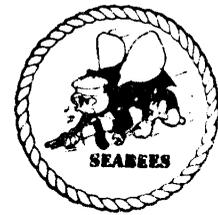


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PUBLIC NEWS RELEASE "AIR FORCE, NAVY LIST CONTAINMENT ACTIONS AT FORMER
HERBICIDE STORAGE AREA" SITE 8 NCBC GULFPORT MS
12/21/1979
NCBC GULFPORT

SEABEE NEWS

PUBLIC AFFAIRS OFFICE
Naval Construction Battalion Center
Gulfport, Miss 39501



OFFICIAL U.S. NAVY RELEASE

RELEASE 11 a.m. EST

RELEASE NO. 99

865-2393

JACQUE DEVINE

AIR FORCE, NAVY LIST CONTAINMENT ACTIONS AT FORMER HERBICIDE STORAGE AREA

Gulfport, Miss. 21 December 1979 - The U. S. Air Force and U. S. Navy, acting on recent Air Force environmental monitoring results, today announced actions designed to contain normal soil erosion at the former Herbicide Orange storage site located at the Naval Construction Battalion Center (NCBC), Gulfport, Mississippi. A 12-acre site of the NCBC had been used from 1968-1977 for storage of approximately 840,000 gallons of the herbicide, prior to its incineration at sea in the western Pacific.

Test results show that very low levels (parts per billion) of the herbicide's contaminant, TCDD, commonly known as dioxin, have been detected in drainage ditch sediment in and near the former storage site. Exceptionally heavy seasonal rains occurred in the Gulfport area this year. The extensive environmental monitoring report, issued by the USAF Occupational and Environmental Health Laboratory (OEHL), also confirmed barely detectable levels (parts per trillion) in some specimens of aquatic life. These specimens are believed to have entered the drainage ditch during seasonal high water levels, and then returned to a near-by canal that carries municipal surface drainage. The TCDD found in the aquatic life taken from the canal is well below the Food and Drug Administration's suggested maximum permissible level of 100 parts per trillion, officials noted.

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To stem any further erosion, the services will provide for physical containment of soil particles within the site. TCDD is not water soluble, and appears to move only as part of soil sediment. A barrier farther down the drainage ditch is also being considered to prevent migration of any aquatic life up the ditch. Additionally, sampling will continue in order to ensure that contamination is controlled. Follow-on research will be undertaken to explore methods to return the storage area to full and beneficial use. The U.S. Air Force will provide financing and the U.S. Navy will perform design and construction. Design is already underway with completion expected soon. Construction should begin early next year.

Air Force and contractual laboratories have been conducting environmental surveys of the soil, plants, and aquatic systems in and around the Herbicide Orange storage area since 1970. The most recent (December 3, 1979) results, as obtained by lengthy "state of the art" analyses at the Mass Spectrometry Laboratory of the University of Nebraska, prompted the containment recommendations.

A summary of the report is attached.

HERBICIDE ORANGE SITE TREATMENT AND ENVIRONMENTAL MONITORING
FOR
NAVAL CONSTRUCTION BATTALION CENTER, GULFPORT, MS

SUMMARY

PURPOSE

The report was prepared to present senior Air Force leaders the latest available data in the continuing environmental monitoring studies of a 12-acre storage area on the Naval Construction Battalion Center (NCBC), Gulfport, MS. The area had been used for the long-term storage of approximately 840,000 gallons of Herbicide Orange from mid-1968 to mid-1977.

BASIC HISTORY

Since 1970, various Air Force and contract laboratories have been conducting environmental surveys and analyses of the soils, plants, and the aquatic system in and around the Herbicide Orange Storage Area. As some leaking became evident and more information became available on the toxic contaminant 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) contained in the herbicide, more extensive monitoring programs were conducted. The entire inventory was redrummed in 1972 and checked for leaks continuously thereafter. In the summer of 1977, the herbicide was transferred to a specially equipped ship and destroyed by at-sea incineration during Project PACER HO. The Air Force Plan and the EPA permits for the disposal of the herbicide committed the Air Force to a follow-on storage site reclamation and environmental monitoring program. The major objectives of this program were to (1) determine the magnitude of Herbicide Orange contamination in the Storage Area; (2) determine the soil persistence of the phenoxy herbicides 2,4-D and 2,4,5-T, their phenolic degradation products and TCDD in soils of the Storage Area; (3) monitor for potential movement of residues from the Storage Area into adjacent water, sediments and biological organisms, and (4) recommended managerial techniques for minimizing any impact of the herbicides and TCDD residues on the ecology and human populations adjacent or near the Storage Area.

STORAGE SITE CONTAMINATION AND FATE

The monitoring approach used to determine storage site contamination consisted of analyzing soil samples selected from 42 different sites within the storage area. Sampling points were selected in groups depending upon whether a spill of the herbicide had occurred in that area or not. Previous

studies had shown that residue did not appreciably move within the acid soil or significantly penetrate the impervious concrete-stabilized hardpan located approximately six inches below the soil surface. Soil samples were also analyzed for micro-organisms.

The results indicated that approximately 15 percent of the 12-acre site is significantly contaminated with Herbicide Orange and TCDD. Levels of 2,4-D and 2,4,5-T in the samples, which were greater than 100,000 parts per million (ppm) in July 1977, have decreased to one-third that level in 18 months. Data from spill sites monitored for this same time period also suggested that TCDD levels are decreasing but at a slower rate. The soil penetration of the herbicides was low while penetration of TCDD was negligible. Sterilization of the soil did not occur; rather, certain micro-flora proliferated under high levels of herbicides.

RESIDUE MOVEMENT INTO ADJACENT AREAS

To monitor for potential movement of residue from the storage area, soil and biological samples were collected from the drainage ditch directly adjacent to the site. A November 1978 analysis of this nearby on-base drainage ditch found positive TCDD residue (0.14-3.6) parts per billion (ppb). The TCDD movement was presumably caused through soil erosion from the annual (Jan-June) heavy rain season (apprx 60 in.). Drainage ditches carry heavy rain from the storage site and other parts of the base into Long Beach Canal #1, approximately 9000 ft. from the site. The canal runs from the city of Long Beach through the base carrying municipal surface drainage, and until July 1978, carried treated sewage materials. The canal eventually runs into Turkey Creek, approximately 12,000 ft. from the storage site. Due to the November 1978 findings, further samples were collected at varying distances from the site in January, February, and June 1979. Following extensive and difficult analyses in contract laboratories, the results were received in September, November, and December 1979. The results confirmed the Nov. 1978 data and indicated slightly higher levels (sediment levels of 1.7-3.6 ppb and biological levels of 0.14-7.2 ppb). Water samples collected in the same area were negative for TCDD at a detection level of 0.02 ppb. TCDD appears to move only as part of soil sediment. Sediment and biological samples

taken downstream at 3,000, 7,000, 9,000 and 12,000 feet from the site indicated that some TCDD residue was now present but at very low levels. A crayfish collected at 9,000 ft. and fish collected at 12,000 ft. were analyzed with .032 ppb the highest level detected. This figure of .032 ppb is three times lower than the Food & Drug Administration suggested maximum permissible level of 0.10 ppb. With present "state of the art" detection limits, readings as low as these in biological samples have only been considered reliable in recent months.

RECOMMENDATIONS

To control the now verifiable but very low levels of residue, the report recommended the following adoptions:

- Stabilize drainage ditch banks to prevent water erosion during heavy seasonal rainstorms.

- Construct siltation traps in the drainage system allowing for greater silt catchment prior to drainage water leaving the base.

- Leave the storage area in its present undisturbed state and continue to limit access so that the "natural" degradation of the herbicide and its TCDD continue to occur.

- Allow the continued growth of native vegetation in the contaminated storage area and drainage ditches since this plant community inhibits water erosion.

- Continue sampling to ensure that preventive actions do control contamination.

- Develop follow-on research to determine methods for returning the storage area to full and beneficial use.