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

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OFFICE OF
LAND AND EMERGENCY
MANAGEMENT

MEMORANDUM

SUBJECT: National Remedy Review Board Recommendations for the Diamond Alkali OU1. Feasibility Study Scoping Meeting

FROM: Christine Poore, Chair, on behalf of the Board Review Team
National Remedy Review Board

TO: Pat Evangelista, Director
Superfund and Emergency Management Division (SEMD), Region 2

Larry Douchand, Director
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PURPOSE

The National Remedy Review Board's (NRRB's/Board's) Board Review Team for the Diamond Alkali Superfund Site has conducted a review of the remedial alternatives considered for Operable Unit (OU) 1 of the Diamond Alkali site in Newark, New Jersey. This memorandum documents the Board Review Team's advisory recommendations and advisory considerations.

CONTEXT FOR BOARD REVIEW

The U.S. Environmental Protection Agency (EPA) 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 purpose of the Board was to review proposed cleanup decisions to help evaluate whether they are consistent with current law, regulations, and Agency guidance.

In 2020 the Office of Superfund Remediation and Technology Innovation (OSRTI) re-envisioned headquarters/regional engagement throughout the pipeline with a focus on earlier engagement, including the Board's scope and role. The NRRB continues to focus on ensuring national consistency in remedy selection at selected sites. To this end the Board advises and evaluates ongoing, selected sites' regional technical work during the Feasibility Study Scoping stage for response decisions with a focus on overall site management/response strategy, evaluation and data necessary to support nationally consistent remedy selection, and the range of alternatives that should be considered.

The NRRB's intent is to provide support to the Regional Site Team in developing a robust conceptual site model, a comprehensive risk assessment, and a range of remedial alternatives while developing the Administrative Record (AR) to support remedy selection. The Board Review Team considers the information provided on the nature of the site; potential site risks;

regional, state, tribal community advisory group and potentially responsible party (PRP) positions. The review's overall goal is to ensure sound decision-making consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and Agency guidance.

Generally, the Board Review Team makes a set of recommendations and a set of advisory considerations to the appropriate Regional Division Director. The recommendations should identify technical and programmatic opportunities and limitations with a focus on early issue resolution. While the recommendations are expected to carry substantial weight, other important factors may influence the Region's implementation of Board recommendations. The Board Review Team's recommendations, while of considerable import, do not change the Agency's current delegations or alter the public's role in providing EPA with input on remedy selection.

BRIEF DESCRIPTION OF THE SITE

The Diamond Alkali Superfund Site includes the former manufacturing facility at 80-120 Lister Avenue in Newark, New Jersey, the Lower Passaic River Study Area, the Newark Bay Study Area, and the areal extent of contamination. The area surrounding the site is densely populated and heavily industrialized and the 80-120 Lister Avenue properties are zoned for commercial/industrial use.

Production of DDT and other chemical products at the site began in the 1940s. In the 1950s and 1960s, the Diamond Alkali Company owned and operated the facility, manufacturing agricultural chemicals, including "Agent Orange". A by-product of these manufacturing processes was 2,3,7,8-tetrachlorodibenzo-p-dioxin (dioxin). The site was listed on the National Priorities List (NPL) in 1984. Dioxin, pesticides, and other hazardous substances were found in the soil and groundwater at 80-120 Lister Avenue.

In 1987 EPA selected an interim containment remedy for the 80-120 Lister Avenue facility (Operable Unit (OU) 1) to address dioxin, semi-volatile and volatile compounds, herbicides, pesticides, polychlorinated biphenyls (PCBs), and metals. The interim remedy consisted of building decontamination and demolition, contaminated soil excavation, and consolidation of waste and debris in an on-site containment cell, capping, subsurface slurry walls, a flood wall, and a groundwater collection and treatment system. Construction of the remedy was completed in 2001.

The 1987 Record of Decision (ROD) stated that the EPA and New Jersey Department of Environmental Protection (NJDEP) consider the selected remedial alternative to be an interim remedy. The ROD also stated that there should be "a Feasibility Study every 24 months following the installation of the selected interim remedy to develop, screen, and assess remedial alternatives and to assess the performance of the selected remedy."[1] Throughout the 1987 ROD, it is insinuated that the selected remedy was considered interim, in part, because both NJDEP and EPA anticipated that treatment technologies would advance and/or offsite disposal facilities may become available in the future. It is the Board's understanding that Region 2 anticipates

[1] Record of Decision Remedial Alternative Selection for the Properties Located at 80 and 120 Lister Avenue, City of Newark, Essex County, New Jersey
https://semspub.epa.gov/work/02/83052.pdf

preparing a final Feasibility Study (FS) to conduct a comprehensive assessment of currently available technologies to support selection of a final remedial action for OU1.

SITE REVIEW

The Board Review for Diamond Alkali OU1 was held on June 9, 2021 via remote webinars. The meeting addressed site background, and discussions of the original 1987 ROD and potential remedial alternatives provided by the potentially responsible party (PRP), Occidental Chemical Corporation, and its affiliate, Glenn Springs Holdings, Inc. Input was provided to the Board Review Team by the Region, the State, Occidental Chemical Corporation/Glenn Springs Holdings, Inc, and the Passaic River Community Advisory Group.

During the meeting the Region summarized the remedial investigation conducted in the late 1980s and outlined the remedial action objectives (RAOs) and cleanup levels in the 1987 ROD. The meeting did not include a discussion of potential updates or clarifications of the 1987 ROD. As a result, the Board Review Team will not be providing recommendations clarifying the 1987 remedial decision in future decision documents.

The discussion was focused on the suite of remedial alternatives with a focus on ensuring all appropriate remedial technologies were included in the draft Remedy Evaluation Report. While a summary of the remedial alternatives was discussed, the draft Remedy Evaluation Report (RER), was not shared with the Board Review Team. Based on these factors the Team is unable, at this time, to provide specific policy-related recommendations and focused their review on providing technical recommendations on the suite of alternatives contained in the RER

It is the Board's understanding that, per the 1987 Interim ROD, the Region is evaluating the suite of alternatives in the RER with the intent of issuing a final ROD for OU1. As a result, the meeting focused on the suite of remedial alternatives and technological advances related to storage and treatment of site contaminants. Therefore, the recommendations similarly focus primarily on the suite of alternatives. The review did not include a discussion of additional considerations with regard to updating the 1987 ROD for consistency with policies and guidance that have been implemented since that time. Dependent upon the implementation of the recommendations outlined below and the robustness of the site information package for the next NRRB review, the Board Advisory Team may be positioned to provide feedback on policy-related topics at a later date, ideally during the detailed alternatives analysis meeting.

RECOMMENDATIONS

1. Suite of Alternatives

Per the 1990 Consent Decree the PRP is to submit a remedy evaluation to "…(2) develop, screen and assess the viability of implementing remedial alternatives more protective of human health and the environment, including those alternatives which are based purely on advances in technology and those which utilize more permanent solutions."[2] The PRP provided a draft revised RER, intended to be comparable to a Feasibility Study and to meet the stated requirement, to the Region. The RER included 11 alternatives including the current interim

[2] Consent Decree between OCC, Chemical Land Holdings, EPA and NJDEP, US District Court, November 19, 1990. https://www.nj.gov/dep/passaicadrec2/docs/oversight/MAXUS018141.pdf

remedy, excavation options, in-situ stabilization options, combinations of excavation and stabilization, in-situ chemical oxidation, in-situ bioremediation, and onsite incineration. The Region anticipated that the RER would undergo significant revision and therefore did not ask the Board to review the document but did provide a summary of the alternatives and evaluation of alternatives so Board feedback could be incorporated into the revision process.

Recommendations

a. In addition to the current remedial technologies, the Board recommends that the Region assess a wider selection of remedial technologies before conducting the detailed alternatives analysis. The Region may want to consider the Board's recommendations on remedial action objectives (RAOs) (Recommendation 4) when assessing remedial alternatives for source control and/or protection of groundwater. Below are a few recommended options for consideration that could be used alone or in combination to expand the suite of alternatives:
    i. Solidification Options
        1. The use of solidification technology may result in increasing the mobility of any of the ionizable pesticides present on the site by forming anions at higher pH environments due to the use of portland cement. As an alternative, the Region may consider evaluating in-situ carbon amendment processes which may decrease the mobility of many of the contaminants of concern (COCs) present on the site.
    ii. In-Situ Thermal Treatment
        1. Based on the information provided to the Board, the 1987 ROD considered excavation and on-site thermal treatment, namely a mobile incinerator to burn the excavated material. Since that time there have been advancements in-situ thermal treatment technology that warrant its screening and evaluation at the Diamond Alkali Site. In-situ thermal treatment (ISTT) technologies have been applied at sites around the country addressing a wide variety of contaminants including semivolatile organic contaminants (SVOCs) such as polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), pesticides, herbicides, pentachlorophenol (PCP), dioxins, and furans.

           Generally, ISTT uses heat to remove contamination from environmental media. There are three basic elements in an ISTT process: (1) application of heat to contaminated media; (2) collection of contaminants through vapor and/or multi-phase extraction; and (3) treatment of collected vapors, steam, and water. ISTT involves simultaneous application of heat and vacuum to subsurface media, including both soil and bedrock. Heating can be accomplished through a variety of mechanisms, a few of which are described in greater detail below. The organic compounds are volatilized from the media and recovered through a network of vapor extraction wells and/or multi-phase extraction wells. The contaminants in the vapor, steam, and water are then collected and can be treated through a variety of secondary treatment trains. Onsite treatment options, also described below, can consist of granulated activated carbon treatment, treatment via a full-scale groundwater treatment system, destruction via a thermal oxidizer, or by a combination of technologies.

In addition to the information provided below, Eva Davis in EPA's Office of Research and Development (ORD) is an expert in ISTT and may be able to provide additional support should the Region pursue consideration of in-situ thermal technologies.

(i) The three primary in-situ thermal treatment technologies consist of thermal conductive heating (TCH), electrical resistance heating (ERH) and steam enhanced extraction (SEE). Although TCH may be the most appropriate thermal treatment technology for the Diamond Alkali Site due to the high boiling point of many Site contaminants, thermal treatment technologies can be combined or combined with other in situ remedial technologies at complex sites. Therefore, should the Region consider ISTT, the Board recommends that the Region evaluate each of the three primary thermal treatment technologies.

TCH utilizes conductive heating elements to directly transfer heat to environmental media to volatilize, degrade, or destroy contaminants. TCH can achieve temperatures sufficient to volatilize VOCs and chlorinated VOCs (CVOCs) as well as contaminants with high boiling points, including PCBs, PAHs, pesticides, and dioxins. TCH can be implemented in sediment, soil and bedrock environments and can also be performed ex situ. Additionally, heating can be targeted at specific subsurface zones rather than heating the entire matrix and can treat contamination in both the saturated and vadose zones.

ERH consists of applying electrical energy to the environmental media using electrodes, which heats the matrix to the boiling point of water and evaporating or steam-stripping contaminants. ERH is typically most effective at treating contaminants with lower boiling points, such as VOCs and CVOCs.

SEE consists of injecting steam into the environmental matrix to heat and mobilize contamination for extraction. SEE is most effective in formations where groundwater flow rates are too high for TCH and ERH to be effective and to mobilize non-aqueous phase liquids (NAPLs) to extraction wells. This technology has been successfully applied at the Velsicol Superfund site in St. Louis, MI to address NAPL. The in-place thermal treatment system operated for 35 days and over 180,000 pounds of contaminants were removed from soil and groundwater[3][4]. Velsicol is similar to Diamond Alkali in that it borders a river and also underwent NRRB review[5].

[3] https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.Stayup&id=0502194#Stayup
[4] Velsicol Superfund Site NAPL/DBCP Area 2 Phase 1 Diminishing Returns Demonstration (https://semspub.epa.gov/work/05/960574.pdf)
[5] National Remedy Review Board Recommendations for the Velsicol Chemical Corporation/Pine River Superfund Site (https://semspub.epa.gov/work/05/633342.pdf)

(ii) Captured vapors from each of the ISTT technologies are collected through a network of vapor and/or multiphase extraction wells and then treated. There are a variety of treatment systems that can be used to address captured vapors, each with site-specific factors to consider. For example, contaminant vapors may be destroyed via a thermal oxidizer, adsorbed onto granular activated carbon (GAC) which is then sent offsite for disposal, or broken down through biofiltration. Some contaminants and treatment systems generate additional wastewater streams that also require treatment, typically using standard groundwater treatment technologies such as air stripping or liquid GAC (LGAC). Please refer to the Spectron, Inc. Superfund Site in Elkton, Maryland for an example of a complex treatment system necessitated by Site conditions and contaminant suite[6]. Vapor treatments that require filtration material to be disposed of offsite will be subject to the offsite rule and Land Disposal Restrictions (LDRs) (described below). Should the Region choose to assess these technologies, it is recommended that an analysis be conducted to ensure waste streams can be properly disposed.

2. Screening of Alternatives

The RER appears to serve a dual purpose, first to satisfy the 1987 Interim ROD's requirement for periodic reevaluation of the remedy and consideration of new technologies and, second, to support selection of a final remedy for OU1 Source Control. To the extent that the RER is to serve as a Feasibility Study to screen alternatives in support of a final ROD, the Board offers the following recommendations:

Recommendations

a. The Board recommends that the Region review the alternatives under consideration for consistency. Specifically, in the information presented to the Board, some alternatives were considered sitewide, while others also included options for "limited" application. The region should clarify their rationale for why some alternatives had sitewide and limited alternatives and others did not, as well as if the "limited" options are addressing the same footprint/volume of material.
b. The Board recommends that the Region ensure that the rationale for screening alternatives is consistent. For instance, Alternatives 7 and 8 (excavation, stabilization and off-site disposal) were screened out based on unavailability of domestic facilities to receive treated wastes, but Alternatives 2 and 3 (excavation and off-site disposal without pre-treatment) would likely face the same challenges with disposal facility acceptance, yet those were carried through for detailed analysis. The Board also notes that, if some alternatives are considering export of excavated materials, wastes containing greater than 2 mg/kg PCBs would be prohibited from export to Canada.
c. The Board recommends that alternatives that involve excavation and treatment of Resource Conservation and Recovery Act (RCRA) hazardous wastes be evaluated for treatment technologies' ability to meet the substantive requirements of potential applicable or relevant and appropriate regulations (ARARs) such as the Land Disposal Restrictions (LDRs) (e.g., for contaminated soil the standard is 10 times the Universal

[6] https://www.epa.gov/superfund/spectron

Treatment Standards, and for debris the LDR standards provide specific technologies for compliance).

It should be noted that LDR requirements for contaminated media should be met for all underlying hazardous constituent levels, not just dioxin. In general, soils contaminated with listed hazardous waste such as those present at Diamond Alkali OU1, are subject to LDRs. Additionally, the Board did not assess if contaminated media was previously placed on land within the site but outside of the area of contamination, which may cause it to be subject to LDRs. On the other hand, alternatives that do not include excavation and placement of the materials may not trigger the LDRs but would still have to be shown to ensure protectiveness of human health and the environment.

In addition to working with the Office of Regional Council, the site team can refer to the following references that are also readily available:

- Fact Sheet on the Management of Dioxin Contaminated Soils: https://www.epa.gov/superfund/remedy-selection-superfund-dioxin-sites
- Superfund LDR Guide #5 entitled "Determining When Land Disposal Restrictions (LDRs) Are Applicable to CERCLA Response Actions": https://semspub.epa.gov/work/HQ/174527.pdf
- Land Disposal Restrictions: Summary of Requirements (August 2001): https://www.epa.gov/sites/default/files/documents/ldisressumm-rpt.pdf

d. Based on the 1987 interim ROD, the remedy selected at that time did not comply with LDRs based on CERCLA 121(d)(4) which states that the President may select a remedial action "that does not attain a level or standard of control at least equivalent to a legally applicable or relevant and appropriate standard, requirement, criteria, or limitation…if…(a) compliance with such a requirement at that facility will result in greater risk to human health and the environment than alternative options." The Board notes that an interim waiver may have been appropriate for the interim ROD and recommends any future waivers be appropriately justified and supported by an adequate administrative record. The final decision would need to meet (or waive, with an adequate justification based on the administrative record) ARARs.

3. Waste Management Area/Point of Compliance

The Board was provided with general background for the site, including a summary of the 1987 interim remedy and associated site figures. The Board noted that although the site soils were subject to contamination, there was not a clearly identified landfill or waste management area onsite prior construction of the selected interim remedy. Additionally, the Board noted that the Remedy Evaluation Work Plan figure identifies the approximate location of contaminated media/ wastes with dioxin. Based on this figure, it appears that the area with dioxin media/waste is a limited area within the facility boundary, while the slurry wall was constructed adjacent to the property boundary. Although the waste management area and point of compliance designation were not the focus of the discussion, they are often integral to the remedy selection process.

Recommendations

a. Waste Management Area Designation
    i. Based on the information provided to the Board, the basis for the waste management area (WMA) designation is unclear. In general, WMAs are associated

with landfill wastes[7] or contain waste-like material that is treated as a waste requiring long-term management in compliance with associated ARARs. This approach is distinct from generalized low-concentration contamination management. The Board has previously raised concerns on the appropriateness of considering the facility boundary as the boundary of a waste management area (please see Recommendation 1 of the NRRB Recommendations for the Atlantic Wood Industries Site[8]). Based on the information provided to the Board, the Diamond Alkali site raises a similar concern about the use of the slurry wall/facility boundary in defining the waste management area. Should the Region select an onsite containment remedy, the Board recommends that the decision documents clearly explain the basis for the waste management area and its delineation, consistent with the NCP and EPA guidance.

b. Point of Compliance
    i. Based on the information provided to the Board, it is unclear as to whether the point of compliance used to address groundwater is based on the facility boundary, the edge of the waste management area, or if these represent identical footprints. The final NCP preamble states "EPA believes that [ground water] remediation levels should generally be attained throughout the contaminated plume, or at and beyond the edge of the waste management area, when the waste is left in place."[9] Should the Region select an onsite containment remedy, the Board recommends that the decision documents clearly explain the basis for determining the point of compliance consistent with this preamble language and other existing EPA guidance (e.g., 2009 Summary of Key Existing EPA CERCLA Policies for Groundwater Restoration[10]).

4. RAOs

As noted above, the RER appears to serve a dual purpose, to satisfy the 1987 Interim ROD's requirement for periodic re-evaluation of the remedy and review of new technologies, as well as supporting the selection of a final remedy for OU1. Based on the information provided to the Board it did not appear that the 1985 FS RAOs would be updated. Generally, RAOs provide a general description of what the cleanup is intended to accomplish[11]. In some cases, interim RAOs may differ from final RAOs.

Recommendation

a. Based on the information provided to the Board, the RAOs that support the 1987 ROD are documented in the 1985 Feasibility Study (FS). The Board recommends that the Region document RAOs in the proposed plan and future decision document (i.e., ROD).
b. The Board recommends that the Region evaluate the need to clarify, update, or replace the current RAOs or cleanup levels (CULs). For example, soil RAO 2, related to dioxin emissions associated with existing buildings may not be applicable to a final decision as

[7] Presumptive Response Strategy and Ex-Situ Treatment technologies for Contaminated Ground Water at CERCLA Sites (Directive 9283.1-12, October 1996) Page 18
[8] https://semspub.epa.gov/work/03/900156.pdf
[9] 55 FR 8753
[10] https://semspub.epa.gov/work/HQ/175202.pdf
[11] A Guide to Preparing Superfund Proposed Plans, Records of Decisions, and Other Remedy Selection Decision Documents, July 1999. https://www.epa.gov/sites/default/files/2015-02/documents/rod_guidance.pdf

the buildings have been razed. Similarly, while the EPA always strives to implement remedies without significant risk to site workers and off-site population, this intention does not require inclusion as an RAO. Additionally, the soil RAO related to risk focuses on direct contact exposure. The Region may want to consider if an RAO related to contaminant migration would be appropriate for this OU.

With regards to the groundwater RAOs, it is the Board's understanding that they are specific to the fill water and are not applicable to other aquifers, as the other aquifers will be addressed under a separate OU. If this is accurate, the RAO should be equally specific, so this scope of the RAO is clear. Additionally, the basis for the groundwater RAO is unclear. The site information package stated that the cleanup level is based on drinking water, but the 1987 ROD does not include mention of the federal maximum contaminant levels (MCLs) in the ARAR section. As a result, the Board recommends the Region assess the need to update groundwater cleanup levels. Should the Region pursue an onsite containment remedy, the groundwater RAO(s) should also be assessed with regard to the waste management area/point of compliance discussion above.

5. Climate Change

As noted on EPA's Climate Change website[12], understanding and addressing climate change is critical to EPA's mission to protect human health and the environment. With regards to the Superfund program, it's important to consider the impact of severe weather events, potential flooding, changes in rain patterns and temperature changes into remedy selection and design. It may be necessary to incorporate elements of climate resilience, especially for sites subject to extreme weather events and/or flooding, such as Diamond Alkali.

Recommendation

a. The Board recommends that the Region, when evaluating remedial alternatives, consider the potential impacts of climate change that may negatively affect the protectiveness of alternatives. The June 2014 OLEM Climate Change Adaptation Implementation Plan[13] (Implementation Plan) discusses potential program vulnerabilities to climate change. Per Table 1 in the Implementation Plan, such vulnerabilities may include: design and placement of storage facilities to accommodate climate change impacts, changing climate conditions may impact continued remedy effectiveness, current assumptions regarding protectiveness of remediation and containment methods may not reflect changing climate impacts, or conducting periodic evaluations of implemented remedies, including changes to frequency and intensity that may impact remedy effectiveness. Examples of vulnerabilities that may be applicable to Diamond Alkali include: design and placement of RCRA TSD facilities may need to change to accommodate climate change impacts, climate change conditions may impact continued remedy effectiveness, and remediation and containment strategies and materials used in construction may need to be strengthened to reflect changing climate conditions.

6. Environmental Justice

[12] https://www.epa.gov/climate-change
[13] https://www.epa.gov/sites/production/files/2018-08/documents/oswer-climate-change-adaptation-plan.pdf

Based on the information provided to the Board, demographic indicators from the EJSCREEN one-mile buffer screening indicate that there are people of color, low-income populations, and linguistically isolated populations in the immediate project area. These vulnerable communities may be disproportionately impacted by the Diamond Alkali Site.

Recommendation

a. The Board recommends the Region address the potentially disproportionate impact of site-related contamination and potential environmental justice (EJ) concerns related to cleanup approaches. In particular, the policies articulated in section 1 of Executive Order 13990 (e.g., using science to improve public health, protect the environment, ensure access to clean water, consideration of impacts on EJ and low income communities) and public statements made by the Administrator since the issuance of that Order, as well as long-standing Agency EJ guidance, offer a framework that can inform policy considerations in evaluating alternatives for limiting exposure to highly toxic/carcinogenic and mobile constituents of concern (radionuclides). Given the evolving priorities related to environmental justice (EJ), the Board recommends the site team engage with Region 2's designated EJ coordinator and OSRTI's EJ coordinator, currently Lavar Thomas, to address potential EJ concerns.

ADVISORY CONSIDERATIONS

Advisory considerations are Board Review Team suggestions that are meant to support the Regional Site Team in moving forward, but do not necessarily rise to the level of recommendations. Please take these comments under consideration as the RER is reviewed and finalized.

1. Lessons Learned

There are a number of examples of both dioxin treatment and thermal treatments that have been used at other sites that may provide lessons that may inform the suite of alternatives for the Diamond Alkali site. Three examples are provided below.

a. The cleanup of the dioxin contamination at Danang Airport in Vietnam may be examined to determine if treatment approaches used there may be applicable to the Diamond Alkali site. The remediation process at the Danang Airport involved using both thermal treatment (for higher concentration dioxin-contaminated soils) and containment (for lower concentration dioxin-contaminated soils). For additional information, please see the Fact Sheet on Danang Airport Dioxin Remediation provided under the following link: https://www.usaid.gov/vietnam/documents/fact-sheet-dioxin-remediation-danang-airport-and-bien-hoa-airbase-area

b. In June 2010 the Hawaii Department of Health (HDOH) published a memo that provides guidance and remedial options for dioxin contaminated sites. The memo can be found at: https://health.hawaii.gov/heer/files/2019/11/ealhdohdioxinsoilactionlevelsjune2010.pdf

c. ITSD technology was applied at the Hex pit of the Rocky Mountain Arsenal site. Though the remedial approach was ultimately amended, there were many lessons learned that may apply to any site that utilizes this technology. Additional information can be found in a case study of the approach: https://frtr.gov/costperformance/pdf/rma_hex_pit_case_study.pdf

d. As noted earlier, the May 15, 2007 Board memorandum for the Atlantic Wood site contains a recommendation that seems relevant to the waste management area

recommendation above. The memo can be found at: https://semspub.epa.gov/work/03/900156.pdf

e. As noted earlier, in-situ thermal treatment has been applied at the Spectron Superfund site. The treatment system at the Spectron, Inc. Site removed approximately 15,700 pounds of VOCs in 9 months. The ROD Amendment documenting the selection of the in-situ thermal treatment can be found at: https://semspub.epa.gov/work/03/2141771.pdf

2. Early Engagement

Given the circumstances of the review, the Board recommends the Region engage early and often with the Headquarters Region 2 Remedy Coordinator, currently Sun Yi, to address and identify potential policy concerns and opportunities for clarifying the 1987 ROD.

CONCLUSION

The Board Review Team commends the Region's collaborative efforts in working with the State and site stakeholders. We would also like to thank the Regional Site Team for the thought and effort that went into preparation of the Board package and presentations.

Per the NRRB Charter, approximately six weeks after receipt of these recommendations, the Board expects the Regional Division Director to respond to the OSRTI Office Director in writing to address implementation of each Board recommendation and those advisory considerations that the Region is not adopting. The OSRTI Office Director will then discuss the response with the Regional Division Director within approximately two weeks of receiving the Region's written response level. Typically, before the Region issues the proposed plan for public comment, the Region includes the recommendations memo and regional response memo in the site's AR. Once the Board recommendations and Regional responses are made a part of the AR, they will be posted to the NRRB website (https://www.epa.gov/superfund/national-remedy-review-board-nrrb).

Thank you for your support and the support of your managers and staff in preparing for this review. The Board looks forward to working with the Regional Site Team during the Detailed Alternatives Analysis meeting. Should you have any questions, please contact me at poore.christine@epa.gov or call me at 703-603-9022. Thank you for the opportunity to engage on the Diamond Alkali Site.

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