DEPARTMENT OF THE NAVY
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132-5190

5090
Ser 5BNE.ED/0333
July 1, 1999

Ms. Ana Velos-Townsend
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Dear Ms. Townsend:

Enclosed for your review and concurrence, is a report on the performance of the Low-Flow (minimal drawdown) purging technique compared to the conventional three-volume method. Also enclosed is a copy of your letter dated March 3, 1999 for reference.

The analytical results from the first round of groundwater monitoring using the two purging techniques were evaluated to determine if the low-flow purging technique is feasible for the remaining three rounds of groundwater monitoring. The analytical results for site 9 show large discrepancy of VOC concentrations between the two techniques, however, purged water samples collected from Sites 12 and 13 provided similar arsenic concentration for both techniques.

Based on the results, we recommend using the conventional three-volume purging for Site 9, and low-flow purging technique for Sites 12 and 13 for the remaining three quarters of monitoring event. We appreciate if you provide your written concurrence by July 30, 1999 to:

COMMANDER
ATTN: Ed Dienzo, Code 5BN.ED
BRAC Operations Office
1220 Pacific Highway
San Diego, California 92132-5190

If you have any questions, please contact Ed Dienzo at (619) 532-4714.

Sincerely,

FAIQ ALJABI
Environmental Engineer
By direction of the Commander

Encl: (1) Report on the performance of Low-Flow Purging technique dated June 23, 999
(2) California Regional Water Quality Control Board letter dated March 3, 1999

Copy to:

Mr. Alvaro Gutierrez
California Environmental Protection Agency
Department of Toxic Substances Control
5796 Corporate Way
Cypress, CA 90630

Mr. Martin Hausladen (1 copy)
U.S. Environmental Protection Agency
75 Hawthorne Street, H-9-2
San Francisco, CA 94105

Blind copy to:
04EN.DS
~~01LS.DS~~ (IR)

Writer: E. Dienzo, Code 5BN.ED, x2-4714
Typist

Bechtel

1230 Columbia Street
Suite 400
San Diego, CA 92101-8502

CLEAN II Program
Bechtel Job No. 22214
Contract No. N68711-92-D-4670
File Code: 0303

IN REPLY REFERENCE: CTO-177/0051

June 23, 999

Contracting Officer
Naval Facilities Engineering Command
Southwest Division
Mr. Richard Selby, Code 02R.RS
Building 127, Room 112
1220 Pacific Highway
San Diego, CA 92132-5190

Attention: M. Orpilla, 5B02.MO, Contract Specialist

Subject: Results from Low-Flow Purging (Minimal Drawdown) and Conventional Purging Former Naval Shipyard, Long Beach, CA

Dear Mr. Selby:

As described in the Field Sampling Plan for CTO 177 (Section 5.7), analytical results from the first quarterly sampling event using low-flow purging (minimal drawdown) and conventional (3 well volume) purging have been compared to determine if low-flow purging is feasible for the remaining 3 rounds of groundwater sampling.

VOC results from Site 9 were reported at higher concentrations for samples collected after conventional purging when compared to samples collected after low-flow purging. Conventional purging will be performed at Site 9 for the remaining three rounds of groundwater sampling.

Arsenic results from Sites 12 and 13 were similar for samples collected after low-flow and conventional purging techniques. The attached tables show conventional purge results on the left side of the plot with low-flow purge results on the right. Samples were collected from three wells at Sites 12 and 13 with the most elevated historical concentrations of arsenic. Samples were collected from MW-12-03 (new well), MW-SGI-10, and MW-SGI-13.

The reported arsenic concentration for the sample collected after low-flow purging at MW-12-03 was 37.4 µg/L and 28.5 µg/L for the sample collected after conventional purging. The reported arsenic concentration for the sample collected after low-flow purging at MW-SGI-10 was 1600 µg/L and 1360 µg/L for the sample collected after conventional purging. The reported arsenic concentration for the sample collected after low-flow purging at MW-SGI-13 was 1.3 µg/L and 7.2/12.6 µg/L (regular and duplicate sample) for the sample collected after conventional purging.

Based on the apparent similarity of these results, low-flow purging is recommended for the remaining three rounds of groundwater sampling at Sites 12 and 13. Low-flow purging issued by Southwest Division with concurrence of all regulatory agencies involved at MCAF Tustin, MCAS El Toro, and several sites at NAS North Island. This will reduce the amount of investigation-derived wastewater and result in labor cost savings for sampling of the wells.

It should be noted, well casing volumes were removed from the wells during conventional purging instead of well casing volumes along with filter pack volumes as stated in the Final Field Sampling Plan (FSP). This resulted in an underestimation of well volume removals from the wells. The wells are considered slow recharging since pumping rates ranged from 0.25 to 1.75 gallons per minute and monitoring wells MW-SGI-10 and MW-SGI-11 were pumped dry at these low rates of purging. As stated in the Final FSP, slow recharging wells will be purged of 2 well volumes instead of 3 well volumes. The field crew generally removed 5 well casing volumes from the wells bringing purge removal volumes for most of the wells above the 2 well volume criteria for slow recharging wells. Well volume removals were 2.1 for MW-12-03, 1.7 for MW-SGI-10 (pumped dry), and 1.6 for MW-SGI-13. Field monitored parameters (pH, temperature, conductivity, turbidity, and oxidation-reduction potential) were very stable for all of the wells sampled at Sites 9, 12, and 13. This indicates the performed purging was sufficient in removing potential stagnant water from the well.

The Final FSP states the results will be forwarded to the Los Angeles Regional Water Quality Control Board (RWQCB) for review and approval prior to switching from conventional purging to low-flow purging. We are forwarding this information to the Navy for review and delivery to the L.A. RWQCB.

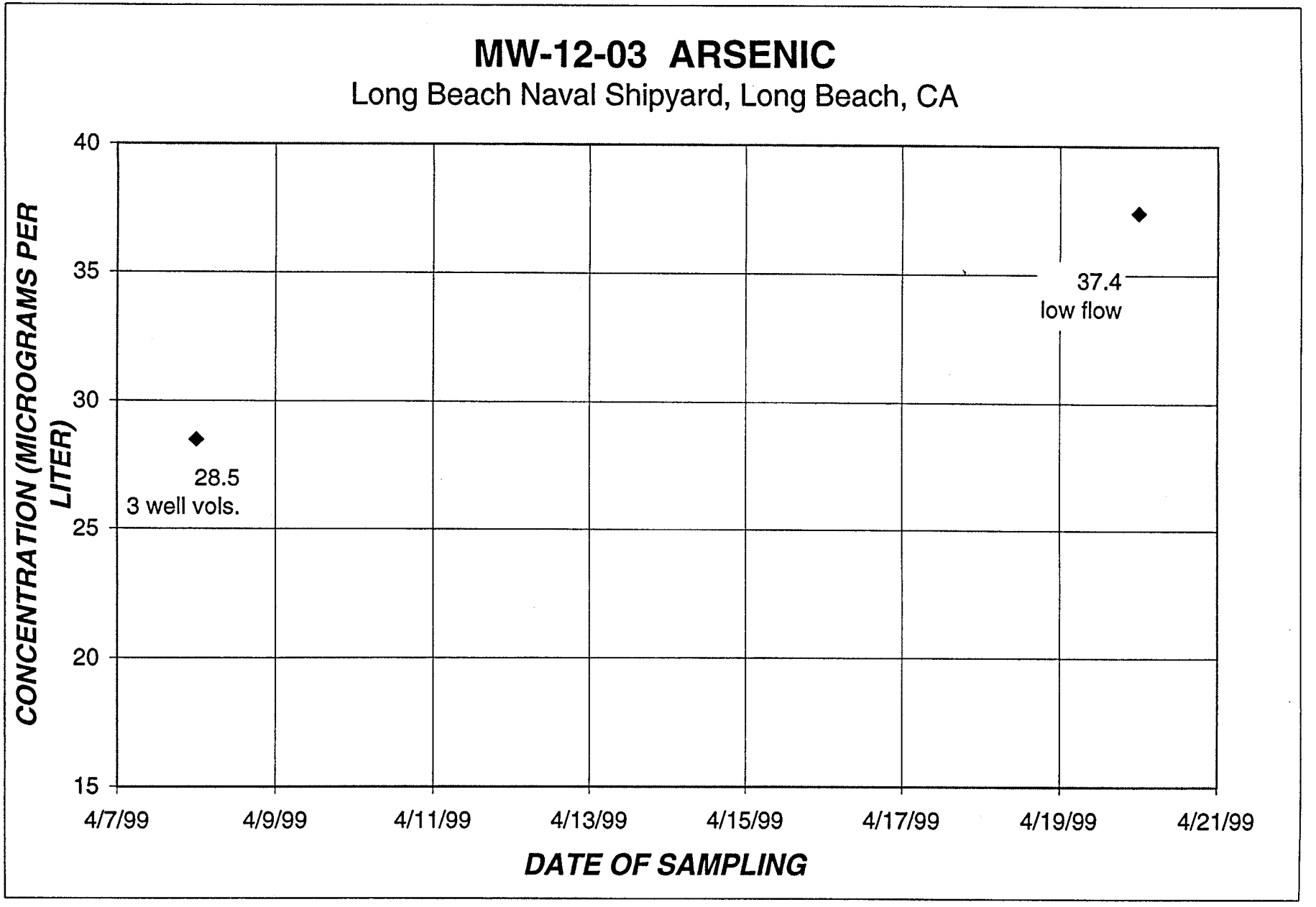
If you have any questions, please contact me at (619) 744-3080 or Scott Donovan, CTOL, at (619) 744-3019.

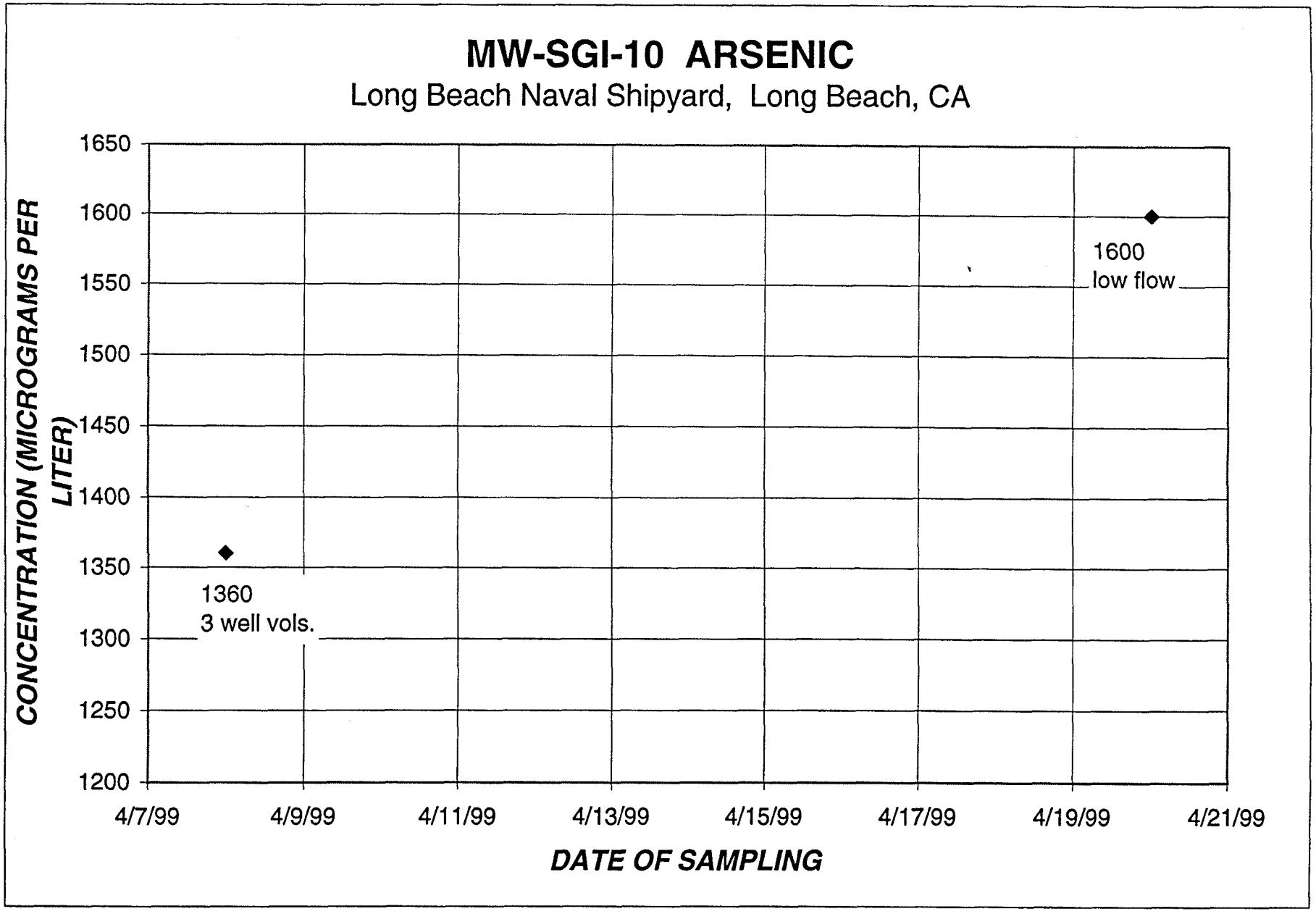
Sincerely,

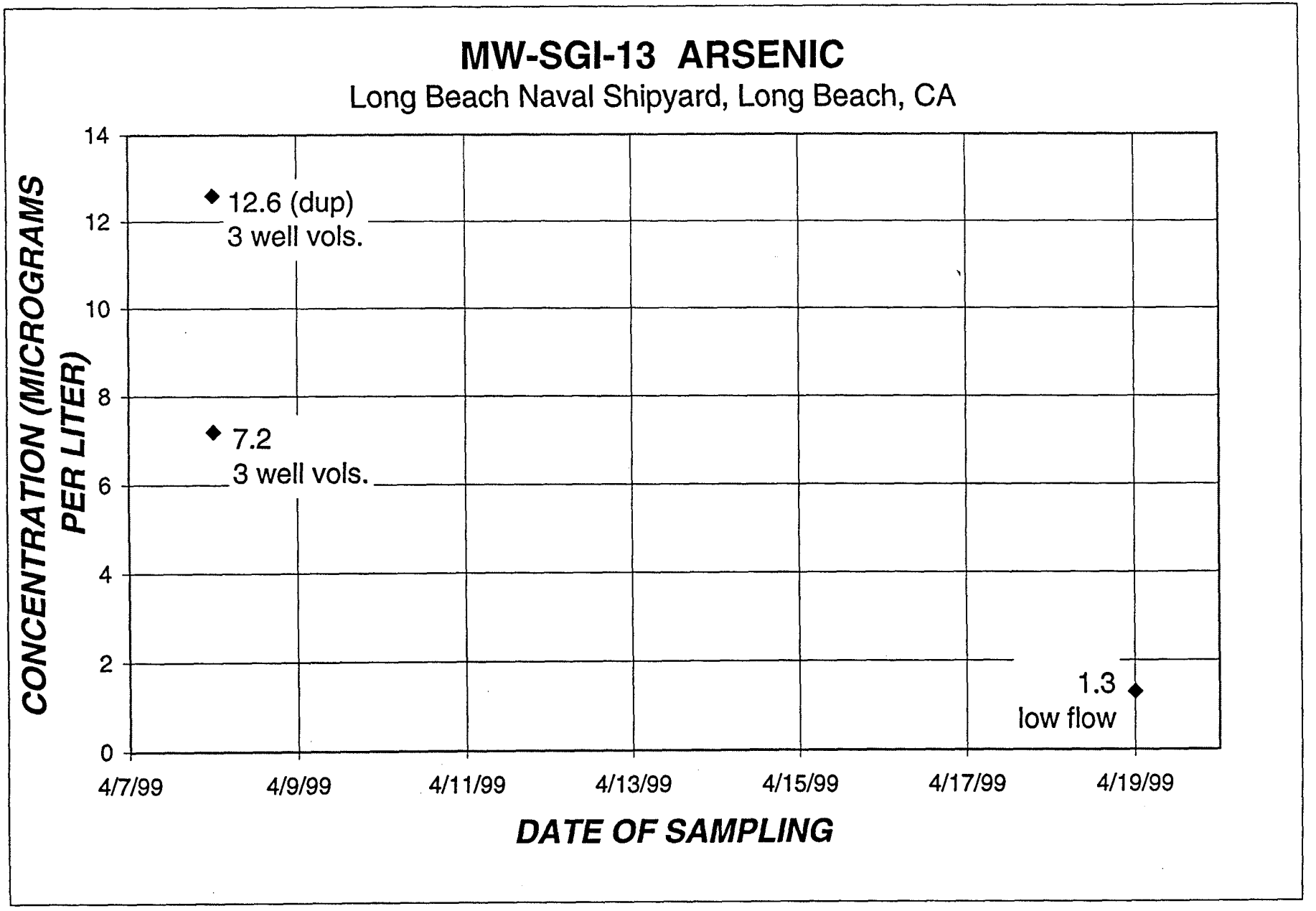
Dante J. Tedaldi, Ph.D., P.E.
Project Manager

DJT/sp

Enclosure


MW-12-03 ARSENIC
Long Beach Naval Shipyard, Long Beach, CA
CONCENTRATION (MICROGRAMS PER LITER)
40
35
30
25
20
15
28.5
3 well vols.
37.4
low flow
4/7/99
4/9/99
4/11/99
4/13/99
4/15/99
4/17/99
4/19/99
4/21/99
DATE OF SAMPLING


MW-SGI-10 ARSENIC
Long Beach Naval Shipyard, Long Beach, CA
CONCENTRATION (MICROGRAMS PER LITER)
1650
1600
1550
1500
1450
1400
1350
1300
1250
1200
1600
low flow
1360
3 well vols.
4/7/99
4/9/99
4/11/99
4/13/99
4/15/99
4/17/99
4/19/99
4/21/99
DATE OF SAMPLING


MW-SGI-13 ARSENIC
Long Beach Naval Shipyard, Long Beach, CA
CONCENTRATION (MICROGRAMS PER LITER)
14
12
10
8
6
4
2
0
12.6 (dup)
3 well vols.
7.2
3 well vols.
1.3
low flow
4/7/99
4/9/99
4/11/99
4/13/99
4/15/99
4/17/99
4/19/99
DATE OF SAMPLING

California Regional Water Quality Control Board

Los Angeles Region

101 Centre Plaza Drive, Monterey Park, California 91754-2156
Phone (323) 266-7500 · FAX (323) 266-7600
Internet Address: http://www.swrcb.ca.gov/~rwqcb4

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

March 3, 1999

Commander
Southwest Division, Naval Facilities Engineering Command
Code 56LB.ED (Ed Dienzo)
1220 Pacific Highway
San Diego, CA 92132-5180

RESPONSE TO COMMENTS - DRAFT WORK PLAN FOR GROUNDWATER MONITORING AT IRP SITES 9, 12, AND 13, FORMER NAVAL STATION LONG BEACH, LONG BEACH, CALIFORNIA (FILE No. 90-75)

Dear Mr. Dienzo:

We have received and reviewed the Navy's *Response To Comments - Draft Work Plan For Groundwater Monitoring At IRP Sites 9, 12, And 13, Former Naval Station Long Beach, Long Beach, California,* dated December, 1998. Our comments are as follows:

- Groundwater plumes with concentrations exceeding the screening criteria for the site were identified using hydropunch-type methods. It is unclear as to how the lateral extent and dissolved phase concentration of these plumes, over time, can be monitored without installing permanent groundwater monitoring wells. We continue to require that additional groundwater monitoring wells be located to define and monitor plumes identified by the previous hydropunch-type exploration.

- The Low-Flow purging method proposed in your response to our comments is acceptable, provided its equivalency to the standard 3 well volume purging method, at this site, has been demonstrated by performing both methods concurrently for one sampling event.

If you have any questions, please contact Hugh Marley at (323) 266-7669.

Sincerely,

Rebecca Chou

Rebecca Chou, Ph.D., P.E.
Unit Chief, Site Cleanup Unit

cc: Alvaro Guitterez, Department of Toxic Substances Control
Martin Hausladen, Environmental Protection Agency
Alan Lee, Southwest Division