referencing the excavation locations at MFA. Soil excavated from various MFA grid locations was stockpiled in Building 1 for use in windrow formation. Specific grid locations for soil used in the 30% windrow cannot be determined. MFA

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excavation locations are referenced in Figures E-1 through E-4 of Appendix E1 of the FS-OP.

Comment 6: p. 2-1 62.1 ¶1: Rewrite the third sentence as follows, "... above 65°C can kill or reduce the activity of many microbes ..."

Response 6: The third sentence in the first paragraph of section 2.1 has been rewritten as stated above.

Comment 7: p. 2-1 62.1 ¶2:

- a) Reference and include the daily process logs in Appendix B.
- b) Rewrite the first sentence as follows, "... windrow turning according to the Field Standard Operating Procedure (SOP) 4 Section 3 of the Quality Assurance Project Plan for Full Scale Operations (QAPP) [MK, 1998c]."
- c) Rewrite the second sentence as follows, "... of the four cross sections, for a total of 24 monitoring locations."
- d) Humidity is discussed in this paragraph. It should be discussed in Section 2.2 Moisture.

Response 7:

- a) A reference to average daily ambient temperature data has been added to the second paragraph of section 2.1. A log of average daily ambient temperatures has been added to Appendix B.
- b) The first sentence in the second paragraph in section 2.1 has been rewritten as stated above.
- c) The second sentence in the second paragraph in section 2.1 has been rewritten as stated above.
- d) References to humidity have been removed and are discussed in section 2.2.

Comment 8: p. 2-2 62.2:

- a) Rename this section as, "Moisture".
- b) Discuss humidity in this section. Reference humidity data in Appendix C.
- c) In paragraph three of this section, identify from where the added moisture **was** received to rule out additional explosives contamination.
- d) Provide a clarification as to why the second sentence of paragraph four (more moisture added due to longer cycle) is

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true. What is it compared to?

- Response 8:**
- a) Section 2.2 has been renamed "MOISTURE".
 - b) Then second paragraph in section 2.2 now discusses humidity and references Appendix C for humidity data.
 - c) The last sentence of the third paragraph of section 2.2 describes the water source.
 - d) The second sentence of the fourth paragraph has been removed.
- Comment 9:** p. 2-4 §2.3 ¶3:
- a) After the first sentence, reference the daily process logs located in Appendix B.
 - b) Rewrite the second sentence as follows, "... as the temperature measurements according to SOP 4 Section 3 of the QAPP."
- Response 9:**
- a) A reference to oxygen monitoring data has been inserted as the second sentence of the third paragraph in section 2.3.
 - b) The second sentence in the third paragraph in section 2.3 has been rewritten as stated above.
- Comment 10:** p. 2-4 §2.4:
- a) Rewrite the second sentence as follows, "... as outlined in Field SOP 4.0 Section 5 of the FS-QAPP the Full Scale Operations Plan for Soils Bioremediation Facility [MK, 1998bc]." ~~the Full Scale Operations Plan for Soils Bioremediation Facility~~
 - b) Rewrite the last sentence as follows, "The data for Windrow N-30% pH monitoring data for Windrow N-30% are is presented in Appendix E."
- Response 10:**
- a) The second sentence in section 2.4 has been rewritten as stated above.
 - b) The last sentence in section 2.4 has been rewritten as stated above.
- Comment 11:** p. 3-1 53.0: This section needs to reference and include the raw data (metals, volatiles, & explosives) for the pre-excitation samples from contaminated soils used in the windrow.

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- Response 11:** Soil excavated from various MFA grid locations was stockpiled in Building 1 for use in windrow formation. Specific grid locations for soil used in the formation of Windrow N-30% cannot be determined and the volume of analytical data is too extensive to include in this report.
- Comment 12:** p. 3-1 53.1: In this report, the methods listed to analyze for metals is 6010; volatiles method is 8240. In the **Windrow S-001 Batch Report** the methods listed to analyze for metals are 6010 and 7470; volatiles method is 8260. Shouldn't these methods be consistent because only the approved FS QAPP and FS OP were to be followed? Please correct appropriately.
- Response 12:** Method 7470 has been added to the methods used to analyze for
- Comment 13:** p. 3-1 §3.2 ¶1:
- a) The field screening results, SOPs, and test kits used should be included in this section since they were used on this windrow.
 - b) Define the reporting limit and define the difference between reporting limit and a detection limit.
- Response 13:**
- a) The third sentence of the first paragraph in section 3.2 has been removed. Field screening is not mentioned in this report since field test kit information is discussed in the Field Audit Demonstration Report.
 - b) Reporting limit has been defined in the seventh sentence of the first paragraph in section 3.2. The difference between reporting limit and detection limit has not been defined since detection limit is not mentioned in the report.
- Comment 14:** p. 3-1 §3.2 712: In this report, the criteria for explosive compound contamination reduction between Day 0 and Day Last is listed as 90-99% reduction. In the FS **Windrow S-001 Batch Report**, the criteria is listed as 95%. Shouldn't these methods be consistent because only the approved FS QAPP and FS OP were to be followed? Please correct appropriately.

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- Response 14:** The FS-QAPP states the criteria of 90-99% reduction of toxicity and mobility to achieve remediation goals.
- Comment 15:** p. 3-1 §3.2 ¶3 In this paragraph first state when 95% or 90-99% reduction occurred, then go on to state that the windrow was monitored further.
- Response 15:** The second sentence in the last paragraph of section 3.2 now states when the 90-99% reduction was achieved.
- Comment 16:** p. 4-4 §4.2: In this section, the field test kit accuracy information should be included.
- Response 16:** See Response 13 a),
- Comment 17:** p. 4-3 §4.2 ¶2: In the second sentence, please be more specific about how many equipment rinsate blanks were collected ("most" is not a good choice of wording).
- Response 17:** The second sentence in the second paragraph in section 4.2 now states that six equipment rinsate blanks were collected.
- Comment 18:** p. 5-1 §5.0 ¶1: In the first sentence, change "35%" to "30%".
- Response 18:** In the first sentence in the first paragraph of Section 5.0, "35%" has been changed to "30%".
- Comment 19:** p. 5-1 §5.0 ¶2: In this paragraph, is the conclusion that the 30% soil loading will actually decrease the operational period of the project and yield a cost savings really true? With 25% soil loading we are reaching cleanup levels within 7 days (30% took 20). Will adding 5% more soil make up for losing 13 days?
- Response 19:** The Mix 7B 25% windrow achieved Industrial Cleanup Goals in 10 days according to the PS-TTR. Windrow N-30% also achieved Industrial Cleanup Goals in 10 days. Both windrows achieved contaminant reduction goals as required by the FS-OP in 10 days. The cleanup as well as reduction goals may have been reached

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between Day 5 and Day 10 however, no analytical testing was performed between these days therefore results are not available. An economic analysis has been provided in the Executive Summary.

Comment 20: Appendix B: Remove humidity data and move to Appendix C.

Response 20: The "Average Daily Percent Humidity Chart" has been removed from Appendix B and placed in Appendix C.

Comment 21: Appendix C: Add "Average Daily Percent Humidity Chart" to the table of contents.

Response 21: The "Average Daily Percent Humidity Chart" has been placed in the Table of Contents.

Comment 22: Appendix G:

- a) The Average Windrow Explosive Reduction Summary is only 3 pages not 4 as stated in the Appendix G table of contents.
- b) Charts for HMX, RDX, and TNT are not included in Appendix G.

Response 22: a) The Average Windrow Explosive Reduction Summary should be four pages. The correct number of pages is provided.
b) Acknowledged. Charts for HMX, RDX, and TNT are provided.