

## SUMMARIZED COMMENTS AND RESPONSES

1. Finding 2. (AMI) Request deleting methylene chloride and vinyl chloride from the list of chemicals detected; the detection of these chemicals is thought to be the result of laboratory error. Also, delete the reference to neighboring sites.

Response by RWQCB. Reference to the neighboring sites is deleted, and the statement in question is rewritten as, "Chloroform, a probable human carcinogen, was reported episodically in onsite samples collected from 1983 through 1986 and in 1988. Methylene chloride, a probable human carcinogen, was reported one time, in 1985. Vinyl chloride, a known human carcinogen, was reported twice, once in 1983 and once in 1985, in samples from two different source area wells."

The discharger has been requested to obtain a data verification report from the lab that performed the original GCMS analysis and forward it to the RWQCB.

2. Finding 5. (SCVWD) It was reported that the water-bearing deposits at the site are generally divided into three laterally traceable units as follows: A-zone at depths of about 10 to 25 feet, B-zone at about 40 to 50 feet, and the C-zone at a depth greater than 150 feet. It was not reported that other B-zone aquifer units occur at depths below 50 feet and above the C-zone, in the intervals of 60 to 80 feet and 110 to 130 feet. It would be appropriate that, at a minimum, the B2-zone (60 to 80 feet deep) be tested for pollution.

The list of potential conduits for this site does not include the Vernis Page well (350 feet total depth) which, according to available information, was perforated in both the B and C zones. The disposition of this well, installed in 1936, is not known.

Response by RWQCB. Staff requested the discharger to respond to this comment. The discharger's response indicates that it is not justified to sample water-bearing materials in the intervals suggested in this comment, because pollution seen thus far in the B zone at this site is minimal. Staff agrees but recognizes that future monitoring data may show a rising pollutant-concentration trend which could provide the necessary justification.

3. Finding 6. (AMI) Conclusion by RWQCB that the analytical result of a sample of water collected from the extraction pit

after construction in 1985, which showed greater than 400 mg/l total VOCs, may indicate the presence of a soil "hot spot" is not supportable.

Response by RWOCB. Board staff believes the analytical result does indicate that a "hot spot" may have existed, and "hot spots" may still exist. In support of this belief, staff makes reference to the RI/FS Report prepared for AMI:

- (1) On page 44 it is stated, "The initial 1,1,1-Trichloroethane concentration of 370,000 ppb (Figure 21) far exceeds the highest subsequent values reported and may be anomalous. If accurate, this suggests the presence of pockets of concentrated VOCs in the pit area." Staff notes that there is nothing of record to indicate that the analysis referred to was fallacious.
- (2) On page 52 the following appears: "Given that the former VOC source has been removed, the continued presence and stability of VOC concentrations in the well AM1-1 vicinity indicates that significant concentrations of VOCs are present that were not detected in the soil sampling associated with the tank excavation."
- (3) The report also shows, by calculations, that the amount of VOCs thus far removed is greater than the amount thought to have been present in the subsurface originally, and VOCs are still being removed.

Staff concludes that soil "hot spots" may be present, and if they are, they are probably leaching VOCs into groundwater.

4. Finding 8. (AMI) Recommend adding the words, "in the absence of cleanup", to the end of the last sentence in paragraph 3.

In paragraph 7, third sentence, the words, "could probably", should be deleted and replaced with the word, "may".

Response by RWOCB. The recommended changes will be made. The sentences, as revised, will read:

(Par.3) "---the discharger concluded that there probably would be no health hazards associated with exposure to non-carcinogenic chemicals, but there would be some risk due to the presence of carcinogens, in the absence of cleanup."

(Par. 7) "These latter alternatives may attain cleanup goals in five to seven years."

5. Finding 8. (SCVWD) One open-ended item that still needs consideration is the additional soils investigation ordered by the Board, with a report due in early March 1990.

Response by RWOCB. Staff anticipates that some significant information resulting from this soil survey will be available in the near future; however, the complete results of the survey may not be available until February of 1990.

There are a number of Tasks assigned in the Tentative Order which require the discharger to address soil pollution on the site, beginning with an evaluation of all data and an assessment of remaining soil pollution, through a proposal for soil remediation if required, and culminating in the actual soil remediation.

6. Finding 9. (EPA) In item b., delete the word, "economically", on the first line.

Response by RWOCB. The word "economically" has been deleted. This does not imply that the Board does not consider economics in its review of alternative Remedial Action Plans. For example, the Order states elsewhere that the Final Remedial Action Plan is cost-effective, and that the plan is reasonable. In conformity with these other statements, the part of Finding 9 in question is changed to read, "If it has been determined, after a reasonable effort utilizing best practicable treatment or control, that the primary objective is not cost-effective and zero background concentration cannot be achieved, then achieving drinking water quality at an aggregate risk level not exceeding  $1 \times 10^{-4}$  throughout the source area and plume is an appropriate secondary goal for this site."

7. Finding 9. (AMI) In item e., we feel that it is highly unlikely that a laboratory or field study of biodegradation and/or transformation of onsite chemicals, directed at an evaluation of the potential for the formation of vinyl chloride and other chemicals will generate any meaningful conclusions. We do not foresee that any laboratory or field experiments can substantially improve on the discussion of 1,1,1-TCA degradation in the RI/FS Report (pages 66-67). Also, we feel it is impractical to require confirmation of all potential exposure pathways, since all are hypothetical and impossible to confirm.

Subsequent to the above statement, the discharger has recommended that a limited number of analyses (three) in September, October, and November of 1989 be done on samples from a source-area well to determine whether or not vinyl chloride is present.

Response by RWOCB. Board staff is concerned about the possible presence of vinyl chloride in soils and groundwater at this site. Vinyl chloride is a known human carcinogen, with a  $10^{-6}$  risk number of 0.02 ppb. While the onsite presence of vinyl chloride has been reported only twice and from two different wells, staff has noted on records of analytical results that the detection limit used when attempting to detect this carcinogen near the source area and elsewhere (but not everywhere) frequently is above 1 ppb and often ranges from 5 to 100 ppb, and sometimes as high as 250 and 500 ppb. Staff also notes the EPA concern, evidenced by the EPA procedure of assuming that vinyl chloride is present in some concentration if a known suite of antecedant chemicals has been detected (see Comment 17). Staff does not believe that past analyses have been entirely adequate for determining the presence or absence of vinyl chloride at this site. Based on present knowledge, staff does not discount the possibility that vinyl chloride may be detected onsite in the future as a consequence of chemical degradation or transformation.

Staff also recognizes that the comment does have some validity, and is amenable to the recommendation made by the discharger. Therefore, the requirement is revised to read as follows:

- e. A review of the presence or potential presence of vinyl chloride within the plume, including (1) the existing sampling and analysis program directed at establishing procedures that will consistently utilize detection limits not to exceed 0.5 ppb, and (2) chemicals identified onsite which may degrade or transform into vinyl chloride.

The procedures of (1) should be repeated annually.

A new task is assigned to cover this revised requirement. Task 22, with a Completion Date of November 17, 1989, requires the submittal of a technical report concerning the detection of vinyl chloride.

8. Finding 10. (AMI) In paragraph 3, second sentence, it should be noted that the potential cancer risk only exists if there is a completed exposure pathway and receptors. The presence of a carcinogen alone does not necessarily create a risk.

Response by RWOCB. If the exposure pathway was completed so that humans could be exposed, staff would consider the risk to be actual or existing, more than potential.

The sentence in question will be rewritten as: "When cancer-causing substances are present and a threat of exposure to

these substances exists, a potential risk is present. There is no "zero-risk" level associated with the threat of exposure to carcinogens."

9. Finding 10. (AMI) In paragraph 5, suggest changing the first sentence to read, "Even though the risk number of  $3.5 \times 10^{-4}$  results from an extreme worst-case hypothetical consideration, it and the the associated VOC residual concentrations expected to be present at the source area thirty years in the future are sufficient cause to pursue a remedial alternative other than no-further-action". The no-further-action alternative is not an acceptable recommended remedial action plan, nor is it the plan proposed in this tentative site cleanup order.

Response by RWOCB. The risk number of  $3.5 \times 10^{-4}$  does not result from an extreme worst-case hypothetical consideration. A much greater risk number would be generated if the present onsite maximum concentration of carcinogens were used in the calculation, instead of a concentration projected 30 years later.

Staff will agree to rewrite the sentence as, "Even though the risk number of  $3.5 \times 10^{-4}$  results from a hypothetical consideration, it and the associated VOC residual concentrations expected to be present at the source area thirty years in the future are sufficient cause to pursue a remedial alternative other than no-further-action."

10. Finding 10. (AMI) Change the second sentence in paragraph 5 to read, "The VOC concentrations may be reduced to, or below, drinking water MCLs by remediation.", since the results of remediation are not certain.

Response by RWOCB. The sentence will be changed to read, "The VOC concentrations can be further reduced, and may be reduced to, or below, drinking water MCLs, by remediation."

11. Finding 10. (AMI) Sentence 3 of the same paragraph, "The postulated residual VOC concentrations, including carcinogens, 30 years in the future reinforces the conclusion that source-area soil remediation will be necessary for protection of public health and the environment.", should be deleted since Alternative 4A, pump and treat, is projected to reduce VOC concentrations to drinking water standards within less than half of the thirty years cited in the no-further-action alternative projection. We object to the existing wording which states that soil remediation is necessary to protect public health and the environment, when equal protection can be achieved by groundwater pumping and treatment under Alternative 4A.

Response by RWOCB. Alternative 4A is projected to reduce VOC concentrations to drinking water standards, which, at an aggregate cancer-risk number not to exceed  $1 \times 10^{-4}$ , is the secondary cleanup objective at this site. The primary objective is a return to background quality, which is not projected by Alternative 4A. Further, it is not clearly stated in the alternative that a reduction of the TCA concentration will result in significant reductions of the concentrations of carcinogens. Staff does not expect Alternative 4A to result in a return to background water quality in more than 30 years of pump and treat, based on the projection provided by Figure 40 in the RI/FS Report. For the protection of public health, the desirable cleanup goal for all carcinogens is zero concentration. Even though the secondary objective is to achieve drinking water quality at an appropriate risk number of  $1 \times 10^{-4}$ , the Regional Board expects the discharger to make a good-faith effort to reduce VOC concentrations to background, or levels approaching background; i.e., attempt to achieve the primary objective throughout the site and in the identified offsite wells.

Staff does not believe the intent of the referenced sentence should be deleted. The sentence will be rewritten as, "The postulated residual VOC concentrations, including carcinogens, 30 years in the future indicates that source-area soil remediation may be necessary in order to achieve background levels and to restore groundwater to its original use-suitability within a reasonable time frame; and, if required, to provide an extra margin of protection to human health and the environment.

12. Finding 10. (EPA) The Hazard Index is no longer being used by the EPA. This finding should reflect the new approach being developed by the EPA.

If an alternative to the Hazard Index (HI) is not used, then the site HI should be described more fully, and the cleanup levels should be determined so that the sum of the non-carcinogen ratios does not exceed the value of One. Similarly, the risk number for all carcinogens at the cleanup level should be summed, and the sum should be within the  $10^{-4}$  to  $10^{-7}$  range.

Response by RWOCB. The methodology of the new approach under development is not yet available, and the data necessary to implement the use of this methodology may not be available for this site. Staff believes it is not feasible to use the new methodology at this site; therefore, the HI was used by Board staff, and required changes in some of the cleanup levels applied in the secondary cleanup objective.

13. Self-Monitoring Program. (AMI) We object to sampling and analyses of all onsite and offsite wells quarterly. We believe that the sampling frequency should be reduced to twice annually for monitoring wells during the period while cleanup goals are being achieved and during the stability period. The considerable additional expense of increased sampling and analysis seems to have little benefit. We find the proposed sampling plan to be unacceptable and recommend implementation of the sampling plan we proposed in the draft RI/FS.

Response by RWQCB. RWQCB staff are interested in the maintainance of a cost-effective monitoring program which is responsive to identified purposes and data needs; staff recognizes the importance of economics as one factor influencing monitoring frequency, but finds that other factors are just as important, as discussed next.

Previous monitoring has identified pollutants and described the plume and water quality trends. Monitoring began on a more-frequent schedule but became routinely a schedule of only three sampling events per year. For the purposes of the Tentative Order, staff was of the opinion that a quarterly schedule (four sampling events per year) should be implemented. AMI wanted a biannual schedule (two sampling events per year). Staff recommended a revised schedule: continue the existing program of three samples per year until cleanup goals are achieved, then change to quarterly for at least one year to prove stability.

Staff believes fewer than three samples per year will not be responsive to purposes and data needs. Staff views the present purposes of the program to include:

- a. Protection of offsite groundwater users by providing early warning that pollutants could be descending vertically towards the C aquifer, which would be indicated by data from onsite B zone wells.
- b. Protection of downgradient A and B zone aquifers by providing early warning that excessive concentrations of pollutants are moving offsite, indicated by data from onsite boundary wells.
- c. Tracking the plume and recording changes in groundwater quality, including those resulting from implemented cleanup actions such as soil remediation.
- d. Determining that cleanup goals have been achieved and any potential threat to public health and the environment has been alleviated.

At the present time, staff will recommend a continuation of the existing monitoring frequency and not recommend a biannual sampling schedule for all wells on this site.

14. General Comment. (EPA) There appears to be ambiguity concerning when cleanup could be achieved by pump and treat. The Tentative Order states 12 years, 15 years, and 7 years at three different places.

Response by RWQCB. Staff will make revisions to remove any ambiguity. The discharger infers that cleanup of TCA to its MCL can be achieved in 12 years. By this same inference, 1,1-DCA will not be reduced to its AL in this time period.

15. General Comment. (EPA) The phrase, "cleanup goal", is preferred over "cleanup level" unless numerical levels are stated.

Response by RWQCB. "Cleanup goal" will be used where appropriate.

16. General Comment. (RWQCB) 1,1-Dichloroethane, formerly reported as non-carcinogenic, is now (as of April, 1989) considered by the EPA to be a possible or probable human carcinogen.

Response by RWQCB. The Tentative Order will be revised accordingly.

17. General Comment. (RWQCB) Because of the known potential degradation of some of the pollutants at this site to vinyl chloride, a known human carcinogen, vinyl chloride should be assumed to be present at half the detection limit. This information was provided in the EPA's review comments of the risk assessment portion of the most recent edition of the RI/FS Report.

Response by RWQCB. Staff will review the applicability of this information, and use it as may be appropriate for this site, based on an evaluation of data obtained from the three consecutive vinyl chloride samples to be made later this year using the 0.5 ppb detection limit.