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NAS CECIL FIELD, FL
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COMPARISON OF SITE MANGANESE CONCENTRATIONS TO BACKGROUND NAS CECIL
FIELD FL
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TETRA TECH NUS INC

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**NAS CECIL FIELD
COMPARISON OF SITE MANGANESE CONCENTRATIONS TO BACKGROUND**

INTRODUCTION

The NAS Cecil Field Partnering Team agreed to the use of "hi-cut" values as the sentinel values to trigger further investigation at BRAC and IR sites. The data across the site were used to derive these "hi-cut" values. Any concentration that lies above the "hi-cut" value is considered to be an "outside value" and deserves further consideration. These values are not regarded as true statistical outliers, but are distributed far enough from the sample's central value to be questioned. The NAS Cecil Field Partnering Team agreed to use these "hi-cut" values to represent background values (Attachment A).

ASSESSMENT OF MANGANESE

Exceedances of the "hi-cut" value in any medium typically warrant further investigation or some form of remediation. Manganese concentrations in groundwater occasionally exceed the "hi-cut" value of 96.2 ug/L. These exceedances cannot be explained by any site-related activities. However, according to the "policies" set forth by the NAS Cecil Field Partnering Team, groundwater remediation would be warranted. However, if the contamination is not site-related, it is questionable as to whether remediation of groundwater for manganese is necessary.

It is not believed that any manganese-related activities occurred on the base. Therefore, a statistical approach of comparing upgradient "background wells," known to be unimpacted by site activities, to downgradient "site wells" was conducted. The wells designated as "background" were those for which no volatile organic compounds (VOCs) were detected and were not adjacent to wells where VOCs were detected. These "background wells" include the following 13 wells:

CEF-BK-12DD	CEF-682-01	CEF-682-02
CEF-682-03	CEF-682-04	CEF-NAGS-2S
CEF-NAGS-5S	CEF-NAGS-1S	CEF-364-01S
CEF-500-1S	CEF-019-01S	CEF-018-01S
CEF-018-02S		

The range of concentrations in the "background wells" is 5.5 ug/L to 300 ug/L.

EPA's *Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment* (1995) provides a simplistic approach to determine if a constituent is significantly greater than background. The onsite maximum detected concentration is compared to two times the average site-specific background concentration. The constituent would not be regarded as being significantly greater than background if the maximum detected concentration is less than two times the background level.

The average background groundwater concentration for manganese is 75 ug/L. Therefore, the "trigger" value for determining an exceedance of background is twice this value, or 150 ug/L.