

MINUTES OF 16 JANUARY 1991 TRC MEETING  
NAS WILLOW GROVE, IRP STUDIES

Convened: 10:00 hrs., Building 78, NAS Willow Grove

LCDR Wheeland opened the meeting with introductions (a list of those in attendance is attached). He indicated Michael McGee of Horsham Township had called to express his regret that he could not attend.

LCDR Brazell noted that no representatives of PADER or the EPA, both of whom had been invited, were present.

Frank Klanchar requested comments or questions concerning the minutes of the previous TRC meeting. None were offered. He indicated that EA Engineering, Science, and Technology is performing Extended Site Inspections (ESI) at sites NAS 7 and ARF 4 and continuing investigations at the Navy Fuel Farm. Halliburton NUS is conducting Remedial Investigations (RI) at NAS sites 1, 2, 3, and 5.

Gregg Campbell summarized EA work since the last TRC meeting.

NAS Site 7 -- Abandoned Rifle Range No. 2

With the exception of methylene chloride -- a common laboratory contaminant -- no TCL organic compounds were detected in samples of ground water during the SI. Dissolved metals concentrations were below MCLs. There was no pattern to upgradient-downgradient comparisons. However, methylene chloride was detected during the SVCA at the site. An ESI was conducted to resolve whether the site is a source. Four test borings were sampled for analysis at the locations of the SVCA anomalies. A shallow monitor well was installed near the center of the site to assess whether mounding within the fill is influencing local ground-water-flow paths. Additionally, a reconnaissance was performed in the wooded area southeast of the site where trash and debris have been observed. Soil samples were taken for laboratory analysis.

Acetone and methylene chloride were reported at trace levels in soil samples from a few localized areas of the abandoned Rifle Range No. 2. The low levels reported and the absence of these compounds in samples of ground water during ESI sampling at the site suggest that these compounds do not represent a problem requiring further investigation.

Dissolved metals concentrations have never exceeded MCLs at this site. Cadmium and lead concentrations have exceeded MCLs in the total fraction in most wells at the site during different sampling rounds of the SI and the ESI. The only metal detection above MCLs during the ESI round of sampling was total cadmium in well RR2W-4. Cadmium was detected at slightly elevated levels in the soil at an adjacent boring, RR2B-1, as well.

Visual reconnaissance conducted south of the site in the woods along the east side of the perimeter road revealed significant amounts of construction and miscellaneous debris. Surficial sampling of this area confirmed the presence of metals in the soil above established background levels.

Based on the results of the ESI, no further work is recommended for the Abandoned Rifle Range No. 2 site.

#### ARF Site 4 -- Washrack Area

TCE has been detected at levels above potential ARARs in wells WRW-1 and WRW-2. Ground-water flow directions have been found to fluctuate at this site. It is not known whether this is seasonal and/or related to pumping of the ARF well. Well WR-1 (the well with the highest concentrations) is at times upgradient and at other times downgradient of the site. Traces of TCE and TCA have also been detected in the upgradient well WRW-3.

During the Extended Site Inspection, additional soil sampling was performed in areas where solvents were handled to assess the potential for an onsite source of VOC. Surface water and sediment sampling in the drainage ditch was performed and, also, soil samples beneath the ditch were taken to assess the potential for contaminants resulting from infiltration from the ditches. One deeper (80-100 ft) monitor well was installed next to WRW-1 to assess the potential for vertical migration.

TCE is present in the samples of ground water from the washrack site, but no current local source has been detected by soil sampling. The levels of TCE apparently increase with depth. Preliminary results from the RI being conducted at the Privet Road Compound (NAS 1) for cluster wells 6/6B and 7/7B showed a similar pattern with no detections in the shallow wells and a variety of VOC, including 1,1,1-TCA, carbon tetrachloride, TCE, and toluene, present in the deeper well samples. Most importantly, well PRW-7B which is the deep cluster well located in a direct line between the Privet Road site and the Washrack contained TCE at 120 µg/L. This is suggestive that the TCE detected in samples from deep Well WRW-1B is related to a plume emanating from Privet Road. However, there does not appear to be a relationship between TCE in shallow well samples from the Washrack and the Privet Road site. A local source of TCE from the Washrack at some time in the past cannot be ruled out entirely, but the current data suggest that no local source of TCE remains at the Washrack site. The TCE present in the shallow water table may represent residual TCE in bedrock fractures not accessed by soil sampling, or a minor source upgradient, possibly the drainage ditch bordering the south side of the site. This may be assessed by continued monitoring to evaluate whether VOC levels in the water table aquifer decrease, increase, or remain stable with time.

Ground water at the Washrack should be monitored for VOC. Sampling rounds for the Washrack should be simultaneous with those at the Privet Road Compound to facilitate comparison between the two sites. An

evaluation will be made after each round of sampling to determine if continued ground-water monitoring of all wells at the Washrack is required.

LCDR Wheeland asked whether the air stripper being used to treat water produced from the NAS supply wells is adequate for the contaminants found in samples from the Privet Road and Washrack monitoring wells.

Gregg Campbell responded that air stripping is quite effective in treating volatile organic compounds (which is why it was selected for use on the supply wells which are known to have VOC contamination). The concentration levels of some metals in unfiltered samples from shallow monitoring wells at Privet Road are of potential concern and trace levels of PCB were detected. Mr. Campbell did not recall whether there are data for metals and PCB for the deeper aquifer from which the supply wells produce. However, air stripping would not be appropriate for treatment for metals or PCB.

Note: Subsequent to the meeting, a 1985 report by Earth Data, Inc. was consulted and it was found that levels of lead, barium and selenium in samples from the supply wells are of potential concern. PCB were not detected.

Don Blackert noted that the intermediate depth wells installed at Privet Road for the RI show a gradient from Privet Road toward the NAS supply wells. The shallow wells show a gradient in the opposite direction suggesting there is not effective communication between the shallow and intermediate zones. This was after 12 hrs of pumping from the deep zone. A 24 hr test pumping from the deep zone appears to have resulted in a delayed response in the shallow wells. He also noted that NUS data indicate that the shallow gradient across the washrack was to the north-east during the NUS study.

Gregg Campbell indicated that field work has also been completed at the Navy Fuel Farm. Six monitor wells were installed and sampled. Well NFFW-2 has been replaced with a deeper, larger diameter (6 in.) well and two additional potential recovery wells have been installed immediately downgradient of the site. Pumping tests were performed during June and early July.

The contaminant plume underlying the Navy Fuel Farm continues to move in a northerly direction. Floating product seems to extend no further north than the southwest corner of Building 340 at present. Migration may be inhibited by the bedding plane contact between the grey sandstone in the south half of the site and the less permeable red siltstone and shale to the north. The compounds MEK and TCE were detected in wells located north of the drainage ditch and around Buildings 345 and 340. They may indicate a separate source rather than the Navy Fuel Farm, possibly in the vicinity of the drainage ditch and/or buildings of the Air National Guard facility. BTEX contamination detected in soil from the borehole of NFFW-8 most probably represents residual fuel left adsorbed to the soil during periods of elevated water table.

BTEX analyses taken of water removed from pumping wells during the pumping tests revealed BTEX compounds in concentrations above ARARs in samples from all pumped wells except NFFW-8. The samples from this well were low in volatile fraction BTEX compounds supporting an interpretation of an older weathered product source for NFFW-8. In all samples, toluene appeared to be depleted relative to other BTEX compounds. TPH values in general showed trends similar to those of BTEX concentrations.

The drawdown contours from the pumping test data suggest an orthogonal bimodel pumping zone of influence trending north-south and east-west. The east-west trending zone of influence may simply reflect bedding and related parting and/or fractures, whereas the north-south trending zone is probably related to fractures which cut across bedding. These results show that the bedrock aquifer underlying the site has pronounced anisotropy due to differential transmissivity between matrix and fractures in the underlying bedrock. Anisotropy is enhanced by the subcrop transition from tan arkosic sandstone in the southern half of the site to interbedded shale and siltstone in the northern half of the site. The contact runs east-west just north of the drainage ditch which bisects the site.

Product recovery results from pumping tests suggest that well NFFW-2R may serve as a product recovery well. The only other well with consistently measurable product was well NFFW-14; however, the volume and weathered nature of the product and the well's limited zone of influence make well NFFW-14 less attractive as a potential recovery well than NFFW-2R.

The Navy is now evaluating the following recommendations made by EA for further work at the Navy Fuel Farm:

1. Install six additional monitoring wells to assess the northwest and northeast extent of dissolved plume migration from the Navy Fuel Farm. An additional well may be necessary immediately downgradient of the recently removed underground waste oil storage tank in order to assess the potential for a plume migrating downgradient from the tank site.
2. Install a pilot dual pump product recovery system on well NFFW-2R and initiate product recovery.
3. Install a product skimmer pump or automated bailer on well NFFW-6 and assess its potential to continuously yield product without water table depression.
4. During operation of 2 and 3, all other wells at the site would be gauged for product, initially once per day. Depending on the results of daily gauging for about 2 weeks, the gauging scheduled may be extended to weekly or larger time intervals. During the well gauging, wells showing product accumulation would have the product removed by hand bailing. If any of these wells show consistent product accumulation, they may become candidates for

an additional product recovery well using either a water table depression product recovery system or an autoskimmer pump depending on water levels in the wells.

The scheduling of these activities would be contingent on construction activities at the Navy Fuel Farm.

LCDR Wheeland noted that the NFFW-2R location is not impacted by construction activities and the product recovery operation for that well should be initiated ASAP.

Paul Greco indicated it has been found that the fuel tanks do not leak and all the spillage appears to have resulted from line leaks. All the underground lines have been replaced with above grade lines.

Paul Persing indicated that field work at the RI sites was completed by NUS during September and October 1991. Results of laboratory analyses and data validation are not expected to be available until March.

#### NAS Site 1 -- Privet Road Compound

Sixteen test borings, three shallow wells and five intermediate depth wells were completed as per the POA. The Air Force supply well was not sampled. The Navy supply wells were sampled before and after the pumping tests. Due to inadequate reservoir capacity, 48-hr pumping tests could not be performed. One 12-hr and one 24-hr test were performed.

#### NAS Site 2 -- Antenna Field Landfill

Surface water sampling was conducted as per the POA except that the ditch through the center of the landfill was dry (unfortunately the center ditch samples were important to further delineation of the dieltrin source area). It was found that some drainage from the center of the fill flowed westward to a wetland near Building No. 118. The wetland was sampled. No leachate seeps were found. Some additional samples were taken downstream in Pennypack Creek. All samples were taken on a day following rainfall during the night.

#### NAS Site 5 -- Fire Training Area

Test borings and monitor wells were completed as per the POA except that the location of the No. 7 well cluster was shifted southward to avoid an area of ponded water.

#### NAS Site 3 -- Ninth Street Landfill

One shallow and three deep monitor wells were completed as per the POA. The two downgradient deep wells were artesian. Four test pits were excavated at the locations specified in the POA. No waste materials or visual evidence of contamination were observed in test pits 1 and 3. One sample was taken from each of these for laboratory analysis. Construction debris was encountered in test pit 2. Two samples were taken. No waste material or visual evidence of contamination were

observed in test pit 4. However, organic vapors were detected with a field FID. Four samples were taken. Soil samples at the ball field, and surface water and sediment samples were taken as per the POA.

Frank Klanchar distributed (copy attached) and summarized the schedule for ESI and RI activities. EA delivered the draft ESI report (due 20 January) today. The draft RI report is due at NORTHDIV 22 March. The next TRC meeting is scheduled for 23 April at 10:00 hrs.

## IR PROGRAM SCHEDULES

### ESI Fieldwork and Report

Contract Award.....	August 16, 1991
Field Activities.....	September 9 - 13, 1991
Draft ESI Report.....	January 20, 1992
Regulatory Agency Review.....	February 28, 1992
Final ESI Report.....	March 23, 1992

### RI Fieldwork and Report

Contract Award.....	August 5, 1991
Field Activities.....	August 26 - October 25, 1991
Complete Data Validation.....	January 3, 1992
Draft RI Report.....	March 27, 1992
Regulatory Agency Review.....	May 8, 1992
RI Final Report.....	May 22, 1992

LIST OF ATTENDEES - TRC MEETING HELD ON JANUARY 16, 1992

Name	Organization	Phone #
Gregg T. Campbell	EA Engineering	410-771-4950
Chuck Houlik	"	"
Mark Leupert	NORTH DIV	(215) 897-6280
LTJG Mike Miner	Naval Air Station Public Work	(215) 443-6221
M. LERRY	NASWG-PAU-stand in	(215) 443-6144
LCDR R.M. WELSH	NASWG-ENVIRONMENTAL	(215) 443-6937
LCDR D.G. WHEELAND	NASWG PUBLIC WORKS	(215) 443-6221
CAPT N.A. BROYLES	NASWG COMMANDING OFFICER	(215) 443-6051
CAPT(SEL) M. BRAZELL	NASWG EXECUTIVE OFFICER	(215) 443-6051
Paul A. GRECO	NASWG ENVIRONMENTAL CON	(215) 443-6255
J. Edmond	NASWG PUBLIC WORKS Eng.	215-443-6262
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Paul Perry	Halliburton NUS	317-971-0900
Don Blackert	Halliburton NUS	412-981-8351
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**AGENDA FOR TRC MEETING  
NAS WILLOW GROVE, PA  
January 16, 1992**

1. TRC Welcome and Introductions  
LCDR Dan Wheeland  
NAS Willow Grove
  
2. Questions on TRC Minutes of July 25, 1991  
Frank Klanchar  
Northern Division
  
3. Sites Undergoing Extended Site Inspections (ESI)  
(Site 7 & ARF Site 4)  
Chuck Houlik  
Gregg Campbell  
EA Engineering
  - \* Discussion of Fieldwork
  - \* Results and Recommendations
  - \* Draft Report due January 20, 1992
  
4. Navy Fuel Farm - Site #10  
Chuck Houlik  
Gregg Campbell  
EA Engineering
  - \* Discussion of Final Interim Report  
and Recommendations
  
5. Sites undergoing Remedial Investigations (RI)  
(Sites 1, 2, 3, & 5)  
Don Blackert  
Paul Persing  
Halliburton NUS
  - \* Discussion of Fieldwork
  - \* Draft Report due March 27, 1992
  
6. IR Program Schedule  
Frank Klanchar  
Northern Division
  - \* ESI and RI Reports
  - \* Feasibility Studies
  - \* Implement Recommendations for Fuel Farm
  
7. Conclusion and Discussion of Next Meeting
  - \* April 23, 1992