



U.S. Fish & Wildlife Service  
Sweetwater Marsh Unit Site  
Operable Unit 2 (Gunpowder Point)  
Chula Vista, CA

**US Fish and Wildlife Service Requests  
Public Comments on Sweetwater Marsh Unit  
Site, Operable Unit 2 (Gunpowder Point  
Former Industrial Area), Engineering  
Evaluation/Cost Analysis**

**INTRODUCTION**

The U.S. Fish and Wildlife Service (FWS) will be conducting a Non-Time Critical Removal Action (NTCRA) to clean up residual contamination from historical uses at Operable Unit 2 [Gunpowder Point (OU2)] of the Sweetwater Marsh Unit of the San Diego Bay National Wildlife Refuge located in Chula Vista, California. This fact sheet is intended to provide a brief explanation of the proposed cleanup and to solicit public comment on the Draft Engineering Evaluation and Cost Analysis (EE/CA). The overall objective of the EE/CA is to evaluate various cleanup alternatives and to select the best alternative to provide a long-term, effective remedy that will reduce potential risks to human and ecological receptors at OU2. The FWS is required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. §§ 9601-9675, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) § 300.415(b)(4)(i), to prepare an EE/CA when conducting a NTCRA.

**Public Comment Period**

September 1, 2017 to October 16, 2017

FWS is interested in hearing from the public and is accepting written comments on the EE/CA document. A copy of the administrative record which includes the EE/CA may be found at the information repositories listed below and online at

[https://www.fws.gov/refuge/san\\_diego\\_bay/wh\\_at\\_we\\_do/resource\\_management/Sweetwater\\_Marsh\\_Restoration.html](https://www.fws.gov/refuge/san_diego_bay/wh_at_we_do/resource_management/Sweetwater_Marsh_Restoration.html)

**Information Repositories**

San Diego Bay National Wildlife Refuge, USFWS  
1080 Gunpowder Point Drive  
Chula Vista, CA 91910

**Comments should be addressed to**

MaryAnn Amann  
CERCLA Project Manager Regions 1& 8  
US Fish and Wildlife  
911 NE 11th Avenue  
Portland, OR 97232  
Maryann\_amann@fws.gov

Pursuant to 40 CFR Part 300.415 (n) and 820 (a), a public comment period will be held from September 1, 2017 through October 16, 2017 during which the FWS will accept written comments from the public on the OU2 EE/CA. After public review and comment, the FWS will issue an action memorandum to identify the selected removal action.

## **BACKGROUND**

The Sweetwater Marsh Unit (Unit) of the San Diego Bay National Wildlife Refuge (the Refuge) is managed by FWS as part of the National Wildlife Refuge System. The 316-acre Unit is located along the eastern edge of San Diego Bay in an area that extends from just north of the 24th Street Flood Control Channel in National City to about G Street in Chula Vista. Sweetwater Marsh NWR is home to different State- and federally-listed endangered and threatened species including: the California least tern; the Ridgeway's rail; the western snowy plover; the Belding's savannah sparrow; and the salt marsh bird's beak, an endangered plant species (FWS, 2006).

Three operable units are present with the Unit and separate investigations and response action selection were conducted for each OU. OU1 includes Paradise Marsh, Connector Marsh, portions of Sweetwater Marsh, and properties adjacent to the Refuge that have become contaminated with burn ash created at a now-defunct burn dump located north of OU1. OU 2 includes a natural upland area commonly known as Gunpowder Point, which was the site of intensive industrial activity from 1916 until the early 1930s. OU 3, also known as the F and G Street Marsh, is not contiguous with OU1 and OU2 and includes a marsh area that was filled with contaminated materials in the 1960s and 1970s. The FWS is performing a separate EE/CA for each operable unit within the Unit. This fact sheet focuses on the EE/CA for OU2.

OU2 is located at Gunpowder Point, a 30-acre site within the Refuge on the western side of the Sweetwater Marsh, situated between the San Diego Bay and the marsh. During World War I, Hercules Powder Company owned and operated an industrial complex at Gunpowder Point. The complex produced potash and acetone in order to make ammunition for the military. During this period of operation, there were 156 above-ground 50,000-gallon, wooden fermentation tanks, nine 400,000-gallon storage tanks, settling basins, reservoir, fusing furnaces, large crystallization tanks, evaporators, an onsite railroad system, a laboratory, and storage buildings (ICF Jones and Stokes, 2008). In 1920, San Diego Oil Products Corporation owned and operated a cottonseed oil processing facility.. On November 28, 1923, several of the facility buildings were destroyed in a fire. [FWS, 2011]. In 1927, San Diego Oil Products Corporation merged with Pacific Cottonseed Products Corporation, which then went bankrupt in 1933.

From 1946 to 1986, the eastern part of Gunpowder Point was used for agricultural purposes. The Santa Fe Land Improvement Company (SFLI) acquired the land at some point after the Pacific Cottonseed Products Corporation declared bankruptcy. The Federal Government then acquired the property from SFLI including the Gunpowder Point site in 1988 as part of a settlement of an Endangered Species Act lawsuit to offset the effects of the expansion of California Interstate 5. Currently, the Chula Vista Nature Center Foundation operates the Living Coast Discovery Center on the eastern portion of the Gunpowder Point site.

Various soil, sediment, groundwater, and surface water investigations have been completed from

1989 to 2006 to evaluate different levels of contamination. Soil samples were tested for a range of constituents based on historical site usage, including one or more of the following analyte groups: aliphatic hydrocarbons (alkanes), nitroaromatics, polycyclic aromatic hydrocarbons (PAHs), metals, perchlorate, herbicides, organochlorine pesticides, organophosphorous pesticides, and polychlorinated biphenyls (PCBs). Groundwater samples were analyzed for a range of constituents including nitroaromatics, SVOCs, metals, perchlorate, and volatile organic compounds (VOCs).

## **CLEANUP LEVELS**

Human health and ecological risk assessments conducted as part of the EE/CA evaluated potential exposures of human and ecological receptors to COPCs present in upland soil and wetland soil/sediment. The risks of several COPCs were predicted by quantitative human health and ecological risk models to be present at levels potentially in exceedance of acceptable levels, and preliminary remediation goals (PRGs or Cleanup Levels) were developed to achieve the removal action objectives (RAOs).

The primary RAO for soil at OU2 is to prevent exposure of ecological receptors (primarily birds and mammals) to soil containing the following chemicals of potential concern (COPCs) at concentrations greater than the PRG. A secondary RAO for soil at the Site is to prevent soil contaminated with perchlorate from acting as a source for groundwater contamination.

The primary RAO for groundwater at the Site is to achieve ARARs for the following COPCs at concentrations greater than the PRG (which is the MCL). Secondary RAOs for groundwater at the Site include prevention of exposure to human receptors to impacted groundwater at levels greater than the MCLs, and to ensure that future off site migration of perchlorate in groundwater does not impact ecological receptors.

## **REMOVAL ACTION ALTERNATIVES**

The primary objective of an EE/CA is to evaluate various cleanup alternatives and provide a basis for recommending a removal alternative that addresses the presence of metals, perchlorate, and dioxins in soil, and metals, nitrate, and perchlorate in groundwater at OU2.

The scope for the removal actions focus on surface and near-surface soils and groundwater containing COPCs that exceed the cleanup levels. Alternative removal and disposition methods were identified based on site-related contaminants, characteristics, and removal action objectives. Each option was then screened for effectiveness, implementability, and relative costs.

The following four soil removal action alternatives were developed based on the evaluation of the nature and extent of contamination at the OU2 and to achieve the RAOs.

- Alternative 1 - No action. This Alternative is used as a basis to compare the other alternatives.

- Alternative 2 - Soil Excavation with Off-Site Disposal. Alternative 2 meets the primary soil RAO by removing soils at the areas where metals and dioxins/furans concentrations exceed the PRGs and disposing the removed soils off-site. These areas also encompass soils where perchlorate concentrations exceed 100 µg/kg and therefore Alternative 2 meets the secondary RAO. The volume of soil requiring excavation is estimated at approximately 7,560 cubic yards (11,340 tons). After confirmation sampling to verify that soils with COPC concentrations above the PRG have been removed, Alternative 2 requires that the excavation would be backfilled with certified weed-free clean soil from an off-site borrow source and the habitat re-established. Revegetation costs were estimated for approximately 3 acres, the sum of the removal action areas considered for excavation. The estimated cost for this option is \$1,810,600.
- Alternative 3 - Soil Excavation with On-Site Disposal. Alternative 3 is substantially similar to Alternative 2 and meets the primary and secondary soil RAOs by removing impacted soil; however, Alternative 3 contemplates that the contaminated soil would be placed in an on-site repository. The on-site repository would utilize, for instance, the existing concrete lined reservoir to the north of the existing visitors center. Assuming a reservoir capacity using dimensions approximately 225 feet long and 100 feet wide with a depth of approximately 9 feet. The repository would be filled with the contaminated soil and capped with a certified weed-free soil cap. Under Alternative 3, the volume of soil to excavate to PRGs and transport to the repository is approximately 7,560 cubic yards (11,340 tons). As for Alternative 2, revegetation costs were estimated for approximately 3 acres. The estimated cost for this alternative is \$1,104,500.
- Alternative 4 - Soil Capping and Irrigation and Institutional Controls (ICs). Alternative 4 meets the primary soil RAO by placing a certified weed-free soil cover over the portions of OU2 where metals and dioxins/furans concentrations in soil exceed the PRGs and perchlorate exceeds 100 µg/kg. The soil cover would consist of a 2.5-foot soil cover that would be seeded with native vegetation or other suitable cover (certified weed-free) over approximately 3 acres. Alternative 4 calls for the soil cover to be designed such that it would have a functional life of 30 years. However, implementation of Alternative 4 would likely maintain the soil cap to have a much longer effective life. The resultant soil cover is estimated to require approximately 7,500 cubic yards (11,250 tons) of clean fill based on the final PRG removal volume. Alternative 4 institutional control (IC) includes preventing disturbance of the capped areas. The perimeter of the closed unit, defined as the area encompassing the soil caps, would be marked with signs to indicate that buried wastes are present and that no disturbance of the cover is permitted.

This alternative will meet the secondary RAO using irrigation at the areas with elevated perchlorate in soil to mobilize the perchlorate into water. Due to the very high solubility of perchlorate and the low adsorption of perchlorate to soil, the perchlorate would be removed from soil and transported to groundwater. Following the treatment, soil

sampling will be conducted to evaluate whether the perchlorate has been removed from the soil. The estimated cost for this Alternative is \$828,300.

The following three groundwater removal action alternatives were developed based on the evaluation of the nature and extent of contamination at OU2 and on the RAOs.

1. Alternative 1 - No action. This Alternative is used as a basis to compare the other alternatives.
2. Alternative 2 - Drinking Water Restriction and Site-Wide Monitored Natural Attenuation. Alternative 2 would meet the RAOs for groundwater by combining source removal with monitored natural attenuation (MNA) approach. Following soil (source) removal, this groundwater alternative assumes achievement of ARARs by reaching the MCLs within an approximate 20-year timeframe and is predicated by the completion of source removal. Alternative 2 would meet the secondary RAO for groundwater by establishing a monitoring well network that would be used to monitor perchlorate, nitrate, and metals at OU2 and along the perimeter of the Refuge. The estimated cost for this Alternative is \$341,900.
3. Alternative 3 - Future Well-Head Treatment and Site-Wide Monitored Natural Attenuation. Alternative 3 would meet the RAOs for groundwater to achieve ARARs by establishing a MNA monitoring well network that would be used to monitor the natural degradation of perchlorate, metals, and nitrate at OU2 and along the perimeter of the Refuge as described in Alternative 2 following source removal, and by establishing an institutional control requiring treatment of drinking water prior to use. Drinking water is not currently developed at OU2; in the event that it was developed, a treatment system would presumably need to be installed to treat water to allowable drinking water standards because total dissolved solids, salinity, sulfate, and nitrate do not meet exceed primary and secondary MCLs criteria. The estimated cost for this Alternative is \$374,100.

### **RECOMMENDED REMOVAL ACTION**

Based on a detailed analysis of the remediation alternatives, the recommend soil removal action is Alternative 2, excavation with off-site disposal. The recommended groundwater removal action is Alternative 2, restricting the development of any drinking water facility as well as long-term monitoring to determine if groundwater migration may be a future concern.

### **INFORMATION REPOSITORY**

Hard copies of the administrative record, which includes the documents upon which the FWS relied or otherwise considered in selecting a removal action for OU2, are available at the repository listed below:

**Sweetwater Marsh National Wildlife Refuge**  
San Diego Bay NWR, USFWS  
1080 Gunpowder Point Drive  
Chula Vista, CA 91910

**On The Web:**

[https://www.fws.gov/refuge/san\\_diego\\_bay/what\\_we\\_do/resource\\_management/Sweetwater\\_Marsh\\_Restoration.html](https://www.fws.gov/refuge/san_diego_bay/what_we_do/resource_management/Sweetwater_Marsh_Restoration.html)

**HOW TO COMMENT:**

The FWS invites your comments on the OU2 EE/CA. Comments must be received or postmarked by October 16, 2017. Please submit written comments about the OU2 cleanup alternatives to MaryAnn Amann, CERCLA Project Manager at U.S. Fish and Wildlife Service, Division of Engineering, 911 NE 11th Avenue, Portland, Oregon 97232, or email [maryann\\_amann@fws.gov](mailto:maryann_amann@fws.gov).

The FWS will consider all public comments received by October 16, 2017 and prepare written responses for significant comments.

**For More Information, Contact:**

MaryAnn Amann  
*CERCLA Project Manager*  
Phone: (503) 231-2346  
email: [maryann\\_amann@fws.gov](mailto:maryann_amann@fws.gov)

William Spoerer  
*Regional Environmental Compliance Coordinator*  
Phone: (503) 231-6143  
email: [William\\_Spoerer@fws.gov](mailto:William_Spoerer@fws.gov)