UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

September 26, 2014

MEMORANDUM

SUBJECT: National Remedy Review Board Recommendations for Operable Unit 4 of the Cornell-Dubilier Electronics Site

FROM: Amy R. Legare, Chair
National Remedy Review Board

TO: Walter E. Mugdan, Director
Superfund Division
U.S. EPA Region 2

Purpose

The National Remedy Review Board (the Board) has completed its review of the proposed cleanup action for operable unit 4 (OU4) of the Cornell-Dubilier Electronics Superfund site, in South Plainfield Borough, Middlesex County, New Jersey. This memorandum documents the Board's advisory recommendations.

Context for Board Review

The Administrator established the Board as one of the October 1995 Superfund Administrative Reforms to help control response costs and promote consistent and cost-effective remedy decisions. The Board furthers these goals by providing a cross-regional, management-level, "real time" review of high cost proposed response actions prior to their being issued for public comment. The Board reviews all proposed cleanup actions that exceed its cost-based review criteria.

The Board review is intended to help control remedy costs and to promote both consistent and cost-effective decisions. Consistent with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), in addition to being protective, all remedies are to be cost-effective. The Board considers the nature of the site; risks posed by the site; regional, state, tribal and potentially responsible party (PRP) opinions on proposed actions; the quality and reasonableness of the cost estimates; and any other relevant factors or program guidance in making our advisory recommendations. The overall goal of the review is to ensure sound decision making consistent with current law, regulations, and guidance.

Generally, the Board makes the advisory recommendations to the appropriate regional division director. Then, the region will include these recommendations in the administrative record for the site, typically before it issues the proposed cleanup plan for public comment. While the region is expected to give the Board's recommendations substantial weight, other important factors, such as subsequent public comment or technical analyses of response options, may influence the region's final remedy decision. The Board expects the regional division director to respond in writing to its recommendations within a reasonable period of time, noting in particular how the recommendations influenced the proposed cleanup decision, including any effect on the estimated cost of the action. Although the Board's recommendations are to be given substantial weight, the Board does not change the Agency's current delegations or alter the public's role in site decisions; the region has the final decision-making authority.

Overview of the Proposed Action

Cornell-Dubilier Electronics, Inc. (CDE) operated a facility at 333 Hamilton Boulevard, South Plainfield, New Jersey (former CDE facility), from 1936 to 1962, manufacturing electronic parts and components, including capacitors. During site operations, the company released/buried material contaminated with polychlorinated biphenyls (PCBs) and chlorinated volatile organic compounds (VOCs), primarily trichloroethylene (TCE). As a result of CDE's practices, EPA has detected PCBs and VOCs in the groundwater and soil at the former facility and also has detected PCBs on nearby residential, commercial and municipal properties. EPA also detected PCBs and VOCs in the surface water and sediments of Bound Brook and in downstream floodplain soils. The focus of the Board's current review is OU4, which addresses site contamination in the Bound Brook corridor (the stream channel, adjacent floodplain soils, and tributaries).

This is the fourth and final OU for the site. The Region presented an earlier phase, the OU2 source control remedy for the former CDE facility, to the Board in 2003. The OU2 remedy was completed in 2012.

The Region's preferred alternative includes actions intended to address four elements, or subareas, of OU4: 1) PCB-contaminated sediments and floodplain soils; 2) PCB-contaminated capacitor debris and fill material, including any remaining capacitors or capacitor parts; 3) PCB and VOC-contaminated groundwater discharging to Bound Brook in the vicinity of the former CDE facility; and 4) a municipal water line that crosses the former CDE facility property, which if it leaks or ruptures, could mobilize subsurface contaminants adversely impacting the OU2 and OU4 remedies. The primary contaminants of concern (COCs) at the site are PCBs in sediments and soils, and PCBs and VOCs in groundwater discharging to surface water. The Region presented to the Board the following components for the proposed OU4 remedy:

- Contaminated soil and sediment: excavation/dredging of sediments, excavation of soils;
- Capacitor debris and fill material: full-depth excavation and off-site disposal;
- Contaminated groundwater discharging to Bound Brook: reactive cap or hydraulic containment; and
- Water line: replacement in new easement.

National Remedy Review Board Advisory Recommendations

The Board reviewed the information package describing this proposal and discussed related issues with Region 2 staff (Sarah Flanagan, Mark Austin and John Prince) on March 13, 2014. Based on this review and discussion, the Board offers the following comments:

Human Health Risk

The package presented to the Board by Region 2 identified unacceptable risk from exposure to PCBs associated with ingestion of fish tissue from Bound Brook. The package described several sediment preliminary remediation goals (PRGs), including PRGs for a human health10^{-4} cancer risk, ranging from 0.21 to 0.38 milligrams per kilogram (mg/kg) from fish tissue consumption, and a PRG for human health (for a child angler eating bottom-feeding fish fillet) noncancer risk of 0.041 mg/kg, equivalent to a hazard index of 1 from fish tissue consumption. The Region's recommended sediment remediation goal is 1 mg/kg for total PCBs. The Region developed this value after consideration of several factors, including back-calculation from a fish tissue concentration associated with ingestion rates that would not yield unacceptable risks for some consumers. The Board recommends that more explanation be provided on deriving this final sediment remediation level. The Board also recommends that the Region consider monitoring fish tissue to provide data for evaluating how the cleanup is progressing towards attainment of the remedial action objectives (RAOs). The Board further recommends that the Region refer to Office of Solid Waste and Emergency Response (OSWER) Directive No. 9200.1-77D, July 2008, Sediment Assessment and Monitoring Sheet #1, *Using Fish Tissue Data to Monitor Remedy Effectiveness*.

In the presentation to the Board, the Region indicated that separate exposure point concentrations (EPCs) for fish tissue data were developed for each exposure area. Since it is reasonable to assume that fish may migrate readily from one exposure area to another, the Board recommends that the Region provide a more detailed explanation in the decision documents as to why it grouped the fish tissue data in this way. For example, how does the presence of physical barriers that would restrict fish migration affect the fish grouping method? The Board also recommends that the Region consider developing an EPC using all available fish tissue data. This approach might then be used to compare each exposure area's EPCs against another to demonstrate that the risks would be consistent across areas, in the event that, at some point in the future, the fish are, in fact, able to migrate readily across various exposure areas.

Ecological Risk

The materials presented to the Board by Region 2 summarize risks posed to wildlife by the contaminated sediments in OU4 (see Table 2 of the review package). It is unclear from these materials how the Region assessed risks from dioxin-like PCBs in addition to total PCBs. The Board recommends that the Region clarify in the decision documents the methods used to evaluate exposures and associated risks from dioxin-like PCBs. The Board also recommends that the Region refer to EPA 100/R-08/004, June 2008, *Framework for Application of the Toxicity Equivalence Methodology for Polychlorinated Dioxins, Furans, and Biphenyls in Ecological Risk Assessment*.

Remedial Action Objectives/Preliminary Remediation Goals

The package presented to the Board included a sediment PRG for fish consumption as low as 0.041 mg/kg (noncancer, child angler consuming bottom-feeding fish fillet), and a direct-contact PRG equivalent to 10^{-6} cancer risk of 1 mg/kg. The sediment concentration cleanup goal predicted to be achieved after several decades of monitored natural recovery is 0.25 ppm. As presented to the Board, the Region's basis for RAOs states that "PRGs for a 10^{-4} cancer risk for human fish tissue consumption ranged from 0.21 to 0.38 mg/kg." During the presentation, the Region clarified that fish tissue levels would be used to measure remedy performance but not as cleanup level. The Board recommends that the decision documents include the risk-based fish tissue target concentration and more clearly describe the role of fish tissue levels as a performance measure for achieving RAOs. The Board also recommends that the Region clarify in the decision documents the sediment cleanup level (1 mg/kg or 0.25 ppm) and when it is expected to be achieved.

Remedy Performance

Based on the information provided to the Board, the Region is considering the use of an innovative technology (e.g., a reactive cap composed of zerovalent iron (ZVI) and activated carbon) as a feasible and cost-effective approach for treating groundwater discharges to the Bound Brook in the 1600-ft reach. The Board notes that a stakeholder comment from the Edison Wetlands Association suggested that the Region should consider ZVI technology, and/or pump and treat technology, to address the discharge of contaminated groundwater to Bound Brook. The Board also notes that the main degradation mechanism of VOCs [i.e., TCE to cis-dichloroethylene (DCE)] with ZVI is through chemical reductive dechlorination. The Board further notes that this degradation mechanism works more efficiently under already-reducing conditions so that ZVI will not be consumed by dissolved oxygen in water, whereas both PCBs and VOCs can be removed via adsorption by activated carbon. The Board recommends that the Region consider other cap designs, such as a two-layer cap (ZVI in the bottom layer and activated carbon layer at the top for a single mat) or two separate caps with the ZVI mat in direct contact with the groundwater seep at the groundwater/surface water interface and an activated carbon mat on top in contact with Bound Brook. If the Region decides to pursue other cap approaches, the Board recommends conducting appropriate pilot tests to evaluate alternative designs, with consideration of specific water geochemistry and breakthrough behavior.

Based on the information provided to the Board, it appears that TCE dechlorination through natural processes is taking place at or near the interface between groundwater and surface water, as demonstrated by the conversion of TCE to cis-1,2-DCE when measured in surface water. The Board recommends that the Region further evaluate this phenomenon. By treating groundwater in this area to complete VOC degradation and because PCBs have very low water solubility and require high concentrations of VOCs to become mobile in groundwater, the Region may also eliminate the transport mechanism of PCBs from groundwater to surface water..

The Region's presentation to the Board indicated that fish tissue PCB concentrations were elevated in Spring Lake; however, the Region has indicated that no direct remediation is planned within Spring Lake because sediment and surface water concentrations in Spring Lake and its feeder stream, Cedar Brook, were not elevated for any of the site's COCs. The Board notes that, since there is PCB fate and transport mechanism uncertainty, this approach may result in PCB-contaminated fish in Spring Lake. The Board recommends that the Region develop a plan for this OU to address this fish contamination and the risk to human health from fish consumption in Spring Lake.

Based on the presentation to the Board, significant flooding events occur within Bound Brook throughout a majority of the year. These flooding events could potentially cause significant issues during excavation activities along the banks of the brook. In order to reduce the degree and frequency of flooding, the Board recommends that the Region consider installing shallow "benches" along the banks as part of the bank removal and discuss this and other options with the GE-Housatonic River team in Region I.

Alternative Remedy

The Board was presented with the Region's remedial options to address groundwater discharging to Bound Brook. The preferred remedial option of a reactive cap (GW-5) would treat groundwater so as not to adversely impact Bound Brook. Some of the contaminated groundwater adjacent to Bound Brook is already being addressed as part of the previous OU3 remedy that includes a technical impracticability (TI) waiver. While a TI waiver zone was established for OU3, the Board recommends that a new, updated TI waiver report be developed for that portion of the groundwater addressed by this remedial action but not addressed by the OU3 TI waiver. The Board recommends that the Region address any OU4 TI waiver for contaminated groundwater in a manner that is consistent with CERCLA 121(d)(4)(C), the NCP (e.g., 40 CFR 300.430(f)(1)(ii)(C)(3)), and existing CERCLA guidance (*e.g.*, OSWER Directive No. 9200.1-23P, July1999, *A Guide to Preparing Superfund Proposed Plans, Records of Decision and Other Remedy Selection Decision Documents,* section 9; OSWER Directive No. 9234.2-25, October 1993, *Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration*). The Board also recommends the Region add a groundwater RAO to the decision documents for this remedial action, and recommends that this RAO be consistent with the RAO found in the OU3 record of decision.

The Region indicated that its preferred alternative for the sediment/floodplain soil remedy component includes excavation and off-site disposal of 260,000 cubic yards of floodplain soils at a substantial cost. The quantity and cost estimates assume soils over a 32-acre floodplain area would be excavated until the 1 mg/kg remediation level for PCBs is reached, which is estimated to be down to an average depth of 5 feet (surface and subsurface soil). The Board recommends that the Region re-evaluate the necessity to remove subsurface soil in order to achieve the RAOs, which are all based on surface soil exposure pathways. The Board also recommends that the Region refer to OSWER Directive No. 9355.4-24, December 2002, *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites*. The Board notes that if the Region is concerned about subsurface soils "day-lighting" over time, a geotextile matting could be put in place prior to backfilling.

Applicable or Relevant and Appropriate Requirements

In the package provided to the Board by Region 2, Table 6-1 lists potential applicable or relevant and appropriate requirements (ARARs). The Board notes that Clean Water Act section 404 and its associated regulations are not specifically mentioned. Clean Air Act National Ambient Air Quality Standards are listed as an ARAR but are not promulgated standards. The Board recommends that the ARARs section of the decision documents be reviewed by the site attorney. In addition, the Board recommends that the ARARs citations be more specific and that the Region refer to EPA/540/G-89/006, August 1988, *CERCLA Compliance with Other Laws Manual: Interim Final* for examples.

Principal Threat Waste

In the package provided to the Board by Region 2, the capacitor debris RAO is described in part as "remove, treat, or contain principal threat waste to the extent practical." In addition, the Region's preferred alternative for capacitor debris is excavation and off-site disposal. The information presented to the Board also indicated that sediment PCB concentrations may exceed 100 mg/kg. The Board recommends that the decision documents explain how the RAO and cleanup approach for the capacitor debris and sediment is consistent with CERCLA, the NCP and existing CERCLA guidance, including, specifically, CERCLA § 121(b)(1)'s preference for treatment "to the maximum extent practicable;" CERCLA § 121(d)(1)'s requirements regarding selection of remedies that ensure protectiveness of human health and the environment and achieve (or where appropriate, waive) ARARs; 40 CFR § 300.430(a)(1)(iii)(A)'s expectation that "treatment [be used] to address the principal threats posed by a site, wherever practicable;" and 40 CFR § 300.430(f)(1)(ii)(E)'s preference for treatment "to the maximum extent practicable" while protecting human health and the environment, attaining ARARs identified in the ROD, and providing "the best balance of trade-offs" among the NCP's five balancing criteria; and OSWER Directive No. 9380.3-06FS, November 1991, *A Guide to Principal Threat and Low Level Threat Wastes.*

Cost

In the package presented to the Board, the Region's preferred alternative for the existing 1,700-linear foot, 36" waterline (which runs directly through the former CDE facility) is abandonment and relocation/construction of a new waterline within the public right-of-way. The total present worth cost estimate for this new, approximately 1,700-linear foot waterline is $8.3 million. In addition, it appears from the information presented to the Board, that the capacitor debris excavation work proposed in Alternative CD-4 along Bound Brook and the former CDE facility will be in very close proximity to the existing waterline. The Board recommends that the Region look at the potential to integrate the proposed CD-4 open excavation work with relocation of the waterline within this same excavation area along the south/southeast side of the former facility back onto Spicer Avenue with an eventual tying into of New Market Avenue. Finally, the Board recommends that the Region review the detailed cost estimate for Alternative WL-2, since the presentation noted the total cost as $3.9 million, whereas the backup detailed cost estimate (Table 10-1) identifies the total cost as $7 million.

Comparative Analysis

The Region indicated in the package that the groundwater preferred alternative (GW-5) would be technically challenging to implement. The Board recommends that the Region reassess the costs, implementability, and long-term effectiveness and permanence of the proposed reactive cap groundwater remedy as compared to the conventional pump and treat groundwater remedy (alternative GW-3). The Board notes that the conventional approach may offer some advantages (e.g., ease of implementation and simpler maintenance) with much less risk.

Conclusion

We commend the Region's collaborative efforts in working with the Board and stakeholder groups at this site. We request that a draft response to these recommendations be included with the draft proposed plan when it is forwarded to the Office of Superfund Remediation and Technology Innovation's Site

Assessment and Remedy Decisions (SARD) branch for review. The SARD branch will work with both your staff and the Board to resolve any remaining issues prior to your release of the record of decision. This memo will be posted to the Board's website (http://www.epa.gov/superfund/programs/nrrb) within 30 calendar days of my signature. Once your response is final and made part of the site's administrative record your response will also be posted on the Board's website.

Thank you for your support and the support of your managers and staff in preparing for this review. Please call me at (703) 347-0124 should you have any questions.

cc: R. Richardson (OSRTI)
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