



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

3 June 2006

MEMORANDUM

SUBJECT: CSTAG Recommendations on the Montrose/Palos Verdes Shelf
Contaminated Sediment Superfund Site

FROM: Carmen White, Remedial Project Manager
Region 9

TO: Steve Ells
Leah Evison, Co-chairs
Contaminated Sediments Technical Advisory Group (CSTAG)

Thank you for holding the February 2006 CSTAG superfund sediment sites meeting in the San Francisco, Region 9 Office. I appreciated the opportunity to discuss the status of operable unit 5 of the Montrose Superfund site, better known as the Palos Verdes Shelf Superfund site. This represents the second briefing to CSTAG on this large and complex sediment site off the coast of Los Angeles, CA. As you know, currently the site team is preparing the Remedial Investigation/Feasibility Study (RI/FS) for the site.

On April 3, 2006, we received your comments and recommendations on how we can further address the 11 risk management principles set forth in OSWER Directive 9285.6-08, *Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites*. We will work with these recommendations as we prepare the RI/FS, as the conceptual site model is refined, and as remedial alternatives are developed and evaluated. In the meantime, attached are our detailed responses to your recommendations.

cc: Roberta Blank, Region 9
Rafael Gonzalez, OSRTI
Elizabeth Southerland, OSRTI

**CSTAG Recommendations: February 15, 2006 Briefing
Palos Verdes Shelf, OU5, Montrose Superfund Site**

CSTAG comment

1. Given the complex hydrodynamics and potentially large scale of a remedial action at this site, CSTAG recommends that the site team consider a phased approach to the cleanup that uses adaptive management. For example, if capping is part of the selected remedy, it may be more cost-effective to obtain capping materials in smaller amounts over several years (especially if there is a possibility of beneficial use of clean materials from other dredging projects), rather than attempting to dredge a large volume for a one-time capping effort. Capping techniques could then be modified in subsequent years based on lessons learned in the previous years.

Region 9 Response to Comment

In the RI/FS, Region 9 will evaluate adaptive management tools and the use of a phased approach to implementation of remedial action for the site. We will look for opportunities to make remediation more cost-effective where possible, by taking advantage of potentially synergistic actions of other agencies and local entities. For example, the analysis of the capping alternative will include identification of potential source materials from other projects and the associated cost. We will evaluate the use of a phased approach to remedy implementation that includes monitoring remedy effectiveness then refining, if necessary, techniques used. For example, a phased approach to cap construction could refine cap placement technique and materials used, based on assessment of the first phases of construction.

CSTAG comment

2. CSTAG supports the site team's decision to focus on evaluation of empirical data from field studies before deciding whether the use of complex three-dimensional hydrodynamic and sediment transport modeling is necessary because of the uncertainties associated with quantifying the driving forces for the highly variable barotropic, baroclinic and sub-tidal (meteorological) currents on the Palos Verdes shelf.

Region 9 Response to Comment

Region 9 appreciates CSTAG's support for our approach. During 2004, we collected oceanographic data, data on bioturbating infaunal organisms (BIOs), and geotechnical data. Evaluation of these and other data sets has allowed us to develop a conceptual site model that identifies the major forces that could potentially expose or resuspend currently buried contaminated sediment. A one-dimensional sediment-transport model has been used to identify regional sediment-transport patterns and to evaluate the relative importance of spatial variations in waves and currents compared with spatial variations in sediment characteristics. However, questions remain, particularly regarding bottom shear stresses required to resuspend and transport contaminated sediment that is currently buried.

Further analyses of BIOs, oceanographic and geotechnical field data are being conducted for the Feasibility Study. The Feasibility Study will incorporate into each alternative short- and long-term monitoring to evaluate recovery of the site and that may require predictive modeling. The Feasibility Study will include a discussion of remedial action monitoring plan elements that are best answered through modeling.

CSTAG comment

3. CSTAG recommends that the site team ensure that data quality (e.g., related to analytical variability, lipid analysis, contaminant measurement) is accurately reflected in any fish tissue contaminant trend analyses and that associated uncertainties are included when communicating trends to the public.

Region 9 Response to Comment

Region 9 and the Natural Resource Trustees are currently compiling the data collected during the fish study. The data report will discuss the steps taken to ensure data quality, including stringent performance specifications required of the lab, and biweekly calls to review lab performance and assure QA/QC standards were met. For example, during the sample analyses, any variance from Quality Assurance Project Plan (QAPP) specifications was discussed and a decision made whether to request re-extraction or accept each batch of data. The data report will describe data quality findings, including uncertainties. The fish study team will begin discussing preliminary data results with core stakeholders in June 2006. In particular, we will discuss the fish data with the California EPA Office of Environmental Health Hazard Assessment (OEHHA) who will be using the data to update the existing sport fish advisories.

We were able to take further steps to validate data quality working with the Los Angeles County Sanitation District (LACSD), which is required under its NPDES permit to collect and analyze fish from the Palos Verdes Shelf for a suite of pollutants. An inter-laboratory study was conducted between the LACSD lab and the EPA/trustees contracted lab. The LACSD lab results were consistent with those from the EPA/trustees' fish study. LACSD also analyzed fish homogenates for DDTs from EPA/trustees' fish study and the results agree with the EPA/trustees' findings within an acceptable range. Additional inter-laboratory work is currently underway.

CSTAG comment

4. CSTAG recommends that the site team evaluate whether existing sediment PCB data are adequate to evaluate the potential effectiveness of the alternatives in the FS at reducing risk. Because more recent studies have focused on DDT, CSTAG is concerned that the PCB data collected several years ago may not be reflective of current conditions.

Region 9 Response to Comment

Region 9 agrees that current data on PCBs in sediment are limited. The Natural Resource Damage Assessment (USGS 1994) found that the footprints for DDTs and PCBs match, and this is still our assumption. The RI/FS will use the PCBs in

sediment footprint from the 1990s. Fortunately, the extensive fish study just completed includes analysis of PCBs in fish tissue that will be used in the food web model to draw connections between sediment concentrations and concentrations in fish. We feel existing data are adequate for remedy selection. However, collection of PCB data in fish and sediment will be evaluated in the FS as a component of post-ROD monitoring.

CSTAG comment

5. CSTAG recommends that the site team consider using ORD's Superfund Technical Support Center (STSC) to evaluate the toxicity of DDMU and its propensity to bioaccumulate. STSC can be reached by email at STSC.Superfund@epa.gov, or by phone at (513) 569-7300. Also see attached paper fyi.

Region 9 Response to Comment

Region 9 has contacted ORD's Superfund Technical Support Center (STSC) to assist us in evaluating DDMU properties. STSC performed a literature search and has provided us with additional information about DDMU. There is no evidence of DDMU toxicity; however, there is a paucity of data. Region 9 will continue to interface with STSC and look for other sources of information regarding DDMU.

CSTAG comment

6. Given the multitude of factors affecting biota recovery at this site, CSTAG recommends that the site team carefully consider the selection of Remedial Action Objectives for the site in order to ensure that they clearly state what is likely to be achievable based on actions at the site. It may also be useful to state what is not likely to be achievable based on actions at the site.

Region 9 Response to Comment

CSTAG's point is well taken. Region 9 will carefully evaluate appropriate Remedial Action Objectives (RAOs) to be presented in the FS and discuss these with members of CSTAG while they are under development.

CSTAG comment

7. CSTAG recommends that when developing the Feasibility Study, the site team evaluate how the ongoing operation and maintenance of the sewer outfalls might affect cap effectiveness and long-term O&M costs. For example, CSTAG recommends that the site team evaluate whether possible limitations on capping the contaminated area near the diffusers might significantly reduce the risk-reduction potential of the capping alternative since it would continue to leave a significant amount of contamination available for biota and/or whether those uncapped areas may lead to significant recontamination of capped areas.

Region 9 Response to Comment

Region 9 site team has met with the Los Angeles County Sanitation District (LACSD) to discuss the outfall design and operation. LACSD has provided the team

with information on the outfall diffusers, outfall construction and reballasting activities. Development of a capping alternative in the Feasibility Study will assess the effects of not including the “hot spot” adjacent to the outfalls, both in terms of risk reduction and cap integrity.

The “hot spot” near the outfalls is undergoing benthic recovery at a slower rate than the rest of the Shelf. Although it appears this area is not depositional, the effluent-affected sediments in this area are cohesive and difficult to erode. The capping alternative will consider a range of erosion and transport rates to assess “likely” and “worst-case” scenarios for ongoing contaminant release from this area and its impacts on potentially capped areas.

CSTAG comment

8. CSTAG supports the Region’s efforts to solicit expert review of the refined food web model used to make RAOs more technically sound.

Region 9 Response to Comment

Comment acknowledged. Region 9 has begun coordination with EPA’s Office of Research and Development (ORD). As a first step, the site team requested that Dr. Lawrence Burkhard, from EPA’s National Health and Environmental Effects Research Laboratory, Mid-Continent Ecology Division, review the food web model’s assumptions and approach. Once the refined food web model technical memo is complete, it will undergo an internal review by Region 9’s technical support staff, as well as by Dr. Burkhard and our Natural Resource Trustee partner, NOAA.

CSTAG comment

9. CSTAG recommends that the site team consider how the long-term monitoring program will measure remedy effectiveness (*e.g.*, sessile organisms, sampling design), and whether additional data collection would be needed during remedial design to provide an adequate baseline data set for comparison to post-cleanup data.

Region 9 Response to Comment

The FS alternatives will include long-term monitoring. It is likely that additional data will be necessary to support remedial design. As CSTAG suggests, the design of the monitoring program will require careful consideration of appropriate indicators of remedy effectiveness and the adequacy of the data available to determine baseline (*i.e.*, pre-remedy) conditions. Since fish are a key element in the exposure pathway for both human and ecological harm, it makes sense to continue monitoring fish. Additionally, the long-term monitoring program should address the health of the Shelf, through measurement of DDT and PCBs inventory in sediment and/or water. The design of the long-term monitoring program will be shaped to complement the preferred remedy.