

Department of Health
HEER Office, 1582
Kamehameha Avenue,
Hilo, Hawai'i 96720-4623

Approved Cleanup Action Plan Former Kohala Sugar Company Pesticide Mixing Site, North Kohala, Hawai'i

TMK 3-5-5-019:025 (portion)

July 8, 2014

Introduction

The State of Hawai'i Department of Health (HDOH) is providing this information on the cleanup action approved for the Hawai'i Island Community Development Corporation (HICDC) property located in North Kohala, Hawai'i County (Figure 1). The HDOH Hazard Evaluation and Emergency Response Office (HEER Office) is providing oversight, and the investigation and public participation requirements are being conducted pursuant with Hawai'i Administrative Rules Chapter 11-451.

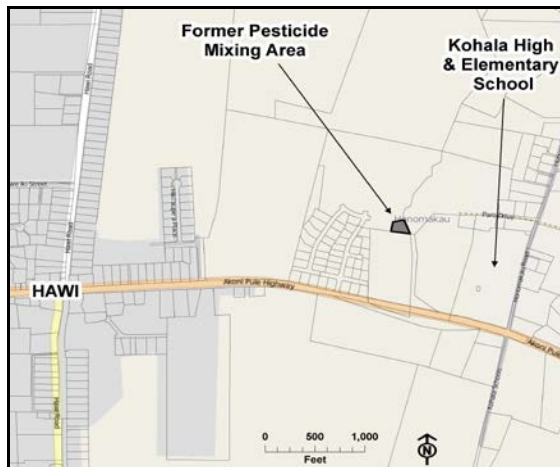


Figure 1. Site Location in North Kohala

Site Description and Property Information

The subject property (site) consists of approximately 0.5 acres of land in the vicinity of the town of Hawi, North Kohala District, Hawai'i, which formerly housed Kohala Sugar Company pesticide storage and mixing facilities. The parcel TMK is 03-5-5-019:25 (portion). The site supported former operations in the plantation fields, and is now surrounded by fallow, highly vegetated pasture land or residential properties. Former facilities remaining on the site include two (upper and lower) rock/concrete retaining walls and four empty steel above-ground storage tanks. A fence has been installed

around the former pesticide mixing area to prevent trespasser direct contact with site soils.

Site investigations have been conducted by HDOH and environmental consultants for the property owner to identify the contaminants of concern and areas of soil contamination. Arsenic and dioxin are the principle chemicals of concern and soil environmental hazards. Arsenic was historically used as an herbicide in sugar cane cultivation, while dioxin is a manufacturing byproduct in other historically used pesticides/herbicides such as pentachlorophenol.

Soils within a ¼-acre area at the former pesticide mixing area (the "source area" within the ½-acre site) show elevated arsenic and dioxin concentrations, extending to a depth of approximately 3 feet below the ground. Moderately elevated soil dioxin is also present just south of the HICDC property, and contamination is assumed to extend just east of the HICDC property. This approved cleanup action plan addresses the HICDC property only. Action to assess and address soil contamination on the adjacent properties is on-going.

HDOH manages soil arsenic hazards based on a measure of bioaccessible arsenic, which is the fraction of total arsenic that is expected to be available for uptake by way of incidental soil ingestion of arsenic-contaminated soil. Soils with bioaccessible arsenic below 23 mg/kg (Category B soils) are considered minimally impacted, and are "within acceptable health risks for long-term exposure". Category C soils (moderately impacted) have bioaccessible arsenic levels from 23 to 95 mg/kg, and sites with these soils need further evaluation or controls for unrestricted (i.e residential) land use. Category D soils with bioaccessible arsenic above 95 mg/kg (heavily impacted) typically require remedial action irrespective of future land use.

Dioxin levels are expressed using a Toxic

Equivalency Factor (TEQ), which is a method of summing the toxic effects of the multiple dioxin and furan compounds typically identified and generating a single TEQ dioxin value. Soils with TEQ dioxin between 20-240 ng/kg (Category B), are considered minimally impacted. Category C TEQ dioxin soils (moderately impacted) are between 240-1,500 ng/kg, and Category D TEQ dioxin soils (heavily impacted) are above 1,500 ng/kg.

Site investigation work indicates that there are approximately 1,300 cubic yards (cy) of Category C and Category D arsenic/dioxin contaminated soils at the site which need to be remediated.

Draft Removal Action Report and Comment

A proposed site cleanup plan as well as cleanup alternatives were presented in a Draft Removal Action Report (Draft RAR) dated November 21, 2013. Public comment was solicited from December 5, 2013 through January 8, 2014, and a public meeting was held on the Draft RAR for the North Kohala-area community at the North Kohala Senior Center in Kapa'au on the evening of December 12, 2013. In addition, a public notice regarding the Draft RAR and public meeting was published in the *West Hawaii Today* and the OEQC *Environmental Notice*, the Draft RAR and other related documents were placed in the North Kohala Public Library for access during the public comment period, a letter inviting Draft RAR review and comment (along with a 2-page fact sheet) was mailed to 40 nearby Kohala-area residents, landowners, or interested parties, and an announcement and electronic copies of the Public Notice, Fact Sheet, and Draft RAR were posted on the HEER Office website for access.

Cleanup Alternatives - Final Action Approved

A number of removal action alternatives were considered to address the soil contamination on site. The removal action alternatives selected for final consideration included:

1. No Action (included for comparative baseline)
2. Excavation and Offsite Landfill Disposal of Arsenic/Dioxin Category C and D Soils
3. Onsite Containment Cell for Arsenic/Dioxin Category C and D Soils

Alternatives were considered in light of the primary objective to protect human/ecological health by preventing direct exposures to contaminated soils, as well as information on effectiveness, implementability, and cost.

The proposed cleanup action alternative recommended in the Draft RAR, and selected as the final approved cleanup action, is alternative #2: Excavation and Offsite Landfill Disposal of Arsenic/Dioxin Category C and D Soils. This option was judged the most effective and feasible to eliminate risks to human health or the environment. This cleanup plan consists of excavation of all moderately (Category C) to heavily impacted (Category D) arsenic and dioxin soils (exceeding 23 mg/kg bioaccessible arsenic and 240 ng/kg TEQ dioxin), and disposal in an approved landfill (West Hawai'i). A detailed implementation work plan with construction specifications to be reviewed and approved by the HDOH HEER Office will be prepared by the landowner before this cleanup action is started.

To address public comment on the potential for soil or dust exposure to the surrounding community during the soil removal work to be conducted, elements of a detailed soil and dust control program were identified and required to be incorporated in the removal action implementation plan.

Details on the final cleanup action approved for this site, including the elements of a soil/dust control program that will be required and a summary response to public comments received during the public comment period, can be found in the **Final Removal Action Report (Final RAR)**, dated April 23, 2014. This report (67 pages) can be accessed through the HEER Office website: <http://www.hawaii.gov/doh/heer> - in the "What's New" section of the homepage. If you would like a copy of the Final RAR sent to you via U.S. mail or have any questions regarding this project, please contact: John Peard, HDOH Project Manager, at (808) 933-9921, or john.peard@doh.hawaii.gov