



THE CITY OF SAN DIEGO

April 30, 2010

Electronic Delivery to: TAlo@waterboards.ca.gov

Tom C. Alo, Water Resource Control Engineer
Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Reference: Comments on Draft Remedial Investigation/Feasibility Study
Dated March 30, 2010, Geosyntec Consultants

Dear Mr. Alo:

MWH conducted a review of the draft Remedial Investigation/Feasibility Study (RIFS) submitted by TDY Industries to the Regional Water Quality Control Board San Diego Region (San Diego Water Board) on March 30, 2010. This document was prepared as a revision to an earlier draft RIFS dated December 7, 2007, and evaluated possible alternatives for the mitigation of contaminant impacts to soils and groundwater at the TDY site at 2701 North Harbor Drive, San Diego, California. The evaluation was based on numerous criteria including effectiveness, implementability, protection of human health and the environment, and cost. Our general comments are described in the following sections. Specific comments are provided in a table included with this document.

Remedial Investigation/Feasibility Study

The stated objectives of this draft RIFS are to present the results of previous site investigations, human health risk assessments, and the evaluation of potential remedial alternatives for each Area of Potential Concern (AOPC) identified in the 2005 Geosyntec Site Characterization Report. Based on reported soils and groundwater physical and chemical data, a Human Health Risk Assessment (HHRA) was conducted. The results of the HHRA and soils and groundwater data were used to evaluate a variety of potentially applicable remedial technologies. From the list of identified remedial technologies and the completion of two bench-scale studies, and one



Storm Water Department

9370 Chesapeake Drive, Suite 100, MS 1900 • San Diego, CA 92123
Hotline (619) 235-1000 Fax (858) 541-4350



pilot-scale study, recommended remedial options were identified for each AOPC and Areas of Concern (AOC).

The identification and recommendation of a specific remedial technology for a particular AOPC and AOC appears premature at this point in time. Without the designation of site specific cleanup criteria for soils and groundwater, completion of site demolition, and identification of future site uses, the selection and costing of one remedial approach over another remedial approach is not quantifiable. The designation of more restrictive cleanup criteria than the current RBCs proposed and the potential for identification of increased amounts of contaminated soils and volumes of groundwater after site demolition could seriously impact the ability of the currently identified remedial approach to successfully mitigate a particular AOPC or AOC. Because the overall remediation goal for the TDY site is to insure that the residual contaminants present in subsurface soils and groundwater will not adversely impact on-site and off-site receptors (e.g. Convair Lagoon) via soil, soil vapor, surface water, storm water, or groundwater pathways, the uncertainties associated with these issues must be better quantified.

Hydrogeologic Conditions

The evaluation of the potential for contaminant migration in soils and groundwater at the TDY site is based heavily on the interpretations of physical and chemical data for soils and groundwater. Although there are large quantities of historical data for these media, critical soil and groundwater parameters used in estimating the mobility of contaminants over time appear based on a small number of data. As a consequence, it appears soil and groundwater parameters may be biased low and the mobility of contaminants in various locations of the Site are underestimated.

The description of physical characteristics of the subsurface environment at the TDY site do not appear to correlate completely with Appendix B boring logs and what VOC and 1,4-dioxane plumes indicate about potential contaminant migration. Appendix B boring logs describe a mix of clay, silt, and sand layers with the majority of the material comprised of silty sand and fine to coarse sand layers. The boring logs and reported dimensions of VOC and 1,4-dioxane plumes in Buildings 131/242 suggest that a greater potential for contaminant migration exists than is currently described in this document and other draft site documents (March 2010 draft Risk Assessment Appendix A, March 2010 draft PCB Characterization Report, and March 2010 draft RIFS Appendix A) recently submitted to the San Diego Water Board.

An evaluation of potential sand layer impacts and variations in the soils physical and chemical properties regarding contaminant migration should be included in the evaluation of potentially

applicable remediation options. This evaluation is also important because the geological and soils data reported in the Hydrogeologic Conditions section are used to support conclusions about the potential for various contaminants to impact off-site receptors, such as the Convair Lagoon. The existence of preferential pathways associated with sand lenses and native backfill along SWCS and building foundations can increase contaminant migration in localized areas and should be expected.

Additionally, the impacts from tide cycles on the TDY site should be given more consideration as to its potential impact on the migration of contaminants. Fluctuations in groundwater elevations from tidal fluxes have been reported on site wells within 250 to 700 feet of Convair Lagoon. The mechanism for these groundwater fluctuations are not discussed, but may be related to; pressure waves caused by the incoming tide, the migration of backed up water in the dredge fill material, backed up water in the SWCS (subsequently flowing into and out of the pipe via cracks or holes), or the flow of backed up water in the SWCS backfill (subsequently flowing) into and out of the backfill material.

Whatever the actual mechanism, the data shows that tidal cycles can impact groundwater movement at significant distances from the Convair Lagoon and that transmissivity, velocity, and conductivity values may be significantly different than what is currently described, based on laboratory soils data. The reported effect may suggest that native backfill surrounding SWCS present under the TDY site are providing a preferential pathway for contaminated groundwater and storm water to the Convair Lagoon.

The collection of data from one or two discrete tidal cycles does not represent the annual range of impacts to the movement of contaminated groundwater under the TDY site, and additionally prevents a complete understanding of the potential mechanisms involved in the migration of contaminants in groundwater and the smear zone. To better understand the impact(s) of tide cycles on the movement of contaminated groundwater under the TDY site, a long-term monitoring program using automated data collection devices in critical monitoring wells should be conducted. If such a study has been completed, the data should be used to evaluate this issue.

In response to estimates that groundwater velocity under the TDY site is on the order of 0.5 to 3 feet per year, rough estimates of potential annual contaminant migration were derived from the review of data describing the dimensions of VOC and 1,4-dioxane plumes adjacent to Buildings 131/242. Figure 4-1 shows a partially delineated 1,4-dioxane plume approximately 550 to 600 feet in length to the southwest of Buildings 131/242. Assuming the discharge of 1,4-dioxane occurred between 30 to 60 years ago, the potential distance that 1,4-dioxane migrated on an annual basis may be in the range of 10 to 20 feet per year. The VOC and DNAPL plumes shown

on Figure 3, Appendix G appear to originate from a source area near B131-MW2, and extend past B131-MW5 an approximate distance of at least 300 and 225 feet, respectively. Assuming the discharge occurred between 30 to 60 years ago, the potential distance VOCs and DNAPL migrated on an annual basis may be in the range of five to ten feet per year for VOCs and four to eight feet per year for DNAPL. These rough estimates are for contaminants that possess higher retardation factors in soils than the more mobile contaminants, such as Cr+6.

Evaluation of Background Conditions and Identification of Areas of Concern

Current descriptions for the remediation of the TDY site indicate that laterals to the 60" SWCS will be removed, and that various sections of the 30" East SWCS will be abandoned-in-place (AIP) or removed (assumed for those sections under the North Harbor Drive and at the Convair Lagoon). The 54", 60", and possibly the 30" West SWCS will remain. Because future redevelopment of the TDY site remains unknown, there are concerns that these remaining SWCS, including any AIP sections of the 30" East SWCS, will be a conveyance of contaminant discharge sources to Convair Lagoon after site demolition has been completed. The City of San Diego has addressed this concern in technical review comments submitted to the San Diego Water Board on April 5, 2010. The technical comments were generated in response to the issuance of the March 2010 draft Risk Assessment Appendix A and the March 2010 draft RIFS Appendix A.

Risk-Based Concentrations and Area of Potential Concern Evaluation

The HHRA conducted calculated risk-based screening levels for specific areas of the TDY site using the results from a past Site-wide risk assessment. It appears based on the description of the process applied, that re-calculation of risk-based screening levels for portions of the Site is incomplete. The lack of information and the use of "non-typical" presentations of the methodology prevent re-calculation of the results reported in this section without significant effort.

Typical guidance documents used in HHRA, such as the EPA Soil Screening Guidance and its DTSC corollary, which are routinely applied to such an effort, were not referenced in this draft document. It is unclear if these documents were used in this exercise.

Due to unknown planned redevelopment and the timing of such redevelopment of the TDY site, the assumptions used in the HHRA regarding future site uses, may not be accurate. An ecological risk assessment should be considered to address potential risks to receptors that may

eventually reside on-site prior to any redevelopment. The City of San Diego addressed similar concerns in technical review comments submitted to the San Diego Water Board on April 5, 2010. The technical comments were generated in response to the issuance of the March 2010 draft Risk Assessment Appendix A, and the March 2010 draft RIFS Appendix A.

There are some questions regarding the approach used and the generation of Remedial Action Objectives (RAOs) in this document. RAOs are typically discussed after the risk assessment as part of the feasibility study. The risk assessment is completed first so the RAOs can be targeted for the known risks. While the broad RAOs noted in this section are not incorrect, without a risk characterization section, the need and more specific applicability of these RAOs at this point are unknown.

Although mathematically there may be minimal differences in the RBCs derived, applying standardized equations and methods in this HHRA will allow for greater consistency, understanding, and transparency in the calculations. In 1993, EPA, Region 3 began publishing Risk-Based screening concentrations by solving the standard risk-based equations for the soil concentration variable and setting the risk at 10^{-6} and 1 for carcinogenic and non-carcinogenic effects. In 1996, EPA published the Soil Screening Guidance. These documents established a set of equations that are used to solve for soil concentrations which are protective of human health via ingestion, dermal, and inhalation pathways, as well as protective of groundwater. While the verbiage varies slightly among states, some form of these equations and approach are used in the vast majority of guidance and risk assessments conducted throughout the country and should be used at for the TDY site.

Clarification is required regarding potential cancer risks described in the HHRA. EPA considers cancer risk below 10^{-6} to be *de minimus*, or of minimal concern, while cancer risk levels above 10^{-4} are considered to be *de maixmus*, or at levels of significant concern and thus requiring action. Cancer risks between these levels are considered on a site specific basis based in part on the level of uncertainty in the characterization.

Feasibility Study

The feasibility analysis assumes the proposed RBCs are the final cleanup criteria for the TDY site and that impact to subsurface soils and groundwater will not change once all aboveground obstructions have been removed. The ability of a recommended remedial option to achieve more restrictive cleanup and the costs associated with applying a recommended remedial option in the event additional contaminants or a significant increase in contaminated media are detected, have not been described.

Page 6
Tom C. Alo, Water Resource Control Engineer
April 30, 2010

Realizing the basic evaluation criteria (effectiveness, implementability, overall protection of human health, and cost) used to conduct a feasibility analysis are by nature subjective; at some point, a certain amount of quantification needs to be applied to those subjective criteria so that it is transparent how a remedial option is selected over another.

Conceptual Remedial Action Plan

As stated earlier, it would appear that recommending one remedial option over another is premature without designation of cleanup criteria, removal of all aboveground obstructions, and confirmation of soil and groundwater impacts in the subsurface environment. In the event more restrictive cleanup criteria are applied to the TDY site and the recommended remedial option fails to achieve the mandated cleanup criteria, then off-site receptors (e.g. the Convair Lagoon) may potentially remain at risk. Identification of potentially applicable remedial options and the development of costs based on a range of possible events are recommended at this point. Once site demolition has been completed, cleanup criteria have been finalized, impacts to subsurface soils and groundwater have been confirmed, and the timing and re-development of the site determined, costs for the recommended remedial option can be better quantified.

If you have additional questions, please contact Ruth Kolb, Program Manager, at (858) 541-4328 or Edith Gutierrez at (858) 541-4361.

Sincerely,



Kris McFadden
Deputy Director

KM/rk

Enclosure: Comment Table to RIFS dated March 30, 2010

cc: Ruth Kolb, Program Manager, Storm Water Department
Edith Gutierrez, Associate Planner, Storm Water Department
Fritz Ortlieb, Deputy City Attorney