

REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
MEMORANDUM

TO: Bruce H. Wolfe
Executive Officer

DATE: July 7, 2004
File No. 1210.48

FROM: Farhad Azimzadeh and Suzanne McNulty
Toxics Cleanup Division

CONCUR: John D. Wolfenden CONCUR: Stephen A. Hill
Section Leader Toxics Cleanup Division Chief

SUBJECT: **RESPONSE TO COMMENTS ON ITEM 5.A** Reissuance of General Waste Discharge Requirements for Discharge or Reuse of Extracted and Treated Groundwater Resulting From the Cleanup of Groundwater Polluted by Volatile Organic Compounds, NPDES Permit No. CAG912003

On May 28, 2004, we sent a paper or electronic copy of the Tentative Order package to about 130 dischargers, their consultants, or other interested persons and organizations. During the 30-day comment period, we received written comments on the Tentative Order from eight dischargers or interested persons as follows:

1. E-Mail, June 09, 2004, Ryan Freeborn (Geomatrix) on behalf of various dischargers
2. E-Mail, June 22, 2004. Patrick Lacey (FSI)
3. Letter, June 24, 2004. Susan Gahry (PES) on behalf of SMI Holding, LLC
4. Letter, June 24, 2004. Susan Gahry (PES) on behalf of Plessey, Inc.
5. Letter, June 28, 2004. Susan Gahry (PES) on behalf of TDY Industries, Inc.
6. Letter, June 28, 2004. Pinaki Banerjee (MWH) on behalf of Lorentz Barrel and Drum
7. Letter, June 29, 2004. Patrick Lacey (FSI) on behalf of Velcon Filters
8. E-Mail, June 29, 2004. Sangeeta Goyal (LFR) on behalf of various dischargers

Below are summaries of comments received during the comment period and our responses to these comments.

1,4-Dioxane

1. Comment: Table A, the schedule for sampling, measurements, and analysis requires effluent monitoring of 1,4-Dioxane monthly. Because the cost of this analysis is relatively high, monthly analysis for such is only warranted if the presence of 1,4-Dioxane in groundwater is known. The footnote "6" which indicates "if known to be present in the influent" should be added for 1,4-Dioxane. Alternately, this analysis should only be required on a one time only basis (influent and effluent) to assess whether the compound is present, with no further sampling required if it is confirmed not to be present. Although it is noted that Section E.5 of

the main permit requires that the Self-Monitoring Program be followed for at least six months and such may be amended if requested by the discharger, monthly sampling for 1,4-Dioxane for a minimum of six months is excessive.

2. Comment: 1,4-Dioxane has been included in the sampling protocol on a monthly basis. Sampling for this analyte alone is \$200. This has not been on the sampling program before. Do we need to sample for this analyte even if it is not a concern for the site?

Response to Comments 1 and 2: We agree. The SMP has been changed to reflect the requirements that effluent will be monitored for 1,4-Dioxane once during the first week of start up and twice per year thereafter. If 1,4-Dioxane is not detected, with adequate laboratory reporting limits, the dischargers may request to reduce the monitoring schedule to once every three years.

3. Comment: Footnote 7 on Page 13 indicates that a reporting limit of “less 2 ug/l” will be required for this constituent. Can you please clarify this footnote? Should this footnote read less than 2 ug/l? Can you please provide a list of laboratories that can reliably achieve PQLs at this reporting level?
4. Comment: The analytical method listed for 1,4-Dioxane in Table A of the tentative self-monitoring program includes EPA 8270 or 8260 selective ion mode. There appears to be little agreement between state-certified Bay Area laboratories regarding the appropriate method to use (personal communications with Entech Analytical Labs, Columbia Analytical Services and STL Chromalab). Two of the three laboratories indicated that extraction of the sample and analysis by EPA 8270 is absolutely necessary to achieve the 2 ug/l reporting limit while a third laboratory indicated that it routinely achieves the 2 ug/l reporting limit using the EPA 8260 purge and trap method. Because the selective ion mode requirement included in the tentative permit reduces the reporting limit for 1,4-Dioxane one to two orders of magnitude below the limits previously achieved, ready access to commercial laboratories using standard methods to accurately and precisely measure 1,4-Dioxane at the proposed trigger level is imperative. Method consensus by the analytical laboratories performing the testing should be required before trigger levels are promulgated.

Response to Comments 3 and 4: We have changed Footnote 7 to read as “reporting limit shall not exceed 3 ug/l (some laboratories use selective ion mode or isotope dilution to achieve reporting limits such as 0.5, 1, or 2 ug/l for 1,4-Dioxane).”

5. Comment: Page 12 on the accompanying fact sheet includes a * for 1,4-Dioxane that references a total chromium concentration footnote. Can you please clarify this note? Three ug/L is not the State MCL for 1,4-Dioxane. Does the Board intend to use a nonenforceable DHS drinking water action level as a trigger for an NPDES discharge?

Response: We corrected this typo by adding “***** California Department of Health Services Action Level for Drinking Water.” This trigger is based on California Department of Health Services Action Level for Drinking Water.

6. Comment: There is a significant amount of scientific uncertainty associated with human exposure responses to low doses of chemicals. The model used to develop the 3 ug/l Department of Health Services Action Level for 1,4-Dioxane conservatively assumes a no safe threshold to calculate a one in a million excess cancer risk for a person ingesting two liters of water every day for 70 years. An alternate view, the hormesis hypothesis, has been presented in recent literature (August 2003 American Industrial Hygiene Association Synergist, August 2003 Scientific American, Spring 2004 Journal of American Physicians and Surgeons). This hypothesis suggests that there are positive health benefits from low dose exposures to substances. Hormesis examples include vitamins, medicines, ethanol, and radiation. Hormesis should be at least given qualitative consideration when developing guidance levels for low doses of naturally occurring chemicals that may well prove to be ubiquitously distributed in the environment. Improvements in analytical limits of detections should not drive the setting of public health goals or the regulation of NPDES discharges. According to the EPA's September 2003 fact sheet, 1,4-Dioxane has low aquatic toxicity, will not bioaccumulate in fish, and is not likely to cause environmental harm at levels normally found in the U.S. environment.

Response: The purpose of a 3 ug/l 1,4-Dioxane trigger is to protect sources of drinking water. The Water Board relies on other state agencies and U.S. EPA to establish health-based targets such as MCLs and action levels. The commenter should address these points to those agencies.

7. Comment: As for 1,4-Dioxane, there are other constituents that are currently not part of the sampling program. Will the authorization letter identify which analyses are applicable for a given site?

Response: Yes.

8. Comment: It is our understanding that analyses and/or monitoring of non-site related constituents are not required.

Response: We agree. However monitoring data is required to demonstrate that, for example, a facility has no detectable levels of 1,4-Dioxane in the effluent. Based on advancement in analytical technology, the reporting limits for some of the volatile or semi volatile organic compounds are lower than what they were 5 years ago. For this reason, all sites are required to analyze their effluent samples for a basic suite of semi-volatile organic compounds with lower reporting limits.

9. Comment: The Tentative Order requires that the [Lorentz Barrel and Drum] task force expand its list of parameters that are currently monitored at the site. The additional parameters to be monitored include semi-volatile organic compounds (SVOC), beryllium, cyanide, thallium, and 1,4-Dioxane. None of these parameters are known to be associated with activities conducted at the Lorentz Barrel and Drum (LBD) Site. Presence of these compounds in the influent and/or in the effluent samples may indicate regional ambient levels. The [LBD] task force is requesting that data on groundwater concentrations of these

parameters at locations upgradient of the LBD site be provided to the task force, if available. The [LBD] task force believes that monitoring should not be required to be continued, if concentrations of these parameters in on-site sample(s) are found to be comparable to the regional concentrations.

Response: This permit regulates all constituents discharged pursuant to the permit's requirements, regardless of whether the discharger contributed those constituents. However, neighboring sites' groundwater monitoring data are available for review in our office.

10. Comment: The Tentative Order lists the trigger for 1,4-Dioxane at 3µg/L. If the concentration of 1,4-Dioxane in the effluent sample is found to exceed the trigger, then additional activities may be required. The trigger is based on the state MCL. The California DHS lists the 3µg/L 1,4-Dioxane concentration as the action level, which is based on the assumption that an individual would be exposed to 1,4-Dioxane in drinking water. At concentrations above the action level, DHS recommends that water utility customers be notified. At a concentration 100 times higher than the action level (300µg/L), DHS recommends that the drinking water source containing this level of contamination be eliminated. The [Lorentz Barrel and Drum] task force is requesting further clarification regarding how the action level, based on the concentration of 1,4-Dioxane in drinking water, applies to an effluent discharge to a surface water body, as is the case for the [Lorentz Barrel and Drum] LBD site. The surface water body is not a probable source of drinking water.

Response: The purpose of a 3 ug/l 1,4-Dioxane trigger is to protect sources of drinking water. More than 80 percent of the sites currently discharging under this general permit are located in Santa Clara County. Most of these discharges are to storm drain systems that discharge to creeks and streams that have the potential to recharge groundwaters protected as drinking waters. The authorization letters issued for discharges to the surface waters in Santa Clara County are normally designated as "Discharge to Drinking Water Areas." Surface waters in other counties also serve beneficial uses such as groundwater recharge and municipal and domestic, industrial process and service, or agricultural water supplies. A few examples are Napa River, Alameda Creek, San Mateo Creek, and San Lorenzo creek.

11. Comment: Anthropogenic and natural sources of 1,4-Dioxane abound. In addition to being a chlorinated solvent stabilizer, it is found in significant levels in paints, varnishes, automotive coolant, detergents, cements, stains, inks, shampoos, and other cosmetic products. This compound also occurs naturally in vine-ripened tomatoes, fresh shrimp, brewed coffee, and fried chicken. (March 24, 1998 Memorandum from George Alexeeff, Office of Environmental Health Hazard Assessment to David Spath, Department of Health Services). Background levels of this constituent at or above the proposed 3 microgram per liter (ug/l) trigger level have not been established in the San Francisco Bay Region. The source of any 1,4-Dioxane detections at the low trigger level proposed at a regulated site may therefore be ambiguous and unrelated to a given solvent release.

Response: There are several VOC-contamination sites in our region where 1,4-Dioxane has been released in significant concentrations. The conventional/existing treatment may not remove 1,4-Dioxane prior to discharge. We want to make sure that discharges under this general permit do not inadvertently disperse high concentrations of 1,4-Dioxane and hence a trigger is warranted, even if there are more generic sources of dioxane at low concentrations. In conclusion, one purpose of having a 1,4-Dioxane trigger in this permit is to identify the total number of sites authorized under this permit with 1,4-Dioxane pollution in their effluent. Above all, the 1,4-Dioxane trigger is not an effluent limitation, and should not be construed as such. Instead, it is a level at which additional investigation is warranted to determine whether a numeric limit for 1,4-Dioxane is necessary. If the 1,4-Dioxane concentration in the effluent of a discharge exceeds 3 ug/l, then the discharger shall take three additional samples (three influent and three effluent) for 1,4-Dioxane during the following quarter and conduct activities as explained in the Provisions E.7, E.8, or E.9 (please see pages 9 and 10 of the Tentative Order).

You may contact Vince Christian, the Regional Water Board staff member most knowledgeable about 1,4-Dioxane, at (510) 622-2336 for additional information about the sites in our region with 1,4-Dioxane pollution.

Semi-Volatile Organic Compounds

12. Comment: Similarly, Table A requires effluent monitoring of semi-volatile organic compounds by EPA Method 8270 monthly. The footnote "6" which indicates "if known to be present in the influent" should be added for semi-volatile organic compounds. Alternately, this analysis should only be required on a one time only basis (influent and effluent) to assess whether semi-volatile organic compounds are present, with no further sampling required such compounds are confirmed not to be present. Although it is noted that Section E.5 of the main permit requires that the Self-Monitoring Program be followed for at least six months and such may be amended if requested by the discharger, monthly sampling for semi-volatile organic compounds for a minimum of six months is excessive.

Response: We agree. The SMP has been changed to reflect the requirements that should semi volatile organics not be detected, with adequate laboratory reporting limits, the dischargers may request to reduce the monitoring schedule to once every three years

Receiving Water Monitoring

13. Comment: For Table A - Schedules for Sampling, Measurements, and Analysis, for various analyses the Receiving Water samples are noted with a "V", which is defined as "Sampling should be performed within 24 hours after an exceedance is confirmed in E-1." Which is the correct interpretation of this definition: A) Does this mean that if any of the required E-1 analyses that have specified permit limits are exceeded, samples should be collected for ALL of the Receiving Water analyses noted with a "V"? Or B) Does this mean that if any of the required E-1 analyses that have specified permit limits are exceeded, samples should be collected from the Receiving Waters only if a V is noted in the Receiving Water column for

the specific analysis that was exceeded? If A is the correct interpretation, the following comment is obsolete. If B is the correct interpretation, then the following comment is relevant: For Table A - Schedules for Sampling, Measurements, and Analysis, the Receiving Water samples for Dissolved Oxygen analysis is noted with a "V", which is defined as "Sampling should be performed within 24 hours after an exceedance is confirmed in E-1."

Response: We agree that clarification would help. The SMP has been changed to say that if any of the required E-1 analyses that have specified permit limits are exceeded, samples should be collected from the Receiving Waters and analyzed for that specific exceeded compound and the Dissolved Oxygen level.

14. Comment: Neither the I-1 or E-1 requires Dissolved Oxygen analysis, so when would the DO analysis of the Receiving Waters be required?

15. Comment: What would trigger sampling of receiving water (which analytes)?

Response to Comments 14 and 15: Receiving water sampling should be performed within 24 hours after any effluent limitation exceedance is confirmed. This receiving water sample shall be analyzed for that specific exceeded compound and the Dissolved Oxygen level. This permit has no effluent Dissolved Oxygen limitation, but this permit has receiving waters Dissolved Oxygen limitation C.2.a.

16. Comment: With regards to receiving water sample collection, on Page 3 of the Self-Monitoring Program, Section D.3.b, samples are required to be collected within 1 hour following low slack water, during higher slack water (where sampling at lower slack water is not practical), and within the discharge plume and down current of the discharge plume. Table A requires that a sample be collected up-gradient of the discharge and down-gradient of the discharge, with no mention of "within the discharge plume." Because it is generally not possible to assess the occurrence of low or high slack water during sampling and sampling is not specified within the discharge plume, the requirements related to "slack water" conditions and "sampling with the discharge plume" should be removed, or Table A should be modified.

Response: The dischargers shall provide explanations in their monitoring reports if the Section D.3.b requirements can not be implemented at their receiving water sampling locations.

Metals

17. Comment: For Table A - Schedules for Sampling, Measurements, and Analysis, the Receiving Water samples for Hardness and Salinity analysis are noted with a "T," which is defined as "Sampling should be performed when a hardness dependent trigger is exceeded". What is a hardness dependent trigger?

Response: We have added the explanation to the Table A that “sampling should be performed when Cadmium, Chromium (III), Copper, Lead, Nickel, Silver, or Zinc triggers are exceeded.”

18. Comment: For metals, we have been currently sampling by the EPA 6010. Could we follow the same method or do we need to analyze for the new metals as well? Or, will the authorization letter identify whether the analysis for additional metals is required?

Response: The dischargers authorized under this permit shall have their effluent samples analyzed for all metals required in the permit. The SMP Table A requires sampling and analysis of Antimony, Arsenic, Beryllium, Cadmium, Chromium Hexavalent or Total Chromium, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, and Zinc. Please ask your laboratory if their Method 6010 covers all metals mentioned above with the recommended reporting limits in the footnote 4 of The SMP Table A (also see Response 20).

19. Comment: Mercury sampling requirements have changed to a lower detection limit, which would require a sampling method other than EPA 6010. Would this be applicable for all sites?

Response: Yes. All dischargers authorized under this permit shall have their effluent samples analyzed for Mercury by U.S. EPA Method 1631. The ultra clean sampling technique shall also be used in compliance with U.S. EPA Method 1669. The ultra-clean *sampling* technique is integral to this effort and will require specially cleaned containers and special sampling procedures. Method 1631 contains specific requirements for including field blanks, trip blanks, and equipment blanks. The method also specifies a maximum 48-hour holding time for samples prior to acidification

20. Comment: The EPA analytical methods listed for metals analysis are furnace-type methods. The analytical lab that we are using typically performs metals analysis by ICP-MS (EPA Method 6020). This method is capable of achieving detection limits lower than those listed on the last page of the SMP. Is this method acceptable?

Response: Yes. All equivalent methods are accepted especially techniques such as Inductively Coupled Plasma/Mass Spectrometry (ICP-MS) which results in lower reporting limits.

Other Comments

21. Comment: Table A requires that analysis for benzene, toluene, ethylbenzene and xylenes (BTEX) be monitored by EPA Method 8020. Please note that these compounds are included in the EPA Method 8260 list, which is generally considered to be more defensible than EPA Method 8020. The US EPA Method for BTEX should be listed as either 8260 or 8020.

Response:
Yes. All equivalent methods are accepted.