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## MEMORANDUM

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**From:**

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**Subj:** NSA MEMPHIS BRAC CLEANUP TEAM (BCT) MEETING, 22-24 JULY 96

**Encl:** (1) Minutes from 22-24 July 1996 BCT Meeting

1. Enclosure (1) is forwarded for your review and information. As a reminder, the next BCT is scheduled for 26-28 August.

2. Follow-up assignments are summarized below:

**EnSafe (Lawson Anderson/Robert Smith/Keith Johns):**

- Construct a 3-D map of the TCE-contaminated areas in the vicinity of Hangar N-126 and the surrounding apron.
- Arrange for Dr. Rouhani to brief the BCT on his findings at the August meeting.
- In accordance with the Deliverable Schedule, provide the following documents before the August meeting:
  - SWMU 60 (to be provided to Navy & USGS by 26 July, followed by distribution to BCT)
  - Voluntary Corrective Action Work Plans for SWMUs 3,7,18 (finals by 31 August), & Gas Pits (drafts by 31 August - finals by 9 August)
  - Technical memorandum on petroleum contamination at the North Fuel Farm (tanks 336 & 337).
- Recalculate background levels based on 13 sites.
- Provide copies of the update color map to all BCT members.
- Develop an Environmental Update (for community relations purposes) to be distributed several weeks before the next RAB.
- Coordinate with Rob Williamson to produce "before & after" photographs of SWMU 66, Tanks, Gasoline Pits, and Drywells for use at the next RAB meeting.
- Incorporate the sampling of the drainage ditch near SWMU 57 into the south side DERA investigation.

- Prepare a proposal (with rationale) for ground water sampling.
- Determine the extent and volume of contamination at SWMU 60 in anticipation of removing the "hot spot" in the northeast corner of the site.
- Sample soil piles at SWMU 8 for TCLP, and based on the results arrange for a contractor to remove the piles (NSA Memphis will arrange for disposal).
- Conduct additional fish tissue sampling (golf course ponds and Navy Lake).
- Incorporate former aircraft parking aprons into south side (DERA) Gray Area Investigation.
- RFI/CMS responsibilities:
  - Determine if there are two types of plumes (TCE vs Benzene)
  - Define pathways
  - Define extent of groundwater contamination
  - Project any current and future receptors
  - Perform mass balance to determine volume of solvents potentially in groundwater
  - Determine if we need to conduct pump test
  - Gather data for Frank Chapell.
  - Start CMS work plan
  - Bioremediation modeling
  - Determine length of time for bioremediation to work
  - Evaluate Pump and Treat as containment option
  - Evaluate cost effectiveness of pump and treat
  - Seek concurrence from state on enforcement discretion

#### EPA Region IV (Brian Donaldson):

- Review deliverables to be discussed at the August BCT:
  - SWMU 60
  - Technical Memorandum on North Fuel Farm
  - Assembly D CSI
  - CAMP
  - Assembly F Work Plan
- Review and provide approval on final Voluntary Corrective Action Work Plans for Gasoline Pits by 9 August
- Submit Technical Memorandum with Risk Assessment from fish tissue sampling from SWMU 9 (sewage lagoons) to EPA Risk Assessor for review.
- Coordinate with David Porter and arrange a conference call with week of 5 August with EPA, TDEC, and SOUTHDIV counsels to discuss the issue of innovative transfer of property.
- Arrange a conference call with Rob Williamson, Jim Morrison, and John Richards (EPA) regarding the new EPA radiation survey guidance, and ensure guidance is incorporated in radiation survey to be conducted by TDEC.
- Research the selected remedies at other sites with similar concentrations of chlorinated solvent contamination of groundwater - do the remedies reach MCLs?

#### NSA Memphis - Environmental (Tonya Barker/Rob Williamson):

- Ensure service call with DynCorps to have tank pit at SWMU 19 (Navy Exchange Gas Station) capped with asphalt is completed.
- Complete the disposal of IDW from Assembly A investigation.
- Post golf course ponds with signs indicating "Catch and Release Fishing Only - Biological Study Underway - Contact NSA Memphis Environmental Office for Information 874-5461."
- Coordinate with TDEC and EPA on radiation survey/participate in conference call with John Richards at EPA to ensure new guidance is incorporated into Memphis survey.
- Arrange for the cleanup of SWMU 66 by DynCorps, including the recycling of CFC from disposed refrigerators.
- Notify Don Litton and Roger Aitken that there is no BRAC environmental money available for the demolition of Building N-121. Notify the BCT when and if the demolition is rescheduled.
- Coordinate with EnSafe to obtain "before & after" photographs of SWMUs 3, 7, 18, 66, and the dry wells and gas pits for presentation at the October RAB meeting.
- Arrange for the disposal of the soil piles at SWMU 8 (EnSafe to sample for TCLP and arrange for a contractor to remove the piles).

SOUTHDIV (David Porter):

- Coordinate with Brian Donaldson in arranging a conference call the week of 5 August with counsels from EPA, TDEC, and SOUTHDIV to discuss the innovative transfer of property.
- Develop a proposal for parcels to transfer once the EIS is complete. Begin coordination for the development of a Finding of Suitability to Transfer (FOST) for the parcels.

SOUTHDIV (Mark Taylor):

- Coordinate with Lawson Anderson and develop a proposal (with rationale) for ground water sampling.
- Revise scope with EnSafe to include additional wells/stratigraphic borings, additional fish tissue sampling, and other planned work.

TDEC (Jim Morrison):

- Coordinate radiation survey by TDEC personnel with Rob Williamson and Brian Donaldson/participate in conference call with John Richards (EPA) to ensure the survey will incorporate new radiation survey guidance.
- Review and provide approval on final Voluntary Corrective Action Work Plans for Gasoline Pits by 9 August
- Review deliverables to be discussed at August BCT meeting:
  - SWMU 1
  - SWMU 5
  - SWMU 60
  - Assembly D CSI
  - CAMP
  - Assembly F Work Plans

USGS (Jack Carmichael):

- Contact the Kansas Geological Survey to about the possibility of reducing the seismic study, possibly in the conjunction with stratigraphic borings, thereby possibly reducing the costs.
- RFI/CMS responsibilities:
  - Quick modeling of plume
  - Perform mass balance to determine volume of solvents potentially in groundwater
  - Determine if we need to conduct pump test
  - Identify type of data Frank Chapell requires for bioremediation analysis
  - Gather data for Frank Chapell
  - Have Frank Chapell tell the BCT what levels of TCE the bio system can handle
  - Complete steps to calibrate groundwater model
  - Establish reasonable action levels to define plume boundary
  - Use modeling to project plume over time

3. Please call/e-mail if you have comments and/or questions: (803) 820-5610, DSN 583, e-mail: [dlporter@efdsouth.navy.mil](mailto:dlporter@efdsouth.navy.mil).



**NSA MEMPHIS BCT MEETING MINUTES**  
**22-24 JULY 1996**

The NSA Memphis BRAC Cleanup Team convened at 11:00 am on Monday 22 July in the CO's conference room, Building S-1. The following people were in attendance:

Lawson Anderson, EnSafe (Memphis)  
Tonya Barker, NSA Memphis  
Jack Carmichael, USGS (Nashville)  
LCDR Darrell Creasey, NSA Memphis  
Brian Donaldson, EPA Region IV  
Keith Johns, EnSafe (Raleigh)  
Capt. Mallory, CO NSA Memphis  
Jim Morrison, TDEC (Memphis)  
David Porter, SOUTHDIV  
Robert Smith, EnSafe (Memphis)  
Mark Taylor, SOUTHDIV  
Rob Williamson, NSA Memphis

The BCT discussed the upcoming RAB meeting agenda with Capt. Mallory and the problems associated with poor attendance at the RAB meetings. The agenda items to be discussed at the 23 July RAB meeting that were:

- The revised Environmental Condition of Property (color) map.
- A new fact sheet updating the status of the environmental cleanup - discussed polling the RAB to determine their concerns.
- The overall environmental investigation/cleanup timeline.
- The innovative transfer issue and the fact that EPA headquarters was not buying into the concept.
- An update on the EIS (45 day public notice on the draft EIS is expected soon - public hearing on the draft to be held in Millington some time in September).
- Risk Ranking and Budgeting (to be presented by Mark Taylor)
- Fish Tissue Study (to be presented by Jim Morrison [TDEC])
- SWMU 67 update with before and after photographs (to be presented by Rob Williamson)

The CO discussed recent events concerning Aerospace Engineering (NSA Memphis north side tenant) and the problems associated with their operations.

The meeting with CAPT Mallory was adjourned for lunch at 11:25 am. At 1:00 pm the BCT then met with the Airport Authority (Frank Ryburn) and the Industrial Development Board (Jim Ferguson and Phil Whittenburg). The Executive Officer, CDR Work, also attended the meeting. The following issues were discussed:

- The revised Environmental Condition of Property Map.
  - Problems with the innovative transfer concept (EPA Headquarters not buying into the idea).
  - The contamination at the North Fuel Farm.
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- The long term lease.
- The pending lease on the 40 acre industrial tract (the Industrial Development Board voiced their concern over the timeliness of the lease and the completion of the Environmental Assessment.)
- David Porter (SOUTHDIR) requested information on the actual areas the community wants transferred as soon as the EIS is complete (per Phil Whittenberg, he is waiting on a proposal from the Navy on what can be transferred).
- The NSA Memphis Executive Officer requested an enlargement of the area of Environmental Condition of Property Map showing the extent of known fluvial deposits groundwater contamination.

The meeting with the Airport Authority and the Industrial Development Board was adjourned at 1:30. The BCT reconvened at 1:30 pm in the conference room at S-241. Those in attendance were:

Lawson Anderson, EnSafe (Memphis)	Mark Taylor, SOUTHDIR
David Porter, SOUTHDIR	Keith Johns, EnSafe (Raleigh)
Rob Williamson, NSA Memphis	Brian Donaldson, EPA Region IV
Jim Morrison, TDEC	Jack Carmichael, USGS
Tonya Barker, NSA Memphis	Robert Smith, EnSafe (Memphis)

The BCT discussed the follow-up items from the June BCT meeting:

EnSafe (Lawson Anderson):

- Construct a 3-D map of the TCE-contaminated areas in the vicinity of Hangar N-126 and the surrounding apron. Being worked on by Larry Hughes - awaiting input from Dr. Rouhani's evaluation of the existing data.
- Secure the service of Dr. Rouhani to conduct a geostatistical analysis of the BRAC data (SWMU 7/apron area, as well as Turkey Shoot) to determine if and where additional monitoring wells are needed. Also, have Dr. Rouhani perform 3D geostatistics on data from upper and lower fluvial to determine if there is a correlation. Also, have Dr. Rouhani evaluate the need for additional geological data.  
EnSafe awarded subcontract with Dr. Rouhani on 22 July. Per Lawson Anderson, the scope calls for a report in 4 weeks. Lawson Anderson will try to have Dr. Rouhani brief the BCT at the August meeting.
- In accordance with the Deliverable Schedule, provide the following documents before the July BCT meeting:
  - SWMU 60 (to be provided by 5 July)  
In progress. Per Lawson Anderson, it will be provided to the Navy and USGS for review by the end of the week (26 July).
  - Voluntary Corrective Action Work Plans for SWMUs 3,7,18, & Gas Pits (Finals)  
Revised Plans for SWMUs 3, 17, and 18 have been submitted to the BCT for review (shipped 17 July). Per Lawson Anderson, the plans for Gas Pits will be submitted by the end of the week (26 July).
  - CAMP (to be provided by 5 July)  
EnSafe submitted to the BCT last Friday (19 July).
  - Assembly F Work Plan (to be provided by 28 June)  
Has been submitted to the BCT for review (shipped 8 July).

- **Recalculate background levels based on 13 sites.**  
Per Lawson Anderson, have not started on this task due to low priority (risk assessments for BRAC sites have priority).
- **Update color map indicating environmental condition of property (BRAC map) for July RAB meeting (provide draft for review by 2nd week in July). Groundwater contamination will be shown with either a cross-hatch or overlay (Brian Donaldson will check to see how it has been done at other locations)**  
Copy of draft revised map provided for BCT review. The following items were discussed:
  - Issue:** Do we need to color the area (Environmental Condition of Property Map) of groundwater contamination red, or leave it hatched?
  - Consensus:** Leave the area hatched.
  - Issue:** EPA Region IV not comfortable with SWMU 8 being classified as Lt. Green on the Environmental Condition of Property map.
  - Consensus:** Area will be colored red until further information is obtained.
  - Issue:** SWMU 1 is colored Lt. Green, should be Dk. Green.
  - Consensus:** Color designation for SWMU 1 will be changed to Dk. Green on the Environmental Condition of Property Map
  - Issue:** Entire area of SWMU 60 is colored red, however, only a portion of the site should be designated red.
  - Consensus:** Only "hot spot" in the northeast corner of the site will be red, the remainder of the site will be Lt. Green.
  - Issue:** Turkey Shoot area is gray on the Environmental Condition of Property Map.
  - Consensus:** Area will remain gray until receiving Dr. Rouhani's review of the data.
  - Issue:** SWMU 66 is colored Lt. Green, however, cleanup by DynCorp has not taken place.
  - Consensus:** Area will be changed to gray until removal and post-removal sampling is complete.
  - Issue:** SWMU 15 is not hatched, yet has benzene contamination in fluvial deposits groundwater.
  - Consensus:** SWMU 15 may be hatched based on review of benzene levels.
  - Issue:** Background well 5 (BG-5) has PCE hit, but is colored Lt. Green.
  - Consensus:** BG-5 will be colored red.

SOUTHDIR requested that title (large type) be added to the map. Robert Smith will ensure changes are incorporated and provide a new mounted map for the RAB meeting Tuesday evening. Robert Smith will provide copies of the map for all BCT members.
- **Update environmental timetable for July RAB.**  
Has been completed.
- **Coordinate with Rob Williamson to produce "before & after" photographs of SWMU 67 for the July RAB meeting.**  
Has been completed.
- **Expand fish tissue sampling to include golf course ponds and Navy Lakes. Collect fish tissue samples and surface water samples from both sites. Collect sediment samples from the golf course ponds (sediment samples from Navy Lakes were previously collected).**  
EnSafe has prepared a technical memorandum on proposals for additional fish tissue sampling - the BCT will discuss on Wednesday.
- **Incorporate the sampling of the drainage ditch near SWMU 57 into the south side DERA investigation.**  
EnSafe will conduct sampling of the ditch after results are received from the activity's sampling of the drain inlet.

- Investigate the possibility of beginning pilot studies with existing data.  
Not sure pilot studies will be conducted.
- Prepare a proposal (with rationale) for ground water sampling.  
Has not been completed.

EPA Region IV (Brian Donaldson):

- Review deliverables to be discussed at the July BCT:
  - SWMU 1  
Has been completed.
  - SWMU 5  
Has been completed.
  - SWMU 60  
EnSafe has not provided.
  - Assembly D CSI  
Have not reviewed.
  - CAMP  
EnSafe provided last Friday.
  - Assembly F Work Plan  
Have not reviewed.
- Submit Technical Memorandum with Risk Assessment from fish tissue sampling from SWMU 9 (sewage lagoons) to EPA Risk Assessor for review.  
EPA currently does not have a risk assessor; however, they have received more funding to have reviews conducted by a contractor.
- Arrange for Earl Bozeman, EPA Ecological Risk Assessor, to attend the July BCT (site visit scheduled for Wednesday 24 July).  
Has been arranged.
- Check with other EPA personnel to see how issue of contaminated groundwater was shown on EBS colored map for property to be handled under an innovative land transfer.  
Was not completed. BCT reviewed draft map and decided to indicate groundwater contamination with a red cross-hatch.
- Coordinate with Rob Williamson and John Richards (EPA) regarding the new EPA radiation survey guidance, and ensure guidance is incorporated in radiation survey to be conducted by TDEC.  
Brian Donaldson will arrange a telephone conference with John Richards, Rob Williamson, and Jim Morrison to discuss the guidance.

NSA Memphis - Environmental (Tonya Barker/Rob Williamson):

- Issue service call with DynCorps to have tank pit at SWMU 19 (Navy Exchange Gas Station) capped with asphalt.  
Service call has been initiated with DynCorps, but work has yet to be completed. The tank removal contractor has defaulted.
- Complete the disposal of IDW from Assembly A investigation.  
Work on the closed-top drums is currently underway.
- Post golf course ponds with signs indicating "Catch and Release Fishing Only - Biological Study Underway - Contact NSA Memphis Environmental Office for Information 874-5461."  
Work request has been initiated, but signs have not been completed - should be finished and posted within the next several days.
- Coordinate with TDEC and EPA on radiation survey (incorporate new radiation survey guidance from EPA - coordinate with John Richards at EPA through Brian Donaldson).  
Brian Donaldson will arrange a telephone conference with John Richards to discuss the guidance.

- Arrange for the cleanup of SWMU 66 by DynCorps, including the recycling of CFC from disposed refrigerators. Provide BCT with the list of pesticides and herbicides to be applied by DynCorps to the area. Rob Williamson provided the BCT with information on the pesticides and herbicides to be used by DynCorps (they have not yet applied the chemicals).
- Monitor the proposed demolition for Building N-121, and notify the BCT of the schedule once it has been established.  
Per Rob Williamson, according to Don Litton and Roger Aitken (NSA Memphis Public Works) the building was taken off of the activity's demolition list due to its RFI status and the expectation of BRAC funding to complete the task. No BRAC money will be allocated. Rob Williamson will notify Public Works that no BRAC money is available for the demolition, and that the building should be returned to the activity's demolition list.
- Assemble "before & after" photographs of SWMUs 67 for presentation at the July RAB meeting. Has been completed.
- Coordinate the cleaning of the storm drain near SWMU 57. Photograph the drain inlet before and after the cleaning. Sample the drain contents for disposal (sampling of the drainage ditch will be conducted by EnSafe, and will be incorporated into the south side DERA investigation).  
Before and after photographs were taken of the cleaning. The sludge was removed from the basin - smelled like solvent and looked like paint. One drum of water and one drum of sludge were generated. Was sampled, but results have not been received. Considerable material was left in the pipes leading from the inlet.

#### SOUTHDIV (David Porter):

- Coordinate with the Base Reuse Committee on the placement of the roadway at SWMU 60. TN State Highway Department has shifted the roadway alignment to the west to avoid SWMU 60.
- Begin coordination for the development of a Finding of Suitability to Transfer (FOST) for the airfield and the land west of the airfield.  
David Porter and Brian Donaldson will arrange a conference call with respective counsels the week of 5 August to discuss the concept of innovative transfer. In the absence of an innovative transfer, the BCT discussed possible boundary lines around the airfield to separate areas that can be transferred by deed once the EIS/ROD is complete.
- Coordinate with CAPT Mallory on sending a letter from RAB co-chairs regarding the low attendance of board members at RAB meetings, and the possibility of changing the meetings to a quarterly schedule. CAPT Mallory and Mayor Harvell sent a letter to the RAB members on 9 July.
- Coordinate with Freda Ellerbrook and David Watt on contacting RAB board members by telephone immediately prior to the July RAB meeting.  
This item has delayed to ascertain the impact of the co-chair's letter to the members, and also the outcome of discussion at tomorrow's RAB meeting.
- Arrange for Darrell Molzan to attend the July RAB meeting to provide a presentation on NEPA requirements, and the status of the Environmental Impact Statement for NSA Memphis.  
Darrell Molzan will be unable to attend due to surgery. Assistant Secretary of the Navy (ASN) Cassidy recently developed a set of criteria and style for all BRAC documents. The draft EIS is currently being revised to meet this criteria. The 45 day public notice is expected to begin with the month, with a public hearing in Millington in September. The final EIS and ROD are expected in late December.
- Summarize the results from the "Keys to Opening the Door to BCT Success" questionnaire. Has been completed. Results were provided with the memorandum forwarding the meeting minutes.

SOUTHDIV (Mark Taylor):

- Coordinate with Lawson Anderson and develop a proposal (with rationale) for ground water sampling.  
Has not been completed.

TDEC (Jim Morrison):

- Coordinate radiation survey by TDEC personnel with Rob Williamson and Brian Donaldson (ensure the survey will incorporate new radiation survey guidance from EPA).  
Brian Donaldson will arrange a conference call with John Richards at EPA to discuss the guidance.
- Review deliverables to be discussed at July BCT meeting:
  - SWMU 1  
Has not been completed.
  - SWMU 5  
Has not been completed.
  - SWMU 60  
Voluntary Corrective Action Work Plans for SWMUs 3,7,18, & Gas Pits (comments to EnSafe by 3 July)  
EnSafe has not yet provided the revised work plans for the Gas Pits. Jim Morrison provided verbal approval of work plans for SWMUs 3, 17, and 18.  
Assembly D CSI  
Has not been completed.
  - CAMP  
EnSafe provided last Friday.  
Assembly F Work Plans  
Has not been completed.

USGS (Jack Carmichael):

- Secure a revised proposal from Rick Miller with the Kansas Geological Survey for the seismic investigation (lines to define faults, area around Hangar N-126 to be excluded due to culture).  
A revised proposal has been received. Jack Carmichael requested that a discussion of the proposal be postponed until Tuesday morning when Bill Parks will be present to discuss faulting.

The meeting was adjourned for the day at 5:00 pm.

The BCT meeting convened at 8:00 am in the conference room at Building S-241 on 23 July 1996. Attendees were:

Pat Franklin (SOUTHDIV)	Jack Carmichael (USGS)
David Porter (SOUTHDIV)	Lawson Anderson (EnSafe)
Brian Donaldson (EPA Region IV)	Mark Taylor (SOUTHDIV)
Robert Smith (EnSafe)	Danny Chumney (NSA Memphis)
Bill Parks (USGS)	Jim Morrison (TDEC)

USGS (Jack Carmichael) presented the proposal and some preliminary findings submitted by the Kansas Geological Survey (KGS) for the proposed seismic study of the SWMU 7/Apron Area. The KGS proposes to a series of 4 lines in a polygonal shape north of the active runway. Field work would take approximately 1 week to complete, with several days of data analysis for every one day of field work. Proposed cost of the project ranges from \$30,000 to \$60,000. Jack

Carmichael said he could talk to KGS concerning the scope of the work, therefore, possibly reducing the cost.

A lengthy discussion of the possible position of the fault ensued. Maps produced by Bill Parks (USGS) were shown and discussed. Mr. Parks requested that the maps, which are based on very preliminary data, not be released in any manner.

TDEC voiced a concern that DNAPL, if present, may be moving along the dip in a SE direction, against the groundwater flow gradient.

The BCT tentatively decided on the following course of action, but tabled a decision until the next BCT meeting:

- No additional seismic work
- Two new stratigraphic test borings, one in the SWMU 40 area to 180 ft, and one at the end of Runway 32 to 220 ft.

Jack Carmichael then proposed an additional well on the south side to aid in calibrating the groundwater model. No decision was reached on this issue.

The BCT addressed the following agenda items:

North Fuel Farm: EnSafe will provide a report of the findings along with recommendations/cost proposal for the removal of petroleum contaminated soil from around the tank and piping. The scope of the work will probably be on a level achievable through a EnSafe contracted Voluntary Corrective Action.

SWMU 60: EnSafe will calculate the areal extent and volume in anticipation of removing the "hot spot" in the northeast corner of the site

Fish Study: Earl Bozemen (EPA Region IV) due on site 24 July to discuss the fish study.

HSWA Permit: The following items were discussed:

- Quarterly Progress Reports: BCT is already covering this obligation via the monthly/semi-monthly progress reports.
- Deliverables: SOUTHDIV requested a 15-day extension, bringing the total to 60 days for the submittal
- Permit Mod for CMS

CMS/PI: Per Lawson Anderson, an initial review of the PI guidance indicates that it will be difficult to prove. Through evaluating the pump/treat option during the CMS, it will allow the BCT to "back into" natural attenuation as a remedial alternative. A preliminary evaluation of pump/treat showed that with 8 wells @ 10 gpm, it would take 27 years to remove one pore volume, pump and treat would require 3 to 5 pore volumes (100+ years). More pump test data may be needed. It is estimated that \$200,000 is needed to design and install pump and treat system. The team also discussed natural bioattenuation vs pump/treat.

The critical question is do we have the right conditions for bioattenuation? Jack Carmichael is to check with modeling, pump tests, and Frank Chappell.

The BCT then discussed the possibility of reclassification of the fluvial deposits groundwater from a drinking water aquifer to non-drinking water aquifer. TDEC does not have a mechanism in place for the reclassification of groundwater. However, TDEC does have enforcement discretion which would allow the state to not enforce the federally mandated MCL if boundaries can be established for the groundwater contamination.

Pat Franklin (SOUTHDIR) was then asked facilitate a discussion on the following subject: "What steps do we need to take to address the remediation of fluvial groundwater?" Ideas were placed on post-it notes, then organized into the following categories, with the BCT members who are responsible shown in parentheses:

#### **RFI**

- Determine if there are two types of plumes (TCE vs Benzene) (E/A&H)
- Define pathways (E/A&H)
- Enlist RAB support (BCT)
- Quick modeling of plume (USGS)
- Define extent of groundwater contamination (E/A&H)
- Project any current and future receptors (E/A&H)
- Dr. Rouhani evaluation of data (E/A&H)
- Complete RFI report (E/A&H)

#### **Between RFI and CMS**

- Perform mass balance to determine volume of solvents potentially in groundwater (???)
- Research remedies for chlorinated solvent sites, do they reach MCLs? (EPA)
- Research sites in the area (EPA)
- Determine if we need to conduct pump test (USGS / E/A&H)
- What type of data does Frank Chapell need? (USGS / E/A&H)
- Gather data for Frank Chapell. (USGS / E/A&H)
- Have Frank Chapell tell the BCT what levels of TCE the bio system can handle. (USGS)
- Complete steps to calibrate groundwater model. (USGS)
- Establish reasonable action levels to define plume boundary (BCT/USGS)

#### **CMS**

- Start CMS work plan (E/A&H)
- Use modeling to project plume over time (USGS)
- Bioremediation modeling (E/A&H)
- Determine length of time for bioremediation to work (E/A&H)
- Evaluate Pump and Treat as containment option (E/A&H)
- Evaluate cost effectiveness of pump and treat (E/A&H)
- CMS Report/remedy recommendation (E/A&H)
- Seek concurrence from state (enforcement discretion) (E/A&H)

The BCT then began a discussion concerning how does the time factor of the CMS effect leasing of the BRAC properties. No decisions made.

A discussion was held concerning TDEC action levels as to at point can the "system" not handle remediation. Action levels will be determined based on insitu bioremediation projections/effectiveness.

The BCT then returned to the agenda items as follows:

- Voluntary Corrective Action Work Plans: VCAs for SWMU 3, 7, and 18 out on 17 July. TDEC gave tentative approval on SWMU 3, 7, and 18. VCAs, OL-006 (Gas Pits) expected out 7/31. Approval expected 8/9.
- Groundwater monitoring program: to be discussed 24 July.
- SWMUs 1 and 5: awaiting TDEC comments and EPA risk review
- Assembly C: awaiting EPA and TDEC review
- SWMU 8: in order to rule out the soil piles as a 'characteristic waste,' E/A&H will collect a TCLP sample. Provisions will be made for E/A&H to arrange for a contractor to load out the soil piles, based on analytical results, and NSA Memphis will arrange for disposal.
- SWMU 66: Report will follow drum removal and post-removal sampling.

Scheduled for review at next BCT meeting: Assembly C, Assembly D, CAMP, and the North Fuel Farm report. The following documents were prioritized for review purposes:

1. SWMU 60
2. North Fuel Farm
3. SWMU 8
4. SWMU 10
5. SWMU 15
6. SWMU 21
7. Assembly E

EPA (Brian Donaldson) gave his comments on SWMU 1 report to E/A&H (Robert Smith). Meeting was adjourned at 5:00 pm.

Note: A Restoration Advisory Board Meeting was conducted Tuesday evening at the Baker Community Center. Minutes of this meeting will be forwarded separately.

The BCT reconvened at 8:00 am in the conference room at Building S-241 on 24 July 1996. Those in attendance were:

Lawson Anderson, EnSafe (Memphis)  
David Porter, SOUTHDIV  
Brian Donaldson, EPA Region IV  
Jack Carmichael, USGS  
Tonya Barker, NSA Memphis

Mark Taylor, SOUTHDIV  
Rob Williamson, NSA Memphis  
Jim Morrison, TDEC  
Earl Bozeman, EPA Region IV

The meeting began with a discussion of the previous night's RAB meeting.

- The next RAB meeting is scheduled for 22 October.
- Per the RAB's decision, meetings will be held on a quarterly basis.
- SWMU 67 "before and after" photos were effective.
- SWMU 9 sewage lagoons: check DL

The BCT then discussed the following agenda items for the October RAB meeting:

- Status of the Environmental Impact Statement/Record of Decision
- Plans for Fish Tissue Sampling in North Side Ponds and Lakes
- Groundwater Flow Model
- Before and After Photographs of SWMU 66, Tanks, and Dry wells
- Status of Groundwater Investigation/Bioremediation Potential
- Update on Assembly E Work

It was decided to have an Environmental Update (for community relations purposes) developed by EnSafe several weeks before the next RAB.

Rob Williamson distributed internal Navy memo concerning "gas path cleaner (aircraft engine cleaning)" which picks up cadmium off of plating engine parts. There has been reports of contaminated wastewater from this process at NAS Jacksonville, which has been discharged in the storm drain to the St. Johns River. Rob Williamson has talked employees who were familiar with the operation at Memphis. He pointed out that many aircraft were parked/maintained on the south side in the past in the S-86 hangar area. This area may need to be checked out with geoprobe during south side (DERA) Gray Area Investigations.

The Fish Tissue Study was then discussed by the BCT. Fred Swan and Brian Mulhearn (EnSafe) were in attendance. The following decision were reached:

- 2 species composite samples from each water body.
- Sediment samples from Golf Course Lake (in accordance with Gray Area Work Plan)
- Composite sample of bluegill (with skin) from Golf Course Lake.

The meeting was adjourned at 2:00 pm.