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NTC ORLANDO
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MINUTES FROM ORLANDO PARTNERING TEAM MEETING ON 15 DECEMBER 1998 NTC
ORLANDO FL
12/15/1998
NAVFAC SOUTHERN

**ORLANDO PARTNERING TEAM
MEETING MINUTES
ATLANTA, GA
15-16 DECEMBER 1998**

03.04.00.0029

00147

Team Leader - Al Aikens
Recorder - Bob Cohose

Gate Keeper/Timekeeper - Dave Grabka
Facilitator - Self-Directed

ATTENDEES:

OPT MEMBERS:

Al Aikens
Rick Allen
Bob Cohose
David Grabka
Wayne Hansel
Steve McCoy
Nancy Rodriguez
Gary Whipple

SUPPORT MEMBERS:

Barbara Nwokike (SDIV)
Nick Ugolini (SDIV)
John Kaiser Tier II

GUESTS:

Mark Salvetti HLA

Handouts Discussed At the Meeting

1. Open OPT *ACTION ITEMS* (Updated December 1998)
2. UST/IR Update and Status (December 11, 1998, 4 pages)
3. Letter dated December 9, 1998 from John Kaiser and Manuel Alonso/HLA to the Nick Ugolini /Navy subject Building 2426 Petroleum Impacted Soil Removal
4. Letter dated December 9, 1998 from John Kaiser and Manuel Alonso/HLA to the Barbara Kwokike /Navy subject Building 2273 Replacement of Destroyed Monitoring Wells
5. Letter dated December 11, 1998 from Manuel Alonso and Scott Donelick/HLA to Mark Zill/NTC ORL Navy subject Monthly Tank Management Report.
6. Fact sheets regarding IRAs at SA17, SA18, SA23 at McCoy Annex, and SA35, SA37, SA39/40, SA42, OU 3, OU 4, and the Main Base Golf Course
7. Notice of Public Meeting on Proposed Environmental Cleanup at Naval Training Center (NTC), Orlando
8. Florida Environmental Partnering Alliance Tier II Meeting Report, Sept. 9-11, 1998

December 15, 1998

Training

The OPT attended the Advances in Innovative Ground-Water Remediation Technologies conference sponsored by the US EPA and Ground-Water Remediation Technologies Analysis Center. Current information on emerging technologies, cases studies on various old and new technologies and the *abused* pump & treatment technology was presented.

December 16, 1998

Check-In, Action Item Review

Al Aikens opened the meeting at 8:00 with all OPT Members and SUPPORT listed above in attendance. Ground Rules were reviewed after sharing personal updates. The following *ACTION ITEMS* were reviewed. Carry over items are listed on the Action Item Summary attached.

1. *ACTION ITEM:* Gary W. to get letter out re tanks (Aug 10 HLA letter), locate wells (SA 39) **Status:** *On-Hold per Gary until Navy receives letter from City engineer that pipeline pressure tests have been performed, the utility contractor has hit something else under Bennett Rd.*
2. *ACTION ITEM:* HLA to generate potassium permanganate letter to FDEP - check with M. Salvetti - copy to OPT (before next meeting). **Status:** *Deleted, under control as another action.*

3. *ACTION ITEM:* Gary W. to contact City to dispose of excavated contaminated soil at 2273. **Status:** *Laboratory results received, no petroleum concern, PAH's over residential, Gary to address soil disposal.*
4. *ACTION ITEM:* Bldg. 2040. HLA to check on status of soil sampling at Bldg. 2040 before next meeting. **Status:** *Laboratory results received, no petroleum concerns. HLA to issue SAR Addendum requesting NFA.*
5. *ACTION ITEM:* HLA will collect 12 surface soil samples at SA 17 and submit for PAH analysis as per HLA work plan, then update text, Figure 2 and Table A-2 of work plan, as appropriate. **Status:** *Samples collected 11/17/98. Waiting for laboratory results.*
6. *ACTION ITEM:* HLA to take 3 confirmation soil samples in "dashed line" excavation area of SA 40 for lab analysis (PAHs and arsenic) to improve confidence in the excavation boundaries. **Status:** *Sampled 11/17/98. Waiting for laboratory results.*
7. *ACTION ITEM:* HLA inform Nick on soil volume for 2426 to add to DET scope of work. **Status:** *HLA provided letter to Nick dated December 9, 1998.*
8. *ACTION ITEM:* Barbara/Nick identify DET mobilization timing to coordinate remedial activities at soil removal sites and McCoy Annex LF. **Status:** *In field for soil removals Feb- late Mar '99/ Tanks pulls 16 Feb '99.*
9. *ACTION ITEM:* Nick to prepare SOW for biosparging at 7174 and submit to the RAC to prepare a proposal. **Status:** *Scope turned in by Nick.*
10. *ACTION ITEM:* NTC Public Works to look for the availability of a suitable compressor at NTC for biosparging at 7174. **Status:** *Still Open*
11. *ACTION ITEM:* Dave to discuss the need to include a down gradient monitoring well at SA3 with FDEP management. **Status:** *Still Open, Dave discussed with FDEP management who tossed it back to OPT to discuss.*
12. *ACTION ITEM:* Dave G - FDEP approval letter regarding the OU2 landfill cap. **Status:** *Completed, FDEP responded as "Time Critical Removal."*
13. *ACTION ITEM:* Dave to have FDEP risk assessors conclude the calculation method presented in the OU2 FRA **Status:** *FDEP risk assessors can live with EPA risk methods for PAH's, but increase time for site grounds maintenance worker from 15 to 25 years.*
14. *ACTION ITEM:* Nancy to forward Web address to the EPA NA site to Gregg Mudd/HLA. **Status:** *Completed by Nancy.*
15. *ACTION ITEM:* HLA to recommend locations for replacement well and supplemental wells at Fac 2273 and SA39. **Status:** *Completed. SA 39 letter sent to OPT dated December 3, 1998, Fac 2273 letter handed out to OPT this meeting.*
16. *ACTION ITEM:* Dave to concur in writing (e-mail sufficient) with well locations at Fac 2273 and SA39 prior to construction. (2 weeks). **Status:** *To be discussed during Agenda topic, later FDEP (Dave) concurred.*
17. *ACTION ITEM:* HLA to provide an order of magnitude cost estimate for replacement of the affected wells at Fac 2273 and SA39. **Status:** *Provided in HLA letters dated Dec. 3, and Dec. 9, see above Attachments discussed at this OPT meeting.*
18. *ACTION ITEM:* Team to review OU 4 RI Report. **Status:** *Received EPA comments, need FDEP comments.*
19. *ACTION ITEM:* Bob work with Navy and HLA to add microbiological analysis of the groundwater to better characterize conditions and supplementally treat the water in the wells and schedule for the OU4 IRA. **Status:** *Action with HLA and Barbara.*
20. *ACTION ITEM:* Bob work with Navy and HLA to add more geochemical analyses to the sampling plan to evaluate affect of biological inhibitor on groundwater geochemistry and schedule for the OU4 IRA. **Status:** *Action with HLA and Barbara.*
21. *ACTION ITEM:* Mark to investigate how to electronically distribute OU4 in-well air stripping presentation for the Amherst conference. **Status:** *Mark provided a CD ROM to each OPT member.*

22. *ACTION ITEM:* Team to review OU 4 RI Report. **Status:** *Later per Agenda*
23. *ACTION ITEM:* Team to review SA 17 Report. **Status:** *Later per Agenda*
24. *ACTION ITEM:* Team to review SA 54 Report **Status:** *Later per Agenda*
25. *ACTION ITEM:* Team to review SA 55 Report. **Status:** *Later per Agenda*
26. *ACTION ITEM:* Barbara to check on changing reservations and arrange for meeting space. **Status:** *Completed and well done.*
27. *ACTION ITEM:* Dave determine if able to travel to Oak Ridge for the April 1999 meeting. **Status:** *Open, Dave to check.*

UST, IR, Transfer, and Tier II Updates

1) UST: See handout, *UST Update and Status, December 1998*. Highlights are as follows:

DET to mobilize 16 Feb for tanks and sometime between Feb and late March for soil remediations. Still some confusion on soil removal mobilization date, needs to be resolved to coordinate with activities at McCoy Annex Landfill.

OU 4 FS will now be issued in Jan. '98. HLA may request blanket waiver from FDEP for permanganate technology use.

Steve handed out final Fact Sheets regarding IRAs at SA17, SA18, SA23 at McCoy Annex; and SA35, SA37, SA39/40, SA42, OU 3, OU 4 and the Main Base Golf Course.

Steve also handed out Notice of Public Meeting on Proposed Environmental Cleanup at NTC Center, Orlando.

No changes were made to the fact sheets or public meeting notice.

ACTION ITEM: Build 7182 SAR, FDEP to provide comments to HLA.

ACTION ITEM: Barbara to obtain firm DET mobilization timing to coordinate remedial activities at soil removal sites and McCoy Annex Landfill.

ACTION ITEM: OU 4, FDEP to provide comments to HLA on RI and Natural Attenuation Tech Memo.

ACTION ITEM: SA 17 FDEP to provide comments to Draft Final of the Environmental Site Screening Report.

- 2) Transfer: Negotiations on MOA to continue after holidays, no real progress since last update. Ongoing activities regarding pending law suit. SouthDiv working on Final FOST for GOAA Herndon Annex properties.
- 3) Tier II: Meeting was held 3 Dec. in Orlando, Gary did a presentation to Tier II which provided an overview of the excellent progress made to date at NTC Orlando. OPT will have a new facilitator, Jerry Arcaro in January. John provided copies of the TIER II September 9-11, 1998 meeting notes.

There was a discussion at TIER II meeting if Cecil Field should fall under the Land Use Controls MOA or not. Navy Cecil said 'no' EPA said 'yes', final agreement MOA specific to Cecil will be generated and followed until site closure, then deed restrictions will pick up from there.

Robbie Darby will be replacing Charlie Black on TIER II.

Navy RPM's are required to evaluate the Facilitator after each partnering team meeting.

TIER II working on changing partnering evaluation survey to 75 relevant questions and will use a sliding scale to evaluate.

Additional partnering training will be provided in March.

OU 2 FRA and FOSL

Tetra Tech is working on FRA revision to be issued late December. Navy has prepared FOSL for FDEP approval. FRA will revise 15-year employment duration for groundskeeper to a duration of 25 years.

OU 4

Mark Salvetti provided the following update to last month's technology screening status.

OU 4 FS $KMnO_4$ Treatability Update:

HLA sent samples out to determine potassium permanganate consumption by the soil. Looked at sodium permanganate option, sodium is 3 times FDEP MCLs. Other advantage is that potassium comes as a powder and sodium comes as a liquid (which you then pay for water). Potassium permanganate is more cost effective.

ACTION ITEM: HLA to send FDEP a request for variance for use of potassium permanganate ($KMnO_4$.)

OU 4 FS Technologies

Draft now scheduled out for Jan '99

Technologies retained for VOC alternatives were discussed and presented

- 1 In-Situ chemical oxidation and Natural Attenuation for the southern plume
- 2 Air sparge, what systems /configuration might look like
- 3 UVB wells
- 4 GW extraction, air stripping, or UV Ox with discharge to Lake Druid

Technologies retained for inorganic alternatives were discussed and presented.

- 1 Institutional Controls and Monitor
- 2 In-Situ Fixation- Eliminated
- 3 GW extraction and discharge into POTW
- 4 GW extraction, onsite treatment and discharge to surface water (Lake Druid)

Antimony is still a contaminant or concern. Low concentrations have been detected, there is a significant cost and time to remediate considering the low concentrations.

Mark handed out CD ROM with OU4 in-well air stripping presentation from the Amherst conference.

OU 4 IRA Update

Bob said that WESTON had completed all modifications at UVB 01 and that they were in the process of completing some last minute piping and instrument modifications at UVB 02. The water stored in the three frac tanks has been disposed of and site had been restored.

HLA has two more sampling events scheduled at OU 4 IRA, the first to take place in Mid January. There still is a question on who will take the additional chemical and biological samples that WESTON had requested. This is a carry over from last month.

ACTION ITEM: Bob working with Navy and HLA to add to the sampling program microbiological analysis and additional chemical analysis of the groundwater to better characterize operational conditions.

OU 2 IRA

Discussed the limits of the NW portion of the landfill between the pond area and the wooded portion of the landfill; most of the area appears to be a wetlands. There is an area of exposed landfill debris by the southeast corner of the pond. Decision:- Even though this is wetlands the OPT agreed that the debris should be covered with clean fill.

FDEP sent a letter back to Bechtel approving the OU2 landfill "Time Critical Action."

SFWMD - No resolution was achieved on their concurrence regarding the time-critical removal action. Wayne will contact Mark Ady of the SFWMD to discuss scope of activities at McCoy Annex Landfill

ACTION ITEM: Wayne H. – Contact Mark Ady of SFWMD to review OU 2 scope of work.

ACTION ITEM: Tt to send documentation to BEI of McCoy wetlands delineation.

Study Area Review

Study Area 55:

Rick distributed the final draft report at the November OPT meeting. FDEP agreed the report could go final. EPA agreed that the report could go final if in the Conclusions section of the report, third paragraph, is revised from land use restrictions for "industrial" to "non-residential."

ACTION ITEM: Study Area 55 HLA to revise Conclusions section restriction from "industrial" to "non-residential."

Study Area 54:

Report was issued last month. Summary of conclusions:

FDEP and EPA can not concur with the recommended NFA. As the document is currently written PAHs in soil pose a health risk. Interviews and search of records have indicated no historic deleterious activities. Anecdotal information indicates a previous forest fire occurred in the early 1970's; this and controlled burns are postulated to have deposited PAHs in the soil. Fires have been linked to elevated PAH levels in soil at other locations. The report was written to recommend NFA. However the FDEP and EPA do not feel there is historical documentation to support origin of contamination. SA 54 should be color coded dark green.

Need to call out in the report that the current and intended future use, will remain a forested area under the control of the US Army with institutional controls in place.

HLA should not revise document at this time. Will need to discuss at January OPT meeting.

ACTION ITEM: Gary to contact Army Reserve to discuss what would need to be done if the Army has to manage the property as restricted.

ACTION ITEM: David to discuss with Tim Barr, FDEP management, what controls are required in light of the Cecil Field situation.

Study Area 17:

Draft report distributed after the October meeting. Preliminary comments from EPA were presented and discussed at November OPT meeting.

FDEP comments discussed at the December meeting. Contamination is encroaching into the intermediate aquifer. FDEP is concerned that there is insufficient characterization data. FDEP would like confirmation that the intermediate aquifer is not being used for drinking water source.

Prior to FDEP agreeing to Natural Attenuation there needs to be support data confirming that concentrations are decreasing and the plume be delineated confirming it is not getting larger.

Decision:- FDEP wants 1 additional year of monitoring data.

ACTION ITEM: HLA to add statement to SA 17 report in the Conclusions and Recommendations Section 5.0: SA 17 will require additional site assessment of volatiles in ground-water. The report addresses potential IRA for soils but does not address groundwater.

Study Area 2:

Herndon Annex sampling complete in December, results should be available by next OPT meeting. Looks like bio is working.

Fac 2273/Study Area 39 Wells:

HLA recommended locations for replacement well and supplemental wells at Fac 2273 in letter dated December 9, 1998 from John Kaiser to Barbara Kwokike .

HLA recommended locations for replacement well and supplemental wells at Study Area 39 in letter dated December 3, 1998 from John Kaiser to Barbara Kwokike

The wells were destroyed as a result of the City's utility construction activities. Will look for the old wells and attempt to abandon. Replacement wells will be located as recommended in the above referenced HLA letters to the Navy.

Study Area 3:

Issue: The need for additional sampling of agreed upon wells and to include sampling a down gradient well. Action is from October 1998 meeting.

Dave discussed the desire of FDEP management to include sampling of a down gradient monitoring well at SA3. However the OPT had previously agreed that the plume was not moving and there was no need to monitor the down gradient well.

Discussion- Stay with original OPT decision, eliminate sampling from OLD-03-04 since it has been below the MCL for PCE for two quarters, continue sampling in OLD-03-01, and not sample the down gradient well.

Developer Package

Steve McCoy blamed Fed Express for not delivering updated copy of *Developer Transition Manual, Main Base Property* documents.

Steve had distributed a preliminary copy of *Developer Transition Manual, Main Base Property* at the November meeting. Steve said the following changes have been made since then.

The drawings have been revised to eliminate extraneous information (stuff) that the developer does not need to know; for example locations of tanks removed.

Document will not recommend to the developer how to protect wells. This will be left up to the developer.

Will add land use restriction notes for all site areas that have restrictions.

It was decided that the Developer Package will not need to have a controlled distribution.

Critique, Agenda, Close-Out

POSITIVES (+)

- Good Envir. Training
- Meeting room
- Good meeting facilitation
- Good food.
- Agenda management
- Time utilization

DELTAS (δ)

- Steve eats too many cookies
- No Fed Express OU 2

Future Meeting Schedule

February 17 and 18, 1999 - Charleston

March 17 and 18, 1999 - Orlando

April 21 and 22, 1999 - Oak Ridge w/ Tallahassee backup

May 19 and 20, 1999 - Orlando

OPT AGENDA
January 20 and 21, 1999
Orlando FL.

TEAM ASSIGNMENTS

Team Leader: Bob Cohose
 Recorder: Dave Grabka
 Gate/Timekeeper: Wayne Hansel
 Facilitator: Jerry Arcaro
 Tier II Link: John Kaiser

SUPPORT

Barbara Nwokike (SDIV)
 Nick Ugolini (SDIV)

EXPECTED GUESTS

Mark Salvetti (HLA)

<u>Time</u>	<u>Subject</u>	<u>Objective</u>	<u>Lead</u>
January 20			
1330	Check-In, Act Item Review	Administration	BC
1415	UST/IR/Transfer Updates	Information transfer	RA/WH
	Tier II Updates	Information transfer	JK
1515	BREAK		
1530	RAB Presentation Prep.	Preparation /Dry Run	GW/WH
1630	Developer Package	Resolution/Decision	SM
1730	Adjourn		
1900	RAB Meeting		All
January 21			
0830	OU2 FRA and FOSL	Resolution/Decision	SM/DG/WH
0915	OU 2 IRA	Status	BC
0930	OU4 RI Report/IRA	Resolution/Decision/ Information Transfer	RA/BC
1030	BREAK		
1045	SA17 & 54 Report/Update	Resolution/Decision	RA
1100	OU 3 Feasibility Study	FDEP /EPA Concur	RA
1200	LUNCH		
1300	SAs2, 17, 36, 39 Soil Samples	Information Transfer and Update	RA
1500	Close-out, Agenda, Critique	Administrative	BC
1600	Adjourn		

ACTION ITEM SUMMARY

December '98 Meeting

- 1 ACTION ITEM: Gary W. to get letter out re tanks (Aug 10 HLA letter), locate wells (SA 39)
- 2 ACTION ITEM: Gary W. to contact City to dispose of excavated contaminated soil at 2273.
- 3 ACTION ITEM: Bldg 2040. HLA to have results of soil sampling at Bldg 2040 before next meeting
- 4 ACTION ITEM: NTC Public Works to look for the availability of a suitable compressor at NTC for biosparging at 7174.
- 5 ACTION ITEM: Dave to discuss the need to include a down gradient monitoring well at SA3 with FDEP management.
- 6 ACTION ITEM: Team to review OU 4 RI Report
- 7 ACTION ITEM: Bob working with Navy and HLA to add to the sampling program microbiological analysis and additional chemical analysis of the groundwater to better characterize operational conditions.
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- 14 ACTION ITEM: Wayne H. to Contact Mark Ady of SFWMD to review OU 2 scope of work.
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- 18 ACTION ITEM: David to discuss with Tim Barr, FDEP management what controls are required in light of the Cecil Field situation.
- 19 ACTION ITEM: HLA to add statement to SA 17 report in the Conclusions and Recommendations Section 5.0: SA 17 will require additional site assessment of volatiles in ground-water. The report addresses potential IRA for soils but does not address groundwater.

**Table 3-5
IDENTIFICATION AND SCREENING OF REMEDIAL TECHNOLOGIES AND PROCESS OPTIONS
FOR SITE 4
NAS WHITING FIELD, MILTON, FLORIDA
PAGE 1 OF 2**

General Response Action	Remedial Technology	Process Option	Description	Screening Result
No Action	No Action	None	No remedial actions taken. Five year review would be required.	Retained ¹
Minimal action	LUCs	LUCs	LUCs for property in the area of soil contamination would include restrictions on excavation/construction and future land use. LUCs include access controls (e.g. fences, security guards, warning signs, etc.), institutional controls (e.g. public advisories, Base Master Plan notations, etc.), and site monitoring to ensure compliance with the provisions of the LUCs.	Retained
Containment	Horizontal barriers	Soil cover	Use of soil to provide a physical barrier and to promote vegetation.	Retained
		Clay capping	Use of compacted clay over areas of contamination to reduce infiltration and provide a physical barrier.	Retained
		Asphalt capping	Application of a layer of asphalt over areas of contamination to reduce infiltration and provide a physical barrier.	Retained
		Concrete capping	Installation of concrete slabs over areas of contamination to reduce infiltration and provide a physical barrier.	Retained
Treatment	Biological	Aerobic-soil venting	In situ degradation of organics using microorganisms in an oxygen-enriched environment.	Retained
		Anaerobic	In situ degradation of organics using microorganisms in an oxygen-deficient environment.	Eliminated ²
	Physical/chemical	Soil flushing	In situ flushing of contaminants using a solvent and an injection/extraction well system around contaminated area.	Eliminated ³
		Vapor extraction	Uses an induced vacuum created by an extraction/injection well system around the contaminated area to desorb, transport, and collect volatile organic contaminants above the saturated zone.	Eliminated ⁴
		Steam stripping	A drilling and steam dispensing system injects steam and hot air into soil to remove volatile organic contaminants. Organics are collected at the surface for treatment.	Eliminated ⁵
		Stabilization/solidification	Pressure injection of cement materials into contaminated media to immobilize contaminants.	Eliminated ⁶
	Thermal	Vitrification	Immobilization of inorganic contaminants using electrically generated heat by electrodes to convert soils to a glass/crystalline product. High temperatures destroy organics through pyrolysis and combustion.	Eliminated ⁷

**Table 3-8
SITE 4 SOIL ALTERNATIVES
NAS WHITING FIELD, MILTON, FLORIDA**

Alternative Number	Alternative Type	Representative Process Options Combined Into Alternatives	Alternative Description
Alternative S4-1 No Action	No Action	None	<ul style="list-style-type: none"> • Five-year Reviews.
Alternative S4-2 Surface Soil (exceeding PRGs) Removal and LUCs	Containment/Limited Action – No or Minimal Treatment	LUCs, Excavation, Disposal, Soil Cover	<ul style="list-style-type: none"> • LUCs including LUC Assurance Plan (LUCAP) and LUC Implementation Plan (LUCIP). • Delineation/confirmatory sampling of surface soil adjacent to 4SB06 and 4SB09. • Excavation/disposal of surface soil (0-2 feet bgs) exceeding PRGs at 4SB06 and 4SB09. • Backfill excavation with clean fill. • Establish vegetative cover. • Posting of warning signs. • Five-Year site reviews.
Alternative S4-3 Surface Soil (exceeding PRGs) Removal, Soil Venting, and LUCs	Containment/Limited/Treatment Action – Minimal Treatment	LUCs, Excavation, Disposal, Soil Cover, In Situ Soil Venting	<ul style="list-style-type: none"> • LUCs including LUCAP and LUCIP. • Delineation/confirmatory sampling of surface soil adjacent to 4SB06 and 4SB09. • Excavation/disposal of surface soil (0-2 feet bgs) exceeding PRGs at 4SB06 and 4SB09. • Backfill excavation with clean fill. • Establish vegetative cover. • Install and operate an in situ soil venting system at location 4SB03. • Posting of warning signs. • Five-Year site reviews.
Alternative S4-4 Surface and Subsurface Soil (exceeding PRGs) Removal and LUCs	Treatment/Bulk Removal – Eliminates or Minimizes Long-Term Management	LUCs, Bulk Excavation, Disposal	<ul style="list-style-type: none"> • LUCs including LUCAP and LUCIP. • Delineation/confirmatory sampling of surface and subsurface soil adjacent to 4SB03, 4SB06, 4SB07, and 4SB09. • Excavation/disposal of surface and subsurface soil exceeding PRGs at 4SB03, 4SB06, 4SB07, and 4SB09. • Backfill excavation with clean fill. • Establish vegetative cover. • Posting of warning signs. • Five-Year site reviews.

Alternative S4-3 is assembled to address principal threat of direct contact with the surface soil. LUCs are used in the alternative to reduce any residual risk, to assess the degree of remediation, and to ensure appropriate future land use. This alternative may be a long-term approach to meet remedial objectives in a noninvasive manner. Alternative S4-3 involves in situ soil venting/bioventing as the in situ method for the permanent treatment of semivolatile organic compounds (SVOCs). This in situ treatment process promotes in situ volatilization and biodegradation of constituents by providing an oxygen supply to indigenous microorganisms and by sustaining aerobic conditions.

3.4 DETAILED ANALYSES OF SOIL ALTERNATIVES