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October 11, 1996

VIA FAX TRANSMITTAL
AND FEDERAL EXPRESS

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Re: Orange County Water District Comments on MCAS
El Toro Draft Final Operable Unit 1 Interim
RI/FS Report, August 9, 1996

Dear Messrs. Hodges, Mahmoud and Vitale:

Orange County Water District ("OCWD") is commenting on the MCAS El Toro Draft Final Operable Unit 1 Interim RI/FS Report, dated August 9, 1996 ("Draft Report"). We ask that our comments be added to the administrative record in this action, and that our comments be incorporated into each of your agency's comments on the Draft Report to the Department of Navy ("DON"). We also will submit a copy of our comments to the Restoration Advisory Board with the request that DON provide us with a written response, as provided in the Advisory Board's procedures.

I. INTRODUCTION.

As you know from our meeting with you in August and our preliminary comment letter of September 3, 1996, OCWD is deeply concerned about the continuing spread of TCE and other chemicals from MCAS El Toro. We do not believe that

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DON's so-called "natural attenuation" alternatives (7A, 7B and 8) would meet remedial objectives. Well monitoring data shows a widespread area of impact, demonstrating the need to actively remediate the Principal Aquifer. This is not the time or place to experiment with natural attenuation. Other, better, cost-effective remedies using accepted technologies are available.

OCWD remains committed to participating with DON to implement Alternative 6A, which is both protective of the environment and cost-effective. We urge each of you to unequivocally advise DON that 6A is the preferred alternative. We are actively negotiating with DON on an agreement to fairly share the costs of the combined VOC treatment and Irvine Desalter Project ("IDP") facilities described in Alternative 6A. Earlier this week, I sent a letter to DON proposing that OCWD and DON each agree to take on a fair share of the actual costs of the common elements of the IDP, based on relative contribution of water to the IDP system. It is time for DON to commit to implementing Alternative 6A and vigorously seek approval of that single, preferred alternative.

OCWD's proposal would result in a clear, useable aquifer, and real savings to DON. Using DON's cost estimates in the Draft Report, DON's share of the costs to construct and operate Alternative 6A would be \$31 million, based on the present value of an assumed 20-year project. This compares to DON's estimate of \$48.1 million for Alternative 2A, \$34.4 million for Alternative 6A (at 50% for common elements), \$29 million for Alternative 7A, \$39.8 million for Alternative 7B, and \$27.6 million for Alternative 8 (at 50% for common elements), also assuming a 20-year project life.

II. SUMMARY OF OCWD'S COMMENTS ON THE DRAFT REPORT.

These comments build upon comments on the Draft Report from Roy Herndon, the manager of our Hydrogeology Department, transmitted in his September 3, 1996 letter to each of you. Mr. Herndon addressed the natural attenuation alternatives which DON described in the Addendum to the Draft Report, and the model used to support those alternatives. In addition, he forwarded a draft report prepared by Dr. Dennis Williams, one of the leading experts in modeling the hydrogeology of northern Orange County. Dr. Williams demonstrated that the hydrogeologic assumptions and input parameters used in DON's model were

inconsistent with actual conditions in the aquifer, and the conclusions drawn from that model are severely flawed.

These comments are focused on four critical flaws in the Draft Report: (i) the alternatives analysis fails because it is based upon a model that incorporates improper assumptions, is uncalibrated, and is unable to reproduce observed movement of the TCE plume; (ii) the natural attenuation alternatives are not consistent with the National Contingency Plan ("Plan"); (iii) critical state and federal applicable and relevant requirements ("ARARs") have not been identified and applied; and (iv) the costs of the natural attenuation alternatives are understated and their cost-benefits in comparison to Alternatives 2A and 6A are misrepresented.

OCWD's comments include those contained herein and those in Mr. Herndon's letter and Dr. Williams's report. In brief, these comments demonstrate:

- The natural attenuation alternatives do not meet remedial objectives, which include preventing the spread of contaminants in the Principal Aquifer.
- DON's model underestimates plume movement, in part because:
 - It uses unreasonably low hydraulic conductivities;
 - It uses a western, constant-head, model boundary condition based on 1993 water levels, a year when the Main Groundwater Basin water levels were near a record high;
 - It assumes that well TIC-106 west of Culver Drive pumps at a rate of 52 acre-feet per year, when its actual rate is approximately 1,000 acre-feet per year;
 - It assumes that well TIC-47 was actively pumping when in fact it is permanently inactive; and
 - It uses an unreasonably high retardation factor that DON acknowledges underestimates the rate of plume movement.

- The aquifer being damaged by this plume is a critically important groundwater resource, supplying approximately 70% of local drinking water needs.
- Well monitoring data and calibrated modeling demonstrate the need to actively remediate the Principal Aquifer. In just five years, another 53,000 acre-feet of high quality groundwater may be contaminated with TCE above 5 ug/L if aggressive cleanup is not initiated.
- Alternatives 2A and 6A achieve OU-1 remedial objectives at a reasonable cost using proven and readily available technology.
- OCWD remains committed to participating with DON to fund the common elements of Alternative 6A.
- DON cannot unilaterally disregard the state's Antidegradation Policy (State Board Resolution No. 68-16) as a state ARAR. The policy applies to ongoing discharges such as those at MCAS El Toro, is more stringent than any federal ARAR identified by DON, and as a matter of law must be applied.
- DON must apply State Board Resolution No. 92-49 as a state ARAR, because it also contains provisions that are more stringent than federal ARARs.
- In evaluating VOC cleanup levels DON failed to consider levels ranging between background values (which DON erroneously dismissed as infeasible) and MCLs (which DON determined are appropriate for this action). DON is required to evaluate remedial levels between those two end points under 22 Cal. Code Regs. § 66264.940(e) and other ARARs.
- DON mischaracterizes Alternatives 7A, 7B and 8 in calling them the "lower cost alternatives." Alternative 6A meets project objectives and allows for the beneficial use of the Principal Aquifer during the course of cleanup at less cost than Alternative 7B, and at a cost of only \$2 million more than Alternative 7A. Furthermore, Alternative 2A has been found to be more effective than any of the natural attenuation alternatives and DON has determined it to be a cost-effective remedy.

III. MCAS EL TORO ACTIVITIES HAVE CONTAMINATED AN
IRREPLACEABLE GROUNDWATER RESOURCE.

Decades of military activity at MCAS El Toro has had an enormous, toxic impact on the groundwater of Orange County. The extent of the contamination originating at MCAS El Toro was first observed in 1985, when OCWD discovered that a plume of TCE which originated from MCAS El Toro had impacted two irrigation wells near the Base. DON reacted slowly to this discovery, to the point that Governor Pete Wilson, while he was a United States Senator, undertook a fact-finding mission to the Base in July, 1988. As a result of his visit, Governor Wilson criticized the military for refusing to investigate off-Base contamination. Governor Wilson stated:

"When you have the situation where the liability is pretty clear, there is no reason for this delay."

In February 1990, EPA placed MCAS El Toro on the National Priorities List. Nonetheless, the military continued to be reluctant to accept responsibility for the offsite contamination. After many years of study, consultants retained by DON confirmed that the contamination originating at MCAS El Toro has, in fact, migrated offsite, and now extends several miles downgradient of the Base. DON's consultants further report that the plume contains numerous chemicals of concern, including TCE.

The aquifer which is being damaged by this plume is a critically important groundwater resource. This aquifer supplies approximately 70% of local drinking water needs. As David N. Kennedy, then Director of the California State Department of Water Resources, stated in 1989:

"The wells which are threatened by this plume are not replaceable in any thinkable way."

Migration of these toxic chemicals has continued for several decades, in the absence of remediation. While EPA, the State, and the impacted community all have been patient, it is absolutely clear that this plume contains contaminants at levels presenting unacceptable risk, and will continue to harm our resources for many decades if

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nothing is done. This problem must be remediated by DON now.

IV. OCWD'S FURTHER COMMENTS ON DON'S DRAFT REPORT.

A. The Draft Report Does Not Support Findings that NCP Evaluation Criteria are Met by the Natural Attenuation Alternatives.

DON has not demonstrated that the natural attenuation alternatives satisfy the nine evaluation criteria for alternatives set forth in the National Contingency Plan ("NCP"). (See 40 C.F.R. § 300.430(e)(f)) DON discusses the criteria in Volume IX, Section 7 of the Draft Report.

1. Threshold criteria.

To be eligible for selection, each alternative proposed as a result of the RI/FS must meet two "threshold criteria," "overall protection of human health and environment" and "compliance with ARARs." (40 C.F.R. § 300.430 (f)(1)(I)(A).) DON's consultant reported that the natural attenuation alternatives meet the NCP standard for overall protection of human health and the environment because the alternatives contain the TCE plume west of Culver Drive. (Draft Report, Vol. IX, p. 7-57.) However, as we have commented, DON's uncalibrated model does not demonstrate that the TCE plume will be contained. Even using a simple water-balance approach, it defies logic that DON's model indicates that two existing Culver Drive wells pumping approximately 2,000 acre-feet/year can reverse the gradient in the Irvine Sub-basin, which receives over 10,000 acre-feet/year of natural recharge. Without credible modeling data, DON cannot satisfy the threshold criteria that the overall protection of human health and environment criterion will be met with the natural attenuation alternatives. Therefore, the proposed natural attenuation remedies must be rejected as inconsistent with the NCP.

OCWD is not alone in expressing concern about the ability of the natural attenuation alternatives to protect human health and the environment. In its comments to DON on the Draft Report, the City of Irvine concludes that the natural attenuation alternatives "further compromise the safety and protection of human health." (P. Marsh to J. Joyce, September 16, 1996.) We understand that several

other local public entities will submit similar comments if the natural attenuation alternatives are pursued.

DON's failure to demonstrate that the natural attenuation alternatives meet the second threshold criteria, compliance with ARARs, is discussed in detail in Subsection B below.

2. Balancing criteria.

DON must apply five "balancing criteria" to the proposed alternatives, including an assessment of the "long-term effectiveness and permanence of the remedy." In performing this assessment, DON must evaluate the "degree of uncertainty that each alternative will prove successful," and the "magnitude of the residual risk" associated with the alternative. (40 C.F.R. § 340.430(e)(9)(iii)(C).) It did not make these evaluations.

The uncertainties associated with a complex groundwater remediation project would be minimized by using proven remediation techniques, but inevitably would be amplified by using untested techniques. Alternatives 2A and 6A rely on proven techniques, minimizing uncertainty. Alternatives 7A, 7B and 8 rely on natural attenuation of VOCs on a very large scale, which is untested, and on a model that incorporates improper assumptions, is uncalibrated, and is unable to reproduce observed movement of the TCE plume. Because the techniques proposed in Alternatives 7A, 7B and 8 are untested, and because the success of the alternatives depend upon the accuracy of the model, there is substantial uncertainty whether the natural attenuation alternatives will prove successful. Nonetheless, DON ignored these issues, and failed to address the degree of uncertainty that the natural attenuation alternatives will prove successful, as required under the NCP. (See Addendum, pp. 7-25 to 7-34, pp. 7-39 - 7-45; 40 C.F.R. § 340.430(e)(9)(iii)(C).)

DON also failed to evaluate the magnitude of the residual risk associated with the natural attenuation alternatives, which is the second test required by the NCP to assess the long-term effectiveness and permanence of a remedy. (See Addendum, pp. 7-25 - 7-34, 7-39 - 7-45.) In particular, DON failed to address the fate of TCE in the Principal Aquifer and the residual risk associated with the breakdown products of TCE, including vinyl chloride, which is even more toxic than TCE. (See letter of September 3,

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1996 from R. Herndon, pp. 3-4.) Biodegradation of TCE is a significant factor in DON's model, accounting for from approximately 25% to 30% of VOC reduction in areas of higher VOC concentrations. The health risk from the potential resultant mass of vinyl chloride and other toxic breakdown components has been ignored in the Draft Report. This violates the NCP, which requires residual risks to be addressed for each alternative under consideration. (See 40 C.F.R. § 340.430(e)(9)(iii)(C).)

Given DON's failure to assess the degree of uncertainty of success of and magnitude of residual risk associated with the natural attenuation alternatives, it is not surprising that its support for the long-term effectiveness and permanence of such alternatives is, at best, equivocal. In a paragraph addressing long-term effectiveness considerations, DON states:

"For the alternatives that rely on natural attenuation of contaminants . . . TCE is either biodegraded, adsorbed, or diluted."
(Draft Report, Vol. IX, p. 7-45.)

DON makes no comment on whether biodegradation, adsorption or dilution is effective and permanent. Compare this to DON's statement, in the same paragraph, demonstrating the effectiveness and permanence of active remediation measures:

"The groundwater extraction remedial actions considered for the alternatives are permanent. Groundwater extraction permanently removes mass from the aquifer, and the VOC-removal treatment technologies permanently remove and destroy the contaminants." (Emphasis added.)

The quoted paragraph is as close as DON gets to applying the balancing criterion of long-term effectiveness and permanence. DON does not apply the degree of uncertainty and magnitude of the residual risk tests or otherwise describe, consider, or balance the uncertainties and residual risks associated with the natural attenuation alternatives. Having failed to apply the long-term effectiveness and permanence criterion, DON cannot find the natural attenuation alternatives to satisfy the NCP.

3. Modifying criteria.

DON ultimately will be required to satisfy two "modifying criteria": state acceptance and community acceptance. The state must determine whether the natural attenuation alternatives meet state ARARs and otherwise are acceptable. In addition, the alternatives will need to achieve community acceptance. The Orange County residents, farmers, and businesses that rely on the aquifer contaminated by DON's activities have objected--and will continue to object--to the natural attenuation alternatives, and will ask the same questions about Alternatives 7A, 7B and 8 that we, as the state-chartered agency responsible for this resource, ask:

1) Why should DON be allowed to leave contamination in place, and not compensate the community for the degradation and loss of this resource?

2) Are the same standards being applied to other VOC-contaminated aquifers in the state, and if so on what legal authority?

3) Why did DON commit to participating in the active remediation of the aquifer by sharing fairly in the cost of the IDP and then consider not following through? Would even more groundwater be contaminated as a result of its delay and ultimately backing out of that commitment?

4) Does not the state's proposed Containment Zone Policy limit the use of natural attenuation in drinking water aquifers to situations where there is no other reasonably available remedy, where overlying landowners agree with the approach, and where it can be shown that contamination will not spread?

These questions have straightforward answers:

1) DON should not be allowed to leave contaminated groundwater in place, and if it does, DON must provide compensation for such loss;

2) A "natural attenuation" remedy has not been selected elsewhere in the state for a valuable aquifer that has been contaminated with VOC by an identified and solvent responsible party;

3) DON would be backing out of its long-term commitment to OCWD to participate in the IDP and would, by its delay and inaction, contaminate additional high quality groundwater; and

4) The State Water Board's recently adopted amendments to Resolution No. 92-49 (the "Containment Zone Policy") would guarantee all of the protections listed in the question, and more, before a regional board could allow natural attenuation to be attempted.

B. DON Failed to Apply Critical State Applicable or Relevant and Appropriate Requirements ("ARARS").

DON discusses federal and state ARARs and their application in Volume IV, Appendix B, in its analysis of remedial alternatives in Volumes II (Section 7) and IX (Section 7), and elsewhere in the Draft Report.

DON identified the substantive provisions of the following requirements as the most stringent of the potential federal and state groundwater ARARs for the OU-1 interim action:

- Santa Ana River Basin Water Quality Control Plan Water Quality Objectives, Beneficial Uses and Waste Discharge Limitations;
- Federal MCLs and Non-Zero MCLGs for Organic Compounds;
- State Primary MCLs for Organic Compounds in DTSC's Title 22 Regulations; and
- RCRA Groundwater Protection Standards in 22 Cal. Code Regs. § 66264.94(a)(1), (a)(3), (c), (d), and (e). (Draft Report, Vol. IV, Appendix B, p. B2-2.)

DON did not identify or apply three important state ARARs. It concluded that the State Water Board's Antidegradation Policy contained in Resolution No. 68-16, and the State Water Board's "Policies and Procedures for Investigation and Cleanup and Abatement under Section 13304 of the Water Code" contained in Resolution No. 92-49 are not state ARARs. (See Draft Report, Vol. IV, Table B2-2 and p. 2-19.) In addition, DON concluded that section 66264.94 of DTSC's Title 22 regulations, containing the

RCRA Groundwater Protection Standards, are federal (not state) ARARs. (See Table B2-2 and p. 2-19.) In so doing, DON has reached a conclusion that is contrary to law, and it unilaterally and improperly disregarded California's interpretation of its policies and regulations with regard to all three state ARARs.

We note that DON has taken these erroneous positions at other locations, apparently without facing legal challenge. For example, DON unilaterally rejected the applicability of the three disputed state ARARs in the RI/FS and Record of Decision for the Camp Pendleton groundwater cleanup project. California did not accept that DON action, and as discussed below, we agree with the State's position in the Camp Pendleton project that DON must apply State Board Resolutions Nos. 68-16 and 92-49 and 22 Cal. Code Regs. section 66264.94 as state ARARs.

1. DON must apply the State Water Board's Antidegradation Policy as a state ARAR.

The State Water Board's Antidegradation Policy was adopted in October 1968. Resolution No. 68-16 provides:

"1. Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.

2. Any activity which produces or may produce a waste or increased volume or concentration of waste in which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained."

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This crucial groundwater protection policy is directly applicable to the Marine Corps' ongoing discharge of waste to the Shallow Groundwater Unit, to the ongoing discharge of waste from that unit to the Principal Aquifer, and to the continuing migration of TCE into the high quality waters of the Principal Aquifer.

Resolution No. 68-16 consistently has been interpreted by the state and regional water boards as applying to the determination of groundwater cleanup levels. This position is expressed in a February 17, 1994 memorandum from William Attwater, Chief Counsel to the State Water Board ("Attwater Memorandum"). The memorandum explains that Resolution No. 68-16 applies to the determination of in-situ ground water cleanup levels because:

"it applies to `discharges' of waste, including unauthorized discharges, that occurred after adoption of the policy in 1968 [and it] also applies to such determinations because the presence of pollution in soil or ground water constitutes a `discharge' of waste since polluted ground water migrates to areas of higher quality ground water."
(Attwater Memorandum at p. 2.)

The memorandum also explains that Resolution No. 68-16 "satisfies the [Clean Water Act] requirement that the State have a policy which, at a minimum, is consistent with the federal antidegradation policy."

DON acknowledges that Resolution No. 68-16 has been interpreted by the State Water Board to "include a prohibition on the continued migration of existing ground water contaminant plumes at levels that exceed background for the Aquifer" (Appendix B p. B2-3), but entirely disregards that interpretation:

"[DON] has considered [the State Water Board's] position, and determined that further migration of already-contaminated ground water is not a discharge governed by the language in SWRCB. More specifically the language of SWRCB indicates that it is prospective in intent, applying to new discharges in order to maintain existing high quality waters. It is not intended to apply to restoration of waters

that have already degraded." (Draft Report,
Vol. VII, App. B, p. B2-3).

DON's position is insupportable. At best, DON might argue that Resolution No. 68-16 does not apply to discharges of contaminants from base operations that occurred prior to the Resolution's adoption on October 28, 1968. However, any discharges after that date are covered by the policy. These include discharges to the soil that have migrated to the Shallow Groundwater Unit and to the spread of contaminants within the Shallow Groundwater Unit, into the Principal Aquifer, and within the Principal Aquifer. Such movement constitutes current, continuing releases. The releases began before 1968 and continue to date, and they will continue unless active measures are taken to stop the migration.

If DON's position is not challenged by the State now, it may become difficult for the State to enforce its interpretation of Resolution No. 68-16 in the future. Dischargers may take the position that the State is estopped from enforcing its historic interpretation of the Antidegradation Policy after acquiescing to DON's erroneous interpretation. Although it may not have appeared necessary to challenge DON during the Camp Pendleton RI/FS and ROD, it is necessary to do so now. To acquiesce to DON would be a mistake for this remedial action and would jeopardize the State's ability to apply its historic interpretation of Resolution No. 68-16 to other current and future groundwater cleanup actions.

Under Resolution No. 68-16, as it has been explained and enforced in California, DON must address the existing groundwater contamination from its past activities, and ensure that additional high quality waters are not contaminated. It must meet requirements that will result in the best practicable treatment or control of the discharge and ensure that the highest water quality consistent with maximum benefit to the people of the state will be maintained.

2. Resolution No. 92-49 is a State ARAR.

DON unilaterally and erroneously determined that State Water Board Resolution No. 92-49 is not an ARAR "because its pertinent requirements are not more stringent than the federal ARAR provisions of Title 22 CCR 66264.94." (See Draft Report, Vol. VII, App. B, p. B2-20.) DON's flawed

reasoning appears to be as follows: (i) Section III.G of the Resolution requires regional boards to apply section 2550.4 of California's Title 23 regulations in approving cleanup levels less stringent than background; (ii) section 2550.4 is identical to section 66264.94 of California's Title 22 regulations with regard to groundwater concentration limits; (iii) section 66264.94 is a federal ARAR; and (iv) because Resolution No. 92-49 incorporates and relies upon section 2550.4, which is not more stringent than section 66264.9, Resolution No. 92-49 is not more stringent than the corresponding federal requirements and is therefore not applicable. (See id., p. B2-20.)

DON adopted the same position on Resolution No. 92-49 in the Camp Pendleton RI/FS and ROD, and the State explained the flaws in DON's position at that time. The State pointed out that Resolution No. 92-49 requires compliance not only with Section III.G as it references 23 Cal. Code Regs. § 2550.4, but also with the additional requirements of Section III.G, among other provisions of Resolution No. 92-49. We agree with the State, and stress that the "additional requirements" of Resolution No. 92-49 referred to by the State are substantial, and are not contained in any federal ARAR.

We further note that DON's argument is predicated on its characterization of sections 2550.4 and 66264.94 as "identical" with regard to provisions that address groundwater concentration limits. Although the two sections are, in this regard, similar, they are not identical. The State Water Board's Title 23 regulation (§ 2550.4) is more stringent than DTSC's Title 22 regulation (§ 66264.94) with regard to groundwater concentration limits. Section 2550.4 requires that before a concentration limit greater than background is established, the state and regional water boards must consider "potential adverse effects on ground water quality and beneficial uses." (23 Cal. Code Regs. § 2550.4(d) (emphasis added)). The corresponding provision of section 66264.94 provides that DTSC must consider "potential adverse effects on ground water quality," but makes no reference to the need to consider beneficial uses. (22 Cal. Code Regs. § 66264.94(d).) The obligation to consider potential adverse effect on beneficial uses causes section 2550.4 to be more stringent than section 66264.94.

Resolution No. 92-49 is more stringent than section 66264.94 or any federal ARAR, and must be applied by DON as

a state ARAR in this remedial action. This is evident because, in addition to the reasons provided above, the State Water Board has determined that Resolution No. 92-49 does not allow passive remediation of contaminated aquifers such as proposed in Alternative 7A, 7B or 8. Because Resolution No. 92-49 would not allow such passive remediation alternatives to be approved, it is inherently more stringent than any federal ARAR that would allow such a remedy.

The State Water Board only very recently (on October 2) amended Resolution No. 92-49 to allow regional boards, under limited circumstances, to establish containment zones where active remediation is not required. If DON wishes to pursue passive remediation alternatives, it must follow the procedures in Resolution No. 92-49, as amended by the so-called "Containment Zone Policy." These procedures are designed to protect human health and safeguard the rights and interests of water owners and purveyors. To obtain approval for its passive remediation alternatives, DON would be required to apply to the Regional Board for designation of a containment zone, meet stringent procedural requirements, and provide evidence to support mandatory Regional Board findings including that groundwater treatment is economically or technologically infeasible, that contaminants will not spread, and, with limited exceptions, that written permission had been obtained from all fee owners of the land containing the zone. DON could not support any of these findings.

3. DTSC's corrective action program standards in section 66264.94 are state, not federal, ARARs.

DON identifies portions of 22 Cal. Code Regs. section 66264.94 as a federal ARAR, even though the DTSC regulation appears to be more stringent than the RCRA regulation with which it complies (see 40 C.F.R. section 264.94), and DTSC previously has advised DON that section 66264.94 is a state ARAR. This distinction is significant, in part, because DON erroneously rejects State Board Resolution No. 92-49 as an ARAR because it is "not more stringent" than a federal ARAR (referring to Section 66274.94). DON's argument collapses if section 66264.94 is a state ARAR or if it is more stringent than any federal ARAR (which it is, as explained in subsection 2 above).

DON previously addressed the issue of whether section 66264.94 is a state or federal ARAR in its preparation of

the Camp Pendleton RI/FS and ROD. In the October 2, 1995 ROD, DON acknowledged that "the State of California disagrees with DON's assertion that § 66264.94 is a Federal ARAR." (Pendleton ROD, p. D-4.) DTSC was right. Section 66264.94 is more stringent than the federal standard with which it complies (i.e., 40 C.F.R. § 264.94). For example, among other provisions for which there is no equivalent in section 264.94, section 66264.49[©] requires that a finding be made that it would be "technologically or economically infeasible to achieve the background value" for a constituent of concern. (See 22 Cal. Code Regs. § 66264.94(c).)

C. DON has not Demonstrated that MCLs are the Appropriate Cleanup Standard.

DON does not provide support for its conclusion that it is neither technologically nor economically feasible to achieve background levels of VOCs. After discussing background levels as feasible cleanup levels, DON states that, "as provided in 22 CCR 66294.94(c), concentration limits based on MCLs, non-zero MCLGs and health-based criteria have been set as the remedial goals for this interim action." (Draft Report, Vol. IV, App. B, pp. B2-2, B-9.)

We have two main concerns with DON's conclusion. First, DON has not demonstrated that it is technologically or economically infeasible to achieve background levels of VOCs applying the State's Antidegradation Policy (Resolution No. 68-16) or Resolution No. 92-49. Second, even if an appropriate finding were made that it is technologically or economically infeasible to achieve the background value for a constituent of concern, section 66294.94[©] does not provide that the only alternative concentration limits shall be MCLs, non-zero MCLGs, or any other fixed criteria. Instead section 66294.94[©] provides that the concentration limits "shall not exceed" other applicable statutes or regulations, such as MCLs, and shall not exceed "the lowest concentration that the owner or operator demonstrates and the department finds is technologically and economically achievable." (22 Cal. Code Regs. § 66264.94(e) (emphasis added)).

DON leaps from dismissing background levels as appropriate cleanup levels, without justification, to adopting MCLs as cleanup levels, without considering

concentration limits falling between these values as is required by section 66264.94. DON must identify the lowest cleanup level that is technologically and economically achievable for each constituent of concern. (See 22 Cal. Code Regs. § 66264.94(e)(2).) There is no indication in the Draft Report that DON made any attempt to satisfy this legal obligation, or that Alternatives 7A, 7B or 8 would be capable of achieving such lower levels.

D. Specific Comments on Volume IX (the "Addendum") Evaluating Alternatives 7A, 7B and 8.

The Addendum was prepared to evaluate the natural attenuation alternatives (7A, 7B and 8). The new alternatives are compared to the two most effective alternatives identified in the IAFS (Alternatives 2A and 6A), and to the No Action Alternative (Alternative 1), using an updated groundwater model. (See Addendum, p. ES-1.) Our main concerns with DON's analysis and conclusions with regard to Alternatives 7A, 7B and 8 in the Addendum are discussed below.

1. Modeling deficiencies.

Mr. Herndon and Dr. Williams have provided detailed comments which address the deficiencies of the CFEST model (as run) for purposes of evaluating the new alternatives. We incorporate those comments by reference, so as to not repeat them here. In view of the problems raised in those comments, DON may not use or rely on the results of its modeling effort. Doing so would run afoul of federal jurisprudence, such as a recent opinion involving TCE contamination of groundwater, in which the district court held:

"For any scientific evidence to be sufficiently reliable, it must be possible to validate the method by comparing its estimates to real world data." (Carroll v. Litton Systems, Inc., 1990 U.S. Dist. LEXIS 16833, *123 (W.D.N.C.).)

The Litton court relied on a Sixth Circuit opinion, holding that EPA acted arbitrarily in using a model to set emission limits "without adequately validating, monitoring, or testing its reliability or trustworthiness in forecasting pollution." Ohio v. United States Environmental Protection

Agency, 784 F.2d 224, 226 (6th Cir. 1986). The Litton court also relied on another district court opinion holding that groundwater models must be calibrated against sufficient real world data, United States v. Hooker Chemical & Plastics Corp., 607 F. Supp. 1052, 1061 (W.D.N.Y. 1985).

DON's groundwater model forms the basis for all of the significant evaluations and comparisons of alternatives in the Draft Report; from evaluation of whether remedial objectives can be met with the natural attenuation alternatives, to determination of the cost effectiveness of the various alternatives based on criteria such as plume length reduction and mass of TCE removed after 20 years. Because the model as run is not reliable--due to the fact that it uses invalid assumptions, is uncalibrated, and for other reasons--the evaluations and comparisons based on the model are unsupported. In this case, DON asks the United States, California, and the residents of Orange County to rely on a model programmed with demonstrably inaccurate and incomplete data, and which does not accurately predict demonstrated events such as increasing TCE concentrations in the downstream North Lake Well (see Dr. William's Report, at page 6).

2. Failure to overcome statutory preference for permanent measures.

DON has not prepared a record in support of the passive, natural attenuation alternatives that could overcome Congress' specific preference in the Superfund Amendments and Reauthorization Act for permanent remedies involving active treatment. (See 42 U.S.C. § 9621(b)(1).)

3. Faulty cost-effectiveness analysis.

We disagree with DON's characterization of Alternatives 7A, 7B and 8 as the "lower cost alternatives" and with its distortion of the comparative costs of Alternatives 2A and 6A and Alternatives 7A, 7B and 8. Setting aside for now our concern that the natural attenuation alternatives simply will not achieve remedial objectives, DON's cost analysis for the new alternatives does not support its conclusions.

First, it is misleading to characterize the natural attenuation alternatives as "lower cost" than Alternatives 2A and 6A, either on an overall cost or on a cost-benefit

basis. Alternative 8 may have the lowest overall cost but must be rejected because OCWD will not participate with DON on the terms proposed in the Addendum. OCWD categorically will not allow DON to avoid its cleanup responsibilities by using the IDP for disposal of water from the Shallow Groundwater Unit while ignoring remediation of the Principal Aquifer.

Alternative 7A may be somewhat less costly than Alternative 6A, but its projected cost is based on the unsupported assumption that two existing wells will continue to be operated by the Irvine Ranch Water District ("IRWD") and The Irvine Company ("TIC") for decades longer than their expected useful life. (See Addendum, p. 5-3.) Because future operation of the wells is outside DON's control, there is considerable uncertainty whether Alternative 7A could be achieved at the projected cost. If IRWD or TIC decide to remove their wells from service, DON would be required to acquire and operate replacement wells at a significant cost, as presented in Alternative 7B. DON reports that Alternative 7B, which does not assume the continuing operation of the IRWD and TIC wells, costs \$8 million more than Alternative 6A.

Second, DON did not find Alternatives 7A, 7B and 8 to be more cost-effective than Alternatives 2A and 6A. (See Addendum, p. 7-56.) Instead, it found Alternative 7A to be more cost-effective than Alternative 2A and Alternative 8 to be more cost-effective than Alternative 6A. DON made selective comparisons of Alternatives 2A and 7B, but did not reach a conclusion as to which, if either, is more cost-effective. Furthermore, DON made no comparisons of Alternative 6A to Alternatives 7A or 7B.

Had DON performed the same type of cost-benefit analysis in the Addendum as it did in the IAFS, we would have seen overall cost benefit comparisons of each of the alternatives: No Action, 2A, 6A, 7A, 7B, and 8. Had such comparisons been performed, each of the alternatives would have been found to be cost-effective, with, we believe, Alternatives 6A and 8 being the most cost-effective and Alternatives 2A and 7B being the least cost-effective.

In addition to our concerns over DON's inaccurate cost comparisons, we are concerned that DON omitted two significant factors in calculating costs and in performing its cost-benefit analysis. First, DON should have factored in a cost for the contingency plan measures common to the

three new alternatives. Each of the natural attenuation measures involve unspecified, but substantial, additional costs in the likely event of failure of the remedies to protect the beneficial uses of the Principal Aquifer. Those potential costs improperly have been ignored. (See Draft Report, Vol. I, p. ES-49.) Second, DON should have considered the benefit provided by Alternative 6A of allowing for use of the groundwater during cleanup, and the cost of eliminating the ability to use at least 200,000 acre-feet of groundwater for a minimum of 60 years under Alternatives 7A, 7B, or 8. (See Addendum, p. 7-40, and Dr. Williams' report at p. 5.)

4. Application of ARARs to Alternatives 7A, 7B and 8.

DON did not support its conclusion that Alternatives 7A, 7B and 8 "are expected to comply with ARARs." (See Addendum, p. 7-39.) First, as discussed above, DON has failed to apply critical state ARARs. In addition, as discussed in Mr. Herndon's and Dr. Williams' comments, Alternatives 7A, 7B, and 8 would not prevent further contamination of the Principal Aquifer. These alternatives rely on source reduction in the Shallow Groundwater Unit to address contamination in the Principal Aquifer. As stated on page 13 of Dr. Williams' report, "[a]s TCE migrates westerly, very low concentrations are detected in the shallow aquifer, and high concentrations are found in the deeper aquifer." Any remedy that does not stop the spread of contaminants into and within the Principal Aquifer fails to meet remediation goals and applicable ARARs. (See Draft Report, Vol. IX, p. 7-39.)

* * *

In DTSC's letter to me of February 28, 1996, the agency explained that although it, EPA and the Regional Board would examine alternatives in the event Alternative 6A did not materialize, the agencies encourage DON and OCWD to successfully conclude negotiations on the IDP "so the preferred alternative can be implemented." We have made Alternative 6A available to DON at a reasonable cost, and we urge the agencies to confirm that it remains the preferred alternative.

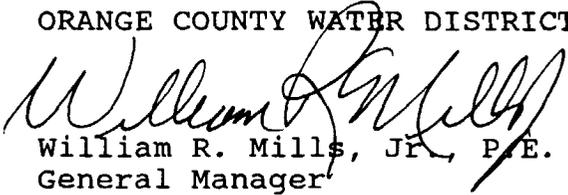
If DON refuses to participate in the IDP at a reasonable cost, then it must be required to undertake Alternative 2A. The natural attenuation alternatives have not been shown to

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meet remedial objectives, would not meet state and federal
ARARS, and would not conform with other NCP standards,
including public acceptance.

Very truly yours,

ORANGE COUNTY WATER DISTRICT



William R. Mills, Jr., P.E.
General Manager

cc: The Honorable Christopher C. Cox
The Honorable Robert K. Dornan

Mr. Robert McVicker, IRWD
Mr. Seth Daugherty, OCHCA

Mr. Andrew Piszkin, Navy SWDIV