U.S. ARMY ENGINEER DIVISION
HUNTSVILLE, ALABAMA

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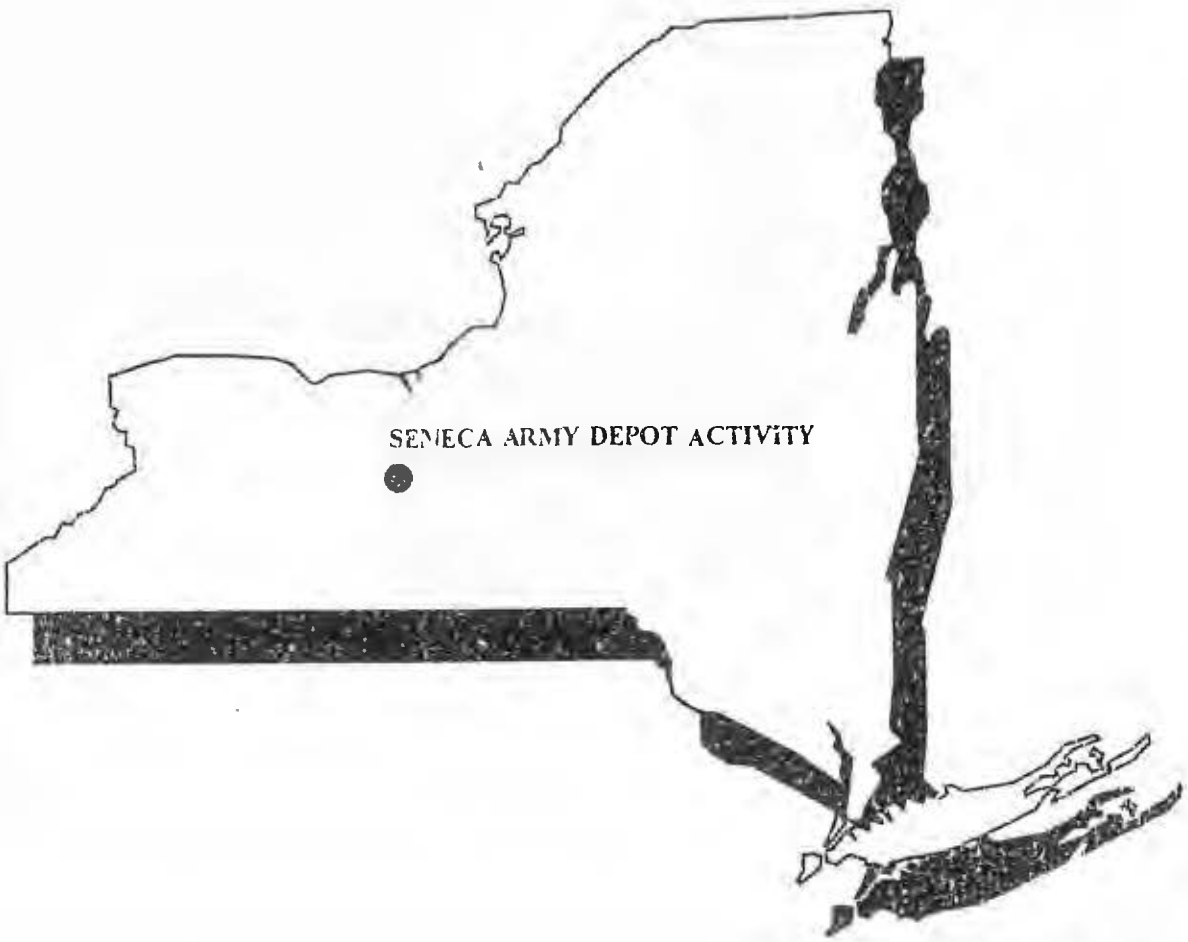

FINAL - APPENDIX

PROPOSED PLAN FOR
The ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

CONTRACT NO. DACA87-95-D-0022
DELIVERY ORDER 0010

JULY 2002

FINAL PROPOSED PLAN
FOR
THE ASH LANDFILL

SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

APPENDIX

Prepared For:

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July 2002

APPENDIX A
RESPONSE TO COMMENTS

Response to Comments from NYSDEC

RESPONSE to COMMENTS by
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DRAFT PROPOSED REMEDIAL ACTION PLAN
at the ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY
ROMULUS,NY

Response to NYSDEC Comments dated April 25, 1997

Comment #1 General. The PRAP should include a site plan of the Ash Landfill site and a second plan showing the groundwater plume and location of three cut-off walls and gates, proposed under the preferred alternative MC-3a.

Response #I Agreed; An updated location map of the Ash Landfill has been included as Figure 1. A site plan of the Ash Landfill site has been included in the PRAP as Figure 2. A groundwater map showing the groundwater plume before and after the IRM has been added as Figures 3 and 4, respectively. The location of the existing and proposed continuous zero valent iron reactive trench has also been added as Figure 5.

Comment #2 Page 1, Site Background: This section should include a paragraph detailing all the disposal activities that took place at this site. The disposal activities could be found in Section 1.2.2 of the final feasibility study report.

Response #2 Agreed; The following paragraph was added to the end of the "Site Background" section:

"Since 1941 the depot and has been owned by the United States Government and operated by the Department of the Army. Prior to construction of the depot, the site was used for farming. From 1941 to 1974, uncontaminated trash was burned in a series of burn pits, (SEAD-14), near the abandoned incinerator building (Building 2207), (SEAD-15). According to a U.S. Army Environmental Hygiene Agency (USAEHA) Interim Final Report, Groundwater Contamination Survey No. 38-26-0868-88 (July 1987), from 1941 until the late 1950's or early 1960's, the ash from the refuse burning pits was buried in the Ash Landfill (SEAD-6).

The incinerator building was built in 1974. Between 1974 and 1979, materials intended for disposal were transported to the incinerator. The incinerator was a multiple chamber, batch-fed 2,000 pound per hour capacity unit which burned rubbish and garbage. The incinerator unit contained an automatic ram-type feeder, a refractory lined furnace with secondary combustion and settling chamber, a reciprocating stoker, a residue conveyor for ash removal, combustion air fans, a wet gas scrubber, an induced draft fan, and a refractory-lined stack (USAEHA, 1975). Nearly all of the approximately 18 tons of refuse generated per week on the depot were incinerated. The source for the refuse was domestic waste from depot activities and family housing. Large items that could not be burned were disposed of at the NCFL (SEAD-8). The NCFL is approximately 2-acres and is located southeast of the incinerator building (immediately south of the SEDA railroad line). The NCFL was used as a disposal site for non-combustible materials, including construction debris, from 1969 until 1977.

Ashes and other residues from the incinerator were temporarily disposed of in an unlined cooling pond (SEAD-3) immediately north of the incinerator building. The cooling pond consisted of an unlined depression approximately 50 feet in diameter and approximately 6 to 8 feet deep. When the pond filled (approximately every 18 months), the fly ash and residues were removed, transported, and buried in the adjacent Ash Landfill east of the cooling pond. The refuse was dumped in piles and occasionally spread and compacted.

No daily or final cover was applied during operation. The active area of the Ash Landfill extended at least 500 feet north at the incinerator building, near a bend in a dirt road, based on an undated aerial photograph of the incinerator during operation. A fire destroyed the incinerator on May 8, 1979, and the landfill was subsequently closed. A vegetative cover, comprised of native soils and grasses, was present during the RI.

A grease pit disposal area near the eastern boundary of the site was used for disposal of cooking grease. Burn areas, surrounding the Ash Landfill, included areas of blackened soil, charred debris and areas of stressed or dead vegetation."

Comment #3 **Page 2, first column, first paragraph, last sentence:** Please insert "above" between feet and Mean to read"....*600 feet above Mean Sea Level (MSL)*."

Response #3 Agreed. The text has been revised.

Comment #4 **Page 2, Soil:**

i) The first sentence should be corrected to read "The primary VOCs in soils.....";
ii) This section should detail concentration of VOCs and semi-VOCs before and after the removal action;
iii) Please define the term "95th UCL of the mean" (page 3, first column, first paragraph). It may be difficult for a common person to understand this term without explanation. In addition, it appears that this term has been calculated incorrectly. Some of the values shown on Table 1 are lower than mean value (see FS report for mean values).
iv) Please define the term "post prove out soil samples."
v) Please define TCLP (page 3, first column, first paragraph). The last two sentences of this paragraph are ambiguous. It states TCLP metal concentration in mg/kg which appears to be incorrect. Please elaborate metal concentration in soil before and after the removal action.

Response #4 Agreed;

i) The first sentence was changed to read "The primary VOCs in soils ....."
ii) Table 1, Table 2, Table 3 and Table 4 have been revised to include the concentration of constituents in soil before and after treatment. Table 1 and Table 2 includes all site data, before and after the IRM. Table 3 and Table 4 includes data from only the areas where treatment was performed. Text has also been added to this section that identifies the maximum concentration of TCE prior to and following soil treatment. In many instances the mean values are higher than the 95th UCL of the mean values. This is most likely due to the fact that the distribution of the data was lognormally distributed. The arithmetic mean is simply the sum of each value divided by the number of samples and does not consider the distribution of the data. The data in Table 1 is identical to the values provided in the FS, see Table 2.1. Perhaps the differences were due to comparisons to different depths. Table 2.1 includes soil depths from 0 to 2 feet and all depths for the values provided for all soil at all depths.
iii) A paragraph has been added that explains the term 95th UCL of the mean.
iv) The term "post prove out soil samples" has been removed and replaced with post treated samples. The summary data presented on page two reflects the entire set of soil samples that were collected from the treatment program, including the prove-out testing and the post prove-out testing that was performed during the actual treatment operations.
v) The concentration reported in the text was incorrectly reported as mg/kg. It has been changed to ug/L, (ppb). Additional explanation of what the results of the TCLP testing and the total testing is provided to distinguish the difference between a TCLP test and a total test.

Comment #5 **Page 3, Groundwater:** This section should also discuss the results of groundwater samples taken after the removal action.

Response #5 Agreed; Additional discussion regarding the decrease in the groundwater concentrations that were observed following the removal action is provided. Figures 3 and 4 have been added to highlight the reductions in groundwater concentrations that have been observed following the soil thermal treatment Interim Remedial Measure (IRM).

Comment #6 **Page 3 - Human Health Risk Assessment:** The second sentence of the second paragraph of this section states incorrectly that xylene and toluene are PAHs (polynuclear aromatic hydrocarbons). Please delete "PAH" from this sentence.

Response #6 **Agreed.** The sentence was incorrectly worded and mistakenly implied that toluene and xylenes are PAH compounds. This sentence has been modified to state that the compounds toluene, xylene, and some PAHs cause cancer in laboratory animals and are suspected carcinogens. The reference to PAHs were kept in this sentence since PAHs are suspected carcinogens.

Comment #7 **Page 4 - Human Health Risk Assessment:**

i) The first sentence of the second paragraph in the right hand column of this page incorrectly states that LRA is an acronym for the Land Redevelopment Authority. In fact, LRA is an acronym for Local Redevelopment Authority. Please make this correction.

ii) The first bullet on page 5, second column should also include VOCs.

Response# 7 Agreed. (i)The LRA has been changed to Local instead of Land.
(ii) VOCs have been added to the bullet.

Comment #8 Alternative SC-3, Excavation of the Ash Landfill and Debris Piles/Consolidation at the NCFL/CAP the NCFL:

i) second paragraph, second line: Please correct it to read ... "Bend in-the-road:...;

ii) 10th line: Please insert contact between dermal and or. It should read "the most likely exposure pathway is from dermal contact or ingestion....";

iii) It should be stated that the cap will meet requirements of 6NYCRR Part 360.

iv) second column, first paragraph: This paragraph appears to be redundant. The removal action has already been completed and therefore this paragraph does not add any significant value.

Response #8 Agreed. i) Road has been changed to road.
Agreed ii) Dermal has been contact has been inserted between dermal and or
Disagreed iii) The proposed cover will be a vegetative cover that will prevent exposure to the landfill contents, such as metals and PAHs, that have been buried in the NCFL and the Ash Landfill. The proposed vegetative cover will be 12-inches thick but will not include all the components of a landfill closure cap such as a gas venting layer, nor a low permeability soil barrier. The vegetative cover will therefore not meet the requirements of 6NYCRR Part 360. A cap required by 6NYCRR Part 360 is not considered necessary, as the landfill materials are not leaching and the risk from exposure due to ingestion or dermal contact can be prevented by a vegetative cover. The source of the groundwater plume, comprised of chlorinated ethenes, was not from the NCFL or the Ash Landfill. The source of the groundwater plume was soil that has been excavated and treated by the IRM. Since the landfill contains ash and non-combustible fill materials (primarily construction debris) landfill gases were either not present or low. Migration of landfill gas is not considered to pose a threat since there are no receptors near the landfill. Since the future land use is conservation/recreational, not residential, a gas collection layer was

deemed unnecessary. The reference to a barrier such as clay or a geomembrane has been removed.

Agreed iv) The paragraph has been removed.

Comment #9 **Alternative SC-5, Excavation of Debris Piles/Disposal in an Off-site, Non-hazardous Subtitle D Landfill:**

i) Table 2 (page 1 of 3) states that sediments greater than NYSDEC criteria will be removed from the Ash Landfill site. Please indicate the concentration and location of sediments exceeding the NYSDEC criteria on page 2 of the PRAP under surface water and sediment section, and the details of sediment removal as part of the remedy in this section;

ii) Please indicate minimum thickness of soil cover;

iii) Last paragraph states that "*If testing indicates that the soils are not suitable for disposal in Subtitle D landfill, then ... onsite landfilling and capping would be considered*." Based on the available data it does not appear that the soil will fail the TCLP test and therefore would most likely be disposed of in a Subtitle C landfill instead of considering the unacceptable hypothesis of constructing a landfill on site.

Response #9 Agreed;

i) There are no plans to remove sediment from the site. As described in the summary of the remedial investigation, the only one wetland, Wetland WB, was impacted. This wetland was removed during the IRM thermal treatment project. Reference to removal of sediment in Table 2 has been removed.

Agreed;

ii) The minimum thickness of the soil cover at the NCFL and the Ash Landfill is 12 inches. This has been added to the text.

Agreed;

iii)The text has been changed. The reference to constructing an on-site landfill has been removed.

Comment #10 **Alternative MC-2, Provide Alternate Water with Natural Attenuation:**

i) The third paragraph incorrectly states that the NYSDEC groundwater standards for heavy metals have not been exceeded in on-site wells. Please correct this error;

ii) The fourth paragraph states that a contingency plan would be initiated, if the groundwater data indicates a statistically significant rising trend in the concentration of heavy metals or semivolatiles.

a) It is our understanding that the alternate water supply to existing threatened farm houses will be provided as part of the remedy. The groundwater monitoring will be conducted to ensure protection to future residents and to monitor the plume. This alternative should clearly state this.

b) The main contaminants of concern at this site are volatile organics (VOCs) in the groundwater monitoring program and the resulting data should be used for implementation of the contingency plan.

c) Please give details of the contingency plan.

Response # 10 Agreed i)

The statement that groundwater standards for heavy metals have not been exceeded in on-site wells has been removed.

Agreed ii)

a) Text has been added that states that the groundwater monitoring will be conducted to ensure protection of future residents and to monitor the plume.

b) The text has been modified to indicate that the groundwater monitoring program will monitor volatile organics.

c) Details of the contingency plan have been added. The text has been modified to identify what aspects of the contingency plan will be performed to assure continued protection of off-site receptors. This will include an evaluation of the most appropriate technology, in this instance, air sparging of the plume is the preferred contingency option.

Comment# 11 **Alternative MC-3a, Funnel and Gate/In-situ Treatment:** This alternative does not include any plan for treatment of the contaminated groundwater that has already migrated off site and lies between the existing farmhouse and the Ash Landfill site (Tax Map Parcel #7-1-02). The placement of the passive groundwater collection trenches on the Seneca Army Depot property will not capture this groundwater. This alternative should include periodic groundwater monitoring and a contingency plan to protect the threatened farmhouse and any future off-site resident from the contaminated groundwater which has already migrated off site. Additionally, the groundwater monitoring would be required to evaluate the performance of this remedy.

Response# 11 **Agreed;** This alternative will include a groundwater monitoring program to monitor the effectiveness of the reactive barrier wall. If the water supply to an off-site receptor is threatened, then the contingency plan will include activated carbon adsorption at the receptor location. Carbon adsorption will be used to remove the dissolved chlorinated organics prior to use.

Comment# 12 **Alternative MC-5, Interceptor Trenches/Tank Storage/Filtration/Air Stripping/Discharge to Surface Water, last paragraph:** Please explain why a substantial piping system will be required, when the effluent water will be discharged to the drainage ditch located along the sides of the patrol road.

Response# 12 **Agreed;** The reference to a substantial piping system has been removed. The discharge from the treatment system will be to the nearby drainage ditches, not directly to Kendaia Creek. For cost estimating, the final length of discharge pipe will remain as priced in this alternative.

Comment# 13 **Preferred Alternative, page 11, last paragraph:** It states " *...if migration of the plume continued, a subsequent remedial action would be taken."* Please provide details of the subsequent remedial action in the details of alternative MC-3a (page 9). Please also see our comments on Alternative MC-3a regarding the contingency plan.

Response# 13 **Agreed;** The subsequent remedial action that will be implemented will involve installation of activated carbon adsorption vessels at the receptor location.

Comment# 14 **Table for Soil Contamination for all depths and Groundwater Contamination:** The PRAP should include two tables showing the details of soil and groundwater contamination and applicable ARARs or TAGMs.

Response# 14 **Agreed;** Table I and Table 2 been provided that describes the concentration of soil, before and after the IRM. These two tables include all the soil data collected from the site. Table 2 is different from Table I in that the VOCs and Semi-VOCs from soil samples within the areas where the IRM was performed were excluded from the calculations. The concentrations of metals remained the same as the treatment process did not remove metals from soil.

Comment# 15 **Table 3, Page 1 of 3:** In the row regarding Permanence the statement "*once treatment criteria of <5ug/l is attained the action is permanent*" is made for three of the migration

control remedial alternatives. Since the clean-up goal for vinyl chloride in groundwater is actually 2 ug/l perhaps it would be better to state "once the remedial action objectives have been attained the action is permanent".

Comment# 15 **Agreed;** The text in the table, which has been renamed **Table 6**, has been modified to indicate that the action is considered permanent once the State and Federal groundwater criteria have been attained.

RESPONSE TO COMMENTS From
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DRAFT PROPOSED REMEDIAL ACTION PLAN
at the ASH LANDFILL
SENECA ARMY DEPOT ACTIVITY
ROMULUS,NY
NYSDEC Comments Dated October 9, 1997 from Marsden Chen

I am confirming our telephone discussion of October 3, 1997 on the Ash Landfill PRAP. We agreed:

Comment #1 a) That adequate groundwater monitoring wells would be constructed downgradient of the funnel and gate groundwater remedy for evaluation of the effectiveness of the remedy.

Response #1 Agreed; The reactive barrier wall demonstration study was installed in December, 1997. Following recommendations of the NYSDEC, Parsons ES installed three (3) well clusters of monitoring wells along the wall. At each cluster, one well was installed 2.5 feet upgradient, one was installed in the trench and one was installed 2.5 feet downgradient of the trench. Each of the clusters were spaced approximately 150 to 200 feet apart. At the suggestion of the NYSDEC, one cluster, the southernmost one, was installed in an area of the plume that was a zone of higher contamination. In addition, one well was installed at each end of the trench. Monitoring data has been collected for 4 quarters and the report is being finalized.

Comment #2 b) Adequate monitoring of the groundwater immediately upgradient of the farmhouse will also be done for detection of potential exposures to the contaminated plume not treated by the remedy. The well(s) for this monitoring will be separate from those in item a) above.

Response #2 Agreed; As part of the final remedy, the Army will perform monitoring of the downgradient farmhouse drinking water wells. The exact number, frequency and location of these wells will not be specified in the PRAP but will be described in the final design documents.

Furthermore, the following modifications are need in your PRAP:

Comment #3 c) A map or schematic is required to locate and identify the Ash Landfill, non-Combustible Landfill, groundwater plume and farmhouse. No such map is to be found in the RI/FS or PRAP.

Response #3 Agreed; An updated site map has been included in the PRAP as Figure 2.

Comment #4 d) A simple statement explaining the location of "Bend of the Road" should be inserted in the RI summary on page 2. The public at large will not be clear on the phrase.

Response #4 Agreed; The location of the "Bend in the Road" has been added.

Comment #5 The PRAP has stated that the excavated soils were cleaned by LTTE, but no mention has been made of the soils remaining in the excavated hole. If data shows those soils to be clean, the PRAP should clearly say so.

Response #5 Agreed; Tables have been added that describe the results of the LTTD IRM. Additional text has been added that provides a summary of the LTTD IRM results.

Comment #7 e) In Alternative SC-5, the term "vegetative soil cover" should be corrected. Please state that the treated soils backfilled into the NCLF (not NCFL) and Ash Landfill is clean soil (from the LTTE) and proper grading and a vegetative cover will be planted to ensure acceptable drainage and erosion control respectively.

Response #7 Agreed; From your comments there is some confusion regarding the work that was performed during the IRM. The soils that were treated during the LTTD IRM were not excavated from the Non-Combustible Fill Landfill (NCFL), therefore, the soils were not backfilled from an area that was not excavated. Soils were excavated from the "Bend in the Road" area which extended partially into the Ash Landfill. This material was screened to remove large debris that would not fit through the LTTD. Once treated and tested, the soil was backfilled into the excavation, graded and a vegetative cover was then established. The cover is established based upon the most recent visit to this site. A sentence has been added to the text that states that following backfilling, a vegetative cover was established to prevent erosion.

Comment #8 f) Your PRAP (page 2) states that the Ash Landfill is approximately 130 acres. Further description of the operable unit, area of concern and the actual size of the Ash Landfill is required, since my recollection is that the actual size of the landfill is the ±3 acres range.

Response #8 Agreed; The entire Ash Landfill Operable unit was expanded during the scoping phase of the work to 130 acres. The RI performed investigative activities over 130 acres that included soil gas survey, geophysical mapping, soil borings, etc. The results of the RI concluded that the areas of concern were the Ash Landfill, the Debris Piles, the NCFL and the groundwater plume. The area of the SWMUs that comprise the Ash Landfill Operable Unit have been added. The area that encompasses these items is much less than 130 acres.

Comment #9 g) On page 3 of the PRAP, soils section, the units, mg/kg, for lead should be checked. Please review your data and confirm either mg/kg or ug/kg for all instances of Pb in the PRAP.

Response #9 Agreed; The units have been corrected.

Comment#10 These comments above are in addition to those sent you on April 25, 1997, and the NYSDEC requests that a final draft copy incorporating these changes should be sent us for review, prior to offering to the public.

Response#10 Agreed; The April 25, 1997 comments have been addressed.

Additional Addendum Comments Dated October 9, 1997

We request that:

Comment#1 a) The PRAP state that other remedial alternatives for the groundwater contaminated plume will be assessed, should the funnel and gate in-situ remedy prove to be ineffective.

Response#1 Agreed; The description of the alternative, MC-3a, includes a contingency alternative of monitoring and providing carbon treatment at the farmhouse.

Comment #2 b) The PRAP state that a remedy will be applied to the untreated groundwater contaminated plume, should the early-warning monitoring well upgradient of the farmhouse indicate unacceptable levels of contamination. Deed restriction may not be an alternative, since we believe the plume have encroached onto private property.

Response #2 Agreed; The plan is to add an additional trench downgradient of the existing trench to address the materials that may have existed on the downgradient side of the existing trench. Monitoring wells will also provide detection of the plume should this additional trench be insufficient. If monitoring detects contamination approaching the farmhouse well then a carbon adsorption system will be place at the farmhouse to provide assurance that the water supply is protected.

Response to Comments
From
New York State Department of Environmental Conservation (NYSDEC)

Draft-Final Proposed Remedial Action Plan (PRAP) for the Ash Landfill and the Draft Feasibility Memorandum for Groundwater Remediation Alternatives using Zero Valence Iron Continuous Reactive Wall at the Ash Landfill Seneca Army Depot Activity, Romulus, NY

Comments Dated April 6, 2001

This is regarding the above referenced Draft-Final Proposed Remedial Action Plan (PRAP) and the Draft Feasibility Memorandum for Groundwater Remediation Alternatives Using Zero Valence Iron Continuous Reactive Wall at the Ash Landfill prepared by Parsons Engineering-Science (Parsons ES) for SEDA through the U.S. Army Corps of Engineers New York District and Huntsville Division.

In addition to the changes made to the document Draft-Final Proposed Remedial Action Plan (PRAP) as requested in the comments below, the results and conclusions of the Treatability Study for the reactive iron wall and the groundwater flow and transport modeling of different treatment wall configurations have been incorporated into remedial option MC-3a. The costs of this option have been updated to reference the costs that have been developed in the Draft Feasibility Memorandum.

Comment No. 1: A Table of Contents should be included.

Response No. 1: Agreed. A Table of Contents has been included.

Comment No. 2: As requested in our comment letter of October 9, 1997, "a map, or schematic is required to locate and identify the Ash Landfill, non-Combustible Landfill, groundwater plume and farmhouse". The farmhouse is not depicted in any of the figures in the current Proposed Plan.

Response No. 2: Agreed. The location of the farmhouse relative to the Ash Landfill and the groundwater plume is shown on new Figure 3. Figures 3 through 5 have been renamed as Figures 4 through 6.

Comment No. 3: Under the Preferred Alternative, the discussion on the contingency plan involving air sparging is limited to one sentence and should be expanded. A reference to the discussion on Alternative MC-3, Air Sparging of Plume, should also be included.

Response No. 3: Agreed. The following paragraph has been added:
"A contingency plan will be developed as part of this preferred alternative. The contingency plan will include additional monitoring and air sparging, as necessary. Following installation of the reactive walls, groundwater from monitoring well MW-56 (see Figure 2 for location) will be analyzed and the VOC results will be compared to the Class GA groundwater standards (trigger criteria). If a statistical analysis of the data for this well shows exceedances of Class GA standards, additional remedial action will be required. Temporary wells will be installed in the vicinity of MW-56, and the results will be used to develop an approach for air sparging. A description of the air sparging process is summarized in Alternative MC-3. If concentrations at MW-56 continue to exceed the trigger values following air sparging, an activated carbon system for the farmhouse water supply system will be installed or public water will be delivered to the house. More extensive air sparging will be performed until trigger values are no longer exceeded."

Comment No. 4: For Alternative SC-3, the Department still believes that the cap would be required to meet 6NYCRR Part 360, despite the Army's response to NYSDEC comments. However, because the preferred alternative does not suggest this technology, the NYSDEC feels resolution may not be essential.

Response No. 4: Agreed. The Army will resolve this issue if required at a later date.

Comment No. 5: In response to NYSDEC comments (specifically comment# 13 of April 25, 1997, comment# 1 and # 2 of October 9, 1997) the Army states that if there is contamination detected in the early warning wells an activated carbon treatment system will be placed at the farmhouse to provide assurance that the water supply is protected, however this is not located anywhere in the body of the Proposed Plan. Please reconcile.

Response No. 5: Agreed. See Response No. 3.

Comment No. 6: As requested in Comment# 14 in the State's comment letter of April 27, 1997, the Proposed Plan should include a table showing the details of groundwater contamination and applicable ARARs.

Response No. 6: Agreed. A new Table 5 shows the concentrations of the total VOCs detected in the groundwater monitoring wells for four sampling rounds: June 1993, June 1997, October 1999

and January 2000. VOCs are summarized since they are the contaminants of concern. This table shows the VOC concentration changes with time. Other contaminants detected in the wells are discussed in the PRAP under *Non-Time Critical Removal Action Summary.* Table 7 has been inserted into the PRAP and provides a list of the applicable ARARs as listed in the *Feasibility Study Report at the Ash Landfill Site* (Parsons, December 1996).

Comment No. 7: On Table 2, there should be a footnote explaining that "Table 2 is different from Table 1 in that the VOCs and Semi-VOCs from soil samples within the areas where the IRM was performed were excluded from the calculations," as stated in Army Response # 14. The title "All Soil Sample Results – Post IRM" is misleading if the table merely reflects pre-IRM sample results with certain data deleted.

Response No. 7: Agreed. The above referenced footnote has been added to Table 2. The title of Table 2 has also been changed to "Soil sample results from outside of the IRM area only – pre IRM".

General Comment: Although the Department does not agree with all of the suggestions and conclusions made, the NYSDEC believes that the Draft Feasibility Memorandum of August 2000 is sufficient for backup documentation for the Proposed Plan. The Department agrees that the treatability study is sufficient to demonstrate that an adequate iron filing permeable reactive barrier (PRB) will degrade the chlorinated solvents present in site groundwater. We encourage the inclusion of additional design methods outlined in the Interstate Technology Regulatory Cooperation document relative to PRBs in addition to reliance on mathematical calculation estimates provided by vendors.

Response: Agreed. The Army will consider additional design methods outlined in ITRC guidance and other cooperative publications during the final design of the permeable reactive walls.

Response to Comments From
New York State Department of Health (NYSDOH)

Draft-Final Proposed Remedial Action Plan (PRAP) for the Ash Landfill
NYS Inactive Hazardous Waste Disposal Site No. 8-50-006
Seneca Army Depot Activity, Romulus, NY

Comments Dated: April 10, 2001
Date of Comments Response: September 24, 2001

This document is in reference to the Draft-Final Proposed Remedial Action Plan (PRAP) for the Ash Landfill, Seneca Army Depot Activity (SEDA), Romulus, New York. Parsons Engineering-Science (Parsons) prepared this document for SEDA through the U.S. Army Corps of Engineers New York District and Huntsville Division.

1. Comment: This PRAP goes to some length to point out that the baseline risk assessment indicated that the USEPA's target risk range is not exceeded under the current or expected future use scenarios but does not plainly state that under a future residential reuse scenario the USEPA's target risk range is exceeded. I agree with the contention in the "Human Health Risk Assessment" section of the PRAP that the planned reuse for this property is conservation/recreation and that future residential reuse is unlikely. Until the selected remedy for treatment of groundwater achieves the remedial action goals the contaminated groundwater, if used as a source of potable water, will continue to pose a threat to human health. This PRAP is unacceptable without provisions for institutional controls to prevent human exposure to contaminated groundwater. If the Ash Landfill property is to be transferred or leased before the groundwater is acceptable for all uses a deed restriction will be necessary.

   Response: Agreed. A formal discussion and development of appropriate Institutional Controls will be included in the final design based, at least in part, on discussions with NYSDEC, NYSDOH, and USEPA.

2. Comment: Finally, I don't think it's appropriate for the Army to speculate on the intentions of the adjacent property owner. Because this is privately owned property outside the Army's control the owner may elect to build a residence there at any time. Groundwater monitoring at the Ash Landfill has demonstrated that the contaminant plume has migrated from the site and has reached the adjacent property. Fortunately, the off-site levels of contamination are well below drinking water standards. I am confident that the preferred groundwater remedy will preclude further off site migration of the contaminant plume and will eventually

eliminate this potential risk. However, until the groundwater remedy is complete it will be necessary to monitor the use of the adjacent property as well as the groundwater quality.

Response: Agreed. Although VOCs have not been detected off-site since June 1997 and off-site exceedance of NYSDEC GA Groundwater Standards has never been observed, future monitoring will be required to detect off-site migration, if any, in the future. A post-closure monitoring plan will be developed during the design phase that will present a protocol for determining if additional action is required in the event of groundwater exceedances on the adjacent property.

Response to Comments From
New York State Department of Environmental Conservation (NYSDEC)

Draft Final Proposed Remedial Action Plan (PRAP) for the Ash Landfill
NYS Inactive Hazardous Waste Disposal Site No. 8-50-006
Seneca Army Depot Activity
Romulus, New York - July 11, 2001

Comments Dated: August 9, 2001
Date of Comment Response: September 24, 2001

This document is in reference to the Draft-Final Proposed Remedial Action Plan (PRAP) for the Ash Landfill, Seneca Army Depot Activity (SEDA), Romulus, New York. Parsons Engineering-Science (Parsons) prepared this document for SEDA through the U.S. Army Corps of Engineers New York District and Huntsville Division.

1. Comment: Please remove "Superfund" from the title. The Army is a responsible party as defined in Section 107 of CERCLA therefore the term "Superfund" is not applicable to this site.

   Response: Agreed. "Superfund" has been removed from the cover page, title page, heading for the table of contents page, and the heading on Page 1.

2. Comment: Page 3, Non-Time Critical Removal Action Summary: TAGM is an acronym for Technical and Administrative Guidance Memorandum, not Manual. Please change accordingly.

   Response: Agreed. "Manual" has been replaced with "Memorandum" when referring to TAGM on Page 3.

3. Comment: Page 4, Non-Time Critical Removal Action Summary: The last sentence of the first full paragraph should be corrected to read "as the concentrations of VOCs in groundwater in the area has decreased over 100 fold."

   Response: Agreed. The words "concentration of" have been replaced with "concentrations of VOCs in" in the last sentence of the 1st paragraph on Page 4.

4. Comment: Page 7, Human Health Risk Assessment: In the right hand column, locally the lake is referred to Seneca Lake not Lake Seneca.

   Response: Agreed. "Lake Seneca" has been changed to "Seneca Lake" on page 7.

5. Comment: Page 21, State Acceptance: Please remove the statement "NYSDEC has preliminarily agreed with the preferred alternative in this PRAP," and replace with the following: "State acceptance for the preferred alternative will be assessed in the Record of Decision following review of state comments received on the RI/FS report and the Proposed Plan."

   Response: Agreed. Text has been replaced, as recommended.

6. Comment: Page 22, Preferred Alternative: Exceedences of Class GA Standards should not be based on what a statistical analysis of data shows but if there is simply an exceedence of a standard. The text should be corrected to state that if there is an exceedence of the trigger criteria, then remedial action may be required. The wells to be installed in the vicinity of MW-56 should not be temporary but permanent to allow resampling of the specific location if need should arise in the future.

   Response: Agreed. A post-closure monitoring plan will be developed during the design phase that will present a protocol for determining if additional remedial action is required should a Class GA Standard be exceeded. We believe that a single, potentially isolated exceedance should not necessarily trigger additional remedial action.

7. Comment: Page 24, Glossary: Text under "Detection Limit" should not be italicized.

   Response: Agreed. Italics format of Text under "Detection Limit" has been changed to the standardized format of the other definitions on Page 24.

8. Comment: Page 25, Glossary: The work "Filtration", above which it is being defined, should be bolded.

   Response: Agreed. The word "Filtration" has been bolded and italicized when it appears as a heading on Page 25.

9. Comment: Page 31, Glossary: The font for "Threshold Criteria" should be changed to like text.

   Response: Agreed. The font for "Threshold Criteria" on Page 31 has been changed to conform to other headings in the Glossary.

10. Comment: Appendix A: Response to comments should not be included in the Proposed Plan document, they should be sent to the regulatory agencies under separate cover. Also, NYSDOH comments on the previous draft were sent on April 17, 2001, however the Army has yet to respond to these comments. Please forward the Army's response to the NYSDOH comments.

    Response: Agreed. Responses will be removed from the appendix and sent to regulatory agencies as suggested. The Army's response to NYSDOH comments (dated April 10, 2001; sent April 17, 2001) will be forwarded to NYSDEC.

11. General Comment: We note the body of this document suffers from a lack of concrete discussion and development of Institutional Controls. This may be due to the fact that the first iteration of the Proposed Plan was issued several years ago when there was not as developed guidance on Institutional Controls as today. Once all agency comments are received by SEDA, we suggest that a teleconference be held with the regulatory agencies to discuss this further.

    Response: Agreed. A formal discussion and development of Institutional Controls will be included in the final design based, at least in part, on discussions with the appropriate regulatory agencies. SEDA welcomes a teleconference to discuss Institutional Controls.

Response to Comments from US EPA

RESPONSE TO COMMENTS FOR
ENVIRONMENTAL PROTECTION AGENCY
DRAFT PROPOSED PLAN FOR THE ASH LANDFILL
AT SENECA ARMY DEPOT ACTIVITY
ROMULUS,NY
COMMENTS DATED OCTOBER 17, 1997

General Comments

General Comment #1 The Draft Proposed Plan for the Ash Landfill Operable Unit recommends Alternative SC-5 as the preferred alternative for source control of contaminated soils and the soil remedial action consists of excavation and off-site disposal of soils from the debris piles and maintenance of a vegetative soil cover for the Ash Landfill and Non Combustible Fill Landfill. Alternative MC-3 a is the preferred alternative for the contaminated groundwater.

According to the Final Reuse Plan and Implementation Strategy for SEDA, the future land use of the Ash Landfill is a conservation/recreation area. The proposed plan should be more specific in detailing the depth of the vegetative soil cover for the two landfills and the post-remediation surface soil concentrations for the chemicals that are driving the potential ecological risk.

Response #1 Agreed; The proposed plan includes a reference to the thickness of the vegetative cover, which will be 12 inches. The post-remediation surface soil concentration for the landfills will be the concentration of these metals in the imported soil that will provide the vegetative cover. The final concentrations of metals in this vegetative soil cover are expected to be similar to the background concentrations of these metals in clean soil. The final concentrations of metals in the vegetative cover cannot be presented in the PRAP, as this data will be collected during the remedial action.

General Comment #2 The Ecological Risk Assessment for the site reveals that cadmium, lead, zinc, and acenaphthene, in surface soils may pose a risk to plant life; their concentrations are above values considered to be phytotoxic. Lead in surface soils also may pose a risk to wildlife; the exposure point concentration exceeds the estimated soil concentration for chronic toxicity to the mallard.

When the soils within this operable unit become vegetated they would provide attractive habitat for wildlife that would use the area for hunting, feeding, and nesting. Animals and birds would be more likely to come into contact with the soils under these conditions. Since the land within this operable unit will be used as feeding, breeding, and home ranges for wildlife, based on the proposed future land use, the United States Environmental Protection Agency (USEPA) believes that a one foot minimum thickness soil cover on the Ash Landfill, the Non Combustible Fill Landfill, and the excavated debris pile areas would be protective in preventing direct contact and incidental soil ingestion by terrestrial

wildlife and uptake of contaminants by vegetation. The recommendation for this one foot minimum cover depth is based on the following facts:

- some wildlife species expected to utilize the habitats of the Ash Landfill include eastern cottontail, woodchuck and white-tailed deer. They are expected to come into direct contact with site soils, incidentally ingest It while feeding and grooming, and consume vegetation as a large part of their diet.
- some of these species live in close contact with the soil and burrow into it.
- the bioaccumulation of site-related chemicals up through the food chain would be expected as higher trophic level predators consumed small mammals as part of their diet.

The USEPA recommends that the one foot minimum thickness soil cover used on both the Ash Landfill and the Non Combustible Fill Landfill should be considered "clean fill" and cover existing surface soil concentrations equal to or greater than 60 ppm lead, 2 ppm cadmium, 200 ppm for zinc, and 0.1 ppm for acenaphthene. The proposed plan should state that these values are consistent with the U.S. Fish and Wildlife Service publication, *Evaluating Soil Contamination, Biological Report 90(2), July 1990.* The excavated debris pile areas should contain post-excavation surface soil concentrations equal to or less than the concentrations listed above or be covered with one foot minimum thickness of "clean fill" if residual contaminant concentrations exceed the ecologically protective limits listed above. It is essential that the residual chemical concentrations left after remediation of the debris piles and both landfills are protective of terrestrial receptors and will not act as contaminant sources to any adjacent wetlands or surface water bodies, USEPA also recommends that the soil cover be vegetated with native plant species to ensure that the cover will remain stable.

Response #2 Agreed; The vegetative cover will be one-foot thick and will be vegetated with native plants. The Ash Landfill and the Non Combustible Fill Landfill (NCFL) will be covered with a vegetative cover. The extent of the cover will be to the extent of the area of the ash for the Ash Landfill and the boundary of the NCFL landfill. The NCFL is easily distinguishable from the surrounding area due to the rise in elevation.

Disagree; The Army disagrees with the abovementioned clean-up goals for several reasons. While the Army has agreed to place a vegetative cover over the areas with the highest metals concentration, the ecological assessment performed during the RI did not indicate adverse conditions for ecological receptors. Ecological exposure point concentrations were all below soil concentrations considered to be representative of chronic toxicity. However, since individual areas, such as the Ash Landfill and the NCFL, did contain elevated concentrations of metals, the vegetative cover would prevent future exposure and was considered appropriate as an added level of protection to the cover that currently is in place. Therefore, the goals, proposed by EPA, are not consistent with what would be necessary to prevent exposure to the areas where these concentrations are the highest. These clean-up levels would require the Army to cover areas beyond the Ash Landfill and the NCFL. This would be a particular

problem for cadmium. Cadmium concentrations were measured in several areas, including background locations, above the proposed EPA clean-up level of 2 ppm. For example, cadmium at boring B-23, located approximately 1750 feet away from the Ash Landfill, in the 0-2 foot interval was 2.1 ppm. At the background borings B-8 and B-9, cadmium was measured at 2.6 and 2.3 ppm, respectively, in the 0-2 foot interval. In the surface samples collected from borings B-19, B-25 and B-24, east of the Ash Landfill and across West Smith Farm Road, cadmium was 3.7, 2.3 and 2.7 ppm, respectively. Therefore, the 2 ppm level for cadmium would require a vegetative cover over nearly the entire site, which would be hundreds of acres. This would be cost prohibitive and overly protective. Further, the table, Table 3 from the U.S. Fish and Wildlife Service publication, *Evaluating Soil Contamination, Biological Report 90,(2), July 1990*, that EPA references as the basis for the proposed clean-up levels, states that a level of cadmium of between 1 to 6 ppm is protective for agricultural redevelopment. This table also indicates that these levels for cadmium are for protection of human health, not for ecological receptors. For residential/parkland redevelopment, the clean-up level for cadmium is 4 ppm. Since the future intended use of the site is for conservation/recreational use, the 4 ppm value for residential/parkland would seem to be more appropriate levels of protectiveness. The proposed lead clean-up of 60 ppm is less of a problem in requiring a vegetative cover over widespread areas. Again, the clean-up value for lead in soil for residential/parkland redevelopment is 500 ppm. For zinc, the proposed clean-up level of 200 ppm would require a vegetative cover well beyond the boundary of the Ash Landfill and the NCFL. Again, the criteria for zinc for residential/parkland redevelopment is 800 ppm. In summary, the Army will agree to place a vegetative cover over the Ash Landfill and the NCFL but will not agree to place the cover beyond these areas, which would be required if EPA's proposed clean-up values were adopted. In many instances, the vegetative cover would be placed over areas that are considered to be background.

Secondly, the human health risk assessment considered exposure to current off-site residents, current and future on-site hunters, future on-site construction workers and future on-site residents. The results of the human health and ecological risk assessment indicated that site conditions are within the EPA target risk range of $1x10^{-4}$ and $1x10^{-6}$ for human health risk, with the exception of risk associated from residential exposure. The risk from residential exposure was due primarily from ingestion of groundwater for drinking.

An extensive ecological evaluation at the Ash Landfill site was also conducted during the RI. This effort included: fish trapping, fish counting, fish identification, benthic macroinvertibrate sampling and counting, small mammal species trapping and counting. In addition, a vegetation survey was performed, identifying major vegetation and understory types. The field ecological survey identified a diverse and healthy population of ecological species. No overt acute toxic impacts were evidenced during the field evaluation. Elevated levels of metals was identified as providing possible long term chronic impacts, which the Army is willing to address through the removal of the debris piles and construction of a vegetative cover over the Ash Landfill and the NCFL.

Thirdly, the ecological risk assessment identified both the deer mouse and the mallard as two potential ecological endpoint receptors for soil. Soil and sediment screening concentrations for chronic toxicity were derived for the deer mouse and the mallard. The derived concentration for protection of ecological receptors from exposure to lead in soil for the deer mouse was 800 mg/kg. The concentration for lead in sediment for the mallard was 139 mg/kg. The soil exposure concentration was determined to be 265 mg/kg, which is below the 800 mg/kg value. The sediment exposure concentration for lead in sediment was determined to be 96 mg/kg, which is below the 139 mg/kg value. Since the habitat of the mallard is aquatic, not terrestrial, the soil exposure concentration value, of 265 mg/kg, should not be compared to the sediment-derived value for protection of the mallard, which is 139 mg/kg. Based upon this, the ecological risks from lead to aquatic and terrestrial species are acceptable.

Finally, there is precedence within the State of New York where metals above the levels proposed by EPA could remain on-site. For example, New York State requirements for land application of sewage sludge and septage establish guidelines for allowable metals in soil. Although the requirements for the application sewage sludge involve a rigorous permitting and monitoring program, it does provide another guideline criteria that is useful in assessing what concentrations of metals may be protective in soil. Land application of sewage sludge has positive benefits as fertilizer for crops and vegetation. Many of these crops are used for consumption by cattle and the State of New York has established allowable concentrations of metals in soil that are considered protective. Presumably, such concentrations would not be toxic to vegetation or other, non-domesticated, wildlife species who may also inadvertently use the area as a source of food. These values are therefore considered worthy of consideration in attempting to establish levels that are protective of ecological receptors, especially since the requirements for land application of sewage sludge do not prohibit other ecological receptors from exposure. Section 360-4.4(a) of 6 NYCRR , Part 360, Title 6 of the Official Compilation of Codes, Rules and Regulations for the State of New York Department of Environmental Conservation describe the operational requirements for the land application of sewage sludge and septage. This section indicates that the sewage sludge and septage destined for land application must not exceed the following contaminant concentrations:

Parameter	Maximum Concentration (mg/kg-dry weight)
Cadmium	25
Lead	1000
Zinc	2500

As previously mentioned, the will Army agree to place a 12-inch vegetative cover over the Ash Landfill and the NCFL as an added protective measure against ecological and human exposure to metals and PAHs in the landfills. However, we are unwilling to adopt criteria that would require additional remedial measures at other locations. This would be overly protective and would require the Army to commit to a clean-up, costing potentially huge sums, whose only justification is adoption of a value from a table used by the Province

of Ontario for protection of agricultural use, which is not an anticipated future use for the site.

General
Comment #3 The areal extent of the VOC contaminated soil removal action (Area A and Area B) should also be covered with 12 inches minimum thickness clean fill and vegetated with native plant species. These soils also contained metals and PAHs exceeding the levels described above. The soils were excavated, treated for VOC contamination, stockpiled and the treated soil then used to fill the excavations, but the metals and PAHs remain.

Response #6 Disagree; Areas A and Area B have been excavated and remediated during the Interim Removal Measure (IRM) conducted by the Army in 1994 and 1995. The concentration of metals in these areas varied. The concentration of metals in several of these areas were below the proposed EPA clean-up levels prior to the IRM. For example lead in the 0 to 2 foot elevation ranged from 200 mg/kg to 8 mg/kg in Areas A and B, see Figure 4-39 from the RI, prior to the IRM. Only three locations were above 60 mg/kg and these were associated with the Ash Landfill, which will be covered. From the RI, the concentration of these three (3) metals, zinc, cadmium and lead the mean of the RI data was evaluated to provide a reasonable representation of what the current conditions are at the site, since process produced a soil that is thoroughly mixed. Fifteen (15) soil borings were performed during the RI in Areas A and B. These borings include: B-2, B-15, B-27, B-28, B-29, B-30, B-31, B-32, B-36, B-37, B-38, B-39, B-46, B-47 and B-48. Soil samples were collected and analyzed from the several depths including the surface, 0-2', 2'-4', 4'-6' and 6'-8'. A total of 49 soil samples, corresponding to 61 analyses, were analyzed for organic and inorganic contaminants. The mean concentration of lead in these samples is 30 ppm; for cadmium, the mean is 1.5 ppm; for zinc, the mean is 75.9 ppm. This data suggests that the soil in this area is below the EPA target levels for protection of ecological receptors. As a result, there is no justification to place an additional 1-foot of vegetative cover over an area that has been treated to reduce or eliminate the organic compounds and has reduced the inorganic components of concern.

Comment #7 The soil removal action already has caused the loss of wetlands and the 12-inch soil cover of the remedial action eventually will cause the loss of additional wetlands at the Ash Landfill. The required wetland mitigation plan should be mentioned in the proposed plan and record of decision and later be developed as part of the remedial design for the Ash Landfill operable unit.

Response #7 Agreed; Reference has been made that a wetland mitigation plan be added in the alternatives involving excavation and the vegetative cover.

Comment #8 Each soil-remediation alternative should be clarified to discuss what actions will be taken on the Ash Landfill, Non-Combustible Landfill, Debris Piles and Bend in the Road soils.

Response #8 Agreed; No further action is anticipated for the Bend in the Road soils for any alternative. Additional details regarding the extent of actions has been added to the soil remediation alternatives.

Comment #9 Each migration control alternative should address treatment of the portion of the contaminant plume that has migrated beyond SEDA property. In addition, each alternative should include appropriate off-site groundwater monitoring.

Response #9 Agreed; The potential for migration has been addressed through the reference to a contingency plan that will be implemented if there is a threat to off-site drinking water wells. Each migration control alternative has a reference to the contingency plan for off-site threats.

Comment#10 With regard to the risk levels associated with the groundwater contaminant plume, the EPA would like to review particular aspects of the risk calculations performed for the groundwater ingestion exposure pathway. Specifically, calculation of the exposure point concentration for select contaminants (vinyl chloride, 1,2 dichloroethene and trichloroethene) is requested. This request is motivated by the inordinately small values obtained from deriving the 95% Upper Confidence Limit (UCL) on the log-transformed data for the aforementioned contaminants. Our review will be significantly expedited, if the Army provides the entire date sets evaluated for each of the three contaminants, and all calculations.

Response #10 Agreed; Since the CERCLA process has progressed to the PRAP stage, the RI and the FS have been subject to EPA critique, several times, and are considered to be final documents. This data has been made available to EPA for review.

Comment#11 The LRA has determined that future land use of the Ash Landfill is to be "Conservation/ Recreation". Many locations of the document refer to future land use as, "a wildlife management area," "wildlife area", etc. The text should be corrected.

Response#11 Agreed; The reference to "wildlife management area" has been deleted and replaced with "conservation/recreational area"

Specific Comments

PURPOSE OF PROPOSED PLAN

Comment #1 The first sentence should be revised to read, "This Proposed Plan describes...at the Ash Landfill **operable unit**..".

Response #1 Agreed; The phrase operable unit has been added.

Comment #2 The last sentence should be revised to read, "The final decision regarding the selected remedy...after the U.S. Army, **EPA and NYSDEC** have taken..."

Response #2 Agreed; The phrase EPA and NYSDEC has been added.

COMMUNITY ROLE IN SELECTION PROCESS

Comment#1 The first sentence should read, "the U.S. Army, **EPA and NYSDEC** rely on public input..."

Response #1 Agreed; The phase EPA and the NYSDEC has been added.

Comment #2 Top of page 2: Romalus should be change to Romulus.

Response #2 Agreed; The typographical error has been changed.

SITE BACKGROUND

Comment#1 This section should briefly discuss which SEADs make up the Ash Landfill operable unit and briefly describe the previous activities at each. A Figure of the Ash Landfill operable unit should be referenced and included in the proposed plan. SEDA's fence line, property boundary line, plume, Conrail Railroad and all SEADs should be shown to scale.

Response#1 Agreed; The SWMUs that comprise the Ash Landfill OU have been identified in the text. Figure 2 has been included that identifies the fence line, the property boundary and the railroad. Figure 3 and 4 have been added that depicts the location of the groundwater plumes before the IRM and after the IRM.

Paragraph 2,

The first sentence should be revised to read, "The Ash Landfill operable **unit**.."

Agreed; The text operable unit has been added.

The second sentence should be revised to read, "The operable **unit** is bounded...".

Agreed; The text operable unit has been added.

The third sentence should be revised to read, "Beyond the Depot's ... along Route 96A are farmland..."

Agreed; The comma after Route 96A has been deleted.

REMEDIAL INVESTIGATION SUMMARY

Comment#1 This section should mention when the Remedial Investigation Report was completed.

Response#1 Agreed; The date that the RI report was finalized was added.

Comment #2 The discussion of the removal action within the RI Summary is confusing to the reader. Three paragraphs in this section discuss the soil removal action. They should be moved from the RI Summary, provided with the heading "Removal Action" and inserted to follow the remedial investigation results or the risk assessment summaries.

Response #2 Agreed; A new section titled "Non-Time Critical Removal Action Summary" has been added. Portions of the "Remedial Investigation Summary" pertaining to the Non-Time Critical Removal Action were moved to the new section.

Comment #3 Page 2, column 2 :
paragraph 1 : The last sentence should be revised to read. "The constituents of concern ... at the Ash Landfill **operable unit**."

Response #3 Agreed; The text operable unit has been added.

Comment #4 paragraph 2- This paragraph discusses the soil removal action. In addition to the Action Memorandum prepared by Parsons ES, the July 1995 final report for the Ash Landfill Immediate Response prepared by IT Corporation should also be mentioned. The last sentence mentions the clean-up criteria for the project.

Response #4 Agreed; Reference to the July 1995 final report has been added.

Comment #5 These cleanup criteria should be briefly explained, along with how this removal contributes to the efficient performance of the long-term remedial action.

Response #5 Agreed; Additional text has been added that describes how this removal action has made a positive contribution to the long-term remedial action.

Comment #6 Paragraph 3: The paragraph should mention which regulatory, standards were met before the treated water was discharged in the nearby field.

Response #6 Agreed; The regulatory standards that were met prior to discharge to the field have been added.

Soil

Comment #1 Page 2: first column, first paragraph: The second sentence should be revised to read, "This would also ... impacted groundwater **associated with the operable unit."**

Response# 1 Agreed; The text has been modified to include this phrase.

Comment #2 2nd column, last paragraph: This paragraph should include the maximum concentration of each contaminant of concern mentioned.

Response #2 Agreed; The maximum concentration of each contaminant of concern has been added to the text.

Comment #3 lst sentence - The hyphenation of the word "l,2-dichloroethene" should be corrected.

Response #3 Agreed; The hyphen has been removed.

Comment #4 Page 3, first paragraph:
Sentence 5 - "post prove-out" should be defined. The first time **"TCLP"** is used in the document, the full name should be used.

Response #4 Agreed; The text has been modified to describe that a prove-out test was performed prior to full scale operation. The reference to post prove-out testing has been removed and replaced with post-treatment testing, which includes all the testing that has been performed following thermal treatment. The full name of the term TCLP has been used the first time it was mentioned.

Comment #5 The last two sentences discuss lead concentrations and TCLP. The text should explain why the maximum lead concentration of 814 mg/kg is greater than the range maximum of 401 mg/kg for soils analyzed via TCLP. Also discuss whether the soil was determined to be RCRA hazardous waste.

Response #5 Agreed; The text has been modified to indicate that the maximum concentration of lead from the TCLP test was 814 ug/L, not 814 mg/kg. The range of TCLP concentrations has also been corrected. The text also states that no soil was found to exceed the TCLP test for the RCRA characteristic of toxicity.

Surface Water and Sediment

Comment #1 Regarding surface water, the concentration of iron should be included along with the NYSDEC water quality value that was exceeded.

Response #1 Agreed; The maximum concentration of iron detected has been added along with the NYSDEC water quality value.

Comment #2 Regarding sediment, the highest concentration of each metal exceeding NYSDEC guidelines should be included, with the value that was exceeded.

Response #2 Agreed; The maximum value of each metal exceeding the NYSDEC guideline and the guideline has been added.

Groundwater

Comment#1 The plume boundary should be defined in this section, discussing contaminant concentrations at the leading edge determined from quarterly monitoring results-

Response#1 Agreed; The discussion has been expanded to include data from the quarterly monitoring.

Comment #2 Sentence 2 should be revised to read: "**Recent quarterly monitoring results indicate that** this plume extends westward, **approximately 225 feet past** the depot boundary."

Response #2 Agreed; The text has been revised to indicate that one round of quarterly monitoring detected 1,2-DCE at a well 225 feet beyond the depot boundary.

Comment #3 Sentence 3 should read: "...located within the area considered to be the source area prior to **the soil removal action."**

Response #3 Agreed; The text has been modified to remove remediation and replace it with "the soil removal action".

Comment #4 Last sentence: "Vertically, the plume is believed to be restricted to the upper fill/weathered shale aquifer and is not present in the deeper competent shale aquifer" should be deleted from the paragraph. The previous sentence concerning the residential wells in the more competent portion of the bedrock appears to contradict the belief about vertical migration. If residents can draw water out of that zone, why can't there be enough fractures in that zone to allow for the downward vertical migration of contaminants?

Metals concentrations within the plume should be briefly discussed.

Response #4 Disagree; There is no contradiction in the sentence that states that the farmhouse wells are drawing water from the bedrock aquifer and the belief that the plume is not migrating vertically. The origin of the water drawn into the farmhouse wells is not known and is likely drawing water from deep bedrock wells that may extend to the deep limestone aquifer. Packer testing performed during the RI indicated that the bedrock shale aquifer is not a high yielding bedrock aquifer. The vertical packer testing performed during the RI indicated that the hydraulic conductivity of the bedrock is low, i.e. 1×10^{-6} cm/sec. In order to obtain sufficient yield, domestic wells in the area are drilled very deep, i.e. 200 to 300 feet or more. There is no contradiction since the shallower glacial till aquifer is not connected to the deeper aquifer. On-site vertical connection tests performed during the RI between the glacial till aquifer and the bedrock wells installed to a depth of 20 feet into shale showed virtually no connection. Given the depths of domestic wells and the distance from the site we do not feel that there is a connection between these two aquifers.

These two statements are consistent. From the years of monitoring of the farmhouse wells the deep bedrock water, drawn from the bedrock farmhouse well, has always been non-detectable for the chlorinated ethenes, which suggests that the plume has not migrated vertically. If the on-site bedrock aquifer was migrating vertically then it should be detected in the on-site bedrock monitoring wells or the farmhouse data.

Agreed; A discussion regarding the concentration of metals in the plume has been added. This discussion concludes that the concern of metals exceedances in groundwater was attributed to turbidity.

SUMMARY OF SITE RISK

Human Health Risk Assessment

Comment# 1 The text should explain where current on-site residents, employees, hunters and construction workers currently get drinking water, and after the base closes, where future on-site residents, employees, hunters and construction workers will get drinking water.

Response# 1 Agreed; The text has been modified to identify the location of drinking water for the various receptors.

Comment #2 Page 3, column 2, paragraph 2: Xylene and toluene are not PAH compounds. The text should be corrected.

Response #2 Agreed; The text has been modified to indicate that xylene and toluene are not PAH compounds.

Comment #3 Page 4, Column 1, paragraph 2, With the concentrations of TCE, 1,2-DCE and Vinyl Chloride at 51,000, 130,000 and 23,000 ug/IL (respectively) in groundwater, the text should explain why or how it was determined that none of the receptors are in danger of exceeding the EPA risk range for groundwater ingestion. Were concentrations from the leading edge of the plume used instead of maximum concentrations for the risk assessment calculations? Do receptors receive drinking water from another source? The expected receptor scenarios (off-site residents, on-site hunters and on-site construction workers) should be emphasized.

Response #3 Agreed; The text has been modified to indicate that non of the current receptors are in danger of exceeding the EPA target risk range. The 95th UCL of the mean groundwater concentration was used to compute the future on-site residential risk. The 95th UCL of the mean groundwater concentration of the off-site drinking water wells were used to compute the off-site risk due to ingestion of groundwater. The concentrations from the leading edge of the plume were not used to assess the off-site drinking water since data was available from the existing off-site drinking water well. Additionally, there is no data to confirm that the leading edge of the plume has migrated off-site. MW-56 did have a low level detection of 1,2-DCE but this detection has not been confirmed with subsequent sampling events.

Comment #4 Column 2. Paragraph 1: According to what authority is there no residential future land use currently planned for the property located off-site and adjacent to the Ash Landfill?

Response#4 The statement in the PRAP does not focus on what the future off-site land use will be, instead the statement describes what the proposed future use of the Ash Landfill Operable Unit will be. The statement does not place any restriction or limitation on the adjacent off-site parcel. However, for the Ash Landfill Operable Unit parcel, the Local Redevelopment Authority has determined that the Ash Landfill Operable Unit is within an area that has been designated for conservation/recreational use, not residential. It is unclear what the intent of this

comment is but it appears to be a rhetorical question indicating EPA's concern that the Army does not have control over private property.

Regarding the future use of the adjacent property, obviously, the Army has no control over what the future use of the adjacent land. However, the Army is committed to protecting human health and the environment and there is numerous instances associated with this site that highlight this fact. For example, the $6M soil treatment IRM that eliminated the source of groundwater contamination in 1994 and the installation of a reactive barrier wall to prevent the migration of the plume off-site. The Army has also installed and performed an extensive monitoring program and has disclosed the results of the monitoring to the adjacent property owner. Additionally, numerous public meetings have been held and will be held in the future to provide the adjacent property owners with the vital information to prevent exposure to drinking water. However, should an adjacent property owner decide to install a residential drinking water well at the SEDA property boundary, the Army would continue to provide adequate protection to ensure that the public health is protected. This protection would include monitoring the drinking water quality and could possibly include purchase of the property or may involve providing carbon adsorption vessels at the point of consumption to ensure that no contamination impacts human health. At this time there is no indication that such a future use of the property is planned.

Comment #5 Last sentence: This sentence conflicts with information on page 3, and is incorrect. It states that the till/weathered shale aquifer is unlikely to yield sufficient quantities of water for residential use. However, on page 3, first column, it says "At least one of the farmhouse wells draws water from the till/weathered shale aquifer and the remaining two wells derive water from the bedrock aquifer." Not only does the till/weathered shale aquifer yield enough water for residential use, so does the massive bedrock zone.

Response #5 Disagree; First, the construction details of the farmhouse well that draws water from the till/weathered shale aquifer is unknown and may not be of similar thickness or geological material to the geological conditions at the Ash Landfill Operable Unit. It is possible that the thickness of the till may be thicker at this location or may yield more water than the conditions on-site. In any event, based upon interviews with the farmer, during the various sampling events, it is known that the shallow well was a large diameter, hand dug well that does not yield sufficient water to be a useful source of water. This well is an old well and had to be replaced a long time ago with a deeper bedrock well in order to provide sufficient water for domestic use. The shallow well is frequently dry but is occasionally used to water livestock or water the garden. In any case, from the sampling of the Ash Landfill wells and the hydrological testing that has been performed, it is clear that if a shallow well were to be installed on-site as a source of drinking water, the water supply would be of poor quantity, turbid, high in iron and hardness and would most likely not meet the requirements of the Department of Health as a source of potable water. Water supply well drillers typically drill deep bedrock wells to supply water. It is unclear why EPA would choose to ignore the extensive amount of hydrological data that has been

accumulated at the site and continues to suggest that the shallow till aquifer is a suitable source of potable water. During various times of the year the thickness of this aquifer is decrease to 2 feet. Clearly, this aquifer is unsuitable as a sustained supply for drinking water. Further, the Army is intent on preventing such as use through a land use restriction. No changes to the text has been made as the Army believe that this is a true statement.

Comment #6 Paragraph 2: The first sentence should be corrected to read, "Although risks **exist for** potential future residents using groundwater for drinking **at SEDA, the Local** Redevelopment Authority (LRA) does not intend...".

Response #6 Agreed; The text has been changed.

Ecological Risk Assessment

Comment#1 Page 5, 1st column, 1st full paragraph: This paragraph should include the maximum concentration of lead, zinc, cadmium and acenaphthene detected in surface soils. See general comments above.

Response#1 Agreed; The maximum concentrations of lead, zinc, cadmium and acenaphthene have been added to the text.

Comment #2 3rd sentence: Federal AWQC should also be included as ARARs for Kendaia Creek.

Response #2 Agreed; Reference to the federal AWQC has been added.

Comment #3 5th sentence: When discussing metal exceedances, this sentence should indicate the media referred to.

Response#3 Agreed; Reference has been made to the media that exceedances have been observed.

Comment #4 Last sentence - The argument that the use of the wetlands by aquatic species is unlikely since the wetlands are dry during the majority of the year may be valid but it would also make the argument that terrestrial species would come into contact with these dry wetland soils more often valid also. Site data shows that metals were found in several sediment samples exceeding NYSDEC sediment guidelines.

Response #4 Disagreed; Risks due to aquatic exposure to sediment were computed during the ecological risk assessment as well as the risks due to terrestrial exposure due to exposure from on-site soils. The mallard was considered to be the aquatic receptor that would be exposed to sediment, since there are no fish in the wetlands. The point of this statement was that the use of the on-site wetlands as a resource for aquatic species was limited to periodic times of the year when the wetlands were filled with water, therefore the exposure would be even less that what was considered by the ecological risk assessment. The ecological assessment indicated that the exposure point concentration of metals in sediment was less than the concentrations considered to be protective, therefore the site sediment conditions were acceptable.

If the wetlands are used by terrestrial species then the sediment criteria should not be used for comparison since according to the NYSDEC guidance for sediment, "sediment can be loosely defined as a collection of fine-, medium-,

and course- (sic) grain minerals and organic particles that are found at the bottom of lakes [and ponds], rivers [and streams], bays, estuaries and oceans. Sediment are essential components of aquatic [and marine] ecosystems. A comparison of TAGM soil guideline values to those wetland sediments that are dry, i.e. no longer aquatic environment but rather a terrestrial environment, was not performed during the ecological risk assessment, therefore there is no comparison to refer back to. The on-site wetland sediment data appears in the same range as the soil data and it seems as though the conclusions from consideration of the on-site sediment from a terrestrial standpoint would remain as is.

No changes to the text have been made.

SCOPE AND ROLE OF ACTION

REMEDIAL ACTION OBJECTIVES

Comment #1 Page 5, 2nd column, 1st bullet - The NYSDEC soil cleanup TAGM values for inorganics and PAHs are only protective for human receptors. Since the Ash Landfill area is designated as a future Conservation/Recreation area, soil cleanup values should be protective of ecological receptors as well. The depth of soil cover should be discussed with the concentrations of contaminants remaining after cover is provided. The reference to the US Fish and Wildlife guidance document should be included to support the soil cleanup concentrations. See general comments above.

Response #1 Disagreed; EPA has referenced Table 3 of the US Fish and Wildlife guidance document *Evaluating Soil Contamination, July 1990*, and proposed clean-up levels of 60 ppm lead, 2 ppm cadmium, 200 ppm for zinc, and 0.1 ppm for acenaphthene. The Army disagrees with these values for clean-up, as described in the general comment response, but will agree to a vegetative cover over the Ash Landfill and the NCFL to provide a barrier to ecological exposure.

Comment #2 2nd bullet: The sentence should be corrected to read, "Comply with ARARS for New York State GA groundwater quality **standards and Federal MCLs**.".

Response #2 Agreed; The term "standards and Federal MCLs" has been included.

Comment #3 4th bullet: The word "possible" should be deleted from the sentence. It has already been established that the VOC plume has migrated off-site.

Response #3 Disagreed; The statement simply states that preventing possible off-site migration is an objective of the remedial action. There is no data that confirms that the plume has migrated off-site. The concentration of DCE has been non-detectable for the last several rounds of data monitoring. The highest concentration of DCE has been below the NYSDEC GA standard. It is possible, however, that the plume may migrate off-site. No changes to the text has been made.

SUMMARY OF REMEDIAL ALTERNATIVES

Comment#1 On page 8 and possibly other locations in the document, there are statements which conclude that, (MC-1) "No Monitoring or security measures will be

undertaken." or "Since these measures are promulgated by... additional measures may be required." These statements could lead the reader to believe that an alternative has already been selected, instead of just proposed. Will should be replaced with would whenever describing any of these alternatives in the proposed plan.

Response #1 Agreed; The references to will has been replaced with would.

Comment #2 1st paragraph, last sentence should read "In addition, ... preference for treatment as a...

Response #2 Agreed; The word "the" before treatment has been removed.

Comment #3 The bullets describing the two categories should be called, "Soil/sediment source **remediation**" and "Groundwater **remediation"** instead of "control".

Response #3 Disagreed; Changing the word from source control to source remediation and groundwater control to groundwater remediation would require changes from SC to SR and MC to MR. This would not be consistent with the FS and does not change the intent of the phrase SC and MC. There is no need to make this change.

SC REMEDIAL ALTERNATIVES

Comment#1 Page 5, column 2: Bullet 2, SC-2: This statement refers to "both landfills"- The name of each landfill should be provided instead.

Response#1 Agreed; The name of both landfill has been added.

Comment #2 The last paragraph, which also continues onto Page 6, should be deleted from this section and included in the "Evaluation of Alternatives" section.

Response #2 Agreed; This paragraph has been moved.

Comment #3 Page 6, 1st column, 1st paragraph, 1st full sentence should read "Overall protection of human health and **the environment and** compliance with

Response #3 Agreed; The phrase "the environment and" has been added.

Alternative SC-1: the No-Action" Alternative

Comment #1 2nd sentence should read "There are no costs associated with the no-action option."

Response #1 Agreed; the word "the" has been added.

Alternative SC-3: Excavation of the Ash Landfill and Debris Piles/Consolidation at the NCFL/Cap the NCFL

Comment#1 The text should clarify the extent (depth, volume, etc.) of excavation for each; the Ash Landfill, Debris Piles and Bend in the Road soils. See general comments above.

Response#1 Agreed; The depth of the excavation has been added.

Comment #2 lst full paragraph, 3rd sentence should read "Because the soils ... dermal **contact** or ingestion...."

Response #2 Agreed; The word contact has been added.

Comment #3 2nd column, 3rd full paragraph, 1st sentence should read "Alternative SC-3 is effective,.... following the elimination of the VOCs."

Response #3 Agreed; The second "the" has been eliminated.

Comment #4 Last sentence should read "Because the ... constituents of concern **to groundwater."**

Response #4 Agreed; The phrase "to groundwater" has been added.

Alternative SC-4: Excavation/Soil Washing/Backfill Coarse Fraction/Solidify FineFraction/Cap

Comment #1 Neither the title nor the text of this alternative mentions which soils will be treated with this technology. Clarification should be provided. See general comments above.

Response #1 Agreed; Clarification has been added.

Comment #2 Page 6, last paragraph-. The first sentence should be revised to read, "...and processed to -segregate the coarse fractions..".

Response #2 Agreed; The text has been modified from course to coarse.

Comment #3 Page 7, lst column, lst full paragraph, 3rd sentence should read "The success of ... concentrations of the metals **are** not high.

Response #3 Agreed; The change from is to are has been made.

Comment #4 3rd full paragraph, 2nd sentence should read "Solidification/stabilization ... and/or **insoluble** forms."

Response #4 Agreed; The change has been made.

Comment #5 The third sentence should be corrected to read, "The primary goals ... decrease the solubility **of** ____?____ and mobility of the soil,..."

Response #5 Agreed; The term metals has been added after the word soil.

Comment #6 Page 7, 2nd column, lst paragraph, 8th sentence - Is the solidified mass considered the chemical barrier that would prevent the leaching of the residual materials?

Response #6 Agreed; The text has been modified to clarify that the solidified mass is a chemical barrier against leaching.

Alternative SC-5; Excavation of Debris Piles/Disposal in an off-site, Non-hazardous Subtitle D landfill

Comment#1 This section should state the depth of soil cover and the concentrations of contaminants remaining after cover is provided, The Bend in the Road soils should also be covered. See general comments above.

Response#1 Agreed; The thickness of the soil cover will be 12-inches. However, the Army does not believe that the "Bend in the Road" soils should be covered.

Comment #2 Last paragraph, last sentence states that if tests indicate soils are not suitable for disposal in a Subtitle D " landfill, other on-site options would be considered. The text should also state the off-site options available.

Response #2 Agreed; The off-site options such as disposal has been added.

MIGRATION CONTROL ALTERNATIVES

Comment#1 Page 8, 1st column, 2nd paragraph: This paragraph should be deleted from this section and included in the "Evaluation of Alternatives" section. However, it requires modification as it is confusing to the reader. For example, there is no explanation as to why a no action alternative meets the threshold criteria while active remedies which remove contaminants from the aquifer (interceptor trenches would passively remove contaminants) would not meet the threshold criteria.

Response #1 Agreed; The paragraph has been moved. There are no references to the no action alternative as meeting the threshold criteria. However, a sentence has been added that MC-1 the no action alternative is not the threshold criteria but was retained as a baseline alternative.

Comment #2 2nd sentence should read "Overall protection of human health and the environment and compliance...."

Response #2 Agreed; The phrase "and the environment" has been added.

Comment #3 The fourth sentence states that MC-4 and MC-7 were eliminated from consideration because they did not meet threshold criteria reasons requirements. Please explain why the requirements were not met.

Response #3 Agreed; Text has been added explaining why MC-4 and MC-7 were eliminated.

Alternative MC-1: No-Action

Comment#1 It is stated that there is implied degradation of the chlorinated volatile organics in the ground water plume. The presence of the degradation product, vinyl chloride, is not mentioned in this section. Further, vinyl chloride is considered to be a more toxic chemical than its parent compound.

Response#1 Agreed; It is agreed that vinyl chloride is a more toxic compound that its parent compound but has not been detected in downgradient plume wells. However, vinyl chloride was only detected in the source area wells, i.e. MW-44. This area has been remediated and the vinyl chloride in this area has been remediated. Eventually, the endpoint of the biodegradation process is chloride, ethene/ethane, carbon dioxide and water. There is no requirement to change the text and therefore no change has been made.

Comment #2 The no-action remedy does not meet the threshold criteria. No action would not be protective of human health and the environment and a no action remedy does not comply with ARARS. The "Evaluation of Alternatives" section needs to state this latter information clearly.

Response #2 Agreed; A statement has been added that states that the no action alternative is not protective. However, if the groundwater is not ingested then there is no

exposure and there is no risk. The text states that groundwater concentrations exceed the GA standard, therefore additional measures may be required.

Comment #3 First paragraph, last sentence - The LRA, not the Army has already decided the future use of the Ash Landfill will be Conservation/Recreation. The text should be corrected here and at any other locations in the text.

Response #3 Agreed; The statement that the LRA has decided that the future use of the Ash Landfill will be conservation/recreational use has been added.

Comment #4 Page 8, Column 1, last paragraph continuing to column 2: This paragraph should be deleted. EPA has sent numerous letters refuting the Army's beliefs that steady state conditions have been achieved and that a naturally occurring cleansing process is remediating the plume. In fact, historical monitoring data from well MW-56 shows that the plume is continuing to migrate off SEDA property. If the Army has a problem with deleting this paragraph, we should schedule a conference call to resurrect this issue in order to avoid pages of added text to the proposed plan which attempt to defend the Army's position.

Response #4 Agreed; The paragraph has been deleted.

Comment #5 Column 2, 2nd paragraph, Sentence 1 should be revised to read: "Although current and intended land uses ... groundwater quality standards have been exceeded **and the contaminants have migrated approximately 225 feet off SEDA property."**

Response #5 Agreed; The following statement has been added, "Detections of low levels of DCE in an off-site well suggest that the plume may extend as far as 225 feet beyond the SEDA property. These detections have not been confirmed in recent quarterly monitoring samples. The off-site detections of DCE have not been measured above the GA groundwater standard."

Comment #6 Sentence 2 should be corrected to read, "Since these values are promulgated by the State of New York **and the federal government"**.

Response #6 Agreed; The phase has been added.

Alternative MC-2: Provide Alternate Water with Natural Attenuation

Comment#1 The expected treatment time for natural attenuation should be included.

Response #1 Agreed; The expected time has been added.

Comment #2 Paragraph 2 should state that the water line would be constructed off SEDA property and the text should include the requirements of installing such a water line. Be reminded that the purpose of BRAC is to transfer government owned property, not to acquire it.

Response #2 Agreed; A sentence has been added to indicate the requirements of the water supply line. We are aware of the purpose of BRAC, however, transferring property at the Ash Landfill Operable Unit does not mean that a water supply line cannot be installed. The current water supply system on the base will be transferred and this line will be an extension of this system.

Comment #3 3rd paragraph, lst sentence should read "Option MC-2 considers natural processes..."

Response #3 Agreed; The capital P of Processes has been changed to processes.

Comment #4 3rd sentence is not true. The RI results indicate that state and federal standards for heavy metals and semivolatiles have been exceeded. The text should be corrected.

Response #4 Agreed; This statement has been changed to state that heavy metals and volatiles have exceeded the groundwater standards. However, only one well, MW-44, located in the former source area, had GA exceedances during the RI for three semi-volatiles, phenol, naphthalene and pentachlorophenol. This well and soil surrounding this well were excavated, treated and replaced during the IRM. Groundwater in this area was also pumped, treated and discharged. Semi-volatile organics were not exceeded at any other well on the site, therefore, the text has been modified to reflect this.

Comment #5 Last paragraph: this paragraph ignores the fact that monitoring wells exist between the SEDA boundary and the farmhouse and that there are quarterly results for these wells. An explanation should be provided.

Response #5 Agreed; Reference to existing monitoring wells between the farmhouse and the SEDA boundary have been added.

Alternative MC-3 Air Sparging of Plume

Comment #1 Page 9, 1st column lst paragraph, 2nd sentence should read "in situ by VOCs."

Response #1 Agreed; An s has been added to the end of VOC.

Comment #2 3rd sentence should read "An air sparging ... for groundwater remediation."

Response #2 Agreed; The word "and" has been removed.

Comment #3 4th sentence should read "The advantages of in-situ air sparging **are:...**"

Response #3 Agreed; The word "are" has replaced "is".

Comment #4 3rd paragraph, sentence 6 should read, "If required, sparging systems...".

Response #4 Agreed; A comma has been added after the word "required".

Alternative MC-3a Funnel-and-Gatel In-situ Treatment

Comment #1 The text on page 9 should mention that this alternative is considered to be an innovative treatment technology, therefore requiring treatability testing.

Response #1 Agreed; The text has been modified to describe the demonstration study the Army has conducted for the last year.

Comment #2 Table 3 states that this remedy will comply with ARARS, but the text on page 9 states that iron filings have been demonstrated to be effective in treating chlorinated solvents. RI investigation results indicate that metals, other VOCs and SVOCs also exceeded ARARs. How will ARAR compliance be met for these compounds?

Response #2 Disagree; There is no need to comply with ARARs for metals and semi-volatiles since there are no exceedances of the GA or federal standards if

turbidity is accounted for. The RI data and the groundwater monitoring data does not indicate that there are exceedances for any SVOCs, other than the one well, MW-44, which has been remediated. Exceedances for metals, such as lead, copper, chromium, nickel, antimony, and zinc appear randomly dispersed thoughout the site, suggesting that the exceedances are not related to source, and influenced by turbidity. Filtered versus unfiltered data also suggest that turbidity is a factor. The Army believes that, other than for VOCs, there is no need to monitor groundwater for metals or SVOCs.

Comment #3 Page 1 0, column 1, top of page: The last sentence for this section should discuss treatment time for this alternative.

Response #3 Agreed; The operation and maintenance timeframe of 10 years has been added.

Alternative MC-5

Comment# 1 Page 10, 1st column, 3rd paragraph, 3rd sentence should read "Flow fluctuations are ...."

Response #1 Agreed; An "s" has been added to the end of "fluctuation".

Comment #2 Last paragraph: The first sentence should be corrected to read, "For this option, ...remedial action objectives which are **NYSDEC Class** GA groundwater quality standards **and Federal MCLS."**

Response #2 Agreed; The changes to the text have been added.

Comment #3 2nd column, 1st paragraph, 1st full sentence should read, "Trays or column packing **are** used..."

Response #3 Agreed; The word "are" has replaced the word "is".

Comment #4 4th paragraph: -The third sentence should be corrected to read, "in this case .... requirements for **NYSDEC** Class **C** surface water ..."

Response #4 Agreed; The classification had been changed to NYSDEC Class C.

EVALUATION OF ALTERNATIVES

Comment #1 On page 11, this heading exists, but no text has been provided.

Response# 1 Agreed; Text has been added.

Comment #2 The NCP requires a detailed analysis on a limited number of alternatives that represent viable approaches to remedial action after evaluation in. a screening stage. The detailed analysis consists of an assessment of individual alternatives against each of nine evaluation criteria and a comparative analysis that focuses upon the relative performance of each alternative against those criteria. The nine criteria are categorized into three groups: Threshold Criteria, Primary Balancing Criteria, and Modifying Criteria.

Overall protection of human health and the environment and compliance with ARARs are threshold requirements that each alternative must meet in order to be eligible for selection. The primary balancing criteria are long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness, implementability; and cost. State and community acceptance are the modifying criteria.

The EPA proposed plan boilerplate model (pages 4 & 5) can be followed, describing the nine evaluation criteria and providing a comparative analysis of the alternatives based upon the evaluation criteria. Attachment 1 is an example of how the "Evaluation of Alternatives" section was handled in another proposed plan.

Response #2 Agreed; Additional text has been added under this section that provides a summary of the alternative evaluation process.

PREFERRED ALTERNATIVE

Comment #1 As we discussed in December 1996 and on September 23, 1997, a contingency remedy should also be included for groundwater. The *EPA Guidance for Preparing Superfund Decision Documents (OSWER Directive 9355.3-02)* recommends a contingency remedy in the proposed plan and record of decision when an innovative treatment technology is selected and the performance potential is to be verified through additional testing during the Remedial Design. On September 23, you informed me that the contingency remedy would be MC-3, Air Sparging. According to the proposed plan, Air Sparging is the most costly remedy, with the longest treatment time. Why would it be selected?

Response#1 Air sparging was selected as a contingency for control of off-site migration of the plume. It was selected to avoid installation of a groundwater treatment facility. Since the preferred alternative is MC-3a, an in-situ alternative, the contingency should also be an in-situ alternative, i.e. MC-3. The monitoring program would be focused on ensuring protection of off-site migration, should sentry wells indicate that the plume is migrating off-site. Such a condition would indicate that the off-site farmhouse drinking water supply was at risk. Under the plan, either a line of air sparging points or a trench with sparge points would be placed perpendicular to the flow of groundwater to reduce the concentration of groundwater to acceptable levels. The capital cost for the alternative, MC-3, was comparable to other "pump and treat" alternatives for remediation of the entire site and included both air sparging and vapor recovery of the sparged vapors. The vapors would be treated with activated carbon prior to discharge. This in-situ alternative was considered advantageous over other pump and treat options because it provides greater flexibility to implement because the sparge points can be installed with or without trenches and could be placed wherever the plume concentrations were considered to be necessary. Another advantage of MC-3 is that this alternative does not require extracting water from an aquifer that may go dry or nearly dry at certain times of the year. It is also likely that the costs will be less than the alternative priced in the FS, since trenches, vapor recovery and vapor treatment may not be required. This would be likely, since the location where the air sparging points would be placed would be low in concentration. Other options should also be considered including recent progress that has been made in the field of in-situ degradation of chlorinated plumes using additives such as vegetable oil or hydrogen release compounds. These options provide alternatives to pump and treat alternatives that were not considered, since these technologies were not available at the time the FS was prepared in 1995-1996.

Comment #2 This section should include the rationale for the preference by profiling the preferred alternative against the evaluation criteria and highlighting how it compares to the other alternatives (major advantages and disadvantages). EPA provided Superfund Proposed Plan boiler plate language to SEDA and its contractor which gives examples of how this can be addressed.

Response #2 Agreed; The rationale for the preferred alternative has been added.

Comment #3 Last paragraph: The third sentence is not true. RI investigation results indicate that metals and SVOCs also exceeded ARARs in groundwater. As a result. the preferred groundwater alternative should also address VOCS, SVOCs and metals.

Response #3 Disagree; The only chemicals of concern for groundwater are volatile chlorinated ethenes, i.e. trichloroethene and 1,2-dichloroethene. SVOCs exceeded GA standards at only one well, MW-44. This well was located within the most impacted area of the site, where the IRM was performed. The soil/groundwater surrounding this well was excavated and treated during the IRM. Following this, the well was replaced with MW-44a and sampled. There are currently no exceedances for SVOCs in groundwater. The metals exceedances in groundwater are turbidity related. This conclusion is based upon several factors. First, the spatial locations of metal exceedances were randomly dispersed around the site. This is a strong indication that there is no specific source for the metals causing the exceedances, especially since the exceedances are small. Further, since these locations do not correspond to the known sources, i.e. the Ash Landfill or the NCFL, it is unreasonable to expect that the areas surrounding where the exceedances were observed correspond to sources. Soil sampling data collected during the installation of these monitoring wells site did not indicate that a source of metal contamination was present. Secondly, it has been known for many years that turbidity influences groundwater samples for metals. Turbidity related sampling issues for metals has been an on-going dilemma for many years and was especially prevalent during the RI. During the first round of samples collected filtered samples were in compliance yet the unfiltered were not. Sampling techniques for metals were still under development during the second round of sampling of the RI, conducted in 1992-1993. Since that time, low-flow sampling techniques were refined and used to collect samples during the quarterly monitoring events. This data collected during the years after the RI was completed did not confirm or in many cases did not even detect the presence of these same metals in groundwater at these same locations. This data has been provided to EPA in the past but can be provided again, if necessary. No changes to the text have been made.

GLOSSARY

Comment# 1 A glossary of technical terms used in this proposed plan would benefit the community while reading this document and should be included.

Response# 1 Agreed; A glossary of technical terms used in this proposed plan has been added at the end of the PRAP.

Table 2, Individual Evaluation of Source Control Options

Comment#1 Any revisions to the text should not contradict the table and vice versa.
Response#1 Agreed; There should not be any contradictions.

REDUCTION OF TOXICITY, MOBILITY, OR VOLUME THROUGH TREATMENT

Comment#1 Alternative SC-1 No Action: The statement should be corrected to read, **"The Army believes** attenuation is expected....".
Response #1 Agreed; The phase "The Army believes" has been added.

Table 3, Summary of Detailed Evaluation of Migration Control Options

Comment #1 **COMPLIANCE WITH ARARS:** EPA does not agree that ARAR compliance will be met by MC-2-. Natural Attenuation.
Response#1 Agreed; The text has been changed to indicate that the alternative does not comply with ARARs.

Comment #2 **LONG-TERM EFFECTIVENESS AND PERMANENCE:** Magnitude of Residual Risk-. For Alternatives MC-1 and MC-2. EPA does not agree with the conclusions. The source of contaminants has been removed from the soil, but not from the groundwater. Contaminants will continue to migrate and may increase the volume of water contaminated.
Response #2 Agreed; The text has been changed to indicate that contaminants will migrate for MC-1. However, even if migration does occur for MC-2 there is little residual risk from ingestion of groundwater since water will be supplied to residences. How can there be residual risk if there is no exposure pathway?

Comment #3 **PERMANENCE:** The conclusions for Alternatives MC-3, MC -3a, MC-5 and MC-6 are not correct 5 ug/L will not meet ARARs, for each contaminant of concern. The federal MCL for vinyl chloride is 2 ug/L and the NY State standard for benzene in groundwater is 0.7 ug/L.
Response #3 Agree; The reference to the 5 ug/L has been replaced. The new text states that permanence will be reached once with the NYSDEC and Federal Groundwater Quality Standards are attained.

Comment #4 **REDUCTION OF TOXICITY, MOBILITY, OR VOLUME THROUGH TREATMENT:** Alternatives MC-1 and MC-2: EPA does not agree with this justifications. If there were biodegradation occurring, there may be a reduction of toxicity depending on the degradation products. However in this case, vinyl chloride is more toxic than the original contaminants. Natural attenuation does not reduce the mobility and potentially increases the volume of water that is affected.
Response #4 Agree; To avoid any continued delays in finalizing the PRAP we have added that natural attenuation may not be sufficient in preventing migration of pollutants. We have added that vinyl chloride is more toxic than the parent compound and is more mobile. Although vinyl chloride is a toxic breakdown product of 1,2-DCE, vinyl chloride has not been measured in any on-site or off-site monitoring wells, other than MW-44a, which is the most contaminated well.

Comment #5 **SHORT-TERM EFFECTIVENESS:** Time Until Action is Complete: Table 3 and the text pertaining to Migration Control Alternatives on pages 8 through 11 contradict each other. The document should be corrected so that the sections, are in agreement.

Response #5 Agreed; The table and the text have been updated to be correct.

Comment #6 Alternative MC-3 - The text on pages 8 and 9 says nothing regarding completion time.

Response #6 Agreed; The text has been changed to indicate that the completion time is 6 to 9 months.

Comment #7 Alternatives MC-3/MC-3a - the estimated years of completion in the table do not agree with the text.

Response #7 Agreed; The table has been changed to match the text.

Comment #8 Alternative MC-5 - The table states 10 years, but the text states 4-8 years.

Response #8 Agreed; The table has been changed to match the text.

Comment #9 Alternative MC-6 - The table estimates 10 years but the text says 4-8 years.

Response #9 Agreed; The table has been changed to match the text.

Comment #10 **IMPLEMENTABILITY:** Technical Feasibility: Alternative MC-2: EPA has sent numerous letters refuting the Army's belief that a naturally occurring cleansing process is remediating the plume. In fact, historical monitoring data from well MW-56 shows that the plume is continuing to migrate off SEDA property. At the very least, qualify the statement discussing reductions from natural mechanisms by stating either that, "**The Army believes**..." or that "Reductions from natural mechanisms may be occurring and may continue to occur."

Response #10 Agreed; The change has been made to the table that indicates that natural degradation may be occurring and may attain levels that are protective. Monitoring will be performed to ensure protection.

Comment#11 Ability to Obtain Approvals and Coordinate with Other Agencies: Alternative MC-1: Off-site migration has already occurred. Therefore, the word **"potential"** should be deleted.

Response #11 Agree; The word "potential" has been removed.

Comment#12 Alternatives MC-5 and MC-6: No construction permits are required, but the Army must meet the applicable substantive requirements. The last sentence in each, "EPA and NYSDEC will provide input." should be deleted.

Response#12 Agreed; The phrase has been deleted.

COST

Total Present Worth Cost:

Comment#1 Alternative MC-3 - The text on pages 8 and 9 says nothing regarding completion time.

Response#1 Agreed; The completion time has been added.

Comment #2 Alternative MC-3/MC-3a - the estimated years of completion in the table do not agree with the text.

Response #2 Agreed; The table has been changed to be consistent with the text.

Comment #3 Alternative MC-5 - The table states 10 years, but the text states 4-8 years.

Response #3 Agreed; The table and the text have been made to be consistent.

Comment #4 Alternative MC-6 - The table estimates 10 years, but the text says 4-8 years.

Response #4 Agreed; The table and the text have been made to be consistent.

Response to Comments
From
United States Environmental Protection Agency (US EPA)

Draft Final Proposed Remedial Action Plan (PRAP)
Ash Landfill
Seneca Army Depot Activity, Romulus, NY

Comments Dated February 12, 2001

This is regarding the above referenced Draft Final Proposed Remedial Action Plan (PRAP) for the Ash Landfill prepared by Parsons Engineering-Science (Parsons ES) for SEDA through the U.S. Army Corps of Engineers New York District and Huntsville Division.

General Comment No. 1: First, as you know, the proposed plan is a document to facilitate public involvement in the remedy selection process. Accordingly, grammatical propriety plays a critical part in the presentation of this document. Additionally, the font size used in the text of the document is below what is considered standard font size (EPA uses 10 pt, Arial True Text Font for these types of documents). The amount of typographical and grammatical errors found within this "draft final" version of the document can only be judged as careless. I am enclosing our mark-up copy for your reference. Please note that EPA may choose not to accept any future documents with smaller than standard text font sizes, and will not spend time correcting typographical errors and rewriting sentences to make sense of a document that is required to be easily readable and understood by the public. The Army itself should proof read and review all documents before submitting them to the regulatory agencies for review.

Response: Agreed. The document has been reformatted as suggested. Typographical and grammatical errors have been corrected.

General Comment No. 2: The remedy includes the excavation of debris and a vegetative cover over the landfill to address the contaminant sources, and an iron reactive wall for the groundwater contamination. However, there is no mention of institutional controls or 5-year reviews as per CERCLA Section 121 (c), NCP Section 300.430 (f) (4) (ii), and OSWER Directives 9355.7-02 (May 23, 1991), 9355.7-02A (July 26, 1994), and 9355.7-03 (December 21, 1995). Both must be included as components of the preferred remedy, or for any other remedy that does not result in unlimited and unrestricted use.

Response: Agreed. Institutional controls and 5-year reviews are required per CERCLA Section 121 (c), NCP section 300.430 (f) (4) (ii), and OSWER Directives 9355.7-02 (May 23, 1991),

9355.7-02A (July 26, 1994), and 9355.7-03A (December 21, 1995). Institutional controls will consist of deed restrictions to prevent future owners from performing certain actions at the site including use of the site groundwater for potable water and disturbance of the landfill areas. The deed restrictions will be placed in the property files associated with the site. A mechanism for enforcing the deed restrictions will be implemented.

Section 300.430 (f)(4)(ii) of the NCP states that "if a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after initiation of the selected remedial action". Since waste materials and contaminated groundwater will remain onsite following remediation, five-year reviews will be required. The five-year reviews are intended to evaluate whether the response actions remain protective of public health and the environment. The five-year review involves document review, ARAR review, interviews, inspection/technology review and reporting.

The preferred alternative for the Ash Landfill Operable Unit will contain 5-year review and institutional control provisions.

General Comment No. 3: It also appears that the present-worth costs were calculated based on a 10 percent interest rate. Recent guidance recommends a range of 5 to 7 percent. Therefore, the present worth cost estimates need to be recalculated.

Response: Disagree. The present-worth costs are developed for comparative purposes screening remedial alternatives. Although the 10 percent interest rate is somewhat high, it is reflected in the costs of all alternatives. Additionally, the present-worth costs using a 10 percent interest rate are presented in Feasibility Study (FS). Recalculations of the costs in the PRAP would result in the costs, which are different, than the costs presented in the FS.

General Comment No. 4: The proposed plan should include page numeration and appendixes with figures and tables identified with the text.

Response: Agreed. Page numeration and appendices tabs have been added.

General Comment No. 5: The Response to Comments and a redline/strikeout of the draft PRAP should not be a bound part of the PRAP. They may be submitted separately if intended to illustrate how comments have been addressed.

Response: Agreed. The redline/strikeout version of the draft PRAP has been removed. A separate redline/strikeout version of the draft-final PRAP is provided separately.

Specific Comment No. 1: Purpose *of Proposed Plan, 1st column, Page 1*: Please add a paragraph with a brief description of the preferred remedy.

Response: Agreed. A brief description of the preferred remedy has been added.

Specific Comment No. 2: Remedial *Investigation (RI) Summary, 2nd Paragraph, Page 2: Explain* possible sources for the Volatile Organic Compounds (VOCs) contaminants since the landfill is alleged to have been used mainly for domestic waste.

Response: Agreed. The following sentences have been added to the text: "The source of the Volatile Organic Compounds was most likely the three alleged solvent dump areas located at the "Bend in the Road", northwest of the Ash Landfill. The source of the VOCs that were allegedly disposed in this area is unknown."

Specific Comment No. 3: *Non Time Critical Removal Action (RA) Summary, 1st Column, 1st Paragraph, 5th Sentence, Page 3:* Please replace word "eliminated risk" with "reduced risks to acceptable levels."

Response: Agreed. The requested change was made.

Specific Comment No. 4: *Non Time Critical Removal Action (RA) Summary, 1st Column, 1st Paragraph, 3rd to last Sentence, Page 3: Please* identify VOCs cleanup criteria (e.g., NYSDEC Class GA groundwater).

Response: Agreed. The text has been modified to identify the VOC cleanup criteria for soil, the NYSDEC TAGM values.

Specific Comment No. 5: *Non Time Critical Removal Action (RA) Summary, 2nd Column, 4th Paragraph, 2nd Sentence, Page 3: The* statement "thermal treatment is not effective in removing metals from soil," is technically correct. However, a discussion of what can be said about metals should follow.

Response: Since the soils were removed for offsite disposal and treatment was not necessary, a discussion on metals treatment was not included. The TCLP testing was performed to determine if the soils exhibited hazardous characteristics and required treatment prior to disposal. The soils did not exhibit hazardous characteristics.

Specific Comment No. 6: *Non Time Critical Removal Action (RA) Summary, 2nd Column, last Paragraph, 2nd to last Sentence, Page 3: The* text, "total concentrations of lead in soil were not measured during the IRM" is inconsistent with the sentence that follows, which discusses the measurements of lead in soil made within the IRM area. That mix of conflicting actions within the same paragraph may be confusing to the general public. Please re-work the paragraph.

Response: Agreed. The sentence "Total concentrations of lead in soil were not measured during the IRM" has been removed.

Specific Comment No. 7: *Also, the* continuation of this paragraph at the top of page 4, the given concentrations of lead show no criteria (e.g., 95% UCL, background) to compare with.

Response: Agreed. A sentence has been added to the end of the paragraph which reads " The TAGM cleanup criteria for lead is 24.8 mg/kg."

Specific Comment No. 8: *Non Time Critical Removal Action (RA) Summary, 2nd Column, 3rd Paragraph, 2nd Sentence, Page 4: Please* discuss the Low Stress (low-flow) Purging and Sample Procedure in this section.

Response: Agreed. The text has been modified to state that the EPA Region II Low Stress (low-flow) Purging and Sampling Method was used to reduce the turbidity in the groundwater samples.

Specific Comment No. 9: Summary *of Site Risk, 2nd Column, 2nd, 3rd, and 4th Paragraphs, Page 5: Please* provide the calculated cancer risks and hazard index (HI) for the on-site residential use scenario (the worst case scenario).

Response: Agreed. A sentence has been added to the beginning of the 4th paragraph which states "the carcinogenic risks for potential future residents using groundwater for drinking at SEDA is 1.4 x 10^{-3}, and the HI is 3.2". Additionally, the carcinogenic risks and HI have been added as requested in Paragraph 2 and 3.

Specific Comment No. 10: Summary *of Site Risk, 1st Column, Page 6: Please* state whether the NYSDEC certified the non presence of endangered or threatened species at this site. Also, discuss the four-step process used for assessing site-related ecological risks in light of EPA guidance, and state whether it went beyond the screening level stage.

Response: Agreed. In the *Rare Species Survey, Seneca Army Depot Activity* (U.S. Department of the Interior Fish and Wildlife Services, September 1996), it is stated that no federally listed

endangered or threatened species was identified at SEDA. NYSDEC reviewed and certified this document on December 23, 1996.

The ecological risk assessment was performed in accordance with the *Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites (FWIA)* (October 1994). This guidance outlines a four step process for completing ecological risk assessments as described in the PRAP: site description, contaminant-specific impact assessment, ecological effects of remedial alternatives, and fish and wildlife requirements for implementation of remedial actions. In support of these requirements, the following tasks were completed:

- qualitative and quantitative characterization of ecological communities and dominant nondomesticated plant and animal species in the area of the Ash Landfill;
- selection of receptor species;
- identification of chemicals of potential concern for ecological receptors;
- identification of exposure pathways from the Ash Landfill to target species;
- assessment of exposure of receptors to chemicals of potential concern;
- assessment of the toxicity of chemicals of potential concern for each receptor group or species;
- characterization of risk; and
- estimation of risk uncertainty.

Current guidance outlines an eight step process for conducting ecological risk assessments as summarized in EPA's *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (EPA, June 1997). This guidance was not available at the time that the risk assessment was completed. Based on this eight-step process, the ecological risk assessment, which was performed as part of the RI, met the requirements for the screening level risk assessment.

Specific Comment No. 11: Scope *and Role of Action, 1st Column, Page 6: Please* add a table with brief description of the 25 areas subject to remedial investigation at SEDA. Also, include a discussion about the future land use for the site, and its influence on the decision making process.

Response: Agreed. There are actually 13 areas subject to remedial investigation at SEDA. A table (Table 6) showing these 13 areas has been added. The following paragraph has been added to this section:

"The future land use of the site is listed by the Local Redevelopment Authority (LRA) as recreational/conservation. Cleanup levels, remedial action objectives and remedial alternatives

were selected consistent with this intended future land use."

Specific Comment No. 12: Summary *of Remedial Alternatives, 2nd Column, Page 6: The* font for the title should be bold for consistency.

Response: Agreed. The title font has been bolded for consistency.

Specific Comment No. 13: Evaluation *of Alternatives, State Acceptance, 1st Column, Page 15: Please* indicate whether the State has ever preliminarily concurred with the preferred remedy.

Response: In NYSDEC's letter to the Army dated April 6, 2001 concerning the PRAP, NYSDEC states that "because the preferred alternative in the Draft-Final version of this PRAP is technologically equivalent and as stringent or more so than in the Draft PRAP that the NYSDEC conditionally occurred with in a letter dated October 9, 1997, the NYSDEC also finds the latest iteration of the PRAP acceptable." The Army believes that this letter indicates that the Department has preliminarily concurred with the preferred remedy.

Specific Comment No. 14: Evaluation *of Alternatives, Summary, 1st Column, Page 15: Please* include definition of "threshold criteria" in the Glossary.

Response: Agreed. The definition of threshold criteria has been added to the glossary.

Specific Comment No. 15: Preferred *Alternative, 2nd Column, 3rd Paragraph, Page 15: Please* add the requirement to establish vegetative soil cover in addition to the maintenance of it.

Response: Agreed. The paragraph has been rewritten as follows:
"Based on an evaluation of the various options, the U.S. Army recommends Alternative SC-5. This alternative includes excavation and off-site disposal of the debris piles, establishment and maintenance of a vegetative soil cover for the Ash Landfill and NCFL for source control, and installation of three in-situ permeable reactive barrier walls filled with a 50/50 mixture of sand and zero valence iron (MC-3a) for migration control of the groundwater plume as the preferred remedy for the site."

Specific Comment No. 16: Preferred *Alternative, 2nd Column, 5th Paragraph, 5th Sentence, Page 15: The* explanation for the contingency plan should be more comprehensive. Include trigger criteria, provision for alternate drinking water supply, and say what the contingency plan is (if alternative 3).

Response: Agreed. The furthest downgradient permeable reactive barrier wall will be located immediately upgradient of the western property line. Three additional shallow monitoring wells will be installed between this wall and the property line. These wells will be used to assess the effectiveness of the barrier wall.

A contingency plan will be developed as part of this preferred alternative. The contingency plan will include additional monitoring and air sparging, as necessary. Following installation of the reactive walls, groundwater from monitoring well MW-56 (see Figure 2 for location) will be analyzed and the VOC results will be compared to the Class GA groundwater standards (trigger criteria). If a statistical analysis of the data for this well shows exceedances of Class GA standards, additional remedial action will be required. Temporary wells will be installed in the vicinity of MW-56, and the results will be used to develop an approach for air sparging. A description of the air sparging process is summarized in Alternative MC-3. If concentrations at MW-56 continue to exceed the trigger values following air sparging, an activated carbon system for the farmhouse water supply system will be installed or public water will be delivered to the house. More extensive air sparging will be performed until trigger values are no longer exceeded.

Specific Comment No. 17: Preferred *Alternative, 2nd Column, 4th Paragraph, 2nd to last Sentence, Page 15:* Please cite by specific reference and provide a more explicit discussion of what the NCP goal against off site disposal is referred to in this sentence. Otherwise, please remove the statement. EPA is uncertain that the Army interpretation of this goal is consistent with its own.

Response: Agreed. The statement that "and is therefore consistent with the goals of the NCP against off-site disposal" has been removed.

Specific Comment No. 18: Preferred *Alternative, 2nd Column, last Paragraph, 5th Sentence, Page 15: Please* note that remaining residual contamination requires five-year reviews and institutional controls.

Response: Agreed. The following paragraph has been added to the end of the section:
"Since this alternative will result in contaminants remaining at the site which exceed levels which allow unlimited use and unrestricted exposure, institutional controls and five-year reviews will be required. Institutional controls will consist of deed restrictions to prevent future owners from ingesting site groundwater and disturbing the landfill cap. The five-year reviews are intended to evaluate whether the response actions remain protective of public health and the environment and will consist of document review, ARAR review, interviews, inspection/technology review and reporting."

Specific Comment No. 19: Table *5, SC-2: The* long-term criterion incorrectly states "on-site" landfill. Please correct to off-site landfill.

Response: Agreed. The correction was completed.

Response to Comments from the United States Environmental Protection Agency

Subject: Draft Final Proposed Remedial Action Plan (PRAP) for the Ash Landfill
Seneca Army Depot
Romulus, New York

Comments Dated: December 12, 2001

Date of Comment Response: July 3, 2002

General Comments:

Comment: No references to *Figure 3* were found throughout the document. Please eliminate Figure 3 or refer to it within the text.

Response: Figure 3 has been eliminated, and the numbering for the remaining figures has been updated.

Comment: The Ash Landfill Operative Unit (OU) is comprised of five SWMUs (SEAD-3, 6, 8, 14 & 15) of which SEAD-3 (Ash Cooling Pond), and SEAD-15 (Incineration Building) are not properly addressed and discussed within the PRAP document. If no action is proposed at these sites (SEAD-3 & 15), a detailed explanation of the basis for such a proposal needs to be provided within the PRAP. The current PRAP is incomplete without information on SEAD-3 & 15.

Response: Agreed. The text has been revised to provide additional information on both SEAD-3 and SEAD-15. Specifically, there have been the following text additions:

- Additional historical information on site investigation and findings has been added to the last paragraph of the first column on p. 5, under the subheading **Soil**. This text is intended to supplement the existing historical text information on pages 2 and 3 of the PRAP.

- Text to address potential contamination issues within SEAD-15 (Abandoned Incinerator Building) has been added to ***SUMMARY OF SITE RISK*** in the second column of p. 6.

- Text indicating that no further action is planned for SEAD-3 and SEAD-15, based on prior UST removal and investigations has been added to end of the second paragraph under the heading ***PREFERRED ALTERNATIVE***.

Specific Comments:

Comment 1: Page 1, 1st Column: Given the accessibility of digital information, and the intention to get as much public participation as possible, comments provided via electronic mail systems should be accepted by the Army. Please provide an e-mail address to receive public comments for this document.

Response 1: Disagree. The Army requests that all comments be formally submitted to the Army in writing.

Comment 2: Page 1, 2nd Column: Please indicate how the off-site migration of the groundwater contamination affecting the farmhouse water supply system will be controlled.

Response 2: To date, none of the water supply wells on the farmhouse property have been impacted by contamination from groundwater emanating from the Ash Landfill. With the installation of the proposed permeable reactive barrier along the western boundary of the site, groundwater from the site will be treated *in situ* and no further off-site contaminant migration is expected. As for the existing groundwater contamination downgradient of the proposed barrier, current data indicates that the contaminants of concern are naturally attenuated through a combination of degradation and/or dilution to an extent that applicable groundwater standards will not be exceeded at the farmhouse water supply wells.

Comment 3: Page 2, 2nd Column: NPL means National *Priorities* List, not National *Priority* List. Please correct.

Response 3: Agreed. Text has been revised from *Priorities* to *Priority*.

Comment 4: Page 5, 2nd Column: Show and identify surface water and sediment/wetlands on the included Figures.

Response 4: Although seasonal drainage is present at the site during some portions of the year, there are no permanent surface water bodies to delineate at the Ash Landfill operable unit. Wetlands delineation has been provided on Figure 2 and Figure 4, with a legend entry provided indicating the symbol used for depicting wetland areas at this site.

Comment 5: Page 6, 2nd Column: *Figure 5* in the text should be bolded for consistency.

Response 5: Agreed. Font for the original *Figure 5* (revised to *Figure 4* with the elimination of the reference to Figure 3, as indicated under responses to General Comments) has been bolded.

Comment 6: Page 8, 2nd Column: Please discuss risks for sediments, and indicate whether remediation is required.

Response 6: The following text has been added to the text on p. 9 of the PRAP, under the section entitled ***SUMMARY OF REMEDIAL ALTERNATIVES***:

> As discussed in Section 6 of the RI Report, the human health risk assessment conducted during the RI determined that the site hazard index and total cancer risk for exposure to sediment in on-site wetlands are within the acceptable EPA risk range. However, the ecological risk assessment suggested that, based upon a comparison with all available state

and federal guidelines, in addition to literature information, there may exist a slight threat due to the presence of nine metals (arsenic, cadmium, copper, iron, lead, manganese, mercury, nickel, and zinc). During the 1994 Interim Remedial Measure (IRM) for the Ash Landfill, the sediments representing the potential slight risk were excavated. These materials were thermally treated with soil excavated from the "Bend in the Road" area. Following treatment, post prove-out sampling showed that the soils and sediments met the project-specific cleanup goals and were used as backfill at the "Bend in the Road" area and in the excavated wetland areas. Further remediation for wetland sediments is not required.

Comment 7: Page 9, 2nd Column: The title for alternative SC-2 indicates off site disposal for the excavated material. However, the text indicates the consolidation of those excavated materials into the NCFL. Also, there seems to be another inconsistency with regard to the depth of excavation for SC-2 at 10 feet versus SC-3 at 2 feet. Please explain these apparent inconsistencies.

Response 7: For alternative SC-2, the consolidation of excavated materials from the Debris Piles (SEAD-14) and Ash Landfill (SEAD-6) at the NCFL (SEAD-8) would occur as an interim step between excavation of soils at these two SEADs and off-site disposal of this material. As part of alternative SC-2, the material that would be disposed off-site includes the materials excavated at SEAD-6 and SEAD-14, and soil and debris at the NCFL. For alternative SC-3, the excavated material from the Debris Piles and Ash Landfill would be consolidated at the NCFL and covered with an engineered barrier, such as 12" of clay or a geomembrane. Under alternative SC-3, soils at the NCFL would be capped in-place following consolidation with excavated materials from the Debris Piles and Ash Landfill.

As indicated in Section 4 of the Ash Landfill Remedial Investigation (RI) Report, the majority of contamination at the Debris Piles and Ash Landfill is in shallow (e.g. 0-2 feet below land surface) soils. Section 4 of the RI further indicates that the depth of some contaminants, such as PAHs, at the NCFL was observed to extend "as deep as 10 feet" below land surface. Because both alternatives (SC-2 and SC-3), require excavation of contaminated soils at the Debris Piles and Ash Landfill for consolidation at the NCFL and that the majority of contamination in these two SEADs was observed in the top 2 feet of soil, the depth of excavation is anticipated to be approximately 2 feet below land surface at these two SEADs. Alternative SC-2 further indicates that soils in the NCFL will be excavated and disposed off-site in a Subtitle D landfill. Because the depth of contamination has been observed to a depth up to 10 feet below land surface, this alternative further anticipates that excavation to a depth of 10 feet would be required at some locations in the NCFL. Thus, the maximum depth of anticipated excavation for SC-2 would be 10 feet (at the NCFL), and 2 feet at the Debris Piles and Ash Landfill. Under alternative SC-3, soils in the NCFL would not be excavated because this alternative proposes to cap NCFL materials in-place. Thus, the maximum depth of anticipated excavation for SC-3 would be 2 feet at the Debris Piles and Ash Landfill because no excavation would be required at the NCFL under this alternative.

To address this comment, text has been added to the first paragraph under Alternative SC-2 (p. 9/10) such that this paragraph reads as follows (new text is italicized and underlined):

> This option consists of excavating contaminated soils from the Ash Landfill, the NCFL, the debris piles, and consolidating them at the NCFL. The results of the RI indicate that these areas are well-defined localized areas that are less than 10 feet deep *in the NCFL and less than 2 feet deep at the Ash Landfill and the debris piles. Based on this finding, the expected depth of excavation at the Ash Landfill and debris piles would be 2 feet, whereas the expected depth of excavation at the NCFL will be 10' or less. The results from the RI further indicate that contaminated soils in all three locations* could be removed with standard construction equipment. *Following consolidation of contaminated soils at the NCFL*, the excavated materials would be transported to an off-site Subtitle D landfill *for disposal*. Clean backfill materials would then be transported to the site and used to fill the excavated areas. A vegetative cover would be established over the backfilled area. A Subtitle D landfill refers to a solid waste landfill that meets the NYSDEC and USEPA Subtitle D landfill construction specifications.

Further clarification has also been added to the second paragraph under Alternative SC-3 (p. 10) such that this paragraph reads as follows (new text is italicized and underlined):

> The first step in this option is excavation. An excavation plan would be developed using previous RI data to delineate the extent of removal. A wetland mitigation plan would also be developed. The maximum volume to be excavated is approximately 32,400 cubic yards, which includes all the soils except those in the NCFL. The expected depth of the excavation in soils *outside of the NCFL* would be approximately 2 feet. *Under this alternative, excavation would not be performed on soils in the NCFL, as soil in the NCFL* would remain in-place and be capped. The excavation would be accomplished with standard construction equipment, such as a front-end loader or bulldozer. The excavated soil would be immediately transported to the NCFL where it would be consolidated and eventually capped.

Comment 8: Page 10, 2nd Column: Contaminants will remain at this site above levels that allow for unlimited/unrestricted use. Therefore, provide the type(s) of institutional controls the Army is planning to implement for Alternative SC-3.

Response 8: Agreed. The last paragraph under the discussion of Alternative SC-3 on p. 10 has been revised to include language relating to the types of institutional controls for this alternative.

Comment 9: Page 11, 2nd Column: Contaminants will remain at this site above levels that allow for unlimited/unrestricted use. Therefore, provide the type(s) of institutional controls the Army is

planning to implement for Alternative SC-5. Also, the requirement for 5-year review is missing for this alternative.

Response 9: Agreed. A paragraph has been added to the discussion of Alternative SC-5 on p. 12 that includes language relating to the types of institutional controls and the requirement of a 5-year review for this alternative.