

# CF Braun Engineering Corporation

(412) 921-7090  
FAX (412) 921-4040

C-49-01-7-315

January 28, 1997

Project Numbers 0206 and 7398

Mr Jim Colter (Code 1823)  
Remedial Project Manager  
Northern Division  
Naval Facilities Engineering Command  
10 Industrial Highway, MS#82  
Lester, Pennsylvania 19113

Reference            Clean Contract No. N62472-90-D-1298,  
Contract Task Order Nos. 0138 and 0270

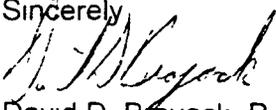
Subject.            Final RFA - Sampling Visit Addendum  
Final Phase 2 RFI Work Plan Addendum  
NWIRP Calverton, New York

Dear Mr Colter

Please find enclosed six copies of the subject reports for your use. As requested, the reports have been distributed to the TRC members as per your attached transmittals.

If you have any questions or require additional information, please call me at (412) 921-8375

Sincerely,

  
David D Brayack, P E  
Project Manager

/DDB

cc: Mr. R Boucher (Navy) w/o attachment  
Mr D. Rule (Navy) w/o attachment  
Mr J Trepanowski (CF Braun)  
Mr. D. Hutson (CF Braun)  
Ms. M Price (CF Braun) w/o attachment

**NYSDEC Comments (October 15, 1996) on  
NWIRP Calverton, NY IR Program Sites.**

1. Comment: Similar to many other RCRA/Superfund investigations, Calverton has located and constructed groundwater monitoring wells on an ad hoc basis, the result being that there can be no definitive conclusion on the position of the well relative to the zone of highest contamination. Under the CERCLA program, your sister agency, the U.S. Department of Energy, at the nearby Brookhaven National Laboratory has located wells which were successful in defining such zones.

The preferred methodology, used by BNL, in identifying zones of highest contaminants in groundwater involved profile sampling of the aquifer through the use of a slotted hollow stem auger. Basically, a slotted auger was advanced to depth and groundwater samples retrieved at regular intervals, such as from every ten foot zone as the auger is raised.

This slotted auger method is preferred over the older, ad hoc methods of either screening at the water table or placing an intermediate well and depending on the result, plan for shallow or deep ones, or locating a well(s) some distance downgradient of groundwater flow and screen at some assumed depth depending on the theoretical behavior of contaminants in the aquifer. Suffolk County Department of Health Services possesses great expertise in the method, and Mr. Jim Pim may be contacted at telephone (516) 853-3198 for information; furthermore, the costs for Geo-Probe sampling is approximately \$5.00 per foot or \$1,000/day, and not prohibitively expensive as mentioned at the September 17 meeting. Geoprobe has just introduced a membrane interface probe which can inexpensively and accurately plot VOC and SVOC contamination in three dimensions.

Response: The groundwater investigative approach used by the Navy at Calverton is a well proven, scientifically valid, and cost effective method for

identifying and delineating the extent of groundwater contamination. The Navy recognizes the state's preferred methodology as one technique for rapidly establishing a three dimensional profile of groundwater contamination; however, as previously indicated, the states preferred methodology can be very expensive, and is mostly used where the source of plumes is not well defined, there is a significant vertical component to the groundwater flow, and/or the groundwater flow direction is highly variable and unpredictable. With the exception of the area around the production wells, none of these conditions apply at the affected areas of the facility. The source areas are reasonably well defined with reasonably thick (greater than 20 feet) and wide plumes present, the calculated ratio of the vertical to horizontal groundwater velocities is relatively low (less than 2% - see site specific data below) meaning that contaminated groundwater would not sink rapidly (less than 20 vertical feet relative to the water over a 1000-foot horizontal run), and with the exception of groundwater near the production wells, the groundwater flow patterns are not complex.

The Navy's approach also develops a three dimensional profile of groundwater, although it is not uncommon for two or more phases of investigation to be required. Scientific data from one phase of investigation, including: flow direction, groundwater velocity, hydraulic gradients, and chemicals of concerns, are used to optimize sample collection and analysis points for the next phase. By performing the investigation over one or more phases (if required), money is not wasted by installing unnecessary monitoring wells and collecting and analyzing un-needed groundwater samples.

Please note that based on discussions with vendors, the total cost of a single profiling well to a depth of 100 feet and 150 feet is estimated to be approximately \$6,000 and \$12,000, respectively. If soil characterization is required, and is generally necessary to characterize and understand groundwater flow patterns, then the costs would be doubled.

CF Braun contacted Geoprobe and discussed the referenced interface probe with their technical people. The probe appears to be limited to applications near a source area, since the detection limit is approximately 0.5 ppm for BTEX compounds and 5 ppm for chlorinated VOCs. Therefore, this probe would not be applicable for use at this site.

Also, please note that the Navy's use of the term "temporary monitoring wells" does not limit the sample collection technique to that described in the plan or in the reports. During the bidding process, the use of geoprobes or similar equipment, as well as alternative sample collection techniques are allowed and encouraged. To date, these other techniques have not been cost effective with the method used.

Again, the Navy sees the profiling wells as described by the state to be a valid method for rapidly gaining an understanding of groundwater contamination (if funding was not an issue), but this method is not cost effective, is not required at this facility, and would result in an overall delay of investigation and cleanup at this facility and/or other Navy facilities competing for the same taxpayer dollars.

Also, it is inappropriate to compare the Navy's IR Program (Department of Defense) to that of Brookhaven National Laboratory's program (Department of Energy). There are several significant differences with regards to each department's approach to environmental issues. One main difference being the current availability of environmental funding.

However, based on this comment, if contamination is detected in the deepest temporary monitoring well sample tested in an area, the Navy is now proposing to collect and test deeper groundwater samples at that location and/or at a point hydraulically downgradient from that location during the Phase 2 RFI. If deep contamination is detected in several adjacent wells in an area, preference will be given to testing the deeper samples in the hydraulically downgradient area.

Please note that this additional testing during the Phase 2 RFI does have restrictions based on the availability of funding.

2. Comment: One overall comment pertaining to the draft work outline distributed at the September 17th meeting is that the site maps do not show any actual or perceived groundwater plumes, which would assist reviewers in assessing whether there is proper well placement and sampling, or whether a general outline of the area(s) of concern has been estimated. In addition, no site-wide groundwater map has been provided to assist in further investigations. The multiple maps prepared for each area are inaccurate or incorrect and in some cases do not match, with the result that groundwater direction at any given location is questionable.

Response: The Navy's Phase 2 RFI will address all known groundwater plumes at the site and groundwater plume maps will be developed as part of the Phase 2 RFI Report.

The Navy does not believe that a site-wide groundwater map is necessary and takes exception to the state's comment that the groundwater maps for each site are "inaccurate or incorrect". Each of the maps was developed using measured groundwater elevations in monitoring wells and standard groundwater contouring techniques. The calculations are generally accurate within the area bounded by the monitoring wells, and are shown with solid lines. The variable groundwater flow directions referenced are outside areas bounded by the wells and are a result should not be used with the same level of confidence. This lower level of confidence is generally illustrated with a dashed contour line (e.g. Dvirka and Bartilucci, "Phase II Sit Assessment, Area 4", Figure 3-2 and Halliburton NUS, "RCRA Facility Investigation", Figures 6-10 and 6-11).

The Navy does acknowledge that one contractor for Grumman mis-identified the groundwater flow direction (which identified the fire training area as "potentially" hydraulically upgradient of Grumman Area 4). But otherwise, the Navy is not

aware of any other conflicts. But the report also indicated that drainage swales in the area as another potential source.

The flow patterns at the facility are easily to understand based on the following factors, (see section 3.5 of the Navy RFI - August 1995).

- A groundwater divide is present at the site, and generally runs east to west.
- Groundwater to the north of the divide flows to the northeast (as stated by Suffolk County based on their work at the sod farm adjacent to the ECM Area). Note the eastern flow (with a slight northern component) indicated at the Northeast Pond Disposal Area is likely to be locally affected by the presence of the pond.
- Groundwater to the south of the divide flows to the southeast (confirmed by work at the Fire Training Area).
- Groundwater at the divide flows east. Based on groundwater measurements made in September 1994, the divide was located to be between the Fuel Calibration Area (with a east-southeast groundwater flow direction) and the Fuel Depot Area (with a east-northeast groundwater flow direction).
- Groundwater flow patterns can be modified and even reversed locally by the operation of high volume groundwater extraction rates from the Production Wells and corresponding recharge at McKay Lake, as well as by the presence of large areas of low permeability covers (hangers and runways).

The Navy does not see that a large-scale facility-wide groundwater map would improve an understanding of contaminant migration beyond that already identified. Investigations at each individual site can rely on groundwater measurements made at the site to determine groundwater and corresponding contaminant migration pathways.

**Site-Specific Comments:**

**Spills**

3. Site No: Spills: 82-00923  
Superfund: Fire Tr. Area, Site 02  
EBS: Fire Tr. Area, Zone 1

Comment: Although the Navy has placed many on-site groundwater monitoring wells, none have been placed offsite to define the remainder of the plume. None of these wells are capable of defining the vertical profile of the plume, and data for the filtered sample from the temporary well is unacceptable. Moreover, vertical profiling will also aid in determining the optimum location of the sparging system. We strongly suggest that Comment #1 applies for the fire training area (FTA).

Response: The Navy is proposing to install groundwater monitoring wells offsite to define the remainder of the plume. As stated in the response to Comment No. 1, the Navy believes that the wells that are currently in place, as well as those wells planned to be installed, have satisfied the criteria for vertical profiling.

The Navy has not collected filtered samples from the temporary monitoring wells. All previous and planned temporary monitoring well samples are unfiltered. When collected, filtered samples for inorganic analysis is used in the Corrective Measure Study to determine what type of groundwater treatment may be required, (i.e. precipitation versus filtration).

Please note that the Navy is proposing to conduct low-flow sampling at the Northeast Pond Disposal Area, but only on permanent monitoring wells.

3a. Comment: In response to your proposals, we offer the following:

a) Analysis for VOC's only will be insufficient, since it is our experience at many other FTA's that very wide range of organic compounds are involved. We suggest that full Target Compound List with TIC's reported (to satisfy CERCLA concerns and Spills Methods 601, 602 and 625).

Response: The full list of TCL chemicals plus TICs present at the Fire Training Area has been documented in the RFI report for the Site 2 RFI. Based on this data, the extent of the non-VOC contamination has been defined to be limited to the Calverton Facility, and in particular groundwater immediately adjacent to the fire training ring. Therefore, there is no need to analyze for these compound off site. The only significant VOC not analyzed for in the Phase 1 RFI quick-turnaround VOC-list was chloroethane. This chemical will be added to the quick-turnaround VOC-list for the Phase 2 RFI.

The presence of VOC contamination at the property border has indicated the need for further investigation off site (as proposed in the Phase 2 RFI Work Plan). This finding is consistent with our experience at many similar sites as well as at this site that VOCs (an in particular chlorinated VOCs) are the most prominent, persistent, and mobile-type of chemicals. As a result, off site testing can be limited to VOCs. If in the future, non-VOCs are detected at the facility border, (which based on our experience is generally not the case), then the off-site investigation would be expanded to include these chemicals.

3b. Comment: b) The Department of the Navy proposes the construction of ten offsite temporary wells, whose data will determine the locations of two permanent ones. We suggest that the method of Comment #1 should replace this proposal. Your drilling contract should require that the plume must be defined accurately, not to just install a fixed number of wells.

Response: As stated in the draft work plan, the objective of the program is to delineate the extent of off site contamination. Ten temporary monitoring wells

and two permanent monitoring wells are presented for budgetary purposes, with the understanding that based on the findings, more or less monitoring wells, as well as potentially deeper wells, may be required in this area. This is an approach which has been historically used by the Navy and successfully implemented at both the Calverton and Bethpage facilities, as well as other naval activities in the northeast.

Based on the findings at the fire training area, the vertical thickness of the contaminated groundwater at this site is greater than 20 feet, and is estimated to be approximately 35 feet thick. As a result, sampling on 10-foot intervals is not required. In addition, the contaminated groundwater is remaining near the water table, e.g. (FT-MW-02 and FT-MW-05). Therefore, this contamination can be readily tracked as proposed, until either the contamination ends (and permanent monitoring wells are installed), or until it drops below 20 feet below the water table, at which point deeper monitoring wells would be required.

Based on measured hydraulic conductivity's, horizontal, and vertical gradients at the fire training area during the Phase 1 RFI, a block of contaminated groundwater flowing under laminar conditions is calculated to migrate downward at a rate of less than 20 feet (relative to the water table) over 1,000 horizontal feet. The findings of the VOC contamination in the shallow groundwater (water table - FT-MW05) and at a depth of 20 feet below the water table at the fence line (600 feet from the fire training ring), but not at a depth of 50 feet below the water table at the fence line is consistent with the hydrogeological calculations.

- 3c. Comment: USEPA: Please note that the offsite temporary well associated with the FTA was never intended to be used to define the plume. Its sole use was to determine whether there was an immediate threat to the potable water supply at the adjacent golf course.

Response: The Navy has yet to install any offsite wells in association with the fire training area investigation. The potential for an immediate threat to the potable water supply at the adjacent golf course has already been addressed

through testing of the potable water supply, testing of surface water at the Golf Course, and testing of a seep entering Swan Pond; the results of which have been published in the Draft RFA Addendum Report.

The temporary monitoring well program proposed in the Phase 2 RFI Workplan is intended to delineate the extent of the plume potentially emanating from the fire training area. More specifically, the program is intended to aid in the location of permanent monitoring wells outside of the plumes boundaries. These wells can then be used to monitor the plumes migration.

3d. Comment: We have major concerns on the impact on the Long Island sole source aquifer and the Pine Barrens where the State is expending considerable resources for its preservation.

Response: The Navy shares your concerns with the quality of groundwater at the NWIRP Calverton and believes that our program is progressing with the overall objective of identifying and remediating the sources of soil and groundwater contamination that represents a current or future risk to human health or the environment.

However, as previously stated, because of the reduction in environmental funding and the increased competition between several naval activities, the Navy has chosen not to expend funds to remediate soils and/or groundwater that does not represent a current or future risk to human health or the environment.

4. Site No. Spills: 82-01680  
Superfund: Fuel Depot, Sites 7 & 10A  
RCRA: Area-4, Site 6-12  
EBS: Bldg. 179

Comment: We confirm that large volumes of subsurface petroleum products, and especially a significant floating component is to be found, when the

groundwater table recedes by three to five feet. Although some work has to be done in the southern section, recently discovered contamination has been reported in the north/north-east sector; additional investigation is not yet completed under Spill No. 95-07286; A4MW-5 located downgradient to the contaminated fuel leaching chamber exhibit elevated concentrations of TPHCs, jet fuel and freon 113.

Although MW-20 exhibits elevated levels of VOC's the extent of the contaminating plume associated with the Fuel Depot active spill has not been defined. It is possible that the plume may have migrated beyond the eastern boundary of the Area 4 site.

Response: The proposed activities in the Navy's Phase 2 RFI Work Plan are designed to address these concerns, See Table 1 - page 4 and Figure 4 of the Draft Phase 2 RFI Work Plan. The Navy is not aware of any "recently discovered" contamination to the north - northeast; however, as proposed in the Phase 2 RFI Work Plan, groundwater testing will be conducted northeast of the Fuel Depot, which is hydraulically downgradient of the fuel depot. Similarly, the extent of groundwater contamination associated with A4MW-5 and MW-20 will be delineated through this program. Note that this contamination was not unexpected. MW-20 is hydraulically downgradient of the Fuel Depot and was known to contain trace levels of fuel constituents.

Similarly A4MW-5 is located hydraulically downgradient of the Jet Fuel Systems Laboratory, where contamination has confirmed in the past. The Navy has been aware that the Jet Fuel System Laboratory was a primary candidate for being the source of the freon. The finding of freon in this well is good, because for the first time, a significant pool of freon (which is the chemical of concern in the production wells) has been identified. Now that the source of the source of the freon contamination has been found, the extent of the contamination can be determined.

4a. Comment: The facility has attributed the contamination around the Power Plant and western portion of the Area 4 to the Fire Training Area (FTA), but there seems to be an inconsistency, especially if the existing documents are considered. Please note that:

a) ERM-NE in its Area 5 report for Grumman included a Water Table Configuration, Figure 3-1 on October 10, 1995. The groundwater contours show flow in various directions due to a divide.

b) Dvirka and Bartilucci in its Area 4 report for Grumman include a GW Contour Map, Figure 3-2 on November 3, 1995. This shows GW to be flowing to the north-east.

c) ERM-NE in its Area 6 report for Grumman included a Water Table Configuration dated October 12-13, 1995. This shows GW flowing to the north-east, east and south-east.

d) Geraghty & Miller in its Area 2 report for Grumman included a water table configuration on July 20, 1995. Figure 2 shows groundwater flowing to the north-east, east and south-east.

e) As we have determined elsewhere, groundwater in the FTA vicinity flows to the south-east; therefore, there seems to be contradictions. Perhaps a compilation of existing data and the provision of groundwater contours might clarify the conclusion.

Your aid in producing a single document, which will categorically reflect the true groundwater conditions before further investigations are contemplated seems to be in order. Furthermore, any analysis of the groundwater should include the TCL-VOC's and methyl tertiary butyl ether (MTBE), which will also satisfy the spills requirement for Method 602 and MTBE.

Response: With the exception of the statement regarding the Fire Training Area being hydraulically upgradient of Area 4, none of the other documents are contradictory. Groundwater flow at areas through out the facility vary based on position relative to the groundwater divide and surface features including runways, drainage swales, ponds, and production wells, as well as weather conditions at a specific time. Although a facility-wide map would helpful to various regulatory parties, it would not significantly aid in the Navy's decisions regarding site remediation. Actually, the individual site groundwater maps provides sufficient information for ongoing investigations and subsequent remedial decisions.

Since MTBE is a recent gasoline addition, it would not be expected to be present in older spills. For areas, where there is the potential for recent spills of gasoline, groundwater will also be tested for MTBE. Also, MTBE has very distinctive characteristics under a GC/MS test, and as a result, MTBE should readily show up on a TIC report. A review of the TIC data for Sites 2, 6A, and 7 was conducted as a result of this comment, but the review did not indicate the presence of MTBE in any of the samples tested to date.

5. (3.) Site No. Spills: 84-00011  
Superfund: Fuel Calib. Area, Site 6A, Buildings 325 (new) and 231 (old)  
RCRA: Area 6 - No. 9, Bldgs. 06-73 and 06-16

Comment: The Department of the Navy has proposed for the old calibration area, six temporary monitoring wells, data from which will aid in locating three permanent ones and soil sampling. We have determined that Comment #1 applies, since the now defunct recovery well enabled only partial recovery of product. TCL-VOC's analysis of samples would also be necessary, which will also satisfy concerns from the Spills program.

Response: See the response to Comment No. 1. In addition, elimination of product will be incorporated as a goal of this site's overall remediation.

The Navy was not originally proposing additional temporary monitoring wells for the old fuel calibration area. In general, the area has already been adequately characterized by the previous temporary monitoring well program. Based on contamination being detected in the intermediate-depth monitoring well, one additional deep monitoring well was proposed to be installed in the area to determine if site contaminants have affected deeper groundwater. Currently, to ensure that the well is properly placed, the Navy is now planning on first collecting samples from temporary monitoring wells at a depth of 80 and 100 feet below ground surface to determine if contamination has reached this depth. The permanent monitoring well will then be installed at the depth of maximum contamination. In the event that contamination is not detected at depth, then the deep well will not be installed.

In addition, a second shallow monitoring well will be placed between FC-MW05 and FC-MW04 to serve as a long-term monitoring well for contaminant migration at this site.

As with Site 2, based on measured hydraulic conductivity, horizontal, and vertical gradients at the fuel calibration area during the Phase 1 RFI, a block of contaminated groundwater flowing under laminar conditions, is calculated to migrate downward at a rate of less than 20 feet (relative to the water table) over 1,000 horizontal feet. In addition, based on hydraulic conductivity, groundwater would be expected to move approximately 10 times faster in the shallower groundwater (water table), then in the deeper groundwater (40 feet below the water table). This is consistent with our finding at the site that the shallow groundwater contamination (at the water) has migrated much faster than the contamination found at depth.

Finally, the new monitoring wells at this site will be analyzed for full TCL-VOC analysis (plus TICs), as proposed in Table 1 - Page 3 of the Navy's Phase 2 - RFI Workplan.

- 5a. Comment: Similarly, Comment #1 applies to the new calibration area with full TCL-VOC's analysis. The Department of the Navy's proposal of six temporary well leading to three permanent ones at intermediate depths to be following with deep and shallow ones is unsatisfactory. Complete plume definition is required.

Response: The Phase 2 RFI temporary monitoring wells will be installed in the area of the new fuel calibration pad to delineate the horizontal and vertical extent of groundwater contamination. Groundwater samples will be collected at a depth of 5, 20, and 40 feet below the water table. The 20-foot sample interval is adequate, since the plume thickness has been determined to be greater than 20 feet. Six temporary monitoring wells are presented for budgeting purposes, more or less temporary monitoring wells may be required at this site. Also, if contamination is detected at a depth of 40 feet below the water table then a subsequent investigation would be required to further delineate the vertical extent of contamination. However, the Navy does not expect this to be the case.

The Navy is proposing to install only one shallow monitoring well at this site to allow long-term monitoring. The Navy agrees that installing intermediate-depth permanent monitoring wells at this time would be inappropriate, as well as not cost effective. This is why these wells were not proposed.

6. (4.) Site No. Spills: 92-13630  
Superfund: Site 10B, Engine Test House, Bldgs. 211 & 212  
RCRA: Area 6-No. 10, Bldgs. 06-18 & 06-37

Comment: Although three monitoring wells were emplaced for the Spills program, your proposal for constructing six additional temporary ones is premature, given that the groundwater contours have not been established.

Response: Groundwater contours have been determined for Fuel Calibration Area, with one of the monitoring wells being located approximately 200 feet from the Engine Test House. As a result, the groundwater contours in this area

can be estimated with a reasonable degree of confidence. Please keep in mind that the original investigation of this area was during an RFA for which plume identification, and not delineation, is the primary goal. We are now logically proceeding to the next phase, an RFI, where defining the extent of the plume is now the primary goal.

- 6a. Comment: Comment #1 applies, since the three monitoring wells ostensibly constructed to define the horizontal extent of contamination, failed to do so in the vertical plane. TCL-VOC's would be required in the analysis of groundwater samples. Complete plume definition is required.

Response: Please refer to the response to Comment 6 above. The six temporary monitoring wells will be used to define both the horizontal and vertical extent of groundwater contamination.

The Navy disagrees that full TCL-VOC analysis is required. The primary contaminants of concern identified during the RFA are toluene, ethylbenzene, and xylene, all of which are measured under the proposed limited VOC list. Sampling for compounds which were not identified during the RFA does not add any significance to the investigation.

7. (5.) Spills: 95-09879  
Superfund: Bldg. 230, Fuel Test Lab.  
RCRA: Area 4, Bldg. 6-11

Comment: We agree that further investigation of the site is required, as specified in the EBS. See your EBS Attachment C, p.5. Comment #1 applies since complete plume definition is required. Freon was found outside the Fuel Test Lab in A4MW-5 and Mr. Ohlmann has stated his belief that Bldg. 230 is the source of the contamination of production wells 1, 2 and 3. This hypothesis must be investigated.

Response: The proposed Phase 2 RFI addresses the work to be performed in this area. The proposed temporary and permanent monitoring wells would be used to determine the horizontal and vertical extent of groundwater contamination.

**Comments from SCHD:**

8. (1.) Superfund: Coal Pile Storage Area, Site 8  
RCRA: Area 4, Bldg. 6-05

Comment: Because of the contamination in the production wells, the USN at the September 7, 1996 meeting agreed to study past operations of the Freon system (delivery, storage, use and disposal) and submit a report, which would also address the possible paths for the releases. This does not relate to the coal piles but to the production well contamination, and the source of the problem with the wells should be proven and the plume defined.

Response: The agrees that the above request has nothing to do with Site 8 - Coal Pile Storage Area, but rather with Site 10A - Jet Fuel Systems Lab. The above request has already been addressed and will be part of the Navy's Phase 2 RFI Program.

Since the Navy has not received any adverse comments regarding our proposal for "No Further Action" for Site 8 stated in the Draft RFA Addendum, the Navy will proceed with the preparation of a "No Further Action" document which will be submitted to the New York State Department of Environmental Conservation and other regulatory agencies for review. This document will allow this general area to be available for transfer.

9. (2.) Superfund: ECM Area, Site 9  
RCRA: Area 6, No. 18

Comment: We again argue that it is ill-advised to draw categorical conclusion on the ECM plume, on the basis of data from the SCDHS wells. Your conclusion that the plume has left the ECM does not relieve the Department of the Navy from the responsibility for determining its extent. Comment #1 applies. The plume must be defined. (See Environmental Baseline Survey (Proposed Conclusions, item 42 below).

Response: Based on this comment, Conclusion No. 3 of the Draft RFA Addendum Report will be revised to read as follows.

"The nature and extent of offsite TCA contamination needs to be defined. This work will be performed in an upcoming RFI."

The Phase 2 RFI Work Plan will be revised to add investigation at Site 9 and show approximately six temporary monitoring wells being installed off site. The program will be similar to that shown for the golf course with an initial set of temporary monitoring wells being installed.

10. (13.) Superfund: Bldg. 230 (Fuel System Test Lab)  
RCRA Area 4, Site 6-11

Comment: We agree that further investigation is needed. Full definition of the plume is required.

Response: This area is being investigated under the proposed Phase 2 RFI, with the objective of plume delineation.

11. (23.) Superfund: Bldg, 325 (New Fuel Calib. Area)  
RCRA: Area 6-No. 9, Site 6-73

Comment: We disagree with your designation of the site to Category 3 or Light Green; Instead, we conclude that the category should be red, since it is clear that environmental impact persist. Comments #1 and 2 apply.

Response: The Phase 2 RFI temporary monitoring wells will be installed in the area of the new fuel calibration pad to delineate the horizontal and vertical extent of groundwater contamination. Groundwater samples will be collected at a depth of 5, 20, and 40 feet below the water table. The 20-foot sample interval is adequate, since the plume thickness has been determined to be greater than 20 feet. Six temporary monitoring wells are presented for budgeting purposes, more or less temporary monitoring wells may be required at this site. Also, if contamination is detected at a depth of 40 feet below the water table then a subsequent investigation would be required to further delineate the vertical extent of contamination.

Groundwater contours have been determined for Fuel Calibration Area, with one of the monitoring wells being located approximately 200 feet away. As a result, the groundwater contours in this area can be estimated with a reasonable degree of confidence.

12. (35.) Superfund: Fire Rescue Training Area - IRP Site 2

Comment: Site has been discussed under spills, Comment #1

Response: Acknowledged.

13. (40.) Superfund: N.E. Pond Disposal Area - IRP Site 1

Comment: The Department of the Navy has agreed to further investigation to locate the slit trench, missed in its initial effort. We conclude that the

Department of the Navy's proposal for three temporary and four permanent monitoring wells is premature.

The initial groundwater study was somewhat inadequate, and with the lack of groundwater contours a complete analysis of the contaminants, Comment #1 applies. Complete definition of the groundwater plume from the landfill is required.

Response: The slit like trench has never been a part of the Northeast Pond Disposal Area, and as a result has not been missed. It was however identified during the EBS effort. As a result, the will initiate an investigation of the trench as part of this phase of the IR Program because of funding limitations with the EBS program. A backhoe will be used to determine if waste materials have been placed at that area.

Groundwater contours have been developed for this site, see Figure 4-9 of the RFI report. The proposed temporary and permanent monitoring wells are based on measured site specific contours, as well as regional groundwater flow. The EPA, who initially requested this additional work, has reviewed the same Phase 2 RFI Work Plan and to date has not forwarded any adverse comments with regards to our proposals for well placements. The preparation of a facility-wide map would not increase one understanding of groundwater flow patterns in this area. The proposed Phase 2 RFI will provide horizontal and vertical delineation of the site.

14. (42.) Superfund: Electronic Counter Measure  
RCRA: Site-Areas 6, No. 18

Comment: We concur with your assessment of category gray. Also see Comment 2 under TRC August 22 1996 Issues Letter (Department of the Navy) above. Complete plume definition off site is required.

USEPA's Comment: In reference to the Navy's question whether EPA requires the Navy to monitor its permanent well(s) for cadmium; In your recent conversation with Ms. Carol Stein of EPA, you had mentioned that groundwater flows in the northeast direction at the ECM, and that the Navy's permanent monitoring wells most likely would pick up an contamination from closed well ECM-GW-739, which had been found to have traces of cadmium.

However, based upon the data included in the Appendices to the January 1995 and April 1996 RFA reports, it is not clear that the direction of groundwater is from ECM-GW0739 toward the direction of the Navy's wells. We request that the Navy sample its own permanent wells for cadmium, since the only well in the ECM area that had been tested for cadmium is now closed. However, we request more substantial evidence regarding the direction of the groundwater plume, and we reserve the right to request testing of a new well in close proximity to closed well ECM-GW-739 if it is determined that the groundwater does not flow from ECM-GW0739 towards the Navy's permanent wells.

Response: The Navy will pursue delineation of offsite groundwater contamination, see the response to Comment No. 9. As part of the investigation, the Navy will develop groundwater flow contours for this area, using the Navy's onsite wells and the offsite county wells.

Also, as requested, the Navy's two onsite wells will be tested for cadmium. Low-flow sampling techniques will be used for these wells.

**General USEPA Comments:**

15. Comment: 1.a) The Navy should not limit itself to only one or two permanent monitoring wells for each site (onsite and/or offsite, as appropriate). The decision regarding how many permanent wells are needed should not be made until after the temporary wells or slotted auger method provide conclusive data.

Response: The Navy routinely uses site conditions, the number of existing wells, and the size of the plume to determine a reasonable number of permanent wells needed so that funding can be initially appropriated for their installation. The Navy recognizes that, at times, more or less wells are actually required. Generally, additional funding can be appropriated if one or two additional wells are required. If substantially more wells are required, then the work have to be done during a subsequent phase.

- 15a. Comment: b) The sampling plan did not indicate how often the wells would be sampled. This should be done at least semi-annually during both the dry and wet seasons.

Response: As indicated in the sampling plan, each of the new permanent monitoring wells would be sampled twice. Although, not clearly stated in the Work Plan, the sampling would be conducted during a wet season and a dry season, as before. Please note that as per previous EPA comments, the Navy sampled monitoring wells during a wet season and a dry season, and did not find a significant difference.

16. Comment: 2. Site 10 B: It is unclear why no permanent monitoring wells are planned for Site 10B. Please include permanent wells in the field sampling plan for this area, or provide a valid reason why the Navy does not consider them necessary.

Response: Three permanent monitoring wells have already been installed at this site. The area of contamination is expected to be small enough, that additional permanent monitoring wells are not required. If an additional permanent monitoring well is found to be required, then the Navy will attempt to install it as part of this Phase 2 RFI.