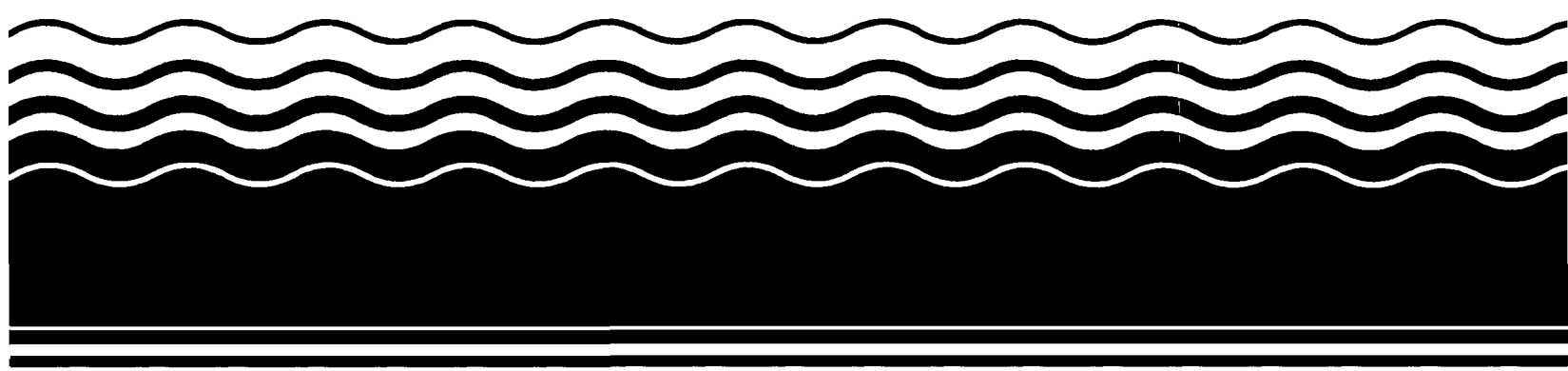


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**EPA Superfund
Explanation of Significant Difference
for the Record of Decision:**

**Del Norte County Pesticide Storage
Area Site, Crescent City, CA
9/21/1989**





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

21 SEP 1989

**Explanation of Significant Difference
for
Remedial Action
at the
Del Norte County Pesticide Storage Area
Superfund Site**

Introduction

The Del Norte Pesticide Storage Area Site, located approximately one mile northwest of Crescent City, California, consists of less than one acre of rural land. Both the site and the land surrounding it are owned by Del Norte County. The entire county-owned parcel (including the pesticide storage area) is approximately 480 acres in size. The County property is bounded by: McNamara Field, the airport which serves Del Norte County, to the north; Pebble Beach, a public area on the Pacific Ocean, 2,000 feet to the west; privately owned farmland and Washington boulevard to the south; and approximately seven residences and Riverside Drive to the east. The site is about 45 feet above sea level, with a very gently sloping surface. Certain areas surrounding the pesticide disposal area are seasonal wetlands.

The Environmental Protection Agency (EPA) has been the lead agency for this site since it was established on the National Priorities List (NPL) in 1983. Support agencies include the California Department of Health Services (DOHS), the North Coast Regional Water Quality Control Board (RWQCB), and the California Coastal Commission (CCC).

This Explanation of Significant Difference (ESD) fulfills the requirements of the Comprehensive Environmental Resource Conservation and Liability Act (CERCLA) of 1980 Section 117(c). The objective of this ESD is to justify and document the change in the groundwater treatment method that was selected in the Record of Decision (ROD) signed on September 30, 1985. This selected remedy, carbon filtration, coagulation and sand filtration, has been changed to aeration. The reason for this change is that site contaminant characteristics are different than originally described.

Reductions in concentrations of two of the compounds targeted for treatment and the natural occurrence of the other, indicate aeration as a more appropriate treatment technology as well as a shorter duration of the treatment period.

Summary of Site History

The storage area operated from 1970-1981 as a county-wide collection point for the storage of pesticide and herbicide containers generated by local agricultural and forestry-related industries. In the fall of 1981, soil and groundwater contamination was discovered by RWQCB and DOHS. This discovery indicated that the pesticide containers had been rinsed on-site, and that the residues and rinseates were improperly disposed of in a bermed, unlined sump area. Preliminary investigations from 1981-1983, by RWQCB and DOHS, identified soil and groundwater contamination with herbicides, pesticides and volatile and semi-volatile compounds. The County's inability to fund further site investigations initiated the process of incorporating the site on the NPL in the fall of 1983. The extent of contamination was determined in the Remedial Investigation conducted by EPA in 1985.

The remedy selected in the ROD required excavation and removal of contaminated soils and extraction and treatment of contaminated groundwater. The groundwater treatment remedy consisted of carbon adsorption for removal of organics and pesticides and coagulation and sand filtration for chromium treatment. The spent carbon filters and chromium-rich waste brine were to have been disposed of at a RCRA approved, offsite, Class I, hazardous waste disposal facility. The treated groundwater was to be disposed of through a pipeline to the County sewer main. The two organic and pesticide compounds specifically targeted for treatment with carbon adsorption were 2,4-Dichlorophenoxyacetic Acid (2,4-D) and 1,2-Dichloropropane (DCP). DCP and 2,4-D are the primary contaminants of concern because their ingestion, at levels above the relevant drinking water criteria, has been linked to an increased cancer risk. The ROD clean-up criteria are 100 ppb for 2,4-D and 10 ppb for DCP.

In a 1987 EPA Removal Action, 250 yards of contaminated soils were excavated and disposed of at an approved hazardous waste facility. This action removed highly contaminated soils from the site, thereby eliminating the source of additional incremental groundwater contamination. This has been confirmed by subsequent reductions in measured groundwater contaminant levels. Additional soil and groundwater characterization was conducted by EPA's Removal and Remedial programs throughout 1987 and in 1989.

Basis for Significant Differences

The basis for proposing aeration as the ground water treatment method focuses on the three contaminants specifically targeted for treatment in the carbon absorption, coagulation and sand filtration system selected in the ROD. The contaminants, chromium, 2,4-D and DCP are discussed in detail below. Groundwater data for organic compounds was compiled from the Remedial Investigation (1985), Report of the Pump Test Program (1987) and Removal Preliminary Assessments (1987 & 1989), in a report titled, Del Norte Groundwater Data Analysis July 28, 1989 by EPA's Technical Assistance Team (TAT). Chromium results can be found in the RI/FS, Removal PA report and the Chromium and PAH Groundwater Sampling Technical Memorandum (1986).

Chromium

Cleanup of chromium in soils or ground water was not explicitly included as an objective in the ROD because the nature and extent of the problem was not sufficiently understood. Subsequent investigations have determined that chromium in the groundwater near the Del Norte Site is in the particulate form, as evidenced by low or not detectable concentrations of dissolved chromium and high concentrations of total chromium; hexavalent chromium concentrations were below detection; and dissolved total chromium concentrations were well below the 50 ppb Maximum Contaminant Level (MCL). Research of past land uses in the area by the U.S. military, Del Norte County and milling operations at Dead Lake did not reveal actual or potential sources of chromium contamination. Soil sampling conducted by EPA's Technical Assistance Team in May, 1987 compiled chromium results very similar to those of the RI/FS. These results show that chromium, consistently detected in concentrations near 200 ppm, is present in surface and subsurface soils on and off site.

This homogenous distribution indicates that chromium is naturally occurring and no point source will be identifiable. In fact, chromite (chromium ore) is present in ultramafic rocks of the western Klamath Mountains in concentrations which have allowed commercial exploitation. Since some of these deposits are within 10 miles of the site, it is likely that elevated concentrations of chromium in the ground water are the result of natural weathering processes of the nearby ultramafic rocks. Under Section 104 (a)(3)(A) of CERCLA as amended by SARA, response to a release or threat of a release of a naturally occurring substance from a location where it is naturally found is not permitted. Based on this information, treatment of groundwater by coagulation and sand filtration for chromium was previously deleted from the Remedial Action Scope of Work.

2,4-Dichlorophenoxyacetic Acid

2,4-D was detected at or above the 100 ppb Maximum Contaminant Level (MCL) in two samples. These two samples and duplicates were collected from Monitoring Well #1 on 3/5/85 and 3/25/85. The associated levels detected were 100 ppb and 150 ppb and the duplicates were respectively 82 ppb and 50 ppb. MCLs are intended to protect public health from contaminants in drinking water that may present an imminent and substantial hazard to exposed individuals. These criteria are designed to protect a 70 kg adult ingesting 2 liters of water per day for a 70-year lifetime.

Other than the two samples noted above, no 2,4-D values exceeded 100 ppb in all the groundwater sampling results reviewed from the RI/FS, Remedial Design and Removal phases of this project. The next highest value was 34 ppb from MW #105 on 9/27/87 and in 5 subsequent samples collected from this well 2,4-D was not detected. 2,4-D was not consistently detected in samples from any well except MW #1. Additional samples and duplicates were collected from MW #1 by TAT on 5/19/87 and 2/28/89. The respective results were 20 ppb (duplicate 28 ppb) and <2 ppb (duplicate 2.7 ppb), the detection limit being 2 ppb. These results support the conclusion that the clean-up criteria of 100 ppb for 2,4-D has been met prior to treatment. The overall decrease in 2,4-D concentrations to below the detection limit can be attributed to its documented rapid biodegradation, source removal and specific site parameters such as abnormally high rainfall.

1,2-Dichloropropane

The most recent sample results indicate that DCP concentrations have decreased from approximately 2100 ppb to 600, likely because of volatilization and dilution. This is still significantly higher than the applicable drinking water advisory level of 10 ppb, which is the basis for the ROD treatment specification of 10 ppb. Plume projections predict that contaminated groundwater could migrate into private wells utilizing the same aquifer down gradient of the site. This modeling is documented in the RI/FS and the Preliminary Risk Assessment for the Del Norte Site.

To obtain information regarding treatment of DCP in ground water, a database developed by the EPA Risk Reduction Engineering Laboratory, Cincinnati, Ohio was searched. This search identified activated sludge and aeration as effective treatment technologies for DCP. A higher efficiency, 99%, was evidenced when aeration was used to degrade the highly volatile contaminant in wastewater.

Description of Significant Difference

The difference between the remedy presented in the ROD and the action now proposed is groundwater treatment by aeration instead of carbon filtration, coagulation and sand filtration. Aeration was considered in the original ROD alternatives but was not chosen due to its ineffective removal of 2,4-D. Many aeration systems are available on the market, the particular system proposed is currently in use at the American Thermostat NPL Site in Region II. It can be easily assembled from components normally available at local hardware stores and has a demonstrated volatile organic removal of 99.9999%. A reduced scope of work and a decrease in cost of over 1 million dollars will result from this change. The less complex technology of the aeration system requires less site preparation and environmental destruction, resulting in less site restoration activities as required at the end of the project.

Summary of Support Agency Comments

An interagency meeting was held on August 18, 1989 to discuss the change in groundwater treatment remedy and the basis for the change as described above. A draft ESD was distributed for support agency review in late August. Their comments, briefly summarized below, are attached. EPA maintains its commitment to comply with all concerns and requests of the support agencies.

California Department of Health Services

Prior to termination of the previous Remedial Action contract, DOHS was consulted and concurred with the decision based on the contaminant factors described above. The change in groundwater treatment remedy and scope of work may require amendments to the Superfund State Contract. The State project manager is currently investigating requirements for amending the Superfund State contract. DOHS supports the proposed groundwater treatment method of aeration and maintains its cost share commitments.

North Coast Regional Water Quality Control Board

RWQCB agrees that the proposed treatment method of aeration is suitable for treatment of DCP contaminated groundwater. Supporting data, drawings, spill contingency plans and an O & M manual will be provided for review as requested. EPA acknowledges that the apparent decrease in DCP concentrations may be attributed to many factors such as source removal, volatilization, dilution, biodegradation and plume migration.

The existing pumping well has demonstrated adequate aquifer drawdown in the pump tests. Therefore EPA intends to initially extract groundwater only from this well. Subsequent sample results will indicate the necessity and most efficient placement of an additional extraction well. RWQCB will be consulted to assess the appropriateness of an additional well in the future.

Treated discharge was not discussed in the ESD because no change was made to the Discharge method described in the ROD. EPA acknowledges that pretreatment requirements will be met prior to any discharge to the Crescent City municipal waste treatment plant. During startup of the treatment plant, treated water will be contained in holding tanks and analyzed for contaminant levels before being discharged to the sewer main.

California Coastal Commission

As requested by the CCC, a negative determination will be submitted for the proposed project. EPA reiterates its commitment to minimize impacts to adjacent habitat and to restore any impacts that cannot be avoided. EPA will seek assistance from CCC in determining the specific elements and adequacy of site restoration activities when that phase of the project is reached.

Affirmation of Statutory Determinations

Considering the new information that has developed and the changes that have been made to the selected remedy, the U.S. Environmental Protection Agency and the California Department of Health Services believe that the remedy remains protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost-effective. In addition, the revised remedy utilizes solutions and alternative treatment technologies to the maximum extent practicable.

Public Participation Activities

A fact sheet, distributed in early August 1989, notified the public that EPA was evaluating alternative groundwater treatment methods due to changing site conditions. It indicated that when EPA had decided on the proposed action the ESD will be made available to the public. At the same time EPA will prepare and distribute a fact sheet describing the ESD, publish a notice of availability and a brief description in the local newspaper and make the ESD available for review as part of the Administrative Record, on file at the local library. In addition, the appropriate documents utilized in this explanation will be placed in the Administrative Record, filed at the local library in Crescent City California, if they are not already there.