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Ser T4A2GK/L4112
26 Jan 1994

Department of Toxic Substances Control
Attn: Mr. Tom Lanphar
Region 2
700 Heinz Avenue, Bldg. F, Suite 200
Berkeley, CA 94710

Subj: Quantitation Limits Requirements, Naval Air Station (NAS), Alameda, CA

Dear: Mr. Lanphar:

1. On December 20, 1993, Mr. Tom Lanphar of the Department of Toxic Substances Control (DTSC) sent a letter to the Navy with new requirements for quantitation limits for inorganic compounds and benzene in all future analysis of soil and groundwater at NAS Alameda. The Navy reviewed the letter and subsequently interviewed the laboratories currently contracted under the CLEAN contract to provide analytical services. Based on the capabilities of the contract laboratories, the Navy has identified several concerns regarding quantitation limits for several metals in soil samples.
2. At a meeting held at NAS Alameda on January 5, 1994, this issue was discussed with Mr. Lanphar of DTSC and Mr. Nusrala of the San Francisco Bay Area Regional Water Quality Control Board (RWQCB). As discussed at that meeting, the contract laboratories have been informed of the new requirements and have indicated that their analytical instruments and contracted analytical methods are not capable of achieving all of the required quantitation limits. Attached to this letter, you will find Tables 1 and 2 that show the discrepancy between the quantitation limit requirements documented in the December 20, 1993 letter and the quantitation limits achievable by several of the laboratories contracted under the Navy CLEAN contract.
3. Several factors affect a laboratory's ability to achieve and comply with the quantitation limits required by the DTSC and RWQCB. These factors include:
 - the nature of the groundwater at NAS Alameda and how it introduces sample matrix interference during analysis
 - the nature of the soil sample matrix and how it introduces sample matrix interference during analysis
 - the lack of ownership of instruments that are capable of detecting very low concentrations, such as 0.05 milligrams per kilogram (mg/kg) lead
4. The groundwater at NAS Alameda has been shown to contain elevated levels of total dissolved solids (TDS). The elevated TDS is due to the sea water intrusion occurring at many locations on NAS Alameda where groundwater is sampled. The TDS interferes with routine analysis of water during metal analysis. This occurs because sea water contains high concentrations of ions or complex of ions (e.g., chloride, sulfate) which cannot be filtered out of solution; these ions physically interfere with the detection of metal ions in an environmental sample. Therefore, it is anticipated that due to the interferences caused by the elevated TDS, the

1013

instruments operated at the analytical laboratories may be unable to achieve all the required quantitation limits.

5. Soil sample analyses (for metals) requires that soils first be treated to an acid extraction which effectively dissolves material from the soil. The dissolution affects not only the material residing between soil particles, but also some material adsorbed to the surface of the soil particles. As such, the solution resulting from the extraction contains high TDS. As with performing analysis on waters with high TDS, the soil extracts cause the same interferences for the analytical instruments. Therefore, as with the groundwater samples for NAS Alameda, it is anticipated the instruments operated at the analytical laboratories may be unable to achieve all the required quantitation limits.

6. The analytical laboratories contracted to do work under the Navy CLEAN contract have instruments that have been shown to be capable of achieving the quantitation limits set forth in the EPA Contract Laboratory Program requirements. Some of the quantitation limits set forth by DTSC and RWQCB are lower than the analytical instruments are designed to detect (i.e. lower than the instrument detection limit).

7. Since receiving the December 20, 1993 DTSC letter, the Navy has not collected analytical samples. Therefore, the contracted laboratories have not had the opportunity to verify whether or not required quantitation limits can or cannot be achieved. Further, depending on the severity of the matrix interference for each sample, the quantitation limits proposed by the laboratories may not be achievable.

8. The Navy is currently preparing a position paper regarding the newly required quantitation limits. The position paper will likely not be finalized until after sample collection/analyses is started for the follow-on field work which is scheduled to begin in early February 1994. Because activities cannot be delayed until the position paper is finalized, it appears to be necessary to reach an agreement prior to finalization. A meeting to further discuss this issue, is now scheduled for 10:30 AM at DTSC on January 28.

9. Please contact either George Kikugawa, Code T4A2GK at (415) 244-2559 or Gary Munekawa, Code T4A2GM, at (415) 244-2524 if you have any questions.

original signed by:

MARCELO G. PASCUA, JR.
Head, Installation Restoration Section
Base Closure Team

Copy to:

Regional Water Quality Control Board (Attn: James Nusrala)
Environmental Protection Agency (Attn: James Ricks)
PRC Environmental Management (Attn: Duane Balch)
Montgomery Watson (Attn: Ken Leung)
NAS Alameda (Attn: Lt. Mike Petouhoff)

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Table 1.
Soil Quantitation Limits
DTSC/RWQCB Required and Laboratory Specific
Naval Air Station Alameda

Analyte	DTSC/RWQCB Quantitation Limit (mg/kg)	ETC/Mid-Pacific Instrument Detection Limit (mg/kg)	Anametrix Instrument Detection Limit (mg/kg)	ATI Instrument Detection Limit (mg/kg)
Antimony	0.6*	1.0	2.76	0.2
Beryllium	0.4	possible**	0.06	0.4
Cadmium	0.5	possible**	0.2	0.4
Copper	0.49	possible**	0.49	0.4
Lead	0.05	0.2	0.26	0.2
Mercury	0.0036	0.013	0.0036	0.05
Nickel	1.48	possible**	1.48	1.0
Silver	0.26	possible**	0.26	1.0
Thallium	0.56	possible**	0.56	0.2

*Quantitation Limit proposed by Navy is 2.76 mg/kg. Quantitation Limit proposed by DTSC/RWQCB is 0.6 mg/kg.

** Quantitation Limits proposed by DTSC/RWQCB are possible for laboratory to achieve.

Table 2.
Water Quantitation Limits
DTSC/RWQCB Required and Laboratory Specific
Naval Air Station Alameda

Analyte	DTSC/RWQCB Quantitation Limit ($\mu\text{g/L}$)	Mid-Pacific Instrument Detection Limit ($\mu\text{g/L}$)	Anamatrix Instrument Detection Limit ($\mu\text{g/L}$)	ATI Instrument Detection Limit ($\mu\text{g/L}$)
Aluminum	50	possible*	20	15
Antimony	6	possible*	6	1.0
Beryllium	4	possible*	0.3	2
Copper	4.9**	possible*	4.1	2
Mercury	0.025**	possible*	0.018	0.1
Nickel	8.3**	possible*	7.4	5
Silver	2.3	possible*	1.3	5
Thallium	2	possible*	2.8	1.0
Benzene	1	possible*	possible*	1

* Quantitation Limits proposed by DTSC/RWQCB are possible for laboratory to achieve.

**Quantitation Limit to comply with water quality goals set forth in the Basin Plan for the San Francisco Bay area groundwater.