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**PROPOSAL FOR DETERMINATION OF AN ACCEPTABLE ACTION LEVEL  
OR CONCENTRATION OF ARSENIC IN SOILS AT HOMESTEAD AIR FORCE  
RESERVE BASE**

by the Homestead Air Force Reserve Base BRAC Clean Up Team (HARB-BCT)

**INTRODUCTION**

The Homestead Air Force Reserve Base is a Superfund BRAC site. A team of professionals composed of representatives from the USEPA, FDEP, DERM, AFBCA, and others has identified the need to address issues that may affect the transfer of the Base to civilian hands. One of the issues identified and addressed in this proposal is the ubiquitous presence of Arsenic (As) in surficial soils throughout the base.

**PURPOSE AND SCOPE**

The purpose of this proposal is to provide RPMs and others investigating hazardous waste sites at Homestead a concentration of arsenic in surficial soil that determines the need for further action either via risk management or outright remediation. This proposal focuses only on arsenic and its use is limited to Homestead Air Force Reserve Base only. It is not intended to address or contradict any regulatory agency policy or guidance in effect and serves only to demonstrate the use of accepted statistical techniques used in the determination of an action or reference level.

**STATEMENT OF ISSUE**

Arsenic at Homestead AFRB may originate from either "on-site" releases attributable to site specific activities (i.e., use of arsenical compounds for pesticide or herbicide uses.) or "off-site" releases attributable to spraying of arsenic formulations used in the base's surrounding agricultural community for herbicide, pesticides, and plant growth stimulants. It is conceivable that arsenical compounds may, once applied in the surrounding agricultural fields, have volatilized and deposited throughout the base. While further speciation of laboratory analysis and reporting may be of great use to determine the volatilization factor, current federal and state guidance calls for reporting arsenic in its elemental form and not in one of its many compounds such as arsenic trioxide, methyl arsines, trivalent Arsenic, or pentavalent arsenic.

To determine the appropriate action to take at sites at Homestead AFRB, the BRAC Cleanup Team (BCT) must distinguish between substances directly attributable to releases from a particular site and those that may be attributable to "natural background" conditions; therefore, this proposal addresses the determination of a reference value that may be used to determine further action at sites under environmental assessment at Homestead Air Force Reserve Base.

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## DEFINITIONS

Soils in this proposal are defined as all mineral and naturally occurring organic material located at a site. Following accepted definitions, soil will be related to material < 2mm in size. (Soil Science Society of America, 1978)

**Background or reference location is referred in this proposal as the location and concentration of arsenic found in soils surrounding a site, but which are not influenced by site activities or releases. US EPA, 1995.**

For purposes of this paper, it is assumed that the locations chosen to represent background are similar in lithology and have similar chemical, physical, and biological characteristics.(e.g., particle size, percent organic carbon, pH, etc.).

The depth used in this proposal is the customary depth used by FDEP to calculate risk: 0-2 feet below land surface (bls). Soil containing As below 2' bls is considered not to present a risk from inhalation, dermal contact, or ingestion.

Only arsenic reported in mg/kg on a dry weight basis was utilized in the calculations. It is also assumed that sample collection, preservation, preparation, handling, and analytical methods follow standard methods (e.g., US EPA SW 846).

## PROCEDURE

### STEP 1 - Evaluation of Land Use History and Existing Data

An examination of available records indicates that the configuration of the base has changed significantly since World War II. At one point in time, the base was turned over to Dade County being the landing strip used as a crop duster airport operation previous its reactivation as a military facility. The base has gone numerous expansions having, in the expansion process, acquired land used formerly for agriculture. Indications are that arsenic was applied in the agricultural community as a mean to control pests. Likewise, it is believed that arsenical compounds were probably applied on base lands when the same were part of former agricultural operations. It is also possible that arsenical compounds were applied as herbicidal control by the military. Due to the lack of records, no specific herbicide application locations are available.

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