

C F Braun Engineering Corporation

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

C-49-07-5-203

July 25, 1995

Project Number 5563

Mr. Steve Lehman (Code 4023)
Design 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 No. 0223

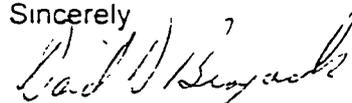
Subject Final Work Plan, Health and Safety Plan, and Environmental Permits
Report, Fire Training Area, Vapor Extraction/Air Sparging Pilot System
NWIRP Calverton, New York

Dear Mr Lehman.

Please find enclosed seven copies of the subject reports for your use. The final reports incorporate Navy comments dated June 28, 1995. Written responses to these comments are attached. Also, the final reports were distributed to TRC members via overnight mail as per Mr. Colter's transmittal letter (attached).

If 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. J. Colter (Navy) w/o attachment
Mr. D. Rule (Navy) w/o attachment
Mr. J Trepanowski (HNUS)
Mr. D. Hutson (HNUS)
Mr. J Farrell (HNUS) w/o attachment



DEPARTMENT OF THE NAVY

NORTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
10 INDUSTRIAL HIGHWAY
MAIL STOP. #82
LESTER PA 19113-2090

IN REPLY REFER TO
5090
Ser 2554/1821/JLC

JUL 25 1995

MEMORANDUM

FOR THE MEMBERS OF THE TECHNICAL REVIEW COMMITTEE (TRC) FOR THE
INSTALLATION RESTORATION PROGRAM AT NAVAL WEAPONS INDUSTRIAL RESERVE
PLANT (NWIRP) CALVERTON, NEW YORK

As announced at the June 6, 1995 TRC meeting, the U.S. Navy is proceeding with a pilot study at Site 2 - Fire Training Area. This study will measure the effectiveness of soil vapor extraction/aquifer air sparging as a potential technology for remediating the VOC contamination present in the vadose zone as well as the upper few feet of the most contaminated groundwater.

The enclosed documents, which outline the work to be performed as part of the above mentioned pilot study, are being forwarded for your information. The installation of the system is to be completed sometime during mid to late August 1995, and the length of the study will be for approximately four months.

If you have any questions or would like additional information regarding the pilot study, you may call myself at (610) 595-0567, extension 163, or the remedial design manager, Mr. Steve Lehman, at (610) 595-0590.

Thank you for your continued participation in NWIRP Calverton's IR program.

Sincerely,

JAMES L. COLTER
Remedial Project Manager
by Direction of the Commanding Officer

Distribution:

DLA/DPRO, Abe Kern
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**RESPONSES TO
COMMENTS ON THE PILOT SCALE AIR SPARGING/SOIL VAPOR EXTRACTION
WORK PLAN FOR NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
CALVERTON (NWIRP CALVERTON), NEW YORK, JUNE 1995**

Comments from Code 1822 (J. Dunleavy)

General comments on the subject document:

- 1 **Comment** It is assumed that this document is intended to serve as the design document for the soil vapor extraction pilot study. Is this assumption correct?

Response Yes

- 2 **Comment** How does the design, in particular the placement of injection and extraction wells take into account the distribution of contamination found during the RFA[I]?

Response The distribution of contamination is described in Appendix I - Existing Conditions Survey Report. Please note that Figure 1 of this appendix was inadvertently left out of the draft report and will be added to the final report. This diagram summarizes the areas of contamination. In addition, the following statement will be added to the first paragraph of Appendix B - System Installation Specifications, Section 1.0, after the second sentence. The system layout is based on the areas of contamination as described in Appendix I - Existing Conditions Survey Report

- 3 **Comment** What was the basis used to size the injection and extraction blowers? This should be contained in the report but could not be found. Although no calculations were completed by code 1822, it appears that 140 SCFM @ 5 psi is undersized for the number of injection wells planned

Response The blower sizing are based on pressure drop calculations and rules-of-thumb developed by Halliburton NUS for similar projects. To determine the number of wells, a 40' by 40' grid for well spacing is established, including alternating lines of extraction and injection wells. Each extraction well is sized for 6 SCFM. For 32 extraction wells, the vacuum blower would be sized for 192 SCFM (= 200 SCFM)

The injection rate is then set at 2/3 of the extraction rate, or approximately 140 SCFM. Based on 16 injection wells (from the grid), the air injection rate would be approximately 9 SCFM per well. The pressure on the injection blower would consist of displacing the water at the injection point (7 feet = 3 PSI), plus line losses which were calculated to be less than 1 PSI. The blower selected is a positive displacement blower, meaning that higher pressures can be developed if needed.

- 4 **Comment** The document is supposedly completed by "C. F. Braun" engineering and the design drawings all have this company name in the title blocks. However the small print on all the design drawings all states that the information is the property of "HALLIBURTON NUS Corporation". This seems to present a conflict.

Response The fine print will be revised to read "C.F. Braun"

- 5 **Comment** It appears that all the piping connecting the injection and extraction wells to the blower housing units is above ground. This is very undesirable. The site is in a remote area of known vehicular traffic. The above ground piping will almost certainly be destroyed before the completion of the pilot study.

Response. As discussed, the fire training ring is no longer being used. As a result, full unrestricted access to this area is no longer required. Also, buried piping for this system is undesirable because of both a higher initial cost and problems with trouble shooting (air leakage and unknown damage) during operation. However, the piping network is being laid out to allow access to all locations at the fire training ring, although the pathway is somewhat restricted. The only routine traffic area (for fire watch) is the access road across the southern edge of the site. All piping crossing this road will be buried, and contained within a metal culvert.

- 6 **Comment** Provide details or manufacturers specifications on the moisture separators

Response: The moisture separators are simple canisters with no internal parts. Their function is to only protect the blowers from excessive moisture

- 7 **Comment** Figure 2 - System performance can be better monitored if pressure gages were installed at each well or at least at the node of each "cluster" of extraction and injection wells rather than only at the piping leaving the blower housing building

Response: A sample port is being installed at each cluster and well point. Portable pressure gauges (manometers) will be used to measure the pressure at each point during startup and more selectively during operation.

8. **Comment** What is the relationship between CF Braun and Halliburton NUS? Not to beat a dead horse but, the document really raises a flag with respect to this issue. Take for example, Appendix B Section 1.5.1. In this section it states that groundwater samples will be taken by CF Braun while HNUS personnel will purge air injection wells prior to collecting groundwater samples. Throughout the report some tasks are completed by CF Braun while others are completed by HNUS. What criteria determines who does what work?

Response CF Braun is a sister organization of the Halliburton NUS/Brown & Root family. The document is being reviewed to ensure that the references to HNUS are properly used. Any work being done onsite will be performed by CF Braun. However, CF Braun personnel will use Halliburton documents, such as SOPs

- 9 **Comment** The settings for the relief valves and temperature switches should be shown on Figure 2.

Response The setting for the relief valves and temperature switches are dependent on the exact equipment purchased. This information is not currently available. Specific references presented in the text are general ranges. The exact set points will be established in the field.

- 10 **Comment.** Please note that implementation of section 1.12 in this document requires either a complex control system or that someone be present, monitoring air emissions at every moment the plant is operating for the duration of the pilot plant study

Response: As discussed, the first sentence of the second paragraph of this section will be revised to read as follows "Air flow and air quality within the air transfer network of the

AS/SVE system will be **periodically** monitored over the duration of the pilot-scale project."