March 28, 2014

MEMORANDUM

SUBJECT: National Remedy Review Board Recommendations for the LCP Chemicals Superfund Site, Operable Unit 1

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

TO: Franklin E. Hill, Director
Superfund Division
U.S. EPA Region 4

Purpose

The National Remedy Review Board (the Board) has completed its review of the proposed cleanup action for the LCP Chemicals Superfund site, Operable Unit 1, in Brunswick, GA. 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

The LCP Chemicals site is located immediately outside the City of Brunswick, Glynn County, Georgia. The Uplands area of the site began being used as an oil refinery in 1918 and ended in 1994 as a mercury cell chlor-alkali operation. The LCP Estuary (operable unit 1) consists of approximately 572 acres of flat vegetated tidal marsh and 98 acres of tidal creeks. The LCP Estuary is bordered to the west by Turtle River, to the north by Gibson Creek (a tributary to Turtle River) and the former Georgia-Pacific Cellulose facility to the south. The principal feature of the LCP Estuary is Purvis Creek, which divides the marshlands roughly in half, north to south.

During the 1990s, 142,000 cubic yards (cy) of Upland wastes and associated contaminated soils were removed and properly disposed of under EPA’s emergency removal authority. In addition, the potentially responsible parties (PRPs) removed 13 acres of highly contaminated marsh flats, which were nearest to facility discharges points. These 13 acres, which corresponded to about 21,500 cy of wetland sediment, were excavated; disposed of; backfilled; and re-vegetated with native marsh grasses. Dredging was also performed along a portion of the site’s Eastern Creek and in select portions of the LCP Ditch (2,650 linear ft). The volume of dredged channel material was about 3,500 cy.

The Region’s potential remedy consists of: 1) Dredging of seven acres of the LCP Ditch and Eastern Creek to a target depth of 18 inches and backfill with 12 inches of clean material. Dredged sediments would be taken to a licensed disposal facility; 2) Capping of six acres of the Domain 3 Creek and Purvis Creek South; 3) Thin cover placement on 11 acres of the Dillon Duck, Domain 1A and Domain 2. The total cost for the preferred alternative is approximately $28.6 million.

National Remedy Review Board Advisory Recommendations

The Board reviewed the information package describing this proposal and discussed related issues with Region 4 management and staff (Derek Matory, Galo Jackson, and David Buxbaum) on December 18, 2013. After reviewing and discussing the site package with the Region, the Board offers the following comments:
Site Characterization

Based on the Region’s package, it appears to the Board that additional sampling may be needed to fully determine the contaminants present in the Western Creek Complex in Domain 2. In the presentation, the Region indicated that dioxin was co-located with polychlorinated biphenyls (PCBs). However, based on the new dioxin Integrated Risk Information System reference dose, the action levels for dioxin may indicate that a larger area is in need of remediation than the areas to be addressed by the proposed action. The Board recommends that the Region evaluate the site data and determine if there are gaps that may require additional sampling for individual and/or co-located site contaminants. Further, the Board recommends that the Region include within the decision documents sufficient explanation regarding how site characterization is being accomplished consistent with the NCP [e.g., 40 CFR 300.430(b) and (d)], Office of Solid Waste and Emergency Response (OSWER) Directive No. 9355.3-01, October 1988, Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, Interim Final (e.g., Chapter 3.4), EPA guidance 540/1-89/002, December 1989, Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A), Interim Final (e.g., Chapter 4); and OSWER Directive No. 9355.4-23, July 1996, Soil Screening Guidance User’s Guide (e.g., Chapter 2).

Institutional Controls

Based on the information provided to the Board, there are currently institutional controls (ICs) in place addressing contaminated fish consumption. The Board recommends that the Region’s decision documents provide a clear description of the rationale for using ICs to help achieve protectiveness of human health, including an explanation of how the ICs being considered would accomplish the specific land and resource use restrictions that are the objective of the IC. The Board recommends that the Region, in its decision documents, explain how its approach for selecting ICs as part of the remedial action is consistent with the NCP [e.g., 40 CFR §300.430(a)(1)(ii)(D)] and existing Superfund guidance, including OSWER Directive No. 9355.0-89, December 2012, Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites.

Ecological Risk

The package provided to the Board includes ecological risk estimates and characterizations based on Aroclor 1268, mercury, lead and total polycyclic aromatic hydrocarbons, which the Region identified as the site's contaminants of concern (COCs). Agency guidance for conducting ecological risk assessment of dioxins (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) provides a recommended approach for evaluating risk from mixtures of dioxin-like compounds (e.g., Aroclor 1268) on a class-specific basis (i.e., birds, fish and mammals). The Board recommends the Region re-evaluate available site data in light of the current guidance referenced above, and explain in its decision documents how its approach is consistent with CERCLA, the NCP and the June 2008 guidance. This re-evaluation should consider and address remedial action objectives (RAOs), preliminary remediation goals (PRGs), remedial alternatives and nine criteria analysis to assure that the preferred alternative will be protective of human health and the environment and consistent with the NCP.
Principal Threat Waste

Based on information presented to the Board, the Region’s preferred alternative would not include treatment. The Board notes that OSWER Directive No. 9380.3-06FS, November 1991, *A Guide to Principal Threat and Low Level Threat Wastes*, provides guidance on identifying principle threat waste (PTW), as well as on the statute’s preference and the NCP’s expectations for treatment of PTW. The Boards recommend that the Region fully explain in its decision documents how its approach at this site is consistent with CERCLA and the NCP, 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) applicable or relevant and appropriate requirements (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;” 40 CFR § 300.430(f)(1)(ii)(E)’s preference for treatment “to the maximum extent practicable” and 40 CFR § 300.430(e)(9)(ii)’s 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.

Remedial Action Objectives/Preliminary Remediation Goals

In the materials presented to the Board, it became apparent that the preferred alternative could be viewed as a removal of the secondary source of contamination within the marsh. The Board notes that this approach appears to be consistent with the recommendation in existing CERCLA guidance (OSWER Directive No. 9285.6-08, February 2002, *Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites*) that source should be removed first. The Board recommends that the Region in its decision documents: 1) explain that removing source material provides additional support and justification in the remedy selection process, and 2) develop an additional RAO or modify the existing RAOs to reflect this approach.

The package also includes a number of RAOs containing language that is vague or confusing in part (e.g., “mitigate releases of contaminated in-stream sediment deposits”). The Board recommends that the Region’s decision documents provide clear RAOs, consistent with the NCP and existing OSWER guidance (OSWER Directive No. 9200.1-23P, July 1999, *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*; OSWER Directive No. 9355.0-85, December 2005, *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites; 55 FR 8712-8713*).

The package presented to the Board includes ranges of PRGs with different concentrations, including PRGs for chemicals identified as systemic toxicants. The Board notes that the NCP states in 40 CFR 300.430(e)(2) that “...Remediation goals shall establish acceptable exposure levels that are protective of human health and the environment and shall be developed by considering the following...(f)or systemic toxicants, acceptable exposure levels shall represent concentration levels to which the human population, including sensitive subgroups, may be exposed without adverse effect during a lifetime or part of a lifetime incorporating an adequate margin of safety....” Additionally, when developing PRGs...
for non-carcinogens, OSWER Directive No. 9355.0-69, August 1997, Rules Of Thumb For Superfund Remedy Selection states, “In the absence of ARARs for chemicals that pose non-carcinogenic risks, PRGs generally should be established at concentrations that achieve a hazard quotient of one.” The Board recommends that the Region clearly explain in its decision documents how its approach is consistent with CERCLA and the NCP, and describe the process used to develop site PRGs (including documenting risk management decisions that guided the derivation of these PRGs), and how the selected PRGs ensure human health and environmental protectiveness.

Remedy Performance

In the package prepared for the Board, the Region’s preferred alternative (alternative 6) recommends thin cover placement for 11 acres (13,000 cubic yards) of the Dillon Duck and Domain 1A and 2 areas. The Board is concerned about the long-term permanence aspects of the proposed thin cover placement. The Board recommends that the Region assess the engineering feasibility of this approach, and that the Region ensure that the long-term operation and maintenance costs of a thin cover approach are fully scoped and included in the costs associated with alternative 6.

The information presented to the Board indicated that the Region’s preferred approach in alternative 6 for the six acres (14,000 cubic yards) of the Domain 3 creek and Purvis Creek South was capping. The Board recommends that the Region consider a dredging approach for this portion of the site, which would be consistent with the dredging approach in alternative 6 for the other creeks.

The Board recommends that the Region consider a contingent remedy approach due to the uncertainty regarding the long-term permanence aspect of the proposed thin cover and capping components of alternative 6 if the Region retains these approaches as its preferred alternative.

From the information presented to the Board with regard to areas proposed for remediation, the western most creek within Domain 2 appears to show sufficient sampling data to undertake a response action similar to the preferred alternative proposed by the Region for OU1. However, the package did not clearly explain why a response action is not proposed for this area of Domain 2. Therefore, the Board recommends that the decision documents present the Region’s rationale for not undertaking a response action to address COCs in the western most creek within Domain 2.

Based on the information presented to the Board, it appears that the effectiveness of the Region’s preferred alternative in ensuring protectiveness of human health and the environment would be directly related to reductions in the bioaccumulation and food chain transfer of PCBs and mercury. The Board acknowledges that the Region’s preferred alternative is designed to reduce both the human health and ecological risk present at the site. However, based on the information presented, there appear to be uncertainties associated with the exposure assessment (specifically the exposure point estimates) directly related to the potential reduction in contaminant bioaccumulation; these uncertainties could raise questions about whether the Region’s preferred remedial approach will be the final action necessary to ensure human health and environmental protectiveness. The Board recommends that the Region consider developing a fish tissue monitoring plan to generate data sufficient to document the degree of risk reduction accomplished by the remedial action and whether RAOs have been achieved. The Board
further recommends that the Region utilize the existing data and consider OSWER Directive 9200.1 – 77D, July 2008, Sediment Assessment and Monitoring Sheet (SAMS) #1 “Using Fish Tissue Data to Monitor Remedy Effectiveness” when developing this plan. In addition, the Board recommends that the decision documents state that the monitoring plan and decision criteria (for determining remedy protectiveness) will be developed as soon as practical so that the existing data can be assessed for use as baseline data, or whether additional baseline data collection will be necessary.

The package presented to the Board was unclear as to why the areas to be dredged to a depth of 18 inches will be backfilled with only 12 inches of clean materials. Additionally, based on information presented to the Board, it appears that dredging to a depth of 18 inches in some places may remove contamination to a degree that cleanup levels are exceeded. The Board recommends that the Region explain in its decision documents the reason for not backfilling the full dredged depth and also, the need for backfilling those areas where dredging would remove more COCs than needed to achieve cleanup levels.

The package provided to the Board described the site in terms of domains and sediment management areas (SMAs). Alternatives were presented relative to specific SMAs (e.g. alternative 2 & 3 for SMA-1). The Region’s package states: 1) alternatives 2 and 3 address COC exceedances in SMA-1; alternatives 4 and 5 address COC exceedances in SMA-2; and 3) alternative 6 will address COC exceedances in SMA-3. The package also states the site-wide preferred alternative is alternative 6. It appears to the Board, based on remedy effectiveness and surface-weighted average concentration figures in the Region’s package, that the SMAs may not provide equivalent protection across the site. The Board recommends that the Region explain in the decision documents why the site was divided into both domains and SMAs, how the alternatives were evaluated on an SMA and site-wide basis, and how the Region’s preferred alternative would ensure human health and environmental protectiveness.

**Costs**

In the package presented to the Board, the preferred alternative (and several other alternatives) includes dredging of contaminated sediment on site and disposal at a licensed disposal facility. Based on information presented by the Region, the “dredged sediment” costs reportedly account for dewatering and disposal costs, and the long-term monitoring costs for the various proposed caps/cover are assumed to be a percent of the total direct cap costs. However, while variations in dredging costs were accounted for in the cost estimates, detailed cost estimate summaries were not provided to the Board. Based on this limited cost information, the Board recommends that the cost information be thoroughly reviewed by the Region and that the decision documents provide details regarding method of dredging, dewatering, sediment disposal, and long-term cap monitoring costs from the public record.

**Stakeholders/Effectiveness**

In comments provided to the Board, the PRPs argue against excavation/dredging remedies that "may alter physical and biological stressors to OU1, particularly those associated with habitat disturbance and fragmentation." The PRPs do not provide any site-specific information to indicate that marsh restoration at this site is particularly difficult and, in fact, earlier removal actions have excavated and restored
wetlands at the site already. The NCP preamble (55 FR 8721-22) indicates that the short-term effectiveness criterion evaluates the effects on human health and the environment during the construction and implementation phase. This criterion also should typically evaluate the reliability of the available mitigation measures in preventing or reducing the potential impacts (see e.g., OSWER Directive No. 9355.3-01, October 1988, Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA). The Board recommends that in its decision documents the Region explain how the preferred alternative is the approach that best represents the balance of the NCP’s nine remedy selection criteria to include an evaluation of the reliability of available mitigation measures.

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.

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