



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
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San Francisco, CA 94105

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ALAMEDA POINT
SSIC NO. 5090.3

January 3, 2000

*Rec'd 1/10/00
mcm*

Patricia McFadden, Code 5090
Department of the Navy
Engineering Field Activity West
900 Commodore Drive
San Bruno, CA 94066-5006

**RE: Revised Draft Determination of the Beneficial Uses of Groundwater at Alameda Point,
Alameda**

Dear Ms. McFadden:

EPA has reviewed the above referenced document, prepared by Tetra Tech EM Inc, and submitted by the Navy to the regulatory agencies on November 4, 1999. The document utilizes much of the information gained from groundwater studies conducted at NAS Alameda over the past five years in an effort to determine beneficial uses of groundwater at the Base, and ultimately the appropriate levels of any necessary remediation. The document has been revised to address the federal criteria EPA uses to protect potential sources of drinking water in addition to using those criteria set by the State of California.

Last May, EPA sent a letter to the Hunter's Point Navy team regarding the determination of the classification of aquifers using federal criteria. The letter also described how other factors may be considered in setting CERCLA clean up standards after the classification of the aquifer is determined. During a meeting with the Alameda Annex a few months ago, with Navy members from NAS Alameda attending the meeting, EPA again described in detail the criteria used in

determining aquifer classification. Therefore, EPA is disappointed to find that the document submitted by the Navy determining the beneficial uses of groundwater at NAS Alameda is not consistent with EPA's guidelines, the letter from Tom Huetteman to EFAWest for the Hunter's Point beneficial use determination and with the focus of the meeting between the Annex and EPA. The Navy must appreciate that the aquifer classification system is a set standard used for all federal environmental programs, and not exclusively reserved for CERCLA. EPA has concluded that in some circumstances other compelling site specific factors may be used in deciding what level of CERCLA cleanup is needed for an aquifer, but these site specific factors in no way affect the classification of an aquifer.

To determine the classification of an aquifer, the two criteria stipulated in the federal classification of drinking water sources are used. While the Navy's document does use the maximum 10,000 ppm TDS and minimum 150 gpd limits, it adds other criteria that are not relevant to the determination of an aquifer classification, although these criteria may be used to make a determination of whether the groundwater in a portion of the Base should be considered a potential drinking water source for CERCLA cleanup decisions. The results of the significant information presented in the document may be summarized using the steps outlined below.

The first step in establishing groundwater clean up is to determine the classification of the aquifer in question. It is important to understand that if an aquifer meets the State of California criteria, it will de facto meet the federal criteria. However, the reverse is not true (which means that the flow chart in Figure ES-1 is incorrect going from Step 1 to Step 2). Even if the aquifer exceeds the State criteria of 3,000 ppm TDS, if the aquifer is below 10,000 ppm TDS and yields 150 gpd, it is a Class II aquifer.

Based on Figure 3-2, the majority of NAS Alameda can be classified as a Class II aquifer under the federal classification criteria. After the aquifers have been classified, the flexibility given in the NCP preamble allows site specific factors to be acknowledged in order to determine whether all or part of the aquifer should be considered a potential drinking water source for making CERCLA cleanup decisions. The document divides the aquifer up into the Western, Central and

Southeastern portions. Each portion may be evaluated as a potential drinking water source for CERCLA cleanup decisions as described in the following sections.

1. Western Portion:

Based on TDS and yield criteria, the groundwater in the western portion of the Base beneath Sites 1, 14, and 15 is classified as a Class II aquifer and groundwater beneath Site 2 is classified as Class III. Other criteria may be evaluated to determine whether the Class II groundwater in this area should be considered a potential drinking water source. The NAS Alameda BCT have concluded that the groundwater beneath Sites 1, and 14 is unlikely to be used as a potential drinking water source due to the location of the landfill over the aquifer and the reuse restrictions that will be inherent with turning Site 1 and 14 into a golf course. At these sites, and also at Site 2, the impact of the groundwater migrating out to the Bay and any inhalation and dermal threats posed by digging into the groundwater in the course of construction work must be evaluated for remediation purposes. At Site 15, there appears to be no indication of groundwater contamination and so no remediation of groundwater will be necessary.

II. Central Portion:

Based on TDS and yield criteria the groundwater beneath the central portion of the Base is classified as a Class II aquifer. Reuse plans by the City of Alameda call for mixed use for this part of the Base and taking a conservative approach means that a residential scenario must be applied for risk assessments over this area. It is already apparent that the levels of contamination in the groundwater beneath IR Sites 5 and 10 are at levels that are unacceptable for human health based on a residential and industrial scenario using such potential exposure pathways as inhalation from vapors from groundwater into soils and dermal contact and inhalation exposure from any moderately deep digging. Therefore the groundwater in this area will need active remediation of some sort. The question remains on whether the groundwater in this area should be considered a potential drinking water source, making MCLs apply as clean up ARARs. Based on the shallow depth of the aquifer in this area, the likelihood of salt water intrusion (based on groundwater flow directions) if any significant pumping takes place, and the fact that no wells currently exist within or close to this area, it seems unlikely that groundwater in this area will be

a potential source of drinking water in the future. EPA would concur with non-MCL cleanup levels for this area on condition that any contaminated groundwater beneath Sites 5, 6, 8, 10 and 12 is remediated to levels such that the threats posed by such exposures as inhalation (groundwater vapors into soils and from soils into residences), dermal contact, and those associated with irrigation use are eliminated, and any significant ongoing degradation of the groundwater from contaminant migration is prevented.

III. Southeastern portion:

In the southeastern portion of the Base, the groundwater meets the TDS and yield criteria and is classified as a Class II aquifer. It appears from Figure 1-2, that existing potential domestic supply wells are located immediately adjacent to this portion of the Base. The existence of these wells, in addition to the classification of the aquifer, make the groundwater in this area a potential and possibly current drinking water source. This determination means that contaminated groundwater beneath and migrating from Sites 3, 4, 9, 11, 13, 16, 19, 21, 22, and 23 must be remediated to clean up levels that meet MCLs.

EPA would also like to supply some clarification on the concept of treatment feasibility as it applies to groundwater remediation. (1) Stating that because the groundwater is above the SMCL of 500 ppm TDS and therefore the water can't be used for drinking purposes is not only incorrect (e.g. bottled mineral water often exceeds 500 ppm TDS), but also misses the point that groundwater is often and routinely treated to bring TDS levels down to the SMCL. Groundwater that has TDS levels just under 10,000 ppm (i.e. 9,000 ppm) can and is treated to below 500 ppm TDS levels for drinking water in parts of the U.S.A. In fact some parts of the country have found that treating sea water (around 35,000 ppm TDS) is a cost effective means of providing water to the inhabitants of certain areas. (2) A condition for an ARAR waiver for groundwater remediation is that existing technology is unable to treat the water to MCLs, which is very unlikely to be the case for NAS Alameda. Indeed, the many treatability studies and pilot projects performed on the groundwater at the Base have shown the opposite to be true, i.e. that the types of contaminants, the aquifer conditions and the depth of groundwater lend themselves very well to many types of remediation and source reduction. (3) It is important to be aware of

the distinction between concentrations of ambient contaminants and concentrations of anthropogenically released contaminants. The aquifers do not need to be remediated beyond the levels of ambient concentrations for inorganic contaminants. However, organic contaminants, pesticides and PCBs need to be remediated to the appropriate CERCLA clean up levels. In other words, even if high levels of inorganics are naturally occurring in the aquifer, it does not preclude the aquifer from being considered a potential drinking water source and does not reduce the level of clean up needed for all other anthropogenically placed contaminants present within the aquifer.

Aside from the issues already mentioned, some remaining items must also be addressed. The groundwater beneath Site 25 is not shown on the TDS maps and must be included for beneficial use determinations. The other issue that needs to be resolved is how the beneficial use determinations outlined in this letter for each portion of the Base should be documented. The most recently submitted document on beneficial use at NAS Alameda is not satisfactory and EPA is reluctant to request a further round of revisions on this document. Instead, we propose that the Feasibility Studies describe the groundwater classification and the applicable CERCLA cleanup decisions for the sites within each FS, as well as the remedial alternatives that will achieve the desired level of cleanup. Alternatively, the determination of beneficial uses of groundwater may be incorporated into a Technical Memorandum, with the contents of this letter forming the basis of the memo.

If you have any questions regarding this letter, please contact me at (415) 744-2367.

Sincerely,



Anna-Marie Cook

Remedial Project Manager

cc list next page

cc: Mike McClelland, SWDiv
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