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LETTER REGARDING THE TRANSMITTAL OF QUARTERLY UPDATE ON THE  
ENVIRONMENTAL CHEMISTRY OF HERBICIDE ORANGE NCBC GULFPORT MS  
8/19/1982  
U S AIR FORCE



DEPARTMENT OF THE AIR FORCE  
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REPLY TO  
ATTN OF: RDV

SUBJECT: Update on Herbicide Orange

TO: See Distribution

The attached Quarterly Update on the Environmental Chemistry of Herbicide Orange is forwarded for your information. Any questions should be addressed to my project officer, Maj Channell, Chief of our Environmental Chemistry Branch, AUTOVON 970-4298.

*Michael J. Ryan*

MICHAEL J. RYAN, LtCol, USAF, BSC  
Chief, Environics Division

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AFESC INITIATIVE

ON

ENVIRONMENTAL CHEMISTRY OF HERBICIDE ORANGE

BACKGROUND: Past Herbicide Orange storage sites at the Naval Construction Battalion Center (NCBC), Gulfport MS; and Johnston Island, Pacific Ocean; and those areas of Eglin AFB FL, which were used for Ranch Hand operational testing are now contaminated with 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) which was a highly toxic contaminant of the herbicide. OSAF/MIQ has stressed the need to determine possible methods for assuring that the 2,3,7,8-TCDD is not transported off the federal installations through natural migration and to decontaminate the sites. The AFESC Engineering and Services Laboratory (ESL) has been given overall responsibility for monitoring and reclamation research.

STATUS:

- Following the ESL Technical Review by HQ AFSC/DL, the ESL was directed by AFSC/DLWM in a 29 Apr 81 letter to proceed with the Herbicide Orange program at a minimal effort involving site monitoring and assessment of the contaminated sites. If further direction comes to HQ AFSC/DL from HQ AF that actual cleanup will be carried out, then the program should be expanded at that time.
- The Statement of Operational Need (AF SON 2-81) has been validated. The management approach submitted in the SON was to (1) initiate the sampling and analysis program, (2) initiate a small program to look at methods to destroy 2,3,7,8-TCDD in-site, and (3) not to proceed with a full-scale reclamation effort unless further SAF direction results.
- The ESL has continued the site monitoring and evaluation program by collecting samples from the NCBC, Eglin AFB, and Johnston Island on a semiannual basis. Next sampling is scheduled for Nov 82.
- Contracts for the analysis of samples in support of the site monitoring and evaluation program have been continued for FY83. The analysis has been completed on all samples collected through Nov 81. Samples collected in May 82 have been forwarded to the contractors for analysis.
- The following conclusions can be made on the results of the Herbicide Orange site monitoring samples that have been analyzed to date:
  - The data are highly variable, precision is low. The low precision is due primarily to the nature of the sample and the low level of dioxin. Measures have been taken to improve the precision.
  - The data appears to indicate that natural degradation of dioxin does occur but at a very slow rate. Because of low precision in the data this can be confirmed statistically at only a 50% confidence level. A meaningful half-life for natural degradation cannot be determined from the limited amount of data that is currently available.
  - Herbicide Orange degradation is relatively rapid. An average 87 to 95% reduction has occurred naturally in approximately four years.

- A summary of site monitoring results for the former test and storage sites follows:
  - NCBC, Gulfport MS. Significant levels of dioxin still remain on the former storage site (tens to hundreds of parts per billion). Natural degradation is slow (half-life probably five to ten years or more). The dioxin is contained on-site and is not detectable outside the boundaries of NCBC. The level of dioxin in the water drainage ditch system that leads away from the former storage site decreases rapidly with distance from the site.
  - Johnston Island, Pacific Ocean. Significant levels of dioxin still remain on the storage site (tens to hundreds of parts per billion). Natural degradation is slow (half-life probably five to ten years of more). The dioxin contamination is contained on-site. There continues to be a high level of interest in using the previous Herbicide Orange storage site for various programs. No specific project has been identified to utilize this area; however, Dr Bramlitt (FCDNA/FCLS, Kirtland AFB NM) has stated that numerous historical instances have occurred where land at Johnston Island was required on very short notice. The inference is that the future may also have such high-priority requirements with short notice. The ESL is working closely with Dr Bramlitt and Lt Col Brown USAF/SGES to identify and define options for site reclamation based on short, mid, or long-term notice which will satisfy mission requirements.
  - Eglin AFB FL. Significant levels of dioxin still exist in the Hardstand 7 area. The dioxin level on Site C-52A is very low (less than 50 parts per trillion) with none detectable in the drainage ditch system around C-52A and off the site. The soil depth profile reaffirmed that the majority of the dioxin is contained within the first three inches of the soil. Based on these results, the sampling protocol has been changed to include more samples from the Hardstand area and less from Site C-52A.
- Participated in a on-site briefing at Eglin AFB FL to Mr Charles J. Conrad concerning Herbicide Orange site monitoring and clean-up. Mr Conrad is a former state Congressman from California, close friend of the President and Secretary of Defense, advocate of US policy on Herbicide Orange, writes articles supporting US policy, and author of the Agent Orange Hoax. The DOD is interested in Mr Conrad continuing his efforts as an independent citizen. Mr Conrad's credibility had been attacked by the press because he had never been to Eglin AFB FL. Amoretta Hoeber, Principal Deputy Assistant to the Secretary of the Army (RDA), arranged for Mr Conrad's visit to Eglin.
- The ESL continues to coordinate this program with administrative and research personnel of the USAF OEHL, USAF/LEE, the EPA, and the Veterans Administration.

Maj Channell  
HQ AFESC/RDVC/4298  
12 Aug 82