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A Member of The IT Group



May 15, 2002

Ms. Michelle Crook, Code 02R1.MC  
Administrative Contract Officer, Southwest Division  
Naval Facilities Engineering Command  
1230 Columbia St., Suite 870  
San Diego, CA 92101-5817

**Attention:** Ms. Glenna Clark, Code 06CA.GC, RPM

**Contract:** N62474-98-D-2076, Environmental Remedial Action Contract

**Contract Task Order:** 0060, Installation Restoration Sites 4 and 5, DNAPL and Dissolved Source Removal Action

**Subject:** **Amendment to the Final Removal Action Project Plan  
Installation Restoration Sites 4 and 5  
DNAPL and Dissolved Source Removal Action  
Alameda Point, Alameda, California, February 8, 2002  
Concerning Installation of Well Points for DNAPL Extraction at  
Plume 5-1, East of Building 5**

Dear Ms. Clark:

The Section 5.2.4, "Free-Product (Mobile) DNAPL," of the *Final Removal Action Work Plan, Installation Restoration Sites 4 and 5, DNAPL and Dissolved Source Removal Action, Alameda Point, Alameda, California*, February 8, 2002, discusses the possibility of mobile DNAPL. The plan states that, should the risks of thermal removal prove significant to dense nonaqueous phase liquid (DNAPL) migration, "alternative physical removal techniques such as temporary wells will be evaluated and applied as appropriate." This letter is intended to provide an amendment detailing the need for physical DNAPL removal at Plume 5-1 and the proposed method for performing the removal.

#### **Findings**

The quantity of 140 milliliters (mL) of free-product DNAPL was collected from Hydropunch® groundwater sampling location 5-1-ADD12 at a depth of 44 feet below ground surface (bgs). The full 140 mL volume of DNAPL was collected in less than 1 hour. This indicated the presence of **mobile** DNAPL at that location. In contrast, the potential existence of DNAPL in the rest of Plume 5-1 and the other plumes that will be remediated via Six-Phase Heating is inferred based on total screening analytes (10 different volatile organic compounds [VOCs]) over 10,000 parts per billion (ppb). That is, no free-product DNAPL was recovered in any of the other groundwater samples collected at Plume 5-1.

Figure 1 shows a plan view of the DNAPL location including a contour that details the suspected lateral extent of mobile DNAPL. Figure 2 is an interpreted cross-sectional view of the free-product DNAPL in relation to the stratigraphy and the surrounding chemical data. Two of the sampling points surrounding 5-1-ADD12 showed high concentrations of chlorinated hydrocarbons inferring the existence of DNAPL at roughly similar depths: 5-1-ADD8 at 21,500 micrograms per liter (µg/L) of total screening analytes and 5-1-ADD27 at 14,900 µg/L of total screening analytes. While no mobile DNAPL was observed at these locations, their proximity to 5-1-ADD12, in concert with their high VOC concentrations indicates a high probability that mobile DNAPL is present in their immediate vicinity. The suspected lateral extent of mobile DNAPL was conservatively extended closer to these locations than to those surrounding locations that showed low concentrations roughly within the target horizon.

Ms. Glenna Clark

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May 15, 2002

**Description**

IT Corporation (IT) plans to install a DNAPL extraction array at Installation Restoration Site 5. The array was designed to cover the suspected lateral extent of mobile DNAPL and the individual temporary well points will be narrowly screened to target the soil horizon where the mobile DNAPL was found. The array will be comprised of 34 well points spaced on approximately 5-foot centers. The well points will have 3-foot long screens placed approximately 44 feet bgs. Figure 3 shows the well point locations and Figure 4 shows a typical well point schematic diagram. IT will use direct push technology to install the well points.

The operation phase will follow the installation of the well point array. IT plans to use a vacuum truck to "slurp" DNAPL out of the temporary well points. The extracted fluids will go into an intermediate receptor that will be designed to collect DNAPL and to gauge the effectiveness of the effort on a real-time basis. The process will not be continuous. The extraction will proceed in relatively short, discrete events separated by relatively long re-equilibration periods that will allow the area surrounding the individual well points an opportunity to recover between episodes. Each temporary well point will be extracted for a period of approximately ½ hour, and the entire event will take approximately 1 day. The initial frequency will be twice per week. We expect an operation phase duration of approximately 4 weeks. The schedule will be reassessed each week based on observations of the extracted fluids. The extracted fluids will be evaluated visually to determine if DNAPL is being removed.

Extracted waters will be decanted to a 1,000-gallon slope-bottomed tank and the DNAPL and sludges will be drummed for characterization and proper disposal. The water will be characterized and properly disposed.

**Abandonment**

IT will abandon the well points by using the drive pipe and screen as a tremie pipe for thin (3 to 1) neat cement grout. Once the drive pipe is filled with cement slurry, the drive pipe will be slowly withdrawn, the sacrificial tip will stay in place at 44 feet bgs. Neat cement will backfill the void resulting from the drive pipe removal.

If you have any questions or comments concerning this process, please do not hesitate to contact me.

Sincerely,  
IT CORPORATION

  
Rudolph Millan  
IT Project Manager  
CTO 0060

cc: Project File

Attachments

**ATTACHMENTS**

**FIGURES**

DRAWING NUMBER 819856-B74

APPROVED BY *5/15/02*

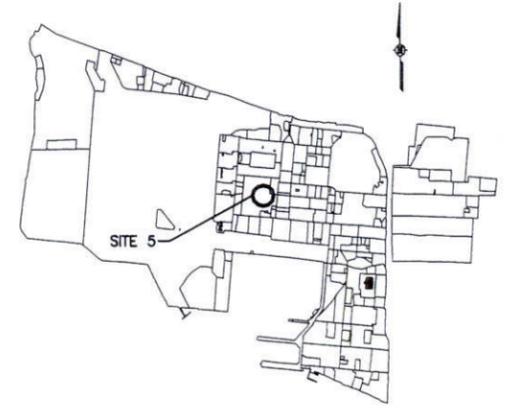
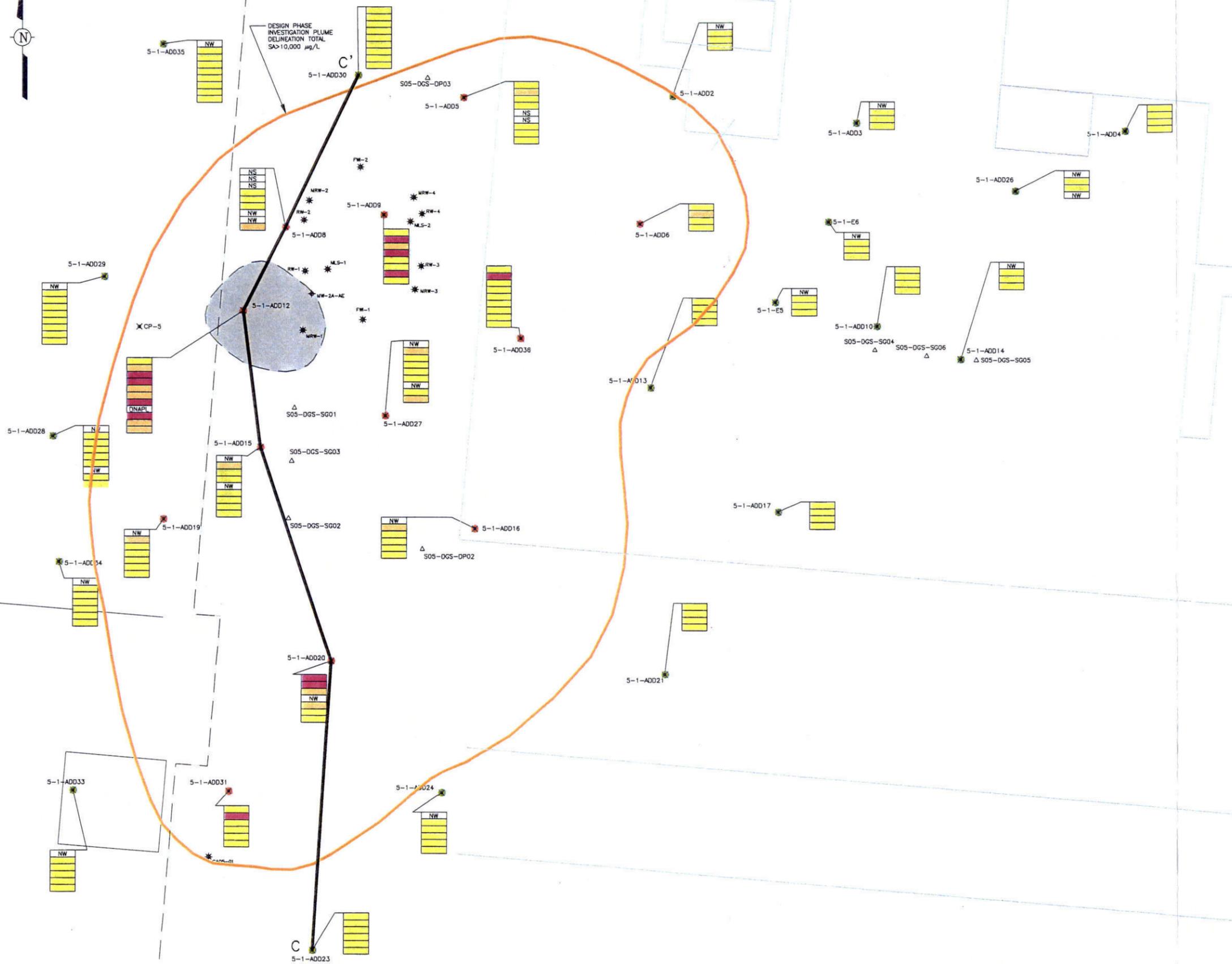
CHECKED BY *HCM*

DRAWN BY *RB*

OFFICE CONCORD

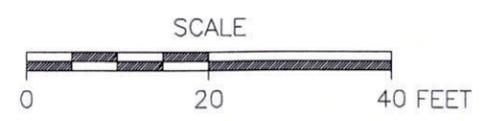
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IMAGE



LEGEND

- ✕ CPT/HYDRO PUNCH SAMPLING LOCATION
- ✱ SESR TREATABILITY STUDY WELL
- △ TETRA TECH DATA POINT
- SUSPECTED EXTENT OF MOBILE DNAPL
- SCREENING ANALYTES 10,000 µg/L CONTOUR
- >8,000 ppb AT SOME DEPTHS
- <8,000 ppb AT ALL DEPTHS; NO FURTHER SAMPLING
- <8,000 ppb
- 10,000 ppb - 100,000 ppb
- ≥100,000 ppb
- NW = NO WATER
- NS = NO SAMPLE



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NAVAL ENGINEERING COMMAND  
SAN DIEGO, CALIFORNIA

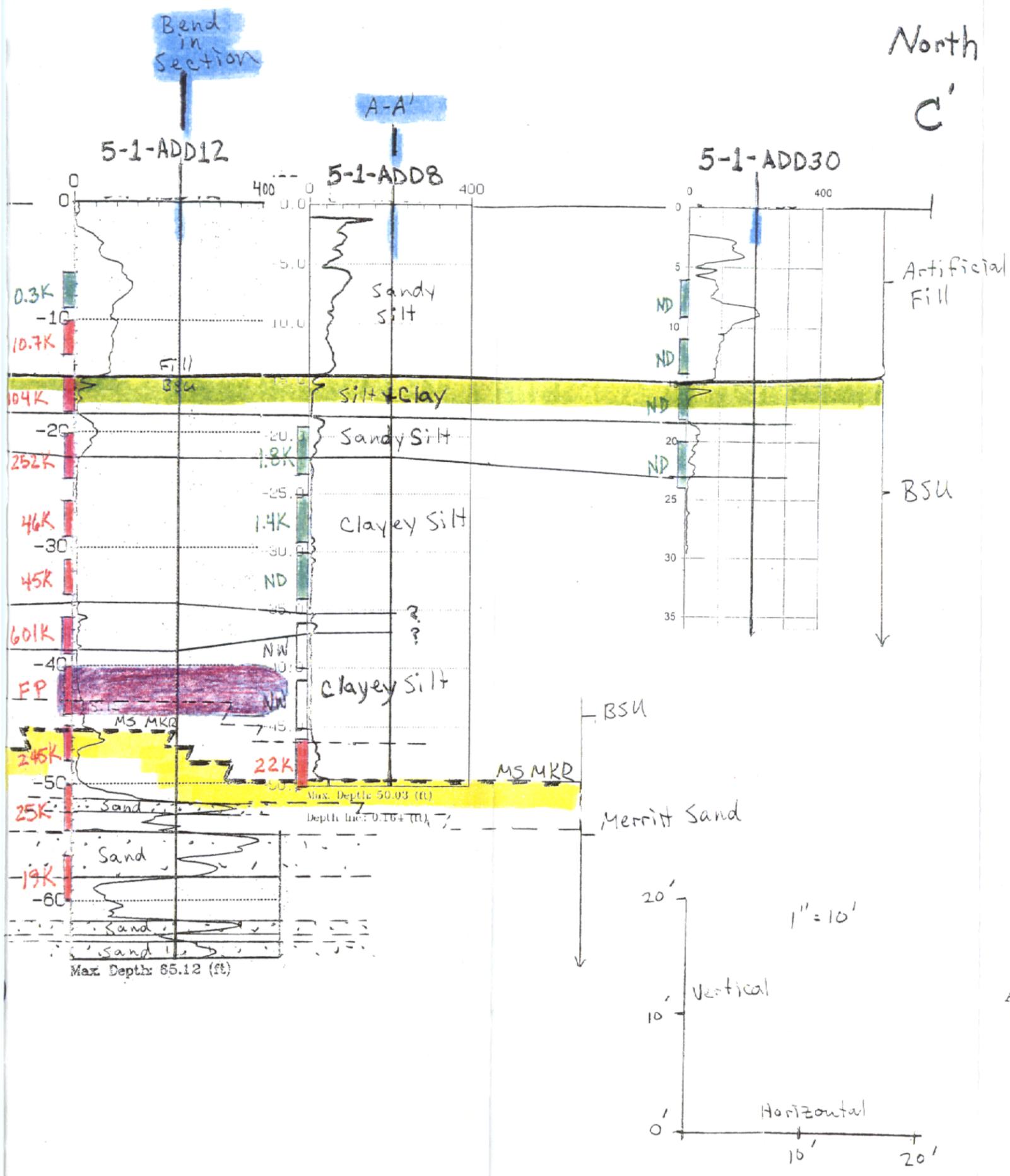
FIGURE 1  
PLUME 5-1  
MOBILE DNAPL LOCATION  
ALAMEDA POINT CTO-060  
ALAMEDA, CALIFORNIA



Bend in Section

North  
C'

- TOTAL SAS < 8,000 µg/L
- 8,000 µg/L ≤ TOTAL SAS < 10,000 µg/L
- 10,000 µg/L ≤ TOTAL SAS < 100,000 µg/L
- TOTAL SAS ≥ 100,000 µg/L
- SUSPECTED EXTENT OF MOBILE DNAPL
- FP FREE PRODUCT/MOBILE DNAPL
- ND NOT DETECTED
- NW INSUFFICIENT WATER TO SAMPLE
- SAS SCREENING ANALYTES



PLEASE NOTE:  
 CONCENTRATION BARS SHOWN  
 LEFT (SOUTH) OF ACTUAL  
 LOCATION  
 CENTER LINE INDICATES  
 ACTUAL LOCATION

**DRAFT**  
 Subject to Revision  
 And/or Reinterpretation

FIGURE 2  
 CROSS SECTION B-B'

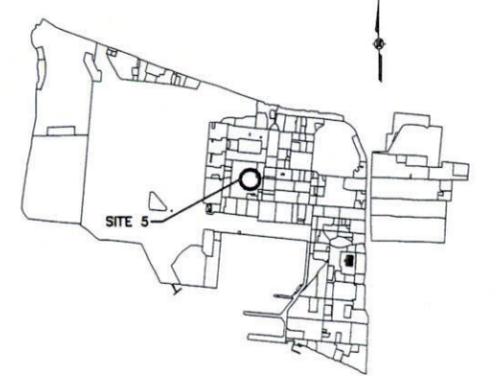
IMAGE X-REF ALA1BASE  
 OFFICE CONCORD  
 DRAWN BY SUZ  
 CHECKED BY HCM  
 5-14-02  
 APPROVED BY  
 DRAWING 819856-B75  
 NUMBER 5/15/02



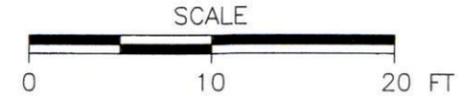
**BUILDING 5**

FOOTPRINT OF BUILDING 5

DESIGN PHASE  
 INVESTIGATION PLUME  
 DELINEATION TOTAL  
 SA > 10,000 µg/L



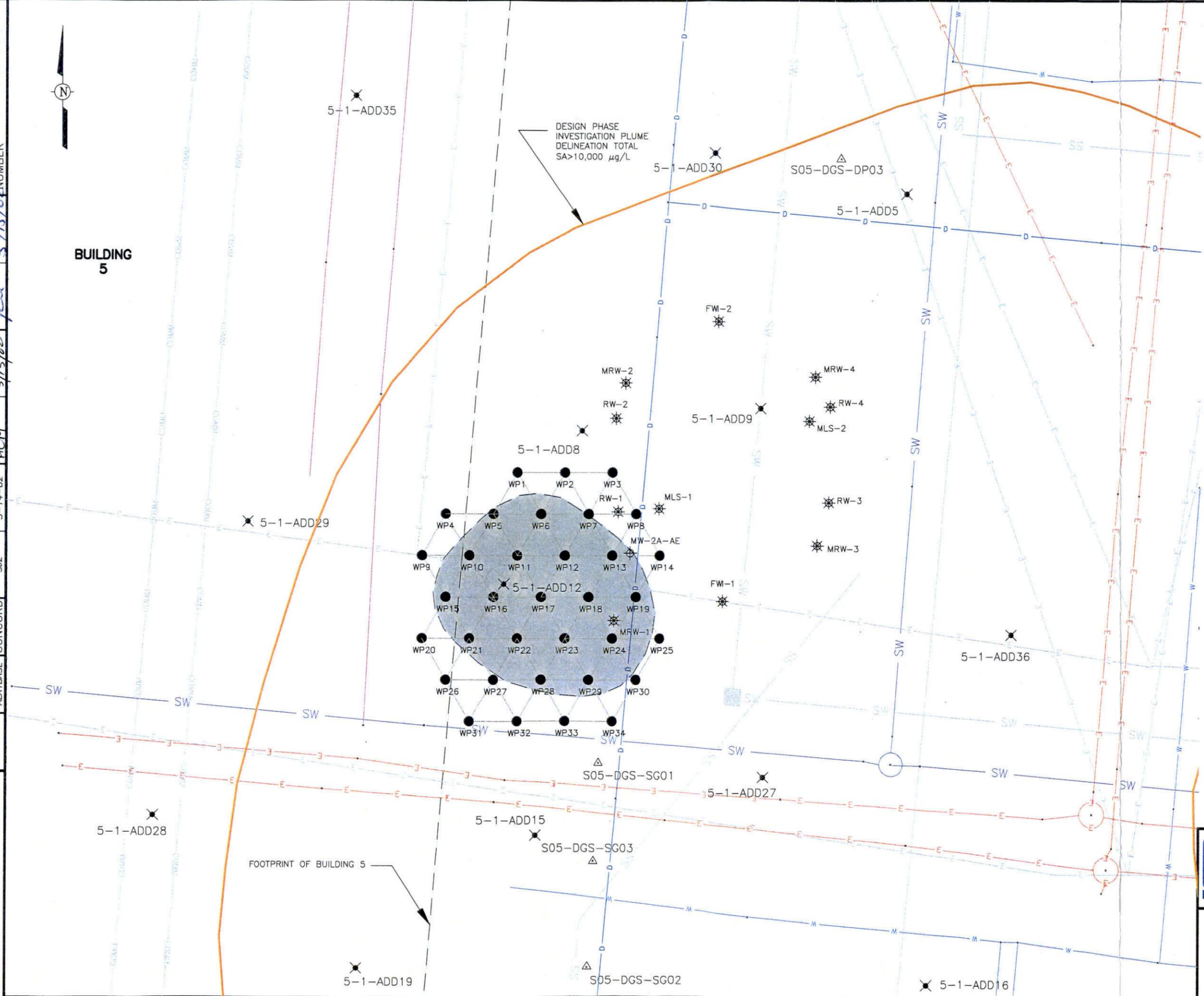
- LEGEND**
- WELL POINT EXTRACTION LOCATION
  - ✕ CPT/GROUNDWATER SAMPLE LOCATIONS
  - ⊛ SESR TREATABILITY STUDY WELL
  - △ TETRA TECH POINT
  - MANHOLE
  - SURVEYED ELECTRICAL LINES
  - ELECTRICAL LINES
  - SURVEYED WATER LINES
  - SURVEYED UNKNOWN LINES
  - FUEL LINES
  - SW SURVEYED SANITARY SEWER LINE
  - SANITARY SEWER LINE
  - SURVEYED STORM SEWER LINE
  - STORM SEWER LINE
  - SURVEYED INDUSTRIAL WASTE LINE
  - INDUSTRIAL WASTE LINE
  - COMMUNICATION LINE
  - SCREENING ANALYTES PLUME
  - SA SCREENING ANALYTES
  - SUSPECTED EXTENT OF MOBILE DNAPL



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 SAN DIEGO, CALIFORNIA

FIGURE 3

DNAPL WELL POINT  
 EXTRACTION ARRAY  
 ALAMEDA POINT CTO-060  
 ALAMEDA, CALIFORNIA



DRAWING NUMBER 819856-A157

APPROVED BY RM 5/15/02

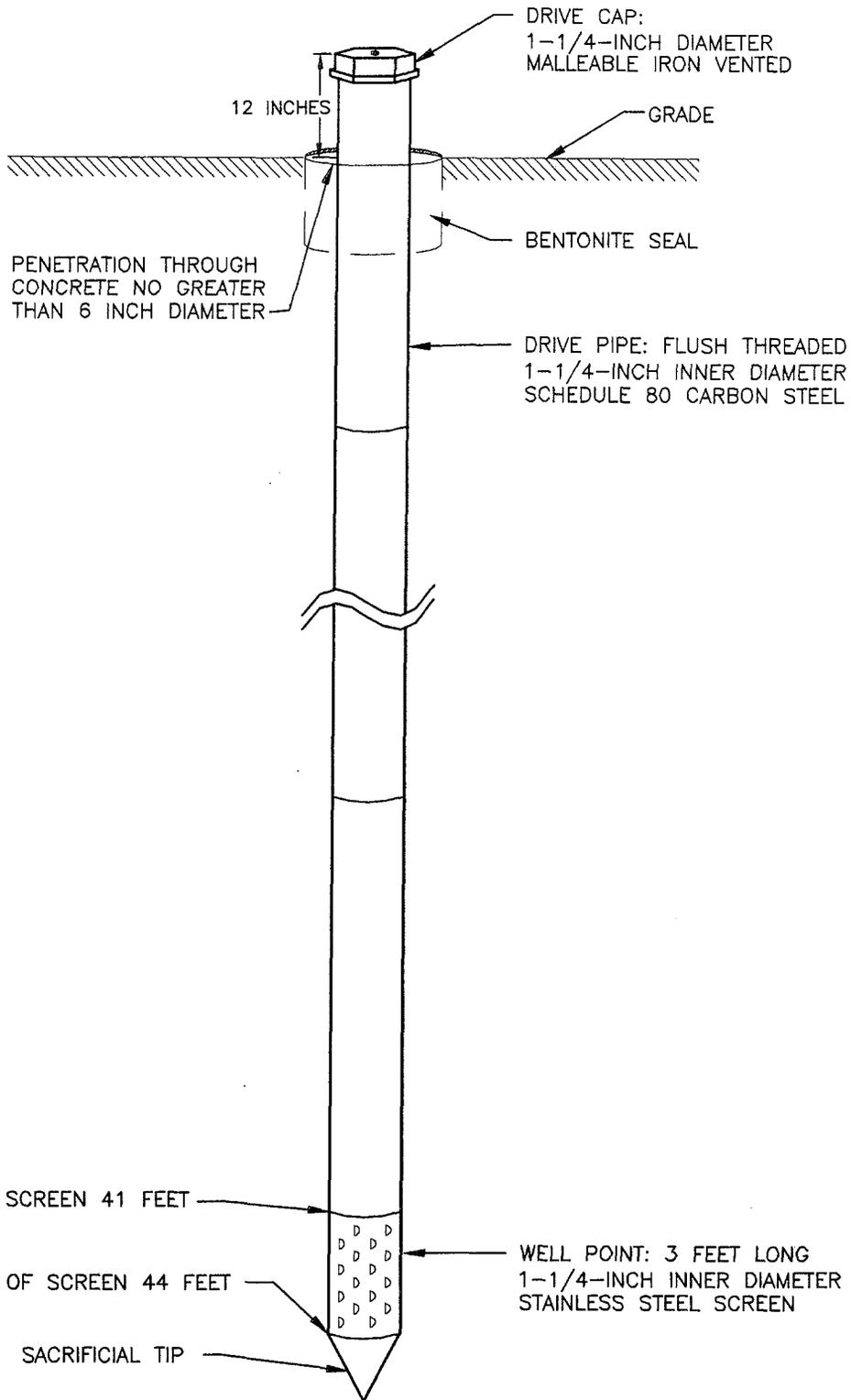
CHECKED BY HCM 5/15/02

DRAWN BY S/JZ 5/15/02

OFFICE Concord

X-REF

IMAGE



TOP OF SCREEN 41 FEET  
BOTTOM OF SCREEN 44 FEET  
SACRIFICIAL TIP

DRIVE CAP:  
1-1/4-INCH DIAMETER  
MALLEABLE IRON VENTED  
GRADE  
BENTONITE SEAL  
DRIVE PIPE: FLUSH THREADED  
1-1/4-INCH INNER DIAMETER  
SCHEDULE 80 CARBON STEEL

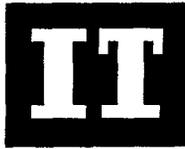


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SAN DIEGO, CALIFORNIA

NOT DRAWN TO SCALE

FIGURE 4

TYPICAL WELL POINT  
INSTALLATION  
ALAMEDA POINT CTO-060  
ALAMEDA, CALIFORNIA



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**IT TRANSMITTAL/DELIVERABLE RECEIPT**

**CONTRACT : N62474-98-D-2076**

**DOCUMENT CONTROL NUMBER : 3951.0**

**TO:** Administrative Contract Officer  
Southwest Division  
Naval Facilities Engineering Command  
Michelle Crook, 02R1.MC  
1230 Columbia St., Suite 870  
San Diego, CA 92101-5817

**Date :** May 15, 2002

**CTO :** 0060

**Location:** Alameda

**FROM:**

  
Rudy Millan  
Project Manager

**DESCRIPTION** *Amendment to the Final Removal Action Project Plan, Installation Restoration Sites 4 & 5 DNAPL*  
**OF** *and Dissolved Source Removal Action, Alameda Point, February 8, 2002 Concerning Installation of*  
**ENCLOSURE :** *Well Points for DNAPL Extraction at Plume 5-1*

**TYPE :** CTO Deliverable

**REVISION :**

**REVISION No :** 0

**ADMIN RECORD :** Yes

**SCHEDULED DELIVERY DATE** May 16, 2002

**ACTUAL DELIVERY DATE** May 15, 2002

**NUMBER OF COPIES SUBMITTED TO THE NAVY:** 1/O, 3/C, 6/E  
[AS REQUIRED/DIRECTED BY THE SOW]

Date/Time Received \_\_\_\_\_ / \_\_\_\_\_

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N00236.000368  
ALAMEDA POINT  
SSIC NO. 5090.3

FINAL REMOVAL ACTION PROJECT PLANS FOR  
INSTALLATION RESTORATION SITES 4 AND 5,  
DNAPL AND DISSOLVED SOURCE  
REMOVAL ACTION

DATED 8 FEBRUARY 2002

IS ENTERED IN THE DATABASE AND FILED AT  
ADMINISTRATIVE RECORD NO. N00236.000344