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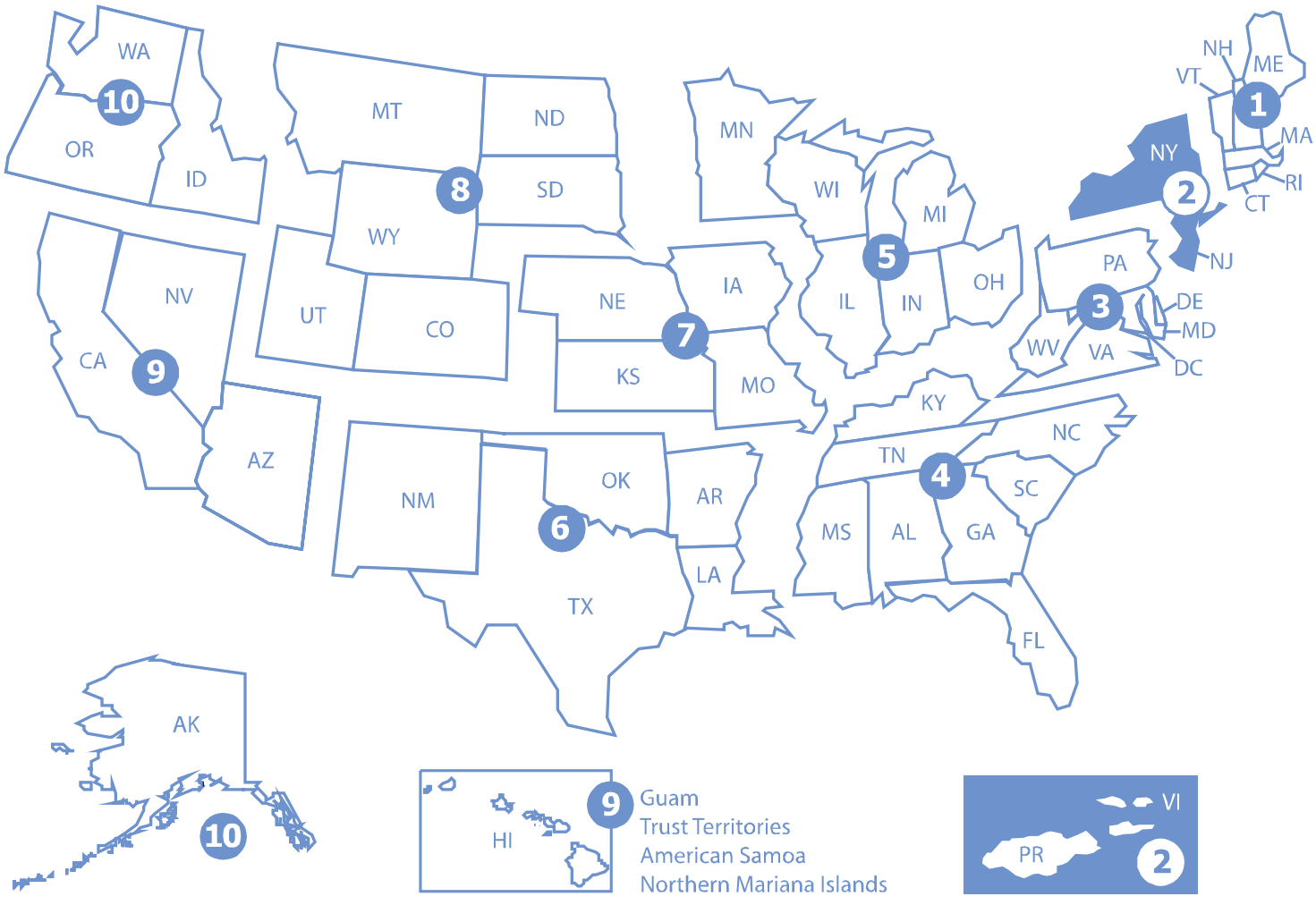
Office of Land and Emergency Management

Support Document for the Revised National Priorities List Final Rule – Ochoa Fertilizer Co.



Support Document for the Revised National Priorities List Final Rule

Ochoa Fertilizer Co.

September 2022

Site Assessment and Remedy Decisions Branch
Office of Superfund Remediation and Technology Innovation
Office of Land and Emergency Management
U.S. Environmental Protection Agency
Washington, DC 20460

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Executive Summary

Section 105(a)(8)(B) of CERCLA, as amended by SARA, requires that the EPA prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. An original National Priorities List (NPL) was promulgated on September 8, 1983 (48 FR 40658). CERCLA requires that EPA update the list at least annually.

This document provides responses to public comments received on Ochoa Fertilizer Co. site, proposed on September 9, 2021 (86 FR 50515). This site is being added to the NPL based on an evaluation under EPA's Hazard Ranking System (HRS) in a final rule published in the *Federal Register* in September 2022.

Introduction

This document explains the rationale for adding the Ochoa Fertilizer Co. site in Guánica, Puerto Rico to the National Priorities List (NPL) of uncontrolled hazardous waste sites and provides responses to public comments received on this site listing proposal. The EPA proposed this site to the NPL on September 9, 2021 (86 FR 50515). This site is being added to the NPL based on an evaluation under the Hazard Ranking System (HRS) in a final rule published in the *Federal Register* in September 2022.

Background of the NPL

In 1980, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Sections 9601 *et seq*. in response to the dangers of uncontrolled hazardous waste sites. CERCLA was amended on October 17, 1986, by the Superfund Amendments and Reauthorization Act (SARA), Public Law No. 99-499, stat., 1613 *et seq.* To implement CERCLA, EPA promulgated the revised National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300, on July 16, 1982 (47 FR 31180), pursuant to CERCLA Section 105 and Executive Order 12316 (46 FR 42237, August 20, 1981). The NCP, further revised by EPA on September 16, 1985 (50 FR 37624) and November 20, 1985 (50 FR 47912), sets forth guidelines and procedures needed to respond under CERCLA to releases and threatened releases of hazardous substances, pollutants, or contaminants. On March 8, 1990 (55 FR 8666), EPA further revised the NCP in response to SARA.

Section 105(a)(8)(A) of CERCLA, as amended by SARA, requires that the NCP include:

> criteria for determining priorities among releases or threatened releases throughout the United States for the purpose of taking remedial action and, to the extent practicable, taking into account the potential urgency of such action, for the purpose of taking removal action.

Removal action involves cleanup or other actions that are taken in response to emergency conditions or on a short-term or temporary basis (CERCLA Section 101). Remedial action is generally long-term in nature and involves response actions that are consistent with a permanent remedy for a release (CERCLA Section 101). Criteria for placing sites on the NPL, which makes them eligible for remedial actions financed by the Trust Fund established under CERCLA, were included in the HRS. EPA promulgated the HRS as Appendix A of the NCP (47 FR 31219, July 16, 1982). On December 14, 1990 (56 FR 51532), EPA promulgated revisions to the HRS in response to SARA, and established the effective date for the HRS revisions as March 15, 1991. On January 9, 2017, EPA promulgated a further revision to the HRS that added a component for evaluating the threats posed by the intrusion of subsurface contamination into regularly occupied structures. These changes are consistent with, and comply with, the statutory requirements of SARA.

Section 105(a)(8)(B) of CERCLA, as amended, requires that the statutory criteria provided by the HRS be used to prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. The list, which is Appendix B of the NCP, is the NPL.

An original NPL of 406 sites was promulgated on September 8, 1983 (48 FR 40658). At that time, an HRS score of 28.5 was established as the cutoff for listing because it yielded an initial NPL of at least 400 sites, as suggested by CERCLA. The NPL has been expanded several times since then, most recently on March 16, 2022 (87 FR 14805). The Agency also has published a number of proposed rulemakings to add sites to the NPL. The most recent proposal was on March 18, 2022 (87 FR 15439).

Development of the NPL

The primary purpose of the NPL is stated in the legislative history of CERCLA (Report of the Committee on Environment and Public Works, Senate Report No. 96-848, 96th Cong., 2d Sess. 60 [1980]).

> The priority list serves primarily informational purposes, identifying for the States and the public those facilities and sites or other releases which appear to warrant remedial actions. Inclusion of a facility or site on the list does not in itself reflect a judgment of the activities of its owner or operator, it does not require those persons to undertake any action, nor does it assign liability to any person. Subsequent government actions will be necessary in order to do so, and these actions will be attended by all appropriate procedural safeguards.

The NPL, therefore, is primarily an informational and management tool. The identification of a site for the NPL is intended primarily to guide EPA in determining which sites warrant further investigation to assess the nature and extent of the human health and environmental risks associated with the site and to determine what CERCLA-financed remedial action(s), if any, may be appropriate. The NPL also serves to notify the public of sites EPA believes warrant further investigation. Finally, listing a site may, to the extent potentially responsible parties are identifiable at the time of listing, serve as notice to such parties that the Agency may initiate CERCLA-financed remedial action.

CERCLA Section 105(a)(8)(B) directs EPA to list priority sites among the known releases or threatened release of hazardous substances, pollutants, or contaminants, and Section 105(a)(8)(A) directs EPA to consider certain enumerated and other appropriate factors in doing so. Thus, as a matter of policy, EPA has the discretion not to use CERCLA to respond to certain types of releases. Where other authorities exist, placing sites on the NPL for possible remedial action under CERCLA may not be appropriate. Therefore, EPA has chosen not to place certain types of sites on the NPL even though CERCLA does not exclude such action. If, however, the Agency later determines that sites not listed as a matter of policy are not being properly responded to, the Agency may consider placing them on the NPL.

Hazard Ranking System

The HRS is the principle mechanism EPA uses to place uncontrolled waste sites on the NPL. It is a numerically based screening system that uses information from initial, limited investigations -- the preliminary assessment and site inspection -- to assess the relative potential of sites to pose a threat to human health or the environment. HRS scores, however, do not determine the sequence in which EPA funds remedial response actions, because the information collected to develop HRS scores is not sufficient in itself to determine either the extent of contamination or the appropriate response for a particular site. Moreover, the sites with the highest scores do not necessarily come to the Agency's attention first, so that addressing sites strictly on the basis of ranking would in some cases require stopping work at sites where it was already underway. Thus, EPA relies on further, more detailed studies in the remedial investigation/feasibility study that typically follows listing.

The HRS uses a structured value analysis approach to scoring sites. This approach assigns numerical values to factors that relate to or indicate risk, based on conditions at the site. The factors are grouped into three categories. Each category has a maximum value. The categories are:

- likelihood that a site has released or has the potential to release hazardous substances into the environment;
- characteristics of the waste (e.g., toxicity and waste quantity); and
- targets (e.g., people or sensitive environments) affected by the release.

Under the HRS, four pathways can be scored for one or more components and threats as identified below:

- Ground Water Migration (S_{gw})
  - population

- Surface Water Migration (S_{sw})
  The following threats are evaluated for two separate migration components, overland/flood migration and ground water to surface water.
  - drinking water
  - human food chain
  - sensitive environments

- Soil Exposure and Subsurface Intrusion (S_{sessi})
  - Soil Exposure Component:
    - resident population
    - nearby population
  - Subsurface Intrusion Component
    - population

- Air Migration (S_a)
  - population

After scores are calculated for one or more pathways according to prescribed guidelines, they are combined using the following root-mean-square equation to determine the overall site score (S), which ranges from 0 to 100**:**

$$S = \sqrt{\frac{S_{gw}^2 + S_{sw}^2 + S_{sessi}^2 + S_a^2}{4}}$$

If all pathway scores are low, the HRS score is low. However, the HRS score can be relatively high even if only one pathway score is high. This is an important requirement for HRS scoring because some extremely dangerous sites pose threats through only one pathway. For example, buried leaking drums of hazardous substances can contaminate drinking water wells, but -- if the drums are buried deep enough and the substances not very volatile -- not surface water or air.

Other Mechanisms for Listing

There are two mechanisms other than the HRS by which sites can be placed on the NPL. The first of these mechanisms, authorized by the NCP at 40 CFR 300.425(c)(2), allows each State and Territory to designate one site as its highest priority regardless of score. The last mechanism, authorized by the NCP at 40 CFR 300.425(c)(3), allows listing a site if it meets the following three requirements:

- Agency for Toxic Substances and Disease Registry (ATSDR) of the U.S. Public Health Service has issued a health advisory that recommends dissociation of individuals from the release;
- EPA determines the site poses a significant threat to public health; and
- EPA anticipates it will be more cost-effective to use its remedial authority than to use its emergency removal authority to respond to the site.

Organization of this Document

The following section contains EPA responses to site-specific public comments received on the proposal of the Ochoa Fertilizer Co. site on September 9, 2021 (86 FR 50515). The site discussion begins with a list of commenters, followed by a site description, a summary of comments, and Agency responses to each comment. A concluding statement indicates the effect of the comments on the HRS score for the site.

Glossary

The following acronyms and abbreviations are used throughout the text:

Agency	U.S. Environmental Protection Agency
AOC	Area of Observed Contamination
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. Sections 9601 *et seq*., also known as Superfund
CFR	Code of Federal Regulations
CLP	EPA Contract Laboratory Program
CNC	Caribe Nitrogen Corporation
CRQL	Contract-required quantitation limit
DNER	Department of Natural and Environmental Resources
ENSR	Environmental Consulting Inc.
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Administration
FR	Federal Register
FWS	Fish and Wildlife Service
FWS-CES	Fish and Wildlife Service Caribbean Ecological Services
Grace	W.R. Grace & Co. -Conn.
HRS	Hazard Ranking System, Appendix A of the NCP
HRS score	Overall site score calculated using the Hazard Ranking System; ranges from 0 to 100
µg/kg	Microgram per kilogram
NPL	National Priorities List
OLEM	EPA Office of Land and Emergency Management
OSWER	EPA's Office of Solid Waste and Emergency Response; now called Office of Land and Emergency Management
PA	Preliminary Assessment
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PPE	Probable Point of Entry
PRASA	Puerto Rico Aqueduct and Sewer Authority
PRP	Potentially Responsible Party
PREPA	Puerto Rico Electrical Power Authority
PREQB	Puerto Rico Environmental Quality Board
PRIDCO	Puerto Rico Industrial Development Company

RCRA	Resource Conservation and Recovery Act
RI	Remedial investigation
RI/FS	Remedial investigation/feasibility study
ROWs	Right-of-ways
RSL	Regional Screening Level
SQL	Sample Quantitation Limit
SVOCs	Semi-volatile organic compounds
TDL	Target Distance Limit
TOC	Total Organic Carbon
UNESCO	United Nations Educational, Scientific and Cultural Organization
USGS	United States Geological Survey
VOC	Volatile Organic Compound
WESTON	Weston Solutions, Inc.
WWTP	Wastewater treatment plants

1. List of Commenters and Correspondence

EPA-HQ-OLEM-2021-0463-0003	Correspondence, dated February 8, 2021, from Rafael A. Machargo Maldonado, Secretary, Government of Puerto Rico, Department of Natural and Environmental Resources.
EPA-HQ-OLEM-2021-0463-0005	Comment with attached exhibits, submitted November 8, 2021, by Sive, Paget & Riesel P.C. on behalf of Guánica-Caribe Land Development Corporation.
EPA-HQ-OLEM-2021-0463-0006	Comment, submitted November 8, 2021, by Sophia Rivas.

2. Site Description

The Ochoa Fertilizer Co. site (Site) for HRS purposes includes one contaminated soil source, containing semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and metals, at and in the vicinity of a former fertilizer manufacturing facility located at State Road No. 333/Carretera Caña Gorda (PR-333), and PCB contaminated sediments in Guánica Bay, located in Guánica, Puerto Rico. The soil contamination is also scored as an HRS area of observed contamination (AOC).

The former fertilizer manufacturing facility includes, but is not limited to, two lots totaling approximately 125 acres that are bisected by PR-333: an approximately 112-acre eastern lot and a western lot consisting of approximately 13 waterfront acres (the western lot is located just southwest of the eastern lot). Fertilizer manufacturing operations began on the 13-acre western lot in 1950; the eastern lot at that time was undeveloped. From approximately 1955-1959, González Chemical Industries, Inc. (later named Caribe Nitrogen Corporation [CNC]) began manufacturing ammonia, anhydrous ammonium, ammonium sulfate, and sulfuric acid on the 112-acre eastern lot. A pier in Guánica Bay was used to unload cargo, including sulfur that was liquefied (i.e., burned) within a pit on the western lot and conveyed via pipelines to the sulfuric acid plant on the eastern lot. CNC ceased operations sometime between 1968 and 1970. The western lot continued to be used for manufacturing and storage operations. Facility equipment associated with the original manufacturing plants (ammonium and sulfuric acid plants) located on the 112-acre eastern lot were dismantled and discarded in the early 1990s. During a June 1998 reconnaissance of the western lot by the Puerto Rico Environmental Quality Board (PREQB), two granaries were operating on the property, one in the area previously occupied by the former ammonium sulfate warehouse. Information obtained from the current operator of the western lot indicates that it was used for the production of animal feedstock and is currently used for the mixing of granular and soluble grains to produce fertilizer. In 1989, approximately one acre of the eastern lot was donated to Puerto Rico Electric Power Authority (PREPA); this land is now utilized by PREPA for access to and operation of a substation.

Stormwater on the eastern lot was captured by a drainage ditch, which surrounded the manufacturing plant and was used to capture effluent discharge from the carbon settling ponds and stormwater from the operations area. Historically, runoff from the property would flow across PR-333, flood the parking lot to the west, and be directed via open channel (i.e., drainage ditch) into the bay at its northeastern corner; a segment of this drainage ditch passed through residential backyards west of the parking lot. To mitigate the flooding in the parking lot and residential community west of the property, improvements were made to the stormwater collection system and a stormwater pumping station was constructed near the bay. Stormwater is now captured in a series of storm drains, culverts, and ditches in the waterfront community; directed to holding tanks at the pumping station; and discharged without treatment to the northeastern corner of the bay via an outfall pipe. The ditch in the backyards of residential properties along Calle José Nazario still exists and functions as part of the stormwater collection system; however, the final segment of the ditch that discharged directly to the bay was backfilled after being

replaced by the holding tanks and pumping station discharge pipes. Based on observations made by Puerto Rico Environmental Quality Board (PREQB) in 1998 and by EPA in 2019, with the exception of the stormwater improvements, runoff from the eastern lot continues to follow a similar drainage path toward the bay, including stormwater overflow across PR-333 and the gravel parking lot.

In 2019, the EPA completed soil sampling at the Site. Sample results document a contaminated soil source consisting of SVOCs, PCBs, and metals on the eastern lot and extending west beyond the lot boundary into public rights-of-way (ROWs), parking areas, and residential properties. Pesticides aldrin and dieldrin were also detected in soil but not scored for HRS purposes.

In 2019, sediment samples were collected from locations in the vicinity of the Site that included Guánica Bay, Río Loco, unnamed tributaries that feed Río Loco, and a municipal storm drain and spring-fed channel. Sample results document an observed release by chemical analysis of PCBs in the form of Aroclor-1260 in sediment at one location within Guánica Bay.

The 2019 soil sample results documented an AOC at the Site, delineated by sampling locations exhibiting contamination within the top 2 feet of soil meeting HRS observed contamination criteria. The AOC extends from the eastern lot to the west, beyond the border of the former facility on the eastern lost, and into public ROWs, parking areas, and residential properties. Private, occupied residential properties that are within 200 feet also cover a portion of the AOC. Based on observations made during the 2019 sampling activities, consultation with the FWS, and review of available aerial imagery, the vacant land of the former facility on the eastern lot has been naturally reforested. Currently, the AOC is densely vegetated and overgrown with the same plant species as the Guánica State Forest; the reforestation of the property is a natural extension of the forest habitat and there are no impediments to the free range of movement of animal species from Guánica State Forest onto the AOC at the eastern lot. Consultation with the Fish and Wildlife Service Caribbean Ecological Services (FWS-CES) identified that the eastern lot is suitable habitat for the Puerto Rican nightjar and another Federal-designated endangered species, the Puerto Rican boa (*Epicrates inornatus*), and that both species are likely to occur on the naturally reforested land of the eastern lot. Further, FWS states that the following Federal-designated endangered and threatened plant species, respectively, are likely to be found at the eastern lot based on the natural reforestation extending from the adjacent state forest onto the property and seed dispersion by birds: *Eugenia woodburyana* (no common name), and *Varronia rupicola* (no common name).

For HRS scoring purposes, targets evaluated at the Site for the HRS surface water migration pathway include a fishery and habitat known to be used by the Federal-designated threatened West Indian Manatee in Guánica Bay. Targets evaluated for the HRS soil exposure component are at least one documented resident individual living on a property within the AOC and within 200 feet of contamination subject to Level II actual contamination, one worker for the eastern lot who performs inspection and maintenance of the asbestos abatement areas, and five Federal-designated endangered or threatened species (the yellow-shouldered blackbird, Puerto Rican nightjar, Puerto Rican boa, *Eugenia woodburyana,* and *Varronia rupicola*) that are inhabitants of the Guánica State Forest.

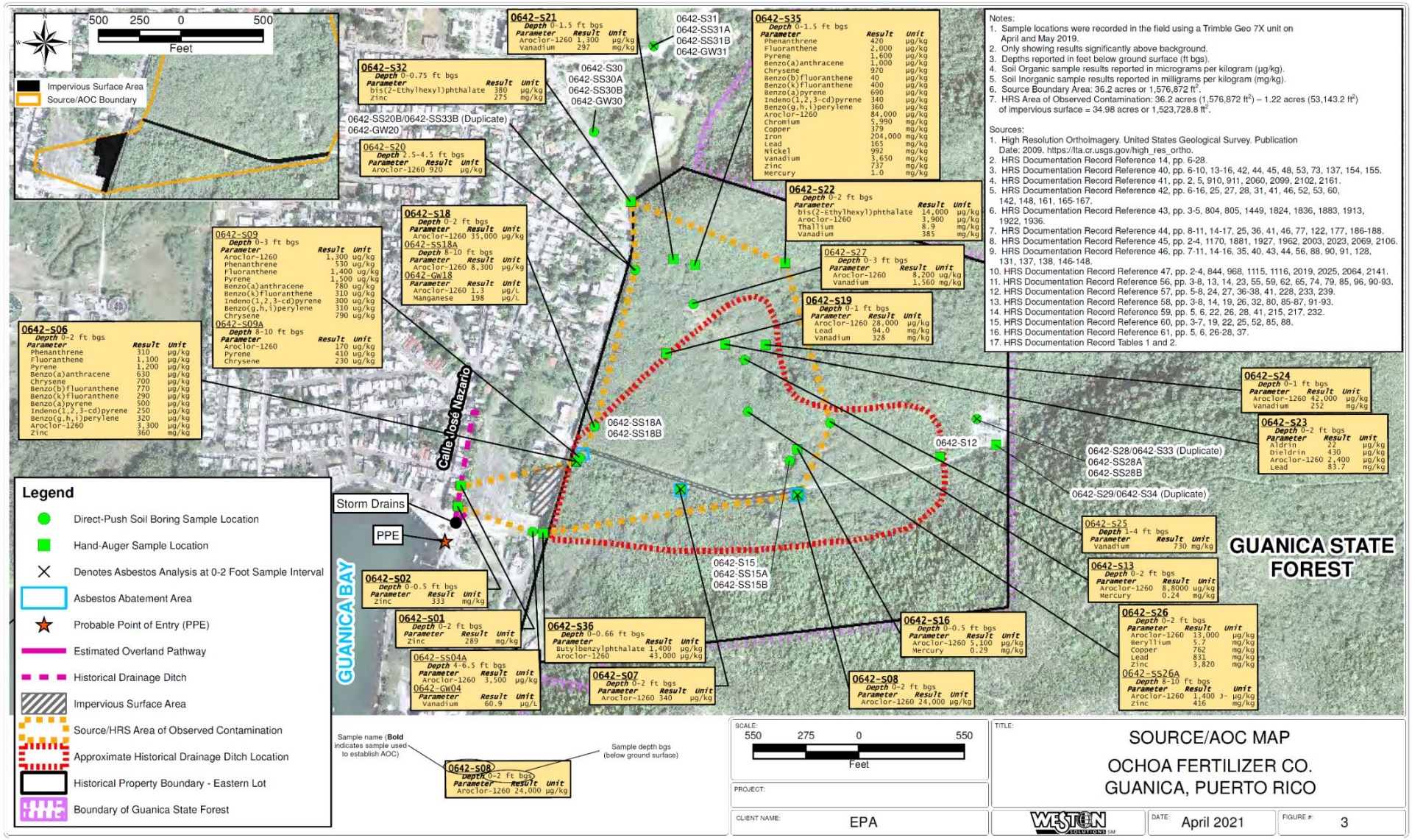

Figure 1. Source/AOC Map (Figure 3 of the HRS Documentation Record at Proposal).

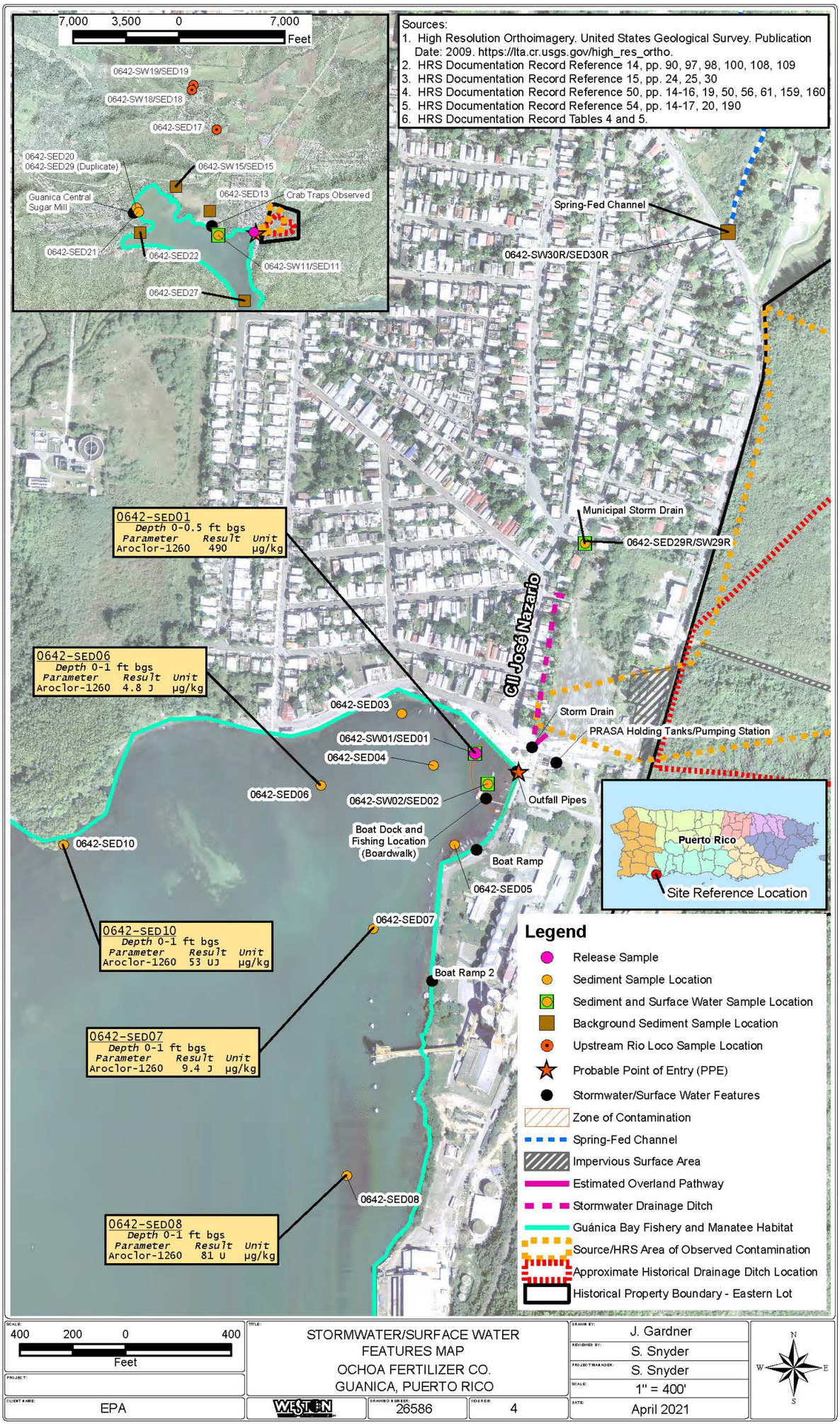

Figure 2. Stormwater/Surface Water Features Map (Figure 4 of the HRS Documentation Record at Proposal).

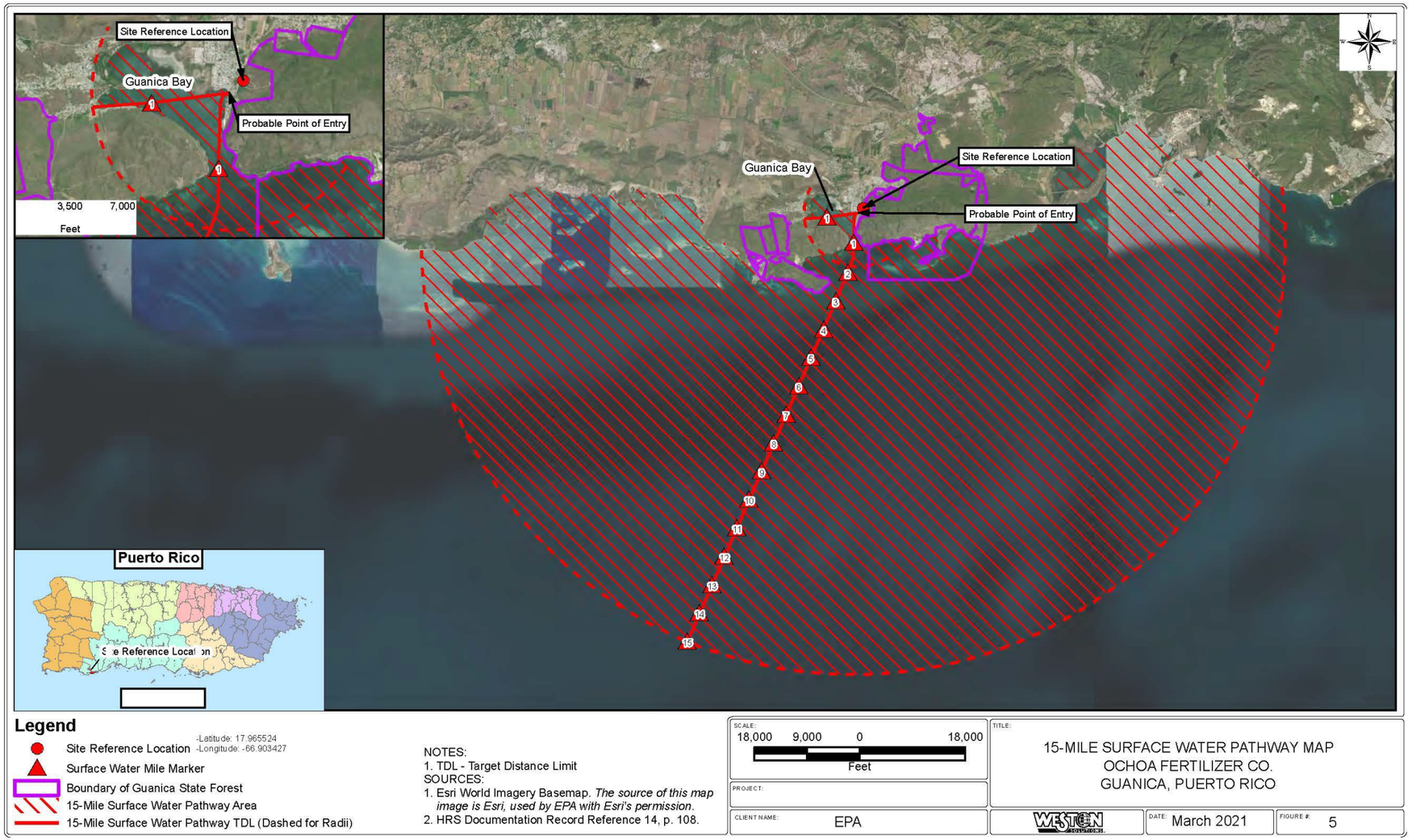

Figure 3. 15-Mile Surface Water Pathway Map (Figure 5 of the HRS Documentation Record at Proposal).

3. Summary of Comments

Commenters both supported and questioned the proposed addition of the Ochoa Fertilizer Co. site to the NPL. Two commenters supported listing, including the Puerto Rico Department of Natural and Environmental Resources (DNER) on behalf of the Governor of Puerto Rico, and Ms. Sophia Rivas, a private citizen. Ms. Rivas, expressed support for listing the Site on the NPL by stating her concern about the protection of the municipality's only "Dry Forest" and the risk of exposure for families visiting a nearby beach.

One commenter, the Guánica-Caribe Land Development Corporation (hereinafter referred to as Guánica-Caribe), opposed listing the Ochoa Fertilizer Co. site on the NPL. Guánica-Caribe stated the Site should be redefined to "avoid conflating potential impacts from the Eastern Lot with other sources" of non-site related contamination. Guánica-Caribe asserted that Guánica Bay should be excluded from the Site or, at most, if parts of Guánica Bay remain part of the Site, the Site description should be revised to indicate that the Site only includes the portion of the bay identified as the zone of contamination, and only the contaminated sediment "demonstrated to result from historical operations or residual waste materials on the Ochoa Site." and the AOC should be limited to sample S04 near the edge of the eastern lot due to limited support for extending the AOC.

Guánica-Caribe commented there were issues associated with the proposed listing of the Site on the NPL and requested various revisions. Guánica-Caribe made several comments regarding liability, including that the HRS package should not include statements indicating or implying conclusions about potentially responsible parties (PRPs) and contaminant origins. Guánica-Caribe also commented that both the narrative summary and the site progress profile webpage should be corrected to clarify statements about the Site. Guánica-Caribe stated that the EPA's lack of coordination with it led to this Site being proposed to the NPL "without sufficient evidentiary basis, using incorrect information and/or speculation." It commented that constructive coordination could occur more efficiently outside of the NPL listing process. Guánica-Caribe asserted that the HRS scoring should be reassessed based on its comments and exclude the unsupported and/or inaccurate information used.

Guánica-Caribe questioned the risk posed by the Site. It commented that asserting a risk due to soil concentrations of zinc below a Regional Screening Level (RSL) is inappropriate. Guánica-Caribe asserted that the Site does not pose a risk to human health and the environment and noted that it is unlikely that individuals would be exposed to the Site because of its relative inaccessibility.

In addition, Guánica-Caribe submitted numerous comments identifying what it asserted were inaccurate and/or unsupported statements in the HRS documentation record at proposal. It requested that the inaccurate statements be revised.

In questioning the scoring of Source 1, contaminated soil, Guánica-Caribe commented that the EPA did not reasonably associate certain hazardous substances (zinc and PCBs) with the activities at the Site, calling into question the origins of PCBs at the Site in general, as well as the origins of zinc—particularly near the residential properties. Guánica-Caribe commented that the source containment discussion referred to a release to surface water by overland migration but did not identify the migration path. Guánica-Caribe asserted that the EPA made "preliminary and inappropriate" conclusions regarding PCB use at the former facility on the eastern lot because the EPA failed to consider other sources of PCBs. It also claimed that there is no direct evidence that the former facility oil pond area discussed in the HRS documentation record at proposal contained PCBs.

In challenging the HRS scoring of the Site, Guánica-Caribe submitted comments questioning the HRS evaluation of the surface water migration pathway including assertions that:

- The HRS package at proposal contains insufficient information to conclude if and how historical discharges would have migrated the distance from the eastern lot to Guánica Bay.
- The HRS documentation record at proposal does not include enough specific detail to support its interpretation of surface drainage pathways from the source to surface water.

- The description of the surface water zone of contamination should properly present the limited extent of contamination and properly describe contamination in the Guánica Bay to be the "very localized potential Aroclor-1260 Zone of Contamination."
- PCBs in a small area of sediment were inappropriately attributed to solely the former facility on the eastern lot despite other possible contributors or origins of the PCB contaminated sediments in Guánica Bay.
- There is limited and insufficient evidence to support the assumption that "incidental fishing in Guánica Bay equates to human consumption of fish."
- The habitat known to be used by the West Indian Manatee was improperly scored as a surface water sensitive environment at the Site.

In challenging the scoring of the soil exposure component of the soil exposure and subsurface intrusion pathway, Guánica-Caribe also submitted multiple comments including the following:

- The assessment of contamination off the eastern lot is inappropriate due to inconsistencies in "analyte fingerprints."
- Soil contamination off the eastern lot was improperly attributed to the Site and included in the AOC. Also, the AOC should only extend to sample S04, rather than extending the AOC to samples S01 and S02.
- The HRS documentation record at proposal incorrectly characterized "the extent of detected PCB contamination extending off the Eastern Lot."
- The HRS evaluation of the Site did not properly account for other possible origins of the contamination.
- The HRS evaluation did not identify "a known source of PCBs from historical use on the Eastern Lot of the Ochoa Site."
- The resident individual factor value should be zero, because the AOC should not extend beyond S04 to the residential properties along Calle Jose Nazario.
- Insufficient information was provided to support the presence of the habitats know to be used by the Yellow-shouldered blackbird, the Puerto Rican nightjar, the Puerto Rican boa, and the two plant species (*Eugenia woodburyana* and *Varronia rupicola*) on the AOC.

Guánica-Caribe concluded that if the HRS site score were revised to remove unsupported assumptions and to reflect its comments, the revised score would be below 28.50 (i.e., 23.33). Guánica-Caribe stated the Site should not be listed on the NPL based on the HRS scoring. The commenters' specific challenges to the listing are detailed in the following sections of this support document along with the EPA's responses demonstrating that the Ochoa Fertilizer Co. site qualifies for placement on the NPL.

3.1 Support for Listing and Other Non-opposition Comments

Comment: The EPA received two comments that expressed support for the proposed listing. Those commenters in support of listing include: the Commonwealth of Puerto Rico as represented by the DNER and a resident of Puerto Rico. DNER expressed support for the placement of the Ochoa Site on the NPL on behalf of the Governor of Puerto Rico. It stated that placing this Site on the NPL is a critical step toward protecting the health of the surrounding populations and natural resources from the risk posed by this site. Additionally, a private citizen, Ms. Sophia Rivas commented to encourage the EPA to place this Site on the NPL. Ms. Rivas commented that the municipality is home to the only "Dry Forest" in Puerto Rico and mentioned that it is a United Nations Educational, Scientific and Cultural Organization (UNESCO) biosphere reserve. Ms. Rivas also cited the mangrove swamps in the area that help against erosion due to hurricanes and other natural disasters as a reason for listing this Site. Finally, Ms. Rivas expressed concern regarding risk of exposure to contamination for families and children that frequent the nearby beach Caña Gorda.

Response: The EPA has added the Site to the NPL. Listing makes a site eligible for remedial action funding under CERCLA, and the EPA will examine the site to determine what response, if any, is appropriate. Actual funding of NPL sites may not necessarily be undertaken in the precise order of HRS scores, however, and upon more detailed investigation may not be necessary at all in some cases. The EPA will determine the need for using Superfund monies for remedial activities on a site-by-site basis, taking into account the NPL ranking, State priorities, further site investigation, other response alternatives, and other factors as appropriate.

3.2 Definition of Site/Extent of Site

Comment: Guánica-Caribe submitted a variety of comments related to the general site definition, the extent of soil contamination attributable to the Site, and the extent of surface water sediment contamination.

General Site Definition

Guánica-Caribe commented that the EPA "should not broadly define the Ochoa Site to include, 'contaminated sediments in Guánica Bay.'" Guánica-Caribe asserted that the initial investigation should be limited to smallest area supported by data and records, and that the study area should only be expanded if supported by the initial investigation.

Guánica-Caribe commented that the description of the Site in the HRS documentation record at proposal, as one contaminated soil source at and near the facility and contaminated sediments in Guánica Bay, may inappropriately suggest that any sediment contamination in Guánica Bay is connected to the Site. Guánica-Caribe asserted that while the remedial investigation (RI) will determine the extent of contamination for remediation, the Site, for NPL purposes, should either exclude the Guánica Bay sediments or only include the zone of contamination in Guánica Bay.

Guánica-Caribe commented that, as described at proposal, the only area containing soil contamination is the eastern lot, and the western lot has not been characterized. Guánica-Caribe asserted that the HRS documentation record at proposal does not include data indicating environmental contamination on the western lot. Guánica-Caribe commented that the HRS documentation record at proposal lacks observed contamination or source data for the western lot. Guánica-Caribe asserted that the information available regarding the western lot in the HRS package is insufficient to draw conclusions.

Guánica-Caribe commented that the AOC is mostly located within the unoccupied eastern lot and has features controlling access, but was inappropriately extended into a right-of-way, parking lot, and drainage ditch adjacent to residences. Guánica-Caribe commented that this extension was done without an understanding of the origin of the polychlorinated biphenyls (PCBs) and whether they were used by the Ochoa Fertilizer company, based on limited data from 2019, and dismissed other possible contributors.

Guánica-Caribe asserted that the HRS package did not include an adequate explanation of how the PCBs and other contamination originated at the Site, migrated within the eastern lot, and migrated to off-property locations. Guánica-Caribe stated that the contaminant migration component of the conceptual site model is critical to the HRS scoring and reassessment of the "available information and the basis for its assumptions" should occur prior to reevaluation of soil exposure and other pathways.

Guánica-Caribe commented that the Site should be redefined to avoid conflating possible contamination from other possible contributors with the eastern lot and commented that other possible contributors were not appropriately considered. Guánica-Caribe asserted that the surface water pathway was incorrectly scored due to insufficient data to support that the eastern lot is a source or the origin of contamination in Guánica Bay.

Extent of Soil Contamination

Guánica-Caribe asserted that the HRS package does not include sufficient information to explain extending the AOC to samples S01 and S02, which are located near the residential properties, and that the AOC should instead extend to the location of sample S04. Guánica-Caribe included several related comments:

- The HRS package failed to adequately consider and evaluate other possible contributors or pathways that may be the origin of the zinc contamination in soil that defines the western boundary of the AOC.
- The extension of the AOC beyond the eastern lot is inappropriate and speculative due to the difference in analyte fingerprints between the samples on the eastern lot and the off-property samples.
- Samples S01 and S02 did not contain Aroclor-1260 at concentrations higher than background for the AOC or at concentrations higher than the sediments samples in the zone of contamination.

Extent of Surface Water Sediment Contamination

Guánica-Caribe asserted that Guánica Bay should be excluded from the Site definition. Guánica-Caribe instead argued that due to the multiple possible contributors to the contamination, further investigation and actions to address the contamination in the bay should be handled separately. Guánica-Caribe commented that the Site should either exclude the bay or only include the impacted sediment in the zone of contamination. If the latter, then Guánica-Caribe commented that the site description should be revised to indicate that the Site only includes the zone of the contamination portion of the bay and only the contaminated sediment "demonstrated to result from historical operations or residual waste materials on the Ochoa Site." Guánica-Caribe also commented if part of the bay is included, then it should be addressed as a separate operable unit.

Guánica-Caribe asserted that the zone of contamination encompasses less than 0.15% of the Guánica Bay and less than one acre in the Guánica Malecón portion of the bay. Guánica-Caribe commented that impacts near the probable point of entry (PPE) are highly localized to the zone of contamination and "should be considered separately from the PCBs identified throughout the Bay." Guánica-Caribe also stated that the HRS package should describe and "present the very localized potential Aroclor-1260 Zone of Contamination within Guánica Bay."

Guánica-Caribe made several assertions regarding the appropriateness of the extent of the contamination based on sediment samples and PCB data. It provided comments regarding the specific extent of the surface water contamination including:

- Based on the pattern of contamination, Aroclor-1260 concentrations near the PPE appear to be a patch of limited contamination isolated from other areas of greater contamination in the bay.
- Hydraulic modeling from the University of Miami supports the limited extent of contamination in the zone of contamination.
- The extent of the PCB impacted sediment near the PPE is contained to the outlined area of Guánica Bay based on the HRS package.

Response: The extent of the Site was appropriately defined for HRS scoring purposes in the HRS documentation record at proposal, and the definition of the Site was supported by the HRS scoring of the Site presented throughout the HRS documentation record at proposal. For HRS scoring purposes, the Site was described on page 12 of the HRS documentation record at proposal as consisting "of one source of hazardous substances in the form of contaminated soil at and in the vicinity of the former Ochoa Fertilizer Co. facility located at State Road No. 333/Carretera Caña Gorda (PR-333), and contaminated sediments in Guánica Bay, located in Guánica, Puerto Rico." (See Figures 1 and 2 of this support document [Figures 3 and 4 of the HRS documentation record at proposal]). The Site for HRS scoring purposes included the observed release in the bay attributable to the Site, but the HRS documentation record at proposal did not imply that all contamination in the bay is attributable to the

Site. An HRS score is based on documented releases, not on the precise boundaries of their area. It is not necessary to establish precise site "boundaries" to perform or document this evaluation, nor does CERCLA or the HRS require the boundaries be established at listing.

Placing a site on the NPL is based on an evaluation, in accordance with the HRS, of a release or threatened release of hazardous substances, pollutants, or contaminants. Also, the fact that the EPA may in some cases initially identify and list the release based on a review of contamination at a certain parcel of property does not necessarily mean that the site boundaries are limited to that parcel.

CERCLA Section 105(a)(8)(A) requires the EPA to list national priorities among the known "releases or threatened releases" of hazardous substances; thus, the focus is on the release, not precisely delineated boundaries. Further, CERCLA Section 101(a) defines a "facility" as the "site" where a hazardous substance has been "deposited, stored, placed, or otherwise come to be located." The "come to be located" language gives the EPA broad authority to clean up contamination when it has spread from the original source. On March 31, 1989 (54 FR 13298), the EPA stated:

> HRS scoring and the subsequent listing of a release merely represent the initial [emphasis added] determination that a certain area may need to be addressed under CERCLA. Accordingly, EPA contemplates that the preliminary description of facility boundaries at the time of scoring will need to be refined and improved as more information is developed as to where the contamination has come to be located; this refining step generally comes during the RI/FS [remedial investigation/feasibility study] stage.

The revised HRS (55 FR 51587, December 14, 1990) elaborates on the "come to be located" language, defining "site" as "area(s) where a hazardous substance has been deposited, stored, disposed, or placed, or has otherwise come to be located. Such areas may include multiple sources and may include the area between the sources."

Until the site investigation process has been completed and a remedial action (if any) selected, the EPA can neither estimate the extent of contamination at the NPL site, nor describe the ultimate dimensions of the site. Even during a remedial action (e.g., the removal of buried waste) the EPA may find that the contamination has spread further than previously estimated, and the site definition may be correspondingly expanded. In addition, if another, unrelated area of contamination is discovered elsewhere on the property, the EPA may decide to evaluate that release for the NPL.

Regarding comments asserting that the extent of soil and surface water contamination were incorrect in the HRS documentation record at proposal, the extent of both soil and surface water contamination were appropriately determined for the purpose of an HRS evaluation consistent with the HRS. HRS documentation record at proposal page 12 states that the Site consists "of one source … of contaminated soil … and contaminated sediments in Guánica Bay." Page 13 of the HRS documentation record at proposal also indicates that "soil sample results document an area of observed contamination (AOC) at the Ochoa property, delineated by sampling locations exhibiting contamination within the top 2 feet of soil." As explained in detail in subsequent sections of this support document, the extent of surface water sediment and soil contamination for HRS scoring purposes was determined based on analytical data meeting the HRS criteria in HRS Sections 2.3 and 5.1.0 for establishing an observed release by chemical analysis or observed contamination, or meeting the HRS criteria to establish a source as specified in HRS Sections 2.2.2 and 2.2.3, as applicable. (See the following sections of this support document: section 3.13.2, Surface Water Migration Pathway – Likelihood of Release, for the surface water migration pathway; section 3.14.1, Soil Exposure Component – Likelihood of Exposure/AOC, for the soil exposure component; and 3.11, Association of Hazardous Substances with Source(s), for Source 1 in the surface water migration pathway.) The responses in sections 3.11, 3.13.2, and 3.14.1 of this support document explain how the applicable HRS criteria were met and how contamination at the Site was appropriately scored with respect to establishing a source, an observed release, and observed contamination. As noted above, the extent of soil and surface water sediment contamination identified may change following the results of further investigation and analysis that occurs at a later stage of the Superfund process.

Regarding comments questioning the relationship between the western lot and the Site, the site description section of the HRS documentation record at proposal includes discussion describing the property and its relationship to the Site. Page 12 of the HRS documentation record at proposal states:

> Soil and groundwater have not been characterized at the 13-acre western lot and, therefore, the property is not currently included in the delineation of contamination at the Ochoa property. However, based on operational history discussed above, the western lot is an additional area of concern where further assessment is needed.

As discussed above, following additional investigation, if the EPA later finds that contamination has spread further than originally estimated, the Site definition may change as a result.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.3 Liability

Comment: Guánica-Caribe made several comments related to liability associated with site contamination. Guánica-Caribe commented the HRS package should not include statements indicating or implying conclusions about parties and contaminant origins. Guánica-Caribe stated that the Federal Register notes that the NPL "does not assign liability to any party or the owner of any specific property."[1] As support for this, Guánica-Caribe asserted that potentially responsible party (PRP) identification is not referenced in HRS guidance. Guánica-Caribe stated that excluding the bay from the Site "would allow for EPA and the appropriate responsible parties to focus action on addressing the upland portion of the Ochoa Site." Guánica-Caribe commented that language on the origin of contamination on the eastern lot or in the Guánica Bay should be modified or excluded due to limited information about historical operations.

In discussing specific property ownership, Guánica-Caribe commented that the proposed Site consists of an eastern lot, which it owns, that contains identified soil contamination and an uncharacterized western lot. Guánica-Caribe also commented that the Puerto Rican Port Authority appears to have owned the western lot since at least 1948.

Guánica-Caribe made multiple liability assertions regarding the attribution of the contamination evaluated, commenting that:

- There are multiple possible contributors to the contamination evaluated.
- Attribution of contaminants to the former Ochoa Fertilizer facility is inappropriate.
- PCBs in Guánica Bay were attributed to historical operations on the eastern lot without an understanding of or information to identify the origin of the PCB contamination.
- Information of historical Ochoa Fertilizer Company operations using PCBs is not provided.
- A source of PCBs from historical use on the eastern lot is not identified.
- Insufficient data and unsupported assumptions are used to conclude the eastern lot is a source and the only source of contamination in Guánica Bay.
- Because information on other areas with electric transformers (noted as PCB-containing or unlabeled) at the facility was not available during the January 1999 site assessment, it was unknown whether PCB releases had occurred from these areas.
- Information about follow-up investigation or removal is not included in the HRS package for items and areas, noted as PCB-containing or not labeled in the 1999 site assessment.

[1] Guánica-Caribe cited *Federal Register*, Vol. 82, No. 5, Monday, January 9, 2017, Rules and Regulations, p. 276.

- Because attribution of all Aroclor contamination on the eastern lot has not been established, the HRS documentation record should be revised to state that Aroclor-1260 was confirmed by the EPA in 2019 as opposed to confirming attribution of "all observed Aroclor contamination."
- The flow migration path from the eastern lot to the bay is unclear; it is not known what other properties might be connected to the storm drain that discharges to the bay.

Response: Inasmuch as these comments address liability for the contamination on Source 1 and/or the AOC and in Guánica Bay, liability is not considered in evaluating a site under the HRS. The NPL serves primarily as an informational tool for use by the EPA in identifying those sites that appear to present a significant risk to public health or the environment. Listing a site on the NPL does not reflect a judgment on the activities of the owner(s) or operator(s) of a site. It does not require those persons to undertake any action, nor does it assign any liability to any person. This position, stated in the legislative history of CERCLA, has been explained more fully in the Federal Register (48 FR 40674, September 8, 1983, and 53 FR 23988, June 24, 1988). See Kent County v. EPA, 963 F.2d 391 (D.C. Cir. 1992).

Regarding comments addressing attribution of the contamination to the Site, these are addressed in detail in sections 3.13.3, Surface Water Migration Pathway – Attribution, and 3.14.2, Soil Exposure Component – Attribution, of this support document.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.4 Narrative Summary and EPA Website Clarifications

Comment: Guánica-Caribe commented that information associated with NPL listing, including but not limited to the Narrative Summary and the Site progress profile webpage, should be corrected. Guánica-Caribe requested "Meeker Avenue Plume" be removed from the list of Other Site Names in the Site Documents & Data section of the Ochoa Fertilizer Co. site progress profile on the EPA's website.[2] Guánica-Caribe requested that the following clarifications and/or corrections be made to the Narrative Summary:

- Revising the site history section to clarify that "the PREPA [Puerto Rico Electric Power Authority] substation on the Eastern Lot appears to have been present since at least the 1960s based on aerial photos and other historical documents" as opposed to the 1989-1992 timeframe mentioned in the Narrative Summary. (Guánica-Caribe points to the alleged existence of the PREPA substation prior to 1991 as a likely source of PCBs at the Site.)
- Correcting statements in the Potential Impact on Surrounding Community/Environment section, that state "[r]esidential properties located between the former facility and the bay may be at risk of exposure to contaminated soil. Due to frequent flooding, these areas are prone to migration of contaminated soil. Residents who live on these parcels are at risk of exposure from the highly contaminated soil." Guánica-Caribe commented that there is not sufficient support for these statements in the HRS package and these statements are inconsistent with guidance and inaccurate about the risk to residential properties.
- Revising the statement: "[t]he property maintenance worker is at risk of exposure, and PREPA workers are at risk when they access the substation at the eastern edge of the property." Guánica-Caribe asserted this should be clarified to "to acknowledge that the Site is fenced, densely vegetated, and monitored to prevent unauthorized access and that PREPA access is only to the access road and the 1-acre PREPA substation."
- Correcting the statements discussing exposure risks resulting from fishing for human consumption to reflect the lack of support for using the zone of contamination for consumption fishing.

[2] The Site Documents & Data section of the Site's website is available online here: https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.docdata&id=0203717.

- Correcting statements regarding recreational swimming because the HRS package only mentions beaches located outside of the zone of contamination and fronting the Caribbean Sea.

Response: The EPA has reviewed the commenter's assertions and the recommended revisions to the NPL Narrative Summary and the EPA website, and none of these comments and suggested revisions result in changes affecting the HRS scoring of the Ochoa Fertilizer Co. site. The commenters' assertions are included as part of the docket for the Site listing as the comments were submitted to the docket.

Regarding the site progress profile webpage for the Site, the EPA has corrected the page to remove the incorrect site name from the list of other site names.

Regarding the site Narrative Summary document, the content of this document remains unchanged. The NPL Narrative Summary is a one-page, high level summary about the Site and is considered to reasonably reflect the Site as scored. As explained in the HRS documentation record at proposal and throughout this support document, adequate information has been provided to establish that the Site presents sufficient risk to warrant further investigation.

- On the history of the PREPA substation, this topic as it relates to attribution is discussed in detail in section 3.13.3, Surface Water Migration Pathway – Attribution, of this support document. In brief, no change has been made to the HRS documentation record with respect to this topic. The HRS documentation record provided information supporting the statement that the PREPA substation was likely built between 1991 and 1992. Additionally, even if there may be a discrepancy in the date the PREPA substation was built, sampling to date does not show that it is a source of PCBs at the Site.
- On the potential impacts to residential properties between the former facility and bay, this statement is reasonable given that contamination is already known to have migrated from the eastern lot to the west of PR-333 as documented in the HRS documentation record at proposal (and further discussed in sections 3.10, Source Containment, and 3.14.1, Soil Exposure Component – Likelihood of Exposure/AOC, of this support document).
- On potential exposure of the property maintenance worker and PREPA workers, this statement is reasonable. That is, despite fencing and vegetation, these workers must access the property to do their jobs. Further, although the PREPA workers would use the substation access road, they would still come in proximity to Site soil contamination, given the extent of the documented AOC and the fact that the access road runs through a portion of that AOC (e.g., as shown on Figure 3 of the HRS documentation record at proposal).
- On the potential danger posed to people harvesting fish, this statement is reasonable, as runoff from the contaminated soil source is not contained from entering surface water and contamination has been detected in the bay including the observed release of PCBs in the bay attributable to the Site, and the documentation of fishing for human consumption in the bay. (For further discussion on those topics, see sections 3.10, Source Containment, 3.13.3, Surface Water Migration Pathway – Attribution, and 3.13.5, Documentation of Fishing for Human Consumption, of this support document.)
- On the potential hazard to swimmers in the bay, this statement is reasonable. As noted above runoff from the contaminated soil source is not contained from entering surface water and contamination has been detected in the bay including the observed release of PCBs in the bay attributable to the Site. The threat to swimmers is not a scored aspect of the Site as evaluated for HRS purposes. However, given the presence of Site contamination in the bay as well as the possibility of continued release of Site contamination, it is sensible to assume some hazard might be posed to swimmers in those waters.

Regarding comments questioning the risk posed by the Site, as discussed in section 3.8, Risk¸ of this support document, the HRS evaluation of a Site is not a site-specific assessment, and actual determinations of site-specific risk that is posed to human health or the environment is determined during a different stage of the Superfund process. Further, the Narrative Summary document statements related to possible risks noted above are described

as "**Potential** Impacts on Surrounding Community/Environment" [emphasis added], and do not purport to identify specific quantified actual risk.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.5 Public Engagement/Delay of Listing

Comment: Guánica-Caribe expressed surprise that the EPA proposed the Ochoa Site to the NPL at this time considering it has been 23 years since the eastern lot was initially investigated by the Puerto Rico Environmental Quality Board (PREQB) (now the Puerto Rico Department of Natural and Environmental Resources, or DNER) on behalf of the EPA and conditions at the eastern lot have not materially changed. It commented that the EPA's urgency to propose this Site to the NPL at this time is "without material basis" considering the "unsupported assumptions, incorrect assertions, and limited data" that Guánica-Caribe asserts the EPA uses to justify the HRS score.

Additionally, Guánica-Caribe protested that neither it nor any other PRP have been engaged since the 1998 investigation to address environmental conditions at the facility. It observed that coordination between the EPA, local environmental agencies, the public, and private parties, like itself, is a foundation of CERCLA. Guánica-Caribe remarked that the EPA's lack of coordination with it, therefore, led to this Site being proposed to the NPL "without sufficient evidentiary basis, using incorrect information and/or speculation."

Guánica-Caribe encouraged the EPA to identify and enter discussions with "any and all" PRPs. Further, it reminded the EPA that it cooperated with the Agency and DNER during investigations in 1998 by supplying requested information, and that Ochoa Fertilizer had proactively provided findings in 1992 from its past site assessments. Guánica-Caribe gave assurances that it remains willing to discuss and engage with the EPA and DNER as to how best to address any contamination at the Site for which it has responsibility from historical operations. However, it commented that constructive coordination could more efficiently occur "outside of the machinery of a NPL listing and associated procedural hurdles.

Response: As described below, there are ample opportunities for Guánica-Caribe to engage with the EPA to address the conditions at this Site if it so chooses. Additionally, Guánica-Caribe's concern that coordination to address contamination at the Site could more efficiently occur "outside of the machinery of a NPL listing and associated procedural hurdles" is unfounded because listing does not necessarily delay response actions. Consistent with CERCLA, the EPA has in place a procedure for identifying sites where releases of substances addressed under CERCLA have occurred or may occur, placing such sites on the NPL, evaluating the nature and extent of the threats at such sites, responding to those threats, and deleting sites from the NPL. The EPA makes decisions during all stages of this procedure, and the Superfund program offers numerous opportunities for public participation at NPL sites through the Community Relations Plan that will be developed for this Site. Further, placing a site on the NPL does not necessarily delay the ability of any PRPs to negotiate possible response actions, or delay ongoing response actions at a site. PRPs may affect remedy selection, as can any other member of the public, through the public comment process. More specifically, after the RI/FS is completed and the EPA has recommended a preferred cleanup alternative as necessary, the EPA Regional Office sends to all interested parties a Proposed Plan outlining the cleanup alternatives studied and explaining the process for selection of the preferred alternative. At this time, the EPA also begins a public comment period during which citizens, including PRPs, are encouraged to submit comments regarding all alternatives. Once the public comment period ends, the EPA develops a Responsiveness Summary, which contains EPA responses to public comments. The Responsiveness Summary becomes part of the Record of Decision (ROD), which provides official documentation of the remedy chosen for the Site. PRPs may also undertake the RI/FS and/or remedial design/remedial action stages under EPA supervision and pursuant to appropriate agreements (under enforcement authorities of CERCLA). The listing process does not encumber or preclude PRPs from entering into these agreements. The EPA has entered into such agreements between proposal and promulgation at other sites, and such an alternative is available to the commenter.

With regard to investigations at the Ochoa Site and engagement with the commenter, the EPA appreciates any and all cooperation Guánica-Caribe provided in the past and looks forward to continued engagement and cooperation in the future. Furthermore, the EPA notes that it engaged in discussions with the commenter to gain access to the eastern lot for reconnaissance and sampling. The EPA provided an opportunity for the commenter to review and comment on the quality assurance project plan (QAPP) for the 2019 sampling event. Also, the EPA considered these comments and incorporated some of them into the QAPP. As indicated on page 5 of Reference 18 of the HRS documentation record at proposal, W. R. Grace & Co.-Conn. (Grace) is the parent company of Guanica-Caribe Land Development Corporation. As indicated on pages 11, 204, 207, 836, and 837 of Reference 7 of the HRS documentation record at proposal, Grace was also the parent company of former owners/operators of the 112-acre eastern lot. Additionally, a Grace company representative monitored the EPA's actions for the duration of the investigation; splits of the samples the EPA collected at this Site were offered to Grace. In the logbooks maintained during the 2018 and 2019 reconnaissance and sampling events, this representative is identified as Brandon Welbourn of W.R. Grace. Mr. Welbourn is also sometimes referred to in the logbooks as "Brandon Welbourn of Grace," "Brandon W. of Grace," "Grace," or "BW." As can be seen in the logbook entries, Mr. Welbourn accompanied the EPA during its investigations in December 2018 and throughout April and May 2019. Please see pages 4, 5, 6-7, 8, 10, 11, 13, 14, 16, 17, 18, 19-20, 22, 23, 24- 25, 38, 74, 75-76, 78, and 79 of Reference 14 of the HRS documentation record at proposal, which detail occasions when Mr. Welbourn visited the Site during the investigation and when splits were prepared.

Regarding Guánica-Caribe's comment that the EPA proposed the Site too urgently, this is not the case. The Commonwealth of Puerto Rico requested support from the EPA to help address releases from the site through the placement of the Site on the NPL. Puerto Rico's support for this listing is evidenced by the letter of concurrence from Puerto Rico DNER on behalf of the Governor of Puerto Rico (See section 3.1 of this HRS support document and docket ID EPA-HQ-OLEM-2021-0463-0003.) The EPA carefully reinvestigated and evaluated the Site (building on the previously gained knowledge) over the course of almost three and half years. This included site reconnaissance during spring and winter of 2018, environmental sampling spring of 2019, HRS package preparation from that time forth, and ultimately proposal to the NPL in September 2021. (See pages 1, 12-14 of the HRS documentation record at proposal.) The Agency considers this a reasonable amount of time to plan and execute a field investigation and prepare an HRS package.

Regarding Guánica-Caribe's assertion that the EPA proposed the Site to the NPL "without material basis" considering "unsupported assumptions, incorrect assertions, and limited data," this assertion is unfounded. As presented in the HRS documentation record at proposal, the Site obtained a soil exposure and subsurface intrusion pathway score of 51.12 and a maximum surface water migration pathway score of 100.00, which resulted in an HRS site score of 56.15. (See scoresheet on page 2 of the HRS documentation record at proposal.) This HRS site score qualifies the Site for placement on the NPL. The HRS site score and HRS pathway scores are supported by explanations and statements of fact presented in the HRS documentation record and the cited reference material provided in the HRS package. Claims of documentation inaccuracy cited by Guánica-Caribe are addressed in the appropriate subject matter sections of this support document.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.6 Adequacy of Supporting Information

Comment: Guánica-Caribe commented that the proposed listing of the Site on the NPL lacked substantive basis in part because incorrect information and/or unsupported assumptions are used to support the HRS scoring of the Site. Guánica-Caribe asserted that the HRS scoring should be reassessed based on its comments and exclude the unsupported and/or inaccurate information used.

Guánica-Caribe commented that the scoring of the surface water pathway should be reassessed using appropriate assumptions and data. Guánica-Caribe asserted that speculative statements should be removed from the HRS documentation record at proposal regarding lack of information to confirm a pathway associated with storm water or other discharges from the Site.

Guánica-Caribe asserted that the information in the HRS package failed to adequately explain the origin of PCBs and other contaminants evaluated at the Site. Additionally, Guánica-Caribe commented that additional data collected in May 2021 were not included in the HRS package.

Guánica-Caribe commented that significant impacts to the environment were neither described in the 1991 Phase I environmental site assessment [ESA] report nor identified during the 1992 site investigation activities. Guánica-Caribe made several assertions regarding specific observations in the 1991 Phase I ESA report about the operational areas at the Site and whether hazardous substances were present.

Guánica-Caribe commented on a statement in the HRS documentation record at proposal, Other Possible Sources section, which had explained that for drums previously observed at the eastern lot of the facility during a 1994 Preliminary Assessment, the contents are unknown, and that sample data or other related records are lacking. Guánica-Caribe asserted this statement neglects information from the 1994 Preliminary Assessment indicating the drums were determined to be non-hazardous. Guánica-Caribe asserted that the drums are not likely a significant source of contamination.

Response: The data relied upon in the HRS documentation record at proposal are of sufficient quantity and type for the purposes of scoring the Site and Site placement on the NPL. All of the data that were relied upon for the purposes of NPL listing were included in the HRS documentation record references at proposal, and the HRS docket for the Site at the time of proposal was appropriate and sufficient for the public to review the HRS evaluation of the Site and the proposed NPL listing. As shown in other sections of this support document, the scoring of the surface water migration pathway and the soil exposure component were supported in the HRS documentation record at proposal.

The EPA used appropriate levels of data and investigation in determining the HRS score for the Site consistent with HRS regulation. As explained in the preamble in the Federal Register notice promulgating the 1990 HRS (55 FR 51533, December 14, 1990), Congress, in discussing the substantive standards against which HRS revisions could be assessed, states:

> This standard is to be applied within the context of the purpose for the National Priorities List; i.e., identifying for the States and the public those facilities and sites which appear to warrant remedial actions…. This standard does not require the Hazard Ranking System to be equivalent to detailed risk assessments, quantitative or qualitative, such as might be performed as part of remedial actions. This standard requires the Hazard Ranking System to rank sites as accurately as the Agency believes is feasible using information from preliminary assessments and site inspections.... Meeting this standard does not require long-term monitoring or an accurate determination of the full nature and extent of contamination at sites or the projected level of exposure such as might be done during remedial investigations and feasibility studies. This provision is intended to ensure that the Hazard Ranking System performs with a degree of accuracy appropriate to its role in expeditiously identifying candidates for response actions [H.R. Rep. No. 962, 99th Cong. 2nd Sess. at 199-200 [1986]].

The Courts have supported this position in stating:

> The HRS is intended to be a "rough list" of prioritized hazardous sites; a "first step in a process--nothing more, nothing less" Eagle Picher Indus. v. EPA, 759 F.2d 922, 932 (D.C. Cir. 1985) (Eagle Picher II). EPA would like to investigate each possible site completely and thoroughly prior to evaluating them for proposal for NPL, but it must reconcile the need for certainty before action with the need for inexpensive, expeditious procedures to identify potentially hazardous sites. The courts have found EPA's approach to solving this conundrum to be "reasonable and fully in accord with Congressional intent." Eagle Picher Industries, Inc. v. EPA, (759 F.2d 905 (D.C. Cir. 1985) Eagle Picher I).

As shown throughout this support document, the comments submitted have not identified errors in the HRS factor values that would result in the Site score falling below the listing threshold of 28.50. The Site qualifies for addition to the NPL because it has achieved an HRS score greater than 28.50, as is demonstrated in the HRS documentation record and this support document. This score is based on the facts presented in the HRS documentation record and this support document. Achieving a site score of 28.50 or greater indicates that the Site is eligible for inclusion on the NPL and therefore warrants further investigation. Placing a site on the NPL allows the EPA to more effectively prioritize sites and manage possible future site investigations; it also notifies the public that the release at a site is of concern to the Agency. The addition of the Site to the NPL is an appropriate next step in this instance. This determination was made consistent with the purpose of the NPL and is supported by the HRS evaluation.

Comments discussing specific inaccuracies or unsupported assumptions are discussed in detail in section 3.9, HRS Documentation Record Errors, of this support document, and throughout this support document in relevant technical sections. Comments asserting the HRS documentation record lacks a sufficient rationale for attributing PCBs and/or other contaminants to the Site are discussed in sections 3.13.3, Surface Water Migration Pathway – Attribution, and 3.14.2, Soil Exposure Component – Attribution, of this support document, covering attribution for the surface water pathway and soil exposure component, respectively.

Regarding comments discussing the 1991 Phase I Report, while this report is included in the HRS package as Appendix A to Reference 2 of Reference 7 of the HRS documentation record at proposal,[3] the HRS scoring of the Site was completed using more recent sampling and analytical data. The data presented throughout the HRS documentation record at proposal in Tables 1, 2, 4, 5, and 14 were collected and analyzed in 2019. These data used to evaluate the Site for HRS scoring are of sufficient quality and quantity to support the HRS score as explained in detail in sections 13.3.2, Surface Water Migration Pathway – Likelihood of Release, and 3.14.1, Soil Exposure Component – Likelihood of Exposure/AOC, of this support document.

Regarding more recent data collected by the EPA in May 2021 and included in the August 2021 *Final Removal Assessment Sampling Report, Ochoa Fertilizer Co. Site*, these data were collected as part of an assessment to determine whether a removal action is needed to address PCB contamination located on the western side of PR-333. The additional investigation does not negate the presence of a release as documented throughout the HRS documentation record at proposal and supported by the Site achieving an NPL-qualifying HRS site score of 56.15. As explained in the HRS documentation record at proposal and in sections 3.13.3 and 3.14.2, Surface Water Migration Pathway – Attribution and Soil Exposure Component – Attribution, of this support document, an observed release and observed contamination were documented at the Site and established to, at least in part, be attributable to the Site. The data presented in Tables 1, 2, 5, and 14 of the HRS documentation record at proposal were collected and analyzed during 2019.[4] The further investigation into contamination in the area and in the vicinity of the western side of PR-333 does not negate the HRS scoring of the Site, and the contamination evaluated in the HRS documentation record at proposal has not been removed. As explained above and in Section 3.2, Definition of Site/Extent of Site, of this support document, the focus for HRS purposes is on the release of contamination and where the contaminants have come to be located, which have been documented at this Site.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.7 Concentrations below Screening Levels

Comment: Guánica-Caribe commented that statements in the Narrative Summary, regarding residential properties at risk of exposure to contaminated soil and with possible exposure through flooding, were not sufficiently supported. Guánica-Caribe stated that zinc concentrations in samples collected from locations adjacent to two

[3] Reference 7 of the HRS documentation record is the *December 2000 Site Inspection Report*. Appendix A to Reference 2 included as part of HRS documentation record Reference 7 is titled *Phase I Report, Kroll Associates, Inc. NY, NY, September 1991*. This report is located on pages 203-229 of Reference 7.

[4] Tables 1, 2, 5 and 14 of the HRS documentation record are on pages 23-28, 39, and 57-60 of the HRS documentation record at proposal.

residential properties were "69 to 80 times lower than EPA's general Regional Screening Level ('RSL') for zinc in residential soil." Guánica-Caribe asserted that as zinc concentrations in residential soil were below RSLs for zinc, indicating that per EPA guidance, residents are not at risk due to the concentrations of zinc.

Response: Whether a contaminant concentration is below a regulatory limit or screening level, such as an RSL, does not impact consideration of the associated releases when evaluating a site for HRS scoring purposes. At this site, zinc contamination in soil was evaluated using the HRS Section 5.1.0 criteria for observed contamination and was appropriately scored in the HRS documentation record at proposal as meeting observed contamination criteria consistent with the HRS. The appropriateness of evaluating zinc in soil as meeting observed contamination criteria for HRS scoring purposes is discussed in section 3.14.1, Likelihood of Exposure/AOC, of this support document.

On July 16, 1982, when responding to public comments on the proposed (original) HRS (47 FR 31188), and again on September 8, 1983 (48 FR 40665), the EPA rejected the idea that releases within regulatory limits should not be considered "observed releases" under the HRS. As the EPA noted in 1982:

> [E]mission or effluent limits do not necessarily represent levels which cause no harm to public health or the environment. These limitations are frequently established on the basis of economic impacts or achievability.

By contrast, an observed release represents a 100 percent likelihood that substances can migrate from the site (47 FR 31188, July 16, 1982). Similarly, observed contamination (the soil exposure counterpart for the HRS observed release used in other HRS pathways) documents that a hazardous substance is present in the surface at concentrations significantly above background.

Section 2.3 of the revised HRS (55 FR 51589, December 14, 1990) states that an observed release can be established either by direct observation or by chemical analysis. An observed release by chemical analysis has occurred when a contaminant is measured significantly above background level if some portion of the release is attributable to the site; observed contamination is documented when a hazardous substance attributable to the site is present at a concentration significantly above background levels for the site within two feet of the surface. Although contaminant levels may be lower than regulatory limits, an observed release or observed contamination is nevertheless considered to have been documented if the measured levels are significantly higher than background levels. The HRS does, however, consider whether releases are above regulatory limits in evaluating target populations, increasing by a factor of 10 the weight assigned populations exposed to contaminants above regulatory limits.

Documentation of an observed release or observed exposure and associated HRS likelihood of release/likelihood of exposure factors alone are not intended to reflect the hazard presented by the particular release. Instead, the hazard of the site is approximated by the total HRS score, which incorporates the likelihood of release/likelihood of exposure factors with other factors such as waste characteristics (including waste quantity and toxicity) and targets. This total HRS score reflects the hazard of the site relative to the other sites that have been scored. A more comprehensive characterization of the contamination, associated releases, and the impacts thereof are fully determined during the remedial investigation that typically follows listing.

Regarding the commenter's assertion that zinc concentrations in soil below the RSL indicate that a risk may not be present, as explained above, the concentrations in question are eligible for HRS scoring purposes even if they are below a regulatory limit or screening level. The HRS provides the requirements for identifying an observed release or observed contamination and criteria for their evaluation, and the HRS evaluation was conducted in accordance with the criteria set forth by the HRS. The HRS is a screening tool for identifying sites that pose sufficient relative risk to warrant further investigation, which is discussed in detail in section 3.8, Risk, along with discussion of comments asserting that the Site does not pose a risk to human-health and/or the environment.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.8 Risk

Comment: Guánica-Caribe submitted several comments related to the risk posed by the Site. Guánica-Caribe commented that there is insufficient information to establish a significant risk from the groundwater and air pathways and the drinking water and subsurface intrusion components of the surface water and soil exposure and subsurface intrusion pathways, noting the EPA acknowledges this in the HRS documentation record at proposal.

Guánica-Caribe commented that the limited accessibility of the Site was not appropriately considered in evaluating soil exposure and human exposure to the soil at the Site. Guánica-Caribe asserted that the statement in the HRS documentation record at proposal about a lack of barriers at the Site is inaccurate for several reasons: fencing along the western boundary separates areas to the north and south; dense vegetation prevents individuals from accessing the Site from additional directions; and, the Site has limited accessibility because of the downward sloping topography. It further argued that the inaccessibility of the Site is supported by the sampling evaluation, because the 2019 Weston Site Reassessment Team needed a skid steer to sample the Site.

Guánica-Caribe asserted that the HRS scoring of the Site needs to account for the limited possibility of human exposure. The inaccessibility of Site and the limited reasons individuals access the Site eliminate exposure of individuals to Site soil contamination. Guánica-Caribe asserted that assuming workers may be potentially exposed to contaminated soil at the Site through visiting the utility substation was unsupported. It commented that aside from the PREPA worker accessing the substation via an access road, other workers have not been documented to need access to the Site. Guánica-Caribe also commented that the supporting information did not indicate that that workers at the Site would need to disturb soil or be exposed to soil.

Guánica-Caribe asserted that insufficient data are presented to support that soil contamination at the Site presents a risk to terrestrial sensitive environments. It commented that it would be unlikely that the Yellow-shouldered blackbird and the Puerto Rican Nightjar would be exposed to the Site because the birds primarily feed on insects while in flight. Guánica-Caribe commented that the Puerto Rican boa would have limited dermal exposure because its scales form a protective barrier and stated that there is limited toxicity information for reptiles making it difficult to accurately assess the risk to the Puerto Rican boa.

Response: Regarding questions of whether the Site may pose a risk to human-health or to specific terrestrial species, the EPA has not assumed site-specific risks to human-health or sensitive environments are present at this Site in determining that the Site qualifies for placement on the NPL; instead, an HRS site score above 28.50 demonstrates that the Site poses a sufficient relative risk to warrant further investigation. The HRS is not a site-specific risk assessment; rather, it is a screening tool used to help the EPA determine priorities for cleanup, and possible response activities, and represents relative risk among sites undergoing HRS evaluation. Actual determinations of site-specific risk that is posed to human health or the environment is determined during a different stage of the Superfund process.

The NPL is intended primarily to guide the EPA in determining which sites warrant further investigation to assess the nature and extent of public health and environmental risks associated with a release of hazardous substances, pollutants or contaminants. See 86 FR 50515 (Proposed Rule, Ochoa Fertilizer Co, September 9, 2021); see also 55 FR 51532 (Final Rule, Hazard Ranking System, December 14, 1990) and 82 FR 2760 (Addition of Subsurface Intrusion Component to the Hazard Ranking System, January 9, 2017). CERCLA § 105(a)(8)(a) requires the EPA to determine NPL priorities among sites based on the "relative risk or danger to public health or welfare, or the environment." The criteria the EPA applies to determine this relative risk or danger is codified in the HRS, and is the Agency's primary tool for deriving a site score based on the factors identified in CERCLA. The HRS evaluation and score above 28.50 represents the EPA's determination that the Site may pose a relative risk or threat to human health and the environment and warrants further investigation under CERCLA. As part of the standard Superfund process, once the Site is on the NPL, the investigations performed to date to characterize the Site will be evaluated for completeness, further information will be collected if deemed necessary to adequately characterize the risks posed by the Site, and based on this information, a risk assessment decision will be made determining what, if any, remedial action is necessary to protect human health and the environment.

Regarding the impact of pathways, components, or threats not scored, the EPA agrees and noted in the HRS documentation record at proposal the rationale for why specific pathways, components, or threats either were or were not a concern at the Site. The EPA explained on the cover sheet of the HRS documentation record at proposal the following:

> The ground water migration pathway, the surface water migration pathway—drinking water threat, the surface water migration pathway—ground water to surface water component, and the subsurface intrusion component of the soil exposure and subsurface intrusion pathway were not scored because these are not known to be pathways, components, or threats of concern at the site and the listing decision is not affected significantly by those pathways, components, or threats. The site score is sufficient to list the site based on the surface water migration pathway—human food chain threat and the surface water migration pathway—environmental threat, and soil exposure component of the soil exposure pathway. Although it does not significantly affect the listing decision, air migration is a pathway of concern at the site.

The same section noted with respect to the air migration pathway that:

> The source at Ochoa consists of contaminated soil. EPA 2019 soil sampling analytical results document the presence of Aroclor-1260, pesticides, SVOCs (including polycyclic aromatic hydrocarbons [PAHs]), and several inorganic parameters in Ochoa property soils at concentrations significantly above background [see Section 2.2]. In addition, although surface soil samples submitted for asbestos analysis during the 2019 EPA sampling event indicate non-detect (i.e., less than 0.1%) concentrations of asbestos for all samples, a 2000 Asbestos Abatement Report indicates that asbestos remained in surficial soil at concentrations exceeding 1% in some areas along a historical pipeline that ran through the facility [Ref. 15, pp. 2, 5, 10; 18, pp. 13, 14; 21, pp. 4, 6]. Therefore, the possibility of a release of contaminated fugitive dust exists at the Ochoa property.

Regarding comments on the appropriateness of the scoring of the Site and workers who may access the Site, as explained throughout this support document, the HRS site score was correctly determined and supported by the accompanying information. Page 74 of the HRS documentation record at proposal notes that a worker is present at the Site. Page 74 states, "the property owner employs a contractor (at least one person) to perform inspection and maintenance of the asbestos abatement areas at the property [Ref. 14, p. 74]. The asbestos abatement areas are located within the AOC." On comments related to the PREPA worker accessing the substation via an access road, PREPA workers were not scored as targets for HRS purposes. As these comments relate to evaluating an AOC and targets in the soil exposure component, these comments are discussed in detail in sections 3.14.1, Soil Exposure Component – Likelihood of Exposure/AOC, and 3.14.3, Resident Individual, of this support document.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.9 HRS Documentation Record Errors

Comment: Guánica-Caribe commented that the HRS site score, including the soil exposure component and surface water migration pathway scores, is based on incorrect statements and unsupported exposure assumptions that should be properly adjusted to reflect "known fact facts and scientifically based conclusions." Based on its estimates, Guánica-Caribe commented that the following factor values should change:

- The soil exposure component resident individual factor value should be reduced from 45 to 0.
- The soil exposure component terrestrial sensitive environment factor value should be reduced from 375 to 150.
- The resulting soil exposure component score should be change to 18.72.

- The surface water migration pathway food chain individual factor value should be reduced from 45 to 20.
- The surface water migration sensitive environment [target] factor value should be reduced from 75 to 0.
- The resulting surface water migration pathway score should be changed to 42.73.
- The overall HRS site score should be reduced to 23.33.

Based on Guánica-Caribe's revised HRS site score, it surmised that this Site is not eligible for listing on the NPL, and the proposal should be withdrawn. It commented the EPA should "at the very least" consider reassessing the HRS scoring in light of the comments it submitted as well as correcting "false information and prejudicial inferences" within the document.

Specific details that Guánica-Caribe commented were missing or incorrect and needing correction are described below.

- Guánica-Caribe provided several comments regarding past manufacturing practice and waste stream background information that is claimed to be either missing or incompletely addressed by the HRS documentation record at proposal. Guánica-Caribe commented that there is no documentation that either the sulfuric acid manufacturing operation or the ammonia manufacturing operation contained or involved the use of PCBs. It pointed to passages in Reference 7 of the HRS documentation record at proposal that discuss waste streams (or lack thereof in the case of the sulfuric acid manufacturing) to support this comment. Additionally, Guánica-Caribe pointed to discussion from the 1991 Kroll Phase I ESA (report found starting on page 203 of Reference 7 of the HRS documentation record at proposal) that "provides minimal indication of evidence of releases or residual contamination associated with the historical operations." As support, it highlighted a discussion in the Phase I ESA about the carbon ponds area. Guánica-Caribe stated that the report indicated the presence of carbon residual in the ponds at the time of the site reconnaissance, but that this material was determined to not contain hazardous levels of metals, which Guánica-Caribe asserts is supported by sampling data presented in the 2000 Site Inspection report. Guánica-Caribe stated that generally the Phase I ESA does not describe evidence of significant environmental impacts, and it asserted that impacts were not identified during later site investigation activities conducted in 1992.
- Guánica-Caribe disputed a statement in the HRS documentation record at proposal that mentions, "…multiple facility operations, waste depositional activities, poor housekeeping, and transport processes (e.g., flooding/ drainage)…" It claimed that there is no indication that historical operations at the Site were inconsistent with standard industrial practices at the time. Relatedly, Guánica-Caribe also disputed a different statement in the HRS documentation record at proposal that describes "evidence of waste mismanagement at the facility after operations ceased" that was recorded during the 1991 Phase I. It stated that while the 1991 Phase I ESA did report this information, statements like these are speculative because there is no information provided regarding timeframe for these conditions or their areal extent. Guánica-Caribe requested, therefore, that the EPA remove the statement from the HRS package and not rely upon it as a basis for scoring the Site because the statement does not provide information about existing "on-site" contamination or any migration that may have occurred
- Regarding possible sources on the eastern lot, Guánica-Caribe commented that the EPA has not provided sufficient information to clarify on-site contaminant sources. Specifically, it called out the discussion of drums in the other possible sources discussion of the HRS documentation record at proposal where it states that the content of the drums is unknown. However, Guánica-Caribe countered that the contents of these drums were determined to be non-hazardous and not a source. Regarding the former carbon ponds as a possible source, Guánica-Caribe claimed that no evidence was presented to document or suggest the presence of hazardous substances, particularly PCB, in the carbon ponds, including the pond called the "oil pond."
- Regarding accessibility of the eastern lot, Guánica-Caribe commented that the statement that the EPA personnel did not observe any natural or man-made barriers (i.e., berms, fences, or walls) separating the

Guánica State Forest to the east and the lands of the former facility on the eastern lot is incorrect because the eastern lot is fenced on its western boundary and fencing separates accessible areas to the north and south.

- Regarding the PCB concentration in soil, Guánica-Caribe provided several comments that the EPA mischaracterized the extent of PCBs in soil and in doing so inappropriately extended the boundary of the AOC beyond the western border of the eastern lot to incorrectly encompass human receptors "off-site" or sensitive terrestrial receptors through soil exposure. It commented that the EPA relied on unsupported assumptions and insufficient data to conclude the Site represents "a risk to off-site or sensitive terrestrial receptors" through soil exposure. In a related comment, it questioned the attribution of Aroclor-1260 in sample S04 and sample S36 and requested the EPA consider that PCBs in these samples are not related to the eastern lot. Also, Guánica-Caribe requested that the EPA clarify that samples S04 and S36, which it states are the basis for the EPA's statement about contamination extending west across the gravel parking lot, are not indicative of wide-spread PCB/Aroclor-1260 contamination in "off-site soil."

- Regarding the migration of contaminants documented on the eastern lot property and the overland migration route in general, Guánica-Caribe commented that HRS package relies on unsupported/speculative statements and that the EPA should not make inferences regarding potential spreading of contaminants.

- Regarding zinc concentrations in residential soils, Guánica-Caribe commented that it is likely that other sources are responsible for the zinc concentrations at sample locations S01 and S02 because of a mismatch of analyte fingerprint. Therefore, it requested that the EPA correct "this and similar statements within the HRS package," and it requested that the EPA adjust the boundary of the AOC to exclude samples S01 and S02 and adjust the Resident Individual Factor unless the EPA can provide other evidence to the contrary.

- Regarding the soil exposure component attribution discussion, Guánica-Caribe commented that the following statement is incorrect:

  > Results of sediment samples collected by EPA in 2019 from a municipal storm drain and a spring-fed channel upstream of the residential drainage channel segment were non-detect for zinc, and there are no other known sources of contamination in the intervening terrain (i.e., east of the residences and west of the former Ochoa facility) [Ref. 14, pp. 63–65, 139, 140; 15, pp. 30, 35; 28, pp. 49, 50, 55, 56]. It is likely zinc came to be deposited on the residential property via the drainage channel that historically carried runoff and settling pond effluent from the Ochoa facility through the channel.

  Guánica-Caribe commented that instead it should state, "Results of sediment samples collected by EPA in 2019 from a municipal storm drain and a spring-fed channel upstream of the residential drainage channel segment were non-detect for zinc. However, the source of zinc on the residential property and drainage channel has not been determined."

- Regarding the soil exposure component attribution discussion, Guánica-Caribe commented that the discussion of vanadium use by the facility should be revised to remove the sentence, "No other upslope sources of vanadium or other metals have been identified."

- Regarding the overland pathway, Guánica-Caribe commented that the HRS documentation record at proposal uses the following wording, "Release to surface water via overland migration," without specifying the nature of potential overland pathways. Also regarding the overland pathway, Guánica-Caribe deemed information provided by municipal personnel regarding the route of the underground portion of the community storm sewer system and discussed the HRS documentation record at proposal to be hearsay.

- Regarding the zone of contamination generally and more specifically Figure 4 of the HRS documentation record at proposal, Guánica-Caribe commented that information is missing from this figure. Specifically, Guánica-Caribe commented that the Aroclor-1260 concentrations from surface sediment samples SED03, SED04 and SED05 are not shown on Figure 4 or presented in the discussion in the HRS documentation

record at proposal. Additionally, Guánica-Caribe requested that the HRS package "properly" describe and present the zone of actual contamination within Guánica Bay as "the very localized potential Aroclor-1260 Zone of Contamination," acknowledge that the higher concentrations of Aroclor-1260 within the zone of actual contamination appear to be isolated to the "outlined area of Guánica Bay," and clarify that there is insufficient data to support attribution to the Site of Aroclor-1260 concentrations outside this area.

- Regarding the discussion of Source 1 in the surface water attribution discussion, Guánica-Caribe commented that the following statement should be revised to be consistent with the available information:

> Aroclor-1260 has been documented in the surface soils throughout Source 1, including in the drainage pathway originating at the western Ochoa property fence, west and topographically downgradient across the gravel parking area bordering the bay, and near the PPE (see Section 4.1.1.1). No other upslope sources or upstream sources of Aroclor-1260 have been identified.

- Guánica-Caribe advised that instead this statement should say, "Aroclor-1260 has been documented in the surface soils within Source 1, including along the SR-333, adjacent to the western Ochoa property fence."
- Regarding the surface water attribution discussion, Guánica-Caribe commented that there are several statements concerning outside studies that it perceived as inappropriately concluding that all PCBs in Guánica Bay originate from the Ochoa Site. Guánica-Caribe requested that language about these studies be clarified to state, "These studies suggest there likely are multiple sources of PCBs in the Guánica Bay Watershed." It also requested that anywhere contaminated sediment is discussed that the EPA clarify that such contamination could have come from multiple sources.
- Regarding the surface water attribution discussion in the HRS documentation record at proposal, Guánica-Caribe provided several comments questioning some of the reference citations associated with statements in the attribution discussion as well as the clarity and/or relevancy of certain statements in the attribution discussion.

Response: Guánica-Caribe's assertions that the HRS site score, including the soil exposure component and surface water migration pathway scores, is based on incorrect statements and unsupported exposure assumptions are mistaken. On the contrary, the EPA carefully reviewed all available information about this Site and applied this information appropriate to the Agency's proper use of the HRS as a screening tool. No changes have been made to the HRS documentation record at promulgation based on these comments.

The HRS is a screening tool for identifying sites that pose sufficient actual or potential risk to warrant further investigation under Superfund, and further assessment will be performed as part of the Superfund process that occurs at a separate stage from NPL listing. Also, the EPA used appropriate levels and quality of data and investigation in determining the HRS score for the Site consistent with the spirit of the HRS regulation. As explained above, in section 3.6, Adequacy of the Supporting Information, of this support document, as the Courts have confirmed, the HRS is intended to be a "rough list" of prioritized hazardous sites; a "first step in a process—nothing more, nothing less." Eagle Picher Indus. v. EPA, 759 F.2d 922, 932 (D.C. Cir. 1985) (Eagle Picher II). The HRS is the mechanism used to evaluate the relative risk of a site. If a site scores a 28.50 or greater using the HRS, then it may be added to the NPL.

The sample results and information gathered during the 2018 and 2019 investigations and presented in the HRS documentation record at proposal resulted in the collection of information of sufficient quantity and quality to evaluate the Site for HRS scoring purposes.

The implications of each of Guánica-Caribe's comments above as they apply to the HRS scoring of the Site are discussed in greatest detail in other sections of the support document. They are also discussed in summary below with citation to the later detailed discussions. Comments not discussed in detail in other sections are responded to in full below. In each case, the level of information used to generate an HRS score is shown to be sufficient and consistent with the HRS. Therefore, the factor values, pathway scores, and site score changes that the commenter

is requesting are not appropriate. Please see the following sections of this support document regarding specific rationales for why each of the score changes Guánica-Caribe requested are not appropriate:

- 3.14.3 Resident Individual
- 3.14.4 Terrestrial Sensitive Environments
- 3.13.5 Documentation of Fishing for Human Consumption
- 3.13.6 Surface Water Sensitive Environments

Please see below regarding Guánica-Caribe's individual comments about missing or incorrect details that it claims need correction:

Regarding Guánica-Caribe's comment about neither sulfuric acid manufacturing operation or the ammonia manufacturing operation involving the use of PCBs, the EPA notes that the existence of PCBs in the soil throughout the eastern lot property was positively documented in accordance with the HRS in sections 2.2.1, 2.2.2, and 5.1.0 of the HRS documentation at proposal. The commenter does not refute the existence of this contamination. While the eastern lot property was also the location of the sulfuric acid and ammonia operations, a determination of the exact origin of PCBs in the soil may be investigated during the RI/FS stage of the site assessment process when additional sampling is undertaken. (See Figures 1 and 2 of the HRS documentation record at proposal illustrating former facility operations areas and documented PCB contamination.) See also section 3.3, Liability, of this support document, regarding the related topic that liability is not assigned during the site listing process.

Regarding Guánica-Caribe's comment that the Phase I ESA provides minimal indication of evidence of releases or residual contamination associated with the historical operations, this is irrelevant because a contaminated soil source and an area of observed contamination containing SVOCs, PCBs, and metals and a release of PCBs to the surface water migration route were all clearly documented in accordance to the HRS based on the conditions documented during the 2018/2019 site reconnaissance and sampling events. (See sections 2.2.1, 4.1.2.1, and 5.1.0 of the HRS documentation at proposal.) By their nature, Phase I ESAs usually do not involve the collection of analytical environmental samples. They usually only involve passive actions such as literature searches and visual inspection. The report's methodology description confirms this. (See page 208 of Reference 7 of the HRS documentation record at proposal.) Therefore, any judgments about releases or residual contamination in this report were made with this limited lens. Furthermore, contrary to Guánica-Caribe's comment that impacts were not identified during later site investigation activities conducted in 1992, the Phase II ESA in 1992 (also called the 1992 Field Investigation report) did include environmental sampling and did document metals and volatile organic compound (VOC) contamination in soil and groundwater at the eastern lot of the facility. (See pages 155, 160, 167-168, 175-179, 182, 183, 190, 196, and 197-201 of Reference 7 of the HRS documentation record at proposal.) See also sections 3.11, Association of Hazardous Substances with Source(s), 3.13.2, Surface Water Migration Pathway – Likelihood of Release, and 3.14.1, Soil Exposure Component – Likelihood of Exposure/AOC, of this support document regarding the accurate and appropriate documentation of Source 1, the AOC, and the release of PCBs to the surface water migration pathway.

Regarding Guánica-Caribe's objections to comments in the HRS documentation record at proposal about poor housekeeping and waste mismanagement, the commenter's request to remove these statements is unnecessary. The EPA does not rely on either of these statements to support the HRS scoring. As described in section 3.6, Adequacy of the Supporting Information, of this support document, this Site was scored based on current conditions, and the information presented to document the HRS scoring is adequate for this purpose. Instead, the Phase I ESA statement about waste mismanagement simply provides a historical context for what was known at the time of proposal about Ochoa Fertilizer's past waste management practices. The Phase I ESA report was initiated by Ochoa Fertilizer or its representatives. The statement on page 61 of the HRS documentation record at proposal is:

> According to the 1991 Phase I, there was evidence of waste mismanagement at the facility after operations ceased: it was observed that the largest of six carbon settling ponds at the former

> facility had since been regraded; carbon slag and yellow crystalline material was observed directly on the ground surface near the historical ammonia plant area; and scrap equipment, piping, approximately 36 unlabeled 55-gallon drums, and vanadium pellets directly on the ground surface were observed in the northwestern portion of the property [Ref. 7, pp. 212–214].

Guánica-Caribe acknowledges that this information was reported in the Phase I ESA report. The statement is reasonable and is not speculative—i.e., given the materials observed on the property after operations ended, it is clear that post-operations management of these materials was not ideal. The other disputed passage on page 20 of the HRS documentation record at proposal states that Source 1 contaminated samples "possibly represent contaminated soil derived from multiple facility operations, waste depositional activities, poor housekeeping, and transport processes (e.g., flooding/ drainage)." This reflects a professional judgment made based on the discovery and documentation (in accordance with the HRS) of significant soil contamination throughout and off of the eastern lot property. (See sections 2.2.1, 2.2.2, and 5.1.0 of the HRS documentation at proposal.) If the commenter is concerned that the EPA is assigning liability with these statements, as described in section 3.3, Liability, of this support document, liability is not assigned at the time of listing.

Regarding Guánica-Caribe's comments about other possible sources discussed in the HRS documentation record at proposal including drums and surface impoundments, these comments are immaterial to the HRS score because these facility features were not included in the scoring. Please see section 3.12, Consideration of Other Possible On-property Sources, of this support document, regarding other sources that are described in the HRS documentation record at proposal but are not part of the scoring.

Regarding Guánica-Caribe's disputing statements in the HRS documentation record at proposal concerning accessibility of the eastern lot, the EPA disagrees with this assessment. The statement in question was made in the last paragraph on page 14 of the HRS documentation record at proposal discussing the endangered/threatened forest species and that there are no meaningful physical barriers to these species between the Guánica State Forest to the **east** and the now reforested lands of the former facility on the eastern lot. The commenter notes regarding fencing of the western boundary of the eastern lot and fencing separating accessible areas to the north and south do not change this. See section 3.14.4, Terrestrial Sensitive Environments, of this support document, and its subsections for further discussion of comments on these species.

Regarding Guánica-Caribe's comments about the association of PCBs in contaminated soil on the residential properties in samples S04 and S36 and the extent of the AOC, the EPA correctly and appropriately documented PCBs in soils and attributed them to the Site. Also, the EPA appropriately delineated the AOC. See section 3.14.1, Soil Exposure Component – Likelihood of Exposure/AOC, and section 3.14.2, Soil Exposure Component-Attribution, of this support document, for additional explanation.

Regarding Guánica-Caribe's comments about zinc concentrations in samples S01 and S02 and the delineation of the AOC, the EPA correctly and appropriately documented significant increases in zinc in these two samples and attributed them to the Site. Therefore, the delineation of the AOC and the designation of the Resident Individual factor value are correct. See sections 3.2, Delineation of Site/Extent of Site, 3.11, Association of Hazardous Substances with Source(s), 3.14.1, Soil Exposure Component – Likelihood of Exposure/AOC, and 3.14.2, Soil Exposure Component-Attribution, of this support document for additional explanation.

Regarding Guánica-Caribe's request that the EPA change statements concerning attribution of zinc on the residential properties and drainage channel to the Site, and instead acknowledge it could have come from some other possible site, this suggestion is inappropriate. As discussed in section 3.11, Association of Hazardous Substances with Source(s) and section 3.14.2, Soil Exposure Component-Attribution, of this support document, zinc is associated with the processes at the former facility on the eastern lot, and no other contributors of zinc to the residential properties and drainage channel have been identified at this time.

Regarding Guánica-Caribe's request that the EPA change its statement about no upslope sources of vanadium and other metals being documented, this request is also not appropriate. As discussed in section 3.13.1, Surface Water Migration Pathway – Overland Migration Path, of this support document, a steep ravine surrounds the eastern lot

on the northern, eastern, and southern borders of the property, with topography sloping west-southwest towards the bay. Additionally, as discussed in section 3.14.2, Soil Exposure Component-Attribution, of this support document, it is well established that the areas north, east, and south of the Site have never been developed as they are part of Guánica State Forest. Therefore, the EPA's conclusion that no upslope source of vanadium and other metals has been documented is a reasonable statement.

Regarding Guánica-Caribe's comments that the EPA relied on speculative comments to describe the overland migration of contaminants from this eastern lot and other related comments about the overland migration path generally, these comments are either incorrect or not relevant to the scoring. Pages 20 and 21 of the HRS documentation record at proposal clearly document that Source 1 is not contained from releasing to the surface water migration pathway, and pages 33 and 34 of the HRS documentation record at proposal clearly and thoroughly describe the overland migration route from the uncontained Source 1 to Guánica Bay. See sections 3.10, Source Containment, and 3.13.1, Surface Water Migration Pathway – Overland Migration Path, of this support document, for more information about how the EPA correctly described source containment and overland migration.

With respect to multiple comments on both the zone of contamination and attribution of surface water contamination, no changes have been made to the HRS documentation record at promulgation. Regarding the zone of contamination, as described later in this support document, the EPA has already accurately documented and delineated the zone of actual contamination in accordance with the HRS; therefore, the commenters request to change the way the zone of contamination is described is not appropriate. Regarding the commenter's request that that EPA state that there is insufficient data to support attribution to the Site of Aroclor-1260 concentrations outside the zone of attribution, this request is moot. The EPA has not attributed contamination outside of the zone of contamination to the Site, and in fact, as explained in section 3.13.4, Target Distance Limit and Extent of Site Sediment Contamination, of the support document, by definition, areas within the target distance limit that are outside of the zone of contamination are only subject to "potential" contamination. Regarding the addition of Aroclor-1260 concentrations from surface sediment samples SED03, SED04 and SED05 to Figure 4, this information is readily available in the references, and adding this information to Figure 4 would not change the HRS site score or the general scoring approach for this Site. Therefore, the EPA has not changed Figure 4 to add the Aroclor-1260 concentrations for these samples. See sections 3.13.2, Surface Water Migration Pathway – Likelihood of Release, and 3.13.4, Target Distance Limit and Extent of Site Sediment Contamination, of this support document, for additional explanation regarding these responses.

These comments result in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.10 Source Containment

Comment: Guánica-Caribe commented that the source containment section of the HRS documentation record at proposal referred to a release to surface water by overland migration but did not specify the path. Guánica-Caribe asserted that additional detail should be added to support the release via overland migration or the statement in the containment section should be revised to "only infer 'estimated overland migration.'"

Response: The source containment factor value was appropriately evaluated and assigned a value of 10 based on a release to surface water via overland migration. The "[r]elease to surface water via overland migration" statement pointed to by the commenter on page 20 of HRS documentation record appropriately refers to the containment factor value assigned. The rationale for this factor value assignment, supported by cited references, is provided on pages 20-21 of the HRS documentation record at proposal.

HRS Section 4.1.2.1.2.1.1 provides the requirements for evaluating the source containment factor value for the surface water migration pathway overland/flood migration component. For a source not located in surface water, HRS Section 4.1.2.1.2.1.1, *Containment*, in part, states:

> Determine the containment factor value for the watershed as follows: …

- If none of the sources is located in surface water in the watershed, assign a containment factor value from table 4–2 to each source at the site that can potentially release hazardous substances to the hazardous substance migration path for this watershed. Assign the containment factor value for the watershed as follows:
  - Select the highest containment factor value assigned to those sources that meet the minimum size requirement described below. Assign this highest value as the containment factor value for the watershed. Enter this value in table 4–1.…

HRS Section 4.1.2.1.2.1.1 instructs a scorer to assign a value using HRS Table 4-2 if a source it not located in surface water. HRS Table 4-2, in part, describes the situations in which a source (including contaminated soil sources as is the case for Source 1) is assigned a containment factor value of 10:

TABLE 4–2— CONTAINMENT FACTOR VALUES FOR SURFACE WATER MIGRATION PATHWAY

Source	Assigned value
All Sources (Except Surface Impoundments, Land Treatment, Containers, and Tanks)	
Evidence of hazardous substance migration from source area (i.e., source area includes source and any associated containment structures)	10
No evidence of hazardous substance migration from source area *and*: (a) Neither of the following present: (1) maintained engineered cover, or (2) functioning and maintained run-on control system and runoff management system…	10

In explaining the HRS scoring of the containment factor value, pages 20-21 of the HRS documentation record at proposal discusses topography, lack of containment features, and evidence that hazardous substances have migrated toward surface water:

> Release to surface water via overland migration:
>
> Topography at the former Ochoa property and the surrounding area slopes southwest towards Guánica Bay [Ref. 4, p. 1]. The contaminated soil identified at the property includes contamination at the surface (i.e., 0 to 2 feet) and occupies upland portions of the property, and there are no containment features (e.g., maintained engineered cover, functioning run-on or runoff control measures) present that would prevent contaminated soil from being transported downslope and toward the bay via overland flow and the property drainage ditch [**Figure 3** and **Table 2**; Ref. 4, p. 1; 7, pp. 7, 9; 14, pp. 101, 103, 104, 107]. Therefore, a surface water containment factor value for overland migration of 10 is assigned for the source [Ref. 1, Table 4-2].
>
> The EPA 2019 sample analytical results document contaminant migration from the former Ochoa property, overland to soil sample location 0642-S02, which is within approximately 50 feet of storm drain features that may lead to the nearest perennial surface water body (i.e., Guánica Bay) [**Figure 3**; Ref. 4, p. 1]. Aroclor-1260, which is related to historical operations at Ochoa, was detected in soil at significant concentrations throughout the Ochoa property, including in the drainage pathway from the Ochoa property to surface water [see **Figure 3**]. Aroclor-1260 was detected in a sediment sample collected from Guánica Bay near the PPE at a concentration that meets the criteria for observed release by chemical analysis (see **Section 4.1.2.1**).

The scoring of the containment factor value was completed consistent with the HRS. Source 1 at the Site was assigned a factor value of 10 from HRS Table 4-2 (based on evidence of migration of contaminants, but also

noting lack containment features like a maintained engineered cover or functioning and maintained run-on control system and runoff management system).

Further, the "[r]elease to surface water via overland migration" text pointed to by the commenter on page 20 of HRS documentation record in this context is specifically only a header referring to the containment factor being assigned. That is, the HRS includes two containment factors that may be assigned for the surface water migration pathway—one for contaminants that may migrate to surface water via overland flow runoff from a source, and one for contaminants that may migrate to surface water via floodwaters reaching a source. HRS Section 4.1.2.1.2.1.1, *Containment*, falls within the HRS section 4.1.2.1.2.1, *Potential to release by overland flow*, whereas HRS Section 4.1.2.1.2.2.1, *Containment (flood)*, falls within the HRS section 4.1.2.1.2.2, *Potential to release by flood*. Pages 20-21 of the HRS documentation record at proposal included the following two headers within the section on containment to distinguish between the two:

> Containment
>
> Release to surface water via overland migration:…
>
> Release to surface water via flood:…

Regarding the overland migration path, and the evidence to support the scoring of an observed release by chemical analysis, these are HRS scoring elements separate from the HRS containment factor, and are described in sections 4.1.2.1.1 and 4.1.1.1 of the HRS documentation record at proposal. See also sections 3.13.1, Surface Water Migration Pathway – Overland Migration Path, and 3.13.2, Surface Water Migration Pathway – Likelihood of Release, of this support document providing the discussion regarding these subjects.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.11 Association of Hazardous Substances with Source(s)

Comment: Guánica-Caribe commented that the EPA has not reasonably associated certain hazardous substances, including zinc and PCBs, with the activities at the Site.

With regard to zinc concentrations specifically within AOC samples S01 and S02, which are located off the eastern lot on residential properties along Calle Jose Nazario, Guánica-Caribe questioned what it claimed is the EPA's "presumption that concentrations of *zinc* at these locations are associated with the Ochoa Site." Because only zinc was found in these two samples at a level above the EPA's screening levels, it argued that the constituents in soil detected at these locations do not match those on the eastern lot of the Ochoa Site. Guánica-Caribe also point out that intervening samples "on the Site" do not contain elevated concentrations of zinc. It points to sample S36 as an example of a sample with lower zinc concentrations that is located at/between the property boundary of the eastern lot and the location of AOC samples S01 and S02 along Calle Jose Nazario. Guánica-Caribe concluded that some source other than Ochoa is likely responsible for the zinc contamination in S01 and S02, and it insisted that unless the EPA has other evidence proving that the zinc in samples S01 and S02 originated from Ochoa or unless the EPA has evidence that these samples contain other contaminants related to the Site, they should be removed from scoring.

With regard to PCB contamination, Guánica-Caribe provided two main comments. The first is that the EPA ignored relevant analytical data in its assessment and scoring of the soil exposure and subsurface intrusion pathway that calls into question the origin of PCBs in certain soil samples, and the second is that the EPA has not identified a known source of PCBs from historical use on the eastern lot. Regarding the comment that the EPA ignored relevant analytical data, Guánica-Caribe asserted that the EPA should include and consider all relevant datapoints in its HRS package and HRS calculations. It elaborated that it did not appear that the EPA considered relevant datapoints, such as sample locations S03, S05, and S10, as they are absent from key tables and figures. It

pointed out that these samples, which are located near the boundary of the eastern lot and in some cases adjacent to or upgradient of other sample locations, have no or low detections of PCBs. Guánica-Caribe wrote that this is an indication that the PCB concentrations in soil are discontinuous; thus, it "may be indicative of other sources of the PCB contamination, potentially including those originating from off the Site," and "may support an assumption that the on-site storm water management structures were generally effective and minimized the migration of contamination from the Eastern Lot with stormwater runoff."

Regarding the comments about the lack of evidence for historical PCB use on the eastern lot of the Ochoa Site, Guánica-Caribe asserted that the EPA resorted to making "preliminary and inappropriate" conclusions regarding PCB use at the former facility on the eastern lot because it had not identified other sources of PCBs. It took particular issue with statements regarding what was referred to as the "oil pond" in association with possible PCB use at the facility. Guánica-Caribe pointed out that the reference chain for statements about the "oil pond" (i.e., Reference 7 – the 2000 site inspection which in turn cites a 1992 ENSR investigation) does not indicate that samples were collected from the oil pond, so there is no direct evidence that this pond contained PCBs. It also highlighted the soil samples collected in the area in 1992 that showed no SVOC contaminants, which Guánica-Caribe stated one would expect to find if PCBs were present due to carrier oil, thus further supporting that the oil pond was not a source of PCBs.

Response: Inasmuch as the commenter's assertions pertain to associating hazardous substances with Source 1, hazardous substances, including zinc and PCBs, were sufficiently associated with Source 1 in the HRS documentation record at proposal for the purposes of evaluating a source.

For HRS scoring, a source is defined, in HRS Section 1.1, *Definitions*, as:

> Any area where a hazardous substance has been deposited, stored, disposed, or placed, **plus those soils that have become contaminated from migration of a hazardous substance**… [emphasis added]

In presenting the requirements for linking a hazardous substance to a source, HRS Section 2.2.2, *Identify hazardous substances associated with a source,* states:

> For each of the three migration pathways, **consider those hazardous substances documented in a source (for example, by sampling**, labels, manifests, oral or written statements**) to be associated with that source when evaluating each pathway**. In some instances, a hazardous substance can be documented as being present at a site (for example, by labels, manifests, oral or written statements), but the specific source(s) containing that hazardous substance cannot be documented. For the three migration pathways, in those instances when the specific source(s) cannot be documented for a hazardous substance, consider the hazardous substance to be present in each source at the site, except sources for which definitive information indicates that the hazardous substance was not or could not be present…. [emphasis added]

Page 18 of the HRS documentation at proposal discusses the application of the HRS requirements for source characterization and states:

> **2.2.1 Source Identification**
>
> Number of the source: Source No. 1
>
> Name and description of the source: Contaminated Soil
>
> Source Type: Contaminated Soil
>
> Source 1 consists of SVOC-, PCB-, and metals-contaminated soil at and in the vicinity of the former Ochoa facility located in Guánica, Puerto Rico (see **Tables 1** and **2)**. Based on the EPA

> 2019 sampling results, the contaminated soil source encompasses a majority of the 112-acre eastern lot of the former Ochoa facility, and extends to the west to include public ROWs, gravel parking areas, and residential properties along Calle José Nazario [see **Figure 3**]. The contaminated soil source is documented from the surface to a depth of 10 ft bgs; elevated concentrations were also detected as deep as 28 ft bgs, however, there are no comparable background samples for depths below 10 feet (see applicable footnote for **Table 1**) [Ref. 15, pp. 208, 209; 42, pp. 13–16, 25, 165; 43, pp. 5, 1824; 60, pp. 3–7, 49, 88; 61, pp. 6, 36]. …

Page 19 of the HRS documentation record at proposal states:

> From April 23 through May 7, 2019, EPA collected 64 soil samples (including four environmental duplicates) from 34 soil borings advanced using direct-push methodology and manual advancement (hand-auger) at Ochoa [Ref. 14, pp. 6–31; 15, pp. 10, 13–23; **Figure 3**]. Analytical results show the presence of numerous hazardous substances at concentrations significantly above background, including PAHs, phthalates, and inorganic analytes (see **Table 2**). Aroclor-1260 was detected in contaminated soil throughout the Ochoa property; the maximum concentration reported was 84,000 micrograms per kilogram (µg/kg) [Ref. 14, p. 16; 46, pp. 14–16, 88, 147, 148]. Pesticides (aldrin and dieldrin) were detected at one soil sample location (i.e., 0642-S23) [Ref. 14, pp. 11, 12; 42, pp. 10–13, 53, 161; 43, pp. 3, 1449].…
>
> The area of contaminated soil is defined by a polygon bounded by and encompassing the following EPA contaminated soil sample locations (i.e., locations where samples show hazardous substances related to historical facility operations at concentrations above background) as shown on **Figure 3**: 0642-S01, 0642-S02, 0642-S04, 0642-S06, 0642-S07, 0642-S08, 0642-S09, 0642-S13, 0642-S16, 0642-S18, 0642-S19, 0642-S20, 0642-S21, 0642-S22, 0642-S23, 0642-S24, 0642-S25, 0642-S26, 0642-S27, 0642-S32, 0642-S35, and 0642-S36.

Pages 18-20 of the HRS documentation record at proposal includes relevant historical information about past practices at the property to further characterize the source. Pages 18-20, in part, state:

> The soil contamination (i.e., Source 1) is associated with the industrial processes which took place at the former Ochoa facility from 1957 through 1970, as the property was vacant and undeveloped prior to 1957 and has been vacant since the fertilizer plant shut down [Ref. 7, pp. 9, 163, 209, 800, 802; 29, pp. 6–10]. The industrial activity at the property was in the production of fertilizers.…
>
> The anhydrous ammonia plant located on the eastern lot utilized a process in which oxygen was burned with crude oil to generate hydrogen and a carbon byproduct [Ref. 7, p. 12].…
>
> PAHs, which were detected at multiple soil sample locations, are a group of chemicals that form during the incomplete burning of coal, oil, and other organic substances and would likely be present in the carbon byproduct that was dumped on the eastern lot [**Figure 3**; Ref. 73, pp. 19–20]. Metals, including most of the inorganic analytes detected in Source 1, are present in crude oil and would also likely be present in the carbon byproduct [**Table 2**; Ref. 74, p. 8; 75, p. 3]. Metals, including arsenic, cadmium, lead, manganese, and zinc, also are known to be constituents of commercial inorganic fertilizers [Ref. 78, p.1; 79, p. 2].…
>
> The presence of significant concentrations of PAHs, phthalates, and inorganic analytes in Ochoa property soil is likely attributable to the burning and waste handling practices described above, the accumulation of process waste in the settling ponds and the carbon dumping area, the deposition and mixing of plastics with soil, and migration away from these areas, which are on the northern, upgradient portion of the property [**Figures 2** and **3**; Ref. 4, p. 1; 7, p. 9]….

> PCBs are a group of man-made organic chemicals manufactured from 1929 until the manufacturing was banned in 1979 [Ref. 30, p. 1]. Due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications and were found in heavy-duty electrical equipment, such as transformers and voltage regulators; old smaller-scale electrical devices or appliances containing PCB capacitors; motor and hydraulic oil; and fluorescent light ballasts [Ref. 30, p. 1].… During its operating years, the Ochoa facility utilized its own electrical substation on the eastern lot that was separate from the PREPA substation on the property (the PREPA substation was not constructed until 1991 or 1992) [Ref. 7, pp. 8, 56, 160, 209, 212; 10, p. 1]. One of the surface impoundments used by the facility was referred to as the "oil pond" [Ref. 7, p. 160]. Given the industrial applications of PCBs discussed above and the facility's operational nature and timeframe, it is reasonable to assume that some type of PCB equipment was used at the facility and that it was the original source of Aroclor-1260 found throughout Source 1 [see **Table 2** and Figure 3].
>
> Contamination of soils on lands west of the historical Ochoa facility (i.e., ROWs, gravel parking areas, and residential properties along Calle Jose Nazario) is likely associated with effluent discharges and runoff from the Ochoa property via historical or current drainage patterns (see **Section 4.1.1.1**). All contaminated soils, both within the former facility border and to the west of the former facility border, are included in Source 1.
>
> The sample locations listed above possibly represent contaminated soil derived from multiple facility operations, waste depositional activities, poor housekeeping, and transport processes (e.g., flooding/drainage) [**Figure 3**; Ref. 7, pp. 8, 9, 214]. These historical activities all generated the same hazardous substances as those found in Source 1 (see above), most occurred in the eastern and northern portions of the property, and the full extent of their impact was not well-documented at the time of waste deposition or in subsequent years [see **Figure 3**]….
>
> In addition, although inorganic analytes, PAHs, and VOCs were not detected consistently across Source 1, and appear to represent contaminated soil derived from multiple discrete facility operations (generating different hazardous substances) and waste handling practices spread across the eastern lot, the presence of Aroclor-1260 is relatively consistent across Source 1 [see **Figure 3**]. As described above, PCBs are associated with the large-scale industrial operations that historically occurred at Ochoa [Ref. 7, pp. 9–11, 160; 30, pp. 1, 2]; however, Aroclor-1260 was not known to be specifically associated with any individual operation or waste management unit. Based on these considerations, both the sampling locations and the inferred contaminated area lying between these locations are considered as the source for HRS scoring purposes [Ref. 1, Section 5.1.0]….
>
> The Ochoa property slopes southwest toward Guánica Bay and the area of contaminated soil extends in the same direction away from the Ochoa property towards the bay, suggesting that contaminated soil is at least partly derived from migration of contaminants away from the aforementioned historical operational areas [**Figures 2** and **3**; Ref. 4, p. 1].…

Page 22 of the HRS documentation record at proposal presented the following additional explanation regarding the presence of hazardous substances in relation to Source 1:

> Sampling and laboratory analysis for soil samples collected by EPA in April and May 2019 document the presence of SVOCs (PAHs, and phthalates), PCBs (Aroclor-1260), pesticides (aldrin and dieldrin), and inorganic analytes (beryllium, chromium, copper, lead, mercury, nickel, thallium, vanadium, and zinc) in soils at and in the vicinity of the former Ochoa property at concentrations above background concentrations. Given the lack of information regarding how the pesticides aldrin and dieldrin came to be located in soils on the property, they are not included in the evaluation of Source 1.…

> Although not required by the HRS in identifying sources, only contaminated soil samples greater than three times background are being used to identify the relative increase in source hazardous substances over background levels, and to show that the contamination being scored is associated with facility activities or releases and is not representative of naturally occurring or ubiquitous contaminant levels in soils in the area. As such, the results presented here represent the minimum extent of contaminated soil at the Ochoa property.

The contaminated soil scored as Source 1 was properly evaluated consistent with HRS requirements. The definition of a source in HRS Section 1.1, quoted above, includes consideration of soils contaminated by migration as a source for HRS scoring purposes. For this Site, Source 1 was evaluated as a contaminated soil source, which is an HRS eligible source per the source definition in HRS Section 1.1, quoted above. To support the evaluation as soil contaminated due to migration, the HRS documentation record at proposal provided additional information explaining the migration of contamination as the result of former facility operations. As quoted above from pages 18-20 of the HRS documentation record at proposal, the processes associated with the former fertilizer production were known to involve metals, PAHs, and/or phthalates, and the facility operated its own electrical substation built prior to the 1979 PCB ban that likely used equipment associated with PCBs (see pages 18-20 of the HRS documentation record at proposal and pages 8, 9, and 209 of Reference 7 of the HRS documentation record at proposal). The HRS documentation record at proposal also explained on page 19 that contamination to the west "is likely associated with effluent discharges and runoff from the Ochoa property via historical or current drainage patterns" to link the soil contamination to likely migration of hazardous substances.

Additionally, the HRS evaluation of the Site properly identified hazardous substances associated with Source 1 for scoring a migration pathway (i.e., the surface water migration pathway). The HRS evaluation, quoted above, used sampling and analysis to associate hazardous substances with Source 1 following one of the methods listed in HRS section 2.2.2, quoted above, for associating hazardous substances. The resulting source is identified for HRS scoring purposes in the HRS documentation record at proposal as the area bounded by contaminated soil sample locations where samples show hazardous substances related to historical facility operations at concentrations above background. The identification of sample concentrations above background are presented in HRS documentation record at proposal Tables 1 and 2. Thus, the hazardous substances identified through sampling and analysis were appropriately identified as associated with Source 1.

Regarding comments that PCBs and zinc were not associated with the entirety of Source 1, the HRS documentation record at proposal included information specific to past practices related to the use of PCBs and zinc to support the evidence of migration in the Source 1 soil contamination scored. In describing historical use related to PCBs, page 19 of the HRS documentation record at proposal states "[g]iven the industrial applications of PCBs discussed above and the facility's operational nature and timeframe, it is reasonable to assume that some type of PCB equipment was used at the facility and that it was the original source of Aroclor-1260 found throughout Source 1." In discussing the presence of zinc in Source 1, the HRS documentation record at proposal indicates on page 18 that "[m]etals, including … zinc, also are known to be constituents of commercial inorganic fertilizers." The HRS documentation record at proposal provided sufficient information explaining the rationale for evaluating PCBs and zinc as part of a source at the Site and to relate these hazardous substances to the former facility activities on the eastern lot for scoring a source. As these comments relate to the attribution of these substances to the Site, that subject is discussed in detail in sections 3.13.3, Surface Water Pathway – Attribution, and 3.14.2, Soil Exposure Component – Attribution, of this support document.

Regarding the extent of Source 1, the HRS documentation record at proposal provided additional information characterizing the source to establish the migration of contamination in addition to the sampling and analysis data documenting that hazardous substances are associated with Source 1. As discussed above, sampling was used to associate hazardous substances with the source consistent with the methods presented in HRS Section 2.2.2 for this assessment. As indicated in the HRS documentation record at proposal quoted above, the source, for HRS scoring purposes, is described as the area of contaminated soil bounded by sample locations where samples show hazardous substances related to historical facility operations at concentrations above background. Page 20 of the HRS documentation record at proposal explained that "transport processes (e.g., flooding/drainage)" and the

downward slope of the property toward the southwest support the likely migration of contamination, in part, from the former operational areas at the eastern lot. Also, in support of scoring the area determined to be Source 1, page 20 of the HRS documentation record at proposal provided additional explanation regarding the distribution of hazardous substance concentrations, explaining that while some hazardous substances appear discontinuous and to represent contaminated soil from different operations across the eastern lot, "the presence of Aroclor-1260 is relatively consistent across Source 1." The evidence of migration from the facility operations discussed explains why the extent of Source 1 presented in the HRS documentation record at proposal was determined to be appropriate for the HRS scoring of a source.

Regarding the alleged differences in contaminants present in samples on the eastern lot and in samples S01 and S02, samples S01 and S02 had additional detections of other contaminants found in other eastern lot samples but these concentrations did not meet observed contamination criteria and were not used in the HRS scoring of the Site. As noted in the text quoted from HRS documentation record page 22 above, HRS observed contamination criteria (three times background) were applied as a conservative approach in associating hazardous substances with Source 1 yielding a minimum extent of contaminated soil at the eastern lot; however, these strict criteria are not required to evaluate a source for HRS purposes as shown by text quoted from HRS Section 2.2.2, which are discussed in detail above. Although not used in HRS scoring, other Site contaminants were detected at locations S01 and S02 and other sample locations within and/or very near the Source 1 polygon showed detections of soil contamination which further connect soil contamination west of PR-333 to the Site (though not meeting the conservative three-times-background criteria, these detections still exceeded the greatest background concentrations shown in Table 1 of the HRS documentation record at proposal):

- Aroclor-1260 was detected in sample S02 at a concentration of 210 J µg/kg. (See page 19 of Reference 42 of the HRS documentation record at proposal.)
- Mercury was detected in sample S01 at a concentration of 0.17 mg/kg. (See page 13 of Reference 56 of the HRS documentation record at proposal.)
- Lead was detected in samples S01 and S02 at concentrations of 47.3 mg/kg and 29.9 mg/kg, respectively. (See page 14 of Reference 56 and page 14 of Reference 58.[5])
- Although not used in HRS scoring, sample S03 pointed to by Guánica-Caribe comments summarized above is a soil sample only about 60 feet southeast of S02 (and just slightly south of the Source 1 polygon). (See page 33 of Reference 15 of the HRS documentation record at proposal and Figure 3 of the HRS documentation record at proposal.) It also contained Site contaminants, including 57 µg/kg Aroclor-1260, 352 mg/kg chromium, 487 mg/kg nickel, 120J µg/kg bis(2-ethylhexyl)phthalate, and 130J µg/kg butylbenzylphthalate. (See pages 30-35 of Reference 40 and pages 16-17 of Reference 56 of the HRS documentation record at proposal.)
- Sample S36, which is pointed to by the commenter as an example of a sample with lower zinc concentrations that is located at/between the property boundary of the eastern lot and the location of AOC samples S01 and S02. This sample exhibited 182 mg/kg zinc, which was again lower than the conservative three-times-background criterion of 240 mg/kg, but still above the greatest background concentration of 80.0 mg/kg shown in HRS documentation record at proposal Table 1. Note also that this sample exhibited other metals concentrations above the greatest background concentrations shown in HRS documentation record at proposal Table 1: 53.7 mg/kg copper, 50.0 mg/kg lead, 96.9 mg/kg vanadium, 0.071 mg/kg mercury. (See pages 78-79 of Reference 60 of the HRS documentation record at proposal.)

Page 20 of the HRS documentation record at proposal explained that while inorganic analytes were not consistently detected meeting the conservative criteria applied, "Aroclor-1260 is relatively consistent across Source 1" even though it is "not known to be specifically associated with any individual operation or waste

[5] The associated documentation for samples S01 and S02 is also cited in the HRS documentation record at proposal in Table 2 along with the presentation of concentrations of hazardous substances detected in samples S01 and S02 that were included in the HRS scoring of Source 1. For background levels and the associated background samples, see Table 1 of the HRS documentation record on pages 23 and 24.

management unit." Other origins of the contamination in samples S01 and S02 were not found in the immediate vicinity as discussed in detail in section 3.14.2, Soil Exposure Component – Attribution, of this support document.

Regarding the consideration and evaluation of what is referred to as the "oil pond," as explained above, Source 1 consists of contaminated soil documented to contain hazardous substances consistent with HRS requirements for evaluating a source. As these comments apply to the evaluation of the "oil ponds" in general, this discussion is provided in detail in section 3.12, Consideration of Other Possible On-property Sources, of this support document.

As these comments relate to the attribution of hazardous substances to the Site, attribution is discussed in detail in sections 3.13.3, Surface Water Migration Pathway – Attribution, and 3.14.2, Soil Exposure Component – Attribution. Comments specifically questioning the attribution of PCBs and/or zinc in soil to Site are discussed in section 3.14.2, Soil Exposure Component – Attribution.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.12 Consideration of Other Possible On-property Sources

Comment: Guánica-Caribe disputed the characterization of certain features of the former facility on the eastern lot as possible sources. Specifically, Guánica-Caribe disagreed with the EPA's assessment that drums previously found at the eastern lot were a potential source of contamination at the Site. It commented that the following statement from the HRS documentation record at proposal disregards documentation that the contents of these drums were determined to be non-hazardous. The statement cited by Guánica-Caribe is as follows:

> The contents of these drums [are] unknown as samples are not known to have been collected, and there are no available records regarding the removal or disposal of the 36 drums.... [A possible second area of] debris and drum piles were observed on the northwestern portion of the property.

Guánica-Caribe pointed to the 1994 Preliminary Assessment, which states that "[s]amples taken from the drums were sent to Envirolabs Inc. for various analyses. The results from the sample analyses revealed that the material was non-hazardous (Reference 10)."[6] Therefore, it asserted that these drums would likely not represent a significant potential contaminant source.

Guánica-Caribe also took issue with the association of PCBs with the oil pond as described in the following HRS documentation record at proposal statement:

> One of the surface impoundments used by the facility was referred to as the "oil pond" [Ref. 7, p. 160]. Given the industrial applications of PCBs discussed above and the facility's operational nature and timeframe, it is reasonable to assume that some type of PCB equipment was used at the facility and that it was the original source of Aroclor-1260 found through Source 1.

Guánica-Caribe stated that this assumption is not reasonable, considering that there are other potential sources of PCBs that could be responsible for the PCBs in Guánica Bay that would be equally plausible in light of the many historical applications of PCBs. Also, Guánica-Caribe pointed out that the reference chain cited for this statement does not indicate that samples were collected from the oil pond, so there is no direct evidence that this pond contained PCBs. It also highlighted that the soil samples collected in the area in 1992 showed no SVOC contaminants, which Guánica-Caribe stated one would expect to find if PCBs were present due to the carrier oil associated with PCBs. Thus, it claimed that this further supports that the oil pond was not a source of PCBs. Guánica-Caribe requested the EPA remove all references to the oil pond as a source of PCBs and eliminate the association of PCBs with this oil pond as a basis to assume a surface water migration pathway for PCBs.

[6] Guánica-Caribe cited Reference 7 of the HRS documentation record at proposal, page 7, noting that data in "Reference 10" on pages 871-885 of Reference 7 were provided by Ochoa Fertilizer to PREQB in a letter dated 8/3/1991.

Guánica-Caribe also made related comments about whether any of the former carbon ponds could be considered possible sources. It commented that the 1991 Kroll Phase I ESA determined that the carbon residual material in the ponds did not contain hazardous levels of metals. It also pointed out that while the pond material was not tested for PCBs at the time, later data from the 2000 Site Inspection report indicated that soil in the area of the ponds did not contain SVOCs, which Guánica-Caribe claimed would be expected if PCBs were also present.

Response: Guánica-Caribe's comments regarding drums, the carbon ponds in general, and specifically the "oil pond" at the eastern lot do not affect the HRS scoring because none of these facility features were scored as sources in the HRS documentation record at proposal. (See section 2.2 of the HRS documentation record at proposal.) Regarding the drums, the commenter is partially correct in that there was one sample collected for one of the various 36 drums in 1991 for which analytical results are available, as well as an additional drum material sample and results in 1992; the HRS documentation record statement is therefore corrected later in this response to reflect this. However, even those available sample results document the presence of hazardous substances; the HRS is focused on the presence of hazardous substances in sources and is not limited to source materials designated as hazardous waste for Resource Conservation and Recovery Act (RCRA) or other purposes. The remainder of the statements related to the drums are therefore correct as is. Regarding the oil pond, the statement in question is appropriate and will not be corrected—the EPA made no specific assertion that PCBs were found in the pond, but rather included this information as part of a discussion offering reasonable possible origins of the PCBs found in Site soil. Regarding the carbon ponds in general, the surface impoundments were characterized correctly in the HRS documentation record at proposal, so no correction is necessary.

HRS Section 1.1, *Definitions*, defines a source as:

> Any area where a hazardous substance has been deposited, stored, disposed, or placed, plus those soils that have become contaminated from migration of a hazardous substance. Sources do not include those volumes of air, ground water, surface water, or surface water sediments that have become contaminated by migration, except: In the case of either a ground water plume with no identified source or contaminated surface water sediments with no identified source, the plume or contaminated sediments may be considered a source.

The drums and the carbon settling ponds (of which the "oil pond" is one) are discussed in a section of the HRS documentation record at proposal called "Other Possible Sources" (found on page 31 of the HRS documentation record at proposal), which contains discussions about **non-scored** sources that the EPA wishes to alert the public about, but for which adequate information for scoring may not be available at the time of proposal given the limit scope of an HRS evaluation.

Regarding the drums, page 31 of the HRS documentation record at proposal states:

> **Drums**
>
> Approximately thirty-six 55-gallon drums in various rusted and deteriorated conditions were observed in the northwestern scrap storage area at the facility during the 1991 Phase I ESA [Ref. 7, p. 214]. A 1994 Preliminary Assessment (PA) confirmed the presence of drums at the facility [Ref. 7, p. 813]. The contents of these drums is unknown as samples are not known to have been collected, and there are no available records regarding the removal or disposal of the 36 drums. EPA observed a small pile containing at least two rusted 55-gallon drums in a debris pile, and black soil next to the pile, during the 2019 reconnaissance and sampling activities [Ref. 14, pp. 80, 112]. The debris and drum piles were observed on the northwestern portion of the property; however, it is unknown if this is the same drum storage area described in historical documents due to lack of supporting documentation (i.e., latitude and longitude, or available landmark descriptions). EPA collected a surface soil sample from the area of the black soil and debris pile, sample 0642-S35, as part of the 2019 sampling event [Ref. 14, p.16; 15, pp. 23, 33]. Analytical results for the sample document PAHs, Aroclor-1260, and metal contaminants (including chromium, lead, vanadium, and mercury) at concentrations significantly above background (see

sample 0642-S35 in Table 2). The contamination at sample 0642-S35 is included in Source 1, Contaminated Soil.

As noted, it was unclear if the small pile containing at least two rusted 55-gallon drums observed during the 2019 reconnaissance and sampling activities was part of the same set of drums identified in 1991 given the passage of time and the lack of information about what became of these original 40 drums. (See pages 80 and 112 of Reference 14 of the HRS documentation record at proposal on the 2019 observations.) By 1994, two drums only were found at the eastern lot, and while there was indication by an Ochoa Fertilizer employee that the 1991 drums may have been disposed of by burial, the EPA has no formal record of how or where the drums were disposed. (See pages 214, 836, and 839 of Reference 7 of the HRS documentation record at proposal.) It is reasonable then for the EPA to only characterize these drums as "possible" sources, alerting the public of their presence but not including them as part of the scoring.

The commenter is correct that there was at least one sample with available results, collected for one of the various drums in 1991 (as well as a drummed soil sample collected in 1992 noted below). Therefore, the HRS documentation record statement related to this topic, "The contents of these drums is unknown as samples are not known to have been collected, and there are no available records regarding the removal or disposal of the 36 drums," should instead more clearly state that "The contents of these drums is generally unknown, as only a limited number of samples are known to have been collected (a sample from one drum in 1991 and a sample from one drum in 1992), and there are no available records regarding the removal or disposal of the 36 drums." As this is a minor point on a non-scoring issue, the HRS documentation record itself will not be revised, but this correction is part of the record for the Site by virtue of inclusion in this support document.

Regarding the comment that the drums found in 1991 did not contain hazardous material and, therefore, should not be considered a source (i.e., in this case, a non-scored "other possible" source), the conclusion in this comment is in error. The drums sampled for which results are available would still be eligible to document an HRS source because hazardous substances were associated with the drum material. As the HRS definition of source quoted above illustrates, the HRS is focused on the presence of hazardous substances in sources and is not limited to source materials designated as hazardous waste for Resource Conservation and Recovery Act (RCRA) or other purposes. While Guánica-Caribe is correct in noting that a drum sample was collected on June 24, 1991 (shown on pages 220-222 and 884 of Reference 7 of the HRS documentation record at proposal), and that a comment was made in the 1994 PA that this material was not hazardous material (shown on page 803 of Reference 7 of the HRS documentation record at proposal), hazardous substances were in fact documented in this drum sample, including cadmium, lead, and mercury. (See pages 222 and 884 of Reference 7 of the HRS documentation record at proposal.) The non-hazardous designation may have been a reflection that the substances documented were not above regulatory limits (i.e., RCRA Toxicity Characteristic Leaching Procedure [TCLP] criteria). (See pages 214, 222, and 884 of Reference 7 of the HRS documentation record at proposal.) However, as described in section 3.7, Concentrations below Screening Levels, of this support document, concentrations below regulatory limits are eligible for HRS scoring consideration. The EPA also notes that a sample of drummed soil material was collected during the 1992 Phase II ESA, and this sample (sample 8-1) also documented hazardous substances associated with drums at the facility including positive detections of arsenic, chromium, copper, mercury, nickel, and zinc. (See pages 178 and 192 of Reference 7 of the HRS documentation record at proposal.)

Regarding Guánica-Caribe's comments about the "oil pond" not being a source of PCBs, as previously mentioned, this comment does not affect HRS scoring because the "oil pond" was not scored as a source in the HRS documentation record at proposal. That said, the statement referring to one of the surface impoundments as an "oil pond" is itself factual based on the 1992 Phase II ESA produced for Ochoa Fertilizer itself. (See pages 160, 172, and 188 of Reference 7 of the HRS documentation record at proposal.) Regarding the statement selectively cited by the commenter from the HRS documentation record at proposal and described above, this statement is part of a larger discussion about the historical use of PCBs in industry during the time period of facility operations, which was approximately from 1957 to sometime between 1968 and 1970. (See pages 10–11 of Reference 7 of the HRS documentation record at proposal.) The cited passage without the context of the larger paragraph incorrectly makes it seem like the EPA is saying the "oil pond" is conclusively an origin of PCBs in the soil at the eastern lot. Instead, the oil pond was mentioned within the context of a larger discussion identifying

various industrial products/processes historically involving PCBs (which included motor and hydraulic oils), and noting that general operations and components of the facility may overlap with these historical industrial products/processes (including oil in the oil pond). Of the cited passages, the complete paragraph that contains the commenter-cited passage on page 19 of the HRS documentation record at proposal states:

> Aroclors are mixtures of individual PCB congeners [Ref. 30, p. 2]. PCBs are a group of man-made organic chemicals manufactured from 1929 until the manufacturing was banned in 1979 [Ref. 30, p. 1]. Due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications and were found in heavy-duty electrical equipment, such as transformers and voltage regulators; old smaller-scale electrical devices or appliances containing PCB capacitors; motor and hydraulic oil; and fluorescent light ballasts [Ref. 30, p. 1]. The eastern lot of the Ochoa property consisted of a large industrial complex that operated from 1957 to sometime between 1968 and 1970 [Ref. 7, pp. 10, 11]. During its operating years, the Ochoa facility utilized its own electrical substation on the eastern lot that was separate from the PREPA substation on the property (the PREPA substation was not constructed until 1991 or 1992) [Ref. 7, pp. 8, 56, 160, 209, 212; 10, p. 1]. One of the surface impoundments used by the facility was referred to as the "oil pond" [Ref. 7, p. 160]. Given the industrial applications of PCBs discussed above and the facility's operational nature and timeframe, it is reasonable to assume that some type of PCB equipment was used at the facility and that it was the original source of Aroclor-1260 found throughout Source 1 [see Table 2 and Figure 3].

Similarly, the complete paragraph that contains the commenter-cited passage on page 40 of the HRS documentation record at proposal states:

> Aroclors are mixtures of individual PCB congeners [Ref. 30, p. 2]. PCBs are a group of man-made organic chemicals manufactured from 1929 until the manufacturing was banned in 1979 [Ref. 30, p. 1]. Due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications and were found in heavy-duty electrical equipment, such as transformers and voltage regulators; old smaller-scale electrical devices or appliances containing PCB capacitors; motor and hydraulic oil; and fluorescent light ballasts [Ref. 30, p. 1]. Ochoa's eastern lot was a large industrial complex that operated from 1957 to sometime between 1968 and 1970 [Ref. 7, pp. 9–11]. During its operating years, the Ochoa facility utilized its own electrical substation that was separate from the PREPA substation on the property (the PREPA substation was not constructed until 1991 or 1992) [Ref. 7, pp. 8, 56, 160, 209, 212; 10, p. 1]. One of the surface impoundments used by the facility was referred to as the "oil pond" [Ref. 7, p. 160]. Given the industrial applications of PCBs discussed above and the facility's operational nature and timeframe, it is reasonable to assume that some type of PCB equipment was used at the facility and that it was the original source of Aroclor-1260 contamination at the property. As the manufacture of PCBs and PCB-containing equipment was banned in 1979 by the United States government, and Puerto Rico is subject to United States laws and regulations, it is reasonable to expect that the PREPA substation, which was constructed c. 1991/1992, would not be equipped with equipment containing PCBs and therefore not a source of Aroclor-1260 [Ref. 30, p. 1; 76, p. 1].

Thus, the EPA made no specific assertion that PCBs were found in the pond, but rather included this information in describing various industrial characteristics of the former facility as part of a discussion offering reasonable possible origins for the PCBs which were found in Site soil. (See sections 3.11, Association of Hazardous Substances with Source(s), and 3.14.1, Soil Exposure Component – Likelihood of Exposure/AOC, of this support document regarding PCB contamination in the soil at this Site.)

Regarding the commenter's comments that no samples were collected from the "oil pond" to identify whether it contained PCBs and regarding the commenter's assertions that no PCBs can be associated with the "oil pond" or any of the surface impoundments because no SVOCs were documented in the area of the oil pond in 1992 nor in

the area of any of the surface impoundments in 2000, these assertions are unfounded. Specifically, regarding the "oil pond," while it is the case that no samples were collected from the oil pond during the 1991 Phase I ESA and the EPA has not directly asserted that the pond contained PCBs, it is not unreasonable to think that PCBs might be linked to the pond. The Phase II ESA considers the "oil pond" to be one of the carbon settling ponds (shown on page 188 of Reference 7 of the HRS documentation record at proposal), which are described on page 31 of the HRS documentation record at proposal in the "Other Possible Sources" section as surface impoundments.

> **Surface Impoundments**
> There were six carbon settling ponds located on the property located north of the warehouse/shop building and downslope of the Ammonia Plant [Ref. 7, pp. 8, 9, 213, 214]. The ponds were used to settle out carbon solids from fuel oxidation scrubbing effluent [Ref. 7, p. 213]. The ponds were arranged in a cascade arrangement; thus, ponds located the farthest upstream received the greatest amount of settled carbon [Ref. 7, p. 213]. The effluent flowed from pond to pond through overflows, then reportedly discharged to a drainage ditch, which ultimately exited the property and discharged to the bay [Ref. 7, p. 213]. Based on review of historical facility sketches and aerial photographs, remnants of the settling ponds remain and the adjacent ground surface has remained barren, or contains stressed vegetation, since the facility ceased operations [Ref. 7, pp. 8, 9, 161, 162; 14, pp. 78, 111; 38, pp. 3–5; 39, p. 1]. The area of the impoundments was sampled by EPA in 2019. Sample results indicate the presence of Aroclor-1260, vanadium, and beryllium at concentrations significantly above background. (See sample 0642-S27 in **Table 2**.) As only remnants of these surface impoundments remain, the residual contamination detected in this area is included as part of Source 1, Contaminated Soil.

Samples 0642-S23, 0642-S24, and 0642-S27 collected in 2019 in the vicinity of these impoundments indicate the presence of Aroclor-1260 at concentrations significantly above background. (See page 27 and Figures 2 and 3 of the HRS documentation record at proposal, as well as page 162 of Reference 7 of the HRS documentation record at proposal.)

Regarding Guánica-Caribe's comments questioning whether any of the carbon ponds (i.e., surface impoundments) should be considered possible sources (i.e., Guánica-Caribe's comments that the carbon residual material in the carbon settling ponds did not contain hazardous levels of metals per the 1991 Phase I ESA and PCBs and SVOCs were not detected in the settling ponds during the 2000 site inspections), the evidence in the HRS package references provides information contrary to the commenter's assertions. The first part of Guánica-Caribe's comment focuses on a statement in the 1991 Phase I ESA that refers to samples that were collected from the settling ponds in 1987. (See page 213 of Reference 7 of the HRS package at proposal.):

> The carbon material was characterized through sampling and analysis in September of 1987. Four point composite samples were collected from the bottoms of three of the lagoons and analyzed for E. P. Toxic metals. All detected concentrations were below maximum allowable contaminant levels, and tests for ignitability, corrosivity, and reactivity were within limits.

The 1987 sample results referred to in this quote are available in the HRS package at proposal at pages 871-879 of Reference 7. These results show positive detections of lead, chromium, and silver that are below the maximum contaminant level allowed at that time. However, as explained above in this section and as noted in section 3.7, Concentrations Below Screening Levels of this support document, concentrations below regulatory limits are eligible for HRS scoring consideration.

The second part of Guánica-Caribe's comment focused on the assertion the pond material was not tested for PCBs (presumably at the time of the 1991 Phase I ESA) and later data from the 2000 site inspection indicated that soil in the area of the ponds did not contain semi-volatile organic compounds (SVOCs), which it stated is a sign that PCBs are not present. While it is the case that no environmental samples were collected during the 1991 Phase I ESA as previously discussed (shown on page 208 of Reference 7 of the HRS package at proposal), results of environmental samples collected during the 2000 site inspection, indicate otherwise. As stated in the 2000 SI report (at pages 14 and 15 of Reference 7 of the HRS package at proposal):

> Samples CNC-SS-16, CNC-SS-17, and CNC-SS-18 were collected on the former surface impoundments # 1 and #3.[7] On this source location the following were detected above CRQL's and three times above background: Chromium (323 mg/kg), Nickel (901 mg/kg), Silver (5.5 mg/kg), and Vanadium (1,490 mg/kg) (Table 2, Reference 27). The following semi-volatile organics were detected above CRQL's and three times above background: **Naphthalene (0.700J mg/kg)**, and **Pyrene (0.530J mg/kg)** (Table 4, Reference 27). The following pesticides [and PCBs] were detected above CRQL's and three times above background: Aldrin (5.6µg/kg), Endrin aldehyde (30Jµg/kg), and **Aroclor-1260 (650µg/kg)** [emphasis added].

The naphthalene and pyrene concentrations, which are SVOCs, were documented in sample CNC-SS-16, which is the location of one of the former carbon settling ponds. Aroclor-1260 was also documented in sample CNC-SS-16 and in sample CNC-SS-18 as well. (See pages 26 and 32 of Reference 7 of the HRS package at proposal.) This information corroborates the evidence of Aroclor-1260 documented in the vicinity of the surface impoundments (a.k.a., carbon settling ponds) in 2019, contradicts Guánica-Caribe's comments that SVOCs and PCBs were not detected in the settling ponds, and provides the SVOC/PCB association at the same location (i.e., sample CNC-SS-16) that the commenter stated one would expect to see.

The text in the HRS documentation record will therefore not be changed on this point. See also sections 3.13.3, Surface Water Migration Pathway – Attribution, and 3.14.2, Soil Exposure Component – Attribution of this support document, regarding attribution of PCBs into the Site.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.13 Surface Water Migration Pathway

Guánica-Caribe submitted comments questioning the overland migration path, the surface water migration pathway likelihood of release, the surface water migration pathway attribution, the target distance limit, the documentation of fishing for human consumption, and the surface water sensitive environments. The following subsections address specific challenges related to these comments:

- 3.13.1 Surface Water Migration Pathway – Overland Migration Path
- 3.13.2 Surface Water Migration Pathway – Likelihood of Release
- 3.13.3 Surface Water Migration Pathway – Attribution
- 3.13.4 Target Distance Limit and Extent of Site Sediment Contamination
- 3.13.5 Documentation of Fishing for Human Consumption
- 3.13.6 Surface Water Sensitive Environments

3.13.1 Surface Water Migration Pathway – Overland Migration Path

Comment: Guánica-Caribe questioned the EPA's understanding and documentation of the potential overland migration pathways to the surface water. Its comments regarding the overland migration route concentrate on three arguments: that the EPA does not understand how contamination moved around and off of the eastern lot, that contaminants may not actually be migrating off of the eastern lot property at all, and that the HRS package at proposal contains insufficient information to conclude if and how historical discharges would have migrated the distance from the eastern lot to Guánica Bay. Therefore, it commented that the EPA should omit or correct information in the HRS documentation record at proposal that speculates regarding pathways from the eastern lot to Guánica Bay, or the EPA should admit that "there is not sufficient information to confirm a pathway associated with historical or ongoing storm water or other discharges from the Ochoa Site." In its estimation, Guánica-Caribe determined that the EPA has not presented or supported the existence of a historical or current pathway from the

[7] Reference 7 uses the term carbon surface impoundments or simply surface impoundments to refer to the carbon settling ponds (see Reference 7, p. 8).

Ochoa Site to Guánica Bay; therefore, it commented that the EPA cannot conclude that the PCBs identified in the bay originated from the eastern lot.

Regarding overland migration within or from the eastern lot property, Guánica-Caribe commented that generally the EPA has not provided sufficient information that clarifies how contamination might have migrated within or off the eastern lot of the Site. It asserts that instead the EPA makes inferences regarding the potential spreading of contaminants that should be removed such as this statement from the HRS documentation record at proposal, which it claims is speculative: *"As contaminated soil had not been removed from upslope areas, it is also likely that surficial soil contamination would have spread through the removal areas via overland migration in the time since the removal."* More specifically, Guánica-Caribe commented the EPA appears to have a limited understanding of the stormwater drainage system within the eastern lot. It argued that the depiction of stormwater drainage ditches in the text and on Figure 3 of the HRS documentation record at proposal are not consistent with the underlying references. Guánica-Caribe points to the 1992 ENSR Site Investigation Report to support its comment by noting that a figure in this report shows a different configuration for the ditches. It also indicated that it is notable that the PREPA substation was included within the area surrounded by the ditches in this report. Guánica-Caribe requested that the "HRS Package" should acknowledge that the presence and locations of the drainage ditches at the Site are not fully understood. It recommended that further information should be provided clarifying how drainage ditches configurations may have changed over time and how this affected the potential migration of contaminants on and off the eastern lot.

To further support Guánica-Caribe's comment that the EPA has a limited understanding of migration of contaminants within or off the eastern lot of the Site, it noted that source soil samples, S01 and S02, [collected from an area outside of the eastern lot property from the ditch along Calle Jose Nazario] did not contain Aroclor-1260 at concentrations "higher than the screening level used to define the AOC or at concentrations greater than those detected in the sediment samples in the Zone of Contamination within the outlined area of the Bay." Guánica-Caribe suggested that limited concentrations of PCBs in soil samples outside of the eastern lot property may support an assumption that the on-site storm water management structures were generally effective and minimized the migration of contamination from the eastern lot with stormwater runoff. Also, Guánica-Caribe suggested that there may not be a connection between the eastern lot and the drainage ditch along Calle Jose Nazario. It highlighted that the references do not discuss any drainages off of the eastern lot—only the drainage along Calle Jose Nazario. Further, it suggested that topographic maps do not appear to show the Calle Jose Nazario ditch, which the commenter acknowledges is in connection with Guánica Bay, directly downgradient of the eastern lot.

Guánica-Caribe also commented that as currently presented, it is not clear the EPA understands if or how flow from the eastern lot may have migrated to Guánica Bay or what other properties may also be connected to the storm drain. Further, it commented that the EPA has not evaluated potential pathways from the western lot. Guánica-Caribe asserted that the EPA appears to assume the presence of a historical and ongoing direct surface water discharge pathway based on statements, which it claims is hearsay, from municipal personnel regarding the connection of the drainage ditch to the community sewer system and in turn to Guánica Bay. However, Guánica-Caribe commented that none of the figures in the HRS documentation record at proposal depict a pathway from the eastern lot to Guánica Bay, which it claims would be appropriate to show if any drainage features were known of; nor, according to Guánica-Caribe, do the HRS documentation record figures at proposal depict the AOC extending to Guánica Bay.

Guánica-Caribe took issue with the title of the Source 1 containment discussion – *"Release to surface water via overland migration."* It stated that the EPA does not specify the nature of potential overland migration pathways, so it asserted that the EPA should either provide more information or change this phrase to state that the EPA can only "infer 'estimated overland migration'."

Response: The HRS documentation record at proposal appropriately characterized the overland migration route from Source 1 to the probable point of entry (PPE) in Guánica Bay in accordance with the HRS.

HRS Section 4.1, *Overland/flood migration component*, states, "[u]se the overland/flood migration component to evaluate surface water threats that result from overland migration of hazardous substances from a source at the site to surface water. Evaluate three types of threats for this component: drinking water threat, human food chain threat, and environmental threat."

HRS Section 4.1.1.1, *Definition of hazardous substance migration path for overland/flood migration component*, states:

> The hazardous substance migration path includes both the overland segment and the in-water segment that hazardous substances would take as they migrate away from sources at the site:
> - Begin the overland segment at a source and proceed downgradient to the probable point of entry to surface water.
> - Begin the in-water segment at this probable point of entry.
>   - For rivers, continue the in-water segment in the direction of flow (including any tidal flows) for the distance established by the target distance limit (see section 4.1.1.2).
>   - For lakes, oceans, coastal tidal waters, or Great Lakes, do not consider flow direction. Instead apply the target distance limit as an arc.
>   - If the in-water segment includes both rivers and lakes (or oceans, coastal tidal waters, or Great Lakes), apply the target distance limit to their combined in-water segments.

Page 33 of the HRS documentation record at proposal clearly states:

> The perennial surface water body nearest to Ochoa is Guánica Bay; topography at and in the vicinity of Source 1 slopes southwest toward the bay [**Figure 4**; Ref. 4, p. 1]. Stormwater on the former Ochoa eastern lot is captured by a drainage ditch, which surrounded the manufacturing plant and was used to capture effluent discharge from the carbon settling ponds and stormwater from Ochoa's operations area [**Figure 2, Figure 3**; Ref. 7, pp. 7, 47, 839]. Historically, runoff from the Ochoa property would flow across PR-333, flood the parking lot to the west, and be directed via open channel (i.e., drainage ditch) into the bay at its northeastern corner; a segment of this drainage ditch passed through residential backyards west of the parking lot [Ref. 7, pp. 7, 616]. To mitigate the flooding in the parking lot and residential community west of the Ochoa property, improvements were made to the stormwater collection system and a stormwater pumping station was constructed near the bay. Stormwater is now captured in a series of storm drains, culverts, and ditches in the waterfront community; directed to holding tanks at the pumping station; and discharged without treatment to the northeastern corner of the bay via an outfall pipe [Ref. 7, p. 7; 14, pp. 32, 33, 70, 71 107, 108; 26, pp. 1, 3; **Figure 4**]. The ditch in the backyards of residential properties along Calle José Nazario still exists and functions as part of the stormwater collection system; however, the final segment of the ditch that discharged directly to the bay was apparently backfilled after being replaced by the holding tanks and pumping station discharge pipes [Ref. 7, p. 616; 14, p. 70]. Based on observations made by PREQB in 1998 and by EPA in 2019 and with the exception of the stormwater improvements, runoff from the Ochoa property continues to follow a similar drainage path toward the bay, including stormwater overflow across PR-333 and the gravel parking lot [**Figure 3**; Ref. 4, p. 1; 7, pp. 7, 9, 47, 615, 616; 14, pp. 69, 70, 103]. Based on these considerations, the PPE is at the northeastern corner of Guánica Bay [**Figure 3**; Ref. 14, pp. 70, 71, 107, 108; 26, pp. 1, 3].

Regarding Guánica-Caribe's comments that the EPA does not understand how contamination moved from Source 1 around and off of the eastern lot of the former facility, this assertion is inaccurate. As explained in section 3.10, Source Containment, of this support document, Source 1 is uncontained, allowing soil contamination to migrate in the direction of downslope topography as sheet flow with any rain event or along drainage paths that ultimately

leave the property in the same direction, which is evidenced also by the fact that Source 1 was documented to extend across the eastern lot property line to the drainage ditch along Calle Jose Nazario. (See Figure 3 of the HRS documentation record at proposal.) The topography at the Site is noted to be west and southwest toward the bay. This is corroborated by the U.S. Geological Survey topographic map of the area (shown in Reference 4 of the HRS documentation record at proposal) and in aerial imagery of the area (see pages 3-5 of Reference 38 and page 113 of Reference 7 of the HRS documentation record at proposal). It is also corroborated by the Phase II ESA report, on page 160 of Reference 7 of the HRS documentation record at proposal, that states, "A steep ravine surrounds the Site from the northeast to the southwest.... The Site topography slopes slightly downward to the west, towards Road No. 333." Additional corroboration is provided by the EPA during Site reconnaissance and sampling in 2018 and 2019 as documented in the logbooks and photologs from those events that note the slope of the terrain and the mountains surrounding the eastern lot. (See pages 75, 104, 105 of Reference 14 of the HRS documentation record at proposal.) It is reasonable to assume that stormwater falling in this area would generally follow the topography downhill, which as indicated is toward the west and southwest in the direction of Guánica Bay.

Regarding Guánica-Caribe's comment that the EPA has a limited understanding of the stormwater drainage system within the eastern lot based on a discrepancy between how the drainage route is depicted on Figures 2 and 3 of the HRS documentation record at proposal compared to the Phase II ESA (described on page 172 of Reference 7 of the HRS documentation record at proposal), this comment does not affect the HRS scoring. The drainage channel depicted on Figures 2 and 3 near the area of the surface impoundments reflects a drainage pathway interpolated to show how stormwater would likely flow based on topography and connect to historical drainage ditches identified in the 1992 Phase II ESA and described in the 1991 Phase I ESA (see Reference 4; pages 3, 4, and 5 of Reference 38; and pages 113, 163 and 213 of Reference 7 of the HRS documentation record at proposal), none of which depict all features of the historical drainage system. The EPA's identification of how stormwater ultimately would flow when leaving the property via the drainage ditches is the same for HRS scoring purposes as the depictions of the drainage path along the western edge of the eastern lot. Also, per statements in the 1991 Phase I and 1992 Phase II ESAs, these drainage ditches have been regraded or are overgrown with dense vegetation and no longer exist as discrete ditches (shown on pages 163 and 213 of Reference 7 of the HRS documentation record at proposal); given these changes and the passage of time, it is reasonable that the drainage paths as they were depicted on older figures may no longer exist as they originally did, or that new paths have been created via natural erosion. The EPA put forth a reasonable effort, given the limited role of the HRS as a screening tool, to locate the historical drainage channels during the 2018/2019 reconnaissance and sampling, and it reflected this on Figures 2 and 3 of the HRS documentation record at proposal. (See pages 70, 74-76, 78-79, and 101 of Reference 14 of the HRS documentation record at proposal.) A more detailed characterization will occur during the RI/FS stage of the process.

Regarding Guánica-Caribe's various comments suggesting that there might not be a link between the eastern lot and the drainage ditch along Calle Jose Nazario, this is inaccurate. As previously discussed, Source 1 is not contained from releasing hazardous substances to the surface water migration pathway and is documented to extend across the eastern lot property boundary to the Calle Jose Nazario drainage ditch. Also as previously discussed, any significant rain event can take additional entrained contaminated soil and carry it to the west-southwest across Road No. 333, across the parking lot, and into the drainage ditch along Calle Jose Nazario. As explained in the HRS documentation record on page 33, there is a history of runoff from the eastern lot flooding the parking lot to the west that supports this explanation. To mitigate the flooding in the parking lot and residential community west of the eastern lot, improvements were made to the stormwater collection system and a stormwater pumping station was constructed near the bay:

> Historically, runoff from the Ochoa property would flow across PR-333, flood the parking lot to the west, and be directed via open channel (i.e., drainage ditch) into the bay at its northeastern corner; a segment of this drainage ditch passed through residential backyards west of the parking lot [Ref. 7, pp. 7, 616]. To mitigate the flooding in the parking lot and residential community west of the Ochoa property, improvements were made to the stormwater collection system and a stormwater pumping station was constructed near the bay. Stormwater is now captured in a series of storm drains, culverts, and ditches in the waterfront community; directed to holding tanks at

> the pumping station; and discharged without treatment to the northeastern corner of the bay via an outfall pipe [Ref. 7, p. 7; 14, pp. 32, 33, 70, 71 107, 108; 26, pp. 1, 3; Figure 4].

Of note from the HRS documentation record quote above is page 70 of Reference 14, which provides a conversation the EPA on-site reconnaissance team had with a local resident in 2018 detailing how stormwater flows through residences during times of flooding. This same page of Reference 14 (page 70), which is cited above, also discusses evidence of water movement that was noted by the EPA in 2018 along the western boundary of the eastern lot outside of the fence near the parking lot that is crossed to reach the drainage ditch along Calle Jose Nazario. (See also page 103 of Reference 14 of the HRS documentation record at proposal for the photo log entry of this observation.) Additionally, please see pages 891 and 986 of Reference 7 of the HRS documentation record at proposal. Page 891 indicates the involvement of the U.S. Army Corps of Engineers in a flood control study in the town of Guánica in 1993, including a flood control channel being considered for placement along PR-333 overlapping the portion bordered by the eastern lot. Page 986 mentions a municipal stormwater pump next to the Guánica Bay boardwalk, and that stormwater pump was constructed due to frequent flooding events in the area.

Regarding the related comment that the lack of PCBs in source samples S01 and S02 is evidence that contamination is not leaving the eastern lot, this is inaccurate. As described in section 3.11, Association of Hazardous Substances with Source(s), and section 3.14.1, Soil Exposure Component-Likelihood of Exposure/AOC, of this support document, these samples are part of Source 1 (and the AOC) and reflect contamination from facility operations that have come to be located in the drainage ditch along Calle Jose Nazario with concentrations of zinc significantly above background, but also other lesser concentrations of detected site-related hazardous substances greater than background levels. Additionally, regarding Guánica-Caribe's particular comments that the EPA has not shown that contamination can leave the eastern lot property, numerous historical records in the HRS package at proposal, including a statement from a former employee, document releases from the eastern lot directly to Guánica Bay.

Page 31 of the HRS documentation record at proposal describes effluent from the carbon settling ponds, and that "[t]he effluent flowed from pond to pond through overflows, then reportedly discharged to a drainage ditch, which ultimately exited the property and discharged to the bay [Ref. 7, p. 213]." Cited page 213 of Reference 7 of the HRS documentation record at proposal includes a statement in the Phase I ESA, which was sponsored by Ochoa Fertilizer or its representatives, that states regarding the carbon ponds, "[w]ater was passed from pond to pond through overflows to settle out the carbon, then reportedly discharged to a drainage ditch which ultimately ran to the bay."

Page 33 of the HRS documentation record notes that "[s]tormwater on the former Ochoa eastern lot is captured by a drainage ditch, which surrounded the manufacturing plant and was used to capture effluent discharge from the carbon settling ponds and stormwater from Ochoa's operations area [Figure 2, Figure 3; Ref. 7, pp. 7, 47, 839]." Cited page 839 of Reference 7 includes a statement from Mr. Miguel Pacheco, Ochoa Fertilizer Vice President, that stated that the water from pits was discharged to the bay. (See also pages 670 and 836 of Reference 7 of the HRS documentation record at proposal.)

Page 13 of the HRS documentation record at proposal states that "[s]tressed vegetation and cracked mud were observed near the end of the drainage ditch along the western fence line bordering PR-333, generally matching the historical overland drainage pattern previously described by PREQB [Ref. 7, p. 615–617; 14, p. 70]." As shown on cited page 617 of Reference 7 of the HRS documentation record at proposal, the following observations were made by PREQB in 1998 in support of the 2000 site inspection and confirmed by Mr. Felipe Toro, former port captain during CNC operation. PREQB field notes state:

> Talked with Mr. Felipe Toro at his home. He conducted us to the former CNC (the W.R. Grace's property) confluent storm water discharge point at State Road #333 easement of access.… Found the former ditch that discharged water from CNC to the Guánica Bay.… We walked toward the main road gate. There are two ditches, one at each side of the main road. These ditches converge to another ditch parallel to State Road #333. These findings concur with

> what Mr. Toro told us. Mr. Toro notified that CNC's waters flowed through the main road toward the gate and then ran parallel to the State Road #333 to the south, until reach the ditch that used to flow into the bay.

(See also pages 615, 660, and 663 of Reference 7 of the HRS documentation record at proposal.)

During the same field investigation, Mr. Carlos Nazario, a local resident, described the sea wall fire incident of 1965:

> Talked with Mr. Carlos Nazario, he confirmed the CNC discharge point location and told about the 1965 sea wall fire. Mr. Nazario informed that in one occasion some tanks in CNC property containing naphtha were cleaned. The waters used to clean the tanks ran thru the storm water drainage ditch, reaching the bay. The sea got fire when someone threw a cigarette or matchstick to the sea. Also the water in the ditch got fire, threatening to expand and enter to the CNC facilities.

(See pages 616 and 661 of Reference 7 of the HRS documentation record at proposal.) The stormwater discharge point to the bay was photographed during this field investigation (see pages 622, 626 of Reference 7 of the HRS documentation record at proposal).

The account concerning the sea wall fire was also separately related to the EPA in 2018 by a PRASA pumping station employee. (See page 70 of Reference 14 of the HRS documentation record at proposal.)

Regarding Guánica-Caribe's assertions that the EPA relied on hearsay from municipal personnel regarding the connection of the drainage ditch to the community sewer system and in turn to Guánica Bay, this is incorrect. While the scale of Figures 3 and 4 of the HRS documentation record at proposal were not conducive to illustrating the covered portion of the drainage route from the drainage ditch along Calle Jose Nazario to the pumping station, this does not mean that the EPA failed to confirm the route of this drainage route through Guánica.

Page 35 of the HRS documentation record at proposal states:

> Stormwater is now captured in a series of storm drains, culverts, and ditches in the waterfront community; directed to holding tanks at the pumping station; and discharged without treatment to the northeastern corner of the bay via an outfall pipe [Ref. 7, p. 7; 14, pp. 32, 33, 70, 71 107, 108; 26, pp. 1, 3; **Figure 4**]. The ditch in the backyards of residential properties along Calle José Nazario still exists and functions as part of the stormwater collection system; however, the final segment of the ditch that discharged directly to the bay was apparently backfilled after being replaced by the holding tanks and pumping station discharge pipes [Ref. 7, p. 616; 14, p. 70]. Based on observations made by PREQB in 1998 and by EPA in 2019 and with the exception of the stormwater improvements, runoff from the Ochoa property continues to follow a similar drainage path toward the bay, including stormwater overflow across PR-333 and the gravel parking lot [**Figure 3**; Ref. 4, p. 1; 7, pp. 7, 9, 47, 615, 616; 14, pp. 69, 70, 103]. Based on these considerations, the PPE is at the northeastern corner of Guánica Bay [**Figure 3**; Ref. 14, pp. 70, 71, 107, 108; 26, pp. 1, 3].

As cited above, during the 2019 sampling event, contractors for the EPA followed and confirmed the entire route of the storm drainage system, from its beginning near sample location S31, along to the drainage ditch along Calle Jose Nazario, into the covered drainage system, to outfall pipe to the bay. This was detailed with a pictorial representation and backing logbook entries in Reference 26 of the HRS documentation record at proposal. Additional, observations regarding the drainage route were noted during the 2018 reconnaissance and the 2019 sampling events, and these observations were recorded in the logbook, including the accompanying photo log that includes photographs of the drainage ditch at various locations. (See pages 12, 32-33, 60, 62-65, 71, 76, 108, 116-117, and 140-141 of Reference 14 of the HRS documentation record at proposal.)

Regarding Guánica-Caribe's comment that the EPA did not consider what other properties may also be connected to the storm drain, please see section 3.14.2, Soil Exposure Component-Attribution, of this support document, for a full discussion for why this is not the case.

Regarding Guánica-Caribe's comment the EPA has not evaluated potential pathways from the western lot, this comment does not affect HRS scoring because the EPA did not score for HRS purposes any sources on the western lot. (See section 3.2, Definition of Site/Extent of Site, of this support document for further discussion about the western lot.)

Regarding the comment about the PREPA substation, please see sections 3.13.3, Surface Water Migration Pathway-Attribution, and 3.14.2, Soil Exposure Component-Attribution, of this support document, regarding why this comment does not affect HRS scoring.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.13.2 Surface Water Migration Pathway – Likelihood of Release

Comment: Guánica-Caribe commented that there are limited data showing detections of Aroclor-1260 close to the PPE in the small, outlined area of the zone of contamination in Guánica Bay and raised questions concerning the reporting limits used to evaluate samples further from the shore as well as on specific samples it notes that are missing from Figure 4 of the HRS documentation record at proposal.

Guánica-Caribe asserted that the EPA should exclude Guánica Bay from the definition of the Ochoa Site and "should not broadly define the Ochoa Site to include 'contaminated sediments in Guánica Bay.'" It stated that the HRS documentation record at proposal should include and properly describe only the very localized Aroclor-1260 zone of contamination within Guánica Bay. It noted that the EPA must document that an observed release exists in order to score a site.

Guánica-Caribe made the following statements regarding sediment samples collected in Guánica Bay:

- Samples SED08, SED10, and SED11 are further from the shore (more than 1700 feet from the PPE) than sample SED01 and had analytical reporting limits for Aroclor-1260 (up to 0.081 mg/kg) that are higher than the reported detections of Aroclor-1260 from samples closer to the PPE.[8]
- Data for surface sediment samples SED03 (0.11 mg/kg), SED04 (0.027 J mg/kg [estimated]), and SED05 (0.048 J mg/kg [estimated]), located no more than 500 feet from the EPA's named PPE, are missing from HRS documentation record Figure 4 and should be included.
- The EPA detected concentrations of Aroclor-1260 of 0.49 mg/kg at sample location SED01 (evaluated as the observed release sample location at the Site) and 0.31J+ mg/kg (estimated, biased high) at sample location SED02. Guánica-Caribe commented that these samples "are located less than 200 feet west of the PPE and define EPA's designated Zone of Contamination." The next closest set of sample locations, SED03, SED04, and SED05, are all within 500 feet of the PPE and contain significantly lower Aroclor-1260 concentrations—0.11 mg/kg, 0.027J mg/kg, and 0.048J mg/kg, respectively. These concentrations are below the 0.240 mg/kg screening value ("[t]hree times the highest concentration or reporting limit in the background samples (0.080 mg/kg)") used to identify potential impacts in the HRS scoring and they also represent only estimated concentrations for two of the three samples.

Guánica-Caribe surmised that based on the limited data showing detections of Aroclor-1260 (0.0048 mg/kg to 0.49 mg/kg) close to the PPE and the potential that concentrations of Aroclor-1260 in sample locations farther from the PPE may be higher (based on analytical reporting limits that range from 0.053 mg/kg to 0.081 mg/kg), the EPA should acknowledge that the higher concentrations of Aroclor-1260 within the zone of contamination appear to be isolated to the outlined area of Guánica Bay on Figure 3 of the HRS documentation record at

[8] Guánica-Caribe cited the following document in support of its comment: Weston Solutions, Inc., Site Reassessment Report, September 2019, Table 5C, pp. 94-95.

proposal. It also stated that the EPA should further clarify that there are insufficient data to suggest that the Site is the source of Aroclor-1260 concentrations outside of this small area. Guánica-Caribe added that the University of Miami performed hydraulic modeling that "provides further support for containment within the outlined area of Guánica Bay."[9]

Response: Only sample location SED01 was scored as an observed release attributable to the Site for HRS purposes. The HRS documentation record at proposal made no claim that PCB sediment contamination outside of the documented zone of actual contamination drawn based on SED01 is attributable to the Site at this time, and it acknowledged the existence of other possible contributors of PCBs to the bay. EPA discussed generally in the HRS documentation record at proposal that concentrations of PCBs decrease as one moves away from the zone of actual contamination for a certain distance.

An observed release consistent with HRS Section 4.1.2.1.1, *Observed release*, and HRS Table 2-3, *Observed Release Criteria for Chemical Analysis*, was evaluated in the HRS documentation record at proposal and documented in sample SED01. This is the only sample labeled as a "Release Sample" per the legend on Figure 4 of the HRS documentation record at proposal and is the only sample listed as a "Release sample" in Table 5 on page 39 of the HRS documentation record at proposal.

Aroclor-1260 was not evaluated as an observed release in samples SED02, SED03, SED04, SED05, SED08, SED10 and SED11 in the HRS documentation record at proposal. While sample SED02 falls within the zone of actual contamination, it was not used to delineate the zone of actual contamination. As depicted on Figure 4 of the HRS documentation record at proposal (included as Figure 2 of this support document), the zone of actual contamination within the surface water pathway target distance limit encompasses only the distance from the PPE to sample SED01; and an arc is drawn on Figure 4 from sample SED01 to the shoreline of Guánica Bay, outlining the area eligible for evaluation as actually contaminated. The linear distance from the PPE to sample SED01 is approximately 200 feet. The EPA did not extend the zone of actual contamination to samples beyond SED01 and stated that sampling indicated lower concentrations or non-detect concentrations moving away from the PPE to the southwest, south, and west.

Observed Release

Aroclor-1260 was documented in sample SED01 at 490 µg/kg, significantly above the site-specific background level for Aroclor-1260 (of 80U µg/kg) established for the Site. In establishing an observed release to the surface water migration pathway, the HRS does not require that a release of hazardous substance is ongoing or evenly distributed; it only requires that a "site has released a hazardous substance." HRS Section 2.3, *Likelihood of release*, states that the "[l]ikelihood of release is a measure of the likelihood that a waste **has been or will be** released to the environment." [Emphasis added]. Similarly, HRS Section 4.1.2.1.1, *Observed release*, in the surface water migration pathway states:

> Establish an observed release to surface water for a watershed by **demonstrating that the site has released a hazardous substance to the surface water in the watershed**. Base this demonstration on either:
>
> - Direct observation ...
> - Chemical analysis ...
>   - Analysis of surface water, benthic, or sediment samples indicates that the **concentration of hazardous substance(s) has increased significantly above the background concentration for the site for that type of sample** (see section 2.3)....
>   - **Some portion of the significant increase must be attributable to the site** to establish the observed release .... [Emphasis added]

[9] Guánica -Caribe cited pages 7-8 of Reference 24 and Figure 3 of the HRS documentation record at proposal.

HRS Section 2.3, *Likelihood of release*, states in relevant part:

> Establish an observed release either by direct observation of the release of a hazardous substance into the media being evaluated (for example, surface water) or by chemical analysis of samples appropriate to the pathway being evaluated (see sections 3, 4, and 6). The minimum standard to establish an observed release by chemical analysis is analytical **evidence of a hazardous substance in the media significantly above the background level**. Further, some portion of the release must be attributable to the-site. **Use the criteria in Table 2-3 as the standard for determining analytical significance.** [emphasis added]

HRS Table 2-3 establishes the criteria for establishing an observed release when the background has non-detected concentrations and detected concentrations. HRS Table 2-3 states:

TABLE 2-3—OBSERVED RELEASE CRITERIA FOR CHEMICAL ANALYSIS

Sample Measurement < Sample Quantitation Limit[a] No observed release is established. **Sample Measurement ≥ Sample Quantitation Limit[a]** An observed release is established as follows: • **If the background concentration is not detected** (or is less than the detection limit), an observed release is established when the sample measurement equals or **exceeds the sample quantitation limit.[a]** [emphasis added] • **If the background concentration equals or exceeds the detection limit, an observed release is established when the sample measurement is 3 times or more above the background concentration**. [emphasis added]
[a]**If the sample quantitation limit (SQL) cannot be established**, determine if there is an observed release as follows: [emphasis added] • **If the sample analysis was performed under the EPA Contract Laboratory Program**, use the EPA contract-required quantitation limit (CRQL) in place of the SQL. [emphasis added] • If the sample analysis is not performed under the EPA Contract Laboratory Program, use the detection limit (DL) in place of the SQL.

Table 5 on page 39 of the HRS documentation record at proposal lists the background and release samples with the associated footnotes explaining the reporting limit "RL" is equivalent to an adjusted CRQL and an SQL, and it also defines the U data qualifier.

TABLE 5. BACKGROUND AND OBSERVED RELEASE SEDIMENT CONCENTRATIONS						
BACKGROUND SAMPLES						
Field Sample ID	**Organic CLP No.**	**Sample Date**	**Depth below top of sediment (inches)**	**Aroclor-1260**		**References**
				Result (µg/kg)	**RL (µg/kg)**	
0642-SED13-0-12	BFH96	5/19/19	0–12	44 U	44	14, p. 47; 52, pp. 12–15, 38, 129; 53, pp. 4, 1298
0642-SED15-0-12	BFHA0	5/17/19	0–12	**80 U**	80	14, p. 43; 54, pp. 14–17, 30, 190; 55, pp. 6, 1775
0642-SED22-0-12	BFHB4	5/15/19	0-12	72 U	72	54, pp. 14–17, 82, 191; 55, pp. 4, 1802

TABLE 5. BACKGROUND AND OBSERVED RELEASE SEDIMENT CONCENTRATIONS						
0642-SED27-0-12	BFHC4	5/21/19	0–12	58 U	58	14, p. 53; 50, pp. 14–16, 91, 161; 51, pp. 2, 1762
0642-SED30R-0-12	BFHC6	5/24/19	0–12	67 U	67	14, p. 63; 50, pp. 14–16, 96, 161; 51, pp. 10, 1765
RELEASE SAMPLE						
0642-SED01-0-12	BFH72	5/23/19	0–6	490	77	14, p. 60; 50, pp. 14–16, 19, 159; 51, pp. 6, 1691

µg/kg = micrograms per kilogram
The background sample with the highest reporting detection limit is **bolded**.
RL = Reporting limit; equivalent to the ACRQL,[10] which are sample- and matrix-dependent quantitation limits and are considered equivalent to the sample quantitation limit defined in the HRS Rule [Ref. 1, Sections 1.1 and 2.3].
U = The analyte was analyzed for but was not detected above the level of the reported quantitation limit or sample method detection limit [Ref. 50, p. 2]

Consistent with HRS Table 2-3, when the analyte is not detected in the background sample, as is the case of Aroclor-1260 at this Site, an observed release is established when the sample measurement equals or exceeds the sample quantitation limit, in this case the adjusted CRQL (of 80 U µg/kg which was the highest among the background samples at this Site). This site-specific background level for Aroclor-1260 was determined as follows:

- Multiple background samples were collected. The five samples (SED13, SED15, SED22, SED27, and SED30) characterized contributions from the northeast portion of Guánica Bay, the Rio Loco watershed, southwestern portion of Guánica Bay, southeastern portion of Guánica Bay, and a spring-fed channel north of Ochoa.
- The background sample characteristics were provided for comparison to the release sample. The five samples represented a range of percent solids (41.5 to 74.5%), total organic carbon (9,300 to 92,000 mg/kg), total percent coarse (11.3 to 67.8%), and total percent fines/silt and clay (31.4 to 89 %). The sample-specific adjusted CRQLs for these five background samples ranged from 44 U to 80 U µg/kg. (See Table 4 on pages 38 of the HRS documentation record at proposal.)
- The highest adjusted-CRQL for Aroclor-1260 was selected among the five background samples used to establish background levels.

The HRS documentation record explained that on page 37:

> The sediment sampling and analysis by EPA documents an observed release by chemical analysis of the hazardous substance Aroclor-1260 along the surface water migration pathway (see **Figure 4** and **Tables 4 and 5**). CLP analytical results report the presence of Aroclor-1260 at a concentration significantly above background in sediment located near the PPE in Guánica Bay (see **Figure 4** and **Table 5**). [Emphasis in original] To show that the increase in the contaminant concentration is not due to any of the differences between background and release sediment sample characteristics, **release concentrations are compared to the maximum reported background concentration** (see Table 5). [Emphasis added]

[10] ACRQL = Adjusted Contract Required Quantitation Limit

Samples Not Scored

Regarding samples SED02, SED03, SED04, SED05, SED08, SED10 and SED11 and samples with reporting limits/quantitation limits higher than that of samples closer to the PPE, the HRS documentation record at proposal did not evaluate an observed release of Aroclor-1260 in these samples. Although Figure 4 of the HRS documentation record at proposal shows the locations and in some instances the analytical results for additional samples collected in Guánica Bay, samples SED02, SED03, SED04, SED05, SED08, SED10 and SED11 were not presented as observed release samples. Sample-specific quantitation limits take into account the unique sample characteristics and are determined for each sample and analyte. Therefore, that samples had reporting limits/quantitation limits that are different from the sample-specific quantitation of other samples is not unusual, and this difference is the nature of sample characteristics and analytical analyses. The analytical data for these samples are as follows:

Field Sample ID	**Aroclor-1260** (µg/kg)		**References**
	Result	**RL**	
SED02	310 J+[*] (31)[**]	75	Page 24 of Reference 50 of the HRS documentation record at proposal
SED03	110[†]	58	Page 30 of Reference 50 of the HRS documentation record at proposal
SED04	27 J	51	Page 35 of Reference 50 of the HRS documentation record at proposal
SED05	48 J	49	Page 40 of Reference 50 of the HRS documentation record at proposal
SED08	81 U	81	Page 61 of Reference 50 of the HRS documentation record at proposal
SED10	53 UJ	53	Page 20 of Reference 54 of the HRS documentation record at proposal
SED11	62 U	62	Page 18 of Reference 52 of the HRS documentation record at proposal

*J+ = Result is biased high (page 2 of Reference 50 of the HRS documentation record at proposal).
**=If used for scoring, biased high release samples would be divided by the adjustment factor for the analyte (pages 7, 8, 16 of Reference 22 of the HRS documentation record at proposal). Therefore, 310 µg/kg divided by 10 is 31 µg/kg (which is below the background level of 80 U µg/kg), and hence, Aroclor-1260 no longer meets observed release criteria.
†= At 110 µg/kg, this concentration is above its sample-specific Aroclor-1260 reporting limit/quantitation limit of 58 µg/kg and above the site-specific background level of 80 U µg/kg. However, the Aroclor-1260 in this sample was not evaluated as an observed release concentration in the HRS documentation record at proposal.

Concentration Gradient

Regarding the comment that the Aroclor-1260 concentrations are higher closer to the PPE and the limited zone of actual contamination evaluated in the HRS documentation record, the EPA discussed generally in the HRS documentation record at proposal, that concentrations of PCBs decrease as one moves away from the zone of actual contamination for a certain distance further supporting the accuracy of the zone of actual contamination defined by the EPA. (See Figure 4 of the HRS documentation record at proposal included as Figure 2 of this support document.) Therefore, these comments do not result in any changes to the observed release or zone of actual contamination documented for the Site on Figure 4 of the HRS documentation record at proposal. Figure 4 of the HRS documentation record at proposal as presented has sufficient detail to make this determination. (See Figure 4 and pages 39 to 41 of the HRS documentation record at proposal.)

The HRS documentation record at proposal specifically explained this on page 40:

> Other nearby sediment samples show decreasing Aroclor-1260 concentrations with distance from the PPE. Moving away from the PPE to the southwest, sediment sample 0642-SED06-0-12 indicates an Aroclor-1260 concentration of 4.8 J µg/kg [**Figure 4**; Ref. 15, p. 35; 50, p. 50]. Moving away from the PPE to the south, sediment samples 0642-SED07-0-12 and then 0642-SED08-0-12 show Aroclor-1260 concentrations of 9.4 J µg/kg and non-detect (81 U), respectively [**Figure 4**; Ref. 15, p. 35; 50, pp. 56, 61]. Moving away from the PPE to the west, sediment samples 0642-SED10-0-12 and then 0642-SED11-0-12 showed non-detect values for Aroclor-1260 [**Figure 4**; Ref. 15, p. 35; 52, p. 18; 54, p. 20]. Sediment samples 0642-SED10-0-12 and 0642-SED11-0-12 were both collected near a wastewater treatment plant point of discharge [Ref. 15, p. 35]. The results for sediment samples 0642-SED20-0-12, 0642-SED29-0-12 (duplicate of 0642-SED20-0-12), and 0642-SED21-0-24, which were collected near the historical Central Guánica sugar mill, also showed non-detect values for Aroclor-1260 [**Figure 4**; Ref. 15, p. 35; 54, pp. 63, 77, 124].

Attribution of contamination for the surface water migration pathway only specifically involved the PCBs in sample SED01 for HRS scoring purposes, and that other contamination in the bay was not attributed to the Site. See section 3.13.3, Surface Water Migration Pathway – Attribution, of this support document. The HRS documentation record at proposal has made no claim that PCB sediment contamination outside of the documented zone of actual contamination is attributable to the Site at this time, and it acknowledged the existence of other possible contributors of PCBs to the bay, so the commenters' requested changes are moot. The full extent of Ochoa's contribution of PCBs and other contaminants to the bay is outside of the scope of the HRS's role as a screening tool, and further sampling, which will occur during the RI/FS stage, will be needed to make that determination.

Additionally, consistent with the HRS, locations within the target distance limit (TDL) beyond sample SED01 are evaluated as potentially contaminated segments within the TDL per HRS Section 4.1.1.2, Target distance limit, as discussed in section 3.13.4, Target Distance Limit and Extent of Site Sediment Contamination, of this support document.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.13.3 Surface Water Migration Pathway – Attribution

Comment: Guánica-Caribe commented that the HRS documentation record at proposal inappropriately attributes PCBs in the small and isolated area of sediment adjacent to Guánica Bay entirely to Ochoa, despite a variety of other potential contributing sources to the stormwater outfall adjacent to the area and other potential discharges in the area which the EPA essentially dismissed. It claims the sources at the Site have not been adequately characterized.

It claims the EPA's attribution of PCBs in Guánica Bay to the historical fertilizer operations on the eastern lot of the Ochoa Site has not confirmed that Ochoa Fertilizer did in fact use PCBs, if PCBs are associated with manufacturing operations on the eastern lot, or how PCBs would have migrated from the eastern lot or from other potential sources beyond the Ochoa Site to Guánica Bay. Guánica-Caribe found fault with the following statement on page 19 of the HRS documentation record at proposal: "Given the industrial applications of PCBs…and the facility's operational nature and timeframe, it is reasonable to assume that some type of PCB equipment was used at the facility and that it was the original source of Aroclor-1260 found throughout Source 1." It stated that this assumption is not reasonable, considering that there are other potential sources of PCBs that could be responsible for PCBs in Guánica Bay. It contended this is equally plausible in light of the many historical applications of PCBs. Guánica-Caribe stated that the EPA's primary approach to attributing potential surface water impacts in the bay to the eastern lot is through concentrations of Aroclor-1260 detected in eastern lot areas and by stating that the EPA has not identified other sources of Aroclor-1260. It argued that the EPA's assertions are "ill-supported"

because there are additional confirmed sources that abut Guánica Bay, and that the EPA's Aroclor-based comparison used as the basis to attribute PCBs in Guánica Bay to the Ochoa Site is, at best, inconclusive.

Other Possible Site-Related Sources and Other Possible Sites

Guánica-Caribe commented that the HRS documentation record at proposal states studies suggests "there may be multiple sources of PCBs in the Guánica Bay watershed." Guánica-Caribe suggested that if portions of Guánica Bay remain as part of the of the Site, the HRS documentation record should clarify that only contaminated sediments in the outlined area of Guánica Bay are part of the Site and "only to the extent they are demonstrated to result from historical operations or residual waste materials on the Ochoa Site."

Guánica-Caribe commented that other sources, industries and materials that historically contained or are other possible sources of PCBs to Guánica Bay are: ship building, use of PCBs as a defoliant including the Department of Defense's testing of defoliants in Guánica between 1963 and 1967,[11] PCBs in marine paints and caulking, PCBs in waste oil used extensively on roadways for dust control, significant oil spills, wastewater and storm water discharges, contaminated sites, the historical sugar refinery operation on Guánica Bay, and transformer oils used historically in electrical transformers. Guánica-Caribe asserted that the HRS documentation record at proposal should be corrected to recognize that contamination may originate from sources other than Ochoa. It also requested that anywhere contaminated sediment is discussed in the HRS documentation record that the EPA clarify that such contamination could have come from multiple sources. It stated that a "PCB congener-based analysis would provide a more robust assessment that can distinguish between sources of Aroclor mixtures and dates of release,"[12] and because this analysis was not conducted, the EPA's attribution discussion regarding sources "should be tempered to reflect the uncertainty inherent in the facts at hand."

Guánica-Caribe contended that while the HRS documentation record at proposal states or implies that operations on the eastern lot are the only potential sources, a preliminary review of publicly available information identifies multiple alternate sources that are not associated with the historic fertilizer operations. For example, Guánica-Caribe commented that in 2019, Geosyntec conducted a preliminary review of potential off-site sources of contamination in the vicinity of the Ochoa Site and identified the following facilities as possible sources:

- Puerto Rico Aqueduct and Sewer Authority (PRASA) Guánica Wastewater Treatment Plant
- Guánica Public Works Buried Drum Site
- Esso Standard Oil Co.
- Taller Santa Rita
- Mejoras Ave 25 de Julio
- Ensenada Estacion M
- Los Canos-Los Canos and Los Canos-Paloma
- Playa Santa Wastewater Treatment Plant
- West Power Solutions
- Garage Ramos
- Parador Guánica
- Las Colinas Service Station
- Esso Standard Oil-PR
- Bayer Puerto Rico, Inc.
- Chacons - Environmental Oil Cleaning
- Guánica Solid Waste Disposal

[11] Guánica-Caribe cited the following document in support of its comment: Young, Alvin, *The History of the US Department of Defense Programs for the Testing, Evaluation, and Storage of Tactical Herbicides*, U.S. Army Research Office, December 2000, accessed via https://archive.org/details/DTIC_ADA534602, p. 46.

[12] Guánica-Caribe cited page 8, 1st paragraph of Reference 13 of the HRS documentation record at proposal in support of its comment.

Guánica-Caribe contended that other documents support there are other sources of contamination and quoted Kumar et al. (2016),[13] as stating:

> The sources of the PCB contamination in Guánica Bay are unknown…. Documented literature suggests that PCBs may have also come from oil spilled into the bay from an unused storage tank on the grounds of a former sugar mill on the eastern shore of the bay (CSA Group 2001; Golob 1994; Orlando Sentinel 1994).... Guánica Bay receives pollution discharges from many different sources including sugar mills, fertilizer plants, textile companies, and sugar and coffee plantations... Domestic and industrial waste and raw and partially treated sewage are also discharged into the bay.... [S]everal oil spills have been reported in the bay, including three documented oil spills in and around the bay in 1962, 1994, and 2007.

Guánica-Caribe made similar comments regarding a 2007 National Oceanic and Atmospheric Administration (NOAA) assessment, which it quoted[14] as stating:

> The presence of highly elevated levels of PCBs at the sites sampled in Guánica Bay could be the result of a spill, industrial discharges, dumping of PCB contaminated equipment (e.g., transformers), discharges from ships, or runoff (e.g., from rainfall or cleaning activities) from industrial sites, to mention a few possibilities. There have been a number of industrial operations within Guánica Bay, ranging from sugar refining to fertilizer production to textile manufacture to electronics. It would be useful, at some point, to better characterize the spatial distribution of PCBs within Guánica Bay, including PCBs in sediment cores, along with possible biological effects.

Guánica-Caribe commented that the EPA also identified and then dismissed two likely sources of contamination on the eastern lot—the PREPA substation and an area that was historically used as a municipal dump. It claims that in doing so, the EPA further demonstrates that it had an insufficient understanding of the potential sources of contamination on the eastern lot to form the basis for the scoring of the soil exposure pathway in the HRS documentation record at proposal. It claimed that the EPA states that the PREPA substation located on the eastern lot was constructed in 1991 or 1992, and then the EPA "either directly indicates or implies that this operation would not have been a potential source of contamination before this time or a likely source of PCBs." Guánica-Caribe cited to a 1996 USGS map and a 1975 aerial photograph included as Exhibits 7 and 8, respectively, of its comment document, as well as to page 4 of Reference 8 of the HRS documentation record at proposal, which it claims are all evidence that the PREPA substation existed prior to 1991 and is a likely source of PCBs at the Site. Guánica-Caribe commented that the EPA should not inappropriately dismiss likely sources of contamination on the eastern lot.

Guánica-Caribe similarly claimed that the HRS package notes the presence of the Central Guánica Sugar Mill [Central Guánica] but does not acknowledge that this facility is a likely source of historical and ongoing contamination, including PCBs to Guánica Bay. It stated that a review of current property records shows that the property that includes the Central Guánica sugar mill stretches over nearly the entire western shore of Guánica Bay and at least a mile inland on the Rio Loco River. It added that during the EPA's 1999 Site Investigation at Central Guánica, the EPA observed several burned PCB-containing transformers in a warehouse on the eastern portion of the Central Guánica sugar mill, additional PCB transformers in a PCB transformer storage area, and sampling indicated Aroclor-1260 at 0.32 mg/kg in the transformer storge area. Guánica-Caribe further commented that prior to the EPA's assessment, Central Guánica personnel observed a large transformer outdoors with its contents spread on the soil. Other transformers were observed in additional areas of the facility including in one referred to as a dismantled electric transformer station. It contended that at the time of the 1999 site assessment it

[13] Guánica-Caribe cited Reference 13 of the HRS documentation record at proposal, page 3.
[14] Guánica-Caribe cited Pait, et al., An Assessment of Chemical Contaminants in the Marine Sediments of Southwest Puerto Rico, NOAA Technical Memorandum NOS NCCOS 52, August 2007, https://www.tdi-bi.com/wpcontent/uploads/2015/05/An-Assessment-of-Chemical-Contaminants-in-the-Marine-Sediments-of-Southwest-Puerto-Rico.pdf, page 35.

was unknown if previous PCB releases had occurred from the units, and the HRS package does not include information on a follow-up investigation, removal of these potential contaminants, or any remedial actions. Guánica-Caribe argued that despite this information, potential impact from Central Guánica were only characterized by two sediment samples and no surface water samples during the 2019 EPA Site Reassessment; and therefore, Guánica-Caribe asserted there is insufficient basis to make conclusions regarding historical or current potential contribution of PCBs or other contamination to Guánica Bay from Central Guánica.

Guánica-Caribe commented that Puerto Rico Industrial Development Company ("PRIDCO"), also known as Fomento (a Puerto Rican government corporation), constructed and managed warehouses and industrial parks throughout Puerto Rico. Guánica-Caribe claimed that in a 1975 aerial photograph there are warehouses and industrial parks located north and upgradient of the Ochoa Site, including a Fomento warehouse on the east side of SR-333, less than 1,000 feet from the eastern lot.[15] Guánica-Caribe added that "[i]t is possible that the tenants of this warehouse used the municipal landfill located on Ochoa property," suggesting an assessment of the Fomento locations in Guánica may identify potential sources of contamination to Guánica Bay. It also commented a drainage ditch is visible in the aerial photograph beginning on the east side of the driveway and continuing to PR-333.

Guánica-Caribe claimed that the presence of PCBs in PREPA electrical infrastructure is acknowledged in a Federal Emergency Management Administration (FEMA) 2020 document[16] responding to environmental concerns and recovery from Hurricane Maria. According to Guánica-Caribe, the FEMA document emphasizes the potential for PCB discharge from electrical infrastructure damaged by Hurricane Maria. Guánica-Caribe also claims that transformers classified as non-PCB could contain PCBs up to 50,000 parts per billion. Guánica-Caribe quoted the FEMA document as stating:

> The power generation and transmission industries have widely deployed polychlorinated biphenyls (PCBs) as dielectric and coolant fluids and in heat transfer fluids. Because of their longevity, PCBs are still widely in use, even though their manufacture has declined drastically since the 1960s. The United States banned PCB production in 1978 because of their environmental toxicity and classification as persistent organic pollutants....
>
> Since the 1990s, PREPA and PRASA have been in the process of removing PCB-laden transformers; however, some transformers may remain. It is anticipated that there may be transformers containing PCB-laden oil at non-PREPA and non-PRASA facilities. Exposure can result from fallen or damaged transformers that leak. Ballasts from fluorescent lights manufactured prior to 1978 may contain PCBs as well. Exposure can result from leaking or damaged ballasts by direct contact or through drinking/eating water containing PCBs.

Guánica-Caribe commented that the extent of PCBs and other contaminants that might have been discharged through PRASA wastewater treatment plants (WWTP) and its other discharges to Guánica Bay have not yet been estimated. It stated that the closest PRASA WWTP to the Ochoa Site is the Guánica WWTP, located less than 2,000 feet west of the Ochoa Site on the northern shore of Guánica Bay. Guánica-Caribe stated that Guánica WWTP's current draft National Pollutant Discharge Elimination System (NPDES) permit does not include discharge limits for PCBs and indicates that concentrations of oil & grease up to 9,500 µg/L have been measured

[15] Guánica -Caribe cited the following four documents in support of its comment: (1) Portal Catastro Digital Y Productos Cartográficos, Parcel 407-086-112-08, Screen Capture (included as Exhibit 4 of its comment document); (2) Portal Catastro Digital Y Productos Cartográficos, Parcel 407-066-147-01, Screen Capture (included as Exhibit 5 of its comment document); (3) https://www.ddec.pr.gov/en/access-to-information/; (4) "Hanes Plants to Shut, Cut 1,105 Jobs," *Orlando Sentinel* (December 16, 2002), https://www.orlandosentinel.com/news/os-xpm-2001-12-16-0112140472-story.html.

[16] Guánica-Caribe cited to pages 69 and 70 of the following document in support of its comment: U.S. Department of Homeland Security, FEMA Region II, Programmatic Environmental Assessment, Utility Repair, Replacement, and Realignment, Commonwealth of Puerto Rico, DR-4339-PR, August 2020, https://www.fema.gov/sites/default/files/2020-08/fema_ea_puerto-rico_utility-repair-replacementrealignment_guidedbook_august-2020.pdf.

in the WWTP effluent as recently as 2016.[17] Guánica-Caribe then commented that in 1995 the EPA entered into a consent decree with PRASA involving PRASA discharge pollutants in violation of the Clean Water Act (CWA) and in violation of certain terms and conditions of its NPDES permits.[18]

Guánica-Caribe pointed to page 36 of the HRS documentation record at proposal which states that "due to the tidal nature of Guánica Bay, the presence of multiple tributaries, and numerous historical and current possible sources of contamination, the EPA is evaluating sediments sampled from multiple areas within the bay and multiple water body types to capture any background contaminants leading into the bay." Guánica-Caribe then claimed that based on this understanding, the "EPA cannot support an assertion that sediment contamination in the bay originated from the Eastern Lot."

Source Characterization

Guánica-Caribe asserted that the sources at the Site have not been adequately characterized and releases from them do not extend off-site, and therefore links between eastern lot contamination and contamination beyond the eastern lot, including Guánica-Bay, is speculative. It made the following comments:

- The EPA "inappropriately conflates environmental contamination and impacts allegedly associated with [the Eastern Lot] with potential contamination associated with [the Western Lot], notably for which EPA has presented no supportive data in the HRS Package, and with PCBs in sediment throughout Guánica Bay originating from a multitude of sources."
- Only Aroclor-1260 was detected in even the location of highest PCB concentration on the eastern lot and, therefore, the detections of other Aroclor mixes in bay sediment samples indicate there are other PCB sources.

With regard to the western lot, Guánica-Caribe commented that the EPA has not provided substantive information or data in the HRS documentation record at proposal "that describes observed contamination or contaminant sources on the Western Lot," and therefore, the EPA should clarify that it cannot reach any conclusions about this area. It explained that the EPA identifies the western lot as part of the Site but does not present environmental data showing the presence of contamination on the western lot. Guánica-Caribe further commented that the Puerto Rico Ports Authority has owned that property since at least 1948,[19] and in "addition to Ochoa Fertilizer Co., other operators in this area included Pan American Grain Manufacturing Company, Pro-Granos Corporation, Harinas de Puerto Rico, mills engaged in the production of livestock food and other products," and "a pier area where chemicals were received and an ammonium sulfate warehouse."[20] It also added that there is documentation "of potential environmental impacts from ancillary operations associated with the Western Lot, such as the sinking of the integrated tug and barge, 'The Zorra,' after a fire during unloading adjacent to the Western Lot on April 24, 1995."[21]

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[17]Guánica-Caribe cited the following document in support of its comment: EPA. Region 2, Fact Sheet, Draft National Pollutant Discharge Elimination System, Guánica WWTP, Permit No. PR0020486, https://www.epa.gov/sites/default/files/2017-09/documents/guanica_wwtp_fact_sheet.pdf.

[18] Guánica-Caribe cited the consent decree document now located at: https://www.epa.gov/enforcement/consent-decree-puerto-rico-aqueduct-and-sewer-authority-prasa-pollutant-discharge; and page 30 of the following document in support of its comment: U.S. Department of Homeland Security, FEMA Region II, Programmatic Environmental Assessment, Utility Repair, Replacement, and Realignment, Commonwealth of Puerto Rico, DR-4339-PR, August 2020, https://www.fema.gov/sites/default/files/2020-08/fema_ea_puerto-rico_utility-repair-replacement-realignment_guidedbook_august-2020.pdf.

[19] Guánica-Caribe cited the following two documents in support of its comment: (1) RAC Titles Search, Inc., report for FINCA #355 inscrita al folio 25 del toto 13 de Guanica Registro de la Propiedad de San Germán Sección I [included as Exhibit 1 of its comment document]; (2) RAC Titles Search, Inc., report for FINCA #354 inscrita al folio 25 del toto 13 de Guanica Registro de la Propiedad de San Germán Sección I [included as Exhibit 2 of its comment document].

[20] Guánica-Caribe cited page 10, Section 2.2, of Reference 7 of the HRS documentation record at proposal.

[21] Guánica-Caribe cited the following document in support of its comment: Pan American Grain Mfg. Co.., v. Puerto Rico Ports Auth., 121 F. Supp. 2d 710 (D.P.R. 1999).

Statements in the HRS Documentation Record

Guánica-Caribe stated that language in the HRS documentation record at proposal (e.g., on pages 12, 40, 41, 61, and 62) should be corrected as it inappropriately states or implies conclusions regarding the sources of contamination at the eastern lot and Guánica Bay. It stated:

> The HRS Package states, "Aroclor-1260 has been documented in the surface soils throughout Source 1, including in the drainage pathway originating at the western Ochoa property fence, west and topographically downgradient across the gravel parking area bordering the bay, and near the PPE (see Section 4.1.1.1). No other upslope sources or upstream sources of Aroclor-1260 have been identified." This statement should be revised to be consistent with the available information to more appropriately read, "Aroclor-1260 has been documented in the surface soils within Source 1, including along the SR-333, adjacent to the western Ochoa property fence."...
>
> The HRS Package states, "Vanadium was used by the facility as a catalyst in the production of sulfuric acid [Ref. 7, pp. 11, 56]. Vanadium pellets were observed to be deposited directly on the ground surface on multiple occasions [Ref. 7, pp. 14, 214]. The remaining metals that characterize Source 1/AOC A, are present in crude oil and would also likely be present in the carbon byproduct [Table 2; Ref. 74, p. 8; 75, p. 3]. Metals, including arsenic, cadmium, lead, manganese, and zinc are known to be constituents of commercial inorganic fertilizers [Ref. 78, p. 1; 79, pp. 1, 2]. No other upslope sources of vanadium or other metals have been identified." This text should be revised to remove the sentence, "No other upslope sources of vanadium or other metals have been identified."...
>
> The HRS Package states, "There are no known current or historical sources of PCBs upslope of, or within 1 mile of, the former Ochoa property [Figure 1; Ref. 29, pp. 5-10; 31, pp. 3-16; 38, pp. 3-5]." Reference 29 has no bearing on locations of commercial/industrial facilities and Reference 31 identifies gasoline station and field notes indicate presence of vehicle maintenance facility and other sites of potential contamination west of the Site. EPA should delete this unsupported statement from the HRS Package....
>
> The HRS Package states, "The results indicate that the contamination of the Guánica Bay sediment is not attributable to sources located north of Ochoa," and, "the results indicate that the contamination documented by EPA in 2019 in sediment of the eastern portion of Guánica Bay is not attributable to sources located west and northwest of Ochoa along Rio Loco." These references relate to current/continuing releases and not potential historical input. Coincident surface water and sediment data have not been collected in much of the bay historically, and many data points between NOAA, independent studies (e.g., Kumar et al., 2016), and the 2019 Site Reassessment sampling were not collected at locations that allow for statistical comparison. EPA should delete or clarify this statement in the HRS Package....
>
> The HRS Package states, "PREQB personnel observed visual evidence of industrial releases from Ochoa to this eastern portion of the bay, in the form of yellow-stained sands and white-gray residue on the shoreline their deposits were described ... as sulfur and ammonium sulfate layers...." This statement has no bearing on PCB-release from the Ochoa property or anywhere along shore and should be removed from this discussion within the HRS Package....
>
> The HRS Package states, "In a study conducted by [NOAA] in 2009, PCBs were documented in the sediments of Guánica Bay at a maximum concentration of 3,860 [ng/g].… A more recent study conducted by the University of Miami in 2013 and 2014 found a maximum concentration of 129,284 ng/g of total PCB congeners in Guánica Bay sediments...." It also states that, "Analytical results from the [University of Miami] study showed detectable levels of Aroclor-1260, -1232, and –1016 in bay sediments.… Although these studies suggest there may be multiple sources of PCBs in the Guánica Bay watershed, the patterns of contamination found in

> these studies point to the Ochoa PPE as a strong origin of PCBs." With these statements, EPA appears to be inappropriately concluding that all PCBs in Guánica Bay originate from the Ochoa Site.... Therefore, EPA should clarify this in the language in the HRS Package to state, "These studies suggest there likely are multiple sources of PCBs in the Guánica Bay watershed."
>
> The HRS Package states, "Results of sediment samples collected by EPA in 2019 from a municipal storm drain and a spring-fed channel upstream of the residential drainage channel segment were non-detect for zinc, and there are no other known sources of contamination in the intervening terrain (i.e., east of the residences and west of the former Ochoa facility) [Ref. 14, pp. 63–65, 139, 140; 15, pp. 30, 35; 28, pp. 49, 50, 55, 56]. It is likely zinc came to be deposited on the residential property via the drainage channel that historically carried runoff and settling pond effluent from the Ochoa facility through the channel." This paragraph should be adjusted to correctly state that, "Results of sediment samples collected by EPA in 2019 from one municipal storm drain and a spring-fed channel upstream of the residential drainage channel segment were non-detect for zinc. However, the source of zinc on the residential property and drainage channel has not been determined."

Guánica-Caribe also stated:

> In the HRS Package, EPA describes the Ochoa Site as "one source of hazardous substances in the form of contaminated soil at and in the vicinity of the former Ochoa Fertilizer Co. facility located at State Road No. 333/Carretera Caña Gorda (PR-333), and contaminated sediments in Guánica Bay, located in Guánica, Puerto Rico." This definition could be interpreted to suggest that any impact anywhere within Guánica Bay is related to the Ochoa Site This clearly is not the case.

Guánica-Caribe asserted, "[c]onsidering that EPA has not presented or supported the existence of a historical or current pathway from the Ochoa Site to Guánica Bay as well as the other potential sources of contamination to Guánica Bay, EPA cannot conclude that the PCBs identified in the Bay originated from the Eastern Lot." It contended that the instances in the HRS documentation record at proposal where the overall contaminated sediments in Guánica Bay are discussed should clarify that such contamination could have originated from multiple sources other than the Ochoa Site. It also argued that attributing zinc contamination on residential property to the former facility on the eastern lot is not supported by the presented data. Guánica-Caribe contended that the EPA should exclude Guánica Bay from the NPL listing or only include the localized outlined area of Guánica Bay.

Response: Sufficient sampling and historical information support the Aroclor-1260 contamination in Guánica Bay sample SED01 is at least partially attributable to the Site. This information is shown and discussed in the HRS documentation record at proposal and is consistent with HRS requirements for source and observed release evaluation. Aroclor-1260 has been documented in the surface soils throughout Source 1, including in the drainage pathway originating at the western fence of the eastern lot, west and topographically downgradient across the gravel parking area bordering the bay, and near the PPE. No other upslope sources or upstream sources of Aroclor-1260 have been identified. The eastern lot is surrounded to the north, east, and south by the Guánica State Forest. The lands of the forest have never been developed and lie upslope of the eastern lot. Historical information documents the contaminated soil is at and in the vicinity of the former industrial facility. The HRS documentation record at proposal has made no claim that PCB sediment contamination outside of the documented zone of actual contamination are attributable to the Site at this time, and it acknowledged the existence of other possible contributors of PCBs to the bay, so the commenters' requested wording changes are moot. Other possible sources and other possible sites were discussed in the HRS documentation record at proposal on pages 31-32 and page 41, respectively, and the significant increase in Aroclor-1260 in Guánica bay is at least partially attributable to the Ochoa Site. Although zinc is associated with Source 1 and AOC A, an observed release of zinc in Guánica Bay was not evaluated at the Site. See section 3.14.2, Soil Exposure Component – Attribution, of this support document for the attribution of zinc to the evaluation of the soil exposure component of the scoring of this Site. The full extent of Ochoa's contribution of PCBs and other contaminants to the bay is outside of the scope of the

HRS's role as a screening tool, and further sampling, which will occur during the RI/FS stage, will be needed to make that determination.

The HRS does not contain directions on how to establish attribution of contamination to the site. On attribution for all HRS pathways, HRS Section 2.3, *Likelihood of release*, states in relevant part:

> Establish an observed release either by direct observation of the release of a hazardous substance into the media being evaluated (for example, surface water) or by chemical analysis of samples appropriate to the pathway being evaluated (see sections 3, 4, and 6). The minimum standard to establish an observed release by chemical analysis is analytical evidence of a hazardous substance in the media significantly above the background level. Further, **some portion of the release must be attributable to the site**. Use the criteria in table 2–3 as the standard for determining analytical significance. [Emphasis added]

Specific to the surface water migration pathway, HRS Section 4.1.2.1.1, *Observed release*, in the surface water migration pathway states:

> Establish an observed release to surface water for a watershed by demonstrating that **the site has released** a hazardous substance to the surface water in the watershed. Base this demonstration on either:
>
> - Direct observation ...
> - Chemical analysis ...
>
> **Some portion of the significant increase must be attributable to the site** to establish the observed release .... [Emphasis added]

Although the HRS does not specify how to establish attribution, attribution of contamination is considered appropriate when a released substance (e.g., Aroclor-1260 at this Site) is documented to be associated with the source at the site (i.e., the contaminated soil source), the source is not contained to prevent migration to surface water, and a significant increase in contamination is documented to the surface water migration pathway. All these components were documented at this Site.

The source characterization section of the HRS documentation record supports that Aroclor-1260 is associated with the Source 1 contaminated soil documented throughout the Ochoa Site. Further, many additional hazardous substances were found at the same sampling locations where Aroclor-1260 was documented. For example, page 19 of the HRS documentation record at proposal states:

> From April 23 through May 7, 2019, EPA collected 64 soil samples (including four environmental duplicates) **from 34 soil borings** advanced using direct-push methodology and manual advancement (hand-auger) at Ochoa [Ref. 14, pp. 6–31; 15, pp. 10, 13–23; Figure 3]. **Analytical results show the presence of numerous hazardous substances at concentrations significantly above background, including PAHs, phthalates, and inorganic analytes (see Table 2). Aroclor-1260 was detected in contaminated soil throughout the Ochoa property**; the maximum concentration reported was 84,000 micrograms per kilogram (µg/kg) [Ref. 14, p. 16; 46, pp. 14–16, 88, 147, 148]. Pesticides (aldrin and dieldrin) were detected at one soil sample location (i.e., 0642-S23) [Ref. 14, pp. 11, 12; 42, pp. 10–13, 53, 161; 43, pp. 3, 1449].

Table 2 of the HRS documentation record at proposal presents data for 18 locations with soil samples exhibiting Aroclor-1260 contamination elevated above soil background at various depths ranging from 0-10 feet deep. Figure 3 of the HRS documentation record at proposal (included as Figure 1 of this support document) shows the sample locations. These Aroclor-1260 results showed levels from 170 to 84,000 µg/kg.

Source 1 was shown to be uncontained to contaminant migration from the source to surface water via runoff, as described on pages 20-21 of the HRS documentation record at proposal and further discussed in section 3.10, Source Containment, of this support document. Pages 20-21 of the HRS documentation record at proposal state:

> Topography at the former Ochoa property and the surrounding area slopes southwest towards Guánica Bay [Ref. 4, p. 1]. The contaminated soil identified at the property includes contamination at the surface (i.e., 0 to 2 feet) and occupies upland portions of the property, and **there are no containment features (e.g., maintained engineered cover, functioning run-on or runoff control measures) present that would prevent contaminated soil from being transported downslope and toward the bay via overland flow and the property drainage ditch** [**Figure 3** and **Table 2**; Ref. 4, p. 1; 7, pp. 7, 9; 14, pp. 101, 103, 104, 107]. Therefore, a surface water containment factor value for overland migration of 10 is assigned for the source [Ref. 1, Table 4-2]. [Emphasis added]
>
> The EPA 2019 sample analytical results document contaminant migration from the former Ochoa property, overland to soil sample location 0642-S02, which is within approximately 50 feet of storm drain features that may lead to the nearest perennial surface water body (i.e., Guánica Bay) [Figure 3; Ref. 4, p. 1]. Aroclor-1260, which is related to historical operations at Ochoa, was detected in soil at significant concentrations throughout the Ochoa property, including in the drainage pathway from the Ochoa property to surface water [see **Figure 3**]. Aroclor-1260 was detected in a sediment sample collected from Guánica Bay near the PPE at a concentration that meets the criteria for observed release by chemical analysis (see **Section 4.1.2.1**).

The overland path of potential contaminant migration from Source 1 to surface water is described on page 33 of the HRS documentation record at proposal and further discussed in section 3.13.1, Surface Water Migration Pathway – Overland Migration Path, of this support document. Page 33 of the HRS documentation record at proposal state:

> The perennial surface water body nearest to Ochoa is Guánica Bay; topography at and in the vicinity of Source 1 slopes southwest toward the bay [**Figure 4**; Ref. 4, p. 1]. Stormwater on the former Ochoa eastern lot is captured by a drainage ditch, which surrounded the manufacturing plant and was used to capture effluent discharge from the carbon settling ponds and stormwater from Ochoa's operations area [**Figure 2**, **Figure 3**; Ref. 7, pp. 7, 47, 839]. Historically, runoff from the Ochoa property would flow across PR-333, flood the parking lot to the west, and be directed via open channel (i.e., drainage ditch) into the bay at its northeastern corner; a segment of this drainage ditch passed through residential backyards west of the parking lot [Ref. 7, pp. 7, 616]. To mitigate the flooding in the parking lot and residential community west of the Ochoa property, improvements were made to the stormwater collection system and a stormwater pumping station was constructed near the bay. Stormwater is now captured in a series of storm drains, culverts, and ditches in the waterfront community; directed to holding tanks at the pumping station; and discharged without treatment to the northeastern corner of the bay via an outfall pipe [Ref. 7, p. 7; 14, pp. 32, 33, 70, 71 107, 108; 26, pp. 1, 3; **Figure 4**]. The ditch in the backyards of residential properties along Calle José Nazario still exists and functions as part of the stormwater collection system; however, the final segment of the ditch that discharged directly to the bay was apparently backfilled after being replaced by the holding tanks and pumping station discharge pipes [Ref. 7, p. 616; 14, p. 70]. Based on observations made by PREQB in 1998 and by EPA in 2019 and with the exception of the stormwater improvements, runoff from the Ochoa property continues to follow a similar drainage path toward the bay, including stormwater overflow across PR-333 and the gravel parking lot [**Figure 3**; Ref. 4, p. 1; 7, pp. 7, 9, 47, 615, 616; 14, pp. 69, 70, 103]. Based on these considerations, the PPE is at the northeastern corner of Guánica Bay [**Figure 3**; Ref. 14, pp. 70, 71, 107, 108; 26, pp. 1, 3]....
>
> The shortest overland distance from Source 1 to the PPE is approximately 188 feet, based on soil sample location 0642-S02 [see **Figures 3 and 4**].

As noted, the shortest distance from Source 1 contaminated soils to the probable point of entry to surface water is approximately 188 feet from soil sample location 0642-S02 as shown on Figures 3 and 4 of the HRS documentation record at proposal.

The Attribution section on page 40 of the of the HRS documentation at proposal provides the EPA's justification of attributing the significant increase in contamination in Guánica Bay and it includes that:

> Aroclor-1260 detected at sediment sample 0642-SED01-0-12 is attributable to Source 1 based on previous sampling analytical results at the Ochoa property, and confirmed by the EPA 2019 sampling event (see Section 2.2.1). **Aroclor-1260 has been documented in the surface soils throughout Source 1, including in the drainage pathway originating at the western Ochoa property fence,** west and topographically downgradient across the gravel parking area bordering the bay, and near the PPE (see Section 4.1.1.1). No other upslope sources or upstream sources of Aroclor-1260 have been identified. **Other nearby sediment samples show decreasing Aroclor-1260 concentrations with distance from the PPE**. **Moving away from the PPE to the southwest,** sediment sample 0642-SED06-0-12 indicates an Aroclor-1260 concentration of 4.8 J µg/kg [Figure 4; Ref. 15, p. 35; 50, p. 50]. **Moving away from the PPE to the south**, sediment samples 0642-SED07-0-12 and then 0642-SED08-0-12 show Aroclor-1260 concentrations of 9.4 J µg/kg and non-detect (81 U), respectively [Figure 4; Ref. 15, p. 35; 50, pp. 56, 61]. **Moving away from the PPE to the west,** sediment samples 0642-SED10-0-12 and then 0642-SED11-0-12 showed non-detect values for Aroclor-1260 [Figure 4; Ref. 15, p. 35; 52, p. 18; 54, p. 20]. Sediment samples 0642-SED10-0-12 and 0642-SED11-0-12 were both collected near a wastewater treatment plant point of discharge [Ref. 15, p. 35]. **The results for sediment samples** 0642-SED20-0-12, 0642-SED29-0-12 (duplicate of 0642-SED20-0-12), and 0642-SED21-0-24, **which were collected near the historical Central Guánica sugar mill, also showed non-detect values for Aroclor-1260** [Figure 4; Ref. 15, p. 35; 54, pp. 63, 77, 124].
>
> **Aroclors are mixtures of individual PCB congeners** [Ref. 30, p. 2]. PCBs are a group **of man-made organic chemicals** manufactured from 1929 until the manufacturing was banned in 1979 [Ref. 30, p. 1]. Due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties, **PCBs were used in hundreds of industrial and commercial applications and were found in heavy-duty electrical equipment, such as transformers and voltage regulators**; old smaller-scale electrical devices or appliances containing PCB capacitors; motor and hydraulic oil; and fluorescent light ballasts [Ref. 30, p. 1]. **Ochoa's eastern lot was a large industrial complex that operated from 1957 to sometime between 1968 and 1970 [Ref. 7, pp. 9–11]. During its operating years, the Ochoa facility utilized its own electrical substation that was separate from the PREPA substation on the property** (the PREPA substation was not constructed until 1991 or 1992) [Ref. 7, pp. 8, 56, 160, 209, 212; 10, p. 1]....
>
> **Aroclor-1260 was detected in Ochoa eastern lot soil at concentrations ranging from 47 µg/kg to 84,000 µg/kg** (see Section 2.2.2, Table 2). There are no known current or historical sources of PCBs upslope of, or within 1 mile of, the former Ochoa property [Figure 1; Ref. 29, pp. 5–10; 31, pp. 3–16; 38, pp. 3–5]. The former Ochoa property is surrounded to the north, east, and south by the Guánica State Forest [Figure 1; Ref. 33, pp. 4, 6]. The lands of the forest have never been developed, and lie upslope of the former Ochoa property [Figure 1; Ref. 29, pp. 5–10; 33, p. 4; 38, 3–5]. In addition, **analytical results for soil samples 0642-S28, 0642-S33 (duplicate of 0642-S28), 0642-SS28A, 0642-SS28B, 0642-S29, and 0642-S34 (duplicate of 0642-S29), which were collected adjacent to the PREPA electrical substation, indicated non-detect values for Aroclor-1260** [Figure 3; Ref. 14, pp. 8, 16; 40, pp. 80, 86; 46, pp. 48, 57, 72, 77]. Although Aroclor-1260 was detected in surface soil sample 0642-S12, which was collected from the drainage ditch near the PREPA substation, the reported concentration (7.8 J µg/kg) is relatively low estimated value below the sample reporting detection limit [Figure 3; Ref. 14, p. 8; 40, pp. 63, 155]. [Emphasis added].

Other Possible Site-Related Sources and Other Possible Sites

Regarding other possible sources and other possible sites contributing to Aroclor-1260 contamination in Guánica Bay, the HRS documentation record at proposal acknowledged their presence; however, "some portion of the significant increase" in Aroclor-1260 in sample SED01in Guánica Bay is still attributable the Ochoa Site, consistent with the HRS.

First, other possible non-scored Site-related sources at the Ochoa Site are discussed on pages 31 to 32 of the HRS documentation record at proposal and they include surface impoundments, drums, and a landfill. These other possible sources are affiliated with the eastern lot.

Second, as part of the Attribution section discussion in the HRS documentation record at proposal, "Other Possible Sites" are also discussed on page 41. This discussion includes the Central Guánica sugar mill as an other possible site located on Guánica Bay, located across the bay approximately 7,000 feet from the observed release sample SED01 at the Ochoa Site. Central Guánica sugar mill and was not found to be a contributor to the release attributed to Ochoa. The HRS documentation record at proposal explains on page 41:

> Other Possible Sites
>
> The Central Guánica sugar mill is located in Guánica, PR, on the northwestern shore of Guánica Bay [Ref. 34, pp. 4, 5]. **In January 1999**, EPA conducted SI sampling to evaluate the Central Guánica facility under EPA ID No. PRD987379443 [Ref. 34, pp. 3, 15]. During the EPA sampling event, personnel observed burned transformers labelled as containing PCBs located on the eastern portion of the property, approximately 10 meters (or 32.8 feet) from the bay [Ref. 34, pp. 6, 12, 55]. **Aroclor-1260 was detected at an estimated concentration of 320 parts per billion** (ppb; equivalent to µg/kg) in a soil sample collected in the area of the PCB transformer storage area [Ref. 34, pp. 14, 16, 72]. **Sediment samples collected from the bay during the 1999 investigation located adjacent to and just to the east of the sugar mill transformers and associated contaminated soil were non-detect for all Aroclor parameters** [Ref. 34, pp. 16, 76, 77, 137, 471–475]. Three sediment samples (including one environmental duplicate sample) were collected near the sugar mill during the 2019 EPA investigation [Ref. 14, p. 40; 15, pp. 28, 35]. The depths of the sediment samples ranged from 0 to 12 inches and 0 to 24 inches bss [Ref. 15, p. 28]. **The results for sediment samples** 0642-SED20-0-12, 0642-SED29-0-12 (duplicate of 0642-SED20-0-12), and 0642-SED21-0-24, which were collected by EPA **in 2019 near the historical Central Guánica sugar mill, showed non-detect values for Aroclor-1260** [Ref. 15, p.35; 54, pp. 63, 77, 124]. [Emphasis added]

Third, the significant increase in contamination in SED01 is documented using site-specific background levels as explained on pages 36-38 of the HRS documentation record at proposal, and further discussed in section 3.13.2, Surface water Migration Pathway – Likelihood of Release, of this support document. The HRS documentation record at proposal explains the consideration of multiple background samples in establishing a background level for the Site, and this consideration includes the concerns of the tidal nature of the bay as well as numerous historical and possible sources of contamination. Page 36 of the HRS documentation record at proposal states:

> Due to the abundance of sediment samples collected to examine overall conditions within Guánica Bay, background sediment samples used in the observed release evaluation were selected based on greater percent fine-grained content and higher TOC levels [Ref. 15, pp. 24–30, 35; 23, pp. 6–28]. The higher percentages of fine grains (i.e., clay and silt) and TOC in sediment increases the likelihood of adsorption of contaminants to sediment particles [Ref. 35, p. 8]. This selection documents background samples with the greatest affinity for adsorption of contaminants. **Also, due to the tidal nature of Guánica Bay, the presence of multiple tributaries, and numerous historical and current possible sources of contamination, EPA is evaluating sediments samples from multiple areas within the bay and multiple water body**

> **types to capture any background contaminants leading into the bay** [Ref. 15, pp. 26–28, 30, 35]. [Emphasis added]

The Aroclor-1260 contamination attributed to the Site in the HRS scoring is in an area of Guánica Bay located only a few feet from the PPE to surface water from the contaminated soil source at the Site. As further discussed in section 3.13.2, Surface Water Migration Pathway – Likelihood of Release, Guánica-Caribe and the EPA agree that lower levels of Aroclor-1260 in samples just slightly further from the PPE and observe release sample SED01 (e.g., SED03, SED04, and SED05) indicate some level of isolation of the contamination near the PPE from contaminants potentially released from other possible sources on the bay. This is sufficient to document at least partial attribution of the Aroclor-1260 release to the Ochoa Site, consistent with the HRS. Investigations of the numerous other facilities named by Guánica-Caribe is beyond the scope of the screening investigation performed to identify this Site and Guánica-Caribe has not provided analytical data to support a release from these facilities that would refute the release attributed to the Ochoa Site.

Regarding Kumar et al. (2016) included as Reference 13 of the HRS documentation record at proposal, Guánica-Caribe has not accurately presented what this report states. The report states the following on pages 2, 6 and 10, respectively:

> **Guánica Bay receives pollution discharges from many different sources including sugar mills, fertilizer plants, textile companies, and sugar and coffee plantations, which drain into the Rio Loco** (Rodrigueq, 2015; Sturm et al. 2012). This river discharges at the northeast corner of the bay (Morales 2009). Domestic and industrial waste and raw and partially treated sewage are also discharged into the bay (Morales 2009). Moreover, several oil spills have been reported in the bay, including three documented oil spills in and around the bay in 1962, 1994, and 2007 (CSA Group 2001; Diaz-Piferrer 1962; Golob 1994; Orlando Sentinel 1994; Robles 2007). ...
>
> **The highest concentration of 14,080 ng/g (or ~14 ppm) was found in the eastern part of the bay; the second highest concentration (4,150 ng/g) was found at an adjacent site**. ....
>
> **The sources of the PCB contamination in Guánica bay are unknown. The Rio Loco and the shipping channel within the Bay do not seem to be the primary source as PCB levels along the northern-west to southern-east transect were lower than those along the east-west transect (Figure 2), and PCB levels near the discharge point of Rio Loco was substantially lower than the levels of PCB found in eastern parts of the bay (Figure 3).** However, it is recognized that sediments and contaminants could have been redistributed as a result of dynamic transport processes. Documented literature suggests that may have come from oil spilled into the bay from an unused storage tank on the grounds of a former sugar mill on the eastern shore of the bay (CSA Group 2001; Golob 1994; Orlando Sentinel 1994). However, nothing has been reported (or proven) to date to implicate the sugar mill complex. [Emphasis added]

Hence, the EPA has accounted for other possible facilities that may be contributing to the Aroclor-1260 release in Guánica Bay by sampling to establish site-specific background levels for the Site. Several background samples were collected and the highest of the background concentrations that was from samples similar to the observed release sediment sample was used to establish a background level. These background samples were collected from various locations in the watershed. (See Tables 4 and 5 and Figure 4 of the HRS documentation record at proposal.)

Regarding the 2007 NOAA assessment quoted by Guánica-Caribe, the EPA does not dispute the findings of the study. However, the sampling performed to assess the Ochoa Site has attributed a release in SED01 to the Ochoa Site within a very limited zone of actual contamination in Guánica Bay in close proximity to the PPE. A more complete evaluation of the extent of the contamination and associated contaminants at the Site will occur at a later stage in the Superfund process.

Regarding Guánica-Caribe's comment that that the PREPA substation was built prior to the PCB ban in 1979, the HRS documentation record at proposal on page 12 states that, "In 1989, Ochoa Fertilizer Co. donated approximately 1 acre of land to Puerto Rico Electric Power Authority (PREPA) [Ref. 7, p. 7; 9, pp. 1–7]. This land is now utilized by PREPA for access to and operation of a substation located on the eastern portion of the property; see Figure 3." This PREPA substation is a separate substation from the former substation which was located within the central portions of the eastern lot. (See pages 7, 9 and 105 of Reference 7 of the HRS documentation record at proposal.) Guánica-Caribe does not refute it had a separate substation in the central portion of its facility and that its facility began operation in 1957, prior the PCB ban. The PREPA substation in question is located near the edge of the eastern lot boundary on land donated to PREPA by Ochoa.

Concerning the information to determine the specific date when this PREPA substation was built, Exhibit 7 (a 1966 topographic map) of Guánica-Caribe's comment document does not show sufficient detail to determine if the PREPA substation located near the edge of the eastern lot is present. Exhibit 8 (a 1975 aerial photograph) of Guánica-Caribe's comment document does show activity/structures in the area where the PREPA substation is located. The 1983 aerial photograph on page 4 of Reference 38 also shows activity/structures in the area where the PREPA substation is located. However, Reference 9 of the HRS documentation record at proposal is a land transfer document dated May 8, 1989, between Ochoa Fertilizer and PREPA. It states on page 7:

> Ochoa hereby segregates from the parcel one (1) of the above described property, a parcel of land hereinafter referred to as the "Dominant Tenement", described in the Spanish language as follows ... URBAN: Parcel located at Carenero Ward, Municipality of Guánica, **consisting o**f four thousand two hundred seven point forty one square meters (4,207.41 sq. mts.) equivalent to one point zero seventy **(1.070) "cuerdas", bounding by** the North, South and West with land property of Ochoa Fertilizer Co., Inc. and by the **East with the National Forest of Guánica**". [Emphasis added[22]]

Additionally, Reference 10 of the HRS documentation record at proposal states that the PREPA substation was built in 1991/1992. (Though this reference refers to a photograph, the photograph is not included as part of Reference 10.) Although there may be discrepancies in exactly when the PREPA substation located near the eastern edge of the eastern lot was built and operational, as stated on page 40 of the HRS documentation record at proposal, 2019 sampling near the PREPA substation excludes it from being a source of the Source 1 Aroclor-1260 contamination for purposes of the HRS documentation record at proposal:

> [A]nalytical results for soil samples 0642-S28, 0642-S33 (duplicate of 0642-S28), 0642-SS28A, 0642-SS28B, 0642-S29, and 0642-S34 (duplicate of 0642-S29), which were collected adjacent to the PREPA electrical substation, indicated non-detect values for Aroclor-1260 [**Figure 3**; Ref. 14, pp. 8, 16; 40, pp. 80, 86; 46, pp. 48, 57, 72, 77]. Although Aroclor-1260 was detected in surface soil sample 0642-S12, which was collected from the drainage ditch near the PREPA substation, the reported concentration (7.8 J µg/kg) is relatively low estimated value below the sample reporting detection limit [**Figure 3**; Ref. 14, p. 8; 40, pp. 63, 155].

The absence of the PREPA substation as a possible source in the HRS documentation record at proposal does not affect the HRS scoring.

Regarding the possible location of a landfill or dump on the eastern lot, this area is within the Site and is noted in the "Other Possible Sources" section on page 31 of the HRS documentation record at proposal. However, it has not been confirmed that this landfill/dump was operated as a municipal landfill. The HRS documentation record at proposal states on pages 31-32:

> The 1992 Phase II ESA Report states that facility personnel reported a portion of the former Ochoa property had been used as a municipal landfill, purportedly located at the southwestern corner of the 112-acre eastern lot of the former facility and bordered by PR-333 to the west; the

[22] A cuerda is a Spanish acre.

> report did not provide any historical evidence to confirm operation of a landfill by the municipality at this location [Ref. 7, pp. 163, 174]. As part of the Phase II ESA conducted by the property owner, 17 test pits were excavated to 10 ft bgs in the area of the reported former municipal landfill [Ref. 7, pp. 173, 174]. Dark colored soil with fill material, consisting of mostly glass, was reported in 6 of the 17 pits [Ref. 7, p.173]. The area defined by the six test pits with fill material was approximately 75 feet x 130 feet (9,750 ft2) with a thickness ranging from 1 to 6 feet [Ref. 7, p. 173]. Analytical results for a soil sample collected from one of the test pits showed detections of arsenic (1.8 mg/kg), cadmium (3.29 mg/kg), chromium (80.3 mg/kg), copper (125.6 mg/kg), lead (478 mg/kg), mercury (0.313 mg/kg), and zinc (974.6 mg/kg) [Ref. 7, pp. 174, 175]. Monitoring well MW-3 was installed within this area to monitor groundwater quality along the perimeter of the Ochoa property [Ref. 7, pp. 166, 174]. The water-table was encountered at a depth of 11 ft bgs in MW-3, approximately 1 foot below the depth of the test pits [Ref. 7, p. 166]. Analysis of a groundwater sample collected from MW-3 showed non-detect values for VOCs and most inorganic analytes; vanadium was detected at a concentration of 0.023 milligrams per liter (mg/L) [Ref. 7, pp. 324, 519–521]. A sample from MW-3 also showed a non-detect value for total petroleum hydrocarbons (TPH) [Ref. 7, p. 323].

Note that page 173 of Reference 7 (cited in the quoted text above) explains that one of the test pit samples was tested for metals, VOC, SVOC, pesticide, and PCB analytes. The sample had no detections for SVOC, pesticide, and PCB analytes. Therefore, although the landfill is considered an other possible source at this Site, its contents do not likely account for the Aroclor-1260 in observed release sample SED01 in the bay.

Further, as explained in section 3.3, Liability, of this support document, liability is not considered in evaluating a site under the HRS. The NPL serves primarily as an informational tool for use by the EPA in identifying those sites that appear to present a significant risk to public health or the environment.

Regarding PRIDCO's construction and management of industrial parks and the possibility of the industrial park tenants using the dump/landfill on the eastern lot, this does not refute that the sampling performed to assess the Ochoa Site has attributed a release in SED01 in Guánica Bay to the Ochoa Site. Further, this possible dump/landfill, as indicated above, is noted in the HRS documentation record at proposal as a possible source at the Ochoa Site. Regarding the drainage ditch in aerial photographs in Exhibits 4 and 5 of Guánica-Caribe's comments document, those two photographs are not granular enough to depict a ditch; however, the EPA did sample upgradient locations of Source 1 and AOC A including an upgradient location in the right of way along PR-333 in a residential and commercial area believed to be unaffected by former facility activities on the eastern lot. Those samples are listed in Table 1 and on Figure 3 of the HRS documentation record at proposal. Those samples' locations are 0642-S30 (with three samples, 0642-SS30A, 0642-SS30B and 0642-GW30, at that location) and 0642-S31 (with three samples, 0642-SS31A, 0642-SS31B and 0642-GW31, at that location). These samples, except for the two groundwater samples at those locations, are among the background soil samples used to establish background levels for Source 1 and AOC A characterization. Impacts from other industries are likely accounted for in the background levels established for evaluating Source 1 and AOC A.

Regarding Guánica-Caribe's comment that the 2020 FEMA document[23] claims the presence of PCBs in electrical infrastructure, while this is correct, the EPA notes that the FEMA document was responding to existing conditions and environmental concerns and recovery from Hurricane Maria and is not specifically discussing the PREPA substation located near the edge of the eastern lot boundary. Rather, the FEMA document is discussing electrical substations in general regarding hazardous substances and safety and occupational health in that report on environmental assessment for utility repair and replacement (pages 68 to 69 of *Programmatic Environmental Assessment, Utility Repair, Replacement, and Realignment, Commonwealth of Puerto Rico*).

[23] Guánica-Caribe cited to pages 69 and 70 of the following document in support of its comment: U.S. Department of Homeland Security, FEMA Region II, Programmatic Environmental Assessment, Utility Repair, Replacement, and Realignment, Commonwealth of Puerto Rico, DR-4339-PR, August 2020, https://www.fema.gov/sites/default/files/2020-08/fema_ea_puerto-rico_utility-repair-replacementrealignment_guidedbook_august-2020.pdf.

Regarding PRASA WWTP discharges to Guánica Bay, the release attributed to the Site is in the east portion of the bay and the PRASA WWTP discharge is located west of SED01. Sediment background levels established for the release in Guánica Bay attributed the release in SED01 to the Ochoa Site and they accounted for possible contributions by other facilities. As commented by Guánica-Caribe, the release evaluated in SED01 is approximately 2,000 feet east of the PRASA WWTP (See Figure 2B on page 35 of Reference 15 of the HRS documentation record at proposal and Figure 4 of the HRS documentation record at proposal.) Further, sediment sample SED10 was "collected from northeast portion of Guánica Bay near discharge pipe believed to be associated with the Waste Water Treatment Plan[t]" (page 25 of Reference 15 of the HRS documentation record at proposal; see also Figure 4 of the HRS documentation record at proposal). Aroclor-1260 results for sample SED10 (at a depth of 0-12 inches, a depth comparable to release sample SED01 collected from 0-12 inches) were reported as not-detected 53 UJ µg/kg (page 20 of Reference 54 of the HRS documentation record at proposal). The total organic carbon (TOC) in this sample was 190,000 mg/kg and is much higher and not comparable to the TOC range in the samples used to document background and release for the Ochoa Site (page 9 of Reference 23 of the HRS documentation record at proposal; Table 4 of the HRS documentation record at proposal). Lower Aroclor-1260 concentrations in samples west of the zone of actual contamination and observed release sample SED01 are consistent with the pattern that concentrations closer to the PPE at the Ochoa Site in the eastern section of the bay are higher than concentrations in the western portions of the bay (and present a pattern consistent with a release of Aroclor-1260 to surface water in close proximity to the PPE).

Source Characterization

As stated above, the source at this Site has been adequately characterized to document the contamination associated with the source has migrated to surface water. Aroclor-1260 has been associated with the contaminated soil at the Site and this source was not contained to prevent migration. See sections 3.10, Source Containment, and 3.11, Association of hazardous Substances with Source(s), of this this support document. That there may be other possible sources does not negate that at least some portion of the release in Guánica Bay is attributable to the Ochoa Site, consistent with the HRS. Further, as explained in section 3.2, Definition of Site/Extent of Site, of this support document, the full extent of a site for Superfund purposes is not determined at the time of listing. The EPA must balance the need to fully characterize a site with the limited resources available to collect and analyze site data at the initial stages of site evaluation. Regarding the western lot, the EPA did acknowledge in the HRS documentation record at proposal that soil and ground water samples were not collected in the EPA 2019 sampling to characterize the 13-acre western lot. However, there is sufficient historical information to associate the western lot with fertilizer operations, including the use of the western lot for manufacturing and storage operations including the use of a pier in Guánica Bay to unload cargo. (See pages 12, 18, 40 and 54 of the HRS documentation record at proposal.) On page 40 of the HRS documentation record at proposal, the Attribution section concluded only that "[a]lthough the western lot is not known to be contributing to the PCB release, based on its operational history, the western lot is an additional area of concern that requires further assessment."

Statements in the HRS Documentation Record

Regarding the statement on page 40 of the HRS documentation record at proposal, "Aroclor-1260 has been documented in the surface soils throughout Source 1, including the drainage pathway ... and near the PPE...." and Guánica-Caribe's recommendation that it should be revised to "Aroclor-1260 has been documented in the surface soils within Source 1, including along the SR-333, adjacent to the western Ochoa property fence," the EPA notes the statement in the HRS documentation record at proposal is accurate. In context, it states:

> Aroclor-1260 has been documented in the surface soils throughout Source 1, including in the drainage pathway originating at the western Ochoa property fence, west and topographically downgradient across the gravel parking area bordering the bay, and near the PPE (see Section 4.1.1.1). No other upslope sources or upstream sources of Aroclor-1260 have been identified. Other nearby sediment samples show decreasing Aroclor-1260 concentrations with distance from the PPE. Moving away from the PPE to the southwest, sediment sample 0642-SED06-0-12

> indicates an Aroclor-1260 concentration of 4.8 J µg/kg…. [and goes on to identify Aroclor-1260 in other sediment samples]

The statement in question discusses the extent of the Aroclor-1260 soil contamination along the surface, moving toward the bay. This includes the scored source samples, including location S04 into the parking lot. (Note, as mentioned in section 3.11, Association of Hazardous Substances with Source(s), of this support document, Aroclor-1260 was also detected in sample S02 at a concentration of 210 J µg/kg, as shown on page 19 of Reference 42 of the HRS documentation record at proposal.) On the portion of the statement regarding no other upslope sources or upstream sources, see the Other Possible Site-Related Sources and Other Possible Sites subsection above and section 3.12, Consideration of Other Possible On-Property Sources, of this support document.

Regarding the statement on sources of vanadium on page 61 of the HRS documentation record at proposal, it states:

> Vanadium was used by the facility as a catalyst in the production of sulfuric acid [Ref. 7, pp. 11, 56]. Vanadium pellets were observed to be deposited directly on the ground surface on multiple occasions [Ref. 7, pp. 14, 214]. The remaining metals that characterize Source 1/AOC A, are present in crude oil and would also likely be present in the carbon byproduct [Table 2; Ref. 74, p. 8; 75, p. 3]. Metals, including arsenic, cadmium, lead, manganese, and zinc are known to be constituents of commercial inorganic fertilizers [Ref. 78, p. 1; 79, pp. 1, 2]. No other upslope sources of vanadium or other metals have been identified.

The EPA finds this statement accurate as reported and is supported by the references cited in the quoted text above from the HRS documentation record at proposal. Pages 11, 14, 56, and 214 of Reference 7 support fertilizer and chemical manufacturing operations at the facility; the documentation of vanadium in soil samples at the facility; the presence of waste and waste management areas at the facility; and vanadium pellets being observed on the ground. Page 8 of Reference 74 supports that vanadium and nickel metalloporphyrins are present in heavy crude oil. Page 3 of Reference 75 supports the type of metallic elements in fossil fuels. Page 1 of Reference 78 and pages 1 and 2 of Reference 79 support that some fertilizers including commercial fertilizers contain metals such as arsenic, cadmium, lead, manganese, and zinc including some metals referred to as micronutrients. As stated above, no upslope sources were identified to refute the contamination associated with Site did not come from the eastern lot. The references cited support the statements and provide specific evidence connecting vanadium to the eastern lot, and Guánica-Caribe has not presented any viable sources that should be considered as serious alternative sources of the vanadium scored.

Regarding the statement on page 40 of the HRS documentation record at proposal, "There are no known current or historical sources of PCBs upslope of, or within 1 mile of, the eastern lot [Figure 1; Ref. 29, pp. 5–10; 31, pp. 3–16; 38, pp. 3–5]," the EPA finds this statement accurate as reported and is supported by the references cited in the quoted text above from the HRS documentation record at proposal. Pages 5-10 of Reference 29 of the HRS documentation at proposal are aerial photographs (dated 1935, 1938, 1949, 1956, 1966, and 2013) and they do not indicate facilities in the upslope areas of the Site bordering the Guánica State Forest. Pages 3-16 of Reference 31 of the HRS documentation at proposal are the results of an environmental survey within 1 mile of the Site radius and the survey does not report facilities with known PCB contamination. Pages 3-5 of Reference 38 of the HRS documentation of the HRS documentation at proposal are aerial photographs (dated 1977, 1983, and 1993) showing the former settling ponds on the eastern lot. The references cited support the statement as written; additionally, Guánica-Caribe has not presented documented PCB sources to indicate otherwise.

Regarding the statements on page 41 of the HRS documentation record at proposal, "[t]he results indicate that the contamination of the Guánica Bay sediment is not attributable to sources located north of Ochoa," and, "[t]he results indicate that the contamination documented by EPA in 2019 in sediment of the eastern portion of Guánica Bay is not attributable to sources located west and northwest of Ochoa along Río Loco," the EPA finds these statements accurate as reported. That Guánica-Caribe finds the results are based on current/continuing release and do not account for potential historical input does not negate the release documented in Guánica Bay is attributable

to the Ochoa Site. A statistical comparison of the 2019 analytical results with other studies performed in the bay is beyond the scope of the screening data collected to assess the Ochoa Site for HRS purposes. Further, other studies such as the NOAA and Kumar et al. (2016) support that the highest concentrations of PCBs are in the eastern portion of the bay as was documented in the release evaluated in the scoring of the Ochoa Site.

Regarding the statement on page 41 of the HRS documentation record at proposal, "[d]uring the 1998 reconnaissance, PREQB personnel observed visual evidence of industrial releases from Ochoa to this eastern portion of the bay, in the form of yellow-stained sands and white-gray residue on the shoreline; these deposits were described by a former employee as sulfur and ammonium sulfate layers being exposed by wave action [Ref. 7, pp. 10, 615, 621, 624]," the EPA finds this statement accurate as reported. This statement conveys site conditions and the uncontained nature of the source to prevent migration of hazardous substances in general (which could apply to any of the Site contaminants, including Aroclor-1260).

Regarding the statement on page 41 of the HRS documentation record at proposal, "In a study conducted by [NOAA] in 2009 ...A more recent study conducted by the University of Miami in 2013 and 2014 found a maximum concentration of 129,284 ng/g of total PCB congeners in Guánica Bay sediments.... Analytical results from the study showed detectable levels of Aroclor-1260, -1232, and -1016 in bay sediments…. Although these studies suggest there may be multiple sources of PCBs in the Guánica Bay watershed, the patterns of contamination found in these studies point to the Ochoa PPE as a strong origin of PCBs," the EPA finds this statement accurate as reported. While Guánica-Caribe is contesting that the EPA is inappropriately concluding that all the PCB contamination in Guánica Bay originate from the Ochoa Site, the EPA did not. Rather, the final statement quoted above clearly acknowledges that there may be multiple sources, and that contaminant patterns simply indicate the PPE for the Ochoa Site is "a" strong possible origin of the PCB contamination (not "the" only origin). Further, at the end of the same paragraph that contains the statement, the HRS documentation record states; "Aroclor-1260 was detected at a significant concentration in bay sediment near the PPE; therefore, at least some portion of the significant increase of Aroclor-1260 in observed release sample 0642-SED01-0-12 in Guánica Bay is attributable to a release from Ochoa [**Table 4**; Ref. 1, Section 4.1.2.1.1]."

Regarding the statement on page 62 of the HRS documentation record at proposal, the source of zinc in Source 1 and the AOC is attributed to Ochoa Site including former operations on the eastern lot as documented in sampling evidence for the Site and historical information associating zinc with commercial fertilizer manufacturing. The EPA does not agree that the source of zinc on the residential property and drainage channel has not been determined.

Regarding the statement on page 12 of the HRS documentation record at proposal, that the Ochoa Site consists of "one source of hazardous substances in the form of contaminated soil at and in the vicinity of the former Ochoa Fertilizer Co. facility located at State Road No. 333/Carretera Caña Gorda (PR-333), and contaminated sediments in Guánica Bay, located in Guánica, Puerto Rico," the EPA finds this statement accurate as reported. This statement is the introductory statement in the site description explaining to the reader the site location, source and where contamination has come to be located. It did not state that all PCB contamination in the bay is attributable to the Ochoa Site, and specifics on the extent of the contamination scored in the source, surface water migration pathway, and soil exposure component sections of the HRS documentation record at proposal make clear that was not its intent.

Statements in the HRS documentation record at proposal support that the surface water observed release evaluated at the Ochoa Site is associated with former operations on the eastern lot and is attributable to the Ochoa Site. None of these suggested revisions to statements in the HRS documentation record at proposal affects any element of the Site scoring. Sufficient sampling and historical information support the Aroclor-1260 contamination in Guánica Bay sample SED01 is at least partially attributable to the Site.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.13.4 Target Distance Limit and Extent of Site Sediment Contamination

Comment: Guánica-Caribe commented on the greater extent of sediment contamination described as part of the Site, contrasting it with the zone of actual contamination, which it referred to as the "Zone of Contamination" or the "outlined area of Guánica Bay," asserting it is not accurately described in the HRS package at proposal. It stated that, if Guánica Bay is to be included in the Ochoa Site at all (which Guánica-Caribe opined it should not be), the zone of actual contamination should be clearly described as a "very localized potential Aroclor-1260 Zone of Contamination within Guánica Bay.*"* Guánica-Caribe further emphasized based on the information in the HRS package as proposed that PCB sediment impacts are limited to the "outlined area of Guánica Bay" near the PPE. Thus, it took issue with a statement in the Site Description section of HRS documentation record at proposal (page 12) that Guánica-Caribe construed to mean that the Ochoa Site broadly includes *"contaminated sediments in Guánica Bay."*

To put further emphasis on what it calls the "small" nature of the zone of actual contamination, Guánica-Caribe commented that the red outlined delineated "Zone of Contamination" encompasses less than 1 acre within the Guánica Malecón of Guánica Bay—less than 0.15% of the area of Guánica Bay. It continued by pointing out that the zone of actual contamination is defined based on only two samples, SED01 and SED02, that contained a maximum Aroclor-1260 concentration of 0.49 mg/kg. Guánica-Caribe also pointed to the EPA's statement in the attribution section of the HRS documentation record at proposal that stated, "[o]ther nearby sediment samples show decreasing Aroclor-1260 concentrations with distance from the PPE" as further support of a limit zone of actual contamination. Although, regarding this statement, it commented that data for these other nearby samples are not shown on Figure 4 or presented in the discussion in the HRS package at proposal. Guánica-Caribe explained further that sediment samples SED03, SED04, and SED05, which it states are no more than 500 feet from the PPE, should be included on Figure 4 and in the discussion to further support the "outlined area of Guánica Bay." Therefore, Guánica-Caribe concluded that the EPA should clarify that there is insufficient information to suggest that the Ochoa Site is the source of Aroclor-1260 concentrations outside of the "small" area of the zone of actual contamination.

Response: Insomuch as Guánica-Caribe's assertions involve the greater area of the bay being scored as within the target distance limit (TDL), the EPA has established the target distance limit (TDL) consistent with the HRS.

HRS Section 4.1.1.1, *Definition of hazardous substance migration path for overland/flood migration component*, states:

> The hazardous substance migration path includes both the overland segment and the in-water segment that hazardous substances would take as they migrate away from sources at the site:
> - Begin the overland segment at a source and proceed downgradient to the probable point of entry to surface water.
> - Begin the in-water segment at this probable point of entry.
>   - For rivers, continue the in-water segment in the direction of flow (including any tidal flows) for the distance established by the target distance limit (see section 4.1.1.2).
>   - For lakes, oceans, coastal tidal waters, or Great Lakes, do not consider flow direction. Instead apply the target distance limit as an arc.
>   - If the in-water segment includes both rivers and lakes (or oceans, coastal tidal waters, or Great Lakes), apply the target distance limit to their combined in-water segments.

HRS Section 4.1.1.2, *Target distance limit*, states:

> The target distance limit defines the maximum distance over which targets are considered in evaluating the site. Determine a separate target distance limit for each watershed as follows:

- If there is no observed release to surface water in the watershed or if there is an observed release only by direct observation (see section 4.1.2.1.1), begin measuring the target distance limit for the watershed at the probable point of entry to surface water and extend it for 15 miles along the surface water from that point.
- If there is an observed release from the site to the surface water in the watershed that is based on sampling, begin measuring the target distance limit for the watershed at the probable point of entry; extend the target distance limit either for 15 miles along the surface water or to the most distant sample point that meets the criteria for an observed release to that watershed, whichever is greater.

In evaluating the site, include only surface water targets (for example, intakes, fisheries, sensitive environments) that are within or contiguous to the hazardous substance migration path and located, partially or wholly, at or between the probable point of entry and the target distance limit applicable to the watershed:

- If flow within the hazardous substance migration path is reversed by tides, evaluate upstream targets only if there is documentation that the tidal run could carry substances from the site as far as these upstream targets.
- Determine whether targets within or contiguous to the hazardous substance migration path are subject to actual or potential contamination as follows:
  - If a target is located, partially or wholly, either at or between the probable point of entry and any sampling point that meets the criteria for an observed release to the watershed or at a point that meets the criteria for an observed release by direct observation, evaluate that target as subject to actual contamination, except as otherwise specified for fisheries in section 4.1.3.3 and for wetlands in section 4.1.4.3.1.1. If the actual contamination is based on direct observation, assign Level II to the actual contamination. However, if the actual contamination is based on samples, determine whether the actual contamination is at Level I or Level II concentrations as specified in sections 4.1.2.3, 4.1.3.3, and 4.1.4.3.1.
  - If a target is located, partially or wholly, within the target distance limit for the watershed, but not at or between the probable point of entry and any sampling point that meets the criteria for an observed release to the watershed, nor at a point that meets the criteria for an observed release by direct observation, evaluate it as subject to potential contamination.

Page 33 of the HRS documentation record at proposal states,

> [T]he final segment of the ditch that discharged directly to the bay was apparently backfilled after being replaced by the holding tanks and pumping station discharge pipes [Ref. 7, p. 616; 14, p. 70].... [T]he PPE is at the northeastern corner of Guánica Bay [**Figure 3**; Ref. 14, pp. 70, 71, 107, 108; 26, pp. 1, 3].… Guánica Bay meets the Caribbean Sea approximately 1 mile downstream of the PPE [see Figure 5]. The Caribbean Sea comprises the remainder of the 15-mile TDL, which is delineated by an arc with a radius extending throughout the bay and approximately 13.5 miles into the sea [see **Figure 5**].

The PPE and the 15-mile TDL are also appropriately illustrated on Figures 3, 4, and 5 of the HRS documentation record at proposal. As can be seen in these figures, the PPE was established at the outfall to the bay for the storm water collection system in Guánica that collects runoff from the Site, and the TDL was drawn from the PPE to an extent of 15 miles as described above. As specified by the HRS in the citations above, the EPA can consider for

HRS scoring purposes any eligible targets within that TDL, which in this case includes all of Guánica Bay and part of the Caribbean Ocean as indicated on Figure 5 of the HRS documentation record at proposal.

Regarding the Guánica-Caribe's comments that the zone of contamination has been mischaracterized as including contaminated sediment throughout the entire bay, this is incorrect. As explained section 3.13.2, Surface Water Migration Pathway – Likelihood of Release of this support document, the observed release to surface water is clearly described in the HRS documentation record at proposal per HRS requirements, and the zone of contamination is appropriately delineated on Figure 4. (See section 4.1.2.1 and Figure 4 of the HRS documentation record at proposal.) While the TDL does appropriately include the entirety of Guánica Bay and part of the Caribbean Ocean to an extent of 15-miles as described above, the zone of actual contamination (i.e., the zone between the PPE and a sampling point that meets the criteria for an observed release), or "outlined area of Guánica Bay" as Guánica-Caribe calls it, is defined based on where within the TDL an observed release is documented relative to the PPE. Also, as described in the quoted HRS text above, the portion of the TDL downstream of the zone of actual contamination and the portion of the TDL within the zone of actual contamination are distinct from one another in that, the former is where targets scored as subject to <u>potential</u> contamination may be evaluated, and the latter is where targets scored as subject to <u>actual</u> contamination may be evaluated; see HRS Section 4.1.1.2, *Target distance limit*.

Regarding Guánica-Caribe comment that the EPA should clarify that there is insufficient information to suggest that the Ochoa Site is the source of Aroclor-1260 concentrations outside of the "small" area of the zone of actual contamination, as previously explained, the HRS documentation record at proposal has made no claim that PCB sediment contamination outside of the documented zone of actual contamination are attributable to the Site at this time, and it accounted for the existence of other possible contributors of PCBs to the bay in the HRS documentation record at proposal. (See sections 3.13.2, Surface Water Migration Pathway – Likelihood of Release, and 3.13.3, Surface Water Migration Pathway – Attribution, of this support document.) The full extent of Ochoa's contribution of PCBs and other contaminants to the bay is outside of the scope of the HRS's role as a screening tool, and further sampling, which will occur during the RI/FS stage, will be needed to make that determination. As the record is already clear, the commenters requested wording changes are moot.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.13.5 Documentation of Fishing for Human Consumption

<u>Comment</u>: Guánica-Caribe commented that the EPA assumed without adequate support that "incidental fishing in Guánica Bay equates to human consumption of fish," or what Guánica-Caribe refers to as subsistence fishing, in areas of elevated PCB concentrations and near the EPA's stated PPE (presumably referring to the zone of actual contamination). Guánica-Caribe commented that it considers the March 17, 2020, email (Reference 25 of the HRS documentation record at proposal) that the EPA relies on to be limited evidence of fishing, "let alone subsistence fishing," and it characterized this reference as "insufficient to make conclusions regarding the surface water food source exposure pathway." Guánica-Caribe also highlighted other statements that it claims corroborate the inadequacy of the EPA's fishery documentation. Specifically, it pointed to two statements, including one where the EPA's contractors have indicated signage around the area south and west of the eastern lot advise against consumption fishing[24] and a 2018 statement from an employee at the local pumping station that locals do not consume fish from the bay (Reference 14, p. 70). Guánica-Caribe also disputed the relevancy of a reference made in the HRS documentation record at proposal related to crab fishing. It commented that the referred to crab traps are 0.5 mile west of the PPE beyond the "highest PCB concentrations measured and beyond multiple intervening samples where PCBs were not detected above reporting limits." It also commented that any crab trap used in this area of Puerto Rico is more likely to be traps for Blue Land Crab that live on shore and not aquatic crabs.

Further, Guánica-Caribe questioned the scoring of fin fish from Guánica Bay based on several additional lines of reasoning. It pointed to a University of Miami study (Reference 13 of the HRS documentation record at proposal)

[24] Guánica-Caribe cited Weston Solutions, Inc., Site Reassessment Report, September 2019, Ref. 3, p. 4.

and highlighted a passage in this study that states that elevated concentrations of PCBs in sediment and fish do not directly translate to human exposure to PCBs. It also points to passages in the study—Guánica-Caribe stated:

> [I]n the University of Miami study, the group acknowledges that "the level of exposure [of human receptors] is unknown and any inference to exposure should be made with caution for several reasons [including] … PCB levels in the water column were not measured. Thus, the cause effect relationship between PCB levels in fish and PCB levels in sediment cannot be established … [and] elevated concentrations of PCBs in sediment and fish do not directly translate to human exposure to PCBs."

Guánica-Caribe commented that Aroclor concentrations documented in tissue in the University of Miami study, stating that "[i]n their study, both organic tissues sampled contained very high levels of Aroclor-1248 (0.568 and 2.64 mg/kg), in addition to Aroclor-1260, which is not found in any water, soil, or sediment samples on the Ochoa Site presented in the HRS Package." It also pointed out that the 2019 EPA Site Reassessment found no measurable concentrations of PCBs in water samples collected "coincident with sediment samples." Finally, Guánica-Caribe argued that this exposure route is further complicated by the fact that many species in the bay are mobile and may frequent other parts of either Guánica Bay, other areas of coastal Puerto Rico or other islands altogether that might be affected by PCBs.

Guánica-Caribe determined that based on the limited information regarding fishing in the area, it is inappropriate for the EPA to characterize the "outlined area of Guánica Bay as a fishery" for purposes of the scoring. It requested that the EPA acknowledge and state in the HRS documentation record that there is insufficient information to confirm subsistence fishing near the Ochoa Site. It also requested that the EPA reduce the Food Chain Individual score from 45 to 20, which it stated was representative of a discharge to surface water where there is a fishery within the target distance limit.

Response: Guánica-Caribe is mistaken in its assertion that a human food chain fishery does not exist in Guánica Bay. Consistent with the HRS, the EPA has presented multiple lines of evidence that Guánica Bay contains a fishery and that fish caught in the bay are being consumed by humans including from within the area of the zone of actual contamination, resulting in human food chain targets being exposed to Level II actual contamination.

HRS Section 4.1.3.3, *Human food chain threat targets*, states:

> Evaluate two target factors for each watershed: food chain individual and population. For both factors, determine whether the target fisheries are subject to actual or potential human food chain contamination.
>
> Consider a fishery (or portion of a fishery) within the target distance limit of the watershed to be subject to actual human food chain contamination if **any of the following apply**:
>
> - A hazardous substance having a bioaccumulation potential factor value of 500 or greater is present either in an observed release by direct observation to the watershed or **in a surface water or sediment sample from the watershed** at a level that meets the criteria for an observed release to the watershed from the site, and at least a portion of the fishery is within the boundaries of the observed release (that is, it is located either at the point of direct observation or at or between the probable point of entry and the most distant sampling point establishing the observed release).
> - The fishery is closed, and a hazardous substance for which the fishery has been closed has been documented in an observed release to the watershed from the site, and at least a portion of the fishery is within the boundaries of the observed release.
> - A hazardous substance is present in a tissue sample from an essentially sessile, benthic, human food chain organism from the watershed at a level that meets the criteria for an

> observed release to the watershed from the site, and at least a portion of the fishery is within the boundaries of the observed release. [emphasis added]

As discussed in section 3.13.2, Surface Water Migration Pathway – Likelihood of Release, of this support document, an observed release of Aroclor-1260 has been documented in the surface water at this Site. Table 6 of the HRS documentation record at proposal and as excerpted below documents that Aroclor-1260 has a bioaccumulation factor value of 50,000, which is above the required bioaccumulation factor value of 500.

TABLE 6. TOXICITY/PERSISTENCE/BIOACCUMULATION						
Hazardous Substance	**Source Number**	**Toxicity Factor Value**	**Persistence Factor Value***	**Salt Water Food Chain Bioaccumulation Factor Value**	**Toxicity/Persistence/ Bioaccumulation Factor Value (HRS Table 4-16)**	**Ref. 2 Page**
Aroclor-1260 (PCB)	1, OR	10,000	1	50,000	5×10^8	35

Page 45 of the HRS documentation record at proposal states:

> There is an observed release of facility-related Aroclor-1260 to Guánica Bay (see **Section 4.1.2.1.1**), which is used for consumption fishing [Ref. 14, pp. 71, 72; 25, p. 1; 81, pp. 1; 82, p. 2]. There is access to the bay from multiple boat launches along the shore, and a local marina where boats are docked is within 200 to 300 feet of the observed contamination at sediment sample location 0642-SED01-0-12 [**Figure 4**; Ref. 14, pp. 70, 73, 108, 109]. During the EPA 2019 sampling activities, EPA personnel observed crab traps on the northern shore of the bay bordering the salt flats [Ref. 14, p. 72]. In addition, EPA personnel spoke with multiple residents who fish in the bay [Ref. 14, pp. 71, 72]. FWS CES confirmed that local residents fish in the zone of observed contamination (i.e., the 0.03 mile area of the bay from the PPE to the observed release sediment sample 0642-SED01-0-12) and consume, or sell their catch for consumption [Ref. 25, pp. 1, 2].
>
> Although an employee of the local pumping station stated to EPA in 2018 that locals do not consume fish from the bay, field observations and media reports gathered by University of Miami researchers suggest that communities within Puerto Rico may be subject to elevated exposure to environmental contaminants after Hurricane Maria due to increased reliance on local resources for harvesting seafood from local bays, including Guánica Bay, due to a lack of meats and seafood available for purchase in grocery stores [Ref. 14, pp. 70, 71; 81, p. 1; 82, p. 2]. A study published by the University of Miami in June 2019 detailed efforts to disseminate information to communities within the Municipality of Guánica about PCB contamination within the bay and the adverse health effects of exposure to PCBs [Ref. 81, pp. 1–9; 82, p. 2]. Community survey data was collected in 2014 and 2015, and after Hurricane Maria in November 2017 [Ref. 82, p. 2]. Preliminary data from before and after the hurricane suggest that communities living around the bay still lack awareness of the PCB contamination of the bay and continue to harvest seafood from the area [Ref. 82, p. 2]. Although the results of the study and the associated educational campaign resulted in a reported decline in the consumption of seafood harvested from the bay by study participants, 33 percent of participants reported continued harvest of seafood from the bay after the community awareness campaign [Ref. 81, p. 1]. Fish species consumed and sold include snappers, seabreams, and grouper [Ref. 25, pp. 1, 2]. Based on these considerations, there is a fishery subject to Level II actual contamination [**Figure 4**; Ref. 1, Section 4.1.3.3].

Also, page 47 of the HRS documentation record at proposal states:

> Based on consultation with the FWS CES, the zone of actual contamination in Guánica Bay is used for consumption fishing [Ref. 25, pp. 1, 2]. Species caught for consumption in the

> zone of actual contamination include snapper, seabreams, and grouper [Ref. 25, pp. 1, 2]. Guánica Bay is not a commercial fishery; however, local fishermen are known to sell their catch from the zone of actual contamination for consumption [Ref. 25, pp. 1, 2]. Although some local residents are aware of contamination concerns and do not consume fish from the bay, a lack of meats and seafood available for purchase in grocery stores following Hurricane Maria (November 2017) led to an increased community reliance on harvesting fish and seafood from Guánica Bay [Ref. 14, pp. 70, 71; 81, pp. 1, 7–9; 82, p. 2]. Surveys administered by researchers before and after the hurricane suggest that communities living around the bay still lack awareness of the PCB contamination in the bay and continue to harvest seafood from the area [Ref. 81, pp. 1–2; 82, p. 2]. Although the results of the study and the associated educational campaign resulted in a reported decline in the consumption of seafood harvested from the bay by study participants, 33 percent of participants reported continued harvest of seafood from the bay after the community awareness campaign [Ref. 81, p. 1].

Regarding documentation of fishing for consumption, as mentioned in the HRS documentation record at proposal, and quoted above, the EPA interviewed local residents during the 2019 sampling event (shown on page 45 of the HRS documentation record at proposal). Additionally, page 38 of Reference 14 of the HRS documentation record at proposal includes that EPA spoke with one person who indicated that they have fished in the bay for consumption in the past. Page 88 of Reference 14 of the HRS documentation record at proposal includes an observation of locals observed fishing in the bay.

Further, the HRS documentation record at proposal discusses the results of a peer reviewed study conducted by the University of Miami and Florida International University, which was published in 2019. This study surveyed the population in communities in Guánica Municipality about their consumption of fish from Guánica Bay before and after a public education campaign was conducted to alert the public to the high PCB contamination found in sediment and fish in the bay. (This study cites the findings of several reports that indicate PCB in fish was found to be higher than the PCBs threshold of 2,000 ng/g set by the U.S. Food and Drug Administration [FDA].) (See pages 1 and 2 of Reference 81 of the HRS documentation record at proposal.) As quoted above, the results of this survey show that while the education campaign succeeded in reducing the number of people who ate fish from Guánica Bay, it did not completely eliminate consumption of Guánica Bay fish. (See pages 1, 5, and 6 of Reference 81 of the HRS documentation record at proposal for additional information.) Also as quoted above, related work done by the University of Miami surmised that there was an increase in consumption of fish from Puerto Rican bays after Hurricane Maria caused considerable damage in 2017. (See page 2 of Reference 82 of the HRS documentation record at proposal for additional information.) Additionally, as discussed in the HRS documentation record at proposal, the evidence presented above was corroborated by statements from a local U.S. Fish and Wildlife Service – Caribbean Office expert, Mr. Carlos Pacheco, who confirmed that fishing for consumption takes place in the bay and, in particular, that fishing occurs near the boardwalk and marina in Guánica (i.e. within the zone of actual contamination). (See page 1 of Reference 25 of the HRS documentation record at proposal; see Figure 4 of the HRS documentation record at proposal.) Mr. Pacheco is uniquely positioned to speak about fishing in Guánica Bay not only as a U.S. Fish and Wildlife Service official but also as a project lead on fishing activities near the Guánica State Forest. (See page 3 of Reference 25 of the HRS documentation record at proposal.) Guánica-Caribe did not refute the expertise of Mr. Pacheco. Also, the EPA notes that the courts have already confirmed the legitimacy of relying on experts to confirm that presence of human food chain targets near a site. In the matter of Honeywell Int'l, Inc. v. E.P.A., the court ruled that:

> Circuit law, however, makes abundantly clear that "administrative agencies may consider hearsay evidence as long as it 'bear[s] satisfactory indicia of reliability.'" ... Furthermore, "hearsay can constitute substantial evidence if it is reliable and trustworthy." ... EPA was "entitled to rely on ... representations by parties who were uniquely in a position to know the [relevant information]." [see Honeywell Int'l, Inc. v. E.P.A.,372 F.3d 441 (D.C. Cir., 2004)] [alterations in original]

Regarding Guánica-Caribe's comment that the crab traps found by the EPA personnel in 2018 is not evidence of fishing because these are likely traps for Blue Land Crabs, this comment is not relevant because the crab traps are

not used as part of the scoring but simply as additional support of fishing activity in the area. (See page 45 of the HRS documentation record.)

Regarding Guánica-Caribe's comments about the supposed inadequacy of the EPA's fishery documentation that highlights a statement from a pumping station employee and a warning sign notice by an EPA contractor, these comments do not refute the EPA's fishery evidence. The EPA acknowledged the statement from the pumping station employee on page 45 the HRS documentation record at proposal. This statement was made to the EPA in 2018 (shown on pages 70 and 71 of Reference 14 of the HRS documentation record at proposal), which was after the education campaign by the University of Miami described above but contemporaneously with the University of Miami post-education campaign surveys showing that fishing for consumption from the Guánica Bay continued (i.e., surveys were collected in 2017 and 2018). (See page 2 of Reference 81 of the HRS documentation record at proposal.) As the University of Miami study clearly showed, the warning about eating fish from the bay was not being heeded by everyone. Additionally, Guánica-Caribe has misinterpreted the sign it points to as advising against consumption fishing. This sign was noted in a logbook by an EPA contractor in April 2018 during a reconnaissance to reassess multiple sites in Puerto Rico in the aftermath of Hurricane Maria (on page 2 of the logbook included in the Attachment 1, Weston Solutions, Inc., Puerto Rico Hurricane Multi-Site Reassessment Logbook, 2018, Excerpt, of this support document), which was included in Weston Solutions, Inc., Site Reassessment Report, September 2019. Please note that this report and attached field logbook are not part of the HRS documentation record at proposal, and so the logbook is included in the attachment to this support document for reference. As described on page 4 of this logbook, the sign indicates that the area south of the Site is zoned for recreational fishing (presumably as opposed to commercial fishing) with the exception of crabbing. The logbook entry does not describe this sign as warning against consumption of fish. Therefore, this point is moot.

Regarding exposure scenarios and the scoring of fin fish, the Level II human food chain targets were evaluated consistent with the HRS Sections 4.1.3.3, *Human food chain threat-targets*, 4.1.3.3.2, *Population*, and 4.1.3.3.2.2, *Level II contamination*. Human food chain organisms are caught for consumption within the surface water pathway target distance limit and zone of actual contamination, and the HRS allows that data to be used in the determination of human food chain population when evaluating that factor in HRS scoring. Unlike Level I contamination, the residence time of a human food chain species within the Level II zone of the surface water pathway is not necessarily a factor considered when determining that segment's eligibility for consideration in the fishery production calculation. Additionally, as explained in section 3.8, Risk, of this support document, the HRS is a screening tool and not meant to represent an evaluation of actual risk.

As explained above and per HRS Section 4.1.3.3, *Human food chain threat targets*, a fishery was documented to be subject to actual contamination based on the documentation of Aroclor-1260 in sediment. While concentration of contaminants in fish tissue are one of the ways to document an observed release to surface water, an observed release may also be documented via water or sediment samples as was done in the case of this Site.

HRS Section 4.1.3.3, *Human food chain threat targets*, also states:

> **When a fishery (or portion of a fishery) is subject to actual food chain contamination**, determine the part of the fishery subject to Level I concentrations and the part subject to Level II concentrations. If the actual food chain contamination is based on direct observation, evaluate it using Level II concentrations. However, if the actual food chain contamination is based on samples from the watershed, use these samples and, if available, additional tissue samples from aquatic human food chain organisms **as specified below, to determine the part subject to Level I concentrations and the part subject to Level II concentrations**:
>
> - **Determine the level of actual contamination from samples** (including tissue samples from essentially sessile, benthic organisms) that meet the criteria for actual food chain contamination by comparing the exposure concentrations (see section 4.1.2.3) from these samples (or comparable samples) to the health-based benchmarks from Table 4-17, as described in section 2.5.1 and 2.5.2. Use only the exposure concentrations for those hazardous substances in the sample (or comparable samples) that meet the criteria for

actual contamination of the fishery.

- In addition, **determine the level of actual contamination from other tissue samples** by comparing the concentrations of hazardous substances in the tissue samples (or comparable tissue samples) to the health-based benchmarks from Table 4-17, as described in sections 2.5.1 and 2.5.2. Use only those additional tissue samples and only those hazardous substances in the tissue samples that meet all the following criteria:
    - The tissue sample is from a location that is within the boundaries of the actual food chain contamination for the site (that is, either at the point of direct observation or at or between the probable point of entry and the most distant sample point meeting the criteria for actual food chain contamination).
    - The **tissue sample is from a species of aquatic human food chain organism that spends extended periods of time within the boundaries of the actual food chain contamination** for the site and that is not an essentially sessile, benthic organism.
    - The hazardous substance is a substance that is also present in a surface water, benthic, or sediment sample from within the target distance limit for the watershed and, for such a sample, meets the criteria for actual food chain contamination. [Emphasis added]

HRS Section 4.1.3.3.2, *Population*, states: "Evaluate the population factor for the watershed based on three factors: Level I concentrations, Level II concentrations, and potential human food chain contamination. Determine which factor applies for a fishery (or portion of a fishery) as specified in section 4.1.3.3."

HRS Section 4.1.3.3.2.2, *Level II concentrations*, states: "Determine those fisheries (or portions of fisheries) within the watershed that are subject to Level II concentrations. Do not include any fisheries (or portions of fisheries) already counted under the Level I concentrations factor."

The HRS documentation record at proposal evaluated human food chain organisms caught in Guánica Bay for Level II contamination factor at the Site. The food chain organisms caught for consumption in Guánica Bay include snappers, seabreams, and grouper. (See page 45 of the HRS documentation record at proposal; pages 1 and 2 of Reference 25, of the HRS documentation record at proposal.) While the HRS is specific in stating that species of aquatic human food chain organisms that spend extended periods of time within the boundaries of the zone of actual human food chain contamination for the site be considered in documenting Level I actual contamination of a fishery, the HRS does not have this requirement for a fishery scored as subject Level II contamination. Rather, the HRS requires only that a fishery subject to Level II contamination exists within the area of target distance limit subject to Level II actual contamination, which the EPA has shown in the HRS documentation record at proposal. Hence, residence time of fin fish subject to Level II contamination is not relevant to the fishery subject to Level II contamination scored at the Site.

Finally, insomuch as the comments regarding quantitating fin fish exposure to contaminants in the water column versus sediment involve details associated with more complex risk assessment procedures, as explained in section 3.8, Risk, of this support document, the HRS is a screening tool and not meant to represent an evaluation of actual risk.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.13.6 Surface Water Sensitive Environments

Comment: Guánica-Caribe commented that the West Indian Manatee Habitat was incorrectly scored as a sensitive environment in the zone of contamination. Guánica-Caribe asserted that observations of West Indian Manatees in Guánica Bay in the zone of contamination were not included in the HRS package at proposal. Guánica-Caribe

stated that the scoring of the manatee habitat was based on assuming manatees were present in a small area due to "sightings in a river tributary to a distant part of the Bay." Guánica-Caribe commented that the U.S. Fish and Wildlife Service (FWS) reference (Reference 27 of the HRS documentation record at proposal) used to support that the manatees are present in the zone of contamination indicates that "they are found throughout the bay" and occasionally are in the "Yauco River on the western side of the bay looking for freshwater." (Found on page 40 of Reference 27 of the HRS documentation record at proposal.) Guánica-Caribe stated that the presence of manatees in the Guánica Bay in the FWS information is limited to a 2008 sighting of manatees in the Rio Loco, which is located more than one mile from the Site, after the mouth of the river in Guánica was clogged.[25] Guánica-Caribe asserted that the Puerto Rico Department of Natural and Environmental Resources (PR DNER) mentions the "presence of manatees outside of Guánica Bay, in the areas of Caña Gorda, Cayo Aurora, Bahia Ballenas, and Playa Santa." Guánica-Caribe commented that the PR DNER reference noted that sightings of manatees had decreased in the coastal area of the Guánica reserve.

Guánica-Caribe stated that the zone of contamination lacks a "quality habitat or adequate food source" and other parts of the Guánica Bay would have habitat that would likely attract more manatees. Guánica-Caribe asserted that due to the NOAA BIOmapper characterization of the zone of contamination as "No Cover, Continuous" with some areas of "Seagrass, Patchy," it is possible but unlikely that the species would be in the zone of contamination.[26] Guánica-Caribe commented that if West Indian Manatees were in the Guánica Bay, the risk of manatees becoming exposed to PCBs is limited because dermal contact is not the main exposure pathway. Guánica-Caribe stated that due to the lack of seagrass in the zone of contamination, the main mode of exposure for manatees (i.e., ingestion) is likely an incomplete exposure pathway.

Guánica-Caribe asserted that the following changes to the surface water migration pathway score would occur based on its sensitive environments related comments:

- The sensitive environments factor would be reduced from 75 to 0
- Reducing the environmental threat score to 0 is appropriate
- The Surface Water Overland/Flood Migration Component score would be 42.73 if its comments on the food chain individual factor were also included.

Response: The HRS documentation record at proposal correctly evaluated the West Indian Manatee Habitat as a sensitive environment at the Site, specifically as a habitat known to be used by a Federal-designated threatened species. The HRS documentation record at proposal explained that the West Indian Manatee habitat partially coincides with the zone of contamination delineated at the Site to establish that the habitat is located at the Site for HRS scoring purposes.

To evaluate a sensitive environment for HRS scoring, HRS Section 4.1.4.3.1, *Sensitive environments*, instructs the scorer to "[e]valuate sensitive environments along the hazardous substance migration path for the watershed based on three factors: Level I concentrations, Level II concentrations, and potential contamination."

HRS Section 4.1.4.3.1.2, *Level II concentrations*, states "[a]ssign value(s) from Table 4–23 to each sensitive environment subject to Level II concentrations. Do not include sensitive environments already counted for Table 4–23 under the Level I concentrations factor for this watershed."

HRS Table 4-23, Sensitive Environments Rating Values, contains the following listed sensitive environment and notes that it receives an assigned value of 75: "Habitat known to be used by Federal designated or proposed endangered or threatened species."

[25] Guánica-Caribe cited the following web page: https://www.fws.gov/southeast/pdf/fact-sheet/manatee-english.pdf.
[26] Guánica-Caribe provided the following citation: https://maps.coastalscience.noaa.gov/biomapper/biomapper.html?id=SWPR

In addition to these directions, in describing the HRS evaluation of sensitive environments in the surface water migration pathway, the preamble to 1990 HRS (55 FR 51532, December 14, 1990) discusses sensitive environments other than wetlands. Page 51550 states:

> Sensitive environments other than wetlands are not evaluated on the basis of size for several reasons. Most other HRS sensitive environments tend to be less common and less widely distributed nationally than wetlands (e.g., see EPA's 1989 *Field Test of the Proposed Revised* HRS) and, therefore, their numbers and boundaries tend to be easier to identify. In addition, the value of many sensitive environments is independent of size; for example, the size of a critical habitat of an endangered species may vary solely due to the type of species present. Furthermore, potential or actual contamination of even a small portion of many sensitive environments—for example, a wildlife refuge—tends to be viewed as unacceptable.

In presenting the HRS scoring of the surface water migration pathway, page 50 of the HRS documentation record at proposal documents that:

> The zone of actual contamination (i.e., the area of the bay where observed release by chemical analysis is documented) along the surface water migration pathway downstream of the source identified at Ochoa begins at the PPE and extends to sediment sample location 0642-SED01-0-12, a length of approximately 170 feet (0.03 mile) [Figure 4]. There is one HRS-eligible sensitive environment within the zone of contamination. The shallow marine waters of Guánica Bay are documented habitat for the West Indian Manatee (Trichechus manatus), a Federal-designated threatened species [Ref. 27, pp. 1, 26; 32, p. 1]. Consultation with the FWS CES confirms that the West Indian Manatee has been observed within the zone of actual contamination, and is likely to continue to use the area as habitat [Ref. 27, pp. 1, 25, 26, 40, 42, 48]. There are no media-specific benchmarks for sediment, so the target sensitive environment is subject to Level II concentrations [Ref. 1, Sections 2.5 and 4.1.4.3].

Page 51 of the HRS documentation record at proposal states:

TABLE 13. LEVEL II CONCENTRATIONS – SENSITIVE ENVIRONMENTS

Sensitive Environment	Distance from PPE to Nearest Point of Sensitive Environment	Sensitive Environment Value (HRS Table 4-23)	Reference
West Indian Manatee (*Trichechus manatus*)	0 miles	75	Ref. 27, pp. 1, 25, 26, 40, 42

Reference 27 of the HRS documentation record at proposal is a project note documenting communications with the FWS Caribbean Ecological Services Field Office in which a defined project area near the boardwalk in the Guánica Bay was communicated to specialists from the office. Discussion with specialists from the office documented on page 1 of Reference 27 of the HRS documentation record at proposal, cited in the quoted text above, includes that:

> Mr. Lopez [an Ecologist and Contaminant Specialist at FWS Caribbean Ecological Services Field Office] confirms that the West Indian Manatee has been sighted in the defined project area of the Guánica Bay….

Page 40 of Reference 27 also states:

> As far as manatees are concerned, yes they are found throughout the bay, they sometimes swim into the Yauco River on the western side of the bay looking for freshwater.

The West Indian Manatee habitat was properly scored as a sensitive environment in the surface water migration pathway in the HRS documentation record at proposal. The HRS documentation record at proposal explains, on page 50, that the West Indian Manatee is a Federal designated threatened species, and its habitat includes the zone of contamination. Page 40 of Reference 27 notes that the West Indian Manatees are found throughout the bay. Because the West Indian Manatee habitat coincides with at least part of the zone of contamination, the species' habitat was evaluated as a sensitive environment at the Site.

While the commenter asserts that the bay lacks the manatees' preferred habitat features, the commenter has not pointed to information that would prevent manatees from entering the bay or information that contradicts manatees being found throughout the bay. The HRS documentation record at proposal explained, on page 50, that manatees are found throughout the bay. As quoted above, HRS Table 4-23 scores the "Habitat known to be used by Federal designated or proposed endangered or threatened species."

Regarding the mode of exposure for the manatee—ingestion versus dermal contact—and the risk posed by either, this is not an HRS scoring consideration and beyond the scope of the HRS as a screening tool. As explained in section 3.8, Risk, of this support document, the HRS is not a site-specific risk assessment; rather, it is a screening tool used to help the EPA determine priorities for cleanup, and possible response activities, and represents relative risk among sites undergoing HRS evaluation. Actual determinations of site-specific risk that is posed to human health or the environment is determined during a different stage of the Superfund process.

Regarding the assertion that PR DNER information indicates that there has been a reduction in manatee sightings in the coastal area of the Guánica reserve, the size of a sensitive environment other than wetlands is not a condition used in the determination of whether the habitat is present at the Site. The HRS Section 4.1.4.3.1 requirements for scoring sensitive environments are quoted above and indicate to evaluate the sensitive environment based on presence "along the hazardous substance migration path for the watershed." The HRS preamble language quoted above also notes that the reasoning behind the approach to evaluating sensitive environments other than wetlands is based on presence and potential and/or actual contamination as opposed to size. Email correspondence in Reference 27, quoted above, mentions that the manatees are found throughout the bay to explain whether its habitat partially overlaps the Site.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.14 Soil Exposure Component

Guánica-Caribe submitted comments questioning the likelihood of exposure and AOC delineation, the soil exposure component attribution, the resident individual scoring, and the presence of terrestrial sensitive environments. The following subsections address specific challenges related to these comments:

- 3.14.1 Soil Exposure Component – Likelihood of Exposure/AOC
- 3.14.2 Soil Exposure Component – Attribution
- 3.14.3 Resident Individual
- 3.14.4 Terrestrial Sensitive Environments

3.14.1 Soil Exposure Component – Likelihood of Exposure/AOC

Comment: Guánica-Caribe submitted comments questioning the scoring of observed contamination and the resulting AOC delineation. Guánica-Caribe commented that the site characterization lacked an assessment of the potential impacts from other possible off-site contributors, including transportation of various materials along roadways and stormwater discharges. Guánica-Caribe asserted that other possible contributors are likely the origin of the elevated zinc concentrations at samples S01 and S02. Guánica-Caribe also commented that PCBs were attributed to the Site without a sufficient understanding of the origin of the PCB contamination. Guánica-Caribe asserted that the use of PCBs by the Ochoa Fertilizer company or an association with operations at the eastern lot has not been established.

Guánica-Caribe commented the assessment of contamination off the eastern lot is inappropriate due to inconsistencies in "analyte fingerprints." Guánica-Caribe asserted that the analytical results from samples SS06, S09, SS04A, and S36 "do not match the fingerprints of samples on the western edge of the AOC (S01 and S02)," suggesting that contamination at the western sample locations may not be connected to the contamination at the Site.

Observed Contamination of Zinc

In discussing the presence of zinc in samples S01 and S02, Guánica-Caribe asserted that the contaminants in soil samples S01 and S02 are inconsistent with the contaminants in soil at the eastern lot, noting that samples S01 and S02 only contained elevated concentrations of zinc, but intervening samples on the Site do not contain elevated concentrations of zinc. Guánica-Caribe stated that sample S36 is upgradient of the drainage ditch at the sewer entrance and adjacent to the eastern lot, and that the zinc concentration in sample S36 is lower than in samples S01 and S02 and "is 1/3 to 1/6 of the screening level used by EPA for the HRS." Guánica-Caribe asserted that while zinc is the only hazardous substance at elevated concentrations in the two samples from near the residential properties, the concentrations of zinc in these samples are below the RSL for zinc in residential properties—concentrations of 289 mg/kg in sample S01 and 333 mg/kg in sample S02, which are 69 to 80 times lower than the RSL for zinc in residential soil. Guánica-Caribe asserted that, because the zinc concentrations in samples S01 and S02 are below the RSL, indicating that residents may be at risk due to the zinc concentrations in samples S01 and S02 is inconsistent with the EPA's guidance and lacks basis.

Guánica-Caribe asserted that the HRS package did not sufficiently take into account other possible origins or pathways for the zinc concentrations along the western edge of the AOC. It commented that the zinc contamination identified at the western side of the AOC may be the result of stormwater or wastewater drainage from nearby currently or historically present industrial, commercial, and residential sources with a migration path toward the western edge of the AOC. Guánica-Caribe commented that statements about the origin of the zinc contamination at samples S01 and S02 should be revised in the HRS package.

Observed Contamination of PCBs

Regarding the presence of Aroclor-1260 in soil, Guánica-Caribe commented that the Aroclor-1260 concentrations in samples S01 and S02 did not exceed the level used to establish observed contamination and did not exceed the concentration in sediment samples in the zone of contamination. It stated "the Aroclor-1260 concentration at S10, located on the Eastern Lot and likely upgradient of these samples (S04 and S36), was more than 100 times lower than the Aroclor-1260 concentration detected in S36, indicating the potential that the Aroclor-1260 at S04 and S36 may not be associated with the Aroclor-1260 detected on the Eastern Lot of the Ochoa Site, but rather may derive from another source altogether." Guánica-Caribe asserted that the two soil samples used to support PCB contamination extending off the eastern lot were collected from an area functioning as a common drainage pathway for industrial, commercial, and residential areas.

Guánica-Caribe commented that while comparisons of Aroclors are inconclusive, concentrations of Aroclor-1260 were shown in the HRS documentation record at proposal to be elevated only on the eastern lot. Guánica-Caribe asserted that while only Aroclor-1260 concentrations are elevated at the eastern lot, other Aroclor mixtures were identified in the Guánica Bay and historical drainage ditch samples collected from near Calle Jose Nazario. Guánica-Caribe commented that page 30 of the SI Report (Reference 7 of the HRS documentation record at proposal) indicates that the Aroclor-1248 concentration was 4.7J mg/kg in sample SED-14 from the drainage ditch off the facility property. Guánica-Caribe commented that PCB congener analysis was not completed for the Site, although this analysis would provide additional information that can "distinguish between sources of Aroclor mixtures and dates or releases," to help determine attribution.

AOC Delineation

Guánica-Caribe commented that the HRS package lacks adequate information to explain the extension of the AOC to samples S01 and S02 and the residential properties. Guánica-Caribe asserted that the soil PCB contamination had been mischaracterized as extending off the eastern lot, taking issue with the statement on page 33 of the HRS documentation record at proposal that PCB contamination had extended "west across PR-333 in gravel parking lot." It commented that the AOC is extended beyond the eastern lot based only on samples S01, S02, S04, and S36 to include a three-acre area. Guánica-Caribe asserted that the four sample locations extending the AOC are used to imply that site-related contamination is located on residential properties on the AOC's western edge, which is incorrect and inappropriate. Guánica-Caribe commented that to achieve a high enough score, the AOC was extended based on limited data from 2019 into a public right-of-way, a parking lot, and a drainage ditch to the residential properties. It argued that the HRS documentation record discusses soil contamination with SVOCs, PCBs, pesticides, and metals "extending west beyond the lot boundary into public ROWs [rights-of-way], parking areas, and residential properties," despite limited information supporting the AOC extension related to PCBs other than two detections near the eastern lot boundary. Guánica-Caribe asserted that the AOC should not extend beyond the eastern lot and sample S04. Guánica-Caribe commented that, per EPA guidance, delineating an AOC requires at least three samples and cited the EPA fact sheet, *Establishing Areas of Observed Contamination*.[27]

Response: Observed contamination was properly established in soil samples at the Site, including soil samples S01 and S02, consistent criteria in the HRS for establishing observed contamination. An AOC located primarily on the eastern lot and extending to the locations of samples S01 and S02 was also properly delineated as part of the HRS scoring of the Site using the soil samples that met observed contamination criteria.

HRS Section 5.1.0, *General Considerations*, contains the requirements for establishing observed contamination. Section 5.1.0 states:

> Evaluate the soil exposure component based on areas of observed contamination:
>
> - Consider observed contamination to be present at sampling locations where analytic evidence indicates that:
>
> - A hazardous substance attributable to the site is present at a concentration significantly above background levels for the site (see table 2–3 in section 2.3 for the criteria for determining analytical significance), *and*
>
> - This hazardous substance, if not present at the surface, is covered by 2 feet or less of cover material (for example, soil).
>
> - Establish areas of observed contamination based on sampling locations at which there is observed contamination as follows:
>
> - For all sources except contaminated soil, if observed contamination from the site is present at any sampling location within the source, consider that entire source to be an area of observed contamination.
>
> - For contaminated soil, consider both the sampling location(s) with observed contamination from the site and the area lying between such locations to be an area of observed contamination, unless available information indicates otherwise.

[27] The fact sheet cited by Guánica-Caribe, *Establishing Areas of Observed Contamination* (OSWER Directive 9285.7-18FS, September 1995), is available online on the EPA's website at: http://semspub.epa.gov/src/document/HQ/174012.

- If an area of observed contamination (or portion of such an area) is covered by a permanent, or otherwise maintained, essentially impenetrable material (for example, asphalt) that is not more than 2 feet thick, exclude that area (or portion of the area) in evaluating the soil exposure component.

- For an area of observed contamination, consider only those hazardous substances that meet the criteria for observed contamination for that area to be associated with that area in evaluating the soil exposure component (see section 2.2.2).

HRS Section 5.1.0 refers a scorer to HRS Table 2-3 for additional instructions to score observed contamination. HRS Section 2.3, *Likelihood of release*, contains HRS Table 2-3. HRS Section 2.3, in relevant part, states:

> Use the criteria in Table 2–3 as the standard for determining analytical significance. (**The criteria in Table 2–3 are also used in establishing observed contamination for the soil exposure component** … see section 5.1.0…). [emphasis added]

HRS Table 2-3 explains:

TABLE 2-3—OBSERVED RELEASE CRITERIA FOR CHEMICAL ANALYSIS

Sample Measurement < Sample Quantitation Limit[a] No observed release is established. **Sample Measurement ≥ Sample Quantitation Limit[a]** An observed release is established as follows: • If the background concentration is not detected (or is less than the detection limit), an observed release is established when the sample measurement equals or exceeds the sample quantitation limit.[a] • If the background concentration equals or exceeds the detection limit, an observed release is established when the sample measurement is 3 times or more above the background concentration.
[a]If the sample quantitation limit (SQL) cannot be established, determine if there is an observed release as follows: • If the sample analysis was performed under the EPA Contract Laboratory Program, use the EPA contract-required quantitation limit (CRQL) in place of the SQL. • If the sample analysis is not performed under the EPA Contract Laboratory Program, use the detection limit (DL) in place of the SQL.

Page 53 of the HRS documentation record at proposal presents the observed contamination evaluation explanation. Page 53 states:

> Based on the EPA 2019 sampling results, the entirety of Source 1, which covers a majority of the 112-acre eastern lot of the former Ochoa property and extends to the west to include public ROWs, gravel parking areas, and residential properties, is an AOC and the areas coincide based on surface soil results (i.e., an area where hazardous substances attributable to the Ochoa facility are present within the top 2 feet of soil at concentrations significantly above background levels) [**Figure 3**; Ref. 1, Section 5.1.0; 42, pp. 13–16, 25, 165; 43, pp. 5, 1824; 60, pp. 3–7, 49, 88; 61, pp. 6, 36; 86, pp. 1–7].…
>
> Analytical results show the presence of numerous hazardous substances at concentrations significantly above background in surface soils, including PAHs, phthalates, and inorganic

> analytes (see **Table 2**). Aroclor-1260 was detected in contaminated surface soil throughout the Ochoa property; the maximum concentration reported was 84,000 µg/kg [Ref. 14, pp. 11, 12, 16; 46, pp. 14–16, 88, 147, 148]. Contamination of soils on lands west of the historical Ochoa facility (i.e., ROWs, gravel parking areas, and residential properties along Calle Jose Nazario) is likely associated with effluent discharges and runoff from the Ochoa property via historical or current drainage patterns (see **Section 4.1.1.1**). All contaminated soils, both within the former facility border and to the west of the facility border, are included in the AOC.

In continuing the observed contamination discussion, page 55 of the HRS documentation record at proposal states:

> In order to confirm the PREQB results and document residential soil exposure, EPA collected surface soil samples within the property boundaries of, and within 200 feet of residences on Calle José Nazario during the 2019 sampling event [Ref. 15, p. 13; 67, p. 1; **Figure 6**]. Samples were collected from the eastern portions (i.e., the backyards) of the residential properties within the visible historical drainage ditch that captured runoff waters from the former Ochoa property [Ref. 7, pp. 7, 49,616; 14, pp. 7, 8, 11, 12, 110, 116, 117; 15, pp. 13, 33]. Contamination is documented in the surface soil (i.e., 0–2 ft bgs) throughout the former Ochoa property and on the aforementioned residential properties along Calle José Nazario (i.e., Residence A and Residence C; see **Figure 6**); therefore, the AOC being evaluated extends onto residential properties following the historical drainage path [Ref. 67, p. 1].
>
> Sample analytical results for surface soil samples with concentrations meeting the criteria for observed contamination (i.e., three times the maximum background concentration, or greater than the highest ACRQL if all background levels are non-detect; see **Section 2.2.2, Tables 1 and 2**) are presented in **Table 14** below. Background samples collected within the top 2 feet bgs include 0642-S29, 0642-S34 (duplicate of 0642-S29), and 0642-S31.

Page 53 of the HRS documentation record at proposal provides the AOC delineation and states:

> Area of Observed Contamination Type: Contaminated Soil
>
> Area A is defined by a polygon bounded by and encompassing the following contaminated surface soil sample locations (i.e., locations showing Ochoa-related hazardous substances at concentrations significantly above background and collected from the top 2 feet of soil): 0642-S01, 0642-S02, 0642-S06, 0642-S07, 0672-S08, 0642-S13, 0642-S16, 0642-S18, 0642-S19, 0642-S21, 0642-S22, 0642-S23, 0642-S24, 0642-S26, 0642-S32, 0642-S35, and 0642-S36 [see **Figure 3; Table 14**]. All soil within the polygon and between these sample locations, excluding areas covered by impervious surfaces, is inferred as contaminated soil. The area within this polygon is composed of approximately 34.98 acres (1,523,728.8 ft2), as determined using sample locations recorded in the field with GPS technology and subsequent calculation using GIS software [**Figure 3**; Ref. 15, p. 12].

Pages 57-60 of the HRS documentation record at proposal present Table 14, Area of Observed Contamination Analytical Results. Table 14 of the HRS documentation record at proposal states, in relevant part:

TABLE 14. AREA OF OBSERVED CONTAMINATION SAMPLE ANALYTICAL RESULTS								
Hazardous Substance	**Sample ID**	**CLP No.**	**Depth (ft bgs)**	**Sample Date**	**3x Maximum Background, or Highest Reporting Detection Limit (0–2 ft. bgs)***	**Result**	**RL**	**References**
SVOCs (µg/kg)								
…								
PCBs (µg/kg)								
Aroclor-1260	0642-S06	BFH43	0–2	4/26/19	111	3,300	390	14, p. 14, 40, pp. 13–16, 42, 154; 41, pp. 5, 2089
	0642-S07	BFH44	0–2	4/26/19		340	41	14, p. 14; 40, pp. 13–16, 48, 154; 41, pp. 5, 2099
	0642-S08	BFH45	0–2	4/26/19		24,000	2,000	14, p. 14; 40, pp. 13–16, 53, 154; 41, pp. 5, 2143
	0642-S13	BFH50	0–2	4/30/19		8,800	740	14, pp. 18, 19; 42, pp. 13–16, 31, 165; 43, pp. 4, 1872
	0642-S16	BFH53	0–0.5	4/24/19		5,100	750	14, pp. 7, 8; 40, pp. 13–16, 73, 155; 41, pp. 2, 2196
	0642-S18	BFH55	0–2	5/2/19		35,000	3,600	14, p. 24; 44, pp. 14–17, 25, 186; 45, pp. 2, 1916
	0642-S19	BFH56	0–1	4/25/19		28,000	3,900	14, p. 11; 42, pp. 13–16, 41, 166; 43, pp. 3, 1910
	0642-S21	BFH58	0–1.5	4/29/19		1,300	190	14, p. 16; 46, pp. 14–16, 35, 146; 47, pp. 3, 2022
	0642-S22	BFH59	0–2	4/25/19		3,900	370	14, p. 11; 46, pp. 14–16, 40, 146; 47, pp. 2, 2061

TABLE 14. AREA OF OBSERVED CONTAMINATION SAMPLE ANALYTICAL RESULTS								
Hazardous Substance	**Sample ID**	**CLP No.**	**Depth (ft bgs)**	**Sample Date**	**3x Maximum Background, or Highest Reporting Detection Limit (0–2 ft. bgs)***	**Result**	**RL**	**References**
	0642-S23	BFH60	0–2	4/25/19		2,400	470	14, p. 11; 42, pp. 13–16, 52, 166; 43, pp. 3, 1930
	0642-S24	BFH61	0–1	4/25/19		42,000	3,800	14, p. 11; 46, pp. 14–16, 44, 146, 147; 47, pp. 2, 2111
	0642-S26	BFH63	0–2	5/2/19		13,000	1,900	14, p. 24; 44, pp. 14–17, 36, 186; 45, pp. 2, 1959
	0642-S35	BFHK9	0–1.5	4/29/19		84,000	7500	14, p. 16; 46, pp. 14–16, 88, 147, 148; 47, pp. 4, 2187
	0642-S36	BFHL1	0–0.66	5/2/19		43,000	4,100	14, pp. 23, 24; 44, pp. 14–17, 122, 188; 45, pp. 3, 2154
INORGANICS (mg/kg)								
…								
Zinc	0642-S06	MBFH43	0–2	4/26/19	142.8	360	6.9	14, p. 14; 56, pp. 3–6, 23, 86; 57, pp. 7, 27
	0642-S26	MBFH63	0–2	5/2/19		3,820	32.9	14, p. 24; 60, pp. 3–5, 22, 85; 61, pp. 5, 27
	0642-S35	MBFHK9	0–1.5	4/29/19		737	6.7	14, p. 16; 58, pp. 3–6, 80, 91; 59, pp. 5, 41
	0642-S01	MBFH38	0–2	4/24/19		289	8.2	14, p. 7; 56, pp. 3–6, 14, 85; 57, pp. 5, 24
	0642-S02	MBFH39	0–0.5	4/25/19		333	6.9	14, p. 11; 58, pp. 3–6, 14, 85; 59, pp. 6, 22

TABLE 14. AREA OF OBSERVED CONTAMINATION SAMPLE ANALYTICAL RESULTS								
Hazardous Substance	**Sample ID**	**CLP No.**	**Depth (ft bgs)**	**Sample Date**	**3x Maximum Background, or Highest Reporting Detection Limit (0–2 ft. bgs)***	**Result**	**RL**	**References**
	0642-S32	MBFH69	0–0.75	4/25/19		275	7.1	14, p. 11; 56, pp. 3–6, 74, 91; 57, pp. 6, 41
…								

µg/kg = microgram per kilogram
mg/kg = milligram per kilogram
ft bgs = feet below ground surface
RL = Reporting limit; equivalent to the ACRQL, which are sample- and matrix-dependent quantitation limits and are considered equivalent to the sample quantitation limit defined in the HRS Rule [Ref. 1, Sections 1.1 and 2.3].
U (Organic) = The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the ACRQL for sample and method [Ref. 42, p. 2]
U (Inorganic) = The analyte was analyzed for, but was not detected above the level of the reported quantitation limit [Ref. 56, p.2].
*Background samples collected within the top 2 feet bgs include 0642-S29, 0642-S34 (duplicate of 0642-S29), and 0642-S31. See **Table 1** for background concentrations and reference citations.

The HRS documentation record at proposal explained that the concentrations of hazardous substances, including PCBs and zinc, in samples collected from two feet or less were compared against site-specific soil background concentrations and present the determination that observed contamination criteria were met consistent with the HRS requirements for establishing observed contamination quoted above. Table 14 of the HRS documentation record at proposal presented the collection depth and detected concentrations of hazardous substances evaluated for each soil sample and the comparison against the background level. The depths presented in Table 14 indicate that all samples presented as meeting observed contamination criteria were collected from a depth of two feet or less as required by HRS Section 5.1.0, quoted above. The footnote to Table 14 indicates that the background samples (i.e., samples 0642-S29, 0642-S34 [duplicate of 0642-S29], and 0642-S31) were also collected from a depth of two feet or less. The Table 14 footnote explains that site and hazardous substance specific background levels were determined. The comparison between the background level and the detected concentrations in Table 14 of the HRS documentation record at proposal, in part quoted above, demonstrates that the concentration of the hazardous substance(s) evaluated in each soil sample significantly exceeded the background level consistent with the standard presented in HRS Table 2-3 for evaluating analytical significance. Of the 17 samples identified in Table 14, 14 samples contain detections of PCBs and 6 samples contain detections of zinc at levels significantly above background. As the concentrations in each soil sample included in the observed contamination scoring of the Site were significantly above the site-specific background level, the soil samples evaluated as subject to observed contamination were appropriately included in the HRS scoring as meeting the significant increase in contamination component of an observed contamination evaluation. Regarding the attribution component of the evaluation, attribution was appropriately established in the HRS scoring of the Site and the discussion of comments challenging the attribution in the soil exposure component are discussed in detail in section 3.14.2, Soil Exposure Component – Attribution, of this support document.

Regarding the validity of the AOC delineation, the AOC was properly established using the samples meeting observed contamination criteria. HRS Section 5.1.0, quoted above, instructs to establish AOCs based on samples meeting observed contamination criteria for areas not covered by an impenetrable material. As explained above,

Table 14 of the HRS documentation record at proposal provides the comparison between each observed contamination soil sample and the site-specific background level for each hazardous substance scored, illustrating that each soil sample, including samples S01 and S02, contained hazardous substances(s) significantly above background levels to meet observed contamination criteria. The AOC presented in the HRS documentation record at proposal was formed by connecting the samples that were determined to meet observed contamination criteria consistent with the HRS instructions for AOC delineation. As these comments relate to the attribution of contamination to the Site, the rationale for why attribution of PCBs, metals, SVOCs, and PAHs is appropriate and supported for the scope of the AOC is discussed in detail in section 3.14.2, Soil Exposure Component – Attribution, section of this support document.

Regarding the number of samples used to define the AOC, HRS Section 5.1.0, quoted above, does not specify a number of samples required to establish an AOC or to establish observed contamination of a specific hazardous substances. Here, the AOC was delineated connecting the 10 outermost samples of the 17 samples meeting HRS observed contamination criteria as explained above which is more than the three-sample minimum the commenter asserts is needed. Page 53 of the HRS documentation record at proposal, quoted above, explains that the AOC was defined using the following 17 samples that met observed contamination criteria for site attributable hazardous substances: 0642-S01, 0642-S02, 0642-S06, 0642-S07, 0672-S08, 0642-S13, 0642-S16, 0642-S18, 0642-S19, 0642-S21, 0642-S22, 0642-S23, 0642-S24, 0642-S26, 0642-S32, 0642-S35, and 0642-S36. Table 14 of the HRS documentation record at proposal also indicates that 14 of the samples (i.e., 642-S06, 0642-S07, 0672-S08, 0642-S13, 0642-S16, 0642-S18, 0642-S19, 0642-S21, 0642-S22, 0642-S23, 0642-S24, 0642-S26, 0642-S35, and 0642-S36) contained PCBs, specifically Aroclor-1260, at concentrations significantly exceeding background, and 6 samples (i.e., 0642-S01, 0642-S02, 0642-S06, 0642-S26, 0642-S32, and 0642-S35) contained zinc at concentrations significantly exceeding background.

Moreover, the EPA fact sheet referenced by the commenter, *Establishing Areas of Observed Contamination*, including any instruction on AOC delineation within the fact sheet, is a form of guidance. In evaluating whether a site merits NPL listing, the EPA complies with the HRS and uses HRS guidance as just that—guidance to determine how best to perform the HRS evaluation based on the facts or circumstances presented at each site. As explained above, the AOC was determined following the HRS Section 5.1.0 requirements. Regardless, as discussed above, more than three samples were used to delineate the AOC. Finally, while the fact sheet referenced by the commenter expresses a preference that at least three samples be used in delineating an AOC, it specifically notes that less may be used, as shown on pages 3-4:

> Areas of observed contamination can be established with sampling locations and analytical data that meet the HRS criteria for observed contamination, including determination of background levels (OSWER Directive 9345.1-07). **A minimum of three samples showing site contamination is sufficient to establish an area of observed contamination for soil**. The area of observed contamination includes the three sampling points and the area within them (OSWER Directives 9345.1-05 and 9345.1-07). However, the following sub-areas are excluded:
>
> - Areas covered by permanent or otherwise maintained and essentially impenetrable material (e.g., asphalt, concrete);
> - Areas of higher ground not influenced by runoff from the site, if contamination results from runoff;
> - Areas where the types of operations at a facility preclude the presence of hazardous substances (e.g., contamination at loading docks but not elsewhere on site);
> - Contaminated areas covered by more than two feet of fill or other material (Refer to specific examples
>
> **Points and linear strips of observed contamination may be evaluated as areas of observed contamination for the soil exposure pathway, even though it may not be possible to delineate an actual "area." For soils, one contaminated sample denotes a point of observed**

> **contamination. Two contaminated soil samples denote a linear strip of observed contamination. Either a point or a linear strip can be used to identify other targets and to demonstrate a hazardous waste quantity value greater than zero. When possible, however, establishing an area of observed contamination is preferred.**
>
> For non-soil sources, such as waste piles, observed contamination at a single point generally is sufficient to establish the entire source as an area of observed contamination. [emphasis added]

Regarding comments asserting that the AOC should only extend to sample SS04A (at borehole location 0642-S04), sample SS04A is not a sample included in the AOC and is not included in Table 14 of the HRS documentation record at proposal. In discussing the geometry of the AOC and the relationship to the samples evaluated as part of Source 1, page 53 of the HRS documentation record at proposal states that "the entirety of Source 1… is an AOC and the areas coincide based on surface soil results (i.e., an area where hazardous substances attributable to the Ochoa facility are present within the top 2 feet of soil at concentrations significantly above background levels)." While included as part of the soil samples used to establish Source 1, sample SS04 was collected from a depth greater than 2 feet as indicated in Table 2 of the HRS documentation record at proposal, making it ineligible as an observed contamination sample for the soil exposure component based on HRS Section 5.1.0, quoted above.

Furthermore, if the commenter is referring to sample S04 as opposed to sample SS04A, when discussing the location where the AOC should end, sample S04 is not a sample included in the AOC, not included in Table 14 of the HRS documentation record at proposal, and not included in the HRS documentation record at proposal. As discussed above, the AOC was appropriately delineated west of the location of borehole location 0642-S04 and off the eastern lot to samples S01 and S02 consistent with the HRS. Concentrations of a least one site-attributable hazardous substance meeting observed release criteria were determined to be present in these samples as indicated in Table 14 quoted above. Hence, the extension of the AOC delineation beyond the eastern lot is consistent with this finding of observed contamination in samples S01 and S02.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.14.2 Soil Exposure Component – Attribution

Comment: Guánica-Caribe commented that the attribution of contamination to the Site is unsupported and submitted comments stating that there are other possible sources and the AOC is incorrectly delineated.

Guánica-Caribe commented that the HRS documentation record at proposal makes unsupported assumptions, such as attributing zinc contamination on residential properties to the former facility on the eastern lot, which it claims are not supported by the present data and that the AOC presented in the HRS package should not extend west, off the eastern lot beyond sample location S04. Guánica-Caribe contested the AOC delineation stating that the soil quality (i.e., contamination) detected at the western sample locations may not be associated with impacts associated with the Site. It stated that "EPA has not identified a known source of PCBs from historical use on the Eastern Lot of the Ochoa Site" and has not considered other possible sources contributing to the contamination. Guánica-Caribe contended that the EPA has insufficient information to attribute PCBs and zinc to the Site. Regarding the soil exposure component attribution discussion, Guánica-Caribe commented that the discussion of vanadium use during facility operations should be revised to remove the sentence, "No other upslope sources of vanadium or other metals have been identified." Regarding the soil exposure component attribution discussion, Guánica-Caribe also commented that the following statement is incorrect:

> Results of sediment samples collected by EPA in 2019 from a municipal storm drain and a spring-fed channel upstream of the residential drainage channel segment were non-detect for zinc, and there are no other known sources of contamination in the intervening terrain (i.e., east of the residences and west of the former Ochoa facility) [Ref. 14, pp. 63–65, 139, 140; 15, pp. 30, 35; 28, pp. 49, 50, 55, 56]. It is likely zinc came to be deposited on the residential property via the

> drainage channel that historically carried runoff and settling pond effluent from the Ochoa facility through the channel.

Guánica-Caribe commented that instead it should state, "Results of sediment samples collected by EPA in 2019 from a municipal storm drain and a spring-fed channel upstream of the residential drainage channel segment were non-detect for zinc. However, the source of zinc on the residential property and drainage channel has not been determined."

Guánica-Caribe also commented that page 40 of the HRS documentation record at proposal states:

> Vanadium was used by the facility as a catalyst in the production of sulfuric acid [Ref. 7, pp. 11, 56]. Vanadium pellets were observed to be deposited directly on the ground surface on multiple occasions [Ref. 7, pp. 14, 214]. The remaining metals that characterize Source 1/AOC A, are present in crude oil and would also likely be present in the carbon byproduct [Table 2; Ref. 74, p. 8; 75, p. 3]. Metals, including arsenic, cadmium, lead, manganese, and zinc are known to be constituents of commercial inorganic fertilizers [Ref. 78, p. 1; 79, pp. 1, 2]. No other upslope sources of vanadium or other metals have been identified."

Guánica-Caribe asserted it should not state: "No other upslope sources of vanadium or other metals have been identified."

Other Possible Contributors

Guánica-Caribe commented that the HRS package should be corrected to recognize that contamination may originate from sources other than the former facility on the eastern lot. It contended the EPA should not inappropriately dismiss likely sources of contamination on the eastern lot. According to Guánica-Caribe, the HRS package states or implies that operations on the eastern lot of the Ochoa Site are the only potential source. However, its preliminary screening of publicly available information identifies multiple alternate sources that are not associated with Ochoa's historic fertilizer operations.

Some of the possible sources identified by Guánica-Caribe are as follows:

- Potential off-site sources, such as multiple industrial, commercial, and residential areas, and the transportation of materials along roadways and other parties' discharges to the common drainage ditch (at the western boundary of the eastern lot) and to the storm water system in Guánica
- Fomento (PRIDCO) warehouse
- PREPA electrical infrastructure/substation
- Former municipal dump/landfill

Guánica-Caribe stated that the EPA extends the AOC off the eastern lot and into the residential properties based on only two samples collected from a drainage area that serves as the common drainage pathway for multiple industrial, commercial, and residential areas of Guánica. It added that the EPA guidance requires a minimum of three samples to establish AOCs.[28] It claimed that characterization of the off-property contamination in areas extending off the eastern lot as part of the AOC is speculative and inappropriate because the analyte fingerprints between on-site and off-site samples do not match and the EPA did not perform an assessment of potential impacts from other potential off-site sources, such as the transportation of materials along roadways and other parties' discharges to the storm water system in Guánica. It claimed that this information supports that it is likely that other sources are responsible for the zinc concentrations at sample locations S01 and S02 and the Aroclor-1260 concentrations at S04 and S36. Guánica-Caribe requested that the HRS package be corrected.

[28] Guánica-Caribe cited the following document in support of its comment: *Establishing Areas of Observed Contamination*, OSWER Directive 9285.7-18FS, September 1995.

Guánica-Caribe stated there is a Fomento warehouse located immediately north and upgradient of the Site on the east side of SR-333, less than 1,000 feet from the eastern lot of the Site, and it is possible that the tenants of this warehouse used the municipal landfill located on the eastern lot.[29]

Guánica-Caribe stated the HRS documentation record mistakenly states that the PREPA substation located on the eastern lot was constructed in 1991 or 1992. According to Guánica-Caribe, that PREPA substation appears to be depicted on the eastern lot of the Site in a 1966 USGS Topographic Map and in an aerial photograph dating back to 1975. [30] Guánica-Caribe then contended that the PREPA substation was in operation prior to the 1979 PCB ban and it is reasonable to assume it contained PCB electrical equipment, a likely source of Aroclor-1260. It further claimed that although the land transfer from Ochoa to PREPA occurred on May 8, 1989, existing easement dating to 1962 and 1964 between Ochoa, the Commonwealth of Puerto Rico, and the Puerto Rico Water Resources Authority (the predecessor agency to PREPA) suggests that the PREPA substation was built as early as 1962.[31] Guánica-Caribe further commented that the PREPA electrical infrastructure is a likely source of PCBs and discharges occurred during damage by Hurricane Maria in 2017, which it notes is acknowledged in a Federal Emergency Management Administration (FEMA) 2020 document.[32] Guánica-Caribe also commented that public documentation confirms that PREPA had been working to address the substantial presence of PCBs in its infrastructure for many years. It added that a 2003 PREPA bond prospectus document indicates PREPA "completed a ten-year EPA-mandated program to sample, test and identify its oil-filled transformers and other equipment in order to comply with applicable PCB regulations" and the "Authority continues to implement a program for the removal and disposal of all distribution transformers with a PCB concentration of 50 ppm or greater." It stated that the "authority estimates that approximately 3,000 PCB or PCB contaminated distribution transformers remain to be disposed of as of April 30, 2003. During fiscal year 2002, a total of 2,222 transformers were disposed of under this program, plus an additional 703 as of April 30, 2003."[33] Guánica-Caribe stated even transformers classified as "non-PCB" could contain PCBs at concentrations up to 50,000 parts per billion per 40 CFR § 761.3 – Definitions.

Guánica-Caribe stated that ENSR excavated 17 test pits in 1992 in the former municipal landfill located on the southern edge of the eastern lot and alongside PR-333. It stated that soil samples collected at a maximum depth of approximately seven feet and soil samples obtained from the test pits contained elevated concentrations of metals, including arsenic (up to 1.8 mg/kg), cadmium (up to 3.29 mg/kg), chromium (up to 80.3 mg/kg), copper (up to 125.6 mg/kg), mercury (up to 0.313 mg/kg), lead (up to 478 mg/kg), and zinc (at up to 975 mg/kg).[34] Guánica-

[29] Guánica-Caribe cited the following four documents in support of its comment: (1) Portal Catastro Digital Y Productos Cartográficos, Parcel 407-086-112-08, Screen Capture (included as Exhibit 4 of its comment document); (2) Portal Catastro Digital Y Productos Cartográficos, Parcel 407-066-147-01, Screen Capture (included as Exhibit 5 of its comment document); (3) https://www.ddec.pr.gov/en/access-to-information/; (4) "Hanes Plants to Shut, Cut 1,105 Jobs," *Orlando Sentinel* (December 16, 2002), https://www.orlandosentinel.com/news/os-xpm-2001-12-16-0112140472-story.html.

[30] Guánica-Caribe cited the following three documents in support of its comment: (1) Guanica, Puerto Rico, U.S. Geological Survey Topographic Map, Scale: 1:20,000, 1966 [included as Exhibit 7 of its comment document]; (2) Aerial Photo 11-206 GS VDNG, U.S. Geological Survey, February 16, 1975 [included as Exhibit 8 of its comment document]; and (3) page 4 of Reference 38 of the HRS documentation record (EDR Aerial Photo Decade Package, 1983).

[31] Guánica -Caribe cited the following two documents in support of its comment: (1) pages 6-7 of Reference 9 of the HRS documentation record at proposal. Palmer, Augusto. Segregation, Constitution of Easement and Transfer Property, May 8, 1989); (2) page 14 of Reference 38 of the HRS documentation record at proposal (Google Earth Aerial Review – Surface Impoundments, March 2020).

[32] Guánica-Caribe cited to pages 69 and 70 of the following document in support of its comment: U.S. Department of Homeland Security, FEMA Region II, Programmatic Environmental Assessment, Utility Repair, Replacement, and Realignment, Commonwealth of Puerto Rico, DR-4339-PR, August 2020, https://www.fema.gov/sites/default/files/2020-08/fema_ea_puerto-rico_utility-repair-replacementrealignment_guidedbook_august-2020.pdf.

[33] Guánica-Caribe cited the following document in support of its comment: $517,305,000 Puerto Rico Electric Power Authority Power Revenue Bonds, Series NN prospectus document, August 8, 2003, https://www.yumpu.com/en/document/read/38317387/puerto-rico-electric-power-authoritygovernment-development-bank, p. 45.

[34] Guánica-Caribe cited the following document in support of its comment: Reference 7 of the HRS documentation record at proposal (Site Inspection Report – Ochoa Fertilizer Co., December 4, 2000), Ref. 2, Section 4.2 and Table 4-1, pp. 173-175).

Caribe asserted that additional parties, including the local municipality and off-site generators of waste, may have contributed contaminated waste to the Ochoa Site, and requested the history and potential for contamination associated with the former municipal landfill/dump be corrected in the HRS package.

Incorrectly Defined AOC

Guánica-Caribe commented that the AOC presented in the HRS package is based only on four soil sample locations (S01, S02, S04, and S36), and this AOC should not extend west off the eastern lot beyond sample location S04. Guánica-Caribe made the following comments in support of its arguments that the AOC has been mischaracterized:

- Samples S04 and S36, are located on or just a short distance (40-50 feet) beyond the western edge of the eastern lot boundary and are not indicative of widespread PCB/Aroclor-1260 contamination in off-site soil.
- Aroclor-1260 concentration at sample S10 on the eastern lot, and likely upgradient of samples S04 and S36, was more than 100 times lower than the Aroclor-1260 concentration detected in S36, indicating the potential that the Aroclor-1260 at sample locations S04 and S36 may not be associated with the Aroclor-1260 detected on the eastern lot of the Ochoa Site, but rather may come from another source.
- Analytical data on the eastern lot and its boundary (locations SS06, S09, SS04A, and S36) do not match the fingerprints of samples on the western edge of the AOC (locations S01 and S02). The EPA presumes that zinc concentrations in S01 and S02 are associated with the Ochoa Site but the fingerprint of the constituents at these locations do not match the eastern lot; zinc is detected at concentrations above the EPA's screening levels along Calle Jose Nazario, but intervening samples on the Site do not contain elevated concentrations of zinc. Sample S36 is adjacent to the eastern lot and upgradient of the drainage ditch at the entrance to the sewer, but this location has a lower zinc concentration than in S01 and S02 and is 1/3 to 1/6 of the screening level used by the EPA in the HRS evaluation. Unless the EPA has other data to indicate how the zinc concentrations at sample locations S01 and S02 originated from the eastern lot and/or other evidence of Site-related contaminants at these locations, the boundary of the AOC and associated discussion and calculations in the HRS package should be adjusted to exclude these off-site areas, including adjustment of any scoring based on residential receptors.
- The EPA's guidance requires a minimum of three samples to establish an AOC; [35] however, with regard to PCB contamination, the EPA's extension of the AOC off the eastern lot and into residential properties is based on only two samples collected from a drainage area that serves as the common drainage pathway for multiple industrial, commercial, and residential areas of Guánica. Although additional data were apparently collected by the EPA in May 2021, these data were not included or considered in the HRS package.
- PCBs were either not detected or were only detected at very low concentrations in sample locations S03, S05, and S10, which are absent from tables and figures in the HRS documentation record at proposal.[36] These data indicate that the PCB concentrations in soil are discontinuous. They may be indicative of other sources of the PCB contamination, potentially including those originating from off the Site.
- The EPA does not provide evidence of historical Ochoa facility operations utilizing PCBs, instead making preliminary and inappropriate conclusions that the former Ochoa facility operations involved PCBs, when other potential sources of PCBs in the area would be equally plausible in light of the many historical applications of PCBs. The extension of the AOC approximately 500 feet west into a public ROW, parking lot, and adjacent drainage ditch based on limited sampling data is unsupported. The EPA has insufficient information to attribute PCBs to the Site.

[35] Guánica-Caribe cited the following document in support of its comment: OSWER Directive 9285.7-18FS, September 1995.

[36] Guánica-Caribe cited the following document in support of its comment: Weston Solutions, Inc., Site Reassessment Report, September 2019, Figure 4 and Table 2C, pp. 45, 64, and 68.

Guánica-Caribe commented that the information in the HRS package does not sufficiently explain the sources of PCBs or other contaminants at the Site and why the AOC extends to sample locations S01 and S02 (adjacent to the residential properties); it asserted the AOC should be limited to sample location S04, and requested that the HRS documentation record be corrected.

Response: The PCBs, SVOCs, PAHs, and metals contamination identified in the 17 observed contamination soil samples was appropriately attributed to the Site. These substances were found to be significantly above background levels for HRS purposes. Sufficient evidence to attribute the hazardous substances in the 17 observed contamination samples used to define the AOC to the Site was presented in the HRS documentation record at proposal.

To establish observed contamination, HRS Section 5.1.0, *General considerations*, instructs:

> Evaluate the soil exposure component based on areas of observed contamination:
>
> - Consider observed contamination to be present at sampling locations where analytic evidence indicates that:
>
> - **A hazardous substance attributable to the site is present** at a concentration significantly above background levels for the site (see Table 2-3 in section 2.3 for the criteria for determining analytical significance), *and*
>
> - This hazardous substance, if not present at the surface, is covered by 2 feet or less of cover material (for example, soil). [emphasis added]

The HRS does not include any additional requirements for establishing attribution of a hazardous substance.

The attribution discussion in the soil exposure component section of the HRS documentation record at proposal discusses the attribution rationale employed. Pages 61-62 of the HRS documentation record at proposal state:

> From April 23 through May 7, 2019, EPA completed soil sampling at the Ochoa [see **Section 2.2**]. Validated soil analytical data show significant detections of Aroclor-1260 throughout the former Ochoa property and along downslope drainage paths, metals such as vanadium in former operational areas, zinc and mercury in former operational areas and on residential properties, and PAHs near the former facility entrance and in the northwestern portion of the property (see **Figure 3**; **Section 2.2.1** and **Section 2.2.2**).
>
> The soil contamination is associated with the fertilizer production operation that occurred at the former Ochoa eastern property from 1957 through c. 1970 [Ref. 7, pp. 9, 163, 209, 800, 802; 29, pp. 6–10]. According to the 1991 Phase I, there was evidence of waste mismanagement at the facility after operations ceased: it was observed that the largest of six carbon settling ponds at the former facility had since been regraded; carbon slag and yellow crystalline material was observed directly on the ground surface near the historical ammonia plant area; and scrap equipment, piping, approximately 36 unlabeled 55-gallon drums, and vanadium pellets directly on the ground surface were observed in the northwestern portion of the property [Ref. 7, pp. 212–214].…
>
> The remaining metals that characterize Source 1/AOC A, are present in crude oil and would also likely be present in the carbon byproduct [**Table 2**; Ref. 74, p. 8; 75, p. 3]. **Metals, including arsenic, cadmium, lead, manganese, and zinc are known to be constituents of commercial inorganic fertilizers [Ref. 78, p. 1; 79, pp. 1, 2].** No other upslope sources of vanadium or other metals have been identified. [emphasis added]

PAHs were detected in the northern and western portions of the former Ochoa property (samples 0642-S35 and 0642-S06, respectively) [see **Figure 3**]. Sample 0642-S35 was collected in proximity to an area of blackened soil and the location of the former carbon dumping area, which received solids from the settling ponds **[Figures 2** and **3**; Ref. 7, p.12; 15, p. 23]. The carbon byproduct was generated by a process where pure oxygen was mixed (i.e., reacted) with crude oil to produce sulfuric acid [Ref. 7, p. 12].… The presence of PAHs at sample 0642-S06 is likely due to downslope migration from the waste management units discussed above [**Figure 2**; Ref. 4, p.1].

Aroclor-1260 was detected in contaminated soil at the former Ochoa property at concentrations ranging from 170 µg/kg to 84,000 µg/kg (see **Section 2.2.2, Table 2**). Analytical results from the EPA 2019 sampling event document facility-related Aroclor-1260 along the drainage path, beginning outside the western fence near the southern extent of the drainage ditch (sample 0642-S36; 43,000 µg/kg) and extending west across public ROW and PR-333 in the gravel parking lot (sample 0642-SS04A; 3,500 µg/kg) (see **Figure 3**). The presence of Aroclor-1260 is likely related to historical and current runoff from the Ochoa property as it was detected at the surface, as well as at depth (4 to 6.5 feet bgs) in soil sample 0642-SS04A in the gravel lot, possibly characterizing a former open channel area [**Figure 3**; Ref. 7, p. 7].

Aroclors are mixtures of individual PCB congeners [Ref 30, p. 2]. PCBs are a group of man-made organic chemicals manufactured from 1929 until the manufacturing was banned in 1979 [Ref. 30, p. 1].… PCBs were used in hundreds of industrial and commercial applications and were found in heavy-duty electrical equipment, such as transformers and voltage regulators; old smaller-scale electrical devices or appliances containing PCB capacitors; motor and hydraulic oil; and fluorescent light ballasts [Ref. 30, p. 1]. The eastern lot of the Ochoa property was a large industrial complex that operated from 1957 to sometime between 1968 and 1970 [Ref. 7, pp. 10, 11]. An electrical substation is present on the Ochoa facility eastern lot that was separate from the PREPA substation on the property (the PREPA substation was not constructed until 1991 or 1992) [Ref. 7, pp. 8, 56, 160, 209, 212; 10, p. 1]. Given the industrial applications of PCBs discussed above and the facility's operational nature and timeframe, it is reasonable to assume that some type of PCB equipment was used at the facility and that it was the original source of Aroclor-1260 found throughout Area A [see **Figure 3** and **Table 14**].

There are no known current or historical sources of inorganic analytes, PAHs, or PCBs upslope within 1 mile of the former Ochoa facility **[Figure 1**; Ref. 29, pp. 5–10; 31, pp. 3–16; 38, pp. 3–5]. The former Ochoa property is surrounded to the north, east, and south by the Guánica State Forest [**Figure 1**; Ref. 33, pp. 4, 6]. The lands of the forest have never been developed, and lie upslope of the former Ochoa property [**Figure 1**; Ref. 29, pp. 5–10; 33, p. 4; 38, 3–5].

As the manufacture of PCBs and PCB-containing equipment was banned in 1979 by the United States government, and Puerto Rico is subject to United States laws and regulations, it is reasonable to expect that the PREPA substation, which was constructed c. 1991/1992, would not be equipped with equipment containing PCBs and therefore not a source of Aroclor-1260 [Ref. 30, p. 1; 76, p. 1]. Analytical results for soil samples 0642-S28, 0642-S33 (duplicate of 0642-S28), 0642-SS28A, 0642-SS28B, 0642-S29, and 0642-S34 (duplicate of 0642-S29), which were collected adjacent to the PREPA electrical substation, indicated non-detect values for Aroclor-1260 [**Figure 3**; Ref. 14, pp. 8, 16; 40, pp. 80, 86; 46, pp. 48, 57, 72, 77]. Although Aroclor-1260 was detected in surface soil sample 0642-S12, which was collected from the drainage ditch near the PREPA substation, the reported concentration (7.8 J µg/kg) is a relatively low estimated value below the sample reporting detection limit [**Figure 3**; Ref. 14, p. 8; 40, pp. 63, 155].…

Sample analytical results for two surface soil samples collected by EPA in 2019 from the historical drainage channel segment in the yards of the residences document concentrations of zinc at levels significantly above background concentrations (see samples 0642-S01 and 0642-

> S02 in **Table 14**). Zinc is known to be a constituent of commercial inorganic fertilizer [Ref. 19, p. 2; 78, p. 1].… Results of sediment samples collected by EPA in 2019 from a municipal storm drain and a spring-fed channel upstream of the residential drainage channel segment were non-detect for zinc, and there are no other known sources of contamination in the intervening terrain (i.e., east of the residences and west of the former Ochoa facility) [Ref. 14, pp. 63–65, 139, 140; 15, pp. 30, 35; 28, pp. 49, 50, 55, 56]. It is likely zinc came to be deposited on the residential property via the drainage channel that historically carried runoff and settling pond effluent from the Ochoa facility through the channel.
>
> Although not meeting observed contamination criteria, zinc was detected at additional soil sample locations that support a pattern of soil contamination emanating from the Ochoa property, including soil samples collected near the historical locations of the molten-sulfur pipe and ammonium plant (0642-S08, 174 mg/kg), from an area of stressed vegetation (0642-S27, 169 mg/kg), and from the historical drainage ditch (0642-S09, 185 mg/kg; 0642-S10, 150 mg/kg; 0642-S13, 225 J mg/kg; 0642-S19, 198 mg/kg) [Ref. 15, pp. 14–16, 18, 20, 33; 56, pp. 29, 32; 58, pp. 17, 20, 26; 60, p. 25].

Reference 10 of the HRS documentation record at proposal is email correspondence discussing the PREPA substation. Page 1 of Reference 10 of the HRS documentation record at proposal, cited in the quoted text above, states, "Fernando Zayas spoke with a Supervisor who said that the Station was built between 1991 and 1992."

The soil contamination in the 17 observed contamination soil samples scored was appropriately attributed to the Site based on past facility operations and waste handling practices as discussed in the HRS documentation record at proposal and references cited therein. To support the attribution of contamination, the HRS documentation record at proposal provided extensive historical information explaining past practices associated with the industrial chemical and fertilizer manufacturing at the facility that likely used the hazardous substances scored. As quoted above, pages 61-62 of the HRS documentation record at proposal detailed that metals including arsenic, cadmium, lead, manganese, and zinc are known to be connected to inorganic fertilizers. These pages note that vanadium was used "as a catalyst in the production of sulfuric acid," and "[v]anadium pellets were observed to be deposited directly on the ground surface on multiple occasions." Page 61 noted that "PAHs … form during the incomplete burning of coal, oil, and other organic substances," and PAHs "would likely be present in soil as a result of the deposition of and migration away from the carbon byproduct." Page 61 also indicated that the Aroclor-1260 detected in soil is likely related to PCB containing equipment used in the operation of an electrical substation on the eastern lot.

In addition, the HRS documentation record at proposal provided further support for attributing SVOCs, PAHs, metals, including vanadium, zinc, mercury, lead, beryllium, chromium, nickel, thallium, and PCBs to the Site based on noted waste mismanagement, drainage pathways, and absence of other possible contributors. Pages 61, quoted above, describes that multiple items of waste were observed and likely the result of waste mismanagement after facility operation ended. Pages 61 and 62, quoted above, describe evidence of drainage, and page 61 notes that current and historical runoff likely resulted in the Aroclor-1260 concentrations detected at the surface and depth in a sample in the gravel lot. As discussed on page 62 of the HRS documentation record at proposal, samples from drainage pathways leading away from the eastern lot contained zinc at levels not meeting observed contamination criteria but "support a pattern of soil contamination emanating from the Ochoa property." Page 62 of the HRS documentation record at proposal indicated that no other possible sources were identified within 1 mile of the eastern lot. The noted waste handling practices, the concentrations of hazardous substances along suspected drainage pathways, and the absence of other origins of the contamination presented in the HRS documentation record at proposal also help support that the significant increase in metals, PAHs, PCBs, and SVOCs, including the significant increase in the off-property soil samples, is attributable to the Site. Thus, based on the multiple lines of evidence, the HRS evaluation determined other possible origins of the contamination were not present and properly attributed the significant increase in phenanthrene, fluoranthene, pyrene, butylbenzylphthalate, benzo(a)anthracene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene,

benzo(g,h,i)perylene, bis(2-ehtylhexyl)phthalate, chrysene, Aroclor-1260 (PCBs), beryllium, chromium, copper, lead, nickel, thallium, vanadium, mercury, and, zinc concentrations to the Site.

Further, the gradient in concentrations support the migration of contamination from the eastern lot with respect to the attribution of zinc and Aroclor-1260. As discussed above and as presented in Table 14 of the HRS documentation record at proposal, sample S26 contains zinc at 3,820 mg/kg and Aroclor-1260 at 13,000 µg/kg. As presented in Table 2 of the HRS documentation record at proposal, deeper samples at that location (sample SS26A at 8-10 ft bgs) exhibit zinc at 416 mg/kg and Aroclor-1260 at 1,400 J- µg/kg. The highest background concentrations upgradient of the drainage ditch and the source were 80 mg/kg in sample S30 for zinc and 37 J µg/kg for Aroclor-1260 in sample S34 as presented in Table 1 of the HRS documentation record at proposal. Sample S01 contains a concentration of zinc at 289 mg/kg, and sample S02 contains a concentration of zinc at 333 mg/kg, as presented in Table 14 quoted in section 3.14.1, Likelihood of Release/AOC, of this support document. Sample S26 is located near the center of the property and sample S36 is located near the western boundary of the eastern lot, while samples S01 and S02 are located to the west of the property, which is denoted on Figure 3 of the HRS documentation record.

Regarding the commenter's assertions that zinc in soil is incorrectly attributed, as explained in the HRS documentation record at proposal, zinc is associated with commercial fertilizer operations. Pages 61-62 of the HRS documentation record at proposal quoted above indicated that zinc is a site-attributable hazardous substance using multiple lines of evidence including the following:

- Page 62 of the HRS documentation record at proposal notes that there are no known other upgradient possible sources of inorganic contaminants within 1 mile of the former Ochoa facility to account for Site contamination (including the Site zinc contamination between the residential properties and west of the Ochoa property).
- As quoted above from page 62 of the HRS documentation record at proposal, the attribution discussion identified that zinc was present in samples from "the historical drainage channel segment in the yards of residences."
- The gradient in zinc concentrations supports that zinc contamination in soil is associated with the Ochoa property. As noted above, elevated zinc and Aroclor-1260 concentrations were found in the central areas of the Ochoa property. Also in support of the concentration gradient, page 62 of the HRS documentation record at proposal noted that "[a]lthough not meeting observed contamination criteria, zinc was detected at additional soil sample locations that support a pattern of soil contamination emanating from the Ochoa property, including soil samples collected near the historical locations of the molten-sulfur pipe and ammonium plant (0642-S08, 174 mg/kg), from an area of stressed vegetation (0642-S27, 169 mg/kg), and from the historical drainage ditch (0642-S09, 185 mg/kg; 0642-S10, 150 mg/kg; 0642-S13, 225 J mg/kg; 0642-S19, 198 mg/kg)."

Regarding the assertions that PCBs were not appropriately attributed to the Site, analytical data and historical information support attributing PCBs in soil to the Site in the 14 samples scored as meeting observed contamination criteria for PCBs. As quoted above, to establish attribution of PCBs, multiple lines of evidence were presented in the HRS documentation record at proposal including the following:

- Page 61 of HRS documentation record at proposal described analytical data supporting attribution. It states "[a]nalytical results from the EPA 2019 sampling event document facility-related Aroclor-1260 along the drainage path, beginning outside the western fence near the southern extent of the drainage ditch (sample 0642-S36; 43,000 µg/kg) and extending west across the public ROW and PR-333 in the gravel parking lot (sample 0642-SS04A; 3,500 µg/kg) (see Figure 3). The presence of Aroclor-1260 is likely related to historical and current runoff from the Ochoa property as it was detected at the surface, as well as at depth (4 to 6.5 feet bgs) in soil sample 0642-SS04A in the gravel parking lot, possibly characterizing a former open channel area."

- Page 62 of the HRS documentation record indicated that the eastern lot of the Ochoa property contained an electrical substation that was separate from the PREPA substation on the property.
- Page 62 of the HRS documentation record stated that the PREPA substation was likely not the origin of PCB contamination based on the age of the PREPA substation relative to the 1979 ban on PCB manufacture. The correspondence available on page 1 of Reference 10 of the HRS documentation record at proposal, quoted above, indicated that the PREPA substation was constructed between 1991 and 1992.

Regarding the PREPA substation as a potential contributor to PCB contamination, as explained in section 3.13.3, Surface Water Migration Pathway – Attribution, the PREPA substation was built after 1979 and after the U.S. ban on PCBs had occurred. The HRS documentation record at proposal indicates on page 12 that "[i]n, 1989, Ochoa Fertilizer Co. donated approximately 1 acre of land to the Puerto Rico Electric Power Authority (PREPA).… The substation was constructed on the property between 1991 and 1992." The PREPA substation was not considered a likely contributor to the PCB contamination present due to documentation indicating that the PREPA substation was built following the ban on PCB manufacturing in the U.S. in 1979.

In addition, as explained in section 3.13.3, Surface Water Migration Pathway – Attribution, of this support document, the PCB contamination evaluated was not considered related to the PREPA substation based on soil sampling and analysis. Page 62 of the HRS documentation record at proposal, quoted above, explains that Aroclor-1260 was not detected in soil samples collected adjacent to the PREPA substation. Page 62 of the HRS documentation record at proposal also discusses that while Aroclor-1260 was detected near the PREPA substation in a surface soil sample 0642-S12, "the reported concentration (7.8 J µg/kg) is relatively low estimated value below the sample reporting detection limit." Hence, sampling data also indicated that the PREPA substation was not a likely source of Aroclor-1260 because Aroclor-1260 was not detected in the vicinity of the PREPA substation.

Regarding the commenter's assertion that the PREPA infrastructure is a likely source of PCBs based on a FEMA report[37] acknowledging discharges following hurricane damage, the FEMA document is discussing existing conditions, concerns, and recovery from Hurricane Maria and does not specifically discuss the PREPA substation located near the edge of the eastern lot boundary, as discussed in section 3.13.3, Surface Water Migration Pathway – Attribution, of this support document. Page 69 of the FEMA report is discussing substations in general as substations pertain to hazardous substances and safety and occupational health in the report, which is overall discussing environmental assessment for utility repair and replacement. The cited page of the document does not discuss site-specific information or include discussion about whether any particular electrical substation or utility contains PCBs or has impacted the environment.

Regarding the presence of other possible contributors or origins of the contamination scored, no other known or historical sources of inorganic analytes, PAHs, or PCBs upgradient within 1 mile of the eastern lot were identified during the HRS assessment of the Site. The lack of other possible contributors and/or origins is supported by the features of the eastern lot, as explained in the HRS documentation record at proposal on page 62 and quoted above. The attribution section of the HRS documentation record at proposal, quoted in part above, indicated that the eastern lot is surrounded to the north, east, and south by the Guánica State Forest, and the forest land, which lies upslope of the eastern lot, has never been developed. In addition, as discussed above and in section 3.13.3, Surface Migration Pathway – Attribution, of this support document, to establish the presence of observed contamination and to establish the presence of contamination in Source 1, locations upgradient of AOC A and Source 1 were sampled including an upgradient location north of the eastern lot. The samples are listed in Table 1 and on Figure 3 of the HRS documentation record at proposal and referenced in Table 14 of the HRS documentation record at proposal and Table 14's associated footnotes. One of these samples, sample 0642-S31, was one of the soil samples collected within the top 2 feet bgs and used to establish the background levels for

[37] The report cited by the commenter, U.S. Department of Homeland Security, FEMA Region II, Programmatic Environmental Assessment, Utility Repair, Replacement, and Realignment, Commonwealth of Puerto Rico, DR-4339-PR, August 2020, is available online at: https://www.fema.gov/sites/default/files/2020-08/fema_ea_puerto-rico_utility-repair-replacementrealignment_guidedbook_august-2020.pdf

AOC A. Impacts from other industries are likely accounted for in the background levels established for evaluating AOC A and Source 1. Further, the samples from residential properties included in the AOC are located less than 600 feet from the approximate end of the eastern lot boundary as presented on Figure 3 of the HRS documentation record at proposal. Additionally, even if the observed contamination samples on the residential properties were not included in the AOC, the final HRS site score would remain above 28.50.

Regarding the landfill referred to by the commenter as a possible source of contamination, this possible landfill is already identified as another possible source for the Site in the HRS documentation record at proposal, and attribution of the hazardous substances in the AOC to the Site was appropriately established as discussed above. In addition, as discussed in section 3.13.3, Surface Water Migration Pathway – Attribution, of this support document, and on pages 31 and 32 of the HRS documentation record at proposal, information has not confirmed operation of a landfill by the municipality at this location. Moreover, as presented on Figure 2 of the HRS documentation record at proposal, the location of the landfill identified in the HRS documentation record at proposal is near the southwestern edge of the AOC (near the downgradient end of the AOC), and therefore cannot account for the bulk of the contamination identified in the AOC.

Regarding the AOC delineation, as explained in section 3.14.1, Soil Exposure Component – Likelihood of Exposure/AOC, of this support document, the AOC was delineated in accordance with the instructions outlined in the HRS based on observed contamination samples. The 17 soil samples utilized to delineate the AOC were determined to meet observed contamination criteria. As discussed above and on pages 61 and 62 of the HRS documentation record at proposal, the hazardous substances in these samples were determined to be related to the Ochoa operations, and other possible sources were not identified upslope within 1 mile of the eastern lot. Additionally, as explained above, the concentration gradient displaying higher concentrations near the center of the eastern lot and lower but significantly above background concentrations farther from the center of the property are consistent with the likely migration of contamination. As noted on page 62 of the HRS documentation record, quoted above, "lands west of the property, including … the residential properties on Calle José Nazario, came to be contaminated by runoff from the Ochoa property, including settling pond effluent." Hence, the HRS documentation record at proposal explained and supported the continuity of the contamination scored and provided a rationale for the contamination at the residential properties scored, which provide additional support for the AOC delineation. On the subject of contaminant fingerprints and the alleged differences in contaminants present in samples on the eastern lot and in samples S01 and S02, see discussion in section 3.11, Association of Hazardous Substances with Source(s), of this support document, which explains that the pattern of contaminants detected (including concentrations elevated above background that did not meet observed contamination criteria) actually further supports the link between zinc scored at S01 and S02 and the Site.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.14.3 Resident Individual

Comment: Guánica-Caribe stated that "[i]f EPA appropriately limits the extent of the AOC to the location of S04" the residential properties would not be a part of the AOC. Guánica-Caribe asserted that if the residential properties were not located in the AOC, then the resident individual factor value would decrease from 45 to 0. In commenting on the resulting scoring changes, Guánica-Caribe asserted that if the resident individual factor value and the terrestrial sensitive environments factor value were revised, then the appropriate soil exposure component score would be 18.72.

Response: The resident individual factor value was appropriately calculated based on the resident residing in the AOC. Residential properties are located within the AOC, allowing for consideration of the residents at these properties as targets. The adequacy of delineating the AOC to extend to sample locations S01 and S02 and include residential properties is discussed in detail in section 3.14.1, Soil Exposure Component – Likelihood of Exposure/AOC, of this support document.

In evaluating target populations, HRS Section 5.1.1.3, *Targets*, instructs a scorer, in part, to:

> Evaluate the targets factor category for the resident population threat based on five factors: resident individual, resident population, workers, resources, and terrestrial sensitive environments.
>
> In evaluating the targets factor category for the resident population threat, count only the following as targets:
>
> - Resident individual – a person living or attending school or day care on a property with an area of observed contamination *and* whose residence, school, or day care center, respectively, is on or within 200 feet of the areas of observed contamination.
> - Worker – a person working on a property with an area of observed contamination *and* whose workplace area is on or within 200 feet of the area of observed contamination.…

HRS Section 5.1.1.3.1, *Resident Individual*, then states to:

> Evaluate this factor based on whether there is a resident individual, as specified in section 5.1.1.3, who is subject to Level I or Level II concentrations.
>
> First, determine those areas of observed contamination subject to Level I concentrations and those subject to Level II concentrations as specified in sections 2.5.1 and 2.5.1. Use the health-based benchmarks from Table 5-3 in determining the level of contamination. Then assign a value to the resident individual factor as follows:
>
> - Assign a value of 50 if there is at least one resident individual for one or more areas subject to Level I concentrations.
> - Assign a value of 45 if there is no such resident individuals, but there is at least one resident individual for one or more areas subject to Level II concentrations.

HRS Section 5.1.1.3.2, *Resident population*, indicates, in part, to:

> Evaluate resident population based on two factors: Level I concentrations and Level II concentrations. Determine which factor applies as specified in Sections 2.5.1 and 2.5.2, using the health-based benchmarks from Table 5-3. Evaluate populations subject to Level I concentrations as specified in section 5.1.1.3.2.1 and populations subject to Level II concentrations as specified in Section 5.1.1.3.2.2.
>
> Count only those persons meeting the criteria for resident individual as specified in section 5.1.1.3. In estimating the number of people living on property with an area of observed contamination, when the estimate is based on the number of residences, multiply each residence by the average number of persons per residence for the county in which the residence is located.

In explaining the resident individual scoring, page 72 of the HRS documentation record proposal states:

> Contamination is documented in the surface soil (i.e., 0–2 ft bgs) throughout the former Ochoa property and on the residential properties along Calle José Nazario (i.e., Residences A and C, see **Figure 3 and Figure 6**). An AOC is documented by surface sample locations that meet the criteria for observed contamination and coincides with Source 1 based on these surface soil sample results [Ref. 67, p. 1; **Figure 6**]. In 2019, EPA personnel contacted the owner of Residence B, and the owner of Residence C; both reside in their respective houses [Ref. 67, p. 2]. Residence B lies between Residence A (where sample 0642-S01 was collected) and Residence C (where sample 0642-S02 was collected) (see **Figures 3 and 6**). As Residence B is completely covered in concrete (i.e., an impervious surface), a surface soil sample was not collected, the

> residence is not considered part of the AOC per the HRS, and the resident is not counted as a target [Ref. 1, Sections 5.1.0 and 5.1.13; 67, p. 1]. Observation made by EPA on multiple visits indicates that Residence A is unoccupied [Ref. 67, p. 2].
>
> The occupied property of Residence C on Calle José Nazario is within the AOC, and the residence on the property is located within 200 feet of observed contamination, (i.e., zinc at sample location 0642-S02) (see **Figure 3**). The concentration of zinc documented within 200 feet of the residence was significantly above background (333 mg/kg), but below the applicable HRS benchmark for the Soil Exposure Component (Non-Cancer Risk value of 23,500 mg/kg) [Ref. 2, p. 44; 14, p. 11; 58, pp. 3–6, 14, 85; 59, pp. 6, 22]. Based on these considerations, there is at least one documented resident individual (i.e., the homeowner of Residence C) living on a property within an AOC and within 200 feet of contamination subject to Level II actual contamination, and a Resident Individual Factor value of 45 is applicable [Ref. 1, section 5.1.1.3 and 5.1.1.3.1].

Page 73 of the HRS documentation record at proposal states:

> A portion of the occupied property of Residence C on Calle José Nazario is within the AOC, and the residence on the property is located within 200 feet of observed contamination (i.e., zinc at sample location 0642-S02) (see **Figures 3 and 6**). In 2019, EPA contacted the owner of Residence C and confirmed that the property is occupied as a residence [Ref. 67, p. 2]. Although the reported concentration of zinc at Residence C (333 mg/kg) is significantly above background, it is below the applicable HRS benchmark for the Soil Exposure Component (Non-Cancer Risk value of 23,500) [**Table 16**; Ref. 2, p. 44].… Based on these considerations, there is one documented resident individual (i.e., the homeowner of Residence C) living on a property within the AOC and therefore subject to Level II actual contamination [Ref. 1, section 5.1.1.3.2].

As Residence C is occupied with one individual and located within the AOC, the HRS scoring of the Site correctly included the resident at Residence C in the resident individual calculation. As quoted above, HRS Section 5.1.1.3.1 instructs to evaluate a resident individual factor value based on the level of contamination associated with at least one resident. In evaluating this factor, the HRS documentation record at proposal, quoted above, determined that, of the three residences in the AOC, one resident is present in Residence C within the AOC and within 200 feet of an observed contamination sample consistent with the requirements in HRS Section 5.1.1.3 for identifying a target that is a resident individual. The HRS scoring appropriately excluded a residence because it was unoccupied and another residence that was surrounded by an impervious surface (i.e., concrete) and did not meet the applicable definition in HRS Section 5.1.1.3. As indicated on page 73 of the HRS documentation record at proposal, the concentration of zinc (i.e., 333 mg/kg) in the sample from the Residence C property (i.e., sample S02) is below the applicable health-based benchmark (i.e., Non-Cancer Risk value of 23,500 for zinc). The observed contamination sample from Residence C was evaluated as subject to Level II concentrations based on the concentration below the benchmark following the HRS criteria. The resulting determination of a Resident Individual Factor value of 45 in the HRS documentation record at proposal due to one resident subject to Level II concentrations is appropriate and consistent with the HRS Section 5.1.1.3.1 requirements as presented above.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.14.4 Terrestrial Sensitive Environments

Comment: Guánica-Caribe submitted several comments calling into question the scoring of terrestrial sensitive environments for the soil exposure component. Guánica-Caribe commented that the HRS documentation record at proposal included unsupported assumptions about the ability of new-growth upland forest to "be habitat for terrestrial species known to prefer old growth or coastal forest." It asserted that the characterization of sensitive terrestrial environments should be revised to reflect the species located on the eastern lot and that "could realistically be exposed to contamination on the Eastern Lot." Guánica-Caribe commented that the supporting documentation did not contain observations of the species associated with the scored terrestrial sensitive

environments on the eastern lot. Guánica-Caribe asserted that additional information should be considered in the assessment of whether these terrestrial sensitive environments are appropriate for HRS scoring.

Guánica-Caribe commented that the Yellow-shouldered blackbird, the Puerto Rican nightjar, and the Puerto Rican boa habitats were incorrectly scored as terrestrial sensitive environments and the removal of these habitats from the HRS scoring would reduce the soil exposure terrestrial sensitive environments factor value from 375 to 150. Guánica-Caribe asserted that, if its requested changes, in addition to the change to scoring of the terrestrial sensitive environments factor, were incorporated, "[t]he resulting Soil Exposure Component score incorporating these changes would be 18.72."

Response: The HRS documentation record appropriately evaluated terrestrial sensitive environments at the Site. The HRS documentation record at proposal properly evaluated this factor based on the presence of five Federal designated endangered or threatened species habitats on the AOC at the Site.

The rationale for this response and responses to Guánica-Caribe's detailed comments on this factor are addressed in the below subsections:

- 3.14.4.1 Yellow-shouldered Blackbird Habitat
- 3.14.4.2 Puerto Rican Nightjar Habitat
- 3.14.4.3 Puerto Rican Boa Habitat
- 3.14.4.4 Plant Species

3.14.4.1 Yellow-shouldered Blackbird Habitat

Comment: Guánica-Caribe argued that scoring the yellow-shouldered blackbird habitat is inappropriate, making the following assertions:

- Because the yellow-shouldered blackbird prefers coastal trees, it is unlikely to be present in the forest area of the eastern lot.[38]
- Information to establish that coastal trees, the preferred habitat of the yellow-shouldered blackbird, are present within the eastern lot or the AOC has not been included.[39]
- The yellow-shouldered blackbird would have limited exposure to the Site, if present, because the main mode of exposure would be its diet.[40]
- Given that the yellow-shouldered blackbird consumes insects in mid-air, its exposure to soil would be limited.[41]
- The scoring of the yellow-shouldered blackbird habitat is incorrect and should not be included in the HRS evaluation because the species has a limited exposure to soil through its food web and feeding habits.

Response: The HRS documentation record at proposal appropriately scored the habitat known to be used by the yellow-shouldered blackbird as a terrestrial sensitive environment at the Site.

In outlining the instructions for scoring a target in the soil exposure component, HRS Section 5.1.1.3 states:

[38] Guánica-Caribe provided the following citation: https://www.fws.gov/southeast/pdf/fact-sheet/yellow-shouldered-blackbird-english.pdf.
[39] Guánica-Caribe provided the following citation: https://www.fws.gov/southeast/pdf/fact-sheet/yellow-shouldered-blackbird-english.pdf.
[40] Guánica-Caribe provided the following citation: https://www.fws.gov/southeast/pdf/fact-sheet/yellow-shouldered-blackbird-english.pdf.
[41] Guánica-Caribe provided the following citation: https://www.fws.gov/southeast/pdf/fact-sheet/yellow-shouldered-blackbird-english.pdf.

> Evaluate the targets factor category for the resident population threat based on five factors: Resident individual, resident population, workers, resources, and terrestrial sensitive environments.
>
> In evaluating the targets factor category for the resident population threat, count only the following as targets:…
>
> - Terrestrial sensitive environments located on an area of observed contamination, as specified in section 5.1.1.

HRS Section 5.1.1.3.5, *Terrestrial sensitive environments,* instructs to:

> Assign value(s) from Table 5-5 to each terrestrial sensitive environment that meets the eligibility criteria of section 5.1.1.3.

HRS Table 5-5, Terrestrial Sensitive Environments Rating Values contains the following listed sensitive environment and notes that it receives a value of 75: "Terrestrial habitat known to be used by Federal designated or proposed threatened or endangered species."

On page 75, the HRS documentation record at proposal provides the following explanation related to the scoring of the yellow-shouldered blackbird habitat as a sensitive environment on the AOC:

> The Guánica State Forest (a.k.a. Bosque Estatal de Guánica), a state natural reserve and UNESCO Biosphere Reserve, borders the former Ochoa property directly to the north-northeast, east, and south [Ref. 33, p. 4, 6]. The Guánica State Forest is documented to be habitat used by two Federal-designated endangered bird species: the Yellow-shouldered blackbird (*Agelaius xanthomus*) and the Puerto Rican nightjar (*Caprimulgus noctitherus*; also referred to as *Anstrostomus noctitherus*) [Ref. 27, pp. 1–2, 8, 52; 33, pp. 4, 6, 7, 14, 19]. Based on the 1966 U.S. Geological Society (USGS) topographical map that depicted both the Ochoa facility and the boundary of the Guánica State Forest at that time, the AOC documented by the 2019 sampling event extends beyond the 1966 facility boundary and into an area that was part of the state forest at that time [Figure 1; 85, p. 1]. Currently, the AOC is densely vegetated and overgrown with the same plant species as the Guánica State Forest [Figure 3; Ref. 27, p. 1].…
>
> Based on observations made during the 2019 sampling activities, consultation with the FWS, and review of available aerial imagery, the vacant land of the former Ochoa facility eastern lot has been naturally reforested [Ref. 14, pp. 74–76, 102; 27, p. 38; 39, pp. 2–14]. EPA personnel did not observe any natural or man-made barriers (i.e., berms, fences, or walls) separating the Guánica State Forest to the east and the lands of the former Ochoa facility [Ref. 14, p. 104]. In addition, review of available aerial photos dating from 1977 to 2019 do not document clear separation of the forest and the Ochoa property or show evidence of barriers such as fences, walls, or berms on the eastern property border (i.e., the reforestation of the property is a natural extension of the forest habitat and there are no impediments to the free range of movement of animal species from Guánica State Forest onto the AOC at the former Ochoa property) [Ref. 38, pp. 3–5; 39, pp. 2–14]. The forested areas in southwestern Puerto Rico host one of the largest known populations of Yellow-shouldered blackbird, which feeds on plants and insects and uses dry grass for building nests [Ref. 27, pp. 52–53]. The Yellow-shouldered blackbird, a federal endangered species, is found in the Guánica Biosphere reserve, which borders the former Ochoa property to the north, east and south. Because there is no barrier, natural or manmade, surrounding the site and separating the vacant, naturally-reforested former Ochoa facility from the Biosphere Reserve, it is likely the Yellow-shouldered Blackbird has freedom of movement and is likely to use the vegetation at the site as habitat [Ref. 27, p. 2].

> Based on the above considerations, the reforested portion of the Ochoa eastern lot property is evaluated as habitat known to be used by five Federal-designated endangered or threatened species (three animal species and two plant species); the following terrestrial sensitive environments are located on this reforested portion of the AOC [Ref. 1, Sections 5.1.1.3 and 5.1.1.3.5]:
>
> | Area Letter | Terrestrial Sensitive Environment | Value |
> |---|---|---|
> | A | Yellow-shouldered Blackbird Habitat | 75 |
> | … | | |

On pages 7 and 19 of Reference 33 of the HRS documentation record at proposal, an April 2015, USDA Bird Checklist for the Guánica Biosphere Reserve in Puerto Rico, cited in the quoted text above, indicate that the yellow-shouldered blackbird has a status of "Resident, breeding not proved but likely" in the adjacent Guánica Biosphere Reserve.

The HRS documentation record at proposal explained the rationale for why the features of the Site were an appropriate habitat for the yellow-shouldered blackbird and why the bird was known to occur in the area. Page 75 of the HRS documentation record at proposal, quoted above, noted specifically that: the bird is documented in the adjacent biosphere reserve that partially borders the eastern lot; the Site has been reforested; there are no known barriers to impede the movement of the bird (i.e., berms, fences, or walls); the bird is a Federal-designated endangered bird species; and a large population of the bird is present in the forested areas in southwestern Puerto Rico. Using the above information, the HRS scoring of the Site assigned a value of 75 from HRS Table 5-5, Sensitive Environments Ratings Values, to the habitat known to be used by an endangered species (i.e., the yellow-shouldered blackbird habitat) at the Site in the HRS documentation record at proposal.

Regarding a determination of the exact risk of exposure to Site contamination via ingestion for the yellow-shouldered blackbird, this is not an HRS scoring consideration and beyond the scope of the HRS as a screening tool. As explained in section 3.8, Risk, of this support document, the HRS is not a site-specific risk assessment; rather, it is a screening tool used to help the EPA determine priorities for cleanup, and possible response activities, and represents relative risk among sites undergoing HRS evaluation. Actual determinations of site-specific risk that is posed to human health or the environment is determined during a different stage of the Superfund process.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.14.4.2 Puerto Rican Nightjar Habitat

Comment: Guánica-Caribe submitted comments calling into question whether scoring the Puerto Rican nightjar is appropriate. Guánica-Caribe commented that the Puerto Rican nightjar is an insectivore that feeds on insects in mid-air.[42] It argued that the Puerto Rican nightjar prefers mature growth forest unlike the new growth at the eastern lot of the Site, suggesting the bird is unlikely to nest in the forest at the eastern lot. Guánica-Caribe therefore concluded that the scoring of the eastern lot as part of the Puerto Rican nightjar's habitat is incorrect because the Site is inconsistent with the bird's preferred nesting habitat and its mid-air feeding patterns.

Response: The HRS documentation record at proposal appropriately evaluated the habitat known to be used by the Puerto Rican nightjar as a terrestrial sensitive environment at the Site.

HRS Section 5.1.1.3 provides directions for evaluating targets in the soil exposure component and states:

> Evaluate the targets factor category for the resident population threat based on five factors: Resident individual, resident population, workers, resources, and terrestrial sensitive environments.

[42] Guánica-Caribe provided the following citations: https://www.fws.gov/southeast/pdf/fact-sheet/puerto-rican-nightjar-english.pdf and https://www.beautyofbirds.com/nightjarfeedinghabits.html.

> In evaluating the targets factor category for the resident population threat, count only the following as targets: …
>
> - Terrestrial sensitive environments located on an area of observed contamination, as specified in section 5.1.1.

HRS Section 5.1.1.3.5, *Terrestrial sensitive environments,* instructs to:

> Assign value(s) from Table 5-5 to each terrestrial sensitive environment that meets the eligibility criteria of section 5.1.1.3.

HRS Table 5-5, Terrestrial Sensitive Environments Rating Values contains the following listed sensitive environment and notes that it receives an assigned value of 75: "Terrestrial habitat known to be used by Federal designated or proposed threatened or endangered species."

On page 75, the HRS documentation record at proposal provides the following explanation related to the scoring of the Puerto Rican nightjar habitat as a sensitive environment on the AOC:

> The Guánica State Forest (a.k.a. Bosque Estatal de Guánica), a state natural reserve and UNESCO Biosphere Reserve, borders the former Ochoa property directly to the north-northeast, east, and south [Ref. 33, p. 4, 6]. The Guánica State Forest is documented to be habitat used by two Federal-designated endangered bird species: the Yellow-shouldered blackbird (*Agelaius xanthomus*) and the Puerto Rican nightjar (*Caprimulgus noctitherus*; also referred to as *Anstrostomus noctitherus*) [Ref. 27, pp. 1–2, 8, 52; 33, pp. 4, 6, 7, 14, 19].… Currently, the AOC is densely vegetated and overgrown with the same plant species as the Guánica State Forest [**Figure 3**; Ref. 27, p. 1]. Consultation with the FWS-CES confirms that the Ochoa property is suitable habitat for the Puerto Rican nightjar and another Federal-designated endangered species, the Puerto Rican boa (*Epicrates inornatus*), and that both species are likely to occur on the naturally reforested land of the former Ochoa facility property [Ref. 27, pp. 1, 8, 38].…
>
> Based on observations made during the 2019 sampling activities, consultation with the FWS, and review of available aerial imagery, the vacant land of the former Ochoa facility eastern lot has been naturally reforested [Ref. 14, pp. 74–76, 102; 27, p. 38; 39, pp. 2–14]. EPA personnel did not observe any natural or man-made barriers (i.e., berms, fences, or walls) separating the Guánica State Forest to the east and the lands of the former Ochoa facility [Ref. 14, p. 104]. In addition, review of available aerial photos dating from 1977 to 2019 do not document clear separation of the forest and the Ochoa property or show evidence of barriers such as fences, walls, or berms on the eastern property border (i.e., the reforestation of the property is a natural extension of the forest habitat and there are no impediments to the free range of movement of animal species from Guánica State Forest onto the AOC at the former Ochoa property) [Ref. 38, pp. 3–5; 39, pp. 2–14].…
>
> Based on the above considerations, the reforested portion of the Ochoa eastern lot property is evaluated as habitat known to be used by five Federal-designated endangered or threatened species (three animal species and two plant species); the following terrestrial sensitive environments are located on this reforested portion of the AOC [Ref. 1, Sections 5.1.1.3 and 5.1.1.3.5]:

Area Letter	Terrestrial Sensitive Environment	Value
A	…	
	Puerto Rican Nightjar Habitat	75

Reference 27 of the HRS documentation record at proposal is a project note documenting communications with the FWS Caribbean Ecological Services Field Office in which the approximate area of observed contamination at the Site was communicated to specialists from the office. Discussion with specialists from the office documented on page 1 of Reference 27 of the HRS documentation record at proposal, cited in the quoted text above, includes that:

> Mr. Lopez [an Ecologist and Contaminant Specialist at FWS Caribbean Ecological Services Field Office] also confirms that the vegetated, naturally reforested land of the former Ochoa facility property is suitable habitat for the federal endangered Puerto Rican Nightjar and Puerto Rican Boa, and both species are likely to occur at the former Ochoa facility property (i.e. in an area of observed contamination).

The email correspondence with the same FWS employee on page 38 of Reference 27, cited to support the nightjar habitat states:

> Well in addition to the PR nightjar, which may use the site, you need to include the PR boa which can be found in abandoned buildings, brush piles, rubble mounds, etc. I also consulted with out [sic] botanist, and since the site has naturally reforested there may be the following listed plants, Eugenia wooburyana, Ottoschulzia, Trichilia, Catesbaea y Varronia rupicola. Especially Catesbaea y Varronia since these species are dispersed by birds.

Pages 7 and 14 of Reference 33 of the HRS documentation record at proposal, an April 2015, USDA Bird Checklist for the Guánica Biosphere Reserve in Puerto Rico, cited in the text quoted above, indicate that the Puerto Rican nightjar has a status of "Resident, breeding proved" in the adjacent Guánica Biosphere Reserve. Page 3 of this Reference 33 states in its abstract that:

> This research note compiles 43 years of research and monitoring data to produce the first comprehensive checklist of the dry forest avian community found within the Guánica Biosphere Reserve. We provide an overview of the reserve along with sighting locales, a list of 185 birds with their resident status and abundance, and a list of the available bird habitats….

Thus, the HRS documentation record at proposal provided sufficient supporting information to explain why the Site may be a habitat for the Puerto Rican nightjar, relying on correspondence with an Ecologist and Contaminant Specialist at FWS Caribbean Ecological Services Field Office and the current features of the eastern lot. The discussion on page 75 of the HRS documentation record, quoted above, indicated that the Puerto Rican nightjar is endangered; the federal-endangered status of the bird is not disputed by the commenter. The HRS documentation record at proposal on page 75 included a discussion of the current eastern lot, explaining that the property was suitable habitat due to the natural reforestation and dense vegetation present. Furthermore, the bird is identified as a resident in the adjacent Guánica Biosphere Reserve as quoted above from Reference 33. Hence, the habitat known to be used by the Puerto Rican nightjar was appropriately scored as a sensitive environment at the Site and properly assigned the corresponding value of 75 from HRS Table 5-5.

Regarding a determination of the exact risk of exposure to Site contamination via ingestion for the Puerto Rican nightjar, this is not an HRS scoring consideration and beyond the scope of the HRS as a screening tool. As explained in section 3.8, Risk, of this support document, the HRS is not a site-specific risk assessment; rather, it is a screening tool used to help the EPA determine priorities for cleanup, and possible response activities, and represents relative risk among sites undergoing HRS evaluation. Actual determinations of site-specific risk that is posed to human health or the environment is determined during a different stage of the Superfund process.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.14.4.3 Puerto Rican Boa Habitat

Comment: Guánica-Caribe asserted that the Puerto Rican boa habitat is incorrectly scored. Guánica-Caribe made the following assertions regarding the presence and scoring of the Puerto Rican boa habitat:

- The Guánica State Forest is categorized as subtropical dry forest, while the Puerto Rican Boa is mostly found in the northwestern karst region of Puerto Rico and can be present in rain forests.[43]
- Features of the boa's preferred habitat, such as abandoned buildings, brush piles, and rubble mounds, were not identified as present at the Site in the available supporting information.
- The Puerto Rican boa would have limited dermal exposure to the eastern lot contamination because its scales function as a protective barrier.
- Assessing the risk to the Puerto Rican boa would be difficult due to the limited toxicity information available for reptiles.

Response: The Puerto Rican boa habitat was appropriately evaluated as a terrestrial sensitive environment in the soil exposure component of the soil exposure and subsurface intrusion pathway in the HRS documentation record at proposal.

HRS Section 5.1.1.3 states:

> Evaluate the targets factor category for the resident population threat based on five factors: Resident individual, resident population, workers, resources, and terrestrial sensitive environments.
>
> In evaluating the targets factor category for the resident population threat, count only the following as targets:…
>
> - Terrestrial sensitive environments located on an area of observed contamination, as specified in section 5.1.1.

HRS Section 5.1.1.3.5, *Terrestrial sensitive environments,* instructs to:

> Assign value(s) from Table 5-5 to each terrestrial sensitive environment that meets the eligibility criteria of section 5.1.1.3.

HRS Table 5-5, Terrestrial Sensitive Environments Rating Values contains the following listed sensitive environment and notes that it receives an assigned value of 75: "Terrestrial habitat known to be used by Federal designated or proposed threatened or endangered species."

On page 75, the HRS documentation record at proposal provides the following explanation related to the scoring of the Puerto Rican boa habitat as a sensitive environment on the AOC:

> Currently, the AOC is densely vegetated and overgrown with the same plant species as the Guánica State Forest [**Figure 3**; Ref. 27, p. 1]. Consultation with the FWS-CES confirms that the Ochoa property is suitable habitat for the Puerto Rican nightjar and another Federal-designated endangered species, the Puerto Rican boa (*Epicrates inornatus*), and that both species are likely

[43] Guánica-Caribe provided the following citations: https://www.nwf.org/Educational-Resources/Wildlife-Guide/Reptiles/Puerto-Rican-Boa and https://www.drna.pr.gov/historico-2006-2015/oficinas/arn/recursosvivientes/nsf/publicaciones/PRSWASFS_STRAT_APP_22%20OCT2010%20gul%20-%20FINAL.pdf.

> to occur on the naturally reforested land of the former Ochoa facility property [Ref. 27, pp. 1, 8, 38].…
>
> Based on observations made during the 2019 sampling activities, consultation with the FWS, and review of available aerial imagery, the vacant land of the former Ochoa facility eastern lot has been naturally reforested [Ref. 14, pp. 74–76, 102; 27, p. 38; 39, pp. 2–14]. EPA personnel did not observe any natural or man-made barriers (i.e., berms, fences, or walls) separating the Guánica State Forest to the east and the lands of the former Ochoa facility [Ref. 14, p. 104]. In addition, review of available aerial photos dating from 1977 to 2019 do not document clear separation of the forest and the Ochoa property or show evidence of barriers such as fences, walls, or berms on the eastern property border (i.e., the reforestation of the property is a natural extension of the forest habitat and there are no impediments to the free range of movement of animal species from Guánica State Forest onto the AOC at the former Ochoa property) [Ref. 38, pp. 3–5; 39, pp. 2–14].…
>
> Based on the above considerations, the reforested portion of the Ochoa eastern lot property is evaluated as habitat known to be used by five Federal-designated endangered or threatened species (three animal species and two plant species); the following terrestrial sensitive environments are located on this reforested portion of the AOC [Ref. 1, Sections 5.1.1.3 and 5.1.1.3.5]:

Area Letter	Terrestrial Sensitive Environment	Value
A	…	
	Puerto Rican Boa Habitat	75

Reference 27 of the HRS documentation record at proposal is a project note documenting communications with the FWS Caribbean Ecological Services Field Office in which the approximate area of observed contamination at the Site was communicated to specialists from the office. Discussion with specialists from the office documented on page 1 of Reference 27 of the HRS documentation record at proposal, cited in the quoted text above, includes that:

> Mr. Lopez [an Ecologist and Contaminant Specialist at FWS Caribbean Ecological Services Field Office] also confirms that the vegetated, naturally reforested land of the former Ochoa facility property is suitable habitat for the federal endangered Puerto Rican Nightjar and Puerto Rican Boa, and both species are likely to occur at the former Ochoa facility property (i.e. in an area of observed contamination).

The email correspondence with an FWS employee on page 38 of Reference 27, cited to support the boa habitat states:

> Well in addition to the PR nightjar, which may use the site, you need to include the PR boa which can be found in abandoned buildings, brush piles, rubble mounds, etc. I also consulted with out [sic] botanist, and since the site has naturally reforested there may be the following listed plants, Eugenia wooburyana, Ottoschulzia, Trichilia, Catesbaea y Varronia rupicola. Especially Catesbaea y Varronia since these species are dispersed by birds.

Page 8 of Reference 27 includes part of a FWS project summary letter with a list of threatened and endangered species that may occur in the proposed project location, and/or may be affected by the proposed project. Page 8 indicates that Puerto Rican Boa is a Federal-designated endangered species.

The HRS documentation record at proposal evaluated the habitat known to be used by the Puerto Rican boa based on the supporting information establishing that Federal-designated Puerto Rican boa may use the Site. Using the information on page 8 of Reference 27 indicating that the species is Federal-designated

endangered and the correspondence with an Ecologist and Contaminant Specialist at FWS Caribbean Ecological Services Field Office on pages 1 and 38 of Reference 27 indicating that the Site includes features where the Puerto Rican boa can be found, the HRS documentation record evaluated the habitat known to be used by the Federal-designated endangered Puerto Rican boa as at the Site. Accordingly, the boa habitat was appropriately assigned the corresponding value of 75 from HRS Table 5-5 for the applicable terrestrial sensitive environment.

Regarding comments that the exposure the reptile may face is limited due to its biology or limited data are available to assess the risk that the reptile may experience, this is not an HRS scoring consideration and beyond the scope of the HRS as a screening tool. As explained in section 3.8, Risk, of this support document, the HRS is not a site-specific risk assessment; rather, it is a screening tool used to help the EPA determine priorities for cleanup, and possible response activities, and represents relative risk among sites undergoing HRS evaluation. Actual determinations of site-specific risk that is posed to human health or the environment is determined during a different stage of the Superfund process.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

3.14.4.4 Plant Species

Comment: Guánica-Caribe called into question evidence for the two Federal-designated endangered or threatened plant species habitats scored as terrestrial sensitive environments. In noting the three animal species habitats and two plant species scored (*Eugenia woodburyana* and *Varronia rupicola*) in the HRS documentation record at proposal, Guánica-Caribe claimed that "[t]he HRS Package does not appear to contain documentation that any of the species associated with these Terrestrial Sensitive Environments have been observed on the Eastern Lot."

Response: The Federal-designated endangered *Eugenia woodburyana* plant species and the Federal-designated threatened *Varronia rupicola* plant species habitats were correctly scored as terrestrial sensitive environments at the Site in the HRS documentation record at proposal.

HRS Section 5.1.1.3 states:

> Evaluate the targets factor category for the resident population threat based on five factors: Resident individual, resident population, workers, resources, and terrestrial sensitive environments.
>
> In evaluating the targets factor category for the resident population threat, count only the following as targets:…
>
> - Terrestrial sensitive environments located on an area of observed contamination, as specified in section 5.1.1.

HRS Section 5.1.1.3.5, *Terrestrial sensitive environments,* instructs to:

> Assign value(s) from Table 5-5 to each terrestrial sensitive environment that meets the eligibility criteria of section 5.1.1.3.

HRS Table 5-5, Terrestrial Sensitive Environments Rating Values contains the following listed sensitive environment and notes that it receives an assigned value of 75: "Terrestrial habitat known to be used by Federal designated or proposed threatened or endangered species."

As quoted above, HRS sections 5.1.1.3 and 5.1.1.3.5 instruct first to evaluate terrestrial sensitive environments located on an AOC at the Site, and then to assign a value from HRS Table 5-5 to listed sensitive environments on the AOC. HRS Table 5-5 indicates that a habitat known to be used by Federal-designated endangered or

threatened species is assigned a value of 75 for HRS scoring. Page 75 of the HRS documentation record at proposal explained the application of this requirement during the HRS scoring of the Site. Page 75 of the HRS documentation record at proposal states:

> Further, FWS states that the following Federal-designated endangered and threatened plant species, respectively, are likely to be found at the Ochoa property based on the natural reforestation extending from the adjacent state forest onto the property and seed dispersion by birds: *Eugenia woodburyana* (no common name), and *Varronia rupicola* (no common name) [Ref. 27, pp. 1, 9, 38, 55, 57].

Page 75 of the HRS documentation record at proposal continues:

Area Letter	Terrestrial Sensitive Environment	Value
A	…	
	Eugenia woodburyana	75
	Varronia rupicola	75

To support this scoring and explain why the plant species are likely to exist on the AOC, the HRS documentation record at proposal cited Reference 27. Reference 27 of the HRS documentation record at proposal is a project note documenting communications with the FWS Caribbean Ecological Services Field Office in which the approximate area of observed contamination at the Site was communicated to specialists from the office. Discussion with specialists from the office documented on Reference 27 page 1 includes that:

> Mr. Lopez [an Ecologist and Contaminant Specialist at FWS Caribbean Ecological Services Field Office] also consulted a FWS botanist, who states the federal threatened plant species Varronia rupicola is very likely to exist at the site, which has naturally reforested, because this species is dispersed by birds. In addition, Mr. Lopez confirmed the federal threatened plant species Eugenia woodburyana, which was provided in the FWS generated listed species report, may occur at the site.

Page 38 of Reference 27 includes statements from an Ecologist and Contaminant Specialist at FWS, noting that these plants are dispersed by birds. This page states:

> I also consulted with out [sic] botanist, and since the site has naturally reforested there may be the following listed plants, Eugenia wooburyana, Ottoschulzia, Trichilia, Catesbaea y Varronia rupicola. Especially Catesbaea y Varronia since these species are dispersed by birds.

Page 9 of Reference 27 includes part of a FWS project summary letter with a list of threatened and endangered species that may occur in the proposed project location, and/or may be affected by the proposed project. Page 9 indicates that *Eugenia woodburyana* is Federal-designated endangered and *Varronia rupicola* is Federal-designated threatened.

The HRS documentation record at proposal and supporting reference indicate that the HRS criteria (i.e., federal classification as endangered or threatened and presence on the AOC) for scoring a habitat known to be used by Federal-designated threatened or endangered species as a terrestrial sensitive environment were met. The plant species are Federal-designated threatened or endangered species as identified on page 75 of the HRS documentation record at proposal and on page 9 of Reference 27. The HRS documentation record at proposal and supporting reference also noted that plant species were likely located on the AOC due to natural reforestation of the AOC. Thus, each of the plant species was appropriately scored as a terrestrial sensitive environment (i.e., a Federal-designated threatened or endangered species habitat) on the AOC and appropriately assigned a value of 75 from HRS Table 5-5.

This comment results in no change to the HRS score and no change in the decision to place the Site on the NPL.

4. Conclusion

The original HRS score for this Site was 56.15. Based on the above responses to public comments, the score remains unchanged. The final scores for the Ochoa Fertilizer Co. site are:

Ground Water:	Not Scored
Surface Water:	100.00
Soil Exposure and Subsurface Intrusion:	51.12
Air Pathway:	Not Scored
HRS Site Score:	56.15

Attachment 1:
Weston Solutions, Inc., Puerto Rico Hurricane Multi-Site Reassessment Logbook, 2018, Excerpt

Puerto Rico Hurricane
multi-Site Reassessment

"Rite in the Rain"®

ALL-WEATHER

ENVIRONMENTAL

No. 550F

DCN: W0571.3B.01573

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ISBN 978-1-932149-50-0

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

ALL-WEATHER
ENVIRONMENTAL FIELD BOOK

Name Weston Solutions, Inc.

Address 205 campus Dr.
Edison NJ 08837

Phone 1 732 417 5800

Project Puerto Rico Hurricane
multi-Site Reassessment

This book is printed on "Rite in the Rain" All-Weather Writing Paper - A unique paper created to shed water and enhance the written image. It is widely used throughout the world for recording critical field data in all kinds of weather. For best results, use a pencil or an all-weather pen.

Specifications for this book:

Page Pattern		Cover Options	
Left Page	Right Page	Polydura Cover	Fabrikoid Cover
Columnar	1/4" Grid	Item No. 550	Item No. 550F

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Reference Page Index

Location Ochoa Fertilizer Date 4/3/18

Project / Client Hurricane Reassessments

0915	DAD and HBR arrive at Ochoa Fertilizer site. located on the east side of Carr Cana Gorda. The gate is locked for facility. A sign states not to create dust because the soil may contain asbestos. PREPA may use the property for emergency purposed (road way) since sign says to stay clear of pathway. Site is located in a mixed commercial/industrial area. a vacant gas station located directly west of the access gate. The whole property is fenced w/ barb wire top. a vehicle inspection facility is also located directly west of the entrance gate. Large overhead power located along roadway. One large cylander AST located at

Denise Driscoll 4/3/18

Location Ochoa Fertilizer Date 4/3/18

Project / Client Hurricane Reassessments

what looks like, the bend in the access road. moving South on Carr Cana Gorda is PAN American Grain Co. (Abonos) Fertilizer &. A sign located on the road states that we are now in a ~~Natural~~ Reserve. International of Guanica. South of the site on the west side of road is vacant/occupied residential homes. a sign further down (south) road states the area is a zone of recreational fishing but ~~we can~~ cannot crab here. ONLY for recreational fishing - as stated by US Fish & Wild life Services. Another small sign on roadway says Area Protected by DRNA. The Pan Fertilizer facility looks to have significant hurricane damage - perhaps only running at partial capacity.

Denise Driscoll 4/3/18

Location Ochoa Fertilizer Date 4/3/18

Project / Client Hurricane Reassessments

The topography is flat and any significant over land flow would go into Guanica Bay located west of site. Numerous commercial / industrial facilities between site and the bay. There are no storm drains along the roadway Carr Cana Gorda. The site looks to be heavily vegetated with a sole, well maintained access road (dirt). No wetlands are seen from roadway onto site. The site is located in a Karst region based on outcrops of limestone seen along the road way. North along the road is what we believe is the site boundary. The site fence may only be along the street and not follow the site property boundary. The is a barb wire

Denise Driscoll 4/3/18

Location Ochoa Fertilizer Date 4/3/18

Project / Client Hurricane Reassessments

fence seperating the Southern residential properties. This may be true for northern boundary, but since the fence is less substantial and area is more densely vegetated, we may not be able to see it. The northern property at the boundary of the site had no name/ lables.

Denise Driscoll 4/3/18