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NWS EARLE
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DESIGN ANALYSIS FOR UNDERGROUND STORAGE TANK RETROFIT/ GAS STATION
MODIFICATIONS NWS EARLE NJ
12/1/1993
HILL ENVIRONMENTAL. INC.

DESIGN ANALYSIS
FOR
UST RETROFIT/GAS STATION MODIFICATIONS
NAVAL WEAPONS STATION, EARLE
COLTS NECK, NEW JERSEY

PREPARED FOR
DEPARTMENT OF THE NAVY

SUBMITTED TO
NORTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
10 INDUSTRIAL HIGHWAY
LESTER, PENNSYLVANIA 19113

CONSTRUCTION CONTRACT NO. N62472 - 91 - C - 0489
HILL ENVIRONMENTAL PROJECT NO. 5180
K&D PROJECT NO. 3780-19

DECEMBER 1993

PREPARED BY

HILL

Hill Environmental, Inc.

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UST Retrofit/Gas Station Modifications
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1.0 INTRODUCTION

1.1 SCOPE AND PURPOSE

Under Construction Contract No. N62472-91-C-0489, UST Retrofit/Gas Station Modifications, NWS, Earle, Colts Neck, NJ, Hill Environmental, Inc. (Kaselaan & D'Angelo Associates, Inc.) presents the attached drawings, specifications, and cost estimate. The scope of the design project included the following tasks to:

1. Retrofit existing Underground Storage Tanks (USTs) at Buildings C-17, R-6, C-50, and E-14 to improve the ability of the tanks and piping systems to prevent the release of product.
2. Provide instrumentation and data processing equipment for Tank Monitoring and Inventory Control, Fuel Management Control through use of Card Readers, and automated Soil Vapor Monitoring. In addition, a data collection and remote control system using a new computer system with telecommunications capabilities was integrated into the monitoring systems.
3. Remove and upgrade fueling station buildings, dispensers, canopies, and island; and bulk filling stations at C-17 and R-6. Remove and upgrade C-50 dispenser. Remove existing underground concrete tanks and existing pump houses at C-17 and R-6.

1.2 SITE LOCATION AND DESCRIPTION

Earle Weapons Station is located in Colts Neck, Monmouth County, NJ. Four separate locations on the base are included in the design.

1. Vehicle and bulk dispensing station at Building C-17. Also referred to as Mainside Station and/or Building C-20.
2. Vehicle and bulk dispensing station at Building R-6. Also referred to as Waterside Station and/or Building R-7.
3. Locomotive diesel dispensing station at Building C-50.
4. Boiler feed UST at Building E-14.

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2.0 DESCRIPTION OF DESIGN MODIFICATIONS

2.1 INTRODUCTION

The project involves the retrofitting of ten (10) existing underground storage tanks. The tank systems are being upgraded to meet current NJDEPE and or USEPA requirements for USTs. Based on previous surveys, the systems are in need of overfill protection, leak detection and new double-walled fiberglass reinforced plastic piping with a method of sump leak detection. In addition, removal of specific structures which are no longer needed are to be included, and specialized instrumentation and data processing equipment is to be installed.

The following is an overview of the retrofitting activities designed for each tank system.

2.2 DESIGN SUMMARY

Demolition and removal of the following: six (6) concrete underground fuel overflow containment tanks at C-17 and R-6, four (4) masonry construction buildings-two at C-17 and two at R-6, UST piping and sumps at four locations, C-50, E-14, C-17 and R-6, and various concrete slab removals primarily at C-17 and R-6.

Tank and dispenser-related installation of the following: new tank sumps for ten (10) existing underground fuel tanks, new piping to connect existing tanks to dispensers, nine (9) new high-capacity dispensers, four (4) overhead bulk fuel dispensers, four (4) dispenser island canopies, new masonry buildings at C-17 and R-6, new concrete driveways and truck access pads.

Instrumentation-related installation of the following: three (3) fuel management systems (card readers), five (5) tank monitoring systems, four (4) soil vapor collection and testing systems, one data processing system (IBM PC-compatible) and remote communications/interconnections between these systems.

At all four sites (C-50, E-14, C-17, R-6), tanks have been numbered in the following manner:

Tank at C-50:	C50/1
Tank at E-14:	E14/1
Tanks at C-20 (C-17):	C20/1, C20/2, C20/3, C20/4, C20/5
Tanks at R-6:	R6/1, R6/2, R6/3

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The following sections provide more details on a site-specific basis.

2.3 C-17 TANKS AND FUELING STATIONS

Tank C20/1, located directly east of the new bulk dispenser at C-17, is constructed of fiberglass reinforced plastic exterior (FRP). The remainder of the tanks at C-17: C20/2, C20/3, C20/4, and C20/5 are constructed of fiberglass reinforced plastic coated single-wall steel (Buffhide).

Each tank will be upgraded to include overfill sumps at fill ports located directly above each tank. Each tank system will be equipped with leak detection and 90% fillage alarm systems. New submersible pumps of either 1-1/2 and 2 hp capacities will be installed into the existing tanks.

Two existing underground concrete storage tanks currently being used to store stormwater drainage are to be removed. In addition, gasoline tank and dispenser systems will be upgraded to include new Stage I vapor recovery fill ports and Stage II dispenser vapor recovery systems. All supply piping for the underground storage tanks will be upgraded to new double-wall FRP/High Density Polyethylene (HDPE) non-metallic piping.

Both buildings C-20 and C-17 will be removed and only C-17 will be replaced. The four existing vehicle dispensers and both bulk fueling stations will be removed and replaced with four upgraded, higher output vehicle dispensers and an upgraded bulk fueling station which dispenses both diesel and #2 fuel oil. New canopies with metallic fascias will be constructed over the fuel dispensing island and the bulk fuel dispensers.

The tank site will have a vapor monitoring system installed per NJDEPE regulations to detect vapors when and if tanks or piping leak. The tank site will also have a fuel management system installed which uses card readers at dispenser locations to track fuel usage by vehicle/user identification cards.

A new 30 KVA diesel-powered generator set would be installed at this location to allow operation of the new and upgraded equipment during a brownout or blackout. The source for the diesel would be from tank C20/5 (diesel).

2.4 R-6 TANKS AND FUELING STATIONS

Tank R7/1, R7/2, and R7/3 are constructed of fiberglass reinforced plastic coated, single-wall steel (Buffhide). Each tank will be upgraded to include overfill sumps at fill ports located

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directly above each tank. Each tank system will be equipped with leak detection and 90% fillage alarm systems. New submersible pumps of either 1-1/2 and 2 hp capacities will be installed into the existing tanks.

Four existing underground concrete storage tanks currently being used to store stormwater drainage are to be removed. In addition, gasoline tank and dispenser systems will be upgraded to include new Stage I vapor recovery fill ports and Stage II dispenser vapor recovery systems. All supply piping for the underground storage tanks will be upgraded to new double-wall FRP/High Density Polyethylene (HDPE) non-metallic piping.

Both buildings R-6 and R-7 will be removed and only R-6 will be replaced. The four existing vehicle dispensers and both bulk fueling stations will be removed and replaced with four upgraded, higher output vehicle dispensers and one upgraded bulk fueling station. New canopies with metallic fascias will be constructed over the fuel dispensing island and the bulk fuel dispensers.

The tank site will have a vapor monitoring system installed per NJDEPE regulations to detect vapors when and if tanks or piping leak. The tank site will also have a fuel management system installed which uses card readers at dispenser locations to track fuel usage by vehicle/user identification cards.

A new 25 KVA diesel-powered generator set would be installed at this location to allow operation of the new and upgraded equipment during a brownout or blackout. The source for the diesel would be from tank R7/2 (diesel).

2.5 C-50 TANK AND LOCOMOTIVE FUELING STATION

Tank C50/1 is constructed of fiberglass reinforced plastic coated, single-wall steel (Buffhide). The tank will be upgraded to include overfill sumps at fill ports located directly above the tank. The tank system will be equipped with leak detection and 90% fillage alarm systems. A new submersible pump of 1-1/2 hp capacity will be installed into the existing tank.

The supply piping for the underground storage tank will be upgraded to new double wall FRP/High Density Polyethylene (HDPE) non-metallic piping. The existing locomotive dispensers will be removed and replaced with an upgraded, higher output dispenser.

The tank site will have a vapor monitoring system installed to detect vapors when and if the tank or piping leak. The tank site will also have a fuel management system installed which

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uses card readers at dispenser locations to track fuel usage by vehicle/user identification cards.

A new 10 KVA diesel-powered generator set would be installed at this location to allow operation of the new and upgraded equipment during a brownout or blackout. The source for the diesel would be from tank C50/1 (diesel).

2.6 E-14 TANK AND BUILDING

Tank E14/1 is constructed of double wall fiberglass reinforced plastic. The tank will be upgraded to use a remote fill with spill containment bucket ports located close to where a filling truck would park. The tank system will be equipped with leak detection and 90% fillage alarm systems. The fillage alarm would be located adjacent to the remote fill area. No new submersible pump would be installed.

The supply piping for the underground storage tank will be upgraded to new double wall FRP/High Density Polyethylene (HDPE) non-metallic piping. The tank site will have a vapor monitoring system installed to detect vapors when and if the tank or piping leak. No new generator would be supplied at this site.

2.7 BUILDING C-21 DATA PROCESSING SYSTEM

A new data processing system will be supplied in Building C-21 which will automatically collect electronic data through use of modems over the existing phone lines from Tank Monitoring Systems, Fuel Management Systems, and Soil Vapor Monitoring Systems at C-17, R-6 and C-50. The extent of data it will collect from each of these systems is summarized below:

Tank Monitoring System: tank level and inventory verification information and piping sump leak emergency alarm occurrence information.

Fuel Management System: fuel transaction information encompassing user ID, gallonage, odometer readings, and other related information.

Soil Vapor Monitoring System: soil vapor concentration from sets of vertical and horizontal wells placed onsite near USTs at variable time intervals.

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Each equipment system panel will be located in the building closest to the tanks (e.g. the equipment panel for R-6 area tanks is located in Building R-6). Each of these systems will temporarily store data in storage chips located within each panel. All of the equipment including tank, fuel and soil systems, plus the data processor will be connected to the Earle Weapon Station's existing telecommunications system using new modems. Every modem will be assigned it's own dedicated telephone line and telephone extension which will allow the data processing system to automatically place an internal phone call (like calling a telephone extension elsewhere on the base) to retrieve the temporarily stored information. This information will then be stored permanently on the data processor internal storage disk. Refer to Figure 3.2- C-17 Communications Block Diagram, Figure 3.3 - R-6 Communications Block Diagram, and Figure 3.4 - C-50 Communications Block Diagram for graphic representations of the communications schemes for each building.

In addition to the automated data collection capabilities of the data processing system, the data processor will be able to remotely program the Fuel Management System over the phone lines. This will allow de-activation (lock-out) of user accounts assigned to specific cards so those users can not access any or all dispensers, depending on the commands which are sent.

An existing computer at Building C-14 will be equipped with a new modem and remote control software. If a user at the C-14 computer wants information which has been stored on the C-21 computer, he

would remotely request it from the C-21 computer, after the downloading has occurred, using a software package such as PCanywhere (a common remote control communications software). PCanywhere will allow the C-14 machine equipped with a new modem to contact the new C-21

machine, also equipped with a modem, and take remote control of all C-21 computer functions during the session. The PCanywhere program would also allow data to be transferred from C-21 to C-14. The diagram inset, Figure 3.1 - C21 to C-14 Communications Block Diagram, describes this. A magnetic tape data storage system will provide scheduled backup of the hard drives of the data processing system.

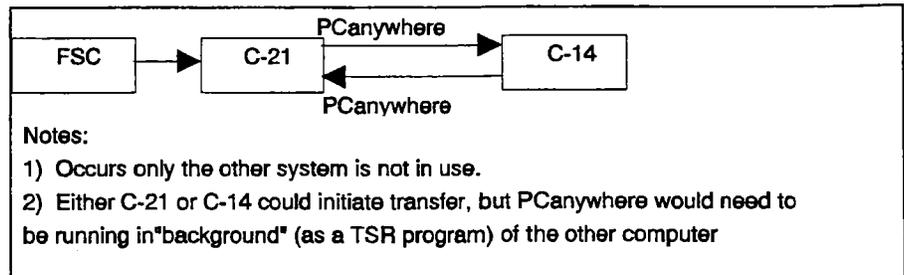


Figure 2.1
C-21 to C-14 Communications Block Diagram

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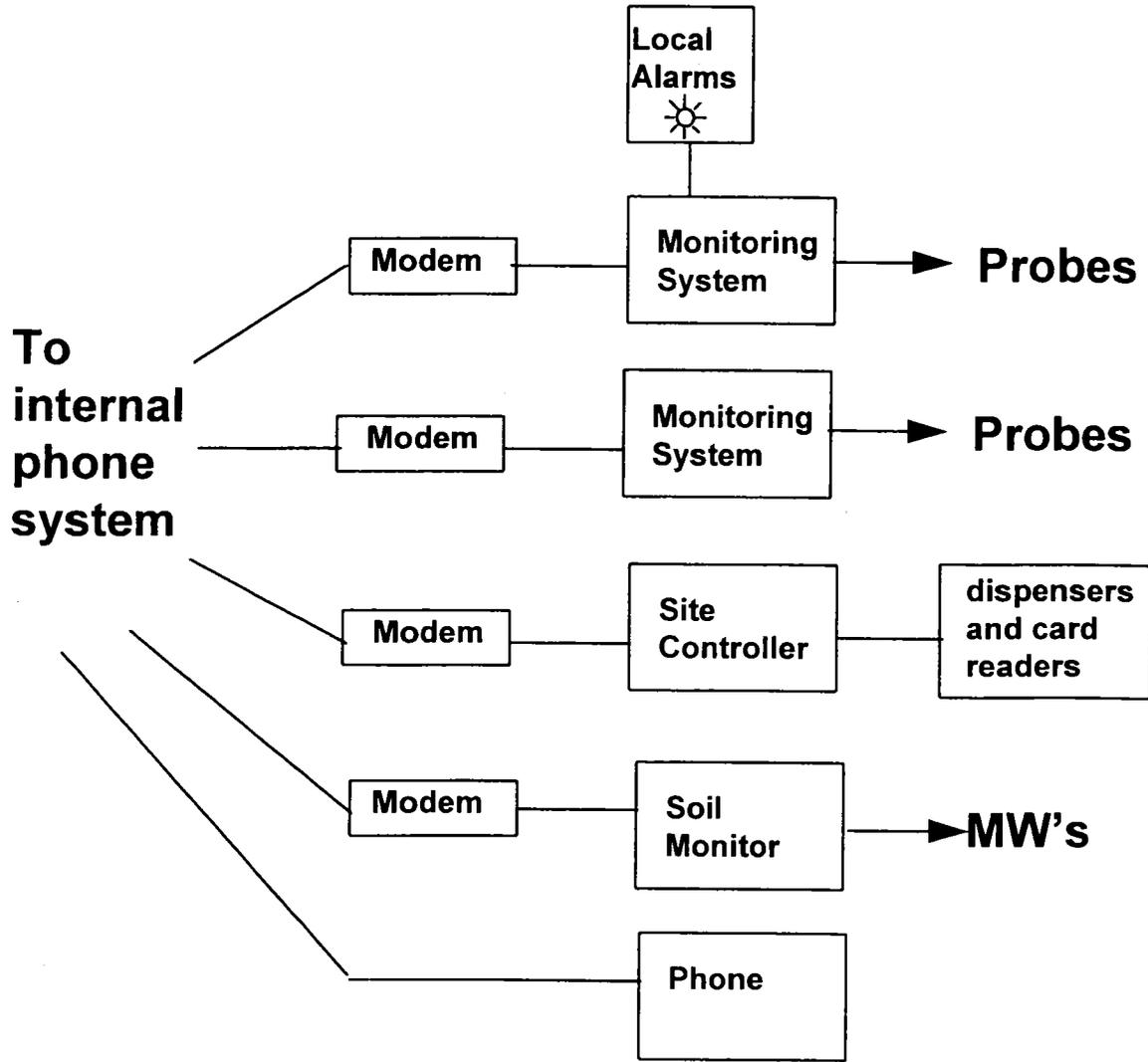


Figure 2.2
C-17 Communications Block Diagram

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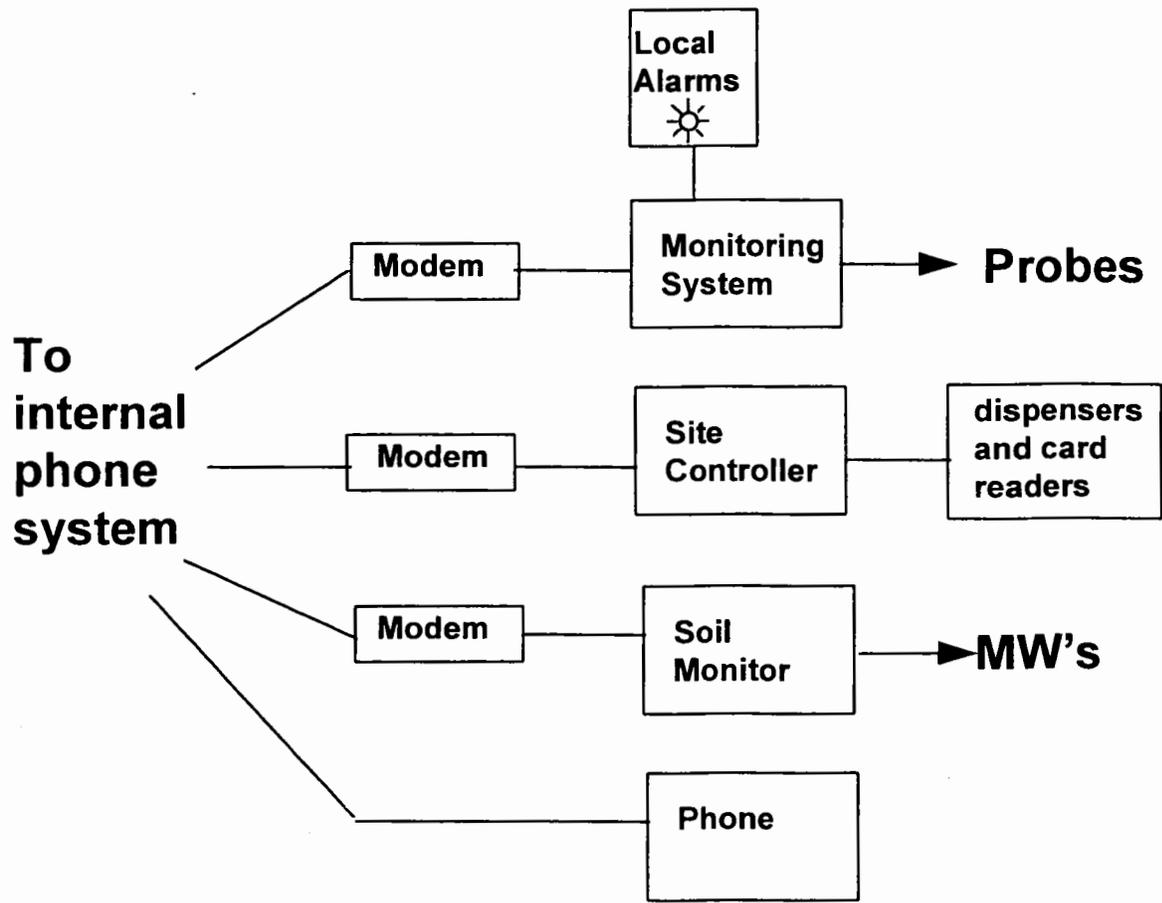


Figure 2.3
R-6 Communications Block Diagram

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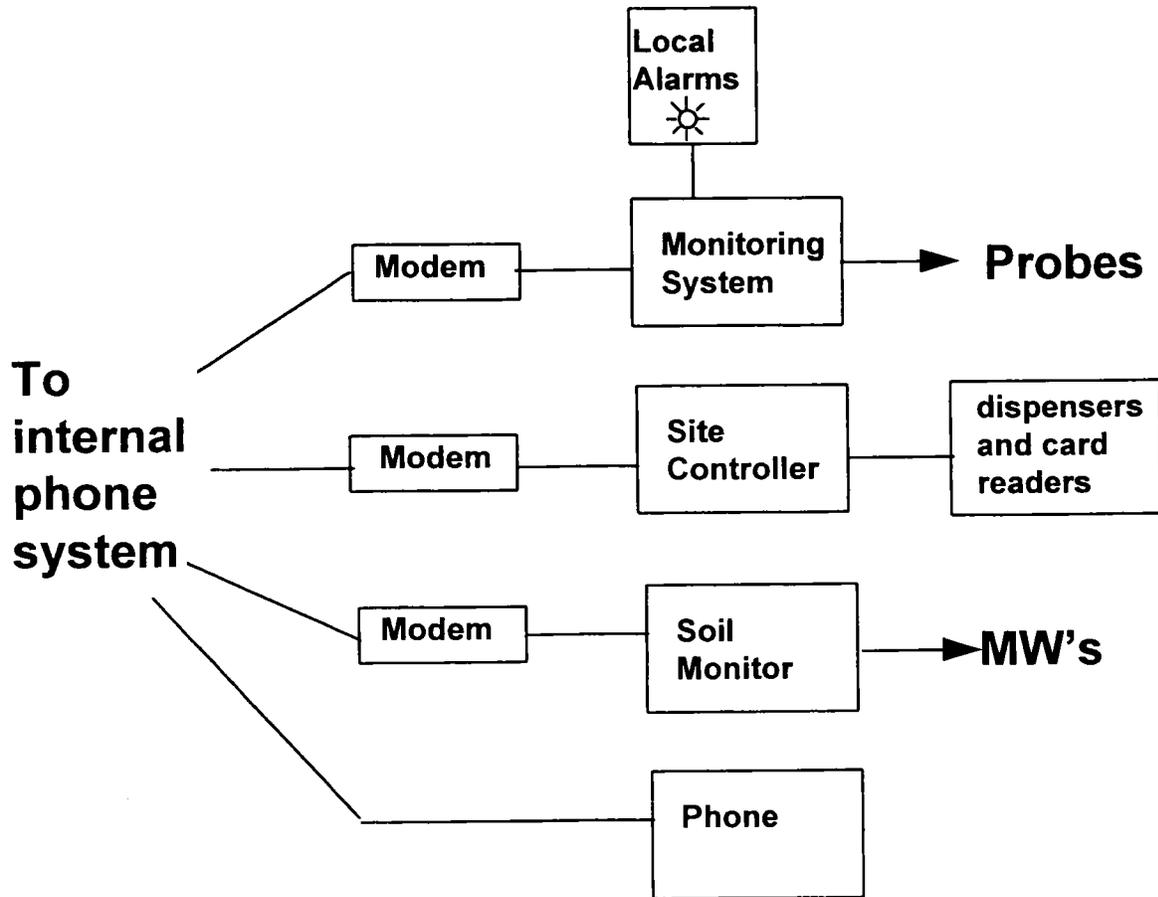


Figure 2.4
C-50 Communications Block Diagram

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The C-21 data processing system will be a new IBM-compatible computer with a 486DX2-66 microprocessor and permanent storage capacity of 1.0 gigabytes supplied at Building C-21. It will be supplied with a new modem, printer, Uninterruptible Power Supply (UPS), and both commercial and customized software packages. The intended operation of the data processing system follows. Each night, the data processor will automatically dial numbers corresponding to each of the sites' data systems to request and download the temporarily stored data. The data processor will poll all of the equipment systems and store this information in a raw data format. This data will be manipulated and converted to spreadsheets or database format, and processed on an as-needed basis.

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3.0 PERMIT REVIEW

3.1 INTRODUCTION

Federal UST regulations are referenced in 40 CFR 280 and 281. New Jersey has implemented UST regulations which are no less stringent than these referenced in New Jersey Regulations, Title 7 - Department of Environmental Protection, Chapter 14B Underground Storage Tanks.

3.2 PERMITS REQUIRED

The New Jersey Department of Environmental Protection and Energy requires that the follow permit applications be completed:

- 1) Permit Application to Install or Substantially Modify Underground Storage Tank Systems
- 2) NJDEPE Standard Reporting Form
- 3) Standard Application Form, CP#1
- 4) All work concerning tank modification, up-grading or removal of associated equipment must be conducted by NJDEPE certified personnel.

The local government will require building permits and demolition permits as specified by the New Jersey Uniform Construction code. Soil removal and disposal, and investigations in the event of gross contamination, may be necessary during construction.

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**4.0 DESCRIPTION OF CONSTRUCTION ACTIONS
AND RECOMMENDATIONS**

4.1 INTRODUCTION

The following are recommendations which Hill Environmental has prepared in response to issues raised during design. We anticipate these will be important to consider during construction and operation.

4.2 CONCRETE, SOIL, LIQUID, AND PIPE REMOVAL

A considerable amount of soil and concrete will be removed from the site during construction when removing underground concrete stormwater detention basins. These were, from our observations of previous construction drawings, fuel storage tanks which now hold petroleum-containing liquids. The tanks we could observe were about one-quarter full with liquid. The likelihood exists that there is surrounding soil contamination and, even more likely, concrete contamination. A unit cost for the following items should be included on the Bid Item Quantity Sheet of the cost estimate:

1. Pipe removal
2. Excavation for pipe removal
3. Dispose contaminated concrete
4. Remove & dispose liquid from concrete tanks
5. Dispose contaminated soil

Our cost estimate accounts for liquid removal and disposal from one-quarter of each concrete tank volume, for subsequent excavation and disposal of uncontaminated soil and concrete.

4.2 PRE-BID MEETING

An issue which was discussed during our 15-July-93 meeting at the Naval Weapons Station Earle was at which fueling stations the Contractor should begin work. The decision was made in October to present this following schedule during the Pre-Bid meeting rather than include them in the Specifications.

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ORDER OF WORK, BY LOCATION

1. Mainside
2. Waterfront
3. C-50
4. E-14

4.3 COMMENTS ON SPECIFICATIONS AND DRAWINGS

On prior construction contracts related to the fueling stations C-17, R-6 and C-50, there have been poor construction practices demonstrated, which have been attributed to lack of experience on a contractor's part. For instance, the existing card readers do not work (early 1980s), some piping connections apparently were not cemented, other piping connections were crossed, and two piping connectors were cracked.

It was proposed during the design meetings there be a contractors qualification clause in the Contract Documents. Hill Environmental has prepared some minimum qualifications guidelines it is believed may screen out especially poor contractors. We encourage further modification of this paragraph, as needed. It is located in Specification Section 01011, Par. 1.5.

4.4 TEMPORARY FUEL

The Specifications are written such that the Navy would provide fuel to Contractor-supplied and operated dispenser and tanks. We flag this item due to the need to coordinate these activities prior to Construction. This is addressed in Specification Section 01010, Par. 3.9, TEMPORARY FUEL PROVISIONS.

4.5 COMPRESSORS AND STORAGE ROOM

The air compressors at Building C-17 and R-6 compressors are to be removed under this Contract. No replacements are planned in response to ROICC requests during the design process. Also per request of the ROICC, no storage room was provided for new oil or vehicle components.

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4.6 DATA PROCESSING SYSTEM

The monitoring instrumentation, including panels and probes at each fueling station, and computer system will need maintenance after construction is completed. The need for this maintenance is twofold:

1. The data which is downloaded will need to be manipulated, converted to spreadsheets or database format, and processed on an as-needed basis. Hill Environmental recommends the data processing be maintained at least twice weekly, and also recommends that the processing of the data is reviewed during the construction of the UST Retrofit project to verify the Navy's needs.
2. The equipment will need to be maintained to ensure that it works properly. This may include testing probes, panels, modems, phone lines, computer system(s) and software. This may be taken care of by a maintenance agreement with manufacturer's representatives or by Navy personnel.

The first requirement will require computer-competent Navy personnel to maintain this system. Under this construction project, provisions have been made for the Contractor to provide the services of a computer consultant for a period of about one week. Prior to this, the Navy should establish current needs of the data system and convey these very specific requirements to the Contractor.

No specific contract requirements for maintenance agreements have been included in the specifications.

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5.0 DESIGN DRAWINGS AND SPECIFICATIONS

The UST Retrofit/Gas Station Modifications project shall be implemented in accordance with this report, as supplemented by the design drawings and drawings. The following is a list of drawings and NORTHDIV specifications.

Drawings

1. Sheet 1 - Cover Sheet
2. Sheet 2 - Soil Vapor Monitoring System Details
3. Sheet 3 - Tank and Pipe Details
4. Sheet 4 - Architectural and Structural Details
5. Sheet 5 - C-17 and R-6 Canopy Details
6. Sheet 6 - Dispenser Modifications, Stair and Handrail Details
7. Sheet 7 - New C-17 and R-6 Sections
8. Sheet 8 - C-50 Plan and Sections
9. Sheet 9 - C-50 Sections
10. Sheet 10 - E-14 Plan and Sections
11. Sheet 11 - E-14 Sections and Elevations
12. Sheet 12 - C-17 and C-20 Demolition Plan
13. Sheet 13 - C-17 Plan
14. Sheet 14 - R-6 and R-7 Demolition Plan
15. Sheet 15 - R-6 Plan
16. Sheet 16 - R-6 Sections
17. Sheet 17 - Electrical Notes, Symbols, Abbreviations, and Details
18. Sheet 18 - Electrical Details
19. Sheet 19 - Electrical Schedules and Line Diagrams
20. Sheet 20 - Electrical Line Diagrams

Specifications

1. Section 01010 - General Paragraphs
2. Section 01011 - Additional General Paragraphs
3. Section 01012 - Special Provisions
4. Section 01090 - References
5. Section 01300 - Submittals
6. Section 01401 - Contractor Inspection System

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7. Section 01560 - Environmental Protection
8. Section 01730 - Operation and Maintenance Data
9. Section 02050 - Demolition and Removal
10. Section 02220 - General Excavation, Filling, and Backfilling
11. Section 03302 - Cast-In-Place Concrete (Minor Construction)
12. Section 03410 - Precast Concrete (Non-Prestressed)
13. Section 04200 - Unit Masonry
14. Section 04230 - Reinforced Masonry
15. Section 07530 - Elastomeric Sheet Roofing System
16. Section 13001 - Enhanced Tank Monitoring System
17. Section 13002 - Standard Tank Monitoring System
18. Section 13003 - Fuel Management Systems
19. Section 13004 - Data Processing Systems
20. Section 13005 - Soil Vapor Monitoring Systems
21. Section 13006 - Canopies
22. Section 13211 - Underground Storage Tank Retrofit/Instrumentation Systems
23. Section 13219 - Cleaning Petroleum/Hazardous Waste Storage Tanks
24. Section 15358 - AFFF Fire Extinguishing System for Haz/Flam Material Facility
25. Section 15780 - Packaged Air Conditioning Units
26. Section 16011 - Electrical General Requirement
27. Section 16208 - Diesel Engine-Generator Sets, 10 to 500 KW
28. Section 16375 - Underground Electrical Work
29. Section 16402 - Interior Wiring Systems
30. Section 16499 - Telephone Service and Communications
31. Section 16510 - Interior Lighting
32. Section 16530 - Exterior Lighting
33. Section 16852 - Electrical Space Heating Equipment

Any or all of these specifications shall be involved during the UST Retrofit/Gas Station Modification project when applicable.

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6.0 SCHEDULE AND COSTS OF CONSTRUCTION

For budgetary cost purposes to construct the modifications at the various base locations, refer to the cost estimate provided under separate cover. The total cost including miscellaneous factors for overhead and profit (OH&P), administration and contingencies is: \$1.0 million. The cost estimate is provided under separate cover.

Contractor should proceed from site to site as discussed during the Pre-Bid Meeting (see Chapter 4, section 4.2). Construction tasks should proceed in the order below at each of the sites.

1. Submit safety and other plans and obtain approval.
2. Obtain permits and notify applicable agencies.
3. Mobilize to site.
4. Install erosion and sediment controls as necessary.
5. Provide and set up temporary fueling facilities.
6. Perform demolition activities. Dispose of materials.
7. Conduct post-excavation sampling and analysis for clean site certification or documentation of residual contamination.
8. After direction from NORTHDIV, begin backfilling and new piping, canopies, filling stations, and buildings installation.
9. Install instrumentation and controls. Install computer system. Connect to base-wide communications system.
10. Test and demonstrate newly installed systems.
11. Perform construction site clean-up to pre-construction condition.
12. Demobilize from site.

APPENDIX A
NORTHDIV REVIEW OF SPECIFICATION 04-91-0489

Code 4051DATE 6-29-93REVIEWER STEVE LEHMANDISCIPLINE CIVIL DESIGN

DESIGN MANAGER _____

J.O.# _____

A/E CONTR. # N62472-90 P-1448 CONSTR. CONTR. # N62472- -C-PROJECT UST RETROFIT/GAS STATION MODIFICATIONSLOCATION NWS EARLE, N.JSUBMISSION DESIGN DEVELOPMENT FINAL BID DOCUMENTS

In accordance with the terms of our contract, review comments are herewith transmitted to you for your action.

It is requested that you provide the Design Manager with a detailed explanation, included on this sheet, on how each comment on this review sheet was addressed by your office. Please forward your response within 10 working days of receipt of these comments.

ITEM	GOVERNMENT REVIEW COMMENT	A/E RESPONSE
	Sheet 1 OF 10:	
1.	ADD construction contract no. N62472-91-C-0489 in large lettering below project title and location info.	
	Sheet 1 OF 10:	
2.	ADD NORTH ARROW to vicinity map.	
	Sheet 2 OF 10:	
3.	Show section detail for new monitoring wells. Indicate materials of construction, etc.	
	Sheet 3 OF 10:	
4.	NAVFAC Drawing numbers are <u>2162660</u> <u>JARY</u> <u>2162669</u>	
	ADD to DWG(S) block as required.	

ITEM	GOVERNMENT REVIEW COMMENT	A/E RESPONSE
5.	Masonry buildings #C-17 & #R-7 are to be demolished. Dwg's need to show which existing structures are to be demolished and removed.	
6.	Provide recommended bid item sheet (see sample).	
7.	sheet 1 of 10 - general notes: suggest notes be added which summarize the scope of work.	
8.	Project TITLE - change to "UST RETROFIT/GAS STATION Modifications" - Refer to Amed. NO. 20 dtd 22 Mar 1993.	
9.	Provide the required cost estimate info.	
10.	Dwg's require additional electrical details for installation of monitors, alarms, and electronic sensors. Refer to A/E Guide for required details.	

→ ORIGINAL 100%
NAVY REVIEW
COMMENTS.
NEED WRITTEN
A/E RESPONSE!

CODE 092, MECHANICAL/CIVIL ENGINEERING COMMENTS

ON SPECIFICATION 04-90-1448

ITEM NO.	DRWG NO. SPEC NO.	COMMENT
1	General	Storm Drains! Eliminating Storm drains and underground concrete storage tanks also eliminates any means of Spill Containment for the vehicle fuel Dispensing Island and the Bulk Dispensers. We request the A&E design spill containment around motor vehicle fuel dispensing areas at the Mainside and Waterfront, also for the Railroad fuel dispensing areas at C-50 and at the Waterfront dispenser which is north of Highway Bridge #10. The spill containment facility shall have an oil/water separation capacity.
2	General	The minimum slope of all gasoline and fuel oil piping (underground) should be 1/8" vs. 1/16". We recommend that the sites be reviewed to determine if there is sufficient difference in elevations between the dispenser and the storage tanks to accomplish this and bury the pipes 36" below the concrete.
3	General	We recommend complete electrical replacement including panel and conduit.
4	Design Sheet-T2	a. Tank #C20/1 was filled with a submersible pump in June 1990. b. Dispenser #G2 was connected to submersible pump at tank #C20/3 in June 1990. c. Diesel tank #C20/5 existing submersible pump served dispenser #D1 not #D2. Redesign system connecting both dispensers to the pump.

ITEM NO.	DRWG NO. SPEC NO.	COMMENTS
5	Design Sheet-T3	<p>d. Add dimensional detail for all slabs. Most important is the fill sump.</p> <p>e. Add notes regarding removal of pumps, motors, piping and wiring in pumphouse C-20. And add "Contractor shall dispose of all contaminated concrete in C-20.</p> <p>a. Recommend addition of elevations to section A-A, B-B and C-C based on bench marks established on design sheet T2.</p> <p>b. Section A-A, show submersible pump serving 10,000 gallon tank - add tank I.D. numbers.</p> <p>c. Add detail of slabs - recommend concrete slabs be replaced at tanks #C-20/2 and #C-20/5 rather than saw cut.</p> <p>d. Recommend complete replacement of the electrical system at Building C-17.</p>
6	Design Sheet-T4	<p>a. Establish bench mark and add elevation at all key component locations.</p> <p>b. Locate monitoring well for soil/vapor background data. There is a parking lot and vehicle traffic in area.</p> <p>c. Add notes regarding removal of pumps, wiring and piping from Building R-7 and who will remediate contaminated concrete inside R-7?</p> <p>d. Provide instructions for fence repair after underground concrete tank removal.</p> <p>e. Add piping "slope" arrow and indicate 1/8" minimum slope.</p> <p>f. Clarify BUNG - what is it?</p>

ITEM NO.	DRWG NO. SPEC NO.	COMMENTS
7	Design Sheet-T5	<p>g. Clarify storm water closure. Is "supply line" really storm drain line? Suggest similar design as recommended for C-17 area. Storm drain will oil/water seal.</p> <p>a. Add elevations; show direction of slope; identify tank no.</p> <p>b. Add three or more dispenser manufacturers.</p> <p>c. Recommend complete replacement of electrical system (i.e., panel, wiring, conduit, etc.).</p>
8	Design Sheet-T6	<p>a. Establish bench mark and elevations. Show direction of slope.</p> <p>b. Provide concrete slab at fill containment slab, dispenser and overflow alarm area. Provide details of concrete slabs.</p> <p>c. Provide wiring diagrams for remote monitors in Building C-50. Locate for accessibility.</p> <p>d. Is cathodic protection required? Where are anodes located?</p> <p>e. The Contractor shall clean up surface contaminated soil around dispenser, tracks and fill connections?</p>
9	Design Sheet-T7	<p>a. Add bench mark and elevations.</p> <p>b. Provide detail of penetrations thru wall of Bldg. E-14.</p> <p>c. Is existing fuel oil piping double wall?</p> <p>d. Locate background monitor dimensionally.</p> <p>e. Provide detail of cut outs for new sumps.</p>

ITEM NO.	DRWG NO. SPEC NO.	COMMENTS
		<p>f. Provide concrete slab around overfill sump, include signal and alarm panel.</p> <p>g. Provide location map.</p>
10	<p>Specification Table of Contents Section 01010 pg 3</p>	<p>Add - 02930 for turf re-establishment. Add - "9.5%"</p>
	01010 page 4	Add - Monmouth County, NJ
	01010 page 8	<p>Substitute attached PAR 1.15 for the following: CHANGES ORDERS AND ESTIMATES In determining any equitable adjustment under the "Changes" clause, the Officer in Charge of Construction will appoint an Assistant Resident Officer or Assistant Resident Engineer who shall report to the Officer in Charge of Construction the amount of the change in cost, time, or both, resulting from the ordered change. In making all equitable adjustments under the "Changes" clause, compensation for additions will be based upon estimated costs at the time the work is performed, and credit for deductions will be based upon estimated costs at the time the contract was made. In arriving at the amount of the change in price, if any, allowance may be made for profit, overhead and general expenses, plant rental, and other similar items.</p>

ITEM NO.	DRWG NO. SPEC NO.	COMMENTS
	01011 page 2 01011 page 8	Delete reference to "Sepia" Add paragraph concerning furnishing of temporary fuel dispensing terminal during construction.
	01011 Page 9	Indicate paragraph regarding necessity of considerable hand digging.
	01012	Add this section as follows:

SPECIAL PROVISIONS

1. Extraordinary Security Requirements. The clause of Contract Clauses titled "Identification of Employees"; the paragraph of Section 01011, "Additional General Paragraphs" titled "Security Requirements"; and the following shall apply.

All Contractor personnel on site shall be certified by the Contractor to be U.S. citizens and the Contractor shall provide the Contracting Officer the names of all prospective on-site workers at least 96 hours in advance of their appearance on-site. Contractor employees will be required to show proof of citizenship (such as birth certificate) to obtain entry badges for on-site work. All employees, be they prime or subcontractor, shall report to the Security Office, Naval Weapons Station Earle, Colts Neck, New Jersey for photographs to be taken no less than 48 hours prior to their beginning work on the job site.

2. Station Regulations Affecting the Work. In addition to the requirements contained in paragraph titled "Station Regulations" of Section 01011, "Additional General Paragraphs" the following shall apply.

2.1 Use of explosives is prohibited.

2.2 Storage of fuels on the site is prohibited. The Station fire truck shall be present during the refueling of all equipment on site. At least a 48 hour notice shall be given prior to refueling.

2.3 Where a site boundary fence is specified to be erected by the Contractor it shall consist of wire mesh fabric at least four feet high attached to posts every ten feet. The fence erected by the Contractor shall be removed upon completion of the work.

2.4 Regular Working Hours. See paragraph titled "Work Outside Regular Hours" of Section 01011, "Additional General Paragraphs". Regular hours at the Naval Weapons Station Earle, Colts Neck, New Jersey are from 7:30 A.M. to 4:00 P.M.

2.5 No smoking is authorized except in designated areas as approved by the Contracting Officer. Where smoking is allowed, the Contractor shall provide adequate fire extinguishing equipment. A smoking permit shall be secured from the fire department and posted in the smoking area.

2.6 All vehicles entering and leaving the Station will be subject to search.

2.7 Parking for privately owned vehicles will be restricted. Limited parking area for vehicles will be designated near the work site by the Officer-in-Charge.

2.8 All alleged delays which are in addition to those specified shall be included in the Contractor's daily reports. The following information pertaining to these alleged delays shall be included.

- a. Duration
- b. Number of personnel directly affected
- c. Equipment directly affected
- d. Brief description of the cause of the delay.

2.9 No alcoholic beverages are allowed on the construction site. Should alcohol be found, the employee involved shall be removed from the construction site.

2.10 Prior to all welding and burning on the job site, the Contractor shall obtain, on a daily basis, a burning permit from the Station fire department.

2.11 The Contractor must obtain ordnance badges for access to work sites within ordnance areas. Access into the ordnance area requires:

- a. Logging in and out by the Contractor at gates.
- b. The Contractor must contact Security for access to and from the area north of Esperance Road and will experience at least a 1/2 hour delay each time. Escorts are not required.

02220

Permits for burning are issued by Earle Fire Department on daily basis based on need.

CODE 092, ELECTRICAL ENGINEERING COMMENTS

ON SPECIFICATION 04-90-1448

9

ITEM NO.	DRWG NO. SPEC NO.	COMMENTS
1	Dwgs/Spec	Include Contract # & Spec # of construction contract as required
2	Dwgs	Sheet 1 - Include a Legend
3	Dwgs	Sheets 1,2,4,6 & 7 - Include NORTH arrows
4	Dwgs/Spec	Sheets 2,4,6 & 7 - Indicate that all electrical work shall conform to NEC Article 514, "Gasoline Dispensing and Service Stations". Spec Sect 16402 paragraph 2.10 states that boundaries and classifications of hazardous locations are indicated. Where? Show on dwgs.
5	Dwgs/Spec	Indicate that power and alarm circuits shall be run separately (Sheet 2 Note 6)
6	Dwg	Sheet 2 Note 2 - Change "misfunction" to "malfunction"
7	Dwgs	Sheet 6 - You state, "provide existing" Which is it?
8	Dwgs	Sheet 6 - Indicate where in C-50 and how far run is from fuel dispenser to modems. Also, see #5 above (power and alarm)
9	Dwgs	Sheet 6 Sect A-A - "modem"
10	Spec	Table of Contents - Add Div's "not used"

ITEMS NO.	DRWG NO. SPEC NO.	COMMENTS
11	Spec	Sects 13211, paragraph 1.6 and 16011 paragraph 1.8 - Add to electrical requirements (nec Art. 514 - see Item #4)
12	Spec	Sect 13211 paragraph 3.6.3.1 - Type "any"

CODE 096, COMMENTS ON SPECIFICATION 4-90-1448

1. Section 02220 page 12, 3.9.4. Please include the phrase "The Contractor shall cover all excavated material with 10 mil plastic, all excavated material shall be placed on 10 mil plastic. The 10 mil plastic shall be anchored. The Contractor shall verify in writing that the 10 mil plastic did not break during this time."

2. Section 13211 page 6, 2.1.1. As stated in the contract, "Existing single walled piping. . . shall be provided with." This statement should be replaced and read as follows, "Existing single walled piping shall be removed and be replaced with double walled FRP piping. . ." Also include the phrase, "all existing leak detectors shall be retained and be refitted to new double walled FRP piping. All pressure line must have leak detectors."

3. Section 13219 page 4, 1.2.3.3. Include the phrase, "The Contractor shall be responsible to dispose of all Hazardous Waste from the concrete tanks according to State and Federal Regulations."

4. Section 13219, 3.3. Include the phrase, "The Contractor shall remove the existing concrete tank at R-7. The Hazardous Waste in the tank shall be disposed of by the Contractor in accordance with all State and Federal Requirements."

5. Section 13219, 3.5. Include the phrase, "All material from tank cleaning shall be disposed of by the contractor in accordance with all State and Federal Requirements."

6. The contractor shall also perform the following tasks:

. All contaminated soil shall be excavated in accordance with Appendix 10 of the NJDEPE Bureau of UST Regulations.

. The Contractor shall demolish C-20 and R-7 pump houses.

. The Contractor shall supply temporary fuel dispensers during construction.

. The contractor shall install submersible pumps at tank system C-20/5, C-20/4, and at C-20/3.

. All dispensers shall have automatic shut off nozzles and vapor recovery systems.

. All UST's shall be cleaned and purged of liquid and sludge. The Contractor shall dispose of all material in the UST's in accordance with all State and Federal Regulations.

DESIGN REVIEW COMMENTS

Date: 9/22/92
 Sheet 1 of

Code 404 Host ROICC Code 0512 Code 408 (Fire Protection)

Designer C. McMAHON / BJP Discipline ELECTRICAL

Design Manager S. LEHMAN Job Order No. 92AB3031

A/E Contr. No. - N62472-____-C-____ Const. Contr. No. - N62472-____-C-____

Project UNDERGROUND STORAGE TANK RETROFIT

Location INVIS. EARLE, N.J.

MISSION Design Development Final Bid Documents _____

In accordance with the terms of our contract, review comments are herewith transmitted to you for your action.

It is requested that you provide the Design Manager with a detailed explanation, included on this sheet, on how each comment on this review was addressed by your office. Please forward your response within 10 working days of receipt of these comments.

ITEM	DWG OR SPEC	GOV'T REVIEW COMMENTS	A/E RESPONSE
1	T-1	PROVIDE SYMBOL LIST	
2	T-2 thru T-7	INDICATE HAZARDOUS AREAS BY CLASS AND DIVISION ON DWGS	
3	DWGS	SIGN AND SEAL DWGS	
4	DWGS	INDICATE ANODES ON DWGS FOR CATHODIC PROTECTION	
5	SPECS	INCLUDE SPEC SECTION 16642	

	DWG OR SPEC	GOV'T REVIEW COMMENTS	A/E RESPONSE
6	SPEC. 16642	ON PAGE 3, PARA. 2.1, 2.1.1 & 2.1.2 REMOVE ALL ANODE SPECIFICATIONS EXCEPT TYPE DESIGNED FOR THIS INSTALLATION AT BLDG E-14. IF MORE THAN ONE TYPE IS USED DESIGNATE LOCATION OF EACH ON PLANS SHT-T7.	
7	SPEC 16642	ON SHT 4, PARA. 2.1.3 MAKE LEAD WIRES LONG ENOUGH TO REACH RECTIFIER TERMINALS WITHOUT SPLICING.	
8	T7	SHOW DESIGN OF ANODE INSTALLATION ON DWG TO INCLUDE DEPTH OF BURIAL, SIZE OF HOLE, HOW TO INSTALL COKE BREEZE, HOW TO RUN LEAD WIRES ETC	
9	DES. ANALYSIS	PROVIDE CALCULATIONS TO SHOW THAT ANODES AND RECTIFIER ARE ADEQUATE TO PROTECT PIPING. GIVE RECTIFIER RATING ON DWG T-7	
10	SPEC 16642	PAGE 7, PARA. 2.9 - A/E TO DESIGN MOUNTING OF RECTIFIER. CONTRACTOR	
		PLANT 2.12 AND "IF REQUIRED"	



DESIGN REVIEW COMMENTS

Sheet 1 of 2

Code 4051

DATE 9/22/92

REVIEWER STEVE LEHMAN

DISCIPLINE CIVIL DESIGN

DESIGN MANAGER same

J.O.#

A/E CONTR. # N62472-90-0-1448 CONSTR. CONTR. # N62472-91-C-0489

PROJECT UST RETROFIT

LOCATION NWS EARLE, COLTS NECK, N.J.

SUBMISSION DESIGN DEVELOPMENT 100% SUBMITTAL FINAL BID DOCUMENTS

In accordance with the terms of our contract, review comments are herewith transmitted to you for your action.

It is requested that you provide the Design Manager with a detailed explanation, included on this sheet, on how each comment on this review sheet was addressed by your office. Please forward your response within 10 working days of receipt of these comments.

ITEM | GOVERNMENT REVIEW COMMENT | A/E RESPONSE

1.	Place contract number N62472-91-C-0489 on DWG sheet T1. Place under subject/location title.	
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2.	On vicinity map show location of base's main gate or entrance gate for contractors use.	
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Date: 10/5/92
 Sheet 1 of 2

MEMORANDUM

From: Code 1811/CAJ
 To: Code 4051/SL

Subj: CODE 18 ENVIRONMENTAL REVIEW FOR PROJECT # 90-1448,
NWS, EARLE, NJ, UST RETROFIT

Encl: (1) Code 18 Permit Tracking Sheet

1. The following are Environmental Review Comments for the subject project. Request A/E responses be returned to Code 1811/CAJ.
2. Enclosure (1) identifies any permit preparation responsibilities, regulations and applicable comments.
3. If you have any questions on the comments, please call Carl Johnson on X-0567.

Carl A. Johnson
 Carl A. Johnson

Item	Dwg.	Environmental Review Comments	A/E Response
B5H 1		Spec Sec 13211, 2.2.7, section appears contradictory. First IP requires a vapor monitor in each monitoring well, while 2nd IP requires pumping vapor sample to a single monitor inside the wall console. Use of the single sensor in the console is preferable, because the sensor is better protected and maintenance is easier. Ensure spec allows this type of system such as Arizona Instruments "Soil Sentry"	

Item	Dwg.	Environmental Review Comments	A/E Response
B5H 2		Spec 13219, 3.3 - Delete note re: UST 70N01 being tested and abandoned in place.	
B5H 3		Spec 16642, 3.2.f - All testing of cathodic protection should be by the contractor, with records provided to the contracting officer.	
B5H 4	T2 T4	Include demurrage of pump houses (C-20 and R-7)	
B5H 5		Include data on soil permeabilities obtained during design to demonstrate the feasibility of vapor monitoring. The contractor will need this in order to obtain permits from NJDEP. Brian Holland 9/3/92	
JAS 1		SECONDARY CONTAINMENT (OR A DIVERSION SYSTEM) IS REQUIRED FOR THE TANK TRUCK LOADING/UNLOADING (AND MAY BE REQD FOR THE DISPENSER ISLANDS) AREAS IN ACC. WITH NJAC 7:1E-2.6 SINCE NWS EARLE IS CLASSIFIED AS A MAJOR FACILITY UNDER THESE REGULATIONS.	

APPENDIX B
A/E RESPONSE TO NORTHDIV DESIGN REVIEW

UST Retrofit/Gas Station Modifications
Naval Weapons Station, Earle, Colts Neck, NJ
A/E Response to NORTHDIV Review Comments

CODE 096 COMMENTS ON SPECIFICATION 04-91-0489

1. The Demolition spec and drawings address this now.
2. Done. See Paragraph 1.2.7.
3. Addressed on Drawings.
4. Statement added to Par 1.3.5 of spec.
5. Statement added to Par 3.9.3 of spec.
6. Statement added to Par 3.9.4 of spec.
7. Refer to Par 1.5 of Spec 13003, Fuel Management System.
8. Corrected. See Spec. 13001 and 13002.
9. Addressed in Specs. 13001 and 13002.
10. Refer to Spec 13003, Par 1.4, jj. (1).
11. Double-wall pipes' secondary pipes lead to tank sumps with level/leak detectors.
12. Statement added to Par 3.4 of spec.
13. Corrected. Refer to Drawings and Spec 13002.
14.
 - a. All fill areas have 15 gallon min. spill buckets.
 - b. Addressed on tank detail drawings.
 - c. Canopies have recessed metal halide lighting
 - d. New brick masonry buildings are to be constructed at R-7 and C-17
15. Statement added to page 4, spec 01090.
16. Statement added to Par. 1.19 of Spec 01010.

UST Retrofit/Gas Station Modifications
Naval Weapons Station, Earle, Colts Neck, NJ
A/E Response to NORTHDIV Review Comments

DESIGN REVIEW COMMENTS-Code 4051-REVIEWER STEVE LEHMAN-6-29-67

1. Corrected
2. Corrected.
3. Shown on Sheet 2, Vapor Monitoring System Details.
4. Corrected
5. New Demolition plan view drawings have been added for each site
6. Refer to Cost Estimate accompanying this submittal.
7. Recommendation accepted. Refer to Sheet 1, Notes.
8. Project Title Modified.
9. Cost estimate provided with this submittal on Form NAVFAC 11013/7 (1-78).
10. Additional drawings address this.

CODE 92-MECHANICAL/CIVIL ENGINEERING COMMENTS ON SPECIFICATION 04-09-144

1. Several views have been given verbally and written by Navy on this subject (such as dislike for "speed bumps", etc.). Some spill containment at the R-6 truck storage area which utilizes an existing storm drain with valves. At C-17 Bulk loading area a new storm drain will accept a limited amount of drainage from the bulk loading area, but is not intended to be a spill containment area.
2. The sites were reviewed to determine existing elevations to the greatest extent possible. Information on tank burial depths is not available, therefore several assumptions were made. Because the existing tanks are being re-used, these elevations are fixed. Pipe slopes will be somewhat fixed by this limitation. Dispenser locations could be raised in elevation, however this would require considerably more regrading, earthwork, asphalt work and may possibly cause operations difficulties (esp. at C-50). Piping slopes on

UST Retrofit/Gas Station Modifications
Naval Weapons Station, Earle, Colts Neck, NJ
A/E Response to NORTHDIV Review Comments

drawings are called out as "continuously sloping towards tank sumps". Our initial observations are that the pipes can be sloped towards tanks at approx. 1/8 to 1/16 minimum slope to allow supply pipe drainage back to tanks.

3. Accepted. Drawings modified.
4. a to c. New submersible pumps are being supplied at each tank except E-14. New pumps are compatible with high capacity dispensers and fuel management system.
d. Dimensions added. Also refer to Fill Sump at Tank Detail.
e. Statement "Contractor shall dispose of all contaminated concrete from C-20 (or R-6)." has been added to the new Demolition Drawings.
5. a. Top of Slab (TOS) elevations have been given in revised drawings. All sectional dimensions are related to this elevation.
b. Tank Numbering has been revised.
c. Slab details have been corrected. Design intent has been changed from saw-cutting to replacement.
d. Recommendation accepted. Complete electrical system replacement at C-17 (and R-6) has been designed.
6. a. Bench Marks established for R-6 and C-17 locations. Key elevations stated, where applicable.
b. Corrected.
c. Corrected. See Demolition Drawing.
d. Corrected. Refer to Plan views of R-6 and C-20 areas.
e. Refer to response 2 above.
f. Clarified on Sheet 1 notes.

UST Retrofit/Gas Station Modifications
Naval Weapons Station, Earle, Colts Neck, NJ
A/E Response to NORTHDIV Review Comments

- g. Refer to response 1.
- 7.
- a. Corrected.
 - b. No manufacturers names are used on drawings. Refer to Section 01090, Part 2 for selected equipment manufacturers.
 - c. Recommendation accepted.
- 8.
- a. Corrected. Slope Directions Shown.
 - b. Slabs provided on new drawings.
 - c. Wiring block diagrams provided on new drawings.
 - d. No.
 - e. Note added to C-50 Plan Drawing.
- 9.
- a. Corrected.
 - b. Detail provided on Sheet 2.
 - c. New double-wall piping will be supplied.
 - d. Corrected.
 - e. Detail provided on Sheet 2.
 - f. Corrected.
 - g. Refer to Sheet 1.
- 10.
- a. Refer to Spec 02220, Par 3.7, FINISH OPERATIONS. This project requires minor re-seeding and restoration and we do not recommend adding a separate specification for reseeding and vegetation re-establishment.
 - b. Corrected.

UST Retrofit/Gas Station Modifications
Naval Weapons Station, Earle, Colts Neck, NJ
A/E Response to NORTHDIV Review Comments

- c. Accepted.
- d. Section replaced as requested.
- e. Deleted as requested.
- f. Par. 3.9 of spec 01010 added.
- g. Par 3.6.5. added to spec 01011 to this effect.
- h. Section added as requested.
- i. Statement added to par 1.7, spec 02220.

CODE 092-ELECTRICAL ENGINEERING COMMENTS ON SPECIFICATION 04-90-1449

- 1. Corrected.
- 2. This request is unclear, however our interpretation of this comment is that an electrical legend is not required due to the fact that no complicated electrical symbols are being used on the drawings. We have included Elementary Block Diagrams on the revised drawings and have labeled each box and interconnecting line.
- 3. North Arrows added.
- 4. Shown on revised drawings.
- 5. Corrected.
- 6. Reference deleted.
- 7. Reference deleted.
- 8. Dimensions given in revised drawings.
- 9. Modem has been re-spelled.
- 10. Several specs have been added.

UST Retrofit/Gas Station Modifications
Naval Weapons Station, Earle, Colts Neck, NJ
A/E Response to NORTHDIV Review Comments

11. Reference added to both spec. sections as requested.
12. Corrected as requested.

CODE 096, COMMENTS ON SPECIFICATION 4-90-1448

1. Added as requested.
2. This spec. paragraph has been re-written, however this design intent has been carried out in the drawings.
3. Added as requested.
4. Added as modified here: "The Contractor shall remove the existing concrete tanks at R-7 as indicated on the Contract Drawings. The Hazardous Waste in the tank shall be disposed of by the Contractor in accordance with all State and Federal Requirements."
5. Added as requested.
6. a. Note added to Demolition specification, par 3.1.5, spec section 02050 and to Environmental Protection spec, par. 3.5.4, spec 01560:

All contaminated soil shall be excavated in accordance with Appendix 10 of the NJDEPE Bureau of UST Regulations

b. Refer to demolition drawings.

c. Addressed in Spec 01010, Par. 3.9, TEMPORARY FUEL PROVISIONS, added per these review comments.

d. Addressed above in Mech/Civil comment 4, a to c.

e. Specifically addressed in 13211 spec on dispensers.

f. This is addressed on the Demolition Drawings for all concrete tanks. We do not recommend this for the existing USTs because they are relatively new and it would require removing all usable fuel prior to doing so. This would take the station out of service earlier.

UST Retrofit/Gas Station Modifications
Naval Weapons Station, Earle, Colts Neck, NJ
A/E Response to NORTHDIV Review Comments

NORTHDIV REVIEW COMMENTS DATED 9/18/92

1. Titleblocks corrected
2. Manufacturer's names have been removed. This comment is in conflict with comment above, CODE 92-MECHANICAL/CIVIL ENGINEERING COMMENTS ON SPECIFICATION 04-09-144, 7b. We have adhered to this comment, with exception noted above.

REVIEW COMMENTS-ELECTRICAL-C. MCMAHON, DATED 9/22/92

1. Symbol list provided.
2. Indicated as requested.
3. OK
4. No anodes are used for revised design.
5. Table of Contents revised to reflect new spec. sections.
6. Cathodic protection not used on new design.
7. See 6 above.
8. See 6 above.
9. See 6 above.
10. See 6 above.
11. Non-metallic piping is used in the revised design.

DESIGN REVIEW COMMENTS-CODE 4051-REVIEWER STEVE LEHMAN-9/22/92

1. Contract number revised as indicated.

UST Retrofit/Gas Station Modifications
Naval Weapons Station, Earle, Colts Neck, NJ
A/E Response to NORTHDIV Review Comments

2. Refer to demolition drawings added in this revised design which address these quantity issues. NOTE: This is a potential source of change order or unit bid item over-runs.
3. Shown on revised sheet 2.

MEMORANDUM-FROM CODE 1811/CAJ-TO CODE 4051/SL-DATE 10/5/92

1. This specification has been revised. It is now in a separate spec to avoid confusion. This spec. is 13005, Soil Vapor Monitoring System. Spec has been revised around the AZI Soil Sentry 12X model as requested.
2. Deleted as requested.
3. Cathodic protection not used on revised design.
4. Refer to new demolition drawings.
5. Based upon our site visits during excavation, visual observation of soils during excavation, review of monitoring well logs at C-20 (furnished by John Pawlus), review of regional soil surveys prepared by USGS and NJ Soil Bureau (1950's vintage report), and discussions with experts who deal with soil extraction and vapor transmission in soil, there appears to more than adequate soil permeability to properly operate vapor monitoring apparatus. We anticipate that the sandy to fine-sand, non-clay deposits and water table typically at 10 feet depth will allow the system to operate satisfactorily.

The following sentence has been included in Spec section 13005, par.3.4.

Contractor may request boring logs and on-site soil information from Navy during construction to present to NJDEPE. Contractor shall obtain permits from NJDEPE prior to installing each system.

6. We were directed not to consider NWS - Earle a major facility. Secondary containment design was not included in the scope for this design. Additional delays and cost adjustments would be necessary to incorporate this additional requested work into the bid documents.

APPENDIX C
GENERATOR CALCULATIONS

WS Earle, Job #5180.002									
Equipment connected to Emergency Power Panel									
C-17									
Equipment	Qty	phase	voltage	Max Watts	max va	max amps	Total V-A	Total KVA	Additional start amp
2 HP subm pump	3	1	240			12	8640	8.64	4.32
1-1/2 HP subm pump	2	1	240			10.5	5040	5.04	3.78
oil gas mon	1	1	120		60		60	0.06	
LS 350	2	1	120	600			1200	1.20	
Fuel Island Terminal	3	1	120	200			600	0.60	
pump control board	6	1	120	100			600	0.60	
Fuel Site Controller	1	1	120	50			50	0.05	
modems	3	1	120	25			75	0.08	
inside emerg lights	1	1	120	200			200	0.20	
outdoor emerg. lights	8	1	120	400			3200	3.20	
(400 W ea x 1/3*24 lights)									
outdoor emerg. lights	2	1	120	400			800	0.80	
(400 W ea x 1/3*6 lights)									
outlets	0								
Sum of max. operating VA (w/ no SF)								20.47	8.10
Sum of operating and starting VA									28.57
Recommended generator size (nominal)									30.00
NOTES:									
1. There are three columns which describe equipment rating, depending upon the manufacturer's information provided: These are Watts, amps, or VA. For single phase equipment, Watts = V*A*PF (PF assumed 1.0)									
3. Additional Start Amps - Motor starting voltage is estimated at 250% max. operating amperage. One 2 HP and one 1-1/2 HP pump are anticipated to start up simultaneously in worst case.									

WS Earle, Job #5180.002									
Equipment connected to Emergency Power Panel									
-6									
				Max	max	max	Total	Total	Two 2 HP Additional
Equipment	Qty	phase	voltage	Watts	va	amps	V-A	KVA	start amp
1/2 HP subm pump	3	1	240			12	8640	8.64	8.64
soil gas mon	1	1	120		60		60	0.06	
MS 350	1	1	120	600			600	0.60	
Island Terminal	3	1	120	200			600	0.60	
Pump control board	6	1	120	100			600	0.60	
Site Controller	1	1	120	50			50	0.05	
modems	3	1	120	25			75	0.08	
inside emerg lights	1	1	120	200			200	0.20	
outdoor e-lights (lg. canopy) (400 W ea x 1/3*24 lights)	8	1	120	400			3200	3.20	
outdoor e-lights (sm. canopy) (400 W ea x 1/3*6 lights)	2	1	120	400			800	0.80	
outlets	0								
Sum of max. operating VA (w/ no SF)								14.83	8.64
Sum of operating and starting VA									23.47
Recommended generator size (nominal)									25.00
NOTES:									
. There are three columns which describe equipment rating, depending upon the manufacturer's information provided: These are Watts, amps, or VA									
. For single phase equipment, $Watts = V * A * PF$ (PF assumed 1.0)									
. Additional Start Amps - Motor starting voltage is estimated at 250% max. operating amperage. Two 2 HP pumps are anticipated to start up simultaneously in worst case.									

..WS Earle, Job #5180.002										
equipment connected to Emergency Power Panel									max	
-50									op.	One 1-1/2 HP
equipment	Qty	phase	voltage	Max Watts	max va	max amps	Total V-A	Total KVA	Additional start amp	
-1/2 HP subm pump	1	1	240			10.5	2520	2.52	3.78	
soil gas mon	1	1	120		60		60	0.06		
LS 350	1	1	120	600			600	0.60		
uel Island Terminal	1	1	120	200			200	0.20		
Pump control board	1	1	120	100			100	0.10		
uel Site Controller	1	1	120	50			50	0.05		
modems	3	1	120	25			75	0.08		
outlets	0									
Sum of max. operating VA (w/ no SF)								3.61	3.78	
Sum of operating and starting VA									7.39	
Recommended generator size (nominal)									10.00	
NOTES:										
1. There are three columns which describe equipment rating, depending upon the manufacturer's information provided: These are Watts, amps, or VA										
. For single phase equipment, Watts = V*A*PF (PF assumed 1.0)										
3. Additional Start Amps - Motor starting voltage is estimated at 250% max. operating amperage. One 1-1/2 HP pumps are anticipated to start up simultaneously in worst case.										