

Preliminary Close Out Report

Del Monte Corporation (Oahu Plantation) Superfund Site

Kunia, Honolulu County, Hawaii

I. INTRODUCTION

This Preliminary Close Out Report documents that the U.S. Environmental Protection Agency (EPA) completed all construction activities for the Del Monte Corporation (Oahu Plantation) site in accordance with Close out Procedures for National Priorities List Sites (OSWER Directive 9320.2-09A-P). EPA conducted a pre-final inspection on August 12, 2008, and determined that the potentially responsible party (PRP) constructed the remedy in accordance with remedial design (RD) plans and specifications. The PRP has initiated activities necessary to achieve performance standards and site completion.

II. SUMMARY OF SITE CONDITIONS

Background

The Del Monte Corporation (Oahu Plantation) site is a 3,000 acre former pineapple plantation in Kunia, Honolulu County, Hawaii. The site is located on the north-central plateau of the island of Oahu. The plateau is bounded to the west by the Waianae Mountain Range and on the east by the Koolau Mountain Range. The former farm is approximately 15 miles from the City of Honolulu. Approximately 1,600 people live within a 1 mile radius of the site and receive drinking water from a public supply.

Del Monte Fresh Produce grew and processed pineapple on the plantation from 1946 to November 2006. During that time, a number of chemicals were applied to the soil to kill nematodes (worms that attack pineapple roots). Pesticides were stored, mixed and spilled in an area near the Kunia Well, a former drinking water supply well.

Contaminants of concern in groundwater and soil include ethylene dibromide (EDB), 1,2-dibromo-3-chloropropane (DBCP), 1,2-dichloropropane (DCP) and 1,2,3-trichloropropane (TCP). The site posed potential threats to human health and the environment through contact with contaminated groundwater.

Del Monte leases the farm from the James Campbell Company (JCC), LLC. In 2007, the company sold farm parcels to various entities. Del Monte's lease with the James Campbell Company, LLC expires on December 31, 2008.

EPA proposed the site to the National Priorities List (NPL) on May 10, 1993 (Federal Register, Vol. 58, No. 88, 27507) and added it to the final list on December 16, 1994 (Federal Register Vol. 59, No. 241, 65212).

Remedial Construction Activities

On September 25, 2003, a Superfund Division Branch Chief signed a Record of Decision (ROD) selecting a remedy which is divided into two parts: 1) the shallow groundwater (perched aquifer) and contaminated soil in the Kunia Village Area from approximately 20 feet below ground surface to 100 feet below ground surface, and 2) the deep groundwater (basal aquifer). The remedy addressed contamination through the following actions:

Perched Aquifer

- Pumping contaminated water from the perched aquifer for treatment
- Treating the contaminated groundwater using phytoremediation or carbon adsorption
- Placing a vegetated soil cap over the contaminated soil area
- Removing soil contaminants using soil vapor extraction (SVE)
- Restricting land use to prevent damage to the cap

The ROD specified mass reduction as the performance standard for source area soil from 20 to 100 feet below ground surface, and for perched groundwater. For source area soil, the ROD stated that the SVE system and perched aquifer extraction system should operate until the mass of Contaminants of Concern (COCs) in the soil and groundwater have been reduced such that the source area contamination will no longer result in exceedances of maximum contaminant levels (MCLs) in the basal aquifer. DBCP mass must be reduced by 95 percent, EDB and DCP mass must be reduced by 75 percent. The ROD specified MCLs as the cleanup level for basal groundwater. The MCLs are .04 parts per billion (ppb) for EDB and DBCP and 5 ppb for DCP.

In April 1998, the PRP entered into a Contractual Agreement with the US Department of Agriculture-Cooperative State Research Extension and Education Service, the US Army Environmental Center, and the US Army Corps of Engineers-Waterways Experiment Station to conduct a phytoremediation study using Koa Haole trees to treat impacted perched groundwater. The study was conducted as a Superfund Treatability Study. Perched groundwater extraction wells were installed and one large and two small closed loop treatment cells were constructed and operated successfully from 1999 to 2008. In January 2008 the two small treatment units were removed to allow for construction of the vegetated soil cap. Perched groundwater is now treated in the large phytoremediation treatment system or diverted to the basal groundwater treatment system.

The PRP conducted a long-term SVE pilot test in accordance with the Long-Term SVE Pilot Test Work Plan dated March 24, 2006. The pilot test objectives were 1) to observe the change in COC concentrations in extracted vapors over time and 2) observe any rebound effects (increase in COC concentrations after treatment) when SVE operations were cycled between areas. In addition, vacuum and vapor concentration measurements in wells were used to better understand the extent of SVE radius of influence.

Two extraction wells (EW-7 and EW-30) were chosen as the pilot test wells because EDB, DBCP and 1,2-DCP concentrations were elevated in these two areas, there is a high density of wells surrounding these two wells, and the perched aquifer has been dewatered in both areas. The test using EW-30 as the extraction well was conducted from June 19 to December 11, 2006. EW-7 was tested from December 12, 2008 to May 7, 2007.

The results of the pilot test showed decreases in COC concentrations in all of the test area wells. Of the 12 wells tested, 5 showed a greater than 50 percent reduction in contaminant concentrations.

Basal Aquifer

- Pumping and treating contaminated groundwater in a phased manner, starting at the Kunia Well (the source area)
- Installing monitoring wells to 1) complete the characterization of the basal plume, 2) determine the effectiveness of pumping groundwater, and 3) evaluate whether monitored natural attenuation (MNA) is effective in the downgradient plume
- If MNA is not effective, add pumping wells to ensure the entire plume is captured and treated.
- Treat the contaminated groundwater using air stripping and carbon filtration
- Restrict land use to prevent activities that may interfere with groundwater extraction and monitoring wells.

If the contingency remedy of MNA is implemented, then only minor construction items such as additional groundwater monitoring wells will be needed to implement the remedy.

The First Amendment to the Administrative Order on Consent (AOC) for Remedial Investigation/Feasibility Study was signed on January 12, 2004. The Amendment required the PRP to install four basal groundwater monitoring wells and begin extracting and treating water from the Kunia Well after installation of the first three wells was complete and construction of the fourth basal monitoring well had begun. Pursuant to the AOC, construction of the basal aquifer treatment system was approved by EPA prior to entry of a Consent Decree for Remedial Design/Remedial Action (RD/RA) for the purpose of conducting a long-term pumping test on the Kunia Well. The AOC also stated that any additional basal aquifer monitoring wells (beyond the four described in the First Amendment to the AOC) will be installed as part of RD/RA.

The final design for the Kunia Well groundwater pump and treat system, which provides basal aquifer source area control, was approved by EPA on June 29, 2004. EPA conducted a final inspection of the treatment system on May 17, 2006. An Interim Remedial Action Report was published on September 25, 2006.

The PRPs agreed to perform the remaining RD/RA work in a September 27, 2005 Consent Decree with EPA. The RD was conducted in conformance with the approved

ROD. The RA was initiated on January 16, 2008 when the PRP awarded the first RA contract. The contractor conducted the remedial activities as planned, and no additional areas of contamination were identified. EPA conducted a final inspection on August 12, 2008 which included a description and schedule for correcting minor construction contract items by the contractor. These "punch" list items included preparation of the Operation and Maintenance Manual, the Compliance Monitoring Plan and Standard Operating Procedures for system operation and sampling. EPA determined that the following RA activities were constructed and/or completed according to the ROD design specifications:

- Installation of perched zone extraction wells
- Pumping and treatment of contaminated perched groundwater via air stripping and carbon filtration
- Installation of an SVE system
- Placement of a soil vegetated cap over the source area

The contractor began operating the SVE system which will continue operating for an estimated 8 years. Remaining activities to be completed by the contractor include any periodic adjustments and /or modifications to the constructed remedy to maintain optimum performance. EPA has approved the operation and maintenance (O&M) plan.

No activities were conducted using removal authority at this site.

The owner of the site, the James Campbell Company LLC, has sold all of the former farm parcels. The majority of the site will be redeveloped as housing for Schofield Army Barracks.

III. DEMONSTRATION OF CLEANUP ACTIVITY QUALITY ASSURANCE AND QUALITY CONTROL

EPA reviewed the remedial action contract and construction for compliance with quality assurance and quality control (QA/QC) protocols. Construction activities at the site were determined to be consistent with the ROD, RD plans and specifications, and RD/RA statement of work in the Consent Decree.

The PRP construction contractor adhered to the approved construction quality control plan (CQCP). The construction quality assurance plan (CQAP) incorporated all EPA and requirements. All confirmatory inspections, independent testing, audits and evaluations of material and workmanship were performed in accordance with the construction drawings, technical specification and CQAP. Construction quality assurance was performed by an independent firm retained by the PRP. The EPA contractor visited the site regularly during construction activities to review construction progress and evaluate and review the results of QA/QC activities. Deviations or non-adherence to QA/QC protocols, drawings, or specifications were properly documented and resolved.

The Quality Assurance Project Plan (QAPP) incorporated all of EPA's QA/QC procedures and protocol, EPA analytical methods were used for all confirmation and monitoring samples during RA activities. Sampling of soil and water followed the EPA protocol *Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods*. EPA determined that analytical results are accurate to the degree needed to assure satisfactory execution of the RA.

IV. ACTIVITIES AND SCHEDULE FOR SITE COMPLETION

The following activities will be completed according to the following schedule:

Task	Estimated Completion	Responsible Organization
Complete Punch List Items	08/12/08	PRP
Complete Final Inspection	08/12/08	EPA
Determine Remedy O&F	08/12/08	EPA
Five-Year Review	09/01/13	EPA
Complete Basal Groundwater Pump and Treat	12/31/14	PRP
Complete SVE cleanup	12/31/17	PRP
2 nd Five-Year Review	09/01/18	EPA
Complete Perched Groundwater Pump and Treat	12/31/18	PRP
Approve Final RA Report	02/01/18	EPA
Approve Final Close Out Report	04/01/18	EPA
Delete Site	09/01/18	EPA

V. SUMMARY OF REMEDIATION COSTS

The original cost estimate to implement the remedial action described in the ROD was \$9.9 million for the basal aquifer remedy and \$3.0 million for the perched aquifer

remedy. The PRPs reported that the construction contract award amount for the basal aquifer remedy was \$3.5 million and the final construction cost was \$ 3.5 million. The construction contract award amount for the perched aquifer remedy is \$1.5 million and the estimated final construction cost is \$1.5 million. Minor changes in the basal aquifer remedy and the perched aquifer remedy did occur during construction which affected costs. But the construction cost changes were less than \$0.1 million for both the basal and perched aquifer remedies. The decrease in cost for the basal aquifer remedy construction from ROD to RA award is attributed to the installation of one less 8-inch diameter basal well than was assumed in the RI/FS, and the fact that DMFP had trained personnel available to conduct much of the basal aquifer discharge piping and booster pump installation.

The ROD estimate for annual maintenance costs was \$7.17 million. Long-term operation and maintenance costs presented in the ROD appear to be consistent with actual costs being expended and anticipated to be expended during remedy implementation.

EPA's oversight cost for the construction was \$89,000 and \$ 9,000 a year for the oversight of annual maintenance activities.

VI. FIVE-YEAR REVIEW

Upon completion of this remedy, no hazardous substances will remain on-site above levels that prevent unlimited use and unrestricted access. However, because this remedy will require greater than five years to achieve these levels, pursuant to CERCLA section 121(c) and as provided in the current guidance of Five Year Reviews [OSWER Directive 9355.7-02, *Structure and Components of Five-Year Reviews*, May 23, 1991, OSWER Directive 9355.702A, *Supplemental Five-Year Review Guidance*, July 26, 1994, and *Second Supplemental Five-Year Review Guidance*, December 31, 1995], EPA must conduct a policy five-year review. Therefore, the Five-Year review will be completed prior to September 30, 2013 (five years after construction completion date).



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9/8/08

Date

New Perimeter Fence being installed around Perched Source Area



Perched Aquifer Treatment System Pad with Fence Enclosure (taken prior to Hydroseeding)



New Perched Extraction Wells (Headers 5-9) and Kunia Well Treatment System



New Perched Extraction Wells (Header 4)



New Perched Extraction Wells



Electrical Panels and Controls



Carbon Tanks and Oil Demister



Blowers and Carbon Tanks



Vegetated Cap over Former Excavation Pit



Vegetated Cap looking toward BMW-2



Stormwater Diffusion Box and Vegetated Diversion Channel



Perched Aquifer Treatment System and Storage (White) Tank for Extracted Groundwater

