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SPECIFICATIONS FOR CONSTRUCTION BLOCK 600 UST REMOVAL FORT STORY VA  
6/1/1991  
U.S. ARMY CORPS OF ENGINEERS OMAHA DISTRICT

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**SPECIFICATIONS  
(FOR CONSTRUCTION CONTRACT)**

**SOLICITATION NO. DACW45-89-D-0501**

**UST REMOVAL**

**FY 91**

**FORT STORY, VIRGINIA**

**JUNE 1991**

**U.S. ARMY CORPS**

**SPECIFICATIONS FOR CONSTRUCTION**

**BLOCK 600 UST REMOVAL**

**FORT STORY, VIRGINIA**

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NOT USED

DEPARTMENT OF THE ARMY  
OMAHA DISTRICT, CORPS OF ENGINEERS  
215 NORTH 17TH STREET  
OMAHA, NEBRASKA 68102-4978

Date: \_\_\_\_\_

SUBJECT: INVITATION FOR BIDS - CONSTRUCTION CONTRACT

TO: All Prospective Bidders and Others Concerned

NAME AND LOCATION OF PROJECT: BY (Issuing Office):

|   |  |
|---|--|
| Underground Storage Tank<br>Removal<br>Block 600<br>Ft. Story, Virginia | U.S. Army Engineer District, Omaha<br>1612 U.S. Post Office and<br>Courthouse<br>215 North 17th Street<br>Omaha, Nebraska 68102-4978 |
|---|--|

SEALED BIDS (one copy only) for the work described herein will be received until \_\_\_\_\_ pm., local time at the place of bid opening \_\_\_\_\_ in the office of the Commander given below and at that time PUBLICLY opened:

U.S. Army Engineer District,  
Omaha  
1612 U.S. Post Office and  
Courthouse  
215 North 17th Street  
Omaha, Nebraska 68102-4978

Note: Hand-carried bids  
shall be delivered  
to Room 1614

Basis for Award: IT IS INTENDED THAT AWARD WILL BE MADE TO ONE BIDDER FOR THE ENTIRE WORK.

DESCRIPTION OF WORK: The work consists of furnishing all labor, materials, and equipment and performing all work for and associated with removal, cleaning and off-site disposal of twenty-eight (28) 1,000-gallon steel underground storage tanks and associated piping used to store fuel oil. The work includes removal and off-site disposal of all tank contents, cleaning liquids, and contaminated soils identified during tank removal. The Contractor will be responsible for characterizing cleaning liquids and contaminated soils prior to disposal, obtaining all permits and conducting all work in compliance with federal, state and local regulations.

The estimated construction costs of this project is between \$250,000 and \$500,000.

The above general outline does not limit the work to be less than all that required under the plans and specifications.

## BIDDING INFORMATION (cont.)

### BIDDING INFORMATION

**1 EXPLANATION TO PROSPECTIVE BIDDERS (APRIL 1984).** Any prospective bidder desiring an explanation or interpretation of the solicitation, drawings, specifications, etc., must request it in writing soon enough to allow a reply to reach all prospective bidders before the submission of their bids. Oral explanations or instructions given before the award of a contract will not be binding. Any information given a prospective bidder concerning a solicitation will be furnished promptly to all other prospective bidders as an amendment to the solicitation, if that information is necessary in submitting bids or if the lack of it would be prejudicial to other prospective bidders. (FAR 52.214-6);

**2 SOLICITATION DEFINITIONS - SEALED BIDDING (JULY 1987).** "Offer" means "bid" in sealed bidding. "Solicitation" means an invitation for bids in sealed bidding. "Government" means United States Government.

### **3 SUBMISSION OF BIDS (APRIL 1984).**

1 Bids and bid modifications shall be submitted in sealed envelopes or packages (1) addressed to the office specified in the solicitation and (2) showing the time specified for receipt, the solicitation number, and the name and address of the bidder.

2 Telegraphic bids will not be considered unless authorized by the solicitation; however, bids may be modified or withdrawn by written or telegraphic notice, if such notice is received by the time specified for receipt of bids. (FAR 52.214-5).

### **4 PREPARATION OF BIDS - CONSTRUCTION (APRIL 1984).**

1 Bids must be (1) submitted on the forms furnished by the Government or on copies of those forms, and (2) manually signed. The person signing a bid must initial each erasure or change appearing on any bid form.

2 The bid form may require bidders to submit bid prices for one or more items on various bases, including:

- (1) lump sum bidding;
- (2) alternate prices;
- (3) units of construction, or
- (4) any combination of subparagraphs (2) through (3) above.

## BIDDING INFORMATION (cont.)

3 If the solicitation requires bidding on all items, failure to do so will disqualify the bid. If bidding on all items is not required, bidders should insert the words "no bid" in the space provided for any item on which no price is submitted.

4 Alternate bids will not be considered unless this solicitation authorized their submission. (FAR 52.214-18)

**5 FALSE STATEMENTS IN BIDS (APRIL 1984).** Bidders must provide full, accurate, and complete information as required by this solicitation and its attachments. The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001 (FAR 52.214-4)

**6 LATE SUBMISSIONS, MODIFICATIONS, AND WITHDRAWALS OF BIDS (APRIL 1984).**

1 Any bid received at the office designated in the solicitation after the exact time specified for receipt will not be considered unless it is received before award is made and it --

(1) was sent by registered or certified mail not later than the fifth calendar day before the date specified for receipt of bids (e.g., a bid submitted in response to a solicitation requiring receipt of bids by the 20th of the month must be have been mailed by the 15th); or

(2) was sent by mail (or was a telegraphic bid if authorized), and it is determined by the Government that the late receipt was due solely to mishandling by the Government after receipt at the Government installation.

2 Any modification or withdrawal of a bid is subject to the same conditions as in paragraph 6.1 above.

3 The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent either by registered or certified mail is the U.S. or Canadian Postal Service postmark on the wrapper or on the original receipt from the U.S. or Canadian Postal Service. If neither postmark shows a legible date, the bid, modification, or withdrawal shall be processed as if mailed late. "Postmark" means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and affixed by employees of the U.S. or Canadian Postal Service on the date of mailing. Therefore, bidders should request the postal clerks to place a hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

**BIDDING INFORMATION (cont.)**

4 The only acceptable evidence to establish the time of receipt at the Government installation is the time/date stamp of that installation on the bid wrapper or other documentary evidence of receipt maintained by the installation.

5 Notwithstanding paragraph 6.1 above, a late modification of an otherwise successful bid that makes its terms more favorable to the Government will be considered at any time it is received and may be accepted.

6 A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for receipt of bids, the identity of the person requesting withdrawal is established and that person signs a receipt for the bid. (FAR 52.214-7)

**7 INFORMATION FOR MODIFYING BIDS.** Bids which have been mailed to the designated bid receiving office may be modified or withdrawn by mail, telegram, mailgram, or telecopier.

1 OMAHA DISTRICT OFFICE. Telegraphic or telecopier modifications to or withdrawals of previously mailed bids may be transmitted to the Omaha District (OD) Message Center.

1 For modifications or withdrawals by telegram Western Union should be furnished the OD Message Center TWX number, 910-622-8383. (Answer Back: MO RIV DIV OMA.)

2 For modifications or withdrawals by telecopier, the OD Message Center Telecopies access phone number is 402-221-3029 and 3030. Telecopier transmittals must be compatible with Xerox Telecopier. Telephone modifications or withdrawals, other than telecopier, will not be accepted.

3 Any questions regarding these procedures should be directed to the OD Message Center at 402-221-3022. This number should also be used to verify the receipt of messages.

2 OTHER LOCATIONS. Modifications to or withdrawals of previously submitted bids should be transmitted to the place of bid opening shown on page IB-1.

**8 BID GUARANTEE (APRIL 1984).**

1 Failure to furnish a bid guarantee in the proper form and amount, by the time set for opening of bids, may be cause for rejection of the bid.

2 The offeror (bidder) shall furnish a bid guarantee in the form of a firm commitment, such as a bid bond, postal money

## BIDDING INFORMATION (cont.)

order, certified check, cashier's check, irrevocable letter of credit, or, under Treasury Department regulations, certain bonds or notes of the United States. The Contracting Officer will return bid guarantees, other than bid bonds, (1) to unsuccessful bidders as soon as practicable after the opening of bids, and (2) to the successful bidder upon execution of contractual documents and bonds (including any necessary coinsurance or reinsurance agreements), as required by the bid as accepted.

3 If the successful bidder, upon acceptance of its bid by the Government within the period specified for acceptance, fails to execute all contractual documents or give performance and payment bonds as required by the solicitation within the time specified, the Contracting Officer may terminate the contract for default.

4 Unless otherwise specified in the bid, the bidder will (1) allow 60 days for acceptance of its bid, and (2) give performance and payment bonds within 10 days after receipt of the forms by the bidder.

5 In the event the contract is terminated for default, the bidder is liable for any cost of acquiring the work that exceeds the amount of its bid, and the bid guarantee is available to offset the difference (FAR 52.228-1).

6 Each bidder shall submit with his bid a bond (Standard Form 24) or other security in the amount of twenty percent (20%) of the total bid price including any additives or Three Million Dollars (\$3,000,000), whichever is lesser. The bid bond penalty may be expressed in terms of a percentage of the total bid price or expressed in dollars and cents. (Bid bonds are not required for projects less than \$25,000.)

**9 PERFORMANCE AND PAYMENT BONDS.** (Not required for projects less than \$25,000.) Within 10 days after the prescribed forms are presented to the bidder to whom award is made for signature, a written contract on the form prescribed by the specifications shall be executed and two bonds, each with good and sufficient surety or sureties acceptable to the Government, furnished; namely a performance bond (Standard Form 25) and a payment bond (Standard Form 25A). Any bonds furnished will be furnished by the Contractor to the Government prior to commencement of the contract performance. The cost of premiums for performance and payment bonds shall be included in the bid price. The penal sums of such bonds will be as follows:

1 **PERFORMANCE BOND.** The penal sum of the performance bond shall equal one hundred percent (100%) of the contract price.

**BIDDING INFORMATION (cont.)**

2 PAYMENT BOND.

1 When the contract price is \$1,000,000 or less, the penal sum will be fifty percent (50%) of the contract price.

2 When the contract price is in excess of \$1,000,000 but not more than \$5,000,000 the penal sum shall be forty percent (40%) of the contract price.

3 When the contract price is more than \$5,000,000 the penal sum shall be \$2,500,000.

**9A. INDIVIDUAL SURETIES.** Federal Acquisition Regulation Section 28.202-2 provides that individual sureties are acceptable for all types of bonds except position schedule bonds. In addition to the bonds, individual sureties shall execute and provide to the Contracting Officer STANDARD FORM 28, AFFIDAVIT OF SURETY. Similarly, bidders shall submit, with their bonds, good and sufficient evidence as to the validity of the information provided on STANDARD FORM 28 including, but not limited to, proof of ownership and proof of the net value of the assets listed. This information shall also be provided for all other individual surety bonds submitted or to be submitted in connection with this procurement, when requested. Additionally, prior to award, individual sureties providing Performance and/or Payment bonds shall execute, record with the proper authorities and provide to the Contracting Officer an agreement not to encumber authorities and provide to the Contracting Officer an agreement not to encumber the assets listed on STANDARD FORM 28 during the pendency of the contract so as to render their net value to be less than the penal sum of the bond.

**10 CONTRACT AWARD - SEALED BIDDING - CONSTRUCTION.**

1 The Government will evaluate bids in response to this solicitation and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the Government, considering only price and the price-related factors specified elsewhere in the solicitation.

2 The Government may reject any or all bids, and waive informalities or minor irregularities in bids received

3 The Government may accept any item or combination of items, unless doing so is precluded by a restrictive limitation in the solicitation of the bid.

4 For the purposes of this solicitation the word "item" shall be considered to mean "schedule." (Based on FAR 52.214-19.)

## BIDDING INFORMATION (cont.)

**11 STANDARD INDUSTRIAL CLASSIFICATION (SIC).** In accordance with Division C of the SIC Manual, the work in this solicitation is assigned classification code 1623.

**11A. SMALL BUSINESS STANDARD.** A concern is small if its average annual receipts for its preceding 3 fiscal years did not exceed \$17 million (based on FAR 19.102-1).

**12 ADDITIONAL DRAWINGS AND SPECIFICATIONS.** Sets of drawings, reduced to half-size, and of specifications will be furnished upon receipt of payment of \$50.00 per set. The drawings need not be returned but in the event no award is made, the payment will be refunded upon request. Additional copies of the specifications alone will be furnished an applicant at the rate of \$25.00 per copy. Payment will be made by check or money order payable to "Omaha District, Corps of Engineers" and delivered to the Commander, U.S. Army Engineer District, Corps of Engineers, 1612 U.S. Post Office and Courthouse, 215 N. 17th Street, Omaha, Nebraska 68102-4978, ATTN: Finance and Accounting Office.

### **13 AMENDMENTS.**

1 CHANGES PRIOR TO OPENING BIDS. The right is reserved, as the interest of the Government may require, to revise the specifications and/or drawings prior to the date set for opening bids. Such revisions will be announced by an amendment or amendments to this Invitation for Bids. Copies of each such amendment will be furnished to all prospective bidders. If the revisions and amendments are of a nature which requires material changes in quantities or prices to be bid, the date set for opening bids may be postponed as necessary, in the opinion of the Commander, to enable bidders to revise their bids. In such cases, the amendment will include an announcement of the new date for opening bids.

2 ACKNOWLEDGEMENT OF AMENDMENTS TO INVITATIONS FOR BIDS (APRIL 1984). Bidders shall acknowledge receipt of any amendment to this solicitation (a) by signing and returning the amendment, (b) by identifying the amendment number and date in the space provided for this purpose on the form for submitting a bid, or (c) by letter or telegram. The Government must receive the acknowledgement by the time and at the place specified for receipt of bids (FAR 52.214-3).

**14 WAGE RATE APPLICATION.** Applicable to all work.

**15 ARITHMETIC DISCREPANCIES.** (EFARS 14.201/90)

1 For the purpose of initial evaluation of bids, the following will be utilized in resolving arithmetic discrepancies

## BIDDING INFORMATION (cont.)

found in the face of the bidding schedule as submitted by bidders:

(1) Obviously misplaced decimal points will be corrected;

(2) In case of discrepancy between unit price and extended price, the unit price will govern;

(3) Apparent errors in extension of unit prices will be corrected; and

(4) Apparent errors in addition of lump sum and extended prices will be corrected.

2 For the purposes of bid evaluation, the Government will proceed on the assumption that the bidder intends his bid to be evaluated on the basis of the unit prices, extensions, and totals arrived at by resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids.

16 Not used.

### **17 AVAILABILITY OF SPECIFICATIONS, STANDARDS, AND DESCRIPTIONS.**

Specifications, standards, and descriptions cited in this solicitation are available as indicated below:

1 UNCLASSIFIED FEDERAL, MILITARY AND OTHER SPECIFICATIONS AND STANDARDS (EXCLUDING COMMERCIAL), AND DATA ITEM DESCRIPTIONS. Submit request on DD Form 1425 (Specifications and Standards Requisition) to:

Commanding Officer  
U.S. Naval Publications and Forms Center  
5801 Tabor Avenue  
Philadelphia, PA 19120

The Acquisition Management Systems and Data Requirements Control List, DOD Directive 5000.19L, Volume II may be ordered on the DD Form 1425. The Department of Defense Index of Specifications and Standards (DODISS) may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. When requesting a specification or standard, the request shall indicate the title, number, date, and any applicable amendment thereto by number and date. When requesting a data item description, the request shall cite the applicable data item number set forth in the solicitation. When DD Form 1425 is not available, the request may be submitted in letter form, giving the same information as listed above, and the solicitation or contract number involved. Such requests may also be made to the

**BIDDING INFORMATION (cont.)**

activity by telex No. 834295, Western Union No. 710-670-1685, or telephone (215-697-3321) in case of urgency. (FAR 52.210-2)

2 CORPS OF ENGINEERS SPECIFICATIONS. Corps of Engineers specifications of the CRD-C series may be obtained from U.S. Army Engineers Waterways Experiment Station, Attn: Publications Distribution, Information Services Branch, P.O. Box 631, Vicksburg, Mississippi.

3 COMMERCIAL (NON-GOVERNMENT) SPECIFICATIONS, STANDARDS, AND DESCRIPTIONS. These specifications, standards, and descriptions are not available from Government sources. They may be obtained from the publishers.

**18 AVAILABLE PLANT.** Each bidder shall, upon request of the Contracting Officer, furnish a list of the plant available at the bidder and proposed for use on the work.

**19 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE.** Whenever a contract or modification or contract price is negotiated, the Contractor's cost proposals for equipment ownership and operating expenses shall be determined in accordance with the requirements of paragraph: EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE, contained in the Special Causes section of the specifications.

A copy of EP 1110-1-8 "Construction Equipment Ownership and Operating Expense Schedule" is available for review at the office listed in paragraph: SITE INSPECTION herein (EFARS 52.2/9108[f]).

**20 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (APRIL 1984).**

1 The offeror's attention is called to the Equal Opportunity clause and the Affirmative Action Compliance Requirements for Construction clause of this solicitation.

2 The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for Minority Participation  
for Each Trade

Goals for Female  
Participation  
for Each Trade

## BIDDING INFORMATION (cont.)

These goals are applicable to all the Contractor's construction work performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, the Contractor shall apply the goals established for the geographical area where the work is actually performed. Goals are published periodically in the Federal Register in notice form, and these notices may be obtained from any Office of Federal Contract Compliance Programs Office.

3 The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall be based on (1) its implementation of the Equal Opportunity clause, (2) specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction," and (3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade. The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor, or from project to project, for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

4 The Contractor shall provide written notification to the Director Office of Federal Contract Compliance Programs, within 10 working days following award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the --

- (1) name, address, and telephone of the subcontractor;
  - (i) employer identification number of the subcontractor;
- (2) estimated dollar amount of the subcontract;
- (3) estimated starting and completion dates of the subcontract; and
- (4) geographical area in which the subcontract is to be performed.

5 As used in this Notice, and in any contract resulting from this solicitation, the "Covered area" is \_\_\_\_\_ (FAR 52.222-23).

6 Construction contractors participating in an approved Hometown Plan (see 41 CFR 60-4.5) are required to comply with the goals of the Hometown Plan with regard to construction work they perform in the area covered by the Hometown Plan.

**BIDDING INFORMATION (cont.)**

**21 NOTICE OF PRIORITY RATING FOR NATIONAL DEFENSE USE (MAY 1986).** Any contract awarded as a result of this solicitation will be a DO rated order certified for national defense use under the Defense Priorities and Allocations System (DPAS) (15 CFR 350), and the Contractor will be required to follow all of the requirements of this regulation (based on FAR 52.212-7).

**22 NOTICE REGARDING BUY AMERICAN ACT (1970 SEP).** The Buy American Act (41 U.S.C. 10a-10d) generally requires that only domestic construction material be used in the performance of this contract. Exception from the Buy American Act shall be permitted only in the case of nonavailability of domestic construction materials. A bid or proposal offering nondomestic construction material will not be accepted unless specifically approved by the Government. When a bidder or offeror proposes to furnish nondomestic construction material, his bid or proposal must set forth an itemization of the quantity, unit price, and intended use of each item of such nondomestic construction material. When offering nondomestic construction material pursuant to this paragraph, bids or proposals may also offer, at stated prices, any available comparable domestic construction material, so as to avoid the possibility that failure of a nondomestic construction material to be acceptable under this paragraph will cause rejection of the entire bid.

23 Not Used.

**24 SITE INSPECTION.** Contractors interested in inspecting the site of the proposed work should contact: Commander U.S. Army Transportation Center, ATTN: ATZF-EHW, Joan Vandervort, Fort Eustis, Virginia 23604, (804) 878-5667.

1 Prospective bidders will be given a conducted tour of the construction site on \_\_\_\_\_. For details as to the hour and place of the assembly, etc., contact: Joan Vandervort (ATZF-EHW), Telephone (804) 878-4123. Bidders will not be given individual access to the construction site.

**25 BIDDER'S QUESTIONS AND COMMENTS.** Questions and/or comments relative to these bidding documents should be submitted to the Commander, Omaha District, Corps of Engineers, 1612 U.S. Post Office and Courthouse, 215 North 17th Street, Omaha, NE 68102-4978, ATTN: Engineering Division. Comments should reach this office no later than 20 calendar days prior to the date set for opening of bids, if feasible, in order that changes, if needed, may be added by amendment. Telephone calls concerning the purchasing of plans and specifications should be made between 8:45 a.m. and 3:45 p.m. to: (402) 221-4267 or 4268. Telephone calls on bidding matters and small business matters should be made to Advertising and Awards Branch at: (402) 221-4110.

**BIDDING INFORMATION (cont.)**

Telephone calls on contents of drawings and specifications should be made to Specifications Section at: (402) 221-\_\_\_\_\_.

1 PLAN HOLDER'S LIST. A list of plan holders will be prepared and mailed approximately 2 weeks prior to the bid opening date to all who have been issued plans and specifications. This list will be furnished to all other interested parties upon request.

**26 BUSINESS INTEGRITY CERTIFICATE.** Offerors are hereby notified that the apparently successful offeror(s) as a condition for award of any contract resulting from this solicitation may be required to execute a certificate related to business integrity. The offeror must attach to the certificate a written statement detailing what information was obtained, and how, when and from whom it was obtained.

BIDDING INFORMATION (cont.)

CAUTION TO BIDDERS - LATE BIDS

\*\*\*\*\*  
See paragraph entitled "Late Submissions, Modifications, and "Withdrawal of Bids" which provides that late bids and modifications or withdrawals thereof sent through the mails will be considered ONLY IF TIMELY MAILED BY REGISTERED MAIL OR BY CERTIFIED MAIL FOR WHICH A POST-MARKED RECEIPT HAS BEEN OBTAINED AS SPECIFIED IN SUCH PROVISION.  
\*\*\*\*\*

Attachments:      Contract Clauses  
                    General Wage Decision No. \_\_\_\_\_  
                    Competitive Information Certificate  
                    Standard Form 1442 (Pages SF-1, 2, 2a, and  
                                    Certifications and Representations - Pages SF-3  
                                    thru SF-9)

BIDDING INFORMATION (cont.)

\* \* \* \* \* COMPETITIVE INFORMATION CERTIFICATE \* \* \* \* \*

\_\_\_\_\_ certifies, to the best of its knowledge and belief, that

(A) With the exception of any information described in an attachment to this certificate, and any information the offeror reasonably believes was made generally available to prospective offers, the offerer has not knowingly obtained, directly or indirectly from the Government, any written information or oral extract or account thereof relating to this solicitation which was

(1) submitted to the Government by offerors or potential offerors in response to the Government's solicitation for bid or proposal;

(2) marked by an offeror or potential offeror to indicate the information was submitted to the Government subject to an assertion of privilege against disclosure;

(3) marked or otherwise identified by the Government pursuant to law or regulation as classified, source selection sensitive, or for official use only; or

(4) the disclosure of which to the offeror or potential offeror by a Government employee would, under the circumstances, otherwise violate law or regulation.

(B) The offeror named above

(1) determined the prices in its offer independently, without, for the purpose of restricting competition, any consultation, communications, or agreement, directly or indirectly, with any other offeror or competitor relating to (a) those prices, (b) the intention to submit an offer, or (c) the methods or factors used to calculate the prices offered;

(2) has not knowingly disclosed the prices in its offer, directly or indirectly, to any other offeror or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and

(3) has not attempted to induce any other concern to submit or not to submit an offer for the purpose of restricting competition.

(C) The offeror has attached an accurate description of the internal review forming the basis for the certifications provided herein.

\_\_\_\_\_  
Corporate President or Designee

\* \* \* \* \* COMPETITIVE INFORMATION CERTIFICATE \* \* \* \* \*

**BIDDING SCHEDULE**

| <u>ITEM NO.</u> | <u>DESCRIPTION</u>   | <u>QUANTITY</u> | <u>UNIT</u> | <u>UNIT PRICE</u> | <u>AMOUNT</u> |
|-----------------|--|-----------------|-------------|-------------------|---------------|
| 1.              | Entire work complete excluding Basic Items Nos. 2 through 5  | Job             | ls          | XXXX              | \$ _____      |
| 2.              | Excavation of petroleum contaminated soil in excess of that required for tank removal                              | 180             | cy          | \$ _____          | \$ _____      |
| 3.              | Off-site disposal of petroleum contaminated soil, from tank excavation and overexcavation                          | 425             | cy          | \$ _____          | \$ _____      |
| 4.              | Backfill of overexcavated area of excavation   | 225             | cy          | \$ _____          | \$ _____      |
| 5.              | Off-site disposal of contaminated wastewater from tank cleaning operations and equipment/personnel decontamination | 2500            | gal         | \$ _____          | \$ _____      |
|                 |  |                 |             | TOTAL AMOUNT      |               |
|                 |  |                 |             | (Items 1 - 5)     | \$ _____      |

NOTES:

- Quantities for Items 2 through 5 are estimates only.
- Bid prices must be entered for all items in the schedule. Total amount bids submitted without bid prices being entered on individual items will be rejected. In case of variation between the individual bid item prices and the Total Amount, the individual bid prices will be considered the bid.
- A modification to a bid which provides for a single adjustment to the total amount bid, should state the application of the price adjustment to each respective unit price and lump sum price affected. If the modification is not so apportioned, the single adjustment will be on a pro rata basis to Item Nos. 2 through 5 in the Bidding Schedule.

ZERO ACCIDENTS

SECTION 01025  
MEASUREMENT AND PAYMENT

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**1 BID ITEM No. 1. ENTIRE WORK COMPLETE EXCLUDING BASIC ITEMS NO. 2 THROUGH 5.**

**1.1 WORK INCLUDED.** Item No. 1 on the Bidding Schedule represents all work that is not unit priced. Work for this item is paid on a lump sum basis. The lump sum bid items include, but are not limited to: performance and payment bonds; site preparation; mobilization; preparation, implementation, and updating of all special project procedures; temporary stockpiles; analysis of soils from tank excavation and stockpiled soils; temporary utilities; tank excavation and disposal; disposal of tank contents; tank cleaning; excavation of soils for tank removal and backfill; excavation and off-site disposal of tank anchors and straps; photographs; safety equipment and clothing; dust controls; medical surveillance program including all required physical examinations; project records and documents; construction scheduling; site maintenance and cleanup; on-site or off-site scales; decontamination, laundering, and disposal of liquids; all recordkeeping; site surveying; site controls, inspections, and all management, supervisory, and specialized personnel; final grading and seeding/fertilizing of excavated areas; demobilization; and all other work specified and not included in the unit priced items.

**1.1.1 Site Preparation.** Site preparation shall include all materials, equipment, labor, and permits for all required surveying; for materials staging; for maintaining all site access roads; for establishing site security; for construction of a decontamination area and providing the specified equipment and materials to be used in decontamination; for collection and handling of decontamination liquids; for construction of materials and equipment staging and storage areas; for all temporary utility hookups; for providing, installing, and maintaining all field offices, sheds, and personnel and equipment decontamination facilities.

**1.2 MEASUREMENT.** Lump Sum.

**1.3 PAYMENT.** Payment for this item shall be a lump sum, on a progressive basis, based on the percentage of work completed. Contractor shall provide a detailed breakdown of lump sum items so that progress payments can be determined.

**2 BID ITEM NO. 2. EXCAVATION OF PETROLEUM CONTAMINATED SOIL IN EXCESS OF THAT REQUIRED FOR TANK REMOVAL.** This work shall include but not be limited to all materials, equipment, and labor required for overexcavation required to remove petroleum contaminated soil identified subsequent to tank removal. This item includes sampling and confirmatory soil analyses required subsequent to overexcavation

**2.1 MEASUREMENT.** The quantity of contaminated material to be paid for in this subdivided item shall be the cubic yards of all contaminated soil removed as part of overexcavation as described in SECTION: CONTAMINATED SOIL REMOVAL, and includes subsurface rocks and roots.

**2.2 PAYMENT.** The payment shall be the respective unit price bid times the quantities measured as described above as determined by the Contracting Officer.

**3 BID ITEM NO. 3. OFF-SITE DISPOSAL OF PETROLEUM CONTAMINATED SOIL FROM TANK EXCAVATION AND OVEREXCAVATION.** This work shall include but not be limited to all materials, equipment, labor, and permits required for handling, transporting, and off-site disposal of petroleum contaminated soil. This item shall also include all work associated with the selected treatment and/or disposal facility and any sampling and analysis of soils required for acceptance of the soil at the treatment/disposal facility.

**3.1 MEASUREMENT.** The quantity of contaminated material to be paid for in this subdivided item shall be the cubic yards of all contaminated soil removed and disposed of off-site as described in SECTION: CONTAMINATED SOIL REMOVAL.

**3.2 PAYMENT.** The payment shall be the respective unit price bid times the quantities measured as described above and as determined by the Contracting Officer. One-third payment for disposal of contaminated soil shall be authorized for soils which have been removed from the site and two-thirds payment authorized when written notice of receipt of the soils at the disposal facility is received by the Contracting Officer.

**4 BID ITEM NO. 4. BACKFILL OF OVEREXCAVATED AREA OF EXCAVATION.** This work shall include but not be limited to all materials, equipment, labor, and permits required for handling, transporting, and placing of backfill material required due to overexcavation of petroleum contaminated soil.

**4.1 MEASUREMENT.** The quantity of backfill material to be paid for in this subdivided item shall be the cubic yards of backfill placed and compacted as described in SECTION: FILLING AND GRADING.

**4.2 PAYMENT.** The payment shall be the respective unit price bid times the quantities measured as described above and as

determined by the Contracting Officer.

**5 BID ITEM NO. 5. OFF-SITE DISPOSAL OF CONTAMINATED WASTEWATER FROM TANK CLEANING OPERATIONS AND EQUIPMENT/PERSONNEL DECONTAMINATION.** This work shall include all materials, equipment, labor, and permits required for collecting, handling, and off-site disposal of contaminated wastewater from tank cleaning operations and equipment/personnel decontamination.

**5.1 MEASUREMENT.** The quantity of contaminated wastewater to be paid for in this subdivided item shall be the gallons of wastewater collected and disposed of off site as described in SECTION: CONTAMINATED LIQUIDS REMOVAL, SECTION: OFF-SITE TRANSPORTATION and SECTION: OFF-SITE DISPOSAL.

**5.2 PAYMENT.** The payment shall be the respective unit price bid times the quantities measured as described above which have been removed and disposed of. One-third payment for disposal of contaminated liquids shall be authorized for liquids which have been removed from the site and two-thirds payment authorized when written notice of receipt of the liquids at the disposal facility is received by the Contracting Officer.

ZERO ACCIDENTS

SECTION 01100  
SPECIAL CLAUSES

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Attachments:

- Project Sign Std. Details OD15-9A12 and OD15-9A23
- Submittal Register (ENG Form 4288)
- Transmittal Form (ENG Form 4025)
- Construction Quality Control Daily Report Form

**1 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK.** The Contractor shall commence work under this contract within ten (10) calendar days after the date of receipt by him of Notice to Proceed, prosecute said work diligently, and complete the entire work ready for use not later than 120 calendar days after receipt of Notice to Proceed. The time stated for completion shall include final cleanup of the premises.

**1.1 START WORK.** Evidence that the Contractor has started procurement of materials, preparation and submission of shop drawings, preparation of subcontracts, and other preparatory work will satisfy the requirement that work commence within ten (10) calendar days after receipt of Notice to Proceed. Therefore, work need not be commenced at the construction site within ten (10) calendar days. (based on FAR 52.212-3)

**2 LIQUIDATED DAMAGES-CONSTRUCTION.**

**2.1 FAILURE TO COMPLY.** If the Contractor fails to complete the work within the time specified in the contract, or any extension, the Contractor shall pay to the Government as liquidated damages, the sum of \$250 for each day of delay.

**2.2 CONTRACT TERMINATED.** If the Government terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final completion of the work together with any increased costs occasioned the Government in completing the work.

**2.3 CONTRACT NOT TERMINATED.** If the Government does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted. (based on FAR 52.212-5)

**2A. ORDER OF WORK.**

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**2B. NOT USED.**

**3 CONTRACT DRAWINGS AND SPECIFICATIONS.**

**3.1 SETS FURNISHED.** Seven (7) sets of half-size bid drawings and specifications including amendments (except applicable publications incorporated into the Technical Provisions by reference) will be mailed to the Contractor when the Notice To Proceed is issued. The bid drawings as amended shall be utilized in the performance of the work until contract drawings (i.e., bid drawings that have been posted with all amendment changes) are mailed to the Contractor. Eleven (11) sets of contract drawings (4 sets full size and 7 sets half-size) will be mailed to the Contractor as soon as possible, but no later than sixty (60) days after Notice to Proceed. The work shall conform to the contract drawings, set out in the drawing index, all of which form a part of

these specifications. The work shall also conform to the standard details bound or referenced herein.

**3.2 NOTIFICATION OF DISCREPANCIES.** The Contractor shall check all drawings furnished him immediately upon their receipt and shall promptly notify the Contracting Officer (CO) of any discrepancies. Dimensions marked on drawings shall be followed in lieu of scale measurements. Enlarged plans and details shall govern where the same work is shown at smaller scales. The Contractor shall compare all drawings and verify the figures before laying out the work and will be responsible for any errors which might have been avoided thereby.

#### **4 SUBMITTALS.**

**4.1 SUBMITTAL REGISTER (ENG FORM 4288).** The Contractor will be furnished one (1) set of ENG Forms 4288 at the preconstruction conference on which will be listed each item of equipment and material of each type for which fabricators drawings, and/or related descriptive data, test reports, samples, spare parts lists, O&M manuals, or other types of submittals are required by the specifications. Columns c thru o of ENG Form 4288 will be completed by the Government. A copy of the ENG Form 4288 may be obtained by written request to CEMRO-ED-DI, 215 N. 17th Street, Omaha, NE 68102-4978. The Contractor shall complete columns p, q, and r within thirty (30) calendar days after the preconstruction conference and return six (6) completed copies to the CO for approval. Dates entered in columns p and q shall not include mail or delivery time. The ENG Forms 4288 will become a part of the contract after approval. Column b shall be left blank for use later to record the respective transmittal and item number indicated for the submittal items(s) listed on the transmittal form entitled: "TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE" (ENG Form 4025).

**4.1.1 Scheduling.** Drawings on component items forming a system or that are interrelated shall be scheduled to be correlated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 30 calendar days exclusive of mailing time) will be allowed on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals or resubmittals for such items.

**4.1.2 Application to Contract.** The approved submittal register will become a part of the contract and Contractor will be subject to requirements thereof. This register and the progress schedules shall be coordinated.

**4.2 SUBMITTAL PROCESS.** The Contractor shall submit all items listed on the contract drawings and listed or specified in the other sections of these specifications. The CO may request submittals in addition to those listed when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the

same used in the contract drawings. Submittals shall be made in the respective number of copies and to the respective addresses set forth below. Each submittal shall be complete and in sufficient detail for ready determination of compliance with the contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) Engineer and each respective transmittal form (ENG Form 4025) shall be stamped, initialed, and dated by the CQC Engineer certifying that the accompanying submittal complies with the contract requirements. Submittals shall include such items as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operation charts or curves; test reports; test cylinders; samples, O&M manuals including parts lists; certifications; warranties and other such required submittals. Submittals pertinent to materials and equipment which are subject to advance approval shall be scheduled and made prior to the acquisition or the delivery thereof.

**4.2.1 Categories of Submittals.** The categories of items specified to be submitted shall be submitted as follows:

**4.2.1.1 Category I.** All items listed as Category I submittals in the various sections shall be mailed directly to the addressee shown below as directed. For each submittal, a completed information copy of the attached transmittal form shall also be mailed to the Area Engineer and to the Construction Division of the Omaha District. The mailing address for these submittals shall be obtained from the CO at the preconstruction conference.

Technical Reviewer

Engineering Division  
Attn: CEMRO-ED-DI  
U.S. Army Engineer District, Omaha  
215 North 17th Street  
Omaha, NE 68102-4978

Each required submittal which is in the form of a drawing shall be submitted as one (1) reproducible and one (1) print of the drawing. Drawing prints shall be either blue or black line permanent-type prints on a white background or blueprint. Reproducibles shall be brownline diazo or sepia and shall be of such quality that prints made therefrom are sufficiently clear for microfilm copying. All catalog and descriptive data shall be submitted in eight (8) copies. Catalog cuts and other descriptive data which have more than one model, size, or type or which shows optional equipment shall be clearly marked to show the model, size, or type and all optional equipment which is proposed for approval. Submittals on component items forming a system or that are interrelated shall be submitted at one time as a single submittal in order to demonstrate that the items have been properly coordinated and will function as a unit.

**4.2.1.2 Category II.** Except as noted below, data for all items listed as Category II Submittals in the various

sections shall be submitted in five (5) copies to the Area Engineer using the transmittal form. Items not to be submitted in quintuplicate, such as samples and test cylinders, shall be submitted to the Area Engineer accompanied by five (5) copies of the transmittal form.

**4.2.2 Control of Submittals.** The Contractor shall carefully control his procurement operations to assure that each individual submittal is made on or before the corresponding date scheduled on his approved "SUBMITTAL REGISTER."

**4.2.3 Transmittal Form (ENG Form 4025).** The sample transmittal form attached to this section shall be used for submitting both the Category I and Category II submittals, in strict accordance with the instructions on the reverse side thereof. These forms will be furnished to the Contractor. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care should be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item. A separate transmittal form shall be attached to each copy of the data being submitted.

**4.2.4 Approval Action.**

**4.2.4.1 Category I.** All Category I submittals are subject to advance approval. No construction or installation shall be done on any item identified as Category I until all shop drawings for that item have been approved. Upon completion of review of Category I submittals, the drawing reproducible and print and other pertinent data will be identified as having received approval by being so stamped and dated. The drawing print and six (6) sets of all catalog data and descriptive literature will be retained by the CO and the drawing reproducible and two (2) sets of catalog data and descriptive literature will be returned to the Contractor.

**4.2.4.2 Category II.** Submittals may be required for "Approval" or for "Information Only." Within the terms of the CONTRACT CLAUSES clause entitled "Specifications and Drawings for Construction," Category II submittals "for approval" are considered to be "shop drawings" and Category II submittals "for information only" are not considered to be "shop drawings." Two (2) copies of Category II submittals for approval will be returned to the Contractor except for samples, test cylinders, and O&M manuals for which two (2) copies of the transmittal form only will be returned to the Contractor. Submittals for "Information Only" will not be returned to the Contractor. No Corps of Engineers' approval action will be required prior to incorporating these "Information Only" items into the work. These Contractor approved "Information Only" submittals will be used to verify that material received and used in the job is the same as that described in the plans and specifications and will be used as record copies. Delegation of this approval authority to the CQC Engineer does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications and will not prevent the CO from

requiring removal and replacement if nonconforming material is incorporated in the work. This obligation does not relieve the Contractor from the requirement to furnish samples for testing by the Government laboratory or check testing by the Government in those instances where the technical specifications so prescribe.

**4.2.5 Meaning of Approvals.** The approval of the submittals by the CO shall not be construed as a complete check, but will indicate only that the general method of construction and detailing is satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist as the Contractor, under the CQC requirements of this contract, is responsible for the dimensions and design of adequate connections, details and satisfactory construction of all work. After submittals have been approved by the CO, no resubmittal for the purpose of substituting materials or equipment will be given consideration unless accompanied by an acceptable explanation as to why a substitution is necessary.

**4.2.6 When Not Approved.** The Contractor shall make all corrections required by the CO and promptly furnish a corrected submittal in the form and number of copies as specified for initial submittals. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, notice as required under the CONTRACT CLAUSES clause entitled "Changes" should promptly be given to the CO.

**4.2.7 Withholding of Payment.** Payment for materials incorporated into the work will not be made if required approvals have not been obtained and invoices received with cost data.

**4.3 CERTIFICATES OF COMPLIANCE.** Any certificates required for demonstrating proof of compliance of materials with specification requirements shall be executed in three copies. Each certificate shall be signed by an official authorized to certify in behalf of the manufacturing company and shall contain the name and address of the Contractor, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Contractor from furnishing satisfactory material, if, after tests are performed on selected samples, the material is found not to meet the specific requirements. (EFARS 52.2/9108(c))

**4.4 PURCHASE ORDERS.** Each purchase order issued by the Contractor or his subcontractors for materials and equipment to be incorporated into the project shall (1) be clearly identified with the applicable DA contract number, (2) carry an identifying number, (3) be in sufficient detail to identify the material being purchased, (4) indicate a definite delivery date, and (5) display the DMS priority rating. Copies of purchase orders shall be furnished to the CO when the Contractor requests assistance for expediting deliveries of equipment or materials, or when requested by the CO for the purpose of quality assurance review.

4.5 NOT USED.

4.6 NOT USED.

**5 PHYSICAL DATA.** Pursuant to CONTRACT CLAUSES clause: "Site Investigation and Conditions Affecting the Work," information and data furnished or referred to below are furnished for general information only and the Government may not be held liable for any interpretation or conclusions drawn therefrom by the Contractor.

**5.1 SOURCE OF DATA.** The physical conditions indicated on the drawings and in the specifications are the result of site investigations by surveys, auger borings, and test pits. The data shown graphically and by symbol for each respective boring represents the actual geologic features observed and logged at the location given on the drawings. While the borings are representative of subsurface conditions at their respective locations and for their respective vertical reaches, local minor variations characteristic of the subsurface materials of this region could occur.

**5.2 WEATHER.** Weather conditions shall have been investigated by the Contractor to satisfy himself as to the hazards likely to arise therefrom. Complete weather records and reports may be obtained from the local U.S. Weather Bureau.

**5.3 ACCESS ROUTES.** Transportation facilities shall have been investigated by the Contractor to satisfy himself as to the existence of access highways and railroad facilities. (based on FAR 52.236-4)

5.4 NOT USED.

5.5 NOT USED.

**6 PAYMENT.**

**6.1 PROMPT PAYMENT ACT.** Pay requests authorized in CONTRACT CLAUSES clause: "Payments Under Fixed-Price Construction Contracts", will be paid pursuant to the clause, "Prompt Payment for Construction Contracts". Pay requests will be submitted on ENG Form 93 and 93a, "Payment Estimate-Contract Performance" and "Continuation". All information and substantiation required by the identified contract clauses will be submitted with the ENG Form 93, and the required certification will be included on the last page of the ENG Form 93a, signed by an authorized contractor official and dated when signed. The designated billing office is the Office of the Area Engineer.

**6.2 PAYMENTS FOR MODIFICATIONS.** Payments may be made for cost bearing change orders within the scope of the contract only to the extent funds are authorized in the order on a two-part modification. Contractor pricing proposed must be submitted at the earliest possible time after the change order is issued, or at a specific time as directed by the CO. At the discretion of the CO, any and all payments may be withheld on the modification until the Contractor has submitted a qualifying price proposal, in as much detail as required by the CO, and the final price has been agreed.

6.3 NOT USED.

**7 AVAILABILITY OF UTILITY SERVICES.** All reasonably required amounts of domestic water and electricity will be made available to the Contractor by the Government from existing system outlets and supplies. The Contractor shall, at his own expense, make all temporary connections and install distribution lines. The Contractor shall furnish to the CO a complete system layout drawing showing type of materials to be used and method of installation for all temporary electrical systems. The Contractor shall make arrangements with the Using Service, through the CO, as to the method of determining the amount of water and electricity to be used by him and the method of payment therefor. All temporary lines shall be maintained by the Contractor in a workmanlike manner satisfactory to the CO and shall be removed by the Contractor in like manner prior to final acceptance of the construction. Normal quantities of electricity and water used to make final tests of completely installed systems will be furnished by the Government. (based on FAR 52.236-14)

**8 UTILITY SERVICE INTERRUPTIONS.** The Contractor shall submit written notification not less than 21 calendar days in advance of each interruption of each utility and communication service to or within existing buildings and facilities being used by others. No single outage will exceed 4 hours unless approved in writing. The time and duration of all outages will be coordinated with the Using Agency by the CO.

**8A. DIGGING PERMITS AND ROAD CLOSINGS.** The Contractor shall allow 21 calendar days from date of written application to receive permission to dig and to close roads. Roads shall only be closed one lane at a time and vehicular traffic shall be allowed to pass through the construction area. Work on or near roadways shall be flagged in accordance with the safety requirements in Safety and Health Requirements Manual EM 385-1-1, which forms a part of these specifications. Work located along the alert force route shall not cause blockage and the Contractor shall maintain unobstructed access for alert force traffic at all times.

**9 LAYOUT OF WORK.** The Contractor shall lay out his work from Government established base lines and bench marks indicated on the drawings and shall make all measurements in connection therewith. The Contractor shall furnish all stakes, templates, platforms, equipment, tools, and materials and labor as may be required in laying out any part of the work from the base lines and marks established by the Government. The Contractor shall execute the work to the lines and grades established or indicated and shall maintain and preserve all stakes and other control points established by the CO until authorized to remove them. If such marks are destroyed by or through negligence of the Contractor, prior to their authorized removal, they may be replaced by the CO at his discretion and the expense of replacement will be deducted from any amounts due or to become due the Contractor. (based on

**10 QUANTITY SURVEYS.**

**10.1** The Contractor shall make such surveys and computations as are necessary to determine the quantities of work performed or placed during each period for which a progress payment is to be made. The Contractor shall also make original and final surveys. The Government will make such computations as are necessary to verify the quantities of work performed or finally in place. Unless waived by the CO in each specific case, quantity surveys made by the Contractor shall be made under the direction of a representative of the CO.

**10.2** All original field notes, computations, and other records for the purpose of layout and progress surveys shall be recorded in duplicating field books, the original pages of which shall be furnished promptly in ring binders to the representatives of the CO at the site of the work and shall be used by the CO to the extent necessary in determining the proper amounts of progress and final payments. (based on FAR 52.236-16)

**10.3 VARIATION IN ESTIMATING QUANTITIES.** Significant variations from the contract unit priced quantities shall be covered in accordance with the CONTRACT CLAUSES clause: "Variation in Estimating Quantity."

**11 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER.**

**11.1 ANTICIPATED WEATHER DELAYS.** This clause specifies the procedure for the determination of time extensions for unusually severe weather under the authority of the contract clause entitled "Default (Fixed-Price Construction)." The listing below defines monthly anticipated adverse weather for the contract period and is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the geographic location of the project.

MONTHLY ANTICIPATED ADVERSE WEATHER WORK DAYS

| JAN  | FEB  | MAR  | APR | MAY  | JUN  | JUL  | AUG  | SEP | OCT | NOV  | DEC  |
|------|------|------|-----|------|------|------|------|-----|-----|------|------|
| (14) | (13) | (13) | (9) | (11) | (10) | (11) | (10) | (8) | (7) | (10) | (13) |

**11.2 WEATHER TIME EXTENSIONS.**

**11.2.1 Evaluation.** The above schedule of anticipated adverse weather will constitute the base line for monthly (or portion thereof) weather time evaluations. Upon acknowledgement of the Notice to Proceed and continuing throughout the contract on a monthly basis, actual adverse weather days will be recorded on a work day basis (including weekends and holidays) and compared to the monthly anticipated adverse weather schedule above. For purposes of this paragraph, the term "actual adverse weather days" shall be scheduled work days impacted by adverse weather.

**11.2.2 Determination.** The number of actual adverse weather days shall be recorded monthly during the construction

period. Once the number of anticipated adverse weather days in the schedule above have been exceeded, the CO will examine the actual adverse weather days to determine whether the Contractor is entitled to a time extension. These actual adverse weather days must prevent work for 50 percent or more of the Contractor's workday, delay scheduled work critical to the timely completion of the project, and be documented in the Contractor Quality Control reports. The CO will convert any delays meeting the above requirements to calendar days and issue a modification under the authority of the contract clause entitled "Default (Fixed-Price Construction.)"

**11.3 THE CONTRACTOR'S SCHEDULE** must reflect the above anticipated adverse weather delays on all weather dependent activities.

**12 NOT USED.**

**13 INSURANCE REQUIRED.** In accordance with CONTRACT CLAUSES clause: "Insurance Work on a Government Installation," the Contractor shall procure the following minimum insurance:

| Type  | Amount   |
|---|--|
| Workmen's Compensation and Employer's Liability Insurance | \$100,000  |
| General Liability Insurance occurrence                    | \$500,000 per  |
| Automobile Liability Insurance                            |  |
| Bodily injury   | \$200,000 per person and<br>\$500,000 per occurrence |
| Property damage   | \$ 20,000 per occurrence                             |

(Coverages per FAR 28.307-2)

**13A. NOT USED.**

**14 IDENTIFICATION OF EMPLOYEES.** The Contractor shall furnish to each employee and require each employee engaged on the work to display, such identification as may be approved and directed by the CO. All prescribed identification shall immediately be delivered to the CO, for cancellation upon release of any employees. When the contract involves work in restricted security areas, only employees who are U.S. citizens will be permitted to enter. Proof of U.S. citizenship is required prior to entry. When required by the CO, the Contractor shall obtain and submit fingerprints of all persons employed or to be employed on the project. (based on FAR 52.236-7007)

**14A. NOT USED.**

**15 CONTRACTOR QUALITY CONTROL (CQC).** In conformance with the requirements of CONTRACT CLAUSES clause: "Inspection of Construction," the Contractor shall establish and maintain an effective Quality Control Program.

**15.1 GENERAL.** Except for isolated tests or other items of work specified to be performed by the Government, the quality of all work shall be the responsibility of the Contractor. Sufficient inspections and tests of all items of work, including that of subcontractors, to ensure conformance to applicable specifications and drawings with respect to the quality of materials, workmanship, construction, finish, functional performance, and identification shall be performed on a continuing basis. The Contractor shall furnish qualified personnel, appropriate facilities, instruments and testing devices necessary for the performance of the quality control function. The controls shall be adequate to cover all construction operations both on and off-site, shall be keyed to the proposed construction sequence and shall be correlated by the Contractor's quality control personnel.

**15.2 PRECONSTRUCTION PLANNING.** The Government will consider an interim CQC plan for the first days of operation. However, within ten (10) calendar days after the date of receipt by him of Notice to Proceed, and prior to starting on-site construction, the Contractor shall meet with the CO and discuss the quality control requirements. During this meeting the Contractor shall submit for approval his proposed written QC plan which shall include all features outlined below. The proposed plan will be reviewed and the meeting shall develop mutual understanding relative to details of the system, including the personnel, facilities, forms, etc., to be used for the inspections, tests and the administration of the system. Minutes of the meeting shall be prepared by the Area Office Resident Engineer or Contractor as agreed to at the mutual understanding meeting and shall be signed by both the Contractor and the CO. The minutes shall become a part of the contract. No change in the approved plan shall be implemented without written concurrence by the CO.

**15.3 ACCEPTANCE OF CQC PLAN.** Acceptance of the Contractor's quality control plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC plan and operations as necessary to obtain the quality specified.

**15.4 CONTRACTOR'S PROPOSED (QC) PLAN.** The Contractor's proposed written quality control plan (for submittal at the mutual understanding meeting) shall include as a minimum:

**15.4.1** The quality control organization.

**15.4.2** Names, number, and qualification of personnel to be used for this purpose.

**15.4.3** Authority and responsibilities of all quality control personnel.

**15.4.4** Schedule of Use of inspection personnel by types

and phase of work.

**15.4.5** A list of preparatory and initial inspections to be performed shall be included as part of the Quality Control Program.

**15.4.6** A list of tests specified to be performed with proposed test methods including specification paragraph number and names of technicians or qualified testing laboratory to be used.

**15.4.7** Location and availability of test facilities and equipment.

**15.4.8** Procedures for advance notice and coordination of special inspections and tests where required.

**15.4.9** Procedures for reviewing all shop drawings, samples, certificates, or other submittals for contract compliance and certifying them for submission to the Government.

**15.4.10** Method of performing, documenting, and enforcing quality control operations of both prime and subcontract work including inspection and testing both on-site and off-site. Include proposed forms for approval, and indicate who will prepare, sign, and submit the reports.

**15.4.11** Responsibilities and procedures for correcting deficiencies.

**15.4.12** A copy of a letter of direction to the Contractor's representative responsible for quality control, outlining his duties and responsibilities, and signed by a responsible officer of the firm.

**15.4.13** Method of documenting and tracking deficiencies and corrective actions.

**15.5 CONTROL OF ON-SITE CONSTRUCTION.** The Contractor's quality control program shall include four phases of inspection and tests. The Contracting Officer's representative shall be notified at least 24 hours in advance of each such test.

**15.5.1** Preparatory Inspections shall be performed prior to beginning each feature of work on any on-site construction work. Preparatory inspections for the applicable feature of work shall include (i) review of submittal requirements and all other contract requirements with the foremen or supervisors directly responsible for the performance of the work; (ii) check to assure that provisions have been made to provide required field control testing; (iii) examine the work area to ascertain that all preliminary work has been completed; (iiii) verify all field dimensions and advise the CO of any discrepancies; and (iiiii) perform a physical examination of materials and equipment to assure that they conform to approved shop drawings or submittal data and that all materials and/or equipment are on hand.

**15.5.2** Initial Inspection shall be performed as soon as work begins on a representative portion of the particular feature of work and shall include examination of the quality of workmanship as well as a review of control testing for compliance with contract requirements.

**15.5.3** Follow-up Inspections shall be performed continuously as any particular feature of work progresses, to

assure compliance with contract requirements including control testing, until completion of that feature of the work.

**15.5.4 Safety Inspections.** The Contractor shall perform daily safety inspections of the jobsite and the work in progress to assure compliance with EM 385-1-1 and other occupational health and safety requirements of the contract. Daily Quality Control reports as required under paragraph: REPORTING shall be used to document the inspection and shall include a notation of the safety deficiencies observed and the corrective actions taken. The Contractor shall use his designated Quality Control Staff to perform the required inspections and shall supplement the staff with additional personnel as required. Additional personnel shall be provided at no additional cost to the Government.

**15.5.5 Recording Inspection Results.** The results of all inspections shall be made a matter of record in the Contractor's Quality Control documentation as required by paragraph DOCUMENTATION below.

**15.6 QUALITY CONTROL STAFF.** In addition to the Contractor's job supervisory staff, a separate quality control group shall be provided. This group shall report to the Contractor's management at a level no lower than an executive of the company. As a minimum, the overall strength of the quality control group for this contract shall be as follows:

**15.6.1** The Quality Control Supervisory Engineer shall be an approved, qualified engineer or technician whose sole responsibility is to ensure compliance with the contract plans and specifications. This person shall demonstrate ability to perform correctly the duties required to the satisfaction of the CO and shall be physically at the project site whenever work is in progress and will be in charge of the Contractor's Quality Control program for this project. All the Contractor's submittals for approval shall be reviewed and modified or corrected as needed by the Quality Control Supervisory Engineer (or authorized assistants) and approved correct prior to forwarding of such submittals to the CO. Supplemental Quality Control Staff, if required, shall be appropriately qualified and must be able to demonstrate ability to perform correctly the duties required to the satisfaction of the CO.

## **15.7 TESTS.**

**15.7.1 Testing Procedure.** The Contractor shall perform tests specified or required to verify that control measures are adequate to provide a product which conforms to contract requirements. The Contractor shall procure the services of an industry recognized testing laboratory approved by the CO, or may establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

**15.7.1.1** Verify that testing procedures comply with contract requirements.

**15.7.1.2** Verify that facilities and testing equipment are available and comply with testing standards.

15.7.1.3 Check test instrument calibration data against certified standards.

15.7.1.4 Verify that recording forms, including all of the test documentation requirements, have been prepared.

**15.7.2 Testing.**

15.7.2.1 **Capability Check.** The CO will have the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques.

15.7.2.2 **Capability Re-Check.** If the selected laboratory fails the capability check, the Contractor will be assessed the actual cost for the re-check as reimbursement to the Government for each succeeding re-check of the laboratory or the checking of a subsequently-selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

15.7.2.3 **Project Laboratory.** The CO will have the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

**15.8 REPORTING.** All inspections and test results shall be recorded daily.

15.8.1 **Daily Submittals.** The attached sample "Quality Control Daily Report" form or other approved form shall be reproduced and fully executed to show all inspections and tests and submitted in duplicate to the CO on the first work day following the date covered by the report.

15.8.2 **Results of Tests.** Triplicate copies of complete results of tests shall be submitted not later than 3 calendar days after performing the test.

**15.9 COMPLETION INSPECTIONS.**

15.9.1 **Contractor's Quality Control Completion Inspection.** Based upon the CO's concurrence that the work is nearing substantial completion, and at least 14 days prior to pre-final inspection, the Contractor's Quality Control Inspection personnel shall conduct a detailed inspection. The CO shall be notified of the inspection date in order that he may participate, if he so elects. The work shall be inspected for conformance to plans, specifications, quality, workmanship, and completeness. The Contractor shall prepare an itemized list of work not properly completed, inferior workmanship, or not conforming to plans and specifications. The list shall also include outstanding administrative items such as as-built drawings, O&M Manuals, and spare parts. The list shall be included in the Quality Control documentation and submitted to the CO with an estimated date for correction of each deficiency within five (5) working days after conducting this inspection.

15.9.2 **Pre-Final Inspection.** The Contractor's Quality Control Inspection personnel, his superintendent, or other primary management person and the CO will be in attendance at this

inspection. Additional Government personnel, including but not limited to those from Base/Post Civil/Facility Engineer, user groups and major commands may be in attendance. The pre-final inspection will be formally scheduled by the CO based upon notice from the Contractor. This notice will be given to the CO at least 14 days prior to the pre-final inspection and must include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining contract work, will be complete and acceptable by the date scheduled for the prefinal inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the CO to bill the Contractor for the Government's additional inspection costs in accordance with the contract clause entitled, "Inspection of Construction." At this inspection the CO will develop a specific list of incomplete and/or unacceptable work performed under the contract and will subsequently furnish this list to the Contractor. Failure of the CO to detect and list all incomplete and/or unacceptable work during this inspection will not relieve the Contractor from acceptably performing all work required by the contract documents.

**15.9.3 Final Acceptance Inspection.** The Contractor's Quality Control Inspection personnel, his superintendent or other primary management person and the CO will be in attendance at this inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil/Facility Engineer, user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the CO based upon notice from the Contractor. This notice will be given to the CO at least 14 days prior to the final acceptance inspection and must include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the CO to bill the Contractor for the Government's additional inspection costs in accordance with the contract clause entitled "Inspection of Construction".

**15.10 DOCUMENTATION.**

**15.10.1** The Contractor shall maintain current records of quality control operations, activities, and tests performed including the work of suppliers and subcontractors. These records shall be on an acceptable form and indicate a description of trades working on the project, the number of personnel working, the weather conditions encountered, any delays encountered, and acknowledgment of deficiencies noted along with the corrective actions taken on current and previous deficiencies. These records shall include factual evidence that required activities or tests have been performed, including but not limited to the following:

**15.10.1.1** Type, number, and results of control activities and tests involved.

15.10.1.2 Nature of defects and causes of rejection.

15.10.1.3 Proposed remedial action.

15.10.1.4 Corrective actions taken.

15.10.2 These records shall cover both conforming and defective or deficient features and shall include a statement that supplies and materials incorporated in the work comply with the contract. Legible copies of these records shall be furnished to the CO daily.

**15.11 ENFORCEMENT.** The Contractor shall stop work on any item or feature, pending satisfactory correction of any deficiency noted by his quality control staff or by the CO. Construction shall not proceed upon any feature of work containing uncorrected work. Notations on quality control reports will not be acceptable as a substitution for other written reports by the Contractor if required under CONTRACT CLAUSES clause: "Changes," "Differing Site Conditions," or "Default (Fixed-Price Construction)."

**15.12 NOTIFICATION OF NONCOMPLIANCE.** The CO will notify the Contractor of any noncompliance with the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his representative at the site of the work, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the CO may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

**15.13 PAYMENT.** At the election of the CO, no payment estimate will be processed under this contract until the entire Quality Control Plan has been approved or until overdue daily QC reports are properly executed and furnished.

**16 NONDOMESTIC CONSTRUCTION MATERIALS.** The requirements of this contract entitled Buy American Act Construction Materials do not apply to construction materials or their components included in the list set forth in paragraph 25.108 of the Federal Acquisition Regulation.

**17 NOTICE OF PRIORITY RATING FOR NATIONAL DEFENSE USE (MAY 1986).** Any contract awarded as a result of this solicitation will be a DO rated order certified for national defense use under the Defense Priorities and Allocations System (DPAS) (15 CFR 350), and the Contractor will be required to follow all of the requirements of this regulation. (based on FAR 52.212-7)

**18 DAILY WORK SCHEDULES.** In order to closely coordinate work under this contract, the Contractor shall prepare for and attend a weekly coordination meeting with the CO and Using Service at which time the Contractor shall submit for coordination and approval, his proposed daily work schedule for the next two week period.

Required temporary utility services, time and duration of interruptions, and protection of adjoining areas shall be included with the Contractor's proposed 2-week work schedule. At this meeting, the Contractor shall also submit his schedule of proposed dates and times of all preparatory inspections to be performed during the next 2 weeks. The items of work listed on the proposed 2-week schedule are to be keyed to the NAS by activity number and description for each activity anticipated to be performed during the next 2-week period. Coordination action by the CO relative to these schedules will be accomplished during these weekly meetings.

**19 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE. (1985 JAN HQ USACE.)**

**19.1** Allowable cost for construction and marine plant and equipment in sound workable condition owned or controlled and furnished by a Contractor or subcontractor at any tier shall be based on actual cost data when the Government can determine both ownership and operating costs for each piece of equipment or equipment groups of similar serial and series from the Contractor's accounting records. When both ownership and operating costs cannot be determined from the Contractor's accounting records, equipment costs shall be based upon the applicable provisions of EP 1110-1-8, "Construction Equipment Ownership and Operating Expense Schedule," S/N-008-022-0255-3, Vol. 2, Region II. Copies of each regional schedule may be obtained from the U.S. Government Printing Office (301-953-7974) at a cost of \$11.00 per schedule. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the CO. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the Schedule in effect at the time of negotiations shall apply. For retrospective pricing, the Schedule in effect at the time the work was performed shall apply.

**19.2** Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d)(ii) and FAR 31.205-36, substantiated by certified copies of paid invoices. Rates for equipment rented from an organization under common control, lease-purchase, or sale-leaseback arrangements will be determined using the schedule except that rental costs leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees are allowable. Costs for major repairs and overhaul are unallowable.

**19.3** When actual equipment costs are proposed and the total amount of the pricing action is over \$25,000, cost or pricing data shall be submitted on Standard Form 1411, "Contract Pricing Proposal Cover Sheet." By submitting cost or pricing data, the Contractor grants to the CO or an authorizing representative the right to examine those books, records, documents, and other supporting data that will permit evaluation of the proposed equipment costs. After price agreement, the Contractor shall

certify that the equipment costs or pricing data submitted are accurate, complete, and current. (EFARS 52.2/9108(f).)

**20 AS-BUILT DRAWINGS.** The Contractor shall maintain two separate sets of red-lined full scale, as-built construction drawings marked-up to fully indicate as-built conditions. These drawings shall be maintained in a current condition at all times until completion of the work and shall be available for review by Government personnel at all times. If these drawings become tattered during the life of this contract, they will be recopied by the Contractor at his expense. The location, general description, approximate depth below finished grade of all underground utilities encountered, and all variations from the contract drawings, for whatever reason, including those occasioned by optional materials and the required coordination between trades, shall be indicated. These variations shall be shown in the same general detail utilized in the initial contract drawings. Both sets of as-built construction drawings shall be furnished to the CO on the date of final inspection. The submittal requirement for as-built construction drawings shall be shown as a separate activity on the Contractor prepared progress bar chart or network analysis system, whichever is applicable.

**21 SIGN.** On commencement of work on this project, the Contractor shall furnish and erect the temporary sign in the location selected by the CO near the project site. The Contractor shall maintain the sign in good condition through the project construction period and on completion of the project shall remove the sign from the premises. The project sign shall conform to Standard Drawing OD15-9A12 and OD15-9A23 bound herein. A decal of the "Engineer Castle" will be furnished the Contractor upon request.

**22 NOT USED.**

**23 NOT USED.**

**24 NOT USED.**

**25 NOT USED.**

**26 NOT USED.**

**27 PROGRESS CHARTS** submitted in accordance with the CONTRACT CLAUSES clause entitled "Schedule for Construction Contracts" shall indicate the required data for each of the principal features of the work.

**28 NOT USED.**

**29 PERFORMANCE EVALUATION OF CONTRACTOR.** The Contractor's performance will be evaluated upon final acceptance of the work.

However, interim evaluation may be prepared at any time during contract performance when determined to be in the best interest of the Government. The format for the evaluation will be SF 1420, and the Contractor will be rated either outstanding, satisfactory, or unsatisfactory in the areas of Contractor Quality Control, Timely Performance, Effectiveness of Management, Compliance with Labor Standards, and Compliance with Safety Standards. The Contractor will be advised of any unsatisfactory rating, either in an individual element or in the overall rating, prior to completing the evaluation, and all Contractor comments will be made a part of the official record. The final report will be supplemented or amended as necessary through the warranty period of the contract to reflect changes in the evaluation of performance elements based on compliance with warranty requirements. Performance Evaluation Reports will be available to all DOD Contracting offices for their future use in determining Contractor responsibility, in compliance with DFARS 36.201(c)(1). (based on EFARS 52.2/9006.)

**30 PERFORMANCE OF WORK BY CONTRACTOR (1984 APR).** The Contractor shall perform on the site, and with its own organization, work equivalent to at least twenty (20) percent of the total amount of work to be performed under the contract. This percentage may be reduced by a supplemental agreement to this contract if, during performing the work, the Contractor requests a reduction and the CO determines that the reduction would be to the advantage of the Government. (FAR 52.236-1)

**31 NOT USED.**

**32 NOT USED.**

**33 INTERIM CHANGE TO CONTRACT CLAUSE FAR 52.236-13 ACCIDENT PREVENTION.** Delete subparagraph (b) and substitute the following:

(b) If this contract is for construction or dismantling, demolition, or removal of improvements with any Department of Defense agency or component, the Contractor shall comply with all pertinent provisions of the latest version of U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, in effect on the date of the solicitation.

**34 PROFIT.**

**34.1** Weighted guidelines method of determining profit shall be used on any equitable adjustment change order or modification issued under this contract. The profit factors shall be as follows:

| <u>Factor</u>               | <u>Rate</u> | <u>Weight</u> | <u>Value</u> |
|-----------------------------|-------------|---------------|--------------|
| Degree of Risk              | 20          |               |              |
| Relative difficulty of work | 15          |               |              |

|                          |           |
|--------------------------|-----------|
| Size of Job              | 15        |
| Period of performance    | 15        |
| Contractor's investment  | 5         |
| Assistance by Government | 5         |
| Subcontracting           | <u>25</u> |
|                          | 100       |

**34.2** Based on the circumstances of each procurement action, each of the above factors shall be weighted from .03 to .12 as indicated below. The value shall be obtained by multiplying the rate by the weight. The value column when totalled indicates the fair and reasonable profit percentage under the circumstances of the particular procurement.

**34.2.1 Degree of Risk.** Where the work involves no risk or the degree of risk is very small, the weighting should be .03; as the degree of risk increases, the weighting should be increased up to a maximum of .12. Lump sum items will have, generally, a higher weighted value than the unit price items for which quantities are provided. Other things to consider: the portion of the work to be done by subcontractors, nature of work, where work is to be performed, reasonableness of negotiated costs, amount of labor included in costs, and whether the negotiation is before or after performance of work.

**34.2.2 Relative Difficulty of Work.** If the work is most difficult and complex, the weighting should be .12 and should be proportionately reduced to .03 on the simplest of jobs. This factor is tied in to some extent with the degree of risk. Some things to consider: the nature of the work, by whom it is to be done, where, and what is the time schedule.

**34.2.3 Size of Job.** All work not in excess of \$100,000 shall be weighted at .12. Work estimated between \$100,000 and \$5,000,000 shall be proportionately weighted from .12 to .05.

**34.2.4 Periods of Performance.** Jobs in excess of 24 months are to be weighted at .12. Jobs of lesser duration are to be proportionately weighted to a minimum of .03 for jobs not to exceed 30 days. No weight where additional time not required.

**34.2.5 Contractor's Investment.** To be weighted from .03 to .12 on the basis of below average, average, and above average. Things to consider: amount of subcontracting, mobilization payment item, Government furnished property, equipment and facilities, and expediting assistance.

**34.2.6 Assistance by Government.** To be weighted from .12 to .03 on the basis of average to above average. Things to consider: use of Government-owned property, equipment and facilities, and expediting assistance.

**34.2.7 Subcontracting.** To be weighted inversely proportional to the amount of subcontracting. Where 80 percent or more of the work is to be subcontracted, the weighting is to be .03 and such weighting proportionately increased to .12 where all the work is performed by the Contractor's own forces.

35 NOT USED.

36 NOT USED.

37 NOT USED.

38 **APPLICABILITY OF DAVIS-BACON ACT.** It is the position of the Department of Defense that the Davis-Bacon Act, 40 U.S.C. 276a is applicable to temporary facilities such as batch plants, sandpits, rock quarries, and similar operations, located off the immediate site of the construction but set up exclusively to furnish required materials for a construction project on the site of the work. Clause "Payrolls and Basic Records" of the CONTRACT CLAUSES is applicable to such operations.

39 NOT USED. :

# SUBMITTAL REGISTER

CATEGORY

II

SPECIFICATION SECTION

Gas Piping Systems

CONTRACT NUMBER

TITLE AND LOCATION

AMMO STORAGE FACILITY, FT CARSON, CO

CONTRACTOR

| HAS<br>ACTIVITY<br>CODE   | ITEM<br>NUMBER | SPECIFICATION<br>PARAGRAPH<br>NUMBER | DESCRIPTION OF<br>ITEM SUBMITTED                      | TYPE OF SUBMITTAL                    |                            |                       |                                 |                                      |                                 |   |                                 |  |  |   |   |  | CONTRACTOR<br>SCHEDULE DATES |  |  | CONTRACTOR<br>ACTION |                  |  | GOVERNMENT<br>ACTION |                  | REMARKS |
|---|----------------|--------------------------------------|---|--------------------------------------|----------------------------|-----------------------|---------------------------------|--------------------------------------|---------------------------------|---|---------------------------------|--|--|---|---|--|------------------------------|--|--|----------------------|------------------|--|----------------------|------------------|---------|
|   |                |                                      |   | S<br>W<br>D<br>P<br>L<br>D<br>E<br>C | S<br>A<br>M<br>P<br>L<br>E | G<br>U<br>I<br>D<br>E | W<br>A<br>R<br>N<br>I<br>N<br>G | C<br>H<br>E<br>M<br>I<br>C<br>A<br>L | T<br>E<br>S<br>T<br>I<br>N<br>G | I<br>N<br>S<br>T<br>R<br>U<br>C<br>T<br>I<br>O<br>N | Q<br>U<br>O<br>T<br>I<br>O<br>N | I<br>D<br>E<br>N<br>T<br>I<br>F<br>I<br>C<br>A<br>T<br>I<br>O<br>N | C<br>O<br>N<br>F<br>I<br>D<br>E<br>N<br>T<br>I<br>A<br>L | C<br>A<br>P<br>P<br>E<br>R<br>O<br>U<br>N<br>D<br>S | C<br>O<br>M<br>P<br>L<br>E<br>T<br>E<br>D | C<br>O<br>N<br>T<br>R<br>A<br>C<br>T<br>O<br>R | S<br>U<br>B<br>M<br>I<br>T   | A<br>P<br>P<br>R<br>O<br>V<br>A<br>L<br>N<br>E<br>E<br>D<br>E<br>D<br>B<br>Y | M<br>A<br>T<br>E<br>R<br>I<br>A<br>L<br>N<br>E<br>E<br>D<br>E<br>D<br>B<br>Y | C<br>O<br>D<br>E     | D<br>A<br>T<br>E | S<br>U<br>B<br>M<br>I<br>T<br>T<br>O<br>G<br>O<br>V<br>E<br>R<br>N<br>M<br>E<br>N<br>T | C<br>O<br>D<br>E     | D<br>A<br>T<br>E |         |
| a   | b              | c                                    | d   | e                                    | f                          | g                     | h                               | i                                    | j                               | k   | l                               | m  | n  | o   | p   | q  | r                            | s  | t  | u                    | v                | w  | x                    |                  |         |
|   |                | 15350-2.4                            | Welding Procedures                                    |                                      |                            |                       |                                 |                                      |                                 |   |                                 |  | X  | X   |   |  |                              |  |  |                      |                  |  |                      |                  |         |
|   |                | 15350-2.4                            | Names and Identification Symbols of Qualified Welders |                                      |                            |                       |                                 |                                      |                                 |   |                                 |  | X  | X   |   |  |                              |  |  |                      |                  |  |                      |                  |         |
|   |                | 15350-2.5                            | Operating and Maintenance Instructions                |                                      |                            |                       |                                 |                                      |                                 |   |                                 |  | X  | X   |   |  |                              |  |  |                      |                  |  |                      |                  |         |
| <b>SAMPLE</b>   |                |                                      |   |                                      |                            |                       |                                 |                                      |                                 |   |                                 |  |  |   |   |  |                              |  |  |                      |                  |  |                      |                  |         |
| IMPORTANT: THE DESCRIPTION OF EACH SUBMITTAL LISTED ABOVE SHALL BE DUPLICATED EXACTLY ON THE TRANSMITTAL FORM (ENG FORM 4025) |                |                                      |   |                                      |                            |                       |                                 |                                      |                                 |   |                                 |  |  |   |   |  |                              |  |  |                      |                  |  |                      |                  |         |

TRANSMISSION

7 OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE

(Read instructions on the reverse side prior to initiating this form)

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS (This section will be initiated by the contractor)

CHECK ONE  
 THIS IS A NEW TRANSMITTAL  
 THIS IS A RESUBMITTAL OF TRANSMITTAL

CONTRACT NO

FROM

TO

DESCRIPTION OF ITEM SUBMITTED  
(Type, size, model number, etc.)

ITEM NO

MFG OR CONTR. DRAWING OR CAT. CURVE  
NO OF COPIES OF DRAWING OR BROCHURE NO. (See instruction no. 8)

CONTRACT REFERENCE DOCUMENT

SPEC PARA NO. DRAWING SHEET NO.

FOR CONTRACTOR USE CODE (See instruction No. 6)

VARIATION FOR CONTRACTOR USE CODE (See instruction No. 6)

FOR CONTRACTOR USE CODE

REMARKS

I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as other wise stated

NAME AND SIGNATURE OF CONTRACTOR

SECTION II - APPROVAL ACTION

NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY

DATE

ENCLOSURES RETURNED (List by Item No.)



ZERO ACCIDENTS

SECTION 01200  
WARRANTY OF CONSTRUCTION

INDEX

1. Warranty of Construction  
(Apr 1984)
2. Not Used

**1 WARRANTY OF CONSTRUCTION (APR 1984).**

**1.1** In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph 1.10 below, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.

**1.2** This warranty shall continue for a period of 1 year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the Government takes possession.

**1.3** The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Government-owned or controlled real or personal property, when that damage is the result of--

**1.3.1** The Contractor's failure to conform to contract requirements; or

**1.3.2** Any defect of equipment, material, workmanship, or design furnished.

**1.4** The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for 1 year from the date of repair or replacement.

**1.5** The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.

**1.6** If the Contractor fails to remedy any failure, defect, or damage within a time as specified in paragraph: WARRANTY SERVICE CALLS after receipt of notice, the Government shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

**1.7** With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall--

**1.7.1** Obtain all warranties that would be given in normal commercial practice;

**1.7.2** Require all warranties to be executed, in writing, for the benefit of the Government, if directed by the Contracting Officer, and

**1.7.3** Enforce all warranties for the benefit of the Government, if directed by the Contracting Officer.

**1.8** In the event the Contractor's warranty under paragraph 1.2 above has expired, the Government may bring suit at its expense to enforce a subcontractor's, manufacturer's, or supplier's warranty.

**1.9** Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material or design furnished by the Government nor for the repair of any damage that results from any defect in Governmentfurnished material or design.

**1.10** This warranty shall not limit the Government's rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.

**1.11** Defects in design or manufacture of equipment specified by the Government on a "brand name and model" basis, shall not be included in this warranty. In this event, the Contractor shall require any subcontractors, manufacturers, or suppliers thereof to execute their warranties, in writing, directly to the Government. (Based on FAR 52.246-21)

**2 NOT USED.**

ZERO ACCIDENTS

SECTION 01300  
ENVIRONMENT PROTECTION

INDEX

- |                                  |  |
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| 1. General                       | 8. Burning                                       |
| 2. Implementation                | 9. Dust Control                                  |
| 3. Preconstruction Survey        | 10. Erosion Control                              |
| 4. Protection of Land Areas      | 11. Corrective Action                            |
| 5. Not Used                      | 12. Post-Construction Cleanup<br>or Obliteration |
| 6. Protection of Water Resources |  |
| 7. Waste Disposal                |  |

**1 GENERAL.** The Contractor shall perform all work in such manner as to minimize the polluting of air, water, or land, and shall control noise and the disposal of solid waste materials, as well as other pollutants in accordance with applicable federal, state, and local regulations.

**1.1 SUBMITTALS.** In accordance with SECTION: SPECIAL CLAUSES, the Contractor shall submit the following items required by this section:

**1.1.1 CATEGORY I.** None

**1.1.2 CATEGORY II.**

**1.1.2.1** For Approval

Environmental Protection Plan (para. 2.1)

**1.1.2.2** For Information Only

None

**2 IMPLEMENTATION.** Within 20 calendar days after Notice to Proceed and prior to commencement of the work at the site, the Contractor shall:

**2.1** Submit in writing a detailed Environmental Protection Plan for implementing the requirements for environmental pollution control specified herein.

**2.2** Meet with representatives of the Contracting Officer to review and alter his proposal as needed for compliance with the environmental pollution control program.

**3 PRECONSTRUCTION SURVEY.** Prior to start of any on-site construction activities, the Contractor and the Contracting Officer shall make a joint condition survey after which the Contractor shall prepare a brief report indicating on a layout plan the condition of trees, shrubs and grassed areas immediately adjacent to the site of the work and adjacent to his assigned storage area and access route(s) as applicable. This report will be signed by both the Contracting Officer and Contractor upon mutual agreement as to its accuracy and completeness.

**4 PROTECTION OF LAND AREAS.** Except for any work or storage area and access routes specifically assigned for the use of the Contractor under this contract, the land areas outside the limits of permanent work performed under this contract shall, in accordance with CONTRACT CLAUSES clause: "Protection of Existing Vegetation, Structures, Utilities and Improvements," be preserved in their present condition. Contractor shall confine his construction activities to areas defined for work on the plans or specifically assigned for his use. In accordance with CONTRACT CLAUSES clause: "Operations and Storage Areas," storage and related areas and access routes required temporarily by the Contractor in the performance of the work will be assigned by the Contracting Officer. No other areas on Government premises shall be used by the Contractor without written consent of the Contracting Officer:

**5 NOT USED.**

**6 PROTECTION OF WATER RESOURCES.** The Contractor shall control the disposal of fuels, oils, bitumens, calcium chloride, acids or harmful materials, both on and off the Government premises and shall comply with applicable Federal, State, County and Municipal laws concerning pollution of rivers and streams while performing work under this contract. Special measures shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, herbicides, and insecticides from entering public waters. Water used in on-site tank cleaning, equipment/personnel decontamination, and other waste waters shall not be allowed to reenter a stream if an increase in the turbidity of the stream could result therefrom.

**7 WASTE DISPOSAL.** As part of his proposed implementation under paragraph 2, and prior to on-site construction, the Contractor shall submit a description of his scheme for disposing of waste materials resulting from the work under this contract. If any waste material is dumped in unauthorized areas, the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed areas. Where directed, contaminated ground shall be excavated, disposed of as approved, and replaced with suitable fill material, all at the expense of the Contractor.

**8 BURNING.** Air pollution restrictions applicable to this project are as follows. Material shall not be burned on the Government premises. If the Contractor elects to dispose of waste materials off the Government premises, by burning, he shall make his own arrangements for such burning area and shall, as specified in CONTRACT CLAUSES clause: "Permits and Responsibilities," conform to all local regulations.

**9 DUST CONTROL.** The Contractor shall conduct operations and maintain all excavations, stockpiles, access roads, waste areas, borrow areas, and all other work areas free from excess dust to such reasonable degree as to avoid causing a hazard or nuisance to the Using Service or to others. Approved temporary methods consisting of sprinkling, chemical treatment, or similar methods will be permitted to control dust. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

**10 EROSION CONTROL.** Surface drainage from cuts and fills within the construction limits, whether or not completed, and from borrow and waste disposal areas, shall be graded to control erosion within acceptable limits. Temporary control measures shall be provided and maintained until permanent drainage facilities are completed and operative. The area of bare soil exposed at any one time by construction operations should be held to a minimum.

**11 CORRECTIVE ACTION.** The Contractor shall, upon receipt of a notice in writing of any noncompliance with the foregoing provisions, take immediate corrective action. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs of damages by the Contractor unless it was later determined that the Contractor was in compliance.

**12 POST-CONSTRUCTION CLEANUP OR OBLITERATION.** In accordance with CONTRACT CLAUSES clause: "Cleaning Up," the Contractor shall, unless otherwise instructed in writing by the Contracting Officer, obliterate all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. The disturbed areas shall be graded and filled and the entire area seeded.

ZERO ACCIDENTS

SECTION 01301  
SITE PREPARATION AND MAINTENANCE

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| 3. Materials        | 7. Final Cleaning    |
| 4. Site Maintenance |                      |

**1 GENERAL.**

**1.1** The Contractor shall conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

**1.2** The Contractor shall protect and maintain fences, wellpoints, roads, and other Fort Story property against damage from Contractor's equipment and vehicular traffic. The Fort Story access roads shall be left in a condition equivalent to that existing at the start of the project. Any damage resulting from Contractor activities shall be repaired by the Contractor at his expense (see SECTION: OFF-SITE TRANSPORTATION).

**1.3** The Contractor shall protect utility lines or appurtenances that are to remain. It is the Contractor's responsibility to locate existing utilities on-site. As-built drawings (not indexed) are available for Contractor examination and are located on-site in the Civil Engineering Office. Any damage shall be repaired by the Contractor at his expense.

**1.4** Any on-site staging and storage areas that are necessary during site work shall be designed by the Contractor in his Plan of Operations (as specified in SECTION: UNDERGROUND STORAGE TANKS and SECTION: SPECIAL CLAUSES), and approved by the Contracting Officer. Staging and storage areas that are necessary during site work shall be established within or adjacent to the site perimeter.

**1.5** The Contractor shall adhere to the protocols specified in SECTION: ENVIRONMENTAL PROTECTION, during all site preparation activities.

**1.6** The Contractor shall erect all required signs and markings around and within the site to provide prescribed warnings of hazardous material to the general public, site workers, and authorized visitors.

**2 SUBMITTALS.** In accordance with SECTION: SPECIAL CLAUSES, the Contractor shall submit the following items required by this section:

**2.1 CATEGORY I.** None

**2.2 CATEGORY II.**

**2.2.1** For Approval

Final Inspection Report (Paragraph 7)

2.2.2 For Information Only  
None

**3 MATERIALS.**

**3.1** The Contractor shall use only those cleaning materials and methods that will not create hazards to health or property.

**3.2** Materials and equipment may be new or used but shall be adequate in capacity for the required usage, must not create unsafe conditions, and shall meet requirements of applicable codes and standards, and the approval of the Contracting Officer.

**4 SITE MAINTENANCE.**

**4.1** The Contractor shall execute daily cleaning of the site to collect any accumulation of contaminated waste material, discarded safety/protective equipment, debris, refuse, and rubbish. Collected material shall be placed in proper containers at staging/storage areas for disposal.

**4.2** The Contractor shall provide on-site containers for the collection and secure containment of contaminated waste materials, discarded safety/protective equipment, and hazardous waste-related debris.

**4.3** The Contractor shall provide on-site containers for the collection of non-hazardous waste materials, refuse, debris, and rubbish.

**4.4** The Contractor shall remove hazardous waste-related and non-hazardous waste materials, debris, refuse, and rubbish from the site periodically and dispose of at approved facilities away from the site. Hazardous and potentially hazardous waste materials shall be disposed of at an approved facility.

**5 SITE CONSTRUCTION.**

**5.1 SUPPORT FACILITIES.** The Contractor shall furnish needed materials and labor for the construction of support facilities as described in SECTION: SPECIAL SAFETY REQUIREMENTS and SECTION: FIELD OFFICES AND SHEDS.

**5.2 DECONTAMINATION WASTEWATER TANKS.** The Contractor shall provide on-site temporary wastewater holding tanks for temporary storage of wastewater generated by the personnel cleaning function at the decontamination facility, and for rinsate generated by the washing of transport vehicles and general equipment. The Contractor shall provide separate collection tanks for wastewater contaminated with waste oil and petroleum hydrocarbons.

**5.3 ACCESS AREAS.** The Contractor shall provide and maintain all required temporary vehicle access areas to and from the Fort Story road system so as to provide adequate drainage, dust control, mud control, and vehicle access. Any damage (e.g., washouts, excessive rutting) shall be promptly repaired by the Contractor.

**5.4 CONTAMINATED SOIL REMOVAL.** The Contractor shall perform contaminated soil removal activities at the site as required for the designated site areas, and as specified in SECTION: CONTAMINATED SOIL REMOVAL.

**6 WORK ZONES.** In order to avoid contaminating clean areas as site work progresses, the Contractor shall clearly delineate the following work zones within the site prior to the start of tank excavation activities (see SECTION: SITE SAFETY AND HEALTH PLAN REQUIREMENTS):

- a. Exclusion Zone
- b. Contamination Reduction Zone
- c. Support Zone

**7 FINAL CLEANING.** Prior to completion of the work, the Contractor shall conduct an inspection of all work areas and certify in a Final Inspection Report to the CO for his approval that the entire site is clear of all waste materials, rubbish, and debris.

ZERO ACCIDENTS

SECTION 01302  
SPILL CONTROL

INDEX

1. General Requirements
2. Submittals
3. Equipment Required
4. Spill Response and Control

**1 GENERAL REQUIREMENTS.**

**1.1** The Contractor shall be responsible for developing, implementing, maintaining, and supervising a comprehensive Spill and Discharge Control Plan. The plan shall be submitted to the Contracting Officer (CO) for approval within twenty (20) days of Notice to Proceed, and shall be a component of the Site Safety and Health Plan (SSHP, see SECTION: SITE SAFETY AND HEALTH PLAN REQUIREMENTS). This plan shall provide contingency measures for potential spills and discharge from trucks handling off-site transportation (see SECTION: OFF-SITE TRANSPORTATION and any other potentially hazardous materials on-site.

**1.2** The Contractor shall provide methods, means, and facilities required to prevent contamination of soil, water, atmosphere, uncontaminated structures, equipment, or material by the discharge of wastes from spills due to Contractor's operations.

**1.3** The Contractor shall provide equipment and personnel to perform emergency measures required to contain any spills and to remove spilled materials and soils or liquids that become contaminated due to spillage. This collected spill material shall be properly disposed of at the Contractor's expense.

**1.4** The Contractor shall provide equipment and personnel to perform decontamination measures that may be required to remove spillage from previously uncontaminated structures, equipment, or material. Decontamination residues must be properly disposed of at the Contractor's expense. The Contractor is responsible for cleaning up the spill and making site restorations in accordance with federal, state, and local regulations, and to the satisfaction of the CO.

**2 SUBMITTALS.** In accordance with SECTION: SPECIAL CLAUSES, the Contractor shall submit the following items required by this section:

**2.1 CATEGORY I.** None

**2.2 CATEGORY II.**

**2.2.1** For Approval

Spill and Discharge Control Plan (Paragraph 1.1)

**2.2.2** For Information Only

Spill Report (Paragraph 4)

**3 EQUIPMENT REQUIRED.** The Contractor shall provide for any unexpected spills or discharges with the following minimum equipment to be kept on-site at all times during site activities:

- 3.1 Sand, clean fill, or other non-combustible absorbent.
- 3.2 Front-end loader (to be available for emergency response-not necessarily on-site).
- 3.3 Drums (55-gallon U.S. DOT 17-E or 17-H).
- 3.4 Shovels.

**4 SPILL RESPONSE AND CONTROL.**

**4.1 SPILLS.** If a spill occurs, the following actions shall be taken by the Contractor:

- 4.1.1 Notify the CO immediately.
- 4.1.2 Take immediate measures to control and contain the spill within the site boundaries. This shall include the following actions:
  - 4.1.2.1 Isolate and contain hazardous spill areas.
  - 4.1.2.2 Deny entry to unauthorized personnel.
  - 4.1.2.3 Do not allow anyone to touch spilled material.
  - 4.1.2.4 Stay upwind; keep out of low areas.
  - 4.1.2.5 Keep combustibles away from the spilled material.
  - 4.1.2.6 Use water spray to reduce vapors and dust, as needed.
  - 4.1.2.7 Take samples for analysis to determine that cleanup is adequate.
  - 4.1.2.8 Other actions, as needed.

**4.2 SPILL CONTROL.** General spill control actions the Contractor shall implement are described below:

**4.2.1 Solid Spills.** The Contractor shall remove and place contaminated materials except petroleum contaminated soils into dry containers and cover; label the container as to contents; and dispose of the container properly as soon as possible. (See SECTION: OFF-SITE TRANSPORTATION and SECTION: OFF-SITE DISPOSAL.) Petroleum contaminated soils shall be stockpiled and disposed of with petroleum contaminated soils from the tank excavations. (See SECTION: CONTAMINATED SOIL REMOVAL.)

**4.2.2 Liquid Spills.** The Contractor shall absorb all liquid spills with sand, clean fill, or non-combustible absorbent material, and dispose of the absorbent/spill mixture in the manner specified in Paragraph 3.2.1.

**4.3 DISCHARGES.** For liquid discharges to soil, the Contractor shall immediately identify the point of discharge, and take measures to eliminate further spills. The discharged material shall be absorbed with sand, clean fill, or non-combustible absorbent material, and the absorbent/discharge mixture shall be disposed of in the manner specified in Paragraph 3.2.1. If a discharge of any material stored in drums or holding tanks occurs, the following actions shall be taken by the Contractor to reduce

potential migration to adjacent properties:

- 4.3.1 Notify the CO immediately.
- 4.3.2 Take immediate measures to control the discharge within the site boundaries or beyond the site boundaries, if necessary. This shall include the following actions:
  - 4.3.2.1 Contain and eliminate the discharge, if possible.
  - 4.3.2.2 Remove or retrieve any discharged liquids, if possible.
  - 4.3.2.3 Isolate the hazardous area and deny entry to unauthorized personnel.
  - 4.3.2.4 Other actions, as needed.

**4.4 NOTIFICATION OF SPILLS AND DISCHARGES.** If a spill occurs and humans or the environment are threatened, the Contractor shall immediately notify the CO and the Virginia Department of Waste Management and implement the Spill and Discharge Control Plan. A Spill Report shall be provided to the CO not later than seven (7) days after the initial report which shall include but not be limited to:

- 4.4.1 Description of the material spilled, including identity, quantity, and a copy of the waste disposal manifest.
- 4.4.2 Exact time and location of the spill, and description of the area involved.
- 4.4.3 Containment procedures utilized.
- 4.4.4 Description of the cleanup procedures employed at the site, including disposal of spill residue.
- 4.4.5 Summary of the communications the Contractor has with the Government officials other than the CO.
- 4.4.6 Determination if the spill is reported to the EPA and/or state reportable, and the date upon which the report to the appropriate agency was made, as well as the name of the agency representative who accepted the report.

**4.5 DECONTAMINATION PROCEDURES.** Decontamination procedures may be required after cleanup to eliminate traces of the substance spilled or reduce it to an acceptable level as determined by the CO. Complete cleanup may require removal of contaminated soils. Personnel decontamination shall include showers and cleansing, or disposal of clothing and equipment. All contaminated materials including cloth, soil, and wood that cannot be decontaminated must be properly containerized, labeled, and disposed of as soon as possible.

ZERO ACCIDENTS

SECTION 01400  
SPECIAL SAFETY REQUIREMENTS

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| 1. General                     | 7. Other Special Safety Requirements                            |
| 2. Preconstruction Conference  | 8. Contractor Safety Personnel Requirements (1985 Jan HQ USACE) |
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| 4. Radiological Equipment      |   |
| 5. Not Used                    |   |
| 6. Special Safety Requirements |   |

**1 GENERAL.** This section provides additional requirements for implementing the accident prevention articles in CONTRACT CLAUSES clause: "Accident Prevention" and Safety and Health Requirements Manual EM 385-1-1.

**1.1 SUBMITTALS.** In accordance with SECTION: SPECIAL CLAUSES, the Contractor shall submit the following items required by this section:

1.1.1 **CATEGORY I.** None

1.1.2 **CATEGORY II.**

1.1.2.1 For Approval  
Proposed Project Schedule (Para. 2)  
Accident Prevention Plan (Para. 4)  
Names and qualifications of the nominated HSS and a functional description of duties (Para. 8.1)

1.1.2.2 For Information Only  
Phase Safety Plan (Para. 3.11)

**2 PRECONSTRUCTION CONFERENCE.** Prior to or within twenty (20) calendar days after Contractor has been issued the Notice to Proceed, the Contractor shall meet with the Contracting Officer (CO) for a Pre-Construction Conference. Attendance by the Contractor's superintendent, quality control personnel, safety personnel, and any major subcontractor's job superintendents shall be required. The purpose of this conference is to review submittal requirements, safety, payrolls, labor relations, environmental protection, progress schedules, and payment and procurement of materials. The principal features of work shall also be reviewed and any questions regarding the contract and work site shall be addressed. During or prior to this meeting, the Contractor shall submit for approval his proposed schedule; Chemical Data Acquisition Plan (CDAP), including Chemical Quality Control Section (SECTION: CHEMICAL QUALITY MANAGEMENT and SECTION: SPECIAL CLAUSES); and the Site Safety and Health Plan (SSHP) (SECTION: SITE SAFETY AND HEALTH PLAN REQUIREMENTS and SECTION: SPECIAL CLAUSES). The proposed CDAP and Chemical Quality Control Section shall be

reviewed to provide the CO with a general understanding of the quality control system. The CDAP must be approved by the CO after contract award, but prior to working in the contaminated areas. The SSHP must also be reviewed and approved by the CO prior to initiation of site field activities.

**3 ACCIDENT PREVENTION PLAN.** The Contractor shall submit an Accident Prevention Plan to the CO for review and approval prior to initiation of field activities. The Contractor has the option to submit his own accident prevention plan or utilize the basic safety program as outlined in subparagraphs 3.1 through 3.11. In the event the Contractor submits his own plan, as a minimum it will incorporate or cover the basic points as outlined in subparagraphs 3.1 through 3.11.

**3.1 RESPONSIBLE INDIVIDUAL.** The Contractor Quality Control (CQC) Manager shall be the on-site employee responsible for insuring the accident prevention plan is implemented, enforced, and that inspections of scaffolding, mechanical equipment and hand tools are made as required.

**3.2 INDOCTRINATION OF EMPLOYEE BEFORE START OF WORK.** The Contractor shall indoctrinate each employee to insure the following items are covered:

(a) Purpose of the accident prevention program (i.e., to minimize the hazards and reduce injuries).

(b) Review of representative hazards on the job and the precautions to be taken.

(c) Location of first aid and other emergency facilities and what to do in case of injury, fire or when a serious hazard is noted.

(d) Time and location of Tailgate Safety Meetings.

(e) Required protective equipment such as goggles, respirators, lifelines, and hard hats.

(f) Brief review of clean-up procedure.

(g) Location of company safety rules (posting or handout).

**3.3 TAILGATE SAFETY MEETINGS.** Hold daily Tailgate Safety Meetings for all contractor employees. Timely safety subjects shall be determined by a responsible individual. Submit written notice to the CO.

**3.4 FIRE PROTECTION AND PREVENTION.** Insure adequate fire extinguishers, water barrels, or other fire-fighting equipment is located on-site. Extinguishers shall be on hand wherever welding or cutting is being accomplished, with the use of flammables and other special hazards.

**3.5 HOUSEKEEPING.** Daily clean-up of all debris and waste materials is required. Adequate disposal containers should be placed strategically around the site. Debris shall be removed on a regular basis.

**3.6 MECHANICAL EQUIPMENT INSPECTION.** All mechanical equipment (trucks, cranes, forklifts, backhoes, graders, etc.) shall be inspected prior to its use and at fixed intervals

throughout the life of the contract.

**3.7 FIRST AID AND MEDICAL.** First aid facilities shall be made available on the job site. Arrangements for emergency medical attention shall be made prior to start of work. All emergency numbers (doctor, hospital, ambulance, fire department) shall be posted at the project superintendent's office.

**3.8 SANITATION FACILITIES.** Sufficient numbers of toilet facilities as specified in para. 03.B of EM 385-1-1 shall be provided unless permission is granted to use existing facilities. (Portable chemical are authorized.) Insure safe drinking water and individual cups are available. For the projects where corrosive or toxic materials are used, separate washing facilities are required.

**3.9 SAFETY PROMOTION.** The Contractor shall promote accident prevention by use of one or more of the following: posters, display materials, safety contests, awards programs and similar items.

**3.10 ACCIDENT REPORTING.** All accidents (employee injuries, vehicle, building, or equipment property damage), regardless of their severity, shall be reported to the CO. The Contractor will be notified of the forms to be submitted.

**3.11 PHASE SAFETY PLAN.** Before each phase of work begins, a phase safety plan listing the possible hazards that might be expected while accomplishing that phase of work and the procedures to be used to overcome or eliminate the hazards of that phase will be prepared by the Contractor and discussed with the CO. A phase is defined as an operation involving a type of work which presents hazards not experienced in previous operations or where new subcontractors are performing the work (i.e., earth moving, trenching, tank removal, sampling). The CO will determine the format and amount of detail required of the written plan. The amount of detail will be determined by the complexity of that phase of work.

**4 RADIOLOGICAL EQUIPMENT.** In accordance with Requirement 08.F.01 of EM 385-1-1, entitled Safety and Health Requirement Manual, the Contractor is required to obtain a service permit to use, store, operate, or handle a radiation producing machine or radioactive materials on a Department of Defense (DOD) Installation. The service permit shall be obtained from the appropriate U.S. Army or U.S. Air Force Command through the CO. The Contractor should notify the CO during the prework conference if a radiation producing device will be utilized on a DOD Installation in order to determine the permit application requirements, and allow a lead time of 45 days for obtaining a permit.

**5 NOT USED.**

**6 SPECIAL SAFETY REQUIREMENTS OF POST, BASE, OR PLANT.**

**7 OTHER SPECIAL SAFETY REQUIREMENTS.**

**8 CONTRACTOR SAFETY PERSONNEL REQUIREMENTS (1985 JAN HQ USACE).**

**8.1 GENERAL.** The Contractor shall employ at the project site, to cover all hours of work, at least one Health and Safety Specialist (HSS) person to manage the Contractor's Site Safety and Health Plan and the accident prevention program. Duties which are not germane to the safety program shall not be assigned to the HSS person(s). The principal safety person shall report to and work directly for the Contractor's on-site top manager, higher level official, or corporate safety office. The HSS person(s) shall have the authority to take immediate steps to correct unsafe or unhealthful conditions. The presence of a HSS person will not abrogate safety responsibilities of other personnel. The Contractor shall submit names and qualifications of the nominated HSS person(s) to the CO for acceptability and a functional description of duties shall be provided prior to the preconstruction conference.

**8.2 QUALIFICATIONS FOR HSS PERSON(S).** The Contractor's HSS person(s) shall be required to have one of the following experience and/or education qualifications:

**8.2.1** A degree in engineering or safety in at least a 4-year program from an accredited school; or

**8.2.2** A legal registration as a professional engineer or a certified safety person and, in addition, shall have been engaged in safety and occupational health for at least one (1) year of experience, of which no less than fifty (50) percent of the time was devoted to safety and occupational health; or

**8.2.3** A degree other than that specified above and, in addition, shall have been engaged in safety and occupational health for at least three (3) years of which no less than fifty (50) percent of the time each year was devoted to safety and occupational health; or

**8.2.4** Qualified experience in safety and occupational health for at least five (5) years of which no less than fifty (50) percent of the time each year was devoted to safety and occupational health.

**8.2.5** In any of the above, first aid work shall not be considered as creditable experience (based on EFARS 52.2/9303).

**9 EXCAVATION AND TRENCHING.** The standards for excavation and trenching are outlined in 29 CFR Part 1926, subpart P dated October 31, 1989. These standards shall be followed in addition to those outlined in EM 385-1-1.

INTERIM CHANGE TO EM 385-1-1 - SAFETY AND HEALTH REQUIREMENTS MANUAL

1. Page 21, Section 07.A.03, replace with the following:

"07.A.03 - Protective footwear, such as rubber boots, protective covers, ice clamp-ons, and steel-toed safety boots, shall be worn by all persons exposed to hazards to the feet (including, but not limited to impact, puncture, slipping, electrical, or chemical hazards).

a. For all activities in which Corps or contractor personnel or official visitors are potentially exposed to foot hazards, the applicable job/activity hazard analysis, accident prevention plan, or project safety plan shall include an analysis of, and prescribe specific protective measures to be enforced for, foot hazards.

b. Footwear providing protection against impact and compressive forces, conduction hazards, electrical hazards, and sole puncture shall meet the applicable requirements of ANSI Z41."

2. Page 143, Section 18.C.05, replace with the following:

"18.C.05 - All load drums on loading-hoisting equipment shall be equipped with at least one positive holding device. This device should be applied directly to the motor shaft or some part of the gear train. It is not necessary that the positive holding device utilize shearing of metal to meet this requirement. Friction surfaces are acceptable."

3. Page 145, add Sections 18.C.24 and 18.C.25 which will read:

"18.C.24 - During personnel handling operations load and boom hoist drum brakes, swing brakes, and locking devices such as pawls or dogs shall be engaged when the occupied platform is in a stationary working position.

"18.C.25 - During personnel handling operations the load hoist drum shall have a system or device on the power train other than the load hoist brake, which regulates the lowering rate of speed of the hoist mechanism (controlled load lowering). Free fall is prohibited."

4. Page 146, Section 18.D.09, replace with the following:

"18.D.09 - All telescopic boom cranes engaged in standard lift operations (including concrete bucket) should be equipped with a two-block warning feature(s), a two-block damage prevention feature, or an anti-two block device for all points of two-blocking (i.e., jibs, extension, etc). In addition, all new telescopic boom cranes shall be equipped with an anti-two block device or a two-block damage prevention feature for all points of two-blocking. Cranes that are used exclusively as duty cycle machines (clamshell, dragline, grapple, pile driving operations) are exempt from this requirement but will meet the requirements of ANSI/ASME-B30.5-1982 (as revised). To alleviate difficulties associated with attaining compliance, an implementation time period until 1 January 1991 is granted. In all cases

where cranes are utilized without these safeguards equivalent protection shall be established, documented and approved by the designated authority."

5. Page 146, add Sections 18.D.10 and 18.D.11, which will read:

"18.D.10 - All lattice boom cranes engaged in standard lift crane operations (including concrete bucket) shall be equipped with a two-block warning feature which functions for all points of two-blocking. Cranes that are used exclusively as duty cycle machines (clamshell, dragline, grapple, pile driving operations) are exempt from this requirement but will meet the requirements of ANSI/ASME-B30.5-1982 (as revised). To alleviate difficulties associated with attaining compliance, an implementation time period until 1 January 1991 is granted. In all cases where cranes are utilized without these safeguards equivalent protection shall be established and documented and then approved by the designated authority."

"18.D.11 - During personnel handling operations all telescopic and lattice boom cranes shall be equipped with a device which when activated disengages all functions whose movement can cause contact between the load block or overhaul ball and the boom tip (anti-two block device), or a system shall be used which deactivates the hoisting action before damage occurs in the event of a two-blocking situation (two-block damage prevention feature). The device or system must be installed for all points of two-blocking (i.e. jib or boom points) and in the case of the anti-two block device the crane must be equipped with automatic brakes on each hoist line; hoist lines not so equipped must be taken out of service while personnel lifts are being made."

ZERO ACCIDENTS

SECTION 01401  
SITE SAFETY AND HEALTH PLAN REQUIREMENTS

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**1 GENERAL.**

**1.1 DESCRIPTION.** This paragraph describes the minimum Contractor safety, health and emergency response requirements for the Block 600 Underground Storage Tank (UST) Removal Project at Fort Story, Virginia. The Contractor shall develop and implement a detailed Site Safety and Health Plan (SSHP) formerly known as a Safety, Health and Emergency Response Plan (SHERP) using this information. The Contractor may include additional details and requirements as deemed necessary.

**1.1.1** The resultant SSHP shall be reviewed and approved by the U.S. Army Corps of Engineers (USACE) Contracting Officer (CO) prior to initiation of site field activities. Working conditions may require modification of the approved Contractor SSHP. Except in emergency situations, no deviations from the Contractor SSHP may be implemented without the prior notification and approval of both the Contractor Industrial Hygienist (IH) and the CO.

**1.2 REGULATIONS.** The Contractor SSHP shall be in compliance with the following applicable regulations and publications:

**1.2.1** FAR Clause 52.236-13, Accident Prevention.

**1.2.2** OSHA Standards:

**1.2.2.1** 29 CFR 1910 (Occupational Safety and Health Standards including 29 CFR 1910.120 (Hazardous Waste Operations and Emergency Response).

**1.2.2.2** 29 CFR 1926 (Safety and Health Regulations for Construction).

**1.2.3** USACE Safety and Health Requirements Manual (EM 385-1-1).

**1.2.4** NIOSH/OSHA/USCG/EPA Document "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," October 1985.

**1.2.5** US EPA "Standard Operating Safety Guidelines," November 1984.

1.2.6 Other relevant federal, state and local regulations.

**1.3 SUBMITTALS.**

1.3.1 **Category I.** None

1.3.2 **Category II.**

1.3.2.1 For Approval

Site Safety and Health Plan (Paragraph 1)

Industrial Hygienist's name and applicable work experience (Paragraph 3.2)

Health and Safety Specialist's name and applicable work experience (Paragraph 3.3)

Name, resume and statement of commitment from Contractor's Health and Safety Physician (Paragraph 5.1)

1.3.2.2 For Information Only

Daily Tailgate Safety Meeting Reports (Paragraph 4.3)

Health and Safety Weekly Report (Paragraph 11.6)

Phase-Out Report (Paragraph 11.7)

**1.4 RESPONSIBILITY.** The responsibility for the implementation and enforcement of the Contractor SSHP lies with the Contractor, the IH, and the on-site health and safety specialist (HSS). The Contractor shall take all necessary precautions for the safety of, and provide the necessary protection to prevent damage, injury or loss to:

1.4.1 All employees on the work site and other persons who may be affected thereby.

1.4.2 All materials or equipment to be incorporated in the work, whether on- or off-site.

1.4.3 Other property at or adjacent to the work site.

**1.5 29 CFR 1910.120 REQUIREMENTS.** The federal OSHA Standard "Hazardous Waste Operations and Emergency Response" shall be complied with during all site remediation/construction activities. General requirements of this Standard include provisions for:

1.5.1 Safety and health program.

1.5.2 Site characterization and analysis.

1.5.3 Site control.

1.5.4 Training.

1.5.5 Medical surveillance.

1.5.6 Engineering controls, work practices and personal protective equipment for employee protection.

1.5.7 Monitoring.

1.5.8 Informational programs.

1.5.9 Opening drums and containers.

1.5.10 Decontamination.

1.5.11 Emergency response.

1.5.12 Illumination.

1.5.13 Sanitation at temporary work places.

**1.6 DEFINITIONS.** The following definitions shall be used throughout this SSHP:

1.6.1 Contracting Officer (CO) - Any person so designated such authority by the U.S. Army Corps of Engineers, who has responsibility for day-to-day field surveillance duties.

1.6.2 On-Scene Coordinator (OSC) - Any person so designated such authority from the state government. Contractor shall only take direction from the CO. Any comment or directives written or otherwise provided by the OSC shall be directed to the CO.

1.6.3 On-site personnel - The CO and designated representatives, OSC and his representatives, and Contractor personnel such as employees and subcontractors.

1.6.4 Contractor personnel - Includes Contractor employees and his representatives, subcontractor personnel and representatives.

1.6.5 Visitor - All others, except the on-site personnel.

1.6.6 Industrial Hygienist (IH) - The IH shall prepare the Contractor SSHP and be responsible for compliance of the plan with all federal, state, and local requirements (see Paragraph 3.2 for description of qualifications and duties).

1.6.7 Health and Safety Specialist (HSS) - The HSS shall serve as the Contractor's on-site health and safety representative (see Paragraph 3.3 for description of qualifications and duties).

1.6.8 Security Officer - The Contractor employee responsible for maintaining site security.

1.6.9 Site - For the purpose of the SSHP, the site shall be constituted of the Support Zone, the Contamination Reduction Zone, the Exclusion Zone and all areas within the limits of work as shown on the drawings.

1.6.10 Monitoring - The usage of direct or indirect read field instrumentation to provide information regarding levels of gases, vapors or particulates released during UST removal activities.

1.6.11 Physician - A licensed physician with experience in the practice of occupational medicine, provided by the Contractor.

## **2 SITE DESCRIPTION AND ACCIDENT PREVENTION REQUIREMENTS.**

**2.1 SITE DESCRIPTION.** Fort Story is located in southeastern Virginia. Fort Story is a sub-Installation of Fort Eustis and is located on Cape Henry in Virginia Beach, Virginia. Fort Story is located approximately 2 miles north of the Virginia Beach resort area and is bounded by the Atlantic Ocean and the Chesapeake Bay to the north, and Virginia Seashore State Park to the south. Block 600, located in the north central portion of the Fort Story area, is bounded by Cebu Island Road and Attu Road to the north and east, respectively, and by Hospital Road and Salerno Road to the south and west, respectively. The site currently exists as a flat, wide-

open, mowed lawn area. The site is the former location of 39 enlisted men's barracks constructed prior to World War II. Recently (i.e., within the past approximately 5 years), all but two of the buildings were demolished by burning.

**2.1.1** Block 600 consists of approximately 9 acres of flat open land. Block 600 is currently undeveloped with the exception of two 2-story barracks located in the southeast corner of the site. The base exchange is also located along Hospital Road on the southern edge of the site. Several above and below ground utilities are also active at Block 600. The purpose of the UST removal activities is to remove twenty-eight (28) 1,000-gallon USTs located at the Block 600 site that are associated with the former barracks.

**2.2 UST REMOVAL ACTIVITIES.** The UST removal activities consist of (1) removal and disposal of twenty-eight (28) 1,000-gallon USTs used to store fuel oil and all associated piping, (2) removal and disposal of all tank contents (water and fuel oil), (3) removal and disposal of petroleum-contaminated soils, and (4) confirmatory soil sampling in the bottom of the UST excavations.

**2.3 ACCIDENT PREVENTION.**

**2.3.1 Accident Prevention Administration.** The HSS shall be responsible for implementation of an accident prevention plan. The Contractor SSHP shall include the following provisions:

**2.3.1.1** All Contractor personnel shall attend a site-specific safety training course that has been prepared by the IH.

**2.3.1.2** The HSS shall be responsible for maintaining a clean job site free from hazards and providing safe access and egress from the site. Physical barriers delineating a work site will be utilized for traffic control and limiting access to hazardous and restricted areas.

**2.3.1.3** Emergency phone numbers shall be posted in a conspicuous location at Block 600 for the fire department, ambulance service, and the nearest emergency medical clinic/hospital. A map and directions indicating the fastest route to the clinic/hospital shall also be posted. A mobile telephone shall be present on-site during the UST removal activities. The HSS shall be the lead person in all emergency situations.

**2.3.1.4** A daily safety meeting shall be conducted to discuss pertinent site safety topics at the beginning of each shift, whenever new Contractor personnel arrive at the job site and as site conditions change. These meetings shall be conducted by the HSS.

**2.3.2** Should an accident occur, the HSS shall immediately notify the CO, complete an accident report form and investigate the cause. Any recommended hazard control measures must be discussed and approved by the industrial hygienist. The Contractor shall be responsible to record and report any chemical exposures or occupational injuries and illnesses in accordance with OSHA and USACE requirements.

**2.4 PHASE SAFETY PLAN.** The potential hazards of each site

activity and the control measures that shall be implemented to minimize or eliminate them shall be thoroughly assessed by the IH. As a part of or as a supplement to the Contractor SSHP, a Phase Safety Plan shall be prepared for each phase of site work as required in SECTION 01400: SPECIAL SAFETY REQUIREMENTS.

**2.4.1** The UST removal activities consist of (1) removal and disposal of twenty-eight (28) 1,000-gallon USTs and associated piping, (2) removal and disposal of all tank contents, (3) removal and disposal of petroleum-contaminated soils, and (4) confirmatory soil sampling in the bottom of the UST excavations.

**2.4.2** The potential hazards of site activities and the control measures that shall be implemented to minimize or eliminate them are discussed below.

**2.4.2.1 Removal of USTs and Contents.** Hazards associated with the removal of the USTs and associated piping, tank contents, and contaminated soils at the Block 600 site include potential inhalatory or dermal exposure to site contaminants, noise, and possibly heat stress. The work should be engineered to minimize potential personnel exposures to site contaminants (e.g., provisions for dust suppression) and noise. If necessary, this site may be upgraded to EPA Level C protection (per criteria established in Paragraph 7.2. Noise monitoring will be conducted at the site; disposable hearing protective devices will be made available to site personnel (as per Paragraph 7.4). Heat stress monitoring will be conducted, depending upon ambient conditions, as described in Paragraph 7.3. Potential hazards to Contractor personnel will also be of a physical nature (e.g., crane operations, backhoe). Site personnel performing these activities shall adhere to the OSHA Construction Industry Standards (29 CFR 1926).

**2.4.2.2 Collection of Soil Samples.** The major hazard associated with collection of potentially contaminated soils is potential inhalatory or dermal exposure to site contaminants. The work should be engineered to minimize potential personnel exposures to site contaminants. If necessary, this site may be upgraded to EPA Level C protection (per criteria established in Paragraph 7.2).

**3 CONTRACTOR PERSONNEL AND QUALIFICATIONS.** Implementation of the Contractor SSHP shall be accomplished through an integrated effort of the following Contractor personnel: project engineer, industrial hygienist, and the health and safety specialist. Each of these project roles shall be filled by an individual who has worked on at least three projects of a nature similar to the Fort Story Block 600 UST removal project, or that have involved hazardous materials assessment and remediation.

**3.1 PROJECT ENGINEER (PE).** The PE is responsible to assure that the goals of the UST Removal Project are attained in a manner consistent with the Contractor SSHP requirements. He will coordinate with the industrial hygienist and the health and safety specialist to assure that the project goals are completed in a

manner consistent with the Contractor SSHP. The PE shall be the primary Contractor contact with the CO.

**3.2 INDUSTRIAL HYGIENIST (IH).** The IH shall prepare the Contractor SSHP and ensure that plan implementation complies with all federal, state and local health and safety requirements. With written approval from the CO, the IH can modify specific aspects of the Contractor SSHP and will be available for consultation when required. The IH will not necessarily be on-site during remedial activities. The IH shall prepare the materials to be used in the training program and ensure that the health and safety specialist is knowledgeable in all components of the Contractor SSHP. The IH, in writing the SSHP, should determine what signals will be used for emergencies.

**3.2.1 Qualifications.** The IH will have a minimum of three (3) years working experience in the chemical industry and/or chemical waste disposal industry and shall be certified in comprehensive practice by the American Board of Industrial Hygiene (ABIH). The certified industrial hygienist shall have a working knowledge of state and federal occupational safety and health regulations and formal training in occupational safety and health. This individual's name and applicable work experience shall be submitted and approved prior to submittal of the Contractor SSHP.

**3.3 HEALTH AND SAFETY SPECIALIST (HSS).** The HSS shall be on-site at all times during work activities, and is responsible for the implementation of the Contractor SSHP. Duties which are not germane to the safety program shall not be assigned to the HSS. He has the responsibility and authority to halt or modify any working condition, or remove personnel from the site if he considers conditions to be unsafe. The HSS will be the main contact in any on-site emergency situation; he will direct all field activities involved with safety. He is responsible for assuring that all on-site personnel understand and comply with all safety requirements. Except in an emergency, he can modify the Contractor SSHP requirements only after consultation with and agreement of the IH. This individual's name and applicable work experience shall be submitted and approved prior to submittal of the Contractor SSHP.

**3.3.1 Qualifications.** The Contractor's HSS person(s) shall be required to have one of the following experience and/or education qualifications:

**3.3.2** A degree in engineering or safety in at least a 4-year program from an accredited school and he will have a working knowledge of state and federal occupational safety and health regulations and formal training in occupational safety and health; or

**3.3.3** A legal registration as a professional engineer or a certified safety person and, in addition, shall have been engaged in safety and occupational health for at least one (1) year of experience, of which no less than fifty (50) percent of the time was devoted to safety and occupational health and he will have a working knowledge of state and federal occupational safety and health regulations and formal training in occupational safety and

health; or

**3.3.4** A degree other than that specified above and, in addition, shall have been engaged in safety and occupational health for at least three (3) years of which no less than fifty (50) percent of the time each year was devoted to safety and occupational health and he will have a working knowledge of state and federal occupational safety and health regulations and formal training in occupational safety and health; or

**3.3.5** Qualified experience in safety and occupational health for at least five (5) years of which no less than fifty (50) percent of the time each year was devoted to safety and occupational health and he will have a working knowledge of state and federal occupational safety and health regulations and formal training in occupational safety and health.

**3.3.6** The HSS shall be certified in First Aid and CPR. These certifications shall be kept current for the duration of the project. However, in any of the above, first aid work shall not be considered as creditable experience (based on EFARS 52.2/9303).

**3.4 FIELD STAFF.** All field staff, both Contractor and subcontractor personnel, are responsible for understanding and complying with all requirements of the Contractor SSHP. Field staff shall be instructed during each daily safety meeting to bring all perceived unsafe site conditions to the attention of the HSS.

#### **4 PERSONNEL TRAINING.**

**4.1** All site personnel who will perform work in either contamination reduction or exclusion zones during the UST removal project shall meet the training requirements specified in the OSHA Standard 29 CFR 1910.120(e). A summarization of these requirements is as follows:

**4.1.1** At the time of mobilization, all Contractor personnel shall have completed at least 40 hours of off-site instruction in health and safety issues associated with hazardous substance site work. Additionally, these personnel shall have a minimum of three days of actual field experience under the direct supervision of a trained, experienced supervisor. On-site Contractor management personnel shall have at least eight additional hours of specialized training on managing such operations. Eight (8) hours of annual refresher site health and safety training shall be completed by Contractor personnel who completed the OSHA 40-hour course more than one (1) year previous to project mobilization. Copies of training certificates certifying satisfactory course completion for all on-site Contractor personnel shall be submitted to the CO prior to working on-site.

**4.2** To ensure that all site personnel understand the hazards associated with site operations, a tailgate safety meeting shall be conducted on a daily basis, whenever new personnel arrive at the site and as site conditions change. The HSS or the IH shall

conduct the meetings and assure that all site personnel, including government employees assigned to the site, attend the tailgate safety meeting. The following is a general outline of the major site-specific topics that should be discussed by the HSS, or the IH, during the tailgate safety meeting for the Block 600 UST removal project. The Contractor shall provide a detailed outline and training program duration in the Contractor SSHP.

- 4.2.1 General Site Safety Responsibilities.
- 4.2.2 Medical Surveillance Program.
- 4.2.3 Review of the Contractor SSHP.
- 4.2.4 Potential Chemical/Physical Hazards.
- 4.2.5 Personal Protective Equipment/Respiratory

Protection.

- 4.2.6 Personal/Equipment Decontamination.
- 4.2.7 Emergency Assistance Network.

4.3 The Contractor shall require all Contractor personnel to sign and date a document acknowledging that he has read and understood the Contractor SSHP and attended the daily tailgate safety meeting. Copies of such completed documents shall be submitted by the Contractor to the CO.

## **5 MEDICAL SURVEILLANCE PROGRAM.**

**5.1 MEDICAL SCREENING AND HEALTH SURVEILLANCE.** The Contractor shall assure that all Contractor personnel who will perform work in the contamination reduction zone or exclusion zone shall have an initial baseline medical examination conducted specifically for this project prior to the start of this project. This evaluation shall be repeated, as indicated by substandard performance or evidence of a particular stress that is evident by injury or time loss illness on the part of any worker. Any employee who develops a lost time illness or injury during the duration of the contract (whether or not job-related) shall be re-evaluated by the Contractor's physician. The Contractor PE must be provided with a written statement, signed by the physician, prior to allowing the employee to re-enter the work site. A medical certification (written physician's opinion) as to the fitness or unfitness for employment on this project, or any restrictions on his/her utilization that may be indicated, will be provided by the Contractor's physician to the CO. Medical examinations shall be conducted under the direction of a qualified physician, certified by the American Board of Preventive Medicine in Occupational Medicine, and conducted in accordance with the recommendations for medical surveillance as stated in the NIOSH/OSHA/USCG/EPA document, "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities." The Contractor shall provide the Contractor physician with a copy of 29 CFR 1910.120. The name, resume, and a statement of commitment from the physician selected by the Contractor shall be provided to the CO for review and approval.

**5.2 EMERGENCY MEDICAL ASSISTANCE AND FIRST AID EQUIPMENT.** Prior to work start-up, the Contractor shall establish an emergency medical assistance network. The Fire Department, ambulance

service, and clinic or hospital emergency room shall be identified and phone numbers for these services posted in a conspicuous place at the project site. A map and directions indicating the fastest route to the clinic/hospital shall also be posted. A vehicle shall be available on-site during all work activities to transport injured personnel to the identified emergency medical facilities. The Contractor shall make a suitable first-aid kit available at the site for use by trained personnel. A supply of fresh water or a portable emergency eye wash with a minimum 5-gallon capacity and 15-minute duration shall also be available at the work site. The IH or HSS shall notify the medical facility to be used in emergencies of the approximate duration of work at the site, and provide a list of contaminants expected to be encountered prior to beginning work at the site.

## **6 PERSONAL PROTECTIVE EQUIPMENT.**

**6.1** Personal protective equipment required during the course of work at Block 600. Selection shall be based primarily on hazard assessment data and work task requirements. Based on the low levels of chemical contaminants anticipated at the Block 600 site, U.S. EPA Level D protection shall be mandated. The Contractor shall provide all Contractor personnel with appropriate personal safety equipment and protective clothing, and shall ensure that all safety equipment and protective clothing is kept clean and well maintained. The Contractor shall maintain an inventory of Level D personal protective equipment for four governmental personnel, and up to two site visitors per day. The contingency to upgrade to Level C protection is allowed in the event that atmospheric monitoring during site activities indicates unexpectedly high levels of toxic air contaminants. If atmospheric monitoring indicates that Level C protection will be required, the HSS shall assure that all personnel in the exclusion and contamination reduction zones don the appropriate equipment (see Paragraph 6.2). The HSS shall also promptly notify the PE, IH, and the CO. Specific levels of personal protection mandated for work at Block 600 are as follows:

**6.1.1 Excavation of USTs and Contaminated Soil.** Level D with provisions to upgrade to Level C.

**6.1.2 Cleaning USTs.** Level D with provisions to upgrade to Level C.

**6.1.3 Sampling of Soil in Tank Excavation.** Level D with provision to upgrade to Level C.

**6.2 LEVEL D PERSONAL PROTECTIVE EQUIPMENT.** Contractor personnel working in an exclusion zone, as defined in Paragraph 8.1, shall wear as a minimum:

**6.2.1** Dedicated work uniform (e.g., coveralls).

**6.2.2** Boots, chemical resistant, steel toe and steel shank meeting ANSI Standard Z41-1983, Safety Toe Footwear, Classification 75.

**6.2.3** Hard hat meeting ANSI Standard Z89.1-1986, Class A, B, and C.

6.2.4 Face shield, goggles, or safety glasses shall meet ANSI Standard Z87.1-1979, "Practice for Occupational and Educational Eye and Face Protection (as mandated by the HSS).

6.2.5 Gloves, leather or chemical resistant (nitrile gloves mandated for sampling activities).

**6.3 LEVEL C PERSONAL PROTECTIVE EQUIPMENT.** When air monitoring information dictates that a particular site be upgraded to Level C protection, personnel shall wear as a minimum:

6.3.1 Full-face air purifying respirator with combination cartridges for organic vapor, dusts, and mists (OSHA/NIOSH approved).

6.3.2 Coveralls, disposable chemical resistant (polyethylene-coated Tyvek).

6.3.3 Boots, chemical resistant, steel toe and steel shank meeting ANSI Standard Z41-1983, Safety Toe Footwear, Classification 75.

6.3.4 Hard hat meeting ANSI Standard Z89.1-1986, Class A, B, and C.

6.3.5 Gloves, chemical resistant (latex-neoprene nitrile as the outer) and 4 mil disposable nitrile as the inner glove.

**6.4 RESPIRATOR SECTION AND FIT TEST.**

6.4.1 Prior to the start of the site work, the HSS or the IH is responsible to assist in the selection and fit testing of air purifying respirators that may be used if Level C protection is required by Contractor personnel. All respiratory equipment usage shall be in compliance with the requirements of the OSHA Respiratory Protection Standard (29 CFR 1910.134). The HSS shall maintain documentation of the size, brand and model number of air purifying respirator with which each site worker has achieved a successful face seal fit.

6.4.2 Cartridges/filters, when used, shall be changed daily or upon saturation (breakthrough), whichever occurs first. A procedure for assuring periodic cleaning, maintenance and changing of cartridges/filter shall be addressed in a written respiratory protection program included in the SSHP.

**7 OCCUPATIONAL HEALTH MONITORING.** Hazard assessment is essential for determination of hazard control measures that must be implemented during site activities; it involves characterizing chemical and physical stresses and/or other safety hazards at the site. Hazard assessment shall be conducted as an ongoing process. Appendix A presents a hazard assessment for the UST removal activities.

**7.1 AREA SURVEY.** The HSS shall conduct a survey, prior to initiation of site activities to locate any hazards and to determine appropriate control measures. Hazards may include underground utilities, ground traffic, or overhead power lines.

**7.2 AIR MONITORING.** The main objective of atmospheric monitoring is to assess the potential inhalatory hazards to site personnel. Previous site data should be used to assess potential detectable off-site releases of contaminants. Specific Contractor

air monitoring requirements are as stated below:

**7.2.1 Direct Read Monitoring.** The HSS or IH shall utilize either a photoionization detector (PID) or a flame ionization detector (FID) for field determination of appropriate levels of personal protection. PIDs shall be equipped with 10.2 eV or 10.6 eV probe. The PID/FID used during the project shall be calibrated three times daily: before work begins in the morning, before work resumes after lunch, and at the end of the day.

**7.2.2 Action Levels.** Organic vapor levels will be measured upwind of each work area to determine the background reading. Initially, all Contractor personnel will be equipped with EPA Level D protective clothing. The action level (PID or FID reading) for upgrading to Level C protective equipment at any of the Block 600 work areas will be established by the IH prior to beginning work and will be included in the SSHP. The CO will review and approve Contractor action levels and shall also be advised of any site conditions that require personnel to upgrade to Level C protection.

**7.2.2.1** The Contractor shall also establish a site evacuation action level based on the results of PID/FID monitoring. If the evacuation action level is exceeded, the work area will be evacuated and site activity will not resume until the Contractor PE discusses the situation with the CO and a course of action is agreed upon.

**7.2.3 Frequency of Monitoring.** The Block 600 work site(s) shall be monitored initially with a FID or PID to determine a site background level, and then during work activities. Measurements shall be taken in the worker's breathing zone at least every half hour during the following work activities: (1) removal of the existing USTs and potential contaminated soil, (2) collection of soil samples from the tank excavation, and (3) cleaning of USTs. All air monitoring data shall be recorded in a permanent field log.

**7.2.4** The Contractor shall utilize benzene colorimetric tubes to monitor for benzene exposure levels every one-half hour during work activities specified in Paragraph 7.2.3. All air monitoring data shall be recorded in a permanent field log. The Contractor IH shall use the colorimetric tube results to supplement the results of the PID/FID monitoring and revise the action levels for upgrading personal protective equipment, as necessary. Any revisions to the action levels shall be reviewed and approved by the CO.

**7.3 HEAT STRESS MONITORING.** The stress of working in a hot environment can cause a variety of illnesses including heat exhaustion or heat stroke; the latter can be fatal. Use of personal protective equipment can significantly increase heat stress. To reduce or prevent heat stress the Contractor shall, as required, implement a schedule of rest periods and controlled beverage consumption to replace body fluids and salts. The Contractor SSHP shall describe the monitoring methods, when ambient temperatures exceed 70 degrees F., that will be employed to assess

the potential for employee heat stress.

**7.3.1** Personnel shall be trained to recognize the symptoms of heat stress and appropriate action to take upon recognition. Even though physiological monitoring is not always necessary, it is essential that personnel understand the significance of heat stress and its recognition. The Contractor should refer to the paragraph on heat stress in the NIOSH/OSHA/USCG/EPA document, "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," published by the U.S. Department of Health and Human Services in October 1985.

**7.4 NOISE MONITORING.** During site activities, the Contractor shall conduct noise monitoring at a representative number of site work areas, using an ANSI Type II (A Scale, slow response) dosimeter or sound level meter, to assure that operations are in compliance with the OSHA Hearing Conservation Standard (29 CFR 1910.95). Additionally, disposable hearing protection devices shall be available to site personnel upon request. If measured noise levels exceed 85 dBA, hearing protective devices with an NRR of at least 28 meeting ANSI Standard 53.19-R-1879 shall be worn by all site personnel within the affected zone.

**8 SITE CONTROL.** Site control requires the establishment of a regulated area, designated work zones, an evacuation protocol, and site security.

**8.1 REGULATED AREA(s).** To minimize the transfer of potential hazardous substances from the site, contamination control procedures are needed. The Contractor shall discuss the following methods in the Contractor SSHP: establishment of site work zones (exclusion, contamination reduction, support) and personnel/equipment decontamination. The Contractor SSHP shall include provisions for the following:

**8.1.1** Setting physical barriers to exclude unnecessary personnel from the general area (Site security).

**8.1.2** Minimizing the number of personnel on-site consistent with effective operations.

**8.1.3** Establishing work zones around the Block 600 work area. The Contractor shall describe the establishment of three work zones for both Level D and Level C work.

**8.1.4** Establishing control points to regulate access to work zones.

**8.1.5** Implementing appropriate decontamination procedures.

**8.1.6** Using the "buddy system" and maintaining communication or visual contact between team members at all times.

**8.2 EMERGENCY PROTOCOL.** The Contractor SSHP shall address the following topics:

**8.2.1** Development of evacuation routes from each work area.

**8.2.2** Development of an audible and visual signal system that informs site personnel that work area evacuation is necessary.

The audible warning device used should be of sufficient loudness to be heard by workers over site noises.

8.2.3 Assurance that the appropriate communication device(s) are present at the Block 600 site for general and emergency use.

## **9 DECONTAMINATION PROCEDURES.**

**9.1 PERSONNEL DECONTAMINATION.** Establishment of decontamination procedures for personnel and equipment is necessary to control contamination and to protect Contractor personnel. The Contractor SSHP shall establish protocols that, at minimum, address the following:

9.1.1 Establishment of decontamination stations where personnel routinely exit the exclusion zone of each site.

9.1.2 Detailed description of required Contractor personnel decontamination technique for both Level D and Level C protection. This shall include removal of protective clothing in an "inside-out" manner. Removal of contaminants from clothing or equipment by blowing, shaking or any other means that may disperse material into the air shall be prohibited.

9.1.3 Protective clothing that has been removed shall remain at the decontamination station. Personal protective clothing will be decontaminated prior to redonning. If Tyvek coveralls are used, they will be discarded after each usage and a new set donned prior to re-entering the Exclusion Zone.

9.1.4 Contractor personnel shall not be permitted to exit the regulated work area until contaminated clothing and equipment have been removed and employees have washed their hands and face with soap and water.

9.1.5 Employees shall wash their hands and face with soap and water before eating, drinking, smoking, or applying chapstick or cosmetics. These activities shall be restricted to the designated rest area(s) in the support zone.

**9.2 EQUIPMENT DECONTAMINATION AND DISPOSAL OF CONTAMINATED MATERIALS.** Equipment that may require decontamination includes tools, equipment, vehicles (heavy equipment) and certain protective equipment. The Contractor SSHP shall address the following:

9.2.1 All material and equipment used for decontamination must be disposed of properly. Disposable clothing, tools, buckets, brushes, and all other equipment that is contaminated will be secured in DOT-approved 55-gallon drums or other containers and labeled. Clothing that will be reused, not completely decontaminated on-site, will be secured in plastic bags before being removed from the site.

9.2.2 All potential contaminated soils shall be stockpiled pending chemical analysis. Those soils requiring disposal shall be segregated on-site; other soils may be used as backfill material by the Contractor.

9.2.3 The Contractor shall provide an adequate procedure, including specific methodologies, for decontamination of equipment, including washing vehicles of external sludges and

sediments before leaving site.

**9.2.4** The Contractor will be responsible for the disposal of all contaminated materials and waste streams generated by the remediation effort. Disposable clothing, tools, and all other equipment that is contaminated will be secured in DOT-approved 55-gallon drums or other containers and labeled. All drummed materials determined to be hazardous waste shall be properly marked, transported, and disposed of by the Contractor at a permitted treatment, storage, or disposal facility in accordance with pertinent U.S. EPA hazardous waste management regulations (40 CFR Parts 260-272).

**9.3 DECONTAMINATION DURING MEDICAL EMERGENCIES.** The Contractor SSHP shall address the following requirements:

**9.3.1** When prompt lifesaving first aid and/or medical treatment is required, decontamination procedures should be omitted. Contractor personnel shall accompany any potentially contaminated victims to the nearest medical facility to advise on matters involving decontamination.

**9.3.2** Lifesaving care shall be instituted immediately without considering decontamination.

**9.3.3** Heat stroke requires prompt treatment to prevent irreversible damage or death. Protective clothing must be promptly removed. Less serious forms of heat stress also require prompt attention. Unless the victim is obviously contaminated, decontamination should be omitted or minimized and treatment begun immediately.

**9.3.4** For chemical inhalation exposure cases, treatment shall only be performed by a qualified physician. If the contaminant is on the skin or in the eyes, immediate measures will be taken on-site to counteract the substance's effect.

**9.3.5** The Contractor shall assure that an adequate supply of running water or a portable emergency eyewash is available at the work site(s).

**10 GENERAL SITE SAFETY REQUIREMENTS.** The Contractor SSHP shall describe prudent site safety guidelines, including the following:

**10.1** Smoking, eating, drinking, applying cosmetics or chapstick, or chewing tobacco while in the exclusion or contamination reduction zones, or any potentially contaminated area is forbidden.

**10.2** Ignition of flammable materials in the work zone is forbidden; equipment shall be bonded and grounded, sparkproof and explosion resistant, as appropriate.

**10.3** Personnel shall work using the "buddy system" at all times.

**10.4** Hazard assessment is a continual process; personnel must be aware of their surroundings and constantly be aware of the chemical/physical hazards that are present.

**10.5** Personnel in the exclusion zone shall be the minimum number necessary to perform work tasks in a safe and efficient manner.

10.6 Team members will be familiar with the physical characteristics of each investigation site, including wind direction, site access, location of communication devices, and safety equipment.

**11 CONTRACTOR SSHP DOCUMENTATION.** The Contractor shall maintain logs and records that relate to all aspects of the Contractor SSHP implementation. Documentation, at minimum, shall include:

11.1 Training log documentation of the 40 hours and three day initial training.

11.2 Daily tailgate safety meeting forms.

11.3 Copies of Medical Certificates for site personnel.

11.4 Records of all occupational illnesses and injuries associated with the project. A daily record of all first aid treatments not otherwise recordable shall be maintained on prescribed forms and furnished to the CO upon request.

11.5 Air monitoring, sampling, and analysis forms and reports.

11.6 **WEEKLY REPORT.** Prepared by the HSS, this report shall discuss the range of work accomplished during the week, incidence of protective equipment nonusage (when required), disregard of the buddy system, violations of the general site safety requirements stated in Paragraph 10.0, instances of job-related injuries and illnesses, any personnel monitoring results, and any other pertinent information.

11.7 **PHASE-OUT REPORT.** At the completion of the work, the Contractor shall submit a phase-out report that includes final medical examination certifications, summary and results from the personnel and air monitoring program, and a discussion of the procedures and techniques used to decontaminate equipment and vehicles. This report shall be signed and dated by both the PE and IH, and submitted to the CO.

**12 EMERGENCY RESPONSE AND CONTINGENCY PROCEDURES.** As part of the SSHP, the Contractor shall develop an emergency response and contingency plan for on-site emergencies, as specified in 29 CFR 1910.120(1), which should address at a minimum:

12.1 Pre-emergency planning.

12.2 Personnel roles, lines of authority, training and communication.

12.3 Emergency recognition and prevention.

12.4 Safe distances and places of refuge.

12.5 Site security and control.

12.6 Evacuation routes and procedures.

12.7 Decontamination.

12.8 Emergency medical treatment and first aid.

12.9 Emergency alerting and response procedure.

12.10 Critique of response and follow-up.

12.11 Personal protective equipment and emergency equipment.

## APPENDIX A

### HAZARD ASSESSMENT

**UST REMOVAL ACTIVITIES.** The UST removal activities consist of (1) removal and disposal of twenty-eight (28) 1,000-gallon USTs, associated piping and all tank contents, (2) removal and disposal of petroleum contaminated soils, and (3) sampling of soils beneath the excavated USTs.

**PHYSICAL HAZARDS.** During tank removal activities, many physical hazards may be presented to site personnel. These include the potential slipping, tripping and falling hazards, operating heavy equipment (e.g., crane operations, backhoe), potential presence of underground utilities, noise and heat stress.

**Slipping, Tripping, and Falling Hazards.** These potential hazards are more likely to occur during excavation activities. During the site-specific training session, hazard recognition techniques will emphasize housekeeping, walkways, walking surfaces, and conditions which could cause this type of injury.

**Operating Heavy Equipment.** Operators must be knowledgeable of soil surface stability and the presence of site personnel on the ground in the vicinity of their equipment. Equipment operators and ground personnel should develop pre-arranged hand signals.

**Excavations.** Site personnel shall not enter excavations unless they are properly shored or sloped, and are in all manner in compliance with the OSHA Construction Industry Standards (29 CFR 1926, Subpart P).

**Underground Utilities.** A thorough investigation of this potential hazard must be conducted prior to initiating site activities.

**Noise.** Operating heavy equipment can be a potential noise source. This hazard must be evaluated and provisions made to provide site personnel with hearing protective devices.

**Heat Stress.** The potential for heat stress is weather dependent. In hot weather, and when site personnel must wear higher levels of personal protective equipment, this physical hazard must be thoroughly evaluated by the IH.

**SITE CONTAMINATION SUMMARY.** The concentration ranges of

contaminants detected in the groundwater or in the UST contents at the Block 600 site are listed below. This information is not intended to provide a comprehensive list of every contaminant at the site but to provide an indication of the contaminants that have been detected during previous investigations. The presence of the contaminants detected are summarized as follows:

1. Total fuel hydrocarbons (TFH) were present in three (3) of ten (10) monitor wells at concentrations ranging from 0.1 milligrams per liter (mg/l) to 0.3 mg/l.
2. Lead was present in the free product of seven (7) of the thirteen (13) tanks containing free product. Four (4) tanks contained lead in concentrations less than 1 milligram per kilogram (mg/kg). Three tanks, Tanks 623, 628, and 636, contained lead at concentrations of 43 mg/kg, 13 mg/kg, and 58 mg/kg, respectively.
3. Lead was present in the aqueous phase of twenty (20) of the twenty-one (21) tanks containing an aqueous phase. The concentrations of lead detected ranged from 0.03 mg/l to 4.9 mg/l.
4. Arsenic was present in the free product of one (1) tank, Tank 623, at a concentration of 0.25 mg/kg.
5. Arsenic was not detected in the aqueous phase of any tank.
6. Cadmium was present in the free product of one tank, Tank 623, at a concentration of 0.1 mg/kg.
7. Cadmium was detected in the aqueous phase of two (2) tanks, Tanks 611 and 646, at concentrations of 0.19 mg/l and 0.005 mg/l, respectively.
8. Chromium was present in the free product of one (1) tank, Tank 623, at a concentration of 0.18 mg/kg.
9. Chromium was detected in the aqueous phase of six (6) tanks ranging in concentration from 0.01 mg/l to 0.13 mg/l.
10. Total organic halogens (TOX) were present in the aqueous contents of twenty-one (21) tanks ranging in concentration from 20 µg/l to 290 µg/l.

**CHEMICAL HAZARD SUMMARY.** Chemical contaminants presenting a

potential occupational health hazard during UST removal activities are TFH, lead, arsenic, cadmium, chromium, and TOX. The Contractor shall clearly delineate all work areas with physical barriers. The potential toxic exposure hazard to site personnel associated with Block 600 contaminants (TFH, lead, arsenic, cadmium, chromium, and TOX) can be expressed in Threshold Limit Values-Time Weighted Averages (TLV-TWA) as established by the American Conference of Governmental Industrial Hygienists (ACGIH), Permissible Exposure Limits (PEL) as mandated by the Occupational Safety and Health Administration (OSHA), Recommended Exposure Limits (REL) as suggested by the National Institute of Occupational Safety and Health (NIOSH), and by Immediately Dangerous to Life or Health (IDLH) values established by NIOSH and OSHA.

These terms are defined as follows:

- **TLV-TWA** is defined as the airborne concentration of a substance to which nearly all workers (8 hours/day, 40 hours/week) may be repeatedly exposed, day after day, without experiencing adverse health effects.

For some substances, the overall exposure to a substance is intensified by being absorbed by the skin, mucous membranes or eyes, either by airborne, or particularly, by direct contact with the substance. Other substances have a ceiling value, this concentration should not be exceeded during any part of the working day.

- **PELs** are established by federal or state OSHA. PELs may be expressed as an 8-hour Time Weighted Average (TWA) or as a ceiling limit. Ceiling limits may not be exceeded at any time during a work day. PELs are enforceable by law.
- **RELs** are developed by NIOSH. RELs are published guidelines that recommend employee exposure limits for airborne contaminants. RELs are expressed as a TWA or ceiling limit.
- **IDLH** values are defined as conditions that pose an immediate threat to life or health or conditions that pose an immediate threat or severe exposure to contaminants which are likely to have an adverse cumulative or delayed effect on health. Two factors are considered when establishing IDLH concentrations:
  1. The worker must be able to escape within 30 minutes without losing his or her life or suffering permanent

health damage. Thirty (30) minutes is considered by OSHA as the maximum permissible exposure time for escape.

2. The worker must be able to escape without severe eye or respiratory irritation or other reactions that could inhibit escape. If the concentration is above the IDLH levels, only highly reliable breathing apparatus, such as pressure-demand self-contained breathing apparatus (SCBA), is allowed. Since IDLH limits are conservative, any approved respirator may be used up to this limit as long as its maximum use concentration, or the limitations on the air-purifying element are not exceeded.

Table A1-0 provides occupational health guidelines (TLV-TWA, PEL, REL and IDLH values for the compounds of concern) and toxicological information (Routes of exposure, symptoms of acute/chronic exposure, mutagenicity, teratogenicity and carcinogenicity) for the Block 600 contaminants.

As shown on Table A1-0, PELs may vary in comparison to the TLV-TWA levels (ACGIH) and RELs (NIOSH). In accordance with EM 385-1-1, all site activities shall comply with the exposure standards mandated by OSHA, or the ACGIH-TLV-TWA, whichever is more stringent.

**CHEMICAL EXPOSURE ASSESSMENT.** The major potential exposure threat to site personnel during the Block 600 UST removal project will occur during excavation of the USTs and associated contaminated soils, tank cleaning, and soil sampling activities. Site personnel performing these activities will be operating heavy equipment and are also anticipated to be on the ground. These workers have the greatest potential for dermal and inhalation exposure.

TABLE A1-0 (cont.)

## OCCUPATIONAL HEALTH GUIDELINES AND TOXICOLOGICAL INFORMATION

| Contaminant           | ACGIH<br>TLV/TWA<br>(mg/m <sup>3</sup> ) | NIOSH<br>REL<br>(mg/m <sup>3</sup> ) | OSHA<br>PEL<br>(mg/m <sup>3</sup> ) | NIOSH/OSHA<br>IDLH<br>(mg/m <sup>3</sup> ) | Routes<br>of<br>Exposure  | Symptomology<br>(acute/Chronic)  | Carcinogenicity<br>Mutagenicity<br>Teratogenicity |
|-----------------------|--|--------------------------------------|-------------------------------------|--|---|--|---|
| Cadmium               | 0.05                                     | Ca <sup>c</sup>                      | 0.2                                 | Ca   | Inhalation,<br>ingestion  | Pulmonary edema,<br>dyspnea, cough, tight<br>chest, substernal pain,<br>headache, chills,<br>muscle aches, nausea,<br>diarrhea, anosmia,<br>emphysema, proteinuria | Suspect human<br>carcinogen                       |
| Chromium <sup>d</sup> | 0.050                                    | 0.001                                | 0.1                                 | 30 mg/m <sup>3</sup>                       | Inhalation,<br>ingestion<br>skin and/or<br>eye contact<br>perforation;<br>liver/kidney<br>damage; leuko-<br>cytosis, leko-<br>penia, monocytosis,<br>eosinophilia, eye<br>injury, conjuc-<br>tivitis, skin<br>ulcer, sensiti-<br>zation, derma-<br>titis, fibrosis<br>of lungs. | Respiratory system<br>irritant, nasal<br>septum  | Human<br>carcinogen                               |

<sup>a</sup> NIOSH immediately dangerous to life or health (IDLH) notation for treating this compound or element as a potential carcinogen.

<sup>b</sup> NIOSH designation indicating that an IDLH has not been assigned.

<sup>c</sup> NIOSH recommendation to reduce exposure to lowest feasible concentration.

<sup>d</sup> Values provided are for hexavalent chromium.

ZERO ACCIDENTS  
SECTION 01402  
CHEMICAL QUALITY MANAGEMENT

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ATTACHMENTS: Table 1 - Summary of Groundwater Analytical Results  
Table 2 - Summary of UST Sampling Results - Aqueous Phase  
Table 3 - Summary of UST Sampling Results - Free Product Phase  
Table 4 - Number of Samples by Analyte and Matrix  
Appendix A - Sample Handling Protocol for Low, Medium, and High Concentration Samples and Hazardous Waste

**1 APPLICABLE PUBLICATIONS.** The following publication forms a part of this specification.

**1.1 CODE OF FEDERAL REGULATIONS.**  
40 CFR 280, Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST).

**1.2 APPLICABLE STATE REGULATIONS.**  
VR-680-13-2, Virginia Water Control Board Underground Storage Tanks; Technical Standards and Corrective Action Requirements.

**2 GENERAL.** This section provides the location and number of samples required to be collected by the Contractor during tank removal activities for chemical analysis. The turnaround time for analytical results from samples collected is three working days. This section delineates the responsibilities and procedures for all chemical sampling activities to assure that the analytical data obtained is of sufficient quality to meet intended usages within

the project. This section also provides guidance in the preparation of the Contractor's Chemical Data Acquisition Plan (CDAP). The CDAP shall include detailed plans for sampling, analysis, and chemical quality control (QC) activities.

**2.1 CHEMICAL CONTAMINANTS.** As part of a previous site investigation, ten (10) temporary wells were installed at Block 600. One groundwater sample was collected from each well and analyzed for total fuel hydrocarbons (TFH). Three (3) wells contained low concentrations (0.1 to 0.3 mg/l) of TFH. The remaining seven (7) wells were below detection limits (<0.05 mg/l) for TFH. The results of the analyses are presented in Table 1.0. In addition, the tank contents were sampled. The tanks contained varying quantities of free product (fuel oil) and water. Phases present in collectable quantities were analyzed for TFH, total organic halogens (TOX), polychlorinated biphenyls (PCBs), and metals (arsenic, cadmium, chromium, and lead). The results of the analyses are summarized in Table 2.0 (aqueous phase) and Table 3.0 (free product).

**2.2 DURATION.** The project construction period is provided in SECTION 01100: SPECIAL CLAUSES.

**2.3 SUBMITTALS.** In accordance with SECTION: SPECIAL CLAUSES, the Contractor shall submit the following items required by this section:

- 2.3.1 **CATEGORY I.** None
- 2.3.2 **CATEGORY II.**
  - 2.3.2.1 For Approval  
Chemical Data Acquisition Plan  
(Paragraph 4)
  - 2.3.2.2 For Information Only  
Daily Quality Control Reports (Paragraph 5.2)  
Quality Control Summary Report (Paragraph 5.3)  
Analytical Data (Paragraph 3)

**3 SOIL SAMPLING.** Soil sampling shall consist of sampling in the tank excavation following tank removal, sampling of excavated soil to determine whether it is "contaminated", and confirmatory sampling following overexcavation of contaminated soil, if found.

**3.1 SAMPLING OF TANK EXCAVATION.** Following tank removal, collect and analyze three samples from the bottom of the tank excavation for contamination.

**3.1.1 Soil Sampling and Rationale.** A total of three (3) samples shall be collected within each excavation to determine the presence of contaminants in the soil. The samples shall be collected from the areas that appear most visibly contaminated. If no soil appears visibly contaminated, then the soil samples will be collected from the former center line of each excavated tank. One (1) sample shall be collected at the middle and two (2) samples shall be collected 1-foot in from the ends of the tank.

**3.1.2 Sample Collection.** Samples shall be collected

using a stainless steel hand auger (with an extension to eliminate the need for Contractor personnel from entering the excavation) or using a stainless steel scoop to collect samples from a backhoe retrieved sample. Samples shall be collected from a depth of approximately 1 foot below the bottom of the excavation.

**3.1.3 Chemical Analysis.** The Contractor shall analyze the soil samples for total petroleum hydrocarbons (TPH) by EPA Method 418.1. If TPH concentrations in soil are in excess of 50 milligrams per kilogram (mg/kg), or the soil is visually contaminated, the Contractor shall notify the CO and excavate additional soil until there is no longer evidence of contamination or until a maximum of 20 cubic yards has been removed. In addition, the soil samples collected from the excavations for Tanks 623 and 636 shall be analyzed for TCLP lead. Samples shall be collected the same day the tank is excavated. The results of all analyses shall be reported to the CO within three working days of sample collection. If TPH concentrations in soil are less than 50 mg/kg, the soil may be used to backfill clean excavations. If TPH concentrations in soil are in excess of 50 mg/kg, the soil shall be disposed of at an approved off-site location at the Contractor's expense.

**3.2 SAMPLING OF EXCAVATED SOIL.** Soil initially excavated from each tank location shall be sampled and analyzed to determine the presence of contaminants in the soil.

**3.2.1 Sample Location and Rationale.** Three grab soil samples shall be collected from the stockpiled soil initially removed from each tank excavation. The grab samples shall be composited into a single sample for analysis. Analytical data shall be used to determine whether the soil can be utilized to backfill the excavation or must be disposed of off-site.

**3.2.2 Sample Collection.** Three (3) grab soil samples shall be collected from the stockpiled soil initially removed from each tank location. Samples shall be collected from the areas of the stockpile that appears to be most visibly contaminated. The three grab samples shall be composited into a single sample for analysis for a total of twenty-eight (28) composite samples (not including QA/QC samples [duplicates, splits, etc.]).

**3.2.3 Chemical Analysis.** The Contractor shall analyze the soil samples for TPH. In addition, the Contractor shall analyze the soil samples collected from the excavations for Tanks 623 and 636 for TCLP lead. Samples shall be collected the same day each respective tank is excavated. The results of all analyses shall be reported to the CO within three working days of sample collection. If TCLP lead concentrations exceed 5 mg/l in the samples collected from either Tank 623 or 636, the soils from the respective excavation shall not be used as clean backfill, regardless of the TPH concentration. If TPH concentrations in soil are less than 50 mg/kg, the soil may be used to backfill clean excavations. If TPH concentrations in soil are in excess of 50 mg/kg, the soil shall be disposed of at an approved off-site location at the Contractor's expense.

**3.3 CONFIRMATORY SAMPLING.** Following overexcavation of con-

taminated soil (up to 20 cubic yards), collect and analyze three additional soil samples from the bottom of the overexcavation for contamination.

**3.3.1 Soil Sampling and Rationale.** A total of three (3) samples shall be collected within each excavation to determine the presence of contaminants in the soil. The samples shall be collected beneath and along the former center line of each excavated tank. One (1) sample shall be collected at the middle and two (2) samples shall be collected 1-foot in from the ends of the tank.

**3.3.2 Sample Collection.** Samples shall be collected using a stainless steel hand auger (with an extension to eliminate the need for Contractor personnel from entering the excavation) or using a stainless steel scoop to collect samples from a backhoe retrieved sample. Samples shall be collected from a depth of approximately 1 foot below the bottom of the excavation.

**3.3.3 Chemical Analysis.** The Contractor shall analyze the soil samples for total petroleum hydrocarbons (TPH) by EPA Method 418.1. Samples shall be collected the same day the overexcavation takes place. The results of all analyses shall be reported to the CO within three working days of sample collection. If TPH concentrations in soil are in excess of 50 mg/kg, or the soil is visually contaminated, the Contractor shall notify the CO and following approval of the CO, backfill the excavation with clean fill material.

**4 CHEMICAL DATA ACQUISITION PLAN.** The Contractor is responsible for submitting a CDAP which is in accordance with the provisions of this Section. The Contractor shall submit his Chemical Data Acquisition Plan (CDAP) within 14 days of the Notice to Proceed. The CDAP should delineate the methods the Contractor intends to use to accomplish the chemical quality control items as indicated in the specifications to assure accurate, precise, completely representative, legally defensible and comparable data. Project-related qualifications and certification of the Contractor's laboratory facilities and analytical instrumentation should be described in detail. Specifics on the contents of the CDAP are included herein. The CDAP must be reviewed and approved by the CO prior to the start of work. The Contractor, through the CDAP, will be responsible for the quality of all data produced by the Contractor Laboratory.

**4.1 TITLE PAGE.** The title page shall identify the project name; site location; applicable program; the prospective CO; office locations; and the Government QA Laboratory and the Points of Contact for the Construction District, the Construction Division, and the Government QA Laboratory. The CO can assist the Contractor with these details.

**4.2 TABLE OF CONTENTS.**

**4.3 PROJECT DESCRIPTION.** The Contractor shall describe the general scope of work with emphasis on sampling and chemical analyzing needs, relevant background material, intended use of the

data generated, and the disposition of the tanks and associated piping, tank contents and contaminated soils and liquids. The Contractor shall also identify toxic or hazardous substances that will be or may be encountered at the project site. The Contractor shall provide an estimate of the duration of the project.

**4.4 PROJECT ORGANIZATION AND QUALITY MANAGEMENT (QM) RESPONSIBILITIES.** The project organization must address not only the prime contractor but any subcontractor and contractor-subcontractor interactions.

**4.4.1 Key Individuals and Related Experience.** Project management responsibilities shall be clearly defined in the CDAP along with a discussion of quality control (QC) responsibilities. Key personnel must be identified along with their function and qualifications.

**4.4.2 QC Officer.** As part of the project organization, the Contractor shall appoint a QC officer who is responsible to a senior company officer. The QC officer must have knowledge of chemical quality control and experience in the analysis of toxic/hazardous chemicals. The company project management and Quality Control chains of command must be mutually exclusive. The Contractor shall supply a copy of the letter in the CDAP notifying the QC officer/ personnel of their exact duties and responsibilities. The letter shall be signed by a responsible executive/manager of the company.

**4.4.3 Contractor Laboratory Qualifications.** Prior to collection of any environmental samples, the Contractor Laboratory shall be validated by the USACE Missouri River Division (MRD) Laboratory or the CO. Laboratories are validated for each environmental matrix and each specific analytical method to be employed. If the prime contractor selects a laboratory which has a current (within one year) validation for all analytes and matrices specific to its project, additional evaluation will not be necessary. The USACE MRD should be contacted to verify the status of the contract laboratory(ies). If the prime contractor selects a laboratory which does not have a current validation, the laboratory shall be validated prior to approval of the CDAP. Commercial laboratory validation procedures can be obtained from the CO. Samples may not be subcontracted to another laboratory without knowledge and approval of the CO unless the second laboratory is validated for the parameters concerned. The Contractor (or Contractor Laboratory, as applicable) shall be responsible for the following:

**4.4.3.1 Facilities and Personnel.** Provide all laboratory facilities and qualified personnel, and provide access to work, as required.

**4.4.3.2 Sample Handling.** Furnish labor, equipment and facilities to obtain and handle samples at the project site, to facilitate inspections and analyses, and to provide storage, preservation (including refrigeration) and cooling of the samples, as necessary.

**4.4.3.3 Sample Custody.** Ensure that transporta-

tion, chain of custody, and ultimate disposal of samples takes place in accordance with USACE/EPA procedures.

**4.4.3.4 Data Management.** Provide for documentation and data management of the analytical results.

**4.4.3.5 Inspections, Sampling, and Analysis.** Comply with specified standards and ascertain compliance of materials with requirements of the Contract Documents.

**4.4.3.6 Calibrations.** Provide for calibration of equipment.

**4.4.3.7 Quality Assurance Samples.** Provide for laboratory QA samples including splits and duplicates.

**4.4.3.8 Sample Containers.** Provide for sample container cleaning and sample preservation.

**4.4.3.9 Recordkeeping.** Maintain internal recordkeeping in accordance with good laboratory practices (GLP).

#### **4.5 SAMPLING AND SAMPLE CUSTODY PROCEDURES.**

**4.5.1 General.** All sampling activities shall be performed according to protocols, specific to each parameter of interest, promulgated by the U.S. Environmental Protection Agency (EPA), and by the USACE as described in Appendix A, Sample Handling Protocol for Low, Medium, and High Concentration Samples and Hazardous Wastes. Where such protocols have not been established by the EPA or the USACE, protocols established by some other recognized authority (ASTM) should be utilized. The CDAP shall fully describe all sampling procedures including those presented below.

##### **4.5.2 Sampling and Custody Parameters.**

**4.5.2.1 Sampling Locations.** The Contractor shall provide a record of all "as collected" sample locations in the tank excavation. Additionally, the Contractor shall identify all locations sampled as a result of the sampling program for excavated soils. See Table 4.0 for number and types of samples required.

**4.5.2.2 Sampling and Analytical Procedures.** The Contractor shall furnish all information relative to the sampling and analytical process, including equipment used, sample volume, and sampling technique. The Contractor shall supply all references to the procedures used.

**4.5.2.3 Sample Containers and Cleaning Procedures.** The types of containers and procedures used for cleaning these containers should be consistent with EPA and USACE requirements for the specific parameters of interest. Sample containers shall be purchased from an EPA-approved supplier of pre-cleaned bottles. If the Contractor is not an EPA-designated authorized requestor, the USACE office, CEMRD-EP-LC, should be contacted (402-444-4314). The sample container label must include location, time and date of sampling, grab or composite, and sampler's signature.

**4.5.2.4 Procedures Employed to Avoid Sample Contamination.** During sampling activities, appropriate decontamination measures shall be taken to minimize sample contamination from external sources such as sampling equipment or sample containers. These procedures should be consistent with those

outlined in "Test Methods for Evaluating Solid Waste-Physical/Chemical Methods" (U.S. EPA SW-846, 3rd ed.). The sampling program established for this project should include provisions for generating the appropriate field QA/QC samples to monitor the effectiveness of the specific procedures employed in controlling external contamination.

**4.5.2.5 Sample Preservation.** All samples collected shall be preserved according to EPA and/or USACE protocols established for the parameters of interest. Appropriate measures should be taken to ensure that storage requirements with respect to temperature are maintained during transport to the laboratory, and prior to log-in and storage at the laboratory.

**4.5.2.6 Sample Transportation.** Environmental samples shall be transported to the Contractor Laboratory and QA laboratory via the most rapid means. Samples should be packaged and transported according to EPA, USACE, and DOT regulations.

**4.5.2.7 Chain of Custody Procedures.** Samples shall be collected, transported, and received under strict chain of custody protocols consistent with procedures established by the EPA for litigation-related materials. Upon receipt at the laboratory, the laboratory shall provide a specific mechanism through which the disposition and custody of the samples are accurately documented during each phase of the analytical process.

**4.5.2.8 Sample Information Documentation.** All information pertinent to the environmental samples, including specific field collection data, names of sampling personnel, and laboratory observations shall be recorded in permanently bound notebooks. The Contractor Laboratory shall also employ a specific information management system to assist in tracking the progress of each sample through the analytical process.

#### **4.6 ANALYTICAL PROCEDURES.**

**4.6.1** All samples shall be prepared/analyzed per the analytical procedures specified in Table 5.0. Alternate or additional procedures must be pre-approved by the CO. Some or all of the analyses may be conducted in a mobile laboratory at the site provided that such laboratory and all analytical methods meet the requirements for a Contractor Laboratory as specified elsewhere in this document.

**4.6.2** The results of the above analyses will provide the final determination as to the presence and extent of contamination (as verified by the appropriate QA/QC procedures); however, the Contractor may wish to investigate the availability of colorimetric or other "field" analytical methods. If appropriate, such methods could be used to provide a preliminary indication of contamination at the sampling locations. The use of such a method is subject to review and approval by the CO, and must meet the requirements for a Contractor Laboratory as outlined elsewhere in this document.

**4.6.3** The CDAP shall provide specific details concerning the analytical procedures employed based on the Contractor's specific capabilities and assessment of the site, subject to CO approval.

**4.6.4** Sample results with a TPH concentration of less than 50 mg/kg are considered "clean." The excavated material represented by these samples may be used as backfill. Higher TPH concentrations require the material to be disposed of at a waste landfill approved by the State of Virginia.

**4.7 ANALYTICAL/STATISTICAL/CONTROL PARAMETERS.**

**4.7.1 Accuracy.** Accuracy shall be evaluated through the collection and analysis of matrix spike samples. Five percent of the environmental samples collected shall be collected in sufficient quantity such that a matrix spike can be generated in addition to an aliquot reserved for actual sample analysis. The matrix spike sample shall be fortified with a series of method target compounds, while a second aliquot of the sample should be analyzed unfortified. Accuracy shall be measured in terms of percent recovery of each of the fortified components.

**4.7.2 Sensitivity.** The sensitivity of each analytical method employed shall be determined according to protocols established in SW-846. Method detection limits determined in this manner will be equivalent to those provided in each of the specific analytical methods.

**4.7.3 Precision.** Precision shall be evaluated through the collection and analysis of field duplicate samples. Field duplicates shall be collected at a frequency of one duplicate for each ten samples of a given matrix. The relative percent difference between each sample and duplicate shall be calculated and used as a measure of precision.

**4.7.4 Contractor Internal QC Checks.** The Contractor shall, as a minimum, analyze internal QC samples at the frequency specified in the method. These QC samples should include: method blanks, external reference samples, and laboratory control samples. Appropriate mechanisms, including the definition of laboratory control limits for each of these elements, shall be established to ensure that control is maintained. A specific system detailing the protocols to be followed in the event that any internal QC check sample does not meet laboratory acceptance criteria should be implemented. This system shall include the mechanism by which corrective action taken in the event of any non-conformance event is documented and assurance provided that the system in question remains in control.

**4.7.5 External QA/QC Samples.** QA/QC samples are field splits and duplicates. Duplicate/split samples to be analyzed by both the Contractor Laboratory and the QA Laboratory shall be collected at a frequency of 10 percent for each matrix sampled (see Table 4.0). The Contractor shall be responsible for the collection, labeling, packing, and shipping of QA samples to the QA Laboratory.

**4.7.5.1** The results from the Contractor Laboratory for such samples shall be reported to the CO within three working days of sample collection for comparison to the QA Laboratory's results. It is the responsibility of the CO to report any significant discrepancies between these two results to the Contractor Laboratory. In the event of such an occurrence, the

Contractor Laboratory must initiate an investigation into possible reasons for the discrepancy, and submit a plan to resolve the problem. All such activities shall be considered as non-conformance events, and be supported by the appropriate documentation.

**4.7.6 Representative Samples.** For field sample collection, it is the responsibility of the sampling team to conduct their activities such that representativeness is ensured when field duplicates or split samples are collected. This includes the use of appropriate sample homogenization procedures that do not interfere with the particular parameters of interest, to ensure that each duplicate/split sample will be representative of the whole sample.

**4.7.6.1** Laboratory procedures must be established to ensure that aliquots used for sample analysis are representative of the whole sample. Similarly, any such procedures employed at the laboratory level shall not interfere with the concentration or composition of the analyses in the sample.

**4.7.7 Data Comparability.** The Contractor Laboratory shall make the necessary provisions to ensure the comparability of all data. These procedures include, but are not limited to, the use of standard approved methodologies, the use of standard units and report format, the use of calculations as referenced in the methodology for quantitation, and the use of standard measures of accuracy and precision for quality control samples.

**4.7.8 Performance Evaluation Samples.** In addition to any performance audit samples submitted by the CO during this project, the Contractor Laboratory shall be a participant in performance evaluation programs offered through agencies such as the EPA on the federal level, and other such programs offered or mandated at the state level.

**4.8 CALIBRATION PROCEDURES AND FREQUENCY.** A list of field and laboratory instrumentation (include details on manufacturer, models, accessories, etc.) procedures used for calibration and frequency of checks shall be required. The instrumentation and calibrations shall be consistent with the requirements of the contract and EPA-approved analytical method requirements. Calibration procedures and certification documents shall be submitted to the CO.

**4.9 PREVENTIVE MAINTENANCE.**

**4.9.1** A preventive maintenance program for all facilities and instrumentation used by the Contractor for sampling and analyses shall be presented in the CDAP.

**4.9.2** The Contractor Laboratory shall maintain a bound log book for each analytical instrument. This book serves as a permanent record documenting any routine preventive maintenance performed, as well as any service performed by external individuals such as manufacturer's service representatives. In any case, any maintenance activities must be performed by individuals qualified to perform the particular task involved. All records shall be made available for the CO's inspection upon request.

**4.10 DATA ANALYSIS AND REPORTING.** The CDAP shall describe how

reports will be structured and what information will be included. In addition to the results obtained from the analysis of environmental samples, all reports shall include all pertinent data obtained from the analysis of both internal and external quality control samples, including, but not limited to, surrogate spike data, matrix spike data, method blank results, and detection limits.

**4.10.1** The Contractor shall provide in the CDAP for each analytical method and major measurement parameter the following:

**4.10.1.1 Calculations.** The Contractor shall provide, for each analytical method, detail regarding the data analysis scheme including units and equations required to calculate concentrations or the value of the measured parameter.

**4.10.1.2 Procedures to Ensure Data Integrity.** The Contractor shall identify the principal criteria used to assure data integrity during collection and reporting. The means of establishing these criteria must be identified as well as procedures implemented to provide corrective action when data or instrumentation do not meet these criteria.

**4.10.1.3 Treatment of Outliers.** The Contractor shall describe the specific mechanisms employed when outlier data are identified. Limits of data acceptability not shall be exceeded. Details provided shall include a description of the phase of the analytical process where these systems are employed, and the process by which subsequent decisions regarding the disposition of the data in question are made. Information justifying the poor recovery or precision shall be documented when limits are exceeded. The CO will then decide what further action, if any, need be taken. Personnel responsible for initiating and executing a corrective action shall be indicated in the protocol.

**4.10.1.4 Data Management.** The Contractor shall provide detailed information regarding the handling of data, including the types and mechanisms of review processes and the qualifications of the various individuals involved in this activity.

**4.10.1.5** The Contractor shall describe the specific procedures employed to archive data, including a description of any hardware involved (computers, etc.). Handling and storage procedures for all raw data shall also be described.

**4.10.2 Quality Assurance.** In addition to the samples generated as internal QC checks, ten (10) percent of the samples collected shall be collected as split samples for shipment to the QA Laboratory as an external check on the laboratory analysis. The CDAP should include information regarding the quantities and types of these samples to be collected.

## **5 CONTRACTOR REPORTS.**

**5.1 CHEMICAL DATA ACQUISITION PLAN (CDAP).** The CDAP shall be prepared in accordance with this Section (01402), and shall be a Category I submittal and should include, at a minimum, the information specified in Paragraph 4.

**5.2 DAILY QUALITY CONTROL REPORTS (DQCR).** The Contractor shall prepare daily a report on each day of the project. Information contained in this report shall include, as a minimum: (a) location of work; (b) weather conditions; (c) work performed; (d) results of any inspections performed; (e) problems identified and associated corrective actions taken, (f) any instructions received from government personnel for retesting; (g) types of tests performed, the individuals performing the tests and test results; (h) general comments; (i) calibration procedures; and (j) the Contractor's certification.

**5.2.1** It is the responsibility of the CO to coordinate the transfer to the Contractor Laboratory all information contained in these reports that is considered to be essential for the QA Laboratory to meet its obligations. It is the responsibility of the Contractor to report to the CO in writing within two working days of significant problems with analytical procedures, instrument calibrations or QC, along with corrective actions that have been taken to solve the problems.

**5.3 CONTRACTOR QUALITY CONTROL SUMMARY REPORT (QCSR).** At the completion of the construction effort, a report summarizing the items discussed above for the construction period shall be prepared by the Contractor. The QCSR shall be prepared by compiling information relative to the project according to the following outline:

**5.3.1 Project Scope**

**5.3.2 Project Description**

**5.3.3 Sampling Procedures**

**5.3.4 Summary of Daily Quality Control Reports**

**5.3.5 Analytical Procedures**

**5.3.6 Data Presentation** including analysis and validation. The Contractor shall describe statistical procedures used in the assessment of data. The Contractor shall discuss any results reflecting significant deviations. All internal QC data (splits, duplicates, etc.) generated during the course of the project must be included in the QCSR.

**5.3.7 QC Activities** (include field and laboratory QC results summary; provide a discussion of the reliability of the data; discuss QC problems encountered).

**5.3.8 Conclusions and Recommendations** (include any pertinent observations made during this project that are of use to future site activities).

TABLE 1.0

BLOCK 600 - RI/FS DESIGN  
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

---

| Wellpoint No. | TFH (mg/l) |
|---------------|------------|
| 601           | <0.05      |
| 601 Dup       | <0.05      |
| 602           | <0.05      |
| 603           | <0.05      |
| 604           | 0.3        |
| 605           | <0.05      |
| 606           | <0.05      |
| 607           | <0.05      |
| 608           | 0.1        |
| 609           | 0.1        |
| 610           | <0.05      |

---

**TABLE 2.0**  
**BLOCK 600 - RI/FS DESIGN**  
**SUMMARY OF UST SAMPLING ANALYTICAL RESULTS - AQUEOUS PHASE**

| Parameter            | Tank No. |        |      |       |         |       |       |       |       |       |       |       |         |
|----------------------|----------|--------|------|-------|---------|-------|-------|-------|-------|-------|-------|-------|---------|
|                      | 609      | 610    | 611  | 612   | 612 Dup | 613   | 615   | 616   | 617   | 620   | 621   | 622   | 622 Dup |
| Montgomery Labs      |          |        |      |       |         |       |       |       |       |       |       |       |         |
| PCBs (µg/l)          | ND       | ND     | ND   | ND    | ND      | ND    | ND    | ND    | ND    | ND    | ND    | ND    | ND      |
| TFH-H (mg/l)         |          |        |      |       |         |       |       |       |       |       |       |       |         |
| First Extraction     | 24       | 164    | 37   | 2.2   | 3       | 74000 | 24    | 7.4   | 24    | 44000 | 140   | 17000 | 1400    |
| Second Extraction    | NA       | 140000 | 77   | NA    | NA      | NA    | 32    | 27    | NA    | NA    | NA    | NA    | NA      |
| TOX (µg/l)           | 25       | 170    | 150  | 22    | 31      | 170   | 89    | 84    | 160   | 100   | 98    | 240   | 290     |
| Metals (mg/l)        |          |        |      |       |         |       |       |       |       |       |       |       |         |
| Arsenic              | <.025    | <.10   | <.10 | <.025 | <.025   | <.10  | <.10  | <.025 | <.10  | <.10  | <.10  | <.10  | <.10    |
| Cadmium              | <.005    | <.005  | .019 | <.005 | <.005   | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005   |
| Chromium             | <.010    | .01    | .013 | <.010 | <.010   | <.010 | <.010 | <.010 | <.010 | <.010 | <.010 | 0.01  | <.010   |
| Lead                 | .031     | .15    | 4.9  | .01   | .03     | .37   | .39   | .06   | .022  | .03   | .14   | .39   | .28     |
| Microbac Labs, Inc.  |          |        |      |       |         |       |       |       |       |       |       |       |         |
| BTU Content (BTU/lb) | NI       | NI     | NI   | NI    | NI      | 1612  | NI    | NI    | 463   | NI    | NI    | NI    | ---     |
| Moisture (%)         | 83       | 95     | 97   | 96    | 96.5    | 62.5  | 94    | 97.5  | 85    | 39    | 98.7  | 75.2  | ---     |

ND: Not Detected  
 NI: No Ignition  
 NA: Not Analyzed

**TABLE 2.0 (Continued)**  
**BLOCK 600 - RI/FS DESIGN**  
**SUMMARY OF UST SAMPLING ANALYTICAL RESULTS - AQUEOUS PHASE**

| Parameter            | Tank No. |        |        |        |        |        |        |        |        |        |
|----------------------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                      | 625      | 629    | 632    | 635    | 636    | 643    | 644    | 646    | 647    | 648    |
| Montgomery Labs      |          |        |        |        |        |        |        |        |        |        |
| PCBs (µg/l)          | ND       | ND     | ND     | ND     | ND     | ND     | ND     | ND     | ND     | ND     |
| TFH-H (mg/l)         |          |        |        |        |        |        |        |        |        |        |
| First Extraction     | 32       | 1.2    | 100    | ---    | 46     | 460    | 3.2    | 26     | 520    | 11     |
| Second Extraction    | NA       | NA     | 81     | 54     | 7.8    | NA     | <0.05  | 4.5    | NA     | 7.1    |
| TOX (µg/l)           | 49       | 40     | 150    | 27     | 280    | 160    | 20     | 130    | 66     | 61     |
| Metals (mg/l)        |          |        |        |        |        |        |        |        |        |        |
| Arsenic              | <0.10    | <0.10  | <0.10  | <0.10  | <0.10  | <0.10  | <0.10  | <0.10  | <0.10  | <0.10  |
| Cadmium              | <0.005   | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Chromium             | <0.010   | 0.01   | <0.010 | <0.010 | <0.010 | 0.013  | <0.010 | <0.010 | 0.012  | <0.010 |
| Lead                 | 0.8      | 0.15   | 0.46   | 0.06   | 0.18   | 0.57   | <0.01  | 0.05   | 0.28   | 0.12   |
| Microbac Lab, Inc.   |          |        |        |        |        |        |        |        |        |        |
| BTU Content (BTU/lb) | 893      | NI     | NI     | NI     | NI     | 747.8  | NI     | NI     | NI     | NI     |
| Moisture (%)         | 88.5     | 91     | 66     | 86     | 94     | 66.5   | 71     | 96.5   | 79     | 96.5   |

ND: Not Detected  
 NI: No Ignition  
 NA: Not Analyzed

**TABLE 3.0**  
**BLOCK 600 - RI/FS DESIGN**  
**SUMMARY OF UST SAMPLING ANALYTICAL RESULTS - FREE PRODUCT PHASE**

| Parameter                       | Tank No. |         |       |       |       |       |       |       |       |       |       |       |
|---------------------------------|----------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                 | 607      | 607 Dup | 609   | 610   | 614   | 618   | 620   | 622   | 623   | 628   | 630   | 636   |
| Montgomery Laboratories         |          |         |       |       |       |       |       |       |       |       |       |       |
| PCBs (µg/kg)                    | ND       | ND      | ND    | ND    | ND    | ND    | ND    | ND    | ND    | ND    | ND    | ND    |
| TFH-H (mg/kg, 10 <sup>6</sup> ) | 1.05     | 1.18    | 1.06  | 1.02  | 0.94  | 0.96  | 1.15  | 1.00  | 1.10  | 1.03  | 1.09  | 1.10  |
| TOX (mg/kg)                     | <100     | <100    | <100  | <100  | <100  | <100  | <100  | <100  | <100  | <100  | <100  | <100  |
| Metals (mg/kg)                  |          |         |       |       |       |       |       |       |       |       |       |       |
| Arsenic                         | <0.25    | <0.25   | <0.25 | <1.0  | <0.5  | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <1.0  | <0.25 |
| Cadmium                         | <0.05    | <0.05   | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | 0.1   | <0.05 | <0.05 | <0.05 |
| Chromium                        | <0.1     | <0.1    | <0.1  | <0.1  | <0.1  | <0.1  | <0.1  | <0.1  | 0.18  | <0.1  | <0.1  | <0.1  |
| Lead                            | <0.1     | <0.1    | <0.1  | <1.0  | 0.1   | 0.1   | 1     | 0.1   | 43    | 13    | <1.0  | 58    |
| Flash Point (°F)                | 138      | 134     | 127   | >140  | >140  | 137   | >140  | 135   | >140  | 130   | >140  | >140  |
| Microbac Laboratories, Inc.     |          |         |       |       |       |       |       |       |       |       |       |       |
| Moisture (%)                    | <0.5     | <0.5    | <0.5  | <0.5  | <0.5  | <0.5  | 1     | <0.5  | 1.3   | <0.5  | <0.5  | 27.2  |
| BTU Content (BTU/lb)            | 19468    | 19387   | 19457 | 17003 | 19545 | 19520 | 19480 | 19443 | 1654  | 19471 | 19560 | 14235 |

ND: Not Detected

TABLE 4.0

NUMBER OF SAMPLES BY ANALYTE AND MATRIX<sup>a</sup>

| Type of Sample                    | Field Samples <sup>b</sup> | Quality Assurance and Quality Control |         |          |         |             |         | Total Contractor Sample |
|-----------------------------------|----------------------------|---------------------------------------|---------|----------|---------|-------------|---------|-------------------------|
|                                   |                            | Splits/Dups <sup>c</sup>              |         | Rinsates |         | Trip Blanks |         |                         |
|                                   |                            | QC                                    | QA (CE) | QC       | QA (CE) | QC          | QA (CE) |                         |
| Soil Samples from Tank Excavation | 84                         | 9                                     | 9       | NR       | NR      | NR          | NR      | 93                      |
| Soil Samples from Overexcavation  | 25                         | 3                                     | 3       | NR       | NR      | NR          | NR      | 28                      |
| Stockpiled Soil                   | 28                         | 3                                     | 3       | NR       | NR      | NR          | NR      | 31                      |

## Notes:

<sup>a</sup> Abbreviations: QC = Quality Control duplicate sample for contractor laboratory  
 QA (CE) = Quality Assurance split sample for QA laboratory  
 NR = Not required

<sup>b</sup> Field Samples: The number of field samples reflects the actual number of samples to be taken for analysis during the field sampling activities.

<sup>c</sup> Quality Control/Duplicates: The frequency of QC/duplicate samples are normally 10 percent of the number of field samples of that set. A "set" refers to a group of samples of the same matrix and collected at one site or geographical location during a specific finite period of time. At a minimum, one sample from each set will be collected for QC purposes.

Quality Assurance Splits: The frequency of QA split samples are normally 10 percent of the number of field samples of that set. A "set" refers to a group of samples of the same matrix and collected at one site or geographical location during a specific finite period of time. At a minimum, one sample from each set will be collected for QC purposes. Splits/duplicates are two or more subsamples of one large sample. These are taken after compositing a large soil sample (after samples for volatile analysis have been removed). These samples are used for both QA and QC purposes for soil samples for all analytes excluding volatiles. It is acceptable to divide soil samples into three portions after compositing (field sample, split for QA, and duplicate for QC).

TABLE 5.0  
 BLOCK 600 - RI/FS DESIGN  
 METHODS FOR SAMPLE ANALYSIS

|                      | Aqueous            | Non-Aqueous        |
|----------------------|--------------------|--------------------|
| TPH                  | 418.1              | SW 846 Method 9073 |
| TOX                  | 9020               | SW 846 Method 9020 |
| TCLP Lead            | 6010               | SW 846 Method 6010 |
| PCB                  | 608                | SW 846 Method 8080 |
| BTEX                 | 602                | SW 846 Method 8020 |
| Paint Filter Liquids | ---                | SW 846 Method 9095 |
| TCLP Benzene         | SW 846 Method 8240 | SW 846 Method 8240 |

APPENDIX A  
SAMPLE HANDLING PROTOCOL  
FOR  
LOW, MEDIUM AND HIGH CONCENTRATION SAMPLES  
OF  
HAZARDOUS WASTE

1. Purpose. This protocol provides guidance on sample volumes, containers, packing, and shipping for low, medium, and high concentration environmental samples taken for chemical analysis.

2. Applicability. The guidance in this appendix applies to all samples taken by USACE for HTW chemical analysis. The requirements are consistent with those of the Environmental Protection Agency and all standard chemical methods generally used are included.

3. Low Concentration Samples. Low level samples are considered to be those collected off-site, around the perimeter of a waste site, or in areas where hazards are thought to be significantly reduced by normal environmental processes.

a. Waters.

(1) Organics.

(a) Bottle and Preservative Requirements.

- o Four 1-liter amber glass bottles (Teflon-lined caps), iced to 4°C (may not be held at site over 24 hours). Remember: Leave some headspace!
- o Two 40 mL glass VOA vials (with Teflon septa), iced to 4°C (may not be held at site over 24 hours). Fill completely! All air bubbles must be excluded. Add HCl (4 drops of concentrated HCl) or NaHSO<sub>4</sub> to pH < 2.
- o The samples above are needed when Method 8240 is used to analyze for volatile (or purgeable) organics, when Methods 8250 or 8270 are used to analyze for Base/Neutral/Acid (B/N/A) extractable organics, and when Method 8080 is used to analyze for pesticides and PCB's. Two of the 1-L bottles are needed for 8250 or 8270 and two for 8080.

- o Oil and Grease, Total Organic Carbon (TOC) or TRPH. For each analyte, two 1-liter glass bottle (Teflon-lined cap), 5 mL 1:1 HCl (to pH < 2), and 4°C. Leave headspace.

(b) Paperwork/Labels.

- o (ENG Form 5021-R) Chain of Custody Record. See attached example. It is important to note that only one site may be listed per form even if the sites have the same project number. Top original goes with the samples; a copy should be saved for the sampler's files.
- o Receipt for Samples. See attached example. This form complies with the requirements that the owner, operator, or agent-in-charge is legally entitled to: (1) a receipt describing the samples obtained from the site and; (2) a portion of each sample equal in weight or volume to the portion retained, if requested. The original form is retained for the Project Coordinator and a copy is given to the owner, operator, or agent-in-charge.
- o Sample Labels/Tags. See attached example. You must label the sample with a date, time of collection, site name, and brief description on a label that will not float/soak off - no masking tape, please. Use only indelible ink on all labels. Numbered sample labels should be used on all samples. Some projects may also require the use of sample tags in addition to labels.

(c) Packaging and Shipping.

- o Waterproof metal (or equivalent strength plastic) ice chests or coolers only.
- o After filling out the pertinent information on the sample label and tag, put the sample in the bottle or vial and screw on the lid. For bottles other than VOA vials, secure the lid with strapping tape. (Tape on VOA vials may cause contamination.) Then, secure the string from the numbered approved tag around the lid.
- o Mark volume level on bottle with grease pencil.

- o Place about 3 inches of inert cushioning material such as vermiculite in the bottom of the cooler.
- o Enclose the bottles in clear plastic bags through which sample tags and labels are visible, and seal the bag. Place bottles upright in the cooler in such a way that they do not touch and will not touch during shipment.
- o Put in additional inert packing material to partially cover sample bottles (more than halfway). Place bags of ice around, among, and on top of the sample bottles. If chemical ice is used, it should be placed in a plastic bag.
- o Fill cooler with cushioning material.
- o Put paperwork (chain of custody record) in a waterproof plastic bag and tape it with masking tape to the inside lid of the cooler.
- o Tape the drain shut.
- o Secure lid by taping. Wrap the cooler completely with strapping tape at a minimum of two locations. Do not cover any labels.
- o Attach completed shipping label to top of the cooler.
- o Put "This Side Up" labels on all four sides and "Fragile" labels on at least two sides.
- o Affix numbered and signed custody seals on front right and back left of cooler; Cover seals with wide, clear tape.

Remember that each cooler cannot exceed the weight limit set by the shipper.

(2) Inorganics.

(a) Bottle and Preservative Requirements.

- o Metals. One 1-liter high density polyethylene bottle (Teflon-lined cap), adjust to pH < 2 with 1:1 HNO<sub>3</sub> (usually 3 mL).

- o Cyanides. One 1-liter high density polyethylene bottle (Teflon-lined cap), adjust to pH > 12 with NaOH (usually 2 mL of 10N NaOH or 4 pellets), and 4°C.
- o Sulfide. One 1-liter high density polyethylene bottle (Teflon-lined cap), 4 mL 2.0 N zinc acetate and adjust pH > 9 with NaOH, and 4°C.
- o Fluoride. One 1-liter high density polyethylene bottle (Teflon-lined cap), no preservative, and 4°C.
- o pH. No preservative. Must be measured twice immediately in field. Do not ship.
- o Ammonia, Total Kjeldahl Nitrogen, Nitrate/Nitrite. For each analyte, one 1-liter high density polyethylene bottle (Teflon-lined cap), adjust to pH < 2 with H<sub>2</sub>SO<sub>4</sub> (usually 4 mL 1:1 H<sub>2</sub>SO<sub>4</sub>), and 4°C.

(b) Paperwork/Labels.

- o Inorganic Paperwork is the same as described for organics (see Section 3.a.(1).(b). above) and includes the Chain of Custody Record, Receipt for Samples, and Labels/Sample Tags. See previous examples and explanations.

(c) Packaging and Shipment.

- o Follow packaging and shipping requirements listed for organics (see Section 3.a.(1).(c). above). "Fragile" labels are optional for coolers not containing glass bottles. In cases where ice is not required (metals), fill cooler with only packing material. Once again, remember that the cooler must not exceed the shipper's weight limit.

b. Soils/Sediments (Organics and Inorganics).

(1) Bottle and Preservative Requirements.

- o Two 8-ounce glass wide mouth jars at least 3/4 full (Teflon-lined caps), iced to 4°C - one jar for organics (non-VOA) and one jar for inorganics. For analysis of volatiles in soil, two 40 mL VOA vials or two 125 mL jars with Teflon septa are used. These should be completely filled and iced to 4°C.

(2) Paperwork/Labels.

- o Follow paperwork requirements listed for water samples in Section 3.a.(1).(b). above. See attached examples of forms.

(3) Packaging and Shipping.

- o Follow packaging and shipping requirements in Section 3.a.(1).(c). above. Be sure that the shipping cooler does not exceed the shipper's weight limits.

4. Medium Concentration Samples. Medium level samples are most often those collected on-site, in areas of moderate dilution by normal environmental processes.

a. Water/Liquids (Organics and Inorganics).

Note: Samples are not known to contain highly toxic compounds.

(1) Bottle and Preservative Requirements.

- o Four 32-ounce wide mouth glass jars (Teflon-lined caps), no preservatives, and iced to 4°C for B/N/A extractable organics and PCB/Pesticides (two jars for each method). Remember: Leave some headspace.
- o Two 40 mL glass VOA vials (Teflon septa), Iced to 4°C. Fill completely. No headspace.
- o Two 16-ounce wide mouth glass jars nearly full (Teflon-lined caps) one for metals and one for cyanides. (Preserved as for low level. See Section 3.a.(2).(a).)

(2) Paperwork/Labels.

- o See previous examples. Follow paperwork requirements in Section 3.a.(1).(b). for low concentration samples.

(3) Packaging and Shipping

- o Secure sample jar lids with strapping tape or evidence tape. At the same time secure string from USEPA numbered tag around lid.

- o Mark volume level of bottle with grease pencil.
- o Position jar in Ziploc bag so that tags may be read.
- o Place about 1/2 inch of cushioning material in the bottom of metal can.
- o Place jar in can and fill remaining volume of can with cushioning material.
- o Close the can using three clips to secure lid.
- o Write sample number on can lid. Indicate "This Side Up" by drawing an arrow and place "Flammable Liquid N.O.S." label on can. Personnel who ship samples must be sure to comply with DOT shipping regulations and not knowingly over-classify a sample prior to shipment. If the person shipping a sample knows that the sample is not a "Flammable Liquid" (i.e., a water phase sample or a soil sample), he should not classify it as "Flammable Liquid."
- o Place about 1 inch of packing material in bottom of cooler.
- o Place cans in cooler and fill remaining volume of cooler with packing material. Add ice bags if required.
- o Put paperwork in plastic bags and tape with masking tape to inside lid of cooler.
- o Tape drain shut.
- o After acceptance by shipper, tape cooler completely around with strapping tape at two locations. Secure lid by taping. Do not cover any labels.
- o Place lab address on top of cooler.

**Note:** Write "Flammable Liquid N.O.S." on side of cooler if this is not marked on the margin of your DOT label.

- o For all medium and high concentration shipments, complete shipper's hazardous material certification form.

- o Put "This Side Up" labels on all four sides sides, "Flammable Liquid N.O.S." and "Danger-Peligro" on all sides.

**Note:** "Danger-Peligro" labels should be used only when net quantity of samples in cooler exceeds 1 quart (32 ounces) for liquids or 25 pounds for solids. In other words, for our purposes "Danger-Peligro" labels will never be used for Flammable Solids N.O.S.

- o Affix number custody seals on front right and back left of cooler. Cover seals with wide, clear tape.

b. Soils/Sediments/Solids (Organics and Inorganics).

(1) Bottles and Preservatives Requirements.

- o For analysis of volatiles, two 40 mL VOA vials or two 125 mL jars with Teflon septa are used. These should be completely filled and iced to 4°C.
- o Two 8-ounce wide mouth glass jars, 3/4 full (Teflon-lined caps), no preservatives, one jar for organics (non-VOA) and one jar for inorganics (metals and cyanide) or
- o Four 4-ounce wide mouth glass jars each 3/4 full (Teflon-lined caps), no preservative; two jars for organics (non-VOA) and two jars for inorganics.

(2) Paperwork/Labels.

- o See previous examples. Follow paperwork requirements listed in Section 3.a.(1).(b). for low concentration samples.

(3) Packaging and Shipping.

- o Follow packaging and shipping requirements listed in Section 3.a.(1).(c). for medium concentration water/liquids above substituting "Flammable Liquid N.O.S." with "Flammable Solid N.O.S."

5. High Concentration Samples (Hazardous: Determined Not to be D.O.T.-Defined Poison A). High concentration samples include those from drums, surface impoundments, direct discharges, and chemical spills, where there is little or no evidence of environmental dilution. High concentration (or high

hazard) samples are suspected to contain greater than 15% concentration of any individual chemical substituent.

a. Liquids (Organics and Inorganics).

(1) Bottle and Preservative Requirements.

- o One 8-ounce wide mouth glass jar filled 1/2 to 3/4 full (Teflon-lined cap). No preservative.

(2) Paperwork/Labels.

(a) See previous examples. Follow paperwork requirements listed in Section 3.a.(1).(b). above.

(b) Shipper may require special forms to be completed before shipment of high hazard concentration samples.

(3) Packaging and Shipping.

- o Follow packaging and shipping requirements listed in Section 3.a.(1).(c). above for medium concentration water/liquids.

b. Soils/Sediments/Solids (Organics and Inorganics).

(1) Bottle and Preservative Requirements.

- o One 8-ounce wide-mouth glass jar filled 1/2 to 3/4 full (Teflon-lined cap). No preservative.

(2) Paperwork/Labels.

- o See attached examples. Follow paperwork requirements in Section 3.a.(1).(b). above.

(3) Packaging and Shipping.

- o Follow packaging and shipping requirements listed in Section 3.a.(1).(c). for medium concentration water/liquids, substituting "Flammable Liquid N.O.S." with "Flammable Solid N.O.S."

TABLE F-1

## SAMPLE CONTAINERS, PRESERVATIVES, AND HOLDING TIMES

| <u>Matrix</u>  | <u>Parameter</u> <sup>1</sup> | <u>Container</u> <sup>2</sup>                 | <u>Preservation</u> <sup>3</sup>                                  | <u>Maximum Holding Times:</u>  |                                     |
|----------------|-------------------------------|---|---|--------------------------------|-------------------------------------|
|                |                               |   |   | <u>Extraction</u> <sup>4</sup> | <u>Analysis</u>                     |
| Water          | Volatiles                     | 2 x 40 mL <sup>8</sup><br>G, Septa<br>vial    | Ice to 4°C<br>4 drops con<br>HCl or NaHSO <sub>4</sub><br>to pH<2 | -                              | 14 d                                |
| Water          | B/N/A                         | 2 x 1 L <sup>5,8</sup><br>amber G             | Ice to 4°C  | 7 d                            | 40 d                                |
| Water          | PCBs,<br>Pesticides           | 2 x 1 L <sup>5,8</sup><br>amber G             | Ice to 4°C  | 7 d                            | 40 d                                |
| Water          | Metals <sup>6</sup>           | 1 x 1 L P                                     | HNO <sub>3</sub> to pH<2  | -                              | 6 mo <sup>6</sup>                   |
| Water          | TRPH                          | 2 x 1 L G                                     | Ice to 4°C<br>HCl to pH<2   | -                              | 28 d                                |
| Water          | Common,<br>anions             | 1 x 1 L <sup>7</sup> G                        | Ice to 4°C  | -                              | 28 d <sup>7</sup>                   |
| Water          | Explosives                    | 2 x 1 L G<br>(amber)                          | Ice to 4°C  | 7 d                            | 40 d                                |
| Water          | Cyanide                       | 1 x 1 L P                                     | NaOH to pH>12<br>Ice to 4°C                                       | -                              | 14 d                                |
| Soils/<br>Sed. | Volatiles                     | 2 x 40 ml G<br>or 2 x 125 mL G,<br>Septa vial | Ice to 4°C  | -                              | 14 d                                |
| Soils/<br>Sed. | B/N/A, PCBs,<br>Pesticides    | 1 x 8 oz G                                    | Ice to 4°C  | 14 d                           | 40 d                                |
| Soils/<br>Sed. | Metals,<br>Cyanide,<br>TRPH   | 1 x 8 oz G                                    | Ice to 4°C<br>(Cyanide & TRPH)                                    | -                              | 6 mo <sup>6</sup><br>(TRPH:<br>28d) |
| Soils/<br>Sed. | Explosives                    | 1 x 4 oz G                                    | Ice to 4°C  | 14 d                           | 40 d                                |

TABLE F-2

SAMPLE CONTAINERS AND PRESERVATIVES<sup>9</sup>

| <u>Medium Concentration Samples</u> |                                   |                                 |                                  |
|-------------------------------------|-----------------------------------|---------------------------------|----------------------------------|
| <u>Matrix</u>                       | <u>Parameter</u> <sup>1</sup>     | <u>Container</u> <sup>2</sup>   | <u>Preservation</u> <sup>3</sup> |
| Water/Liquid                        | Volatiles                         | 2 x 40 mL G,<br>Septa vial      | Ice to 4°C <sup>8</sup>          |
| Water/Liquid                        | B/N/A <sup>5</sup>                | 2 x 32 oz wide<br>mouth jars, G | Ice to 4°C <sup>8</sup>          |
| Water/Liquid                        | PCBs <sup>5</sup> ,<br>Pesticides | 2 x 32 oz wide<br>mouth jars, G | Ice to 4°C <sup>8</sup>          |
| Water/Liquid                        | Metals                            | 1 x 16 oz wide<br>mouth jar, G  | HNO <sub>3</sub> to pH<2         |
| Water/Liquid                        | Cyanide                           | 1 x 16 oz wide<br>mouth jar, G  | Ice to 4°C                       |
| Water/Liquid                        | Explosives                        | 2 x 1 L G<br>(Amber)            | Ice to 4°C                       |
| Soils/<br>Sediments                 | Volatiles                         | 2 x 40 ml G or<br>2 x 125 mL G  | Ice to 4°C                       |
| Soils/<br>Sediments                 | B/N/A, PCBs,<br>Pesticides        | 1 x 8 oz wide<br>mouth jar, G   | ---                              |
| Soils/<br>Sediments                 | Metals,<br>Cyanide,<br>TRPH       | 1 x 8 oz wide<br>mouth jar, G   | Ice to 4°C<br>(Cyanide & TRPH)   |
| Soils/<br>Sediments                 | Explosives                        | 1 x 4 oz wide<br>mouth jar, G   | Ice to 4°C                       |

High Concentration Samples

| <u>Matrix</u> | <u>Parameter</u> <sup>1</sup>            | <u>Container</u> <sup>2</sup> | <u>Preservation</u> |
|---------------|--|-------------------------------|---------------------|
| Liquid        | All organic<br>and inorganic<br>analyses | 1 x 8 oz wide<br>mouth jar, G | ---                 |
| Solid         | All organic<br>and inorganic<br>analyses | 1 x 8 oz wide<br>mouth jar, G | ---                 |

1. B/N/A = Base/Neutral/Acid extractables; TRPH = Total Recoverable Petroleum Hydrocarbons
2. All containers must have Teflon-lined seals (Teflon-lined septa for VOA vials). G = Glass; P = High density polyethylene.
3. Sample preservation will be done in the field immediately upon sample collection. If water samples are filtered in the field, differential pressure methods using 45 micron filters will be used, and preservative added after filtration. VOA samples should never be filtered.
4. When only one holding time is given, it implies total holding time from sampling until analysis.
5. Three bottles are required on at least 5-10% (but at least one) sample so that laboratory can perform all method QC checks for SW-846 method.
6. Total Recoverable Metals for water samples. Holding time for Hg is 28 days in glass; for Cr(VI) is 24 hours.
7.  $\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{F}^-$ ,  $\text{NO}_2^-$ ,  $\text{NO}_3^-$ ,  $\text{PO}_4^{3-}$ ,  $\text{SO}_4^{2-}$ ; 1 L for each method; orthophosphate requires filtration. Holding time for extraction is 48 hours for  $\text{NO}_2^-$ ,  $\text{NO}_3^-$ , and  $\text{PO}_4^{3-}$  if not preserved with  $\text{H}_2\text{SO}_4$  to  $\text{pH} < 2$ .
8. Samples with residual chlorine present will be dechlorinated with sodium thiosulfate as specified in SW-846 (Third edition).
9. Holding times for medium concentration samples are the same as those specified for low concentration samples.



SAMPLE

U.S. Army Corps of Engineers

Chain of Custody Record  
(ER 1110-1-263)

| Proj. No.                            |      | Project Name                    |    |                                    |                         | Number of Containers | Volatile Organics | B/N/A | TOTAL METALS                          | TRPH | EXPLOSIVES | Remarks                 |
|--------------------------------------|------|---------------------------------|----|------------------------------------|-------------------------|----------------------|-------------------|-------|---------------------------------------|------|------------|-------------------------|
| 017                                  |      | ANY ARMY AMMUNITION PLANT       |    |                                    |                         |                      |                   |       |                                       |      |            |                         |
| Sampler: (Signature)<br>Marcin Chars |      |                                 |    |                                    |                         |                      |                   |       |                                       |      |            |                         |
| Date                                 | Time | Temp.                           | PH | CL                                 | Site Code/Sample Number |                      |                   |       |                                       |      |            |                         |
| 9/4                                  | 0930 | 4°C                             | X  |                                    | AAAP-SB01-0001          | 2                    | X                 |       |                                       |      |            | Strong hydrocarbon odor |
| 9/4                                  | 0935 | 4°C                             | X  |                                    | AAAP-SB01-0001          | 1                    |                   | X     | X                                     |      |            | " " "                   |
| 9/4                                  | 0937 | 4°C                             | X  |                                    | AAAP-SB01-0001          | 1                    |                   |       | X                                     |      |            | " " "                   |
| 9/4                                  | 1035 | PH=2<br>CL<br>4°C               | X  |                                    | AAAP-MW02-0001          | 2                    | X                 |       |                                       |      |            | No visual turbidity     |
| 9/4                                  | 1036 | 4°C                             | X  |                                    | AAAP-MW02-0001          | 2                    |                   | X     |                                       |      |            | " " "                   |
| 9/4                                  | 1040 | PH=2<br>NAO <sub>2</sub><br>4°C | X  |                                    | AAAP-MW02-0001          | 1                    |                   |       | X                                     |      |            | " " "                   |
| 9/4                                  | 1050 | PH=2<br>CL<br>4°C               | X  |                                    | AAAP-MW02-0001          | 2                    |                   |       | X                                     |      |            | " " "                   |
| 9/4                                  | 1055 | 4°C                             | X  |                                    | AAAP-MW02-0001          | 1                    |                   |       |                                       | X    |            | " " "                   |
| -----                                |      |                                 |    |                                    |                         |                      |                   |       |                                       |      |            |                         |
| Sampler: (Signature)<br>Marcin Chars |      | Date/Time<br>9/4/1400           |    | Received by: (Sig.)                |                         |                      | Date/Time         |       | Hazard Associated with Sample<br>NONE |      |            |                         |
| Retrieved by: (Sig.)                 |      | Date/Time                       |    | Received by: (Sig.)                |                         |                      | Date/Time         |       | Remarks at time of receipt:           |      |            |                         |
| Retrieved by: (Sig.)                 |      | Date/Time                       |    | Received for Laboratory by: (Sig.) |                         |                      | Date/Time         |       |                                       |      |            |                         |
| Custody Seal No. 1535                |      |                                 |    | Lab case No.:                      |                         |                      |                   |       |                                       |      |            |                         |

A-13

**SAMPLE LABELS**

|                             |              |
|-----------------------------|--------------|
| SITE NAME                   | DATE         |
| ANALYSIS                    | TIME         |
|                             | PRESERVATIVE |
| LOT # 7052023               |              |
| SPECIALTY CLEANED CONTAINER |              |

|  |                             |
|--|-----------------------------|
| SITE NAME<br><i>Atlas Missile Site</i> | DATE<br><i>6/1/89</i>       |
| ANALYSIS<br><i>Total Metals</i>        | TIME<br><i>1200</i>         |
| <i>Sampler → KC</i>                    | PRESERVATIVE<br><i>HNO3</i> |
| LOT # 7052023                          |                             |
| SPECIALTY CLEANED CONTAINER            |                             |

**SAMPLE TAGS**

|  |             |                       |      |            |      |
|--|-------------|-----------------------|------|------------|------|
| Proj. Code   | Station No. | Month Day Year        | Time | Designate. |      |
|  |             |                       |      | Comp.      | Grab |
| Station Location   |             | Samplers (Signatures) |      |            |      |
| Tag No.  |             | Lab Sample No.        |      |            |      |
| Preservative:<br>Yes <input type="checkbox"/> or No <input type="checkbox"/> |             | ANALYSES              |      |            |      |
| BOD  |             | Anions                |      |            |      |
| Solids (TS) (TDS) (SS)   |             |                       |      |            |      |
| COD, TOC, Nutrients  |             |                       |      |            |      |
| Phenolics  |             |                       |      |            |      |
| Mercury  |             |                       |      |            |      |
| Metals   |             |                       |      |            |      |
| Cyanide  |             |                       |      |            |      |
| Oil and Grease   |             |                       |      |            |      |
| Organics GC/MS   |             |                       |      |            |      |
| Priority Pollutants  |             |                       |      |            |      |
| Volatile Organics  |             |                       |      |            |      |
| Pesticides   |             |                       |      |            |      |
| Mutagenicity   |             |                       |      |            |      |
| Bacteriology   |             |                       |      |            |      |
| Remarks:   |             |                       |      |            |      |

|  |                             |  |                     |            |                                     |
|--|-----------------------------|--|---------------------|------------|-------------------------------------|
| Project Code<br><i>W65310.001</i>  | Station No.<br><i>MW 26</i> | Month/Day/Year<br><i>5-28-83</i>         | Time<br><i>1007</i> | Designate. |                                     |
|  |                             |  |                     | Comp.      | Grab                                |
| Station Location<br><i>Monitoring well #26<br/>Split Spoon #11</i>                   |                             | Samplers (Signatures)<br><i>Jane Doe</i> |                     |            |                                     |
| Tag No.<br><i>10502</i>  |                             | Lab Sample No.                           |                     |            |                                     |
| Preservative:<br>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |                             | ANALYSES                                 |                     |            |                                     |
| BOD  |                             | Anions                                   |                     |            |                                     |
| Solids (TS) (TDS) (SS)   |                             |  |                     |            |                                     |
| COD, TOC, Nutrients  |                             |  |                     |            |                                     |
| Phenolics  |                             |  |                     |            |                                     |
| Mercury  |                             |  |                     |            |                                     |
| Metals   |                             |  |                     |            |                                     |
| Cyanide  |                             |  |                     |            |                                     |
| Oil and Grease   |                             |  |                     |            |                                     |
| Organics GC/MS   |                             |  |                     |            | <input checked="" type="checkbox"/> |
| Priority Pollutants  |                             |  |                     |            | <input checked="" type="checkbox"/> |
| Volatile Organics  |                             |  |                     |            | <input checked="" type="checkbox"/> |
| Pesticides   |                             |  |                     |            | <input checked="" type="checkbox"/> |
| Mutagenicity   |                             |  |                     |            |                                     |
| Bacteriology   |                             |  |                     |            |                                     |
| Remarks: <i>Case 1746<br/>ITR # HE0637<br/>Bottle Lot # 63120</i>                    |                             |  |                     |            |                                     |

ZERO ACCIDENTS

SECTION 01500  
SUMMARY OF WORK

INDEX

- |                     |                                   |
|---------------------|-----------------------------------|
| 1. Site Location    | 3. Related Requirement            |
| 2. Site Description | 4. Description of Site Activities |

**1 SITE LOCATION.** Ft. Story is located in southeastern Virginia approximately two miles north of Virginia Beach at the mouth of the Chesapeake Bay. Ft. Story occupies an area of approximately 1,450 acres. The installation is currently active.

**2. SITE DESCRIPTION.**

**2.1 FACILITY CHARACTERISTICS.** The Block 600 site currently exists as a flat, wide-open mowed lawn area. The site is the former location of 39 enlisted men's barracks constructed prior to World War II. Within the last 5 years, all but two of the barracks were demolished by burning. All unburnable debris left after the burning of the structures was disposed of off-site. Twenty-eight (28) underground fuel oil storage tanks have been identified as still remaining at the site and require excavation and disposal.

**2.2 UNDERGROUND STORAGE TANKS (USTs).** Twenty-eight (28) USTs are present at the Block 600 site. Site activities will include removal, cleaning and disposal of these tanks and associated piping; the removal and disposal of all tank contents; and the removal, analysis, and disposal of contaminated soil.

**2.3 PROXIMITY TO BASE PERSONNEL.** The excavation areas are in close proximity to areas trafficked by Installation personnel. The Base Exchange is located at the southwest corner of the site.

**2.4 UTILITY SYSTEM.** Active utility systems are still located at Block 600. These systems include electrical, water, sewer, and stormwater. These systems are to be left intact during tank removal activities unless approval for service interruption is approved in advance by the Contracting Officer.

**2.5 EXISTING PROTECTIVE FACILITIES.** No site security currently exists at the Block 600 site. The Contractor shall be responsible for securing the work area and any open excavations to prevent accidental injury to Installation personnel.

**2.6 GROUNDWATER SAMPLES.** Groundwater samples were collected and analyzed for total fuel hydrocarbons (TFH) during a previous site investigation. Of eleven samples collected, all but three were below detection limits of 0.05 milligrams per liter (mg/l). TFH was detected in two samples at a concentration of 0.1 mg/l and in one sample at a concentration of 0.3 mg/l. No other parameters were analyzed for in the groundwater.

**2.7 TANK CONTENT SAMPLES.** The tanks contain varying quantities of water and/or free product. No measurable quantities

of sludge were detected in any tanks. One tank, Tank 612, contains approximately one foot of sand. Tank liquids present in measurable/collectable quantities were analyzed for TFH, total organic halogens (TOX), polychlorinated biphenyls (PCBs), arsenic, cadmium, chromium, and lead. Lead was present in the free product of seven (7) of the thirteen (13) tanks containing free product. Four (4) tanks contained lead in concentrations less than 1 milligram per kilogram (mg/kg). Three tanks, Tanks 623, 628, and 636, contained lead at concentrations of 43 mg/kg, 13 mg/kg, and 58 mg/kg, respectively. Lead was present in the aqueous phase of twenty (20) of the twenty-one (21) tanks containing an aqueous phase. The concentrations of lead detected ranged from 0.03 mg/l to 4.9 mg/l. Arsenic was present in the free product of one (1) tank, Tank 623, at a concentration of 0.25 mg/kg. Arsenic was not detected in the aqueous phase of any tank. Cadmium was present in the free product of one tank, Tank 623, at a concentration of 0.1 mg/kg. Cadmium was detected in the aqueous phase of two (2) tanks, Tanks 611 and 646, at concentrations of 0.19 mg/l and 0.005 mg/l, respectively. Chromium was present in the free product of one (1) tank, Tank 623, at a concentration of 0.18 mg/kg. Chromium was detected in the aqueous phase of six (6) tanks ranging in concentration from 0.01 mg/l to 0.13 mg/l. Total organic halogens (TOX) were present in the aqueous contents of twenty-one (21) tanks ranging in concentration from 20 µg/l to 290 µg/l.

**3. RELATED REQUIREMENTS.** The Contractor shall consult all specification sections included in this specification for further description of work required for performance of this contract.

**4. DESCRIPTION OF SITE ACTIVITIES.**

**4.1 WORK INTENT.** The intent of this work is to: (1) remove the USTs located at Block 600, render the tanks unusable as tanks, and dispose of or salvage tank materials and associated piping off-site in compliance with federal, state and local regulations; (2) removal and salvage or disposal of tank contents; (3) removal of petroleum contaminated soils identified during tank removal, verification sampling, and disposal of the soil off-site; (4) backfill the excavations with clean fill material; and (5) grade and seed the area to return the site to pre-construction conditions.

**4.2 SAFETY.** Removal of petroleum contaminated materials requires adherence to a strict Site Safety and Health Plan (SSHP). Work shall be performed by qualified personnel trained to perform hazardous waste work according to OSHA regulations (see SECTION: SITE SAFETY AND HEALTH PLAN REQUIREMENTS).

**4.3 TRPH CONTAMINATED SOIL REMOVAL.** Petroleum contaminated soil identified during tank excavation and removal shall be excavated, stockpiled, sampled, and disposed of off-site in accordance with these specifications.

**4.4 UNDERGROUND STORAGE TANKS.** Twenty-eight (28) USTs shall be removed, cleaned, and disposed of off-site.

**4.5 CONTAMINATED LIQUIDS REMOVAL.** All contaminated liquids resulting from tank cleaning and personnel and equipment decontamination activities shall be collected and disposed of off-site by the Contractor.

**4.6 BORROW AREA.** The Contractor shall obtain clean fill material from a borrow area located off-site as approved by the Contracting Officer.

ZERO ACCIDENTS

SECTION 01501  
SUBMITTALS

INDEX

1. General
2. Related Requirements
3. List of Submittals

**1 GENERAL.** The Contractor shall provide six (6) copies of the submittals identified herein for review and/or approval by the Contracting Officer.

**2 RELATED REQUIREMENTS.** The following sections provide additional information regarding project submittals:

- |   |   |
|---|---|
| a | SECTION: SPECIAL CLAUSES                          |
| b | SECTION: ENVIRONMENT PROTECTION                   |
| c | SECTION: SITE PREPARATION AND MAINTENANCE         |
| d | SECTION: SPILL CONTROL                            |
| e | SECTION: SITE SAFETY AND HEALTH PLAN REQUIREMENTS |
| f | SECTION: CHEMICAL QUALITY MANAGEMENT              |
| g | SECTION: PROJECT PHOTOGRAPHS                      |
| h | SECTION: FIELD OFFICES AND SHEDS                  |
| i | SECTION: CONTAMINATED LIQUIDS REMOVAL             |
| j | SECTION: UNDERGROUND STORAGE TANKS                |
| k | SECTION: SEEDING                                  |

**3 LIST OF SUBMITTALS.** The following submittals are required to comply with the Contract Specifications:

- |   |   |
|---|---|
| a | Quality Control Plan (Sec. 01100, para. 15)   |
| b | Daily Quality Control Report (Sec. 01100, para. 15)   |
| c | Daily Work and Inspection Schedules (Sec. 01100, para. 18)  |
| d | As-Built Drawings (Sec. 01100, para. 20)  |
| e | Environmental Protection Plan (Sec. 01300, para. 2)   |
| f | Final Inspection Report (Sec. 01301, para. 7)   |
| g | Spill and Discharge Control Plan (Sec. 01302, para. 1)  |
| h | Spill Report (Sec. 01302, para. 4)  |
| i | Proposed Project Schedule (Sec. 01400, para. 2)   |
| j | Accident Prevention Plan (Sec. 01400, para. 4)  |
| k | Names and Qualification of the Nominated HSS and a Functional Description of Duties (Sec. 01400, para. 8.1) |
| l | Phase Safety Plan (Sec. 01400, para. 3.11)  |

m Site Safety and Health Plan (Sec. 01401, para. 1)  
n Qualifications of Industrial Hygienist and Health  
and Safety Specialist (Sec. 01401, para. 3)  
o Tailgate Safety Meeting Report (Sec. 01401, para.  
4)  
p Qualifications of Physician (Sec. 01401, para. 5)  
q Health and Safety Weekly Report (Sec. 01401,  
para. 11.6)  
r Phase-out Report (Sec. 01401, para. 11.6)  
s Chemical Data Acquisition Plan (Sec. 01402, para.  
4)  
t Daily Quality Control Report (Sec. 01402, para.  
5.2)  
u Analytical Data (Sec. 01402, para. 3)  
v Quality Control Summary Report (Sec. 01402, para.  
5.3)  
w Project Photographs (Sec. 01502; para 3)  
x Preliminary Plan and Description of Field  
Facilities (Sec. 01513, para. 6)  
y Analytical Test Results (Sec. 02111, para. 2.5)  
z Contractor's Hazardous/Non-hazardous Waste  
Determination (Sec. 02111, para. 2.5)  
aa Copies of Permits (Sec. 02111, para. 2.6)  
ab Plan of Operation (Sec. 02112, para. 2)  
ac Results from additional sampling and analysis of  
the tank contents performed by Contractor (Sec.  
02112, para. 1)  
ad Results of soil sampling and testing (Sec. 02112,  
para. 1)  
ae Virginia tank contractors license (Sec. 02112,  
para. 2.4)  
af Additional Licenses and Permits (Sec. 02112,  
para. 2.4)  
ag Documentation of disposal (Sec. 02112, para. 6)  
ah Solid/hazardous waste transporters permit (Sec.  
02112, para. 6)  
ai License of waste disposal facility (Sec. 02112,  
para. 6)  
aj List of Transporters (Sec. 02113, para. 2.1)  
ak Solid/Hazardous Waste Transporters Permit (Sec.  
02113, para. 2.1)  
al List of Disposal Facilities (Sec. 02114, para.  
2.4)  
am Manifests for Hazardous Waste Disposal (Sec.  
02114, para. 4.2).  
an License of Waste Disposal Facility (Sec. 02114,  
para. 4.2)  
ao Moisture Density Test Results (Sec. 02202, para.  
6.1)  
ap Density Test Results (Sec. 02202, para. 6.5)  
aq Certificates of Compliance for Seed and

ar Fertilizer (Sec. 02480, para. 6.8 and 8.4.2)  
Agricultural Soil Test Report (Sec. 02480, para.  
3)

ZERO ACCIDENTS

SECTION 01502  
PROJECT PHOTOGRAPHS

INDEX

- |                         |                   |
|-------------------------|-------------------|
| 1. Photographs Required | 4. Prints         |
| 2. Submittals           | 5. Views Required |
| 3. Delivery of Prints   |                   |

**1 PHOTOGRAPHS REQUIRED.** The actual number and location of photographs to be taken shall be as directed by the Contracting Officer (CO); however, it is anticipated that a maximum of 400 project photographs shall be required.

**1.1 BEFORE WORK BEGINS.** The Contractor shall use a wide angle lens to take a minimum of two (2) views of each underground storage tank removal site. These photographs shall be 3 in. x 5 in. color prints.

**1.2 PROGRESS PHOTOGRAPHS.** After work has been started at the site, the Contractor shall photographically record the clean-up activities at minimum daily intervals. The progress photographs can be 3 in. x 5 in. and shall include coverage of:

- a Tank removal and cleaning.
- b Soil removal, handling, stockpiling, and sampling.
- c Unanticipated events such as discovery of additional contaminated areas.
- d Personnel and equipment decontamination facilities.
- e Site- or tank-specific employee respiratory and personal protection.
- f Fill placement and grading
- g Seeding of excavation sites.

**1.3 POST-CONSTRUCTION PHOTOGRAPHS.** After completion of work, the Contractor shall take a minimum of two (2) views of each site described in Paragraph 1.1 using a wide angle lens. These photographs shall be 3 in. by 5 in. color prints.

**2 SUBMITTALS.** In accordance with SECTION: SPECIAL CLAUSES, the Contractor shall submit the following items required by this section:

- 2.1 CATEGORY I. None
- 2.2 CATEGORY II.
  - 2.2.1 For Approval  
None
  - 2.2.2 For Information Only  
Project Photographs (paragraph 3)

**3 DELIVERY OF PRINTS.** The Contractor shall submit to the CO three (3) prints of each photograph along with the negatives within ten (10) calendar days after taking the photographs or as approved

by the CO. All photographs are U.S. Government property and shall not be released by the Contractor to the public or news media. The photographs shall be enclosed back-to-back in a double-face plastic sleeve punched to fit standard three-ring binders.

**4 PRINTS.** Prints shall be color, of standard commercial quality, sized as previously described, and single weight glossy paper. Each print shall show an information box, 1-1/2 in. x 3-1/2 in. on the back of the print. The box shall be typewritten and arranged as follows:

UST REMOVAL, BLOCK 600, FORT STORY, VIRGINIA

Project No. \_\_\_\_\_ Contract No. \_\_\_\_\_

Contractor/Photographer: \_\_\_\_\_

Photograph No. \_\_\_\_\_ Tank No. \_\_\_\_\_

Date/Time: \_\_\_\_\_

Description: \_\_\_\_\_

Direction of View: \_\_\_\_\_

**5 VIEWS REQUIRED.**

**5.1** Prints shall illustrate the condition and location of work (tank number) and the state of progress.

**5.2** The Contractor shall consult with the CO at each site prior to photography for directions concerning views required.

ZERO ACCIDENTS

SECTION 01503  
DEFINITIONS

INDEX

1. Definitions

2. Abbreviations

**1 DEFINITIONS.** The following definitions shall apply to the work of this contract:

- a **Hazardous Waste Landfill.** A secure landfill approved by the EPA for disposal of hazardous wastes.
- b **Clean Fill.** Uncontaminated silty sand, clayey sand, or other material acceptable to the Contracting Officer.
- c **Contamination Reduction Zone.** Buffer zone between the exclusion zone and the support zones.
- d **Contracting Officer.** Any person assigned such responsibility and authority by the Corps of Engineers and who has responsibility for day-to-day field surveillance duties.
- e **Exclusion Zone.** Site area where contamination exists that requires special health and safety protective gear be worn.
- f **Monitoring.** Monitoring indicates the use of sampling instrumentation to provide information regarding the levels of particulate and/or vapors that are being generated during clean-up activities. Monitoring shall be conducted to evaluate both employee exposures to toxic materials as well as off-site migration of airborne contaminants.
- g **On-Site Personnel.** On-site personnel include the Contracting Officer and his representatives, Contractor, and state and federal representatives.
- h **Rinsate.** Wash water generated by decontamination activities.
- i **Support Zone.** An area outside the zones of significant contamination.
- j **Truck Loading Zone.** An area located within the Exclusion Zone boundaries where trucks transporting contaminated soil from the site will be loaded.

**2 ABBREVIATIONS.** The following abbreviations are used in this document:

- a **ABIH.** American Board of Industrial Hygiene.
- b **ACGIH.** American Conference of Governmental Industrial Hygienists.

c **AIHA.** American Industrial Hygiene Association.  
 d **ANSI.** American National Standards Institute.  
 e **API.** American Petroleum Institute  
 f **ASTM.** American Society for Testing and Materials.  
 g **BLS.** Below Land Surface.  
 h **BTU.** British Thermal Unit.  
 i **BTU/lb.** British Thermal Unit per Pound.  
 j **CCS.** Contractor Chemical Quality Control Section  
 of the CDAP.  
 k **CDAP.** Chemical Data Acquisition Plan.  
 l **CFR.** Code of Federal Regulation.  
 m **CIH.** Certified Industrial Hygienist.  
 n **CLP.** Contract Laboratory Program.  
 o **CO.** Contracting Officer.  
 p **CPR.** Cardio-Pulmonary Resuscitation.  
 q **CQCP.** Contractor Quality Control Plan.  
 r **CRZ.** Contamination Reduction Zone.  
 s **DOD.** U.S. Department of Defense.  
 t **DOT.** U.S. Department of Transportation.  
 u **DQCR.** Daily Quality Control Report.  
 v **DUP.** Duplicate.  
 w **EPA.** U.S. Environmental Protection Agency.  
 x **EZ.** Exclusion Zone.  
 y **FID.** Flame Ionization Detector.  
 z **HSS.** Health and Safety Specialist.  
 (aa) **IDLH.** Immediately Dangerous to Life and Health.  
 (ab) **IH.** Industrial Hygienist.  
 (ac) **LCS.** Laboratory Control Sample.  
 (ad) **mg/kg.** Milligrams per Kilograms.  
 (ae) **mg/l.** Milligrams per Liter.  
 (af) **MRD.** Missouri River Division of USACE, Omaha.  
 (ag) **MSDS.** Material Safety Data Sheet.  
 (ah) **NA.** Not Analyzed.  
 (ai) **ND.** Not Detected.  
 (aj) **NFPA.** National Fire Protection Association.  
 (ak) **NGVD.** National Geodetic Vertical Datum.  
 (al) **NI.** No Ignition.  
 (am) **NOISH.** National Institute of Occupational Safety  
 and Health.  
 (an) **NTP.** Notice to Proceed.  
 (ao) **OSC.** On-Scene Coordinator  
 (ap) **OSHA.** Occupational Safety and Health  
 Administration.  
 (aq) **PAT.** Proficiency Analytical Testing.  
 (ar) **PCB.** Polychlorinated Biphenol.  
 (as) **PEL.** Permissible Exposure Limit.  
 (at) **PID.** Photoionization Detector.  
 (au) **PPE.** Personal Protection Equipment.  
 (av) **ppb.** Concentration measure in parts per billion  
 (means µg/L [micrograms per liter]).  
 (aw) **ppm.** Concentration measure in parts per million

(means  $\mu\text{g/mL}$  [micrograms per milliliter],  $\text{mg/L}$  [milligram per liter], or  $\mu\text{g/g}$  [microgram per gram]).

- (ax) **PVC.** Polyvinyl Chloride.
- (ay) **QA/QC.** Quality Assurance/Quality Control.
- (az) **QCP.** Quality Control Plan.
- (ba) **QCSR.** Quality Control Summary Report.
- (bb) **QMP.** Quality Management Plan.
- (bc) **REL.** Recommended Exposure Limit
- (bd) **SCBA.** Self-Contained Breathing Apparatus
- (be) **SHERP.** Safety, Health, and Emergency Response Plan.
- (bf) **SSHPP.** Site Safety and Health Plan.
- (bg) **SSQMP.** Site Specific Quality Management Plan.
- (bh) **SZ.** Support Zone.
- (bi) **TFH.** Total Fuel Hydrocarbons.
- (bj) **TLV.** Threshold Limit Value.
- (bk) **TOX.** Total Organic Halogens.
- (bl) **TPH.** Total Petroleum Hydrocarbons.
- (bm) **TSCA.** Toxic Substances Control Act.
- (bn) **TWA.** Time-Weighted Average.
- (bo) **USACE.** U.S. Army Corps of Engineers.
- (bp) **UST.** Underground Storage Tank.

ZERO ACCIDENTS

SECTION 01513  
FIELD OFFICES AND SHEDS

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- |                                       |  |
|---------------------------------------|--|
| 1. General Requirements               | 4. Employee Shelters                       |
| 2. Submittals                         | 5. Contractor Field Office                 |
| 3. Personnel Decontamination Facility | 6. Accomodations for Government Inspectors |

**1 GENERAL REQUIREMENTS.**

1.1 The Contractor shall provide the necessary field offices and sheds for the Contractor personnel to carry out the project work as specified.

1.2 Prior to installation of offices and sheds, the Contractor shall consult with the Contracting Officer (CO) with regard to location, access, and related services.

1.3 The Contractor shall submit to the CO for approval a preliminary plan and description of the field facilities which he proposes to furnish before procuring these facilities. All field facilities shall be furnished for the duration of this contract and upon completion thereof, the facilities shall be removed from the site.

1.4 The Contractor shall fill and grade the designated areas, as needed, for temporary structures and facilities in accordance with SECTION: SITE PREPARATION.

1.5 The Contractor shall provide sanitary facilities at the work site.

1.6 The Contractor shall supply janitorial services for all Contractor field offices and sanitary facilities on a daily basis.

1.7 The Contractor shall construct or establish structurally-sound and weather-tight facilities, with floors raised above ground and open to allow free circulation of air under the facility. At the Contractor's option, portable or mobile buildings modified for project use may be used as on-site project facilities.

1.8 Temporary structures shall be securely anchored to protect against overturning in the event of excessive wind or storms.

1.9 Steps and landings shall be provided at all doors.

1.10 Living quarters shall not be established at the site.

1.11 The sites used for field facilities shall be restored to their original conditions by the Contractor.

**2 SUBMITTALS.** In accordance with SECTION: SPECIAL CLAUSES, the Contractor shall submit the following items required by this section:

2.1 CATEGORY I. None

2.2 CATEGORY II.

- 2.2.1 For Approval  
Preliminary Plan and Description of  
Field Facilities (Para. 1.3)
- 2.2.2 For Information Only  
None

### **3 PERSONNEL DECONTAMINATION FACILITY.**

3.1 This facility shall be Contractor-supplied for hazardous waste activities and shall be divided into three sections--a contaminated dressing room, a clean dressing room, and shower facilities between the dressing rooms. Further specifications are outlined in SECTION: SITE SAFETY AND HEALTH PLAN REQUIREMENTS.

3.2 The Contractor shall install the temporary personnel decontamination facility and employee shelters on proper foundations and shall provide connections for utilities.

3.3 The size of the shelter and facilities must accommodate the largest number of employees expected on the site during execution of work.

3.4 Benches and lockers must be provided to accommodate the largest number of employees expected on the site at the same time.

3.5 Light, heat, and ventilation must be provided according to local codes.

3.6 Shower and handwashing facilities must be provided in the personnel decontamination facility.

3.7 All wash waters must be collected, stored, and managed as appropriate, and disposed of as outlined in SECTION: CONTAMINATED LIQUIDS REMOVAL.

### **4 EMPLOYEE SHELTERS.**

4.1 The Contractor shall provide an uncontaminated room where personnel can eat, drink, and smoke.

4.2 Personnel shall be required to go through complete decontamination before entering break areas (see SECTION: SITE SAFETY AND HEALTH PLAN REQUIREMENTS).

### **5 CONTRACTOR FIELD OFFICE.**

5.1 The Contractor shall provide suitable project office space for his use which is also capable of accommodating meetings with government personnel. The Contractor's project office shall be operational before on-site work begins. The Contractor's project office shall be well-lighted, suitably ventilated, adequately heated and cooled with a refrigerated-type air conditioning unit, and complete with all piping and electrical connections. An adequate supply of drinking water shall be furnished and maintained.

5.2. The materials, equipment, and furnishings may be new or used, but shall be serviceable in the judgement of the CO, adequate for the required purpose, and meet applicable codes and regulations.

### **6 ACCOMMODATIONS FOR GOVERNMENT INSPECTORS. Fort Story will**

provide and maintain approved office space for the use of the Corps of Engineers and other government personnel.

ZERO ACCIDENTS

SECTION 02110  
CONTAMINATED SOIL REMOVAL

INDEX

- |                            |                                 |
|----------------------------|---------------------------------|
| 1. Applicable Publications | 4. Worker Safety and Protection |
| 2. General Requirements    | 5. Soil Verification Sampling   |
| 3. Soil Removal Activities | 6. Disposal                     |

**1 APPLICABLE PUBLICATIONS.** The publications listed below form a part of this specification and shall be used by the Contractor as they apply to complete the work required by this Section of the specifications. Where the publications are referred to in the text, it shall be by basic designation only.

**1.1 Commonwealth of Virginia, State Water Control Board**  
VR 680-13-02 Underground Storage Tanks; Technical Standards and Corrective Action Requirements

**1.2 Virginia Uniform Statewide Building Code**  
Code Sections 105.1, 110.0, and F.104.

**1.3 Virginia Department of Waste Management Regulations**

**2 GENERAL REQUIREMENTS.**

**2.1** The Contractor shall prepare as part of the Plan of Operations, a program for the removal of hydrocarbon-contaminated soils. The Plan of Operations shall be part of the site work sequencing requirements specified in SECTION: UNDERGROUND STORAGE TANKS and SECTION: SPECIAL CLAUSES.

**2.2** The Plan of Operations required in SECTION: UNDERGROUND STORAGE TANKS shall present in detail the equipment, sequence, procedures, plans, and areas to be utilized by the Contractor for materials handling, staging/storage, and off-site disposal activities for designated contaminated soils.

**2.3** Soils contamination with hydrocarbons, including adjacent visibly oil-stained soils, shall be excavated and disposed of off-site at approved facilities. Verification sampling and analysis shall be performed on remaining soil as specified in SECTION: CHEMICAL QUALITY MANAGEMENT.

The following criteria shall be used to determine where excavation may be discontinued:

Visibly oil-stained soils shall be excavated and disposed of off-site.

Soils having >50 ppm total petroleum hydrocarbons (TPH) shall be excavated and disposed of off-site.

**3 SOIL REMOVAL ACTIVITIES.**

**3.1 SOILS EXCAVATED AS PART OF TANK REMOVAL.** All soils within three (3) feet of the sides of the USTs from ground surface

to a depth of three (3) feet below the top of the tank shall be excavated and temporarily stockpiled. Samples of the soil shall be collected and analyzed as specified in SECTION: CHEMICAL QUALITY MANAGEMENT.

**3.1.1** If straps and anchors are present, additional excavation shall be performed as necessary to remove the straps and anchors. Straps and anchors shall be disposed of at an approved off-site facility.

**3.1.1.1** For bidding purposes, the Contractor should assume that all tanks have concrete anchor pads measuring 13 feet long, 6 feet wide and 1 foot thick.

**3.1.2** The Contractor shall designate temporary staging/storage areas that he may require for the excavated material as part of the Plan of Operations. Individual temporary stockpiles are required for each tank location until the soils are sampled and the analytical results obtained. Clean soils can then be stockpiled together or used to backfill clean excavations. Contaminated soils can be stockpiled together prior to off-site disposal. The design and location of these areas must be approved by the CO and must incorporate the erosion and runoff control measures. Any such storage areas shall be lined with minimum 30-mil thick polyethylene sheeting and covered with minimum 6-mil thick polyethylene sheeting.

**3.1.3** For bidding purposes, the Contractor should assume in 30 percent of the tank excavations soils removed as part of tank removal shall contain contaminated soils in excess of 50 ppm TPH.

**3.1.4** The Contractor shall provide equipment and personnel to excavate, handle, and dispose of contaminated soil by methods to prevent the spread of contamination to the surrounding environment (soil, water, and air).

**3.1.4.1** The Contractor shall perform work in accordance with applicable EPA and Virginia regulations.

**3.1.4.2** Rocks, roots, and other subsurface debris encountered during excavation shall be disposed of at an approved off-site facility.

**3.1.4.3** Construction debris (remaining from the demolition of the former barracks) encountered during excavation shall be disposed of at an approved off-site facility.

**3.2 ADDITIONAL SOILS CONTAMINATED WITH FUEL OIL.** Any additional soils visibly contaminated with petroleum hydrocarbons or determined to be contaminated through confirmatory sampling in the bottom of the excavations encountered during excavation shall also be removed to the satisfaction of the Contracting Officer (CO) until there is no longer evidence of contamination or until a maximum of twenty (20) cubic yards has been removed in addition to that specified in Paragraph 3.1.

**3.2.1** For bidding purposes, the Contractor should assume that 30 percent of the tank excavations require the excavation of an additional twenty (20) cubic yards of soil (in addition to that required for tank removal).

**3.3** Contaminated soils shall be labeled and transported to an

approved landfill in accordance with local, state, and federal transportation regulations. A photocopy of the manifest shall be sent to the Virginia State Water Control Board-UST Program, 2111 North Hamilton Street, Richmond, Virginia 23230.

**3.4** No soils having a TPH concentration greater than 50 ppm shall remain at the site. Once the contaminated soils have been excavated and removed, the tank excavations shall be fenced or otherwise isolated from further disturbance, and no debris or fill shall be placed in the excavated areas pending confirmatory sampling (see SECTION: CHEMICAL QUALITY MANAGEMENT).

**4 WORKER SAFETY AND PROTECTION.** The Contractor shall ensure that all of his employees have received training as outlined in SECTION: SITE SAFETY AND HEALTH PLAN REQUIREMENTS. The Contractor shall also provide physical examinations and personal protective equipment for all employees in accordance with the guidelines listed in the referenced section. In addition, decontamination procedures shall be followed as outlined in the referenced section.

**5 SOIL VERIFICATION SAMPLING.** Following excavation of the contaminated soil areas, confirmatory sampling shall be performed by the Contractor, in the presence of the CO, to verify the completeness of contaminated soil removal. If any soils exhibit a TPH concentration greater than 50 ppm, the Contractor shall immediately inform the CO. The soil sampling requirements are outlined in SECTION: CHEMICAL QUALITY MANAGEMENT.

**6 DISPOSAL.** Disposal of contaminated soils shall be done in accordance with the specifications in SECTION: OFF-SITE DISPOSAL.

ZERO ACCIDENTS  
SECTION 02111  
CONTAMINATED LIQUIDS REMOVAL

INDEX

- |                            |                           |
|----------------------------|---------------------------|
| 1. Applicable Publications | 4. Decontamination Waters |
| 2. General Requirements    | 5. On-Site Storage and    |
| 3. Submittal               | Handling of Wastewater    |

**1 APPLICABLE PUBLICATIONS.** The publications listed below form a part of this specification and shall be used by the Contractor as they apply to complete the work required by this Section of the specifications. Where the publications are referred to in the text, it shall be by basic designation only.

- 1.1 Commonwealth of Virginia, State Water Control Board**  
VR 680-13-02 Underground Storage Tanks; Technical Standards and Corrective Action Requirements
- 1.2 Virginia Uniform Statewide Building Code**  
Code Sections 105.1, 110.0, and F.104.
- 1.3 Virginia Department of Waste Management Regulations**
- 1.4 American Petroleum Institute**
  - API-1604 Removal and Disposal of Used Underground Petroleum Storage Tanks
  - API Bull. 1628 Underground Spill Cleanup Manual
  - API-2003 Protection Against Ignitions Arising Out Of Static, Lightning, and Stray Currents
  - API-2015 Cleaning Petroleum Storage Tanks
  - API-2015A A Guide for Controlling the Lead Hazard Associated With Tank Entry and Cleaning
  - API-2217 Guidelines for Confined Space Work in the Petroleum Industry
- 1.5 American National Standards Institute**  
ANSI-Z88.2 Standard practice for Respiratory Protection
- 1.6 National Fire Protection Association**
  - NFPA 327 Standard Procedure for Cleaning or Safeguarding Small Tanks and Containers
  - NFPA 329 Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids
- 1.7 Code of Federal Regulations**
  - 40 CFR 260 Hazardous Waste Management System: General
  - 40 CFR 261 Identification and Listing of Hazardous Waste
  - 40 CFR 263 Standards Applicable to Transporters of Hazardous Wastes
  - 40 CFR 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
  - 40 CFR 266 Standards for the Management of Specific Hazardous Wastes and Specific Types of

|            |   |
|------------|---|
| 40 CFR 280 | Hazardous Waste Management Facilities<br>Technical Standards and Corrective Action<br>Requirements for Owners and Operators of<br>Underground Storage Tanks (UST) |
| 49 CFR 171 | General Information, Regulations, and<br>Definitions  |
| 49 CFR 172 | Hazardous Materials Tables and Hazardous<br>Materials<br>Communications Regulations   |
| 49 CFR 173 | Shippers - General Requirements for Shipments<br>and Packaging  |
| 49 CFR 174 | Carriage by Rail  |
| 49 CFR 177 | Carriage by Public Highway  |
| 49 CFR 178 | Shipping Container Specifications   |
| 49 CFR 179 | Specification for Tank Cars   |

## 2 GENERAL REQUIREMENTS.

2.1 The Contractor shall be responsible for removal, storage, and disposal of all liquids found in the USTs. Information regarding the quantity of liquids in the USTs is shown on Sheet C-1 of the Contract Drawings. Information regarding analytical results from sampling of the tank contents is contained in SECTION: CHEMICAL QUALITY MANAGEMENT.

2.2 Contaminated liquids shall be collected from cleaning of underground storage tanks (UST) and personnel/equipment decontamination activities. Liquids from UST cleaning shall be disposed of off-site or treated at a permitted facility.

2.3 The Contractor shall prepare, as part of SECTION: UNDERGROUND STORAGE TANKS and SECTION: SPECIAL CLAUSES, a Plan of Operations for the collection, storage, handling, testing, and disposition of all collected and potentially contaminated liquids. This plan must include a listing of the types and capacity of storage tanks to be used.

2.4 The Contractor is responsible for the sampling, analysis, and characterization of all potentially contaminated liquids which may be required in order to meet regulatory requirements and requirements of these specifications for their handling, storage, and disposition as part of the lump sum bid for work. The Contracting Officer (CO) may require split sampling as a means of quality control.

2.5 A copy of the analytical test results, along with the Contractor's hazardous/non-hazardous status determination, shall be submitted to the CO before commencement of any waste removal operations.

2.6 The Contractor is responsible for obtaining all required permits at his expense. Copies of the permits shall be submitted to the CO.

2.7 The Contractor shall provide DOT-approved containers, vehicles, equipment, personnel, labor, transportation, packaging, signs, labels, and manifests necessary for accomplishment of the work including materials necessary for cleaning up spills that

could occur from tank removal operations as specified in SECTION: SPILL CONTROL.

**3 SUBMITTALS.** In accordance with SECTION: SPECIAL CLAUSES, the Contractor shall submit the following items required by this section:

**3.1 CATEGORY I.** None

**3.2 CATEGORY II.**

**3.2.1** For Approval  
None

**3.2.2** For Information Only  
Analytical test results (paragraph 2.5)  
Contractor's hazardous/nonhazardous waste determination (paragraph 2.5)  
Copies of permits for contaminated liquid disposal (paragraph 2.6)

**4 DECONTAMINATION WATERS.**

**4.1 VEHICLE AND EQUIPMENT DECONTAMINATION.** Vehicle and equipment and personnel decontamination areas shall be established as specified in SECTION: SITE SAFETY AND HEALTH PLAN REQUIREMENTS such that decontamination liquids are properly collected.

**4.2 UST Cleaning.** Any liquids generated from the cleaning of USTs shall be managed in accordance with federal, state, and local regulations. This material shall be collected in a dedicated temporary holding tank or other container suitable for off-site transportation and disposal. Disposal shall be at an approved waste treatment and disposal facility.

**5 ON-SITE STORAGE AND HANDLING OF WASTEWATER.**

**5.1** The Contractor shall provide and maintain on-site tankage for the temporary storage of wastewaters as described in this section.

**5.2** All wastewater collection/storage facilities shall be clearly labeled as to their contents. Wastewaters contaminated with waste oil designated for off-site treatment or disposal are not to be stored or staged for a period in excess of two weeks. Detailed written logs of wastewater levels in each collection/storage facility shall be maintained by the Contractor in order to minimize the potential for overflowing during transfers.

**5.3** The CO must approve in advance any shipments of liquids for off-site treatment or disposal.

**5.4** All transfer of liquids to the storage facilities and between storage facilities and drums or tank trucks shall be performed by the Contractor in a manner which shall minimize spillage. The Contractor is responsible for collecting any contaminated liquids which may be spilled and any soils which may become contaminated from spillage at no cost to the Government

**5.5** Written records of liquid quantities which are transported off-site must be kept by the Contractor. The

Contractor is required to manifest these materials, in accordance with federal, state, or local regulations.

**5.6** The Contractor is responsible for the decontamination of staging/ storage tanks at the conclusion of the work.

**5.7** The Contractor is responsible for placarding all liquid shipments in accordance with applicable rules and regulations of the U.S. Department of Transportation (DOT).

ZERO ACCIDENTS  
SECTION 02112  
UNDERGROUND STORAGE TANKS

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| 1. Applicable Publications                 | 5. Tank Excavation, Cleaning and Removal |
| 2. General Requirements                    |  |
| 3. Submittals                              |  |
| 4. Tank Location and Contents Verification |  |

**1 APPLICABLE PUBLICATIONS.** The publications listed below form a part of this specification and shall be used by the Contractor as they apply to complete the work required by this Section of the specifications. Where the publications are referred to in the text, it shall be by basic designation only.

**1.1 American Petroleum Institute**

- API-1604 Removal and Disposal of Used Underground Petroleum Storage Tanks
- API Bull. 1628 Underground Spill Cleanup Manual
- API-2003 Protection Against Ignitions Arising Out Of Static, Lightning, and Stray Currents
- API-2015 Cleaning Petroleum Storage Tanks
- API-2015A A Guide for Controlling the Lead Hazard Associated With Tank Entry and Cleaning
- API-2217 Guidelines for Confined Space Work in the Petroleum Industry

**1.2 American National Standards Institute**

- ANSI-Z88.2 Standard practice for Respiratory Protection

**1.3 National Fire Protection Association**

- NFPA 327 Standard Procedure for Cleaning or Safeguarding Small Tanks and Containers
- NFPA 329 Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids

**1.4 Code of Federal Regulations**

- 40 CFR 260 Hazardous Waste Management System: General
- 40 CFR 261 Identification and Listing of Hazardous Waste
- 40 CFR 263 Standards Applicable to Transporters of Hazardous Wastes
- 40 CFR 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
- 40 CFR 266 Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
- 40 CFR 280 Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)
- 49 CFR 171 General Information, Regulations, and Definitions

- 49 CFR 172 Hazardous Materials Tables and Hazardous Materials Communications Regulations
- 49 CFR 173 Shippers - General Requirements for Shipments and Packaging
- 49 CFR 174 Carriage by Rail
- 49 CFR 177 Carriage by Public Highway
- 49 CFR 178 Shipping Container Specifications
- 49 CFR 179 Specification for Tank Cars

**1.5 APPLICABLE STATE REGULATIONS.**

- VR-680-13-2 Virginia Water Control Board: Underground Storage Tanks; Technical Standards and Corrective Action Requirements.

**2 GENERAL REQUIREMENTS.**

**2.1 FACILITY INFORMATION.**

**2.1.1 General.** The work covered by this specification includes the removal of twenty-eight (28) underground storage tanks (USTs), including, but not limited to, all associated piping, valves, vent tubes, and equipment, and associated work as specified herein. All tanks are constructed of steel and are 1,000-gallon capacity. The tanks are approximately four feet in diameter and eleven feet long. The tanks are at the locations as shown on the drawings. The tanks were used for storing No. 2 fuel oil. Information regarding the quantity of liquids currently in the USTs is shown on Sheet C-1 of the Contract Drawings.

**2.1.2 Protection of Existing Structures and Facilities.** The Contractor shall take all necessary precautions to assure that no damage occurs to existing structures, their appurtenances, or utilities that may be affected by work activities. The Contractor shall coordinate with the facility to locate underground utilities a minimum of twenty-one (21) days prior to beginning construction. The Contractor shall notify the Contracting Officer (CO) a minimum of twenty-one (21) working days prior to temporary interruption of existing utility services which may be required to allow the excavation and removal of a UST. Utilities encountered that are not shown on the drawings shall not be disturbed without coordinating with the CO. Upon completion of the work, the Contractor shall leave the tank removal sites in a condition equal to that which existed when the work started. The Contractor shall clean the sites of any rubble or excess material due to construction, sweep paved areas, and remove all construction equipment from the premises. Restoration activities shall include reseeding and patching pavement, curbs, and sidewalks.

**2.1.3 Burning and Use of Explosives.** Burning debris and the use of explosives will not be allowed.

**2.2 DESCRIPTION OF WORK.** In general, the work will consist of the removal, decontamination, and disposal of twenty-eight (28) USTs, including, but not limited to, all associated piping, valves, vent tubes, and equipment, for all tanks to be removed. Liquids remaining in the tanks shall be disposed of according to applicable federal, state, and local regulations. Surface soils and soils surrounding the tanks may be contaminated and require special

handling and disposal. The site shall be given special consideration due to the nature of the materials and hazards present until closure activities are complete. Listed below are the tasks which are required for removal of a tank:

- a Any additional sampling and analyses required to characterize the tank contents prior to disposal.
- b Remove, transport, and dispose of tank contents.
- c Excavate and stockpile material to expose tank and piping.
- d Sample and analyze stockpiled soil.
- e Disconnect, decontaminate, and remove piping.
- f Purge the tank.
- g Cut the anchor straps or cables.
- h Remove tank.
- i Clean and decontaminate tank exterior.
- j Decontaminate tank interior.
- k Sample and analyze soil at the bottom of the excavation.
- l Excavate and stockpile up to 20 additional cubic yards of contaminated soil.
- m Remove anchor straps or cables and concrete anchors from the excavation.
- n Dispose of the tank.
- o Collect confirmatory soil samples from the bottom of the excavation and analyze.
- p Transport and properly dispose of all wastes including concrete anchors and straps, and contaminated soils.

**2.2.1** Work includes removal and off-site disposal of a concrete anchor (approximate dimensions, 11 feet by 3 feet by 1 foot) located on top of Tank 629.

**2.2.2** Work includes removal and disposal of approximately 1 cubic yard of sand in the bottom of Tank 612.

### **2.3 SCOPE.**

**2.3.1 General.** The Contractor shall furnish all labor, materials, and equipment required to remove and dispose of the USTs. This shall include emptying and cleaning the tanks and associated piping by removing all liquid, removing the tanks from the ground, and transport and disposal of the tanks, associated piping, liquids, and possibly contaminated soils off-site at a location approved by the CO in cooperation with the State of Virginia.

**2.3.2 Sampling and Analysis.** The Contractor shall be responsible for performing additional necessary sampling and analysis of the tanks' liquid contents, and sampling and analysis of soils within the excavation zone to determine if the aforementioned materials must be characterized as hazardous and/or to be accepted at an approved disposal facility. Sampling and analysis shall be in accordance with SECTION: CHEMICAL QUALITY MANAGEMENT. The waste characterization testing shall meet the requirements of the treatment/disposal/salvage facility and all state and federal regulations. Copies of the analytical results

shall be submitted to the CO within three working days of sample collection.

**2.3.3 Plan of Operations.** The Contractor shall develop, implement, maintain, and supervise a comprehensive Plan of Operations. The Plan of Operations shall present in detail the equipment, sequence, procedures, plans and areas to be utilized by the Contractor for materials handling, staging/storage, tank purging, sampling and analysis, cleaning, method to be used to render tank unusable, removal, transportation, and disposal. Procedures shall be based on the guidance provided in these specifications and the above referenced publications. This Plan of Operations shall be in addition to the Chemical Data Acquisition Plan (CDAP) required in SECTION: CHEMICAL QUALITY MANAGEMENT and the Specific Safety and Health Plan (SSHP) required in SECTION: SITE SAFETY AND HEALTH PLAN REQUIREMENTS. Detailed information on sampling, analysis, and safety included in those plans does not need to be repeated in the Plan of Operations. The Plan of Operations shall also describe how groundwater will be controlled, if encountered; proposed procedures for covering open excavations overnight or during periods of precipitation, and subsequent dewatering, if necessary. The Contractor shall submit the Plan of Operations to the CO for approval within thirty (30) days after notice to proceed, and shall receive approval prior to commencing operations.

**2.4 PERMITS AND LICENSES.** The Contractor shall obtain any local, state, or federal permits or licenses required to do the work included in this contract at no additional cost to the Government. Copies of all permits or licenses shall be submitted to the CO.

**2.5 STATUTES AND REGULATIONS.** All work included in this contract shall be conducted in strict compliance with all applicable local, state, and federal regulations, statutes, codes, and policies.

**2.6 NOTIFICATION.** The Contractor shall notify the CO at least twenty-one (21) days prior to tank removal. The Contractor shall notify the CO twenty-one (21) days prior to a utility interruption. The Contractor shall notify the CO immediately following any confirmed spill or release of petroleum product in accordance with SECTION: SPILL CONTROL. The Contractor will not be responsible for state closure notification; however, the Contractor shall be responsible for providing the necessary background data, including sketches of sample locations, times, etc., as specified either herein or in another section.

**2.7 DEFINITIONS.**

**2.7.1 Purging.** Continuous removal of flammable or toxic vapors from the interior of a tank to a safe level.

**2.7.2 Decontaminating.** Preparing materials for disposal so that they are suitable for entering the environment, as defined in 40 CFR 260.

**2.7.3 Plan of Operations.** The Contractor's comprehensive plan for excavation, removal, and ultimate disposal of the tank, its contents, and any contaminated materials.

**2.7.4 Contaminated Soil.** Soil containing concentrations of chemical constituents above a predetermined level which require special precautions and/or disposal methods.

**2.7.5 Phase.** A distinctly separate stratified liquid or solid layer of material contained within the tank.

**2.7.6 Free Product.** Petroleum or petroleum product in excess of 0.1 inches in thickness, measured at its thickest point, floating on surface water or groundwater.

**3 SUBMITTALS.** In accordance with SECTION: SPECIAL CLAUSES, the Contractor shall submit the following items required by this section.

**3.1 CATEGORY I.** None

**3.2 CATEGORY II.**

**3.2.1 For Approval.**

Plan of Operations. (para. 2.3.3)

**3.2.2 For Information Only.**

Results from additional sampling and analysis of the tank contents performed by Contractor. (para. 2.3.2)

Results of soil sampling and testing. (para. 2.3.2)

Virginia tank contractors license. (para. 2.4)

Additional licenses or permits. (para. 2.4)

**4 TANK LOCATION AND CONTENTS VERIFICATION.**

**4.1 TANK LOCATION VERIFICATION.** The Contractor shall be responsible for performing the field investigations necessary to locate the tanks using the state planar coordinates provided on the drawings, and to verify the size, dimensions, and associated piping requiring removal for the tanks listed and shown on the drawings.

**4.2 SAFETY GUIDELINES.**

**4.2.1 General.** Contractor personnel working on or in the general vicinity of the tank shall be trained and thoroughly familiar with the safety precautions, procedures, and equipment required for controlling the potential hazards associated with this work.

**4.2.2 Safety and Personal Protective Equipment.** The Contractor shall utilize proper safety and personal protective equipment during work in and around the tanks. Documentation that employees have completed the proper safety training requirements and personal protection and safety equipment requirements shall be submitted in a Health and Safety Plan in accordance with SECTION: SITE SAFETY AND HEALTH PLAN REQUIREMENTS.

**4.2.3 Fencing/Barricades.** The Contractor shall provide fencing, such as snow fence as approved by the CO, around the entire Block 600 work area. In addition the Contractor shall provide barricades or fencing, such as snow fence, around all individual excavations left open overnight.

**4.3 SAMPLING AND ANALYSIS.** The Contractor shall be responsible for any additional sampling and analysis of the tank

liquid contents, residues, and sampling and analysis of surrounding soils. Sampling and analysis shall be in accordance with SECTION: CHEMICAL QUALITY MANAGEMENT.

## **5 TANK EXCAVATION, CLEANING, AND REMOVAL.**

**5.1 GENERAL.** The Contractor shall excavate, clean, and remove the tanks and associated piping as specified herein. All liquids resulting from cleaning operations shall be collected and disposed of off-site in accordance with SECTION: CONTAMINATED LIQUIDS REMOVAL, SECTION: OFF-SITE TRANSPORTATION, and SECTION: OFF-SITE DISPOSAL.

**5.2 EXCAVATION.** All excavation shall be in accordance with SECTION: FILLING AND GRADING. Any contaminated soils which are encountered during the tank removal operations shall be handled in accordance with SECTION: CONTAMINATED SOIL REMOVAL.

**5.2.1 Free Product Encountered During Excavation.** If during any tank removal activities free product is encountered, the Contractor shall immediately notify the CO in the field and shall take all safety and emergency response precautions necessary to protect human health as described in the Contractor's SSHP which is required by SECTION: SITE SAFETY AND HEALTH PLAN REQUIREMENTS.

**5.2.1.1** The Contractor shall have the capability to remove and dispose of the free product as directed by the CO. An equitable adjustment pursuant to CONTRACT CLAUSES clause: "Changes" will be made for the cost of free product removal and disposal.

**5.2.2 Groundwater Encountered During Excavation.** If during any tank removal activities or contaminated soil removal activities groundwater is encountered, when soil excavation activities are concluded, the excavation shall be backfilled with sand to above the water table. Other than sand, no material may be used to backfill the excavation while there is free-standing water in the excavation.

**5.3 COVERING EXCAVATION.** The Contractor shall provide a cover for excavations left open overnight or for extended periods to prevent buildup of precipitation in the excavation. Covers shall incorporate a berm around the excavation to prevent runoff from the surrounding ground surface from entering the excavation. Precipitation which accumulates in the excavation must be removed prior to additional sampling and/or backfilling. Such dewatering shall be performed at no additional cost to the Government.

**5.4 CLEANING.** Prior to tank removal, all remaining liquids shall be removed from the tank. Connecting lines and vents shall be drained and disconnected from the tank. Remove and cap all tank piping connections and piping in the excavation zone, except those connections necessary to purge the tank. The interior of the tank shall be cleaned until it is free of all liquids and loose solid materials. Prior to tank removal, the tank shall be purged of flammable vapors in accordance with API Publication 1604, Section 3.3.2, except that purging with liquids will not be allowed. Specific methods used shall be described in the Contractor's Plan of Operations. The tank atmosphere and the excavation area shall

be continuously monitored for flammable vapors. Monitoring requirements shall be as specified in SECTION: SITE SAFETY AND HEALTH PLAN REQUIREMENTS.

**5.5 REMOVAL.** Following completion of the above requirements, the tank and associated piping shall be removed from the excavation and placed on a level surface to the tank excavation, or at a location approved by the CO and secured with wood blocks to prevent movement. All concrete anchors and strapping associated with the removed tank shall be removed from the excavation pit, as indicated on the drawings.

**5.6 TANK INSPECTION.** A tank inspection report shall be completed for each tank removed. Reports should detail information regarding the tank and its condition. Tank inspection reports shall contain the following information, at a minimum: (1) tank number; (2) date of excavation; (3) volume of contents removed; (4) presence of staining on exterior tank walls; (5) presence of visibly-contaminated soil in excavation; (6) material of construction; (7) dimensions; (8) condition of tank; (9) presence of anchors and foundations left in excavation; (10) presence of pipe, construction debris, or other materials removed from the excavation; (11) where and how liquid from the tanks is to be disposed; (12) where and how the tanks are disposed; (13) corrosion; (14) structural damage; and (15) holes or defects in the exterior of the tanks. Tank inspection forms shall be submitted with the Daily Quality Control Report Forms (DQCR) specified in SECTION: CHEMICAL QUALITY MANAGEMENT.

**5.7 TANK DISPOSAL.** After each tank and its associated piping has been cleaned, it shall be rendered unusable as a tank by cutting a 2-foot-diameter hole in the tank, or flattening the tank with a backhoe, etc., and transported to a state approved off-site disposal facility or salvage yard. Transportation shall be in accordance with the requirements of the Virginia Department of Transportation. Tanks may be cut up on-site after they have been cleaned and rendered inert, in accordance with the listed publications. The Contractor shall, within 72 hours, transport the tank and provide the CO with a receipt for delivery of the tank to a designated site. All tanks shall be disposed of per Uniform Statewide Building Code, Section 105.1, 110.0, and F.104 requirements. Disposal of all tanks shall also be in accordance with the requirements of the local building official and local fire official. The Contractor shall retain the rights to salvage value of all materials including tanks, associated piping or tank contents removed from the site, providing that the requirements of 40 CFR 266 or the applicable state requirements are met. Any additional labor, equipment, or transportation costs incurred for the purpose of obtaining the salvage value of the wastes shall be at no extra cost to the Government.

## ZERO ACCIDENTS

### SECTION 02113 OFF-SITE TRANSPORTATION

#### INDEX

1. Applicable Publications
2. General Requirements
3. Submittals
4. Loading
5. Hauling

**1 APPLICABLE PUBLICATIONS.** The publications listed below form a part of this specification and shall be used by the Contractor as they apply to complete the work required by this Section and of the specifications. Where the publications are referred to in the text, it shall be by basic designation only. The publications are referred to in the text by the basic designations only.

**1.1 American Petroleum Institute**

API-1604 Removal and Disposal of Used Underground Petroleum Storage Tanks

**1.2 Code of Federal Regulations**

40 CFR 260 Hazardous Waste Management System: General  
40 CFR 261 Identification and Listing of Hazardous Waste  
40 CFR 263 Standards Applicable to Transporters of Hazardous Wastes  
40 CFR 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities  
40 CFR 266 Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities  
40 CFR 280 Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)  
49 CFR 171 General Information, Regulations, and Definitions  
49 CFR 172 Hazardous Materials Tables and Hazardous Materials Communications Regulations  
49 CFR 173 Shippers - General Requirements for Shipments and Packaging  
49 CFR 174 Carriage by Rail  
49 CFR 177 Carriage by Public Highway  
49 CFR 178 Shipping Container Specifications  
49 CFR 179 Specification for Tank Cars

**2 GENERAL REQUIREMENTS.**

**2.1** The Contractor shall provide to the Contracting Officer (CO), as part of the Plan of Operations, a program for the proposed transportation of wastes generated by the removal of contaminated soils, liquids, and USTs. The Contractor shall submit a list of certified haulers/transporters of hazardous wastes along with their

addresses and EPA or appropriate state hazardous waste transporter's identification numbers and a copy of the transporter's permit. Any deviations from the proposed approved transporters shall be approved by the CO with no additional costs incurred by the Government. Such deviation shall be submitted for approval at least ten (10) working days prior to scheduled shipment.

2.2 The Contractor shall utilize appropriate vehicles and operating practices to prevent spills or contamination from occurring enroute.

2.3 The Contractor shall originate, use, and maintain the waste shipment records/manifests required by the Federal Resource Conservation and Recovery Act, and the Virginia Department of Waste Management as applicable.

2.4 The Contractor shall perform vehicle decontamination and inspection before leaving the site. A vehicle decontamination/wash station shall be set up near the truck loading zone. All vehicles transporting waste shall be properly placarded.

2.5 The Contractor is responsible for coordinating hauling with site work schedules.

2.6 All actions noted in this section must be approved by the CO.

2.7 The Contractor shall follow all appropriate federal, state, and local regulations regarding the transportation of hazardous waste.

**3 SUBMITTALS.** In accordance with SECTION: SPECIAL CLAUSES, the Contractor shall submit the following items required by this section:

3.1 **CATEGORY I.** None

3.2 **CATEGORY II.**

3.2.1 For Approval

List of transporters (paragraph 2.1)

3.2.2 For Information Only

Solid/hazardous waste transporters permit  
(paragraph 2.1)

**4 LOADING.**

4.1 The Contractor shall furnish, install, and maintain any temporary loading facilities as required for completion of waste removal activities. The location and design of any facilities must be included in the Plan of Operations and be approved by the CO.

4.2 The Contractor shall provide the equipment, personnel, and facilities necessary to package, label, mark, and load waste materials designated for off-site transport.

4.3 The Contractor shall ensure that all operations in the packaging, labeling, marking, loading and hauling of waste materials are in compliance with applicable local, state, and federal regulations.

4.4 All vehicles hauling bulk wastes from the site shall be decontaminated as specified in SECTION: SITE SAFETY AND HEALTH PLAN REQUIREMENTS and inspected by the Contractor prior to leaving the

site. Vehicles hauling contaminated soils shall have lined beds to minimize the spread of contamination to the vehicle bed. No vehicle that can drop, drip, or allow wind to carry any quantity of material shall be allowed to leave the site. Transport of contaminated soils shall be in a covered truck or containerized. Any waste material that is detected on the wheels or undercarriage of vehicles shall be removed prior to leaving the site, to the satisfaction of the CO.

**4.5** The Contractor shall keep all street surfaces clean of soil and debris.

## **5 HAULING.**

**5.1** The Contractor shall develop and implement a hauling or transport schedule which allows for removal of waste materials from the site at a rate commensurate with the work schedule.

**5.2** The Contractor shall obtain manifest forms and waste code numbers, and complete the waste shipment manifest records as required for verifying the waste type (Code No.) and quantity of each shipment transported off-site. The manifest form shall be verified and signed by the CO. Copies of each manifest shall be retained by the Contractor following shipment. Any manifest discrepancies shall be reported immediately to the CO and be resolved by the Contractor (see Paragraph 4.10).

**5.3** Trucks hauling petroleum contaminated soil do not need to be placarded or display ID numbers. IDs may be displayed as described in 49 CFR 172.336.

**5.4** The Contractor shall transport waste from the site to only the facility listed on the manifest as appropriate for the type of waste being transported.

**5.5** The Contractor shall coordinate vehicle inspection and recording of quantities leaving the site with the CO. These quantities shall be verified with recorded quantities at the disposal facilities. Vehicles shall be weighed before and after loading at the site, and before and after unloading at the disposal facility; weights shall be recorded on the manifest.

**5.6** The Contractor is responsible for any and all actions necessary to remedy situations involving waste spilled in transit; this action shall be accomplished at the Contractor's expense (see SECTION: SPECIAL CLAUSES).

**5.7** The Contractor is responsible for establishing the route of access that shall be followed for all transport vehicles going to or from the site. Routes and timing must be coordinated with the CO in addition to state regulatory agencies.

**5.8** Trucks shall be decontaminated prior to leaving the disposal site and returning to the project site, and prior to use other than for hauling hazardous waste.

**5.9** The Contractor shall only use the licensed transporter(s) approved in the Plan of Operations for the performance of work. Any use of substitute or additional transporters must have prior approval of the CO. Haulers of oil-contaminated soils and any other hazardous waste shall be Virginia-licensed hazardous waste transporters. If the Department of Waste Management (and the CO)

approves certain soil to be disposed of at a municipal landfill, standard common carriers may be used.

**5.10** Any discrepancies noted on the manifest shall be reported to the CO immediately. Unresolved discrepancies shall be reported in writing to the Virginia Department of Waste Management and Fort Story by the Contractor within ten (10) days.

**5.11** The Contractor shall repair any damage to roads by returning them to at least the conditions existing prior to the start of work. This may include resurfacing roads on-site.

ZERO ACCIDENTS

SECTION 02114  
OFF-SITE DISPOSAL

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**1 APPLICABLE PUBLICATIONS.** The publications listed below form a part of this specification and shall be used by the Contractor as they apply to complete the work required by this Section and of the specifications. Where the publications are referred to in the text, it shall be by basic designation only. The publications are referred to in the text by the basic designations only.

**1.1 CODE OF FEDERAL REGULATIONS**

- 40 CFR 260 Hazardous Waste Management System: General
- 40 CFR 261 Identification and Listing of Hazardous Waste
- 40 CFR 263 Standards Applicable to Transporters of Hazardous Wastes
- 40 CFR 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
- 40 CFR 266 Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
- 40 CFR 280 Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)

**2 GENERAL REQUIREMENTS.**

**2.1** The work shall involve off-site disposal or treatment of contaminated materials including but not limited to tank contents, contaminated soils, and tank cleaning liquids. Detailed transportation requirements are provided in SECTION: OFF-SITE TRANSPORTATION. No disposal facilities outside the continental United States shall be considered for waste disposal.

**2.2** The Contractor shall provide the Contracting Officer, as part of the Plan of Operations (SECTION: SPECIAL CLAUSES), a program that outlines the disposal of contaminated materials.

**2.3** The Contractor shall coordinate the schedule for truck and waste deliveries at the disposal facility to meet the approved project schedule and for compatibility with temporary storage/staging space limitations on-site and the availability of equipment or personnel for materials handling operations.

**2.4** The Contractor shall obtain a letter of agreement from

each disposal facility, approved by the Contracting Officer (CO), to accept waste shipments. A copy of each letter shall be maintained in the Contractor's files. The letter shall contain the information listed below.

**2.4.1** The agreement to accept the specified estimated quantities of waste and waste types as described during the time period specified in the project schedule.

**2.4.2** The intended method of disposal or treatment by the disposal facility for each shipment (e.g., incineration, specific physical/ chemical/biological treatment, burial).

**2.4.3** The facility I.D number.

**2.5** The Contractor shall submit to the CO, with his bid, the proposed list of disposal sites (with letters of agreement) to be used, and assurances (in writing) that, to the best knowledge of the disposal site owner/operator, the site will be (1) open for business during the contract duration; (2) licensed and willing to accept the waste indicated in this project; and (3) in compliance with applicable federal, state, and local regulations at the time of disposal. Each letter must contain firm commitment to accept the waste as specified herein.

**3 SUBMITTALS.** In accordance with SECTION: SPECIAL CLAUSES, the Contractor shall submit the following items required by this section:

**3.1 CATEGORY I.** None

**3.2 CATEGORY II.**

**3.2.1** For Approval

List of disposal facilities. (2.5)

**3.2.2** For Information Only

Documentation of disposal. (4.2)

Manifests for hazardous waste disposal. (4.2)

Analytical Results. (4.2)

Waste profile sheets. (4.2)

License of waste disposal facility. (4.2)

**4 DISPOSAL OF TANK CONTENTS AND CONTAMINATED SOIL.**

**4.1 TANK CONTENTS.** Tank liquids shall be sampled and analyzed by the Contractor prior to being transported, and disposed of by the Contractor in accordance with applicable federal, state, and local waste disposal regulations. Federal disposal regulations are contained in the Code of Federal Regulations (40 CFR Parts 260 through 265). The Contractor shall dispose of free product removed from the tanks at a permitted reuse, recycling, or salvage facility. The Contractor shall:

a Obtain all required permits at his expense.

b Provide approved containers, vehicles, equipment, personnel, labor, transportation, packaging, signs, labels, and manifests necessary for accomplishment of the work including materials necessary for cleaning up spills that could occur from tank removal operations.

- c Report spills of waste immediately to the CO and take immediate containment and cleanup action as necessary.

**4.2 CHARACTERIZATION OF WASTES.** Prior to the removal of any waste, the Contractor shall, at his expense, have the waste characterized by an independent testing laboratory to determine, using the criteria established in the disposal regulations, whether or not the waste is hazardous. The Contractor shall maintain a current record of all waste determinations including the results of analyses performed, substance and sample location, the time of collection, and any other pertinent data. Transportation, treatment, disposal methods, dates, the quantities of waste, the names and addresses of transporters, and the disposal or reclamation facility shall also be recorded and available for the CO's inspection. Other required information to be presented to the CO shall include, but not be limited to:

- a Two copies of a cover letter signed by a responsible company official certifying that all services involved have been performed in accordance with the terms and conditions of this specification.
- b Two copies of all manifests.
- c Two copies of all analyses performed for disposal.
- d Two copies of all waste analyses or waste profile sheets.
- e Two copies of all certifications of final treatment/ disposal signed by the responsible disposal facility official.

Upon contract close out, the records shall become the property of the U.S. Government.

**4.3 NON-HAZARDOUS WASTES.**

**4.3.1** Any wastewater determined non-hazardous shall be disposed at a local Publicly-Owned Treatment Works (POTW) of the Contractor's choice and at the Contractor's expense. The Contractor shall comply with all requirements for disposal at the receiving POTW.

**4.3.2** Any waste soil determined non-hazardous shall be disposed at a local municipal landfill of the Contractor's choice and at the Contractor's expense. The Contractor shall comply with all requirements for disposal at the receiving landfill.

**4.3.3** The Contractor shall keep a record of the non-hazardous waste determination; the collections, transportation, treatment, and disposal methods to date; the quantities of waste; and the names and addresses of transporter(s) and the disposal or reclamation facility.

**4.3.4** The Contractor shall comply with any state manifest system which may be required. If a manifest is required by the State, the CO must sign the generator portion.

**4.3.5** The Contractor shall remove all wastes and properly dispose of in accordance with all local, state, and federal solid and hazardous waste laws and regulations within 90

days of the completion of the decontamination activities.

**4.3.6** The Contractor shall provide a written report of actions taken, including all of the criteria specified in this Section, to the CO.

**4.3.7** The Contractor shall retain rights to salvage value of wastes, if any such value exists.

**4.4 HAZARDOUS WASTES.** The Contractor shall manage any hazardous wastes in accordance with the state's hazardous waste management regulations. The Contractor shall remove and properly dispose of all wastes within 90 days of the removal of the wastes from the tank. The Contractor shall provide transportation in accordance with the Department of Transportation (DOT) Hazardous Material Regulations, as well as all state and local requirements, including obtaining any necessary permits, licenses, and approvals. The Contractor shall submit a list of certified hazardous waste transporters, along with their addresses and EPA or appropriate state hazardous waste identification numbers, which are taking the wastes to treatment, storage, or disposal facilities which also have EPA or appropriate state permits and hazardous waste number identifications, as a part of the Plan of Operations. Any changes to this list shall be submitted to the CO for approval before the changes are allowed.

**4.4.1 Packaging and Marking.** The Contractor shall package, mark, label, and load all items in such a manner that all applicable federal, state, and local regulations are met. If items must be repackaged for proper shipment, the Contractor shall perform such repackaging and furnish all necessary materials at no extra cost to the Government. When repackaging is necessary, the Contractor shall be responsible for the disposal of the original container and packaging in a manner that complies with all applicable federal, state, and local regulations, at no extra cost to the Government. The Contractor shall also provide and affix the appropriate placards to each transportation vehicle before it leaves Government premises.

**4.4.2 Waste Manifests.** The Contractor shall utilize a federal or state approved manifest system to allow tracking of the wastes from the generation point to the point of ultimate disposal. The CO must sign the generator portion of the manifests. All transporters must sign the appropriate portions of the manifests, comply with all of the provisions established in the disposal regulations, and have a current solid waste transporter's permit. A copy of each signed manifest shall be submitted to the CO after all pretransport regulations have been met, and before each waste shipment leaves the site.

**4.5 SPILL RESPONSIBILITY.** The Contractor shall be solely responsible for any and all spills or leaks during the performance of this contract, which occur as a result of the actions of the Contractor's employees or subcontractors in accordance with SECTION: SPILL CONTROL. The Contractor shall clean up such spills or leaks to the satisfaction of the CO, and in a manner which complies with applicable federal, state, and local laws and regulations.

The cleanup shall be performed at no additional cost to the Government.

## **5 DISPOSAL FACILITIES**

**5.1** The Contractor shall use only the disposal facilities previously approved for the performance of the work. It is recognized that a hazardous waste disposal facility's EPA status is subject to change; however, the disposal facility should provide the necessary pricing information to the prospective bidders based on the EPA status of the facility at date of bid opening. The Contractor shall verify that the hazardous waste facility is in compliance with EPA regulations at the time of disposal.

**5.2** The CO reserves the right to contact and to visit disposal facilities and regulatory agencies to verify the agreement to accept the stated waste material and to verify any other information provided.

**5.3** In the event the prior approved disposal facility status is changed after contract award or during performance of the work, the Contractor must obtain CO approval of the alternate disposal facility he selects to receive this contaminated material.

**5.4** Open trucks used for hauling all contaminated soils (both waste and virgin oils) shall be appropriately lined, sealed, and covered to prevent loss enroute to the disposal site. The uppermost layer of soil in the truck bed shall be wetted before sealing the plastic liner at the discretion of the CO if dusty conditions are present.

**5.5** The Contractor shall submit a written statement to the CO that all contaminated soils have been properly identified, containerized, manifested, and transported to the approved disposal site.

## **6 RECORDKEEPING.**

**6.1** The Contractor shall provide to the CO the written manifests verifying receipt of the quantity received (volumes and weights, as necessary) of each shipment at each disposal facility, and verification of proper treatment or disposal.

**6.2** If notification of receipt of any waste shipments is not received by the Contractor within ten (10) days of departure of the waste from the site, the Contractor shall immediately notify the CO and contact the disposal facility to determine the status of the shipment and resolve the discrepancy.

**6.3** If the manifest discrepancy is not resolved, then an exception report must be filed with the Virginia Department of Waste Management within ten (10) days by the Contractor. A copy of the exception report shall be provided to the CO.

ZERO ACCIDENTS

SECTION 02202  
FILLING AND GRADING

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**1 APPLICABLE PUBLICATIONS.** The following publication listed below, but referred to thereafter by basic designation only, forms a part of this specification and shall be used by the Contractor as they apply to complete the work required by this section of the specifications.

**AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) STANDARD.**

- |           |   |
|-----------|---|
| D-2487-85 | Classification of Soils for Engineering Purposes  |
| D-1557-78 | Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb Rammer and 18-Inch Drop |
| D-1556-82 | Density of Soil in Place by the Sand-Core Method  |
| D-2167-84 | Density and Unit Weight of Soil in Place by the Rubber-Balloon Method                               |
| D-2922-81 | Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)                      |
| D-3017-78 | Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)             |

**2 DEFINITIONS.**

**2.1 SUITABLE MATERIALS.** Include all material specifically approved by the Contracting Officer (CO) and other material not included in the unsuitable materials definition below.

**2.2 UNSUITABLE MATERIALS.** Include all material that contains contamination, debris, roots, organic matter, frozen matter, stone (with any dimensions greater than 4 inches), or other materials that are determined by the CO as too wet or otherwise unsuitable for providing a stable subgrade.

**2.3 ACCEPTABLE TOPSOIL.** Includes selectively excavated topsoil material that is representative of local soils that produce heavy growths of crops, grass, or other vegetation, and is reasonably free from underlying subsoil, clay lumps, weeds, litter, brush, matted roots, toxic substances, or any material harmful to plant growth or which would hinder grading, planting, or maintenance operations. Topsoil shall not contain more than 5 percent by volume of stones or other such objects larger than 1 inch in any dimension.

**2.4 BORROW.** Where suitable materials are not available in

sufficient quantity from all required excavations under this contract, suitable materials shall be obtained from sources outside the limits of government-controlled land at the Contractor's responsibility. The necessary clearing and grubbing of borrow areas, disposal and burning of debris therefrom, the developing of sources including any access roads for hauling, the necessary right-of-way, and the satisfactory drainage of the borrow areas shall be considered as incidental items to borrow excavation.

**3 SUBMITTALS.** In accordance with SECTION: SPECIAL CLAUSES, the Contractor shall submit the following items required by this section:

**3.1 CATEGORY I.** None

**3.2 CATEGORY II.**

**3.2.1 For Approval**

Moisture Density Test Results (para. 6.1)

Density Test Results (para. 6.5)

**3.2.2 For Information Only**

None

**4 PROTECTION OF EXISTING UTILITIES.** Any existing utility lines that are to be retained, including those not shown on the drawings, shall be repaired by the Contractor at his expense, if inadvertently damaged during site activities. As-built drawings (not indexed) are located on-site as described in SECTION: SITE PREPARATION AND MAINTENANCE.

**5 EXCAVATION.** Excavation shall be as required to remove the underground storage tanks plus up to 20 cubic yards of contaminated soil per tank site. Material from excavation for tank removal shall be stockpiled and sampled for TRPH. After the tank has been excavated and removed, the soil at the bottom of the excavated area shall be visually inspected and sampled as specified in SECTION: CHEMICAL QUALITY MANAGEMENT. If this soil is found to be contaminated, it shall be excavated up to 20 cubic yards as directed by the CO and stockpiled. The stockpile of contaminated soil shall be kept separate from clean backfill and shall be placed on a liner and covered with a liner as specified on the drawings. The excavated area shall then be backfilled and compacted as specified herein. If the laboratory analysis from the soil excavated for tank removal comes back:

a "Clean," TRPH < 50 ppm, the soil may be used for backfill at another tank site;

b "Contaminated but not hazardous," the soil shall be disposed of as described in SECTION: CONTAMINATED SOIL DISPOSAL;

c "Contaminated and hazardous," as described in the Virginia Solid Waste Management Regulations (VSWHR), "Petroleum Contaminated Soil Guidelines," the CO will determine a method for treatment or disposal and an equitable adjustment pursuant to CONTRACT CLAUSES clause: "Changes" will be made for the cost.

If, through visual inspection and analysis, the soil is not found to be contaminated, the excavated area shall be backfilled and

compacted as specified herein. Material needed for backfilling the excavated areas in excess of that produced by excavation shall be obtained by the Contractor at his own expense and responsibility outside the limits of Government-controlled lands.

**6 CONSERVATION OF TOPSOIL.** Acceptable topsoil as hereinbefore defined, shall be obtained from required excavation to the extent available and necessary. Topsoil shall be subject to approval and shall be designated as topsoil when deposited in storage piles for future placement in the work.

**7 FILLING AND COMPACTION.** Sufficient fill shall be placed to return all excavated areas to original grade. Suitable material shall be used for fill and for replacing unsuitable material as defined previously.

**7.1 MOISTURE DENSITY DETERMINATIONS.** Tests for determination of maximum density and optimum moisture shall be performed by the Contractor in accordance with the requirements of ASTM D-1557, except that a mechanical tamper may be used provided the results are correlated with those obtained with the referenced hand tamper. Samples shall be representative of the materials to be placed. An optimum moisture density curve shall be obtained for each principal type of material or combination of materials encountered or utilized. Results of these tests shall be the basis of control for compaction. The above testing shall include Atterberg limits, grain size determinations, and specific gravity. A copy of these tests shall be furnished to the CO with the Contractor's Daily Quality Control Report.

**7.2 PREPARATION OF GROUND SURFACES.** Unsuitable material in surfaces to receive fill shall be removed and replaced with suitable materials. The surface shall be scarified to a depth of six (6) inches before the fill is started. Sloped surfaces steeper than one vertical to four horizontal shall be plowed, stepped, benched, or broken up in such manner that the fill material will bond with the existing material.

**7.3 PLACEMENT OF FILL.** The approved suitable materials shall be placed in successive uniformly spread layers of loose material not greater than six (6) inches thick. Fill shall not be placed until excavation is checked and approved by the CO. Fill shall not be placed on muddy or frozen soil/backfill.

**7.4 COMPACTION.** Compaction shall be accomplished by sheep's-foot rollers, pneumatic-tired rollers, steel-wheeled rollers, or other approved equipment well suited to the soil being compacted. Material shall be moistened or aerated as necessary to provide the moisture content that will readily facilitate obtaining the specified compaction with the equipment used. When questionable or borderline materials are encountered, the CO will determine the compaction requirements to be used. Cohesive soils shall be at a moisture content between one percent below and four percent above optimum moisture when compacted. Each layer shall be compacted to not less than 90 percent of maximum density.

**7.5 TESTINGS FOR AND CONTROL OF DENSITY.**

**7.5.1 Sampling and Testing.** All quality control samples and testing shall be performed by the Contractor.

**7.5.2 Density Control.** The Contractor shall adequately control his compaction operation by tests made in accordance with ASTM Standard D-1556, ASTM D-2167, ASTM D-2922, or ASTM D-3017 to ensure placement of materials within the limits of densities specified below. A minimum of two density tests are required for each 4,000 sq. ft. or area backfilled in each lift, whichever is smaller. Tests will be performed immediately after compaction is completed. The location of the tests shall be as directed by the CO. The Contractor shall make as many additional tests as he requires to obtain the specified density at all points. Copies of all test results shall be furnished to the Contracting Officer with the Contractor's Daily Quality Control Report. Tests may be made by the Government for verification of compliance; however, the Contractor shall not depend on such tests for his control of operations. Deficiencies in construction shall be corrected by the Contractor at no additional cost to the Government.

**7.6 RECONDITIONING OF SUBGRADES.** Approved compacted backfill layers that are disturbed by Contractor's subsequent operations or adverse weather shall be scarified and compacted to the condition as specified hereinbefore.

**8 GRADING.** Unless otherwise shown, the areas required to be filled shall be shaped to drain, and shall be maintained free of trash and debris until final inspection has been completed and the work has been accepted.

**9 TOPSOIL PLACING.** Areas which are disturbed by work under this contract shall be topsoiled.

**9.1 CLEARING.** Prior to placing topsoil, vegetation on the areas to be topsoiled shall be removed from the area and the ground surface cleared of all other materials that would hinder proper grading, tillage, or subsequent maintenance operation.

**9.2 GRADING.** Previously constructed grades shall be repaired if necessary so that the area to be topsoiled shall conform to the original grade upon completion of the topsoil placement.

**9.3 TILLAGE.** Subsequent to the above grading, the areas to be topsoiled shall be thoroughly scarified to a depth of at least three (3) inches by approved means. The work shall be performed only during periods when beneficial results are likely to be obtained. When conditions are such, by reason of drought, excessive moisture, or other factors, that satisfactory results are not likely to be obtained, the work will be stopped by the CO and shall be resumed only when directed. Undulations or irregularities in the surface that would interfere with further construction operations or maintenance shall be leveled before the next specified operation.

**9.4 DISTRIBUTING AND SPREADING.** The topsoil shall be uniformly distributed and evenly spread to a minimum thickness of four (4) inches on the designated areas. Topsoil shall not be placed when the subgrade is frozen, excessively wet, extremely dry,

or in a condition otherwise detrimental for proper grading or the subsequent planting. The spreading shall be performed in such a manner that planting can proceed with little additional soil preparation or tillage. Irregularities in the topsoil surface shall be corrected so as to prevent the formation of depressions where water will stand.

**10 PROTECTION.** Settling or washing that occurs in graded, topsoiled, or backfilled areas prior to acceptance of the work shall be repaired and grades re-established for proper drainage.

ZERO ACCIDENTS

SECTION 02480  
SEEDING

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PART 1 - GENERAL

**1 APPLICABLE PUBLICATIONS.** The following publications of the issues listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.

**1.1 FEDERAL SPECIFICATION (Fed. Spec.).**

O-F-241D Fertilizer, Mixed, Commercial

**1.2 U.S. DEPARTMENT OF AGRICULTURE.**

Federal Seed Act of 9 August 1939 (53 Stat. 1275)

**2 GENERAL REQUIREMENTS.** The specified seed varieties and quantities shall be uniformly distributed over all ground areas disturbed by grading and/or excavation and not otherwise surfaced and in such manner that will produce an even stand of grass over the entire area seeded. The Contractor shall notify the Contracting Officer at least 10 days prior to seeding operations.

**2.1** For bidding purposes, the Contractor should assume that 1,600 square feet of ground area require preparation and seeding in accordance with this Section at each tank location.

**3 SOIL TEST.** The Contractor shall obtain Agricultural Soil Tests to determine fertilizer requirements. Test reports shall be submitted to the Contracting Officer in accordance with paragraph: SUBMITTALS.

**4 SUBMITTALS.** In accordance with SECTION: SPECIAL CLAUSES, the Contractor shall submit the following items:

**4.1 CATEGORY I.** None.

**4.2 CATEGORY II.**

**4.2.1 Certificates of Compliance:**

**4.2.1.1** Seed (para. 6.1)

**4.2.1.2** Fertilizer (para. 8.4)

**4.2.1.3** Agricultural Soil Test Report (para. 3)

**4.2.2 NOT USED**

**5 DELIVERY, STORAGE, AND HANDLING.**

**5.1 DELIVERY.**

**5.1.1 Seeding Material** shall be inspected upon arrival at the job site, and unacceptable material shall be removed from the job site.

**5.1.2 During Delivery, Seed** shall be protected from any drying or contamination by detrimental material.

**5.1.3 Fertilizer** shall be delivered to the site in the original, unopened containers bearing the manufacturer's guaranteed chemical analysis, name, trade name, trademark, and conformance to state and federal law.

**5.1.4 Chemical Treatment of Materials.** Pesticides and Herbicides shall be delivered to the site in the original unopened containers. Containers without labels and EPA registration numbers and the manufacturer's registered uses will be rejected by the Contracting Officer.

**5.2 STORAGE.**

**5.2.1 Seed and Fertilizer** shall be stored in cool, dry locations away from contaminants.

**5.2.2 Pesticides and Herbicides** shall not be stored with other landscape materials and shall be handled and stored following manufacturer's directions.

**5.2.3 Materials** shall be stored in areas designated or as approved by the Contracting Officer.

PART 2 - PRODUCTS

**6 MATERIALS.**

**6.1 SEED** shall be state-certified seed of the latest season's crop and shall be delivered in original sealed packages bearing the producer's guaranteed analysis for percentages of mixtures, purity, germination, weed-seed content, and inert material. The Contractor shall submit to the CO for approval a certificate of compliance for the seed used for this project. Labels shall conform with USDA Federal Seed Act, Rules & Regulations and applicable state seed laws. Wet, moldy, or otherwise damaged seed will be rejected.

**6.1.1 Lawn Seed Mixture.** The mixture of each seed lot shall contain the following types of seed and their pounds of Pure Live Seed (PLS) per 1,000 square feet:

| Seed Mixture                               | Percent of Mix |
|--|----------------|
| Bermuda                                    | 60%            |
| Fescue                                     | 40%            |
| Seed mixture at 8 pounds per 1,000 sq. ft. |                |

**6.2 FERTILIZER** shall be controlled-release, commercial grade, granular free flowing, uniform in composition, delivered in fully labeled sealed containers, and shall conform to applicable state and federal regulations. Fertilizer shall conform to Fed. Spec. O-F-241, and shall bear the manufacturer's guaranteed statement of analysis.

6.2.1 Granular fertilizer shall contain the appropriate percentages of nitrogen, phosphorus, and potassium as determined by the soil tests conducted in Paragraph 2.

6.3 **TOPSOIL.** Specified under SECTION: FILLING AND GRADING.

6.4 **TOPSOIL FOR REPAIR.** Erosion repair topsoil shall be obtained by the Contractor from off Base areas approved by the Contracting Officer if topsoil is not available from the grading operations. Topsoil for repair shall be a natural, friable soil representative of agriculturally productive soils in the vicinity. It shall be obtained from well-drained areas and shall be free of any admixture of subsoil, toxic substances, and any material or substance that may be harmful to plant growth.

6.5 **MULCH.**

6.5.1 **Straw Mulch** shall be stalks from oats, wheat or rye that are free from noxious weeds, mold, or other objectionable material. The straw mulch shall contain at least 50 percent by weight of the material to be 10 inches or longer. Straw shall be in an air-dry condition and suitable for placing with blower equipment.

6.5.2 **NOT USED.**

6.6 **WATER** shall be a quality suitable for irrigation.

6.7 **CHEMICAL TREATMENT MATERIAL** shall be EPA registered and approved herbicides and pesticides. These materials shall comply with all applicable state and federal laws.

6.8 **NOT USED.**

### PART 3 - EXECUTION

#### 7 **DATES FOR SEEDING.**

7.1 **LAWN SEEDING.** The Contractor shall contact the local Soil Conservation Service to obtain dates to prepare the seedbed and perform lawn seeding as specified in paragraph: MATERIALS.

#### 8 **PREPARATION OF SEEDBED.**

8.1 **GENERAL.** The Contractor shall place topsoil and establish finish grades in accordance with the SECTION: FILLING AND GRADING. Any eroded finish grades shall be repaired in accordance with the MATERIALS paragraph: TOPSOIL FOR REPAIR.

8.2 **TILLAGE.** The soil shall be tilled to a depth of at least 4 inches by plowing, disking, harrowing, or rototilling. When drought, excessive moisture, or other unsatisfactory conditions prevail, the work should be stopped. The soil surface shall be leveled to meet finish grade requirements before seeding. Seedbed preparation shall be performed on the contour to reduce soil loss. Slopes 2 horizontal to 1 vertical and greater, minimum tillage depth shall be 2 inches.

8.3 **APPLICATION OF FERTILIZER.** Fertilizer shall be incorporated into the soil to a depth of 2 inches during seedbed preparation. When hydro-seeding is specified, the fertilizer may be applied with the use of hydro-seed and mulch.

#### 8.4 FERTILIZER RATE.

8.4.1 NOT USED.

8.4.2 Fertilizer shall be applied at the rate determined by the Contractor's Agricultural Soil Test. Test reports shall be submitted to the Contracting Officer in accordance with paragraph: SUBMITTALS. Bids shall be based on the following application rate of actual or available fertilizer; if the following rate is more or less than the rate required by paragraph: SOIL TEST an adjustment in the Contract Price will be made as provided in the CONTRACT CLAUSES, clause "changes":

#### LAWN SEEDING:

|   |                 |
|---|-----------------|
| Nitrogen (N)                                | 1 lbs./1,000 SF |
| Phosphorus (P <sub>2</sub> O <sub>5</sub> ) | 2 lbs./1,000 SF |
| Potassium (K <sub>2</sub> O)                | 2 lbs./1,000 SF |

#### 9 PLANTING SEED.

9.1 GENERAL. Prior to seeding, any previously prepared seedbed areas compacted or damaged by interim rains, traffic, or other cause, shall be reworked to restore the ground condition previously specified. Seed shall be planted at the rate specified herein.

9.2 METHODS. Seed planting shall be accomplished by:

9.2.1 Broadcast Seeding. The Contractor shall broadcast seed by hand or with approved gravity or cyclone types of spreading equipment. Broadcast seedings shall be covered to an average depth of 1/4 inch. Completed seeding shall be mixed into soil with a harrow or rake and compacted with a cultipacker-type roller providing 60 to 90 pounds weight per linear foot of roller, or by equivalent approved hand rolling or compacting methods. Broadcast seeding will not be permitted when wind velocity is such as to prevent uniform seed distribution.

9.2.2 NOT USED.

9.2.3 NOT USED.

9.3 VEGETATIVE MULCHING. The contractor shall perform vegetative mulching on the same day as planting seed. Vegetative mulching is not required on hydro-seeding.

9.3.1 Applying Mulch. Straw mulch shall be spread uniformly in a continuous blanket over the seeded areas, using 2 tons of material per acre. The mulch shall be spread in such manner as to prevent bunching.

9.3.2 Securing Mulch. Immediately following the spreading of the mulch, the material shall be anchored securely into the soil a minimum of 3 inches by means of a mulch anchoring machine equipped with large coulter-type discs spaced on approximate 8-inch centers. Edges of the discs shall be dull to prevent cutting of the mulching and equipment operation shall be such as to embed the mulch to the required depth. In areas where equipment cannot be used, mulch shall be secured by shallow covering of earth or by embedding with approved hand methods, including straight-bladed spade with dulled edge.

10 NOT USED.

11 **PROTECTION AND CLEANUP.** After seeding and mulching operations have been completed, barricades and approved warning signs shall be erected by the Contractor as required to provide protection against traffic and trespass. Excess material from seeding and mulching operations, and all debris, shall be cleaned up and disposed of off the site.

12 **ESTABLISHMENT AND MAINTENANCE PERIOD.**

12.1 **LAWN SEEDING.** The Contractor is responsible for the establishment and maintenance of lawn seeding for a minimum period of 45 days or until all of the work on the project has been completed and accepted by the Contracting Officer, for whichever period is longer.

12.1.1 **Stand of Grass** shall be a minimum of 500 grass plants per square foot over the seeded area after the second mowing.

12.1.2 **Mowing** shall be to a height of 2 1/2 inches whenever the height of lawn grass becomes 4 inches. The Contractor shall catch, collect, and remove clippings. Mowing is required until project completion and acceptance.

12.1.3 **Watering** lawn grass shall be frequent, usually once per day. The Contractor shall keep the ground moist to a depth of 2 to 4 inches. Grass shall be watered at such rates to prevent wilting, puddling, runoff, and damage to grades. Irrigation equipment shall be Contractor furnished.

12.1.4 **Reseeding and Repair.** During the establishment and maintenance period any eroded or damaged seeding shall be repaired and reseeded by the Contractor.

12.2 NOT USED.

13 **CHEMICAL TREATMENT.** Herbicides and pesticides shall be applied as directed by the Contracting Officer for the control of weeds or pests that may damage seeded areas. Application shall be by a certified applicator and performed in accordance with manufactures recommendations stated on the container label. When weeds are sprayed they should be 4 to 6 inches high if they are thick enough to shade the ground completely. The seeded grass should be in at least a two- to four-leaf stage before spraying.

14 **FINAL ACCEPTANCE.** Final inspection and acceptance will be at the end of the Establishment and Maintenance Period. Acceptance will be based upon material, performance and completion of all the items of work specified for SEEDING. Unacceptable work shall be reseeded by the Contractor.

ZERO ACCIDENTS

SECTION 02990  
DEMOBILIZATION

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**1 ROADS.** The Contractor shall repair permanent access roads, if damaged during work activities.

**2 EQUIPMENT.** Decontaminated vehicles and equipment shall be inspected and approved by the Contracting Officer prior to removal from the project site. The Contractor shall adhere to all vehicle decontamination specifications.

**3 TEMPORARY UTILITIES AND STRUCTURES.** The Contractor shall remove temporary utilities, and shall remove all temporary structures such as signs, scaffolding, fences, and gates.

**4 EROSION.** The Contractor shall repair any erosion or runoff-related damage to the final covers and restabilize as directed by the Contracting Officer.

**5 REPORTS AND RECORDS.** The Contractor shall finalize and close out all reports and records to the satisfaction of the Contracting Officer.