



DEPARTMENT OF THE NAVY

NORTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
BUILDING 77L, U.S. NAVAL BASE
PHILADELPHIA, PENNSYLVANIA 19112-9094

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MEMORANDUM

FOR THE MEMBERS OF THE TECHNICAL REVIEW COMMITTEE (TRC) FOR
INSTALLATION RESTORATION PROGRAM CORRECTIVE ACTIONS AT NAVAL
WEAPONS SUPPORT CENTER CRANE NWSCC), CRANE, IN

Enclosed are copies of the minutes and the list of attendees for
TRC Meeting #3, held on (22 August 1991). Please contact Mr. Byron
Brant at (215) 897-6280 if you have any comments or questions on
the minutes.

TRC Meeting #4 is tentatively scheduled for 12 December 1991, in
Building 1 at 9:00 AM. We plan to discuss RCRA Facility
Investigation (RFI) Draft Reports and recommendations for future
corrective actions the following Solid Waste Management Units
(SWMUs):

- the Ammunition Burning Grounds, SWMU #03/10;
- McComish Gorge, SWMU #04/02;
- the Old Burn Pit, SWMU #05,03; and
- Rockeye, SWMU #10/15.

We will also discuss RFI Phase I Draft Environmental Monitoring
Reports and recommendations for future corrective actions for the
following SWMUs:

- the Load and Fill Area, Building 106 Pond, SWMU #08/17;
- the Pyrotechnic Test Area, SWMU #19/00;
- Mine Fill A, SWMU #12/14; and
- Mine Fill B, SWMU #13/14.

The meeting is expected to last until 12:30 PM.

Sincerely,

Byron Brant

Byron Brant
Remedial Project Manager
By direction of the Commanding Officer

Distribution:

- U. S. EPA Region V, Carol West-Smith
- NWSCC, Environmental Division, Jim Hunsicker (3 copies)
- AMCCOM, Mary Ann Rondinella
- CAAA, Stephan Schick

**FOR THE MEMBERS OF THE TECHNICAL REVIEW COMMITTEE (TRC) FOR
INSTALLATION RESTORATION PROGRAM CORRECTIVE ACTIONS AT NAVAL
WEAPONS SUPPORT CENTER CRANE (NWSCC), CRANE, IN**

**U. S. Army Corps of Engineers, Waterways Experiment Station, Bill
Murphy**

**U. S. Army Corps of Engineers, Waterways Experiment Station,
Dr. James May**

U. S. Army Corps of Engineers, Wilmington District, Bob Magee

U. S. Army Corps of Engineers, Louisville District, Bruce Murray

U. S. Fish and Wildlife Service, Dan Sparks

**Indiana Department of Environmental Management, Thomas Linson
(2 copies)**

Indiana Department of Environmental Management, Reggie Baker

Indiana Department of Natural Resources, Dr. Wayne Faatz

Daviess County, Janet Goodwin

Greene County, Mark Ivy

Lawrence County, Larry Walton

Martin County, Larry Ziegler

Monroe County, Tim Crouch

City of Bedford, Jeanne Robinson

City of Bloomfield, Gale Robbins

Padanaram/Imperial Lumber, Aram Wright

MINUTES
TECHNICAL REVIEW COMMITTEE MEETING #3
22 AUGUST 1991
NAVAL WEAPONS SUPPORT CENTER CRANE, INDIANA

1. Technical Review Committee (TRC) Meeting #3 was held at the Naval Weapons Support Center Crane (NWSCC) in Crane, Indiana on 22 August 1991. A copy of the agenda distributed at the meeting and the attendance list are attached.

2. Captain Johnson was the Chairman of TRC Meeting #3.

3. The following TRC members were not in attendance:
U. S. Army Armament, Munitions & Chemical Command
U. S. Army Corps of Engineers, Louisville District
U. S. Fish and Wildlife Service
Indiana Department of Environmental Management
Greene County
Lawrence County
Martin County
City of Bloomfield

4. The Navy discussed the conclusions and recommendations made in the RCRA Facility Investigation (RFI) Phase II Draft Soils Report for the Old Rifle Range (ORR), Solid Waste Management Unit (SWMU) #07/09. The Navy stated its belief that soils outside of the flashing pits at the ORR are clean. The Navy proposed that further study of soils at the ORR be discontinued contingent on satisfactory results of ground water studies at the site, and that the contaminated soils within the flashing pits be addressed in the future, when the pits are closed. The Navy asked TRC members for questions or comments concerning this proposal. Questions asked by the TRC members and answers given by the Navy (and the Army Corps of Engineers) during the ensuing discussion were as follows:

Q: The levels of metals were higher in some background samples than many samples taken closer to the burn pits. What is the cause for high metals in the ORR background sample #11?

A: The soils at the site are variable. NWSCC has basically four different types of soil. With these different types of soil, it is understandable that the levels of metals from one sample may be high relative to the levels of metals in other samples.

Q: Is it possible that the high levels of metals in sample #11 could have come from other NWSIC operations (those at the Old Rifle Range or Demolition Area)?

A: This is not likely, if airborne particles had caused the levels of metals to be higher in sample #11, then all of the samples should have had higher levels of metals, since the particles would have settled over the entire site, not just the sample #11 area. Most likely, the levels of metals are higher in sample #11 because the sediment type for that sample is probably different than that of other samples.

Q: What is the relationship of these background samples to other background samples within NWSCC?

A: The samples fall within a reasonable range for soils at NWSCC, since basically four types of soils are prevalent on the center.

The Navy explained that an explosive waste disposal process, "flashing", is operated at the site. Explosive contaminated waste is incinerated in burn pans located in "flashing pits", which are cleaned periodically.

Q: To what extent are the pits cleaned?

A: The "pop-outs" (pieces of explosive contaminated that fly out of the pit during incineration) are usually taken out of the pits?

Q: How are the pop-outs removed, are they sifted or raked out?

A: They are usually removed with a shovel.

Q: Were the areas of the target bunkers looked at in your investigation?

A: They were looked at somewhat, but not included in the report since the bunkers had been removed. The area where the bunkers were formerly located is now wooded. The samples were taken as close to the wooded area as possible.

The EPA stated that the report should note where the bunkers were located. The EPA stated that it was worthwhile information to show the potential training areas, and that metal levels in the samples could be higher in some locations because the actual shooting range was located near those locations. The Navy stated that the contaminants found in the samples were not rifle range-type contaminants.

Q: What type of clay is in the clay liner of the flashing pit?

A: We are not sure of the type, but the impermeability rate is on a scale of about 10^{-6} .

Q: What is the percentage of clay?

A: We are not sure and would have to look and the report to get that information.

Q: What were clays compacted with during construction?

A: A "clamshell" and other types of earth-working machines were used.

Q: How deep are the clay liners?

A: The clay liners are about 2 feet deep. The bottom layer of the flashing pit consists of over 3.5 feet of compacted clay. On top of the compacted clay is an impermeable liner. The impermeable liner is topped by 2 more feet of compacted clay. A foot of gravel covers the compacted clay, and 10 inches of sand covers the gravel. About 2 feet of fill material covers the sand. The burn pans rest on the fill material.

Q: Is open burning the best way to dispose of explosive contaminated waste and other similar materials?

A: The Department of Defense is researching alternative methods to Open Burning/Open Detonation (OB/OD). For some items, OB/OD may be one of the only good ways of disposal.

The EPA stated that EPA's national policy is that no burning is permissible on the ground without containment.

The Navy asked all TRC members if a consensus had been reached that no further soils investigations were necessary at the ORR, contingent on satisfactory results of ground water studies at the site. TRC members agreed.

5. The Army Corps of Engineers presented the Geophysical Investigation at the Dye Burial Grounds (DBG), SWMI #02/11 Draft Report. It was explained that the purpose of the geophysical investigation was to locate the burial trenches (reportedly 10 feet wide, 50 feet long, and 6 feet deep) and drums believed to be at the site. The characteristics and methods of operation for the different instruments used to perform the geophysical investigation were described. The anomalies detected by the instruments were presented and explained. Questions asked and answers given concerning this site were as follows:

Q: Was a consistent search depth (say 20 feet) used for the instruments?

A: No. Each instrument has different ranges of depths that it can evaluate, depending on geological conditions at the site.

Q: What depths are analyzed by the magnetic instruments?

A: The depths analyzed are a function of the size and volume of metal that is being searched for. The EM-31 typically analyzes a depth of about 20 feet; the EM-38 typically analyzes at a depth of 3 to 6 feet; and the Magnetometer can analyze depths of hundreds of feet. However, the depths analyzed by each instrument depend on the conditions at the site.

The Navy explained that an EFI Phase III Ground Water study is underway at the site, that monitoring wells have been installed, that the ground water is being analyzed for contaminants, and that the results from the first round of ground water sampling will be sent to TRC members within a month or so.

Q: Are ground water samples from the ABG analyzed for many compounds?

A: The samples are analyzed for many compounds using EPA-approved testing methods.

Q: How many aquifers are at the site?

A: Four aquifers exist at the DBG.

It was explained that the purpose of the geophysical investigation was to locate the burial trenches at the DBG without disturbing them. The trenches as they currently exist may be providing some level of

containment of the dyes. Installation of borings and monitoring wells in the alleged area of the trenches could penetrate the trenches, allowing the dyes to flow out and worsen contamination at the site.

Q: Could long rods be used to probe the soils to determine the different densities and find the trenches that way?

A: No, as they could penetrate the trench walls, possibly allowing dyes to flow out of the trenches. Additionally, a gravel road has been put in over the site, which would make using this method very difficult.

Q: Is this site (the DBG) somehow related to the Dye Trace Study that has been performed?

A: No. The Dye Trace Study was an EPA-approved test performed at the ABG. During the Dye Trace Study non-toxic dyes were injected into a monitoring well. Subsequently, other monitoring wells and springs were tested to determine if the injected dye was present. By this process the groundwater flow pathways of the ABG area were determined.

Q: Are the ground water tests broad enough to determine the extent of contamination?

A: Yes, the current well placement should be broad enough to determine the extent of contamination at the DBG.

Q: Where do the waters from the DBG area drain to off-base?

A: Waters from the DBG area eventually drain to Little Sulphur Creek and off-base in the direction of Cale.

Q: If the dyes at the DBG are toxic, does that mean that they are poisonous to humans?

A: Yes. Some of the dyes are also believed to be carcinogenic.

Q: What contaminants have been found in the monitoring wells at the DBG?

A: To date only metals have been detected in significant quantities in the monitoring wells at the DBG.

The IDNR expressed that they're more concerned with the ABG than the DBG in regard to aquatic life. The Navy stated that aquatic life exists downstream from both sites. The TRC member expressed that any testing of the surface waters should use ambient water quality criteria. The Navy stated that at some point an ecological risk assessment would be performed for Little Sulphur Creek. The risk assessment would be developed in accordance with all applicable standards.

The EPA suggested that a visual surface inspection of the DBG for dyes leaching through soils should be performed. The Navy agreed to do visual surface inspections on a monthly basis and after major rain events.

6. The Army Corps of Engineers presented an overview of the types of information that will be included in the forthcoming RFI Phase II Soils Draft Reports for Rockeye, SWMU #10/11; the Old Burn Pit (OBP), SWMU #05/03; and McComish Gorge (MG), SWMU #04/01.

7. The Army Corps of Engineers presented the RFI Phase III Ground Water Draft Work Plan for MG and OBP. Questions asked and answers given concerning this site were as follows:

Q: What is the depth to bedrock at these sites?

A: Because of the varying geological conditions at the sites, the depths to bedrock range from 2 to 60 feet.

Q: What streams does drainage from these sites enter?

A: Both sites drain to Furst Creek.

8. The Army Corps of Engineers presented the RFI Phase III Soil and Ground Water Draft Work Plan for the Pest Control Area/R-150 Tank Area (PCA), SWMU #09/05. Questions asked and answers given concerning the PCA were as follows:

Q: Have any contaminants been found at the site?

A: Yes, Trichlorethene (TCE) has been found in level of hundreds of parts per billion. However, the rate and extent of the contamination has not yet been defined.

9. The Army Corps of Engineers presented the RFI Phase II Soil and Phase III Ground Water Draft Work Plans for the Mustard Gas Burial Ground (MGBG), SWMU #01/12.

INSTALLATIONS RESTORATION PROGRAM
NAVAL WEAPONS SUPPORT CENTER CRANE, INDIANA
TECHNICAL REVIEW COMMITTEE MEETING #3 22 AUG 91

NAME: *Aram W. Wright*
TITLE: *Forester*
REPRESENTING: *PAD Inc.*
MAILING ADDRESS (IF CHANGED FROM LAST MEETING):
RR # 1 Box 478 Williams IN 471470
PHONE * (IF CHANGED FROM LAST MEETING): *812-824-9891*

NAME: *Jose L. Lopis*
TITLE: *Geophysicist*
REPRESENTING: *US Army Corps of Engineers, Waterways Exp. Sta.*
MAILING ADDRESS (IF CHANGED FROM LAST MEETING):
*3909 Halls Ferry Rd
Vicksburg, MS 39180*
PHONE * (IF CHANGED FROM LAST MEETING):
601-634-3164

NAME: *Robert Magel*
TITLE: *Geologist*
REPRESENTING: *U.S. Army Corp: of Engineers Wilmington Dist.*
MAILING ADDRESS (IF CHANGED FROM LAST MEETING):
PHONE * (IF CHANGED FROM LAST MEETING):
919-251-4709

NAME: *Bill Murphy*
TITLE: *Geologist*
REPRESENTING: *U.S.A.E. Waterways Equipment Station*
MAILING ADDRESS (IF CHANGED FROM LAST MEETING):
PHONE * (IF CHANGED FROM LAST MEETING):

NAME: *JEFF CROCCO*
TITLE: *GEOLOGIST / TECHNICAL MANAGER*
REPRESENTING: *NORTHNAVFACENGCOM*
MAILING ADDRESS (IF CHANGED FROM LAST MEETING):
PHONE * (IF CHANGED FROM LAST MEETING):

NAME: *Byron Brant*
TITLE: *Remedial Project Manager*
REPRESENTING: *Northern Division, Naval Facilities Engineering Command*
MAILING ADDRESS (IF CHANGED FROM LAST MEETING): *—*

PHONE * (IF CHANGED FROM LAST MEETING): *—*

NAME: *Jeanne Robinson* (*REPLACING CARL BOYER*)
TITLE: *EXECUTIVE DIRECTOR*
REPRESENTING: *BEDFORD AREA CHAMBER OF COMMERCE*
MAILING ADDRESS (IF CHANGED FROM LAST MEETING):
P.O. Box 68 BEDFORD, IN 47421
PHONE * (IF CHANGED FROM LAST MEETING): *(812) 275-4493*

NAME: *T.M. CROUCH*
TITLE: *Environ. Spec.*
REPRESENTING: *MONROE Co. HEALTH DEPT.*
MAILING ADDRESS (IF CHANGED FROM LAST MEETING):

PHONE * (IF CHANGED FROM LAST MEETING):

NAME: *Carol Witt-Smith*
TITLE: *Connective Action Expert*
REPRESENTING: *U.S. EPA Region V*
MAILING ADDRESS (IF CHANGED FROM LAST MEETING):

PHONE * (IF CHANGED FROM LAST MEETING): *(312) 886 6146*

NAME: *James H. May*
TITLE: *Hydrogeologist*
REPRESENTING: *Waterways Experiment Station*
MAILING ADDRESS (IF CHANGED FROM LAST MEETING): *same*

PHONE * (IF CHANGED FROM LAST MEETING): *same*

NAME: *Jonathan M. Howden*
TITLE: *Dowies Co. Councilperson*
REPRESENTING: *Dowies Co. Council*
MAILING ADDRESS (IF CHANGED FROM LAST MEETING):

PHONE * (IF CHANGED FROM LAST MEETING):

NAME: *Dr. Wayne C. Faatz*
TITLE: *Contaminant Program Mgr.*
REPRESENTING: *Ind. Dept. Natural Resources, Fall Run 273*
MAILING ADDRESS (IF CHANGED FROM LAST MEETING):

PHONE * (IF CHANGED FROM LAST MEETING):

NAME: *Cathy Andrews*
TITLE: *ENV. MGMT. OFFICER*
REPRESENTING: *NWSCC*
MAILING ADDRESS (IF CHANGED FROM LAST MEETING):

PHONE * (IF CHANGED FROM LAST MEETING):

NAME: *Jim Hunsicker*
TITLE: *Environmental Protection Dept.*
REPRESENTING: *NWSCC*
MAILING ADDRESS (IF CHANGED FROM LAST MEETING):

PHONE * (IF CHANGED FROM LAST MEETING):

NAME:
TITLE:
REPRESENTING:
MAILING ADDRESS (IF CHANGED FROM LAST MEETING):

PHONE * (IF CHANGED FROM LAST MEETING):