

N00213.AR.001405  
NAS KEY WEST  
5090.3a

LETTER REGARDING GROUNDWATER SAMPLING RESULTS CONTAINING CHLORINATED  
COMPOUNDS AT THE JET ENGINE TEST CELL NAS KEY WEST FL

3/22/1994

ABB ENVIRONMENTAL



97

March 22, 1994

8507-001

Southern Division  
Naval Facilities Engineering Command  
ATTN: Mr. Gabriel Magwood, Code 1849  
2155 Eagle Drive  
North Charleston, South Carolina 29418

**SUBJECT: Chlorinated Compounds in Groundwater  
Jet Engine Test Cell  
Boca Chica Field, Naval Air Station, Key West, Florida**

Dear Gabriel:

On February 22, four monitoring wells (MW-21 through MW-24) were installed north and east of monitoring wells MW-14 and MW-15 (see attached map). The purpose of the four wells was to confirm the presence and assess the horizontal extent of 1,2-dichloroethene (1,2-DCE) in groundwater at the site. 1,2-DCE had previously been detected in groundwater samples collected from monitoring wells MW-14 and MW-15 on October 18, December 1, 1993, and January 12, 1994.

Groundwater samples were collected from MW-14, MW-15, and MW-21 through MW-24 on February 23, 1994, and analyzed for volatile organic halocarbons by U.S. Environmental Protection Agency (USEPA) Method 601. Groundwater analytical results are summarized in the attached table. Both configurations of 1,2-DCE (*cis*-1,2-DCE and *trans*-1,2-DCE) and trichloroethene (TCE) were detected in the groundwater samples. One or more of the samples contained concentrations exceeding Chapter 17-550, Florida Administrative Code (FAC) groundwater maximum contaminant levels (MCLs).

The February 1994, analyses confirmed that 1,2-DCE is present in MW-14 and MW-15 groundwater samples. *Cis*-1,2-DCE concentrations were 74 parts per billion (ppb), 1120 ppb, 73 ppb, 4.2 ppb, and 770 ppb, respectively, in samples from monitoring wells MW-14, MW-15, MW-21, MW-22, and MW-24. *Trans*-1,2-DCE concentrations were 180 ppb, 280 ppb, 6.6 ppb, and 890 ppb, respectively, in monitoring wells MW-14, MW-15, MW-21, and MW-24 .

TCE concentrations in samples from monitoring wells MW-15, MW-22, and MW-24 were 1.8 ppb, 4.6 ppb, and 2.4 ppb, respectively. TCE was not detected in MW-21 and MW-23 groundwater samples. Benzene, detected only in the sample from monitoring well MW-24, was 3.8 ppb. The Florida Department of Environmental Protection (FDEP) target cleanup level for benzene in Class G-III groundwater is 200 ppb. No compounds were detected in the sample collected from upgradient monitoring well MW-23.

ABB Environmental Services, Inc.



Mr. Gabriel Magwood  
March 22, 1993  
Page 2

The approximate areal extent of petroleum and chlorinated compounds in groundwater, based on the October 1993, and February 23, 1994, data, is shown on the attached map. The groundwater flow direction and contamination distribution are also shown. The horizontal and vertical extent of petroleum compounds in groundwater appears to be delineated. The southern (upgradient) and western extent of chlorinated compounds in groundwater also appears to be delineated; however, the east or north (downgradient) chlorinated compound extent does not.

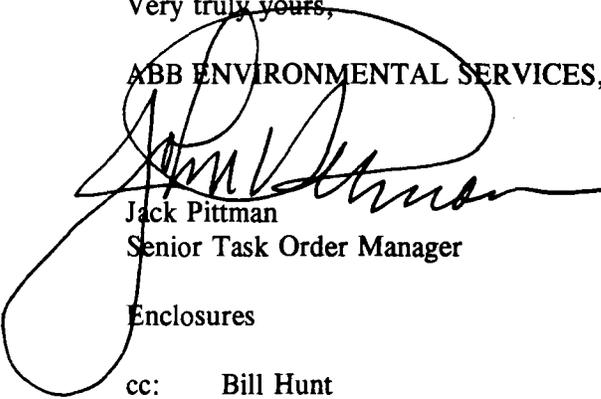
Chlorinated compounds detected in groundwater do not appear to be associated with the reported and observed sources of petroleum contamination at the site. Benzene, detected in the sample from monitoring well MW-24, also does not appear to be related to the petroleum plume because it was not detected in samples from monitoring wells MW-14 and MW-15. Wells MW-14 and MW-15 are located between the petroleum plume and monitoring well MW-24.

The FDEP may require additional investigation to assess the horizontal and vertical extent of groundwater contamination at the site. Because chlorinated compounds are not regulated under petroleum guidelines, we recommend that Southern Division, Naval Facilities Engineering Command, Naval Air Station Key West, and ABB Environmental Services, Inc. (ABB-ES) representatives meet with the FDEP via conference call to discuss whether or not the site should continue to be assessed according to Chapter 17-770 petroleum cleanup guidelines.

If you have any questions, or require additional information, please call me.

Very truly yours,

ABB ENVIRONMENTAL SERVICES, INC.



Jack Pittman  
Senior Task Order Manager

Enclosures

cc: Bill Hunt  
Ken Busen  
Roger Durham  
Jim Williams

**Summary of Groundwater Analytical Results, February 1994**

Jet Engine Test Cell Site  
Boca Chica Field  
NAS Key West, Florida

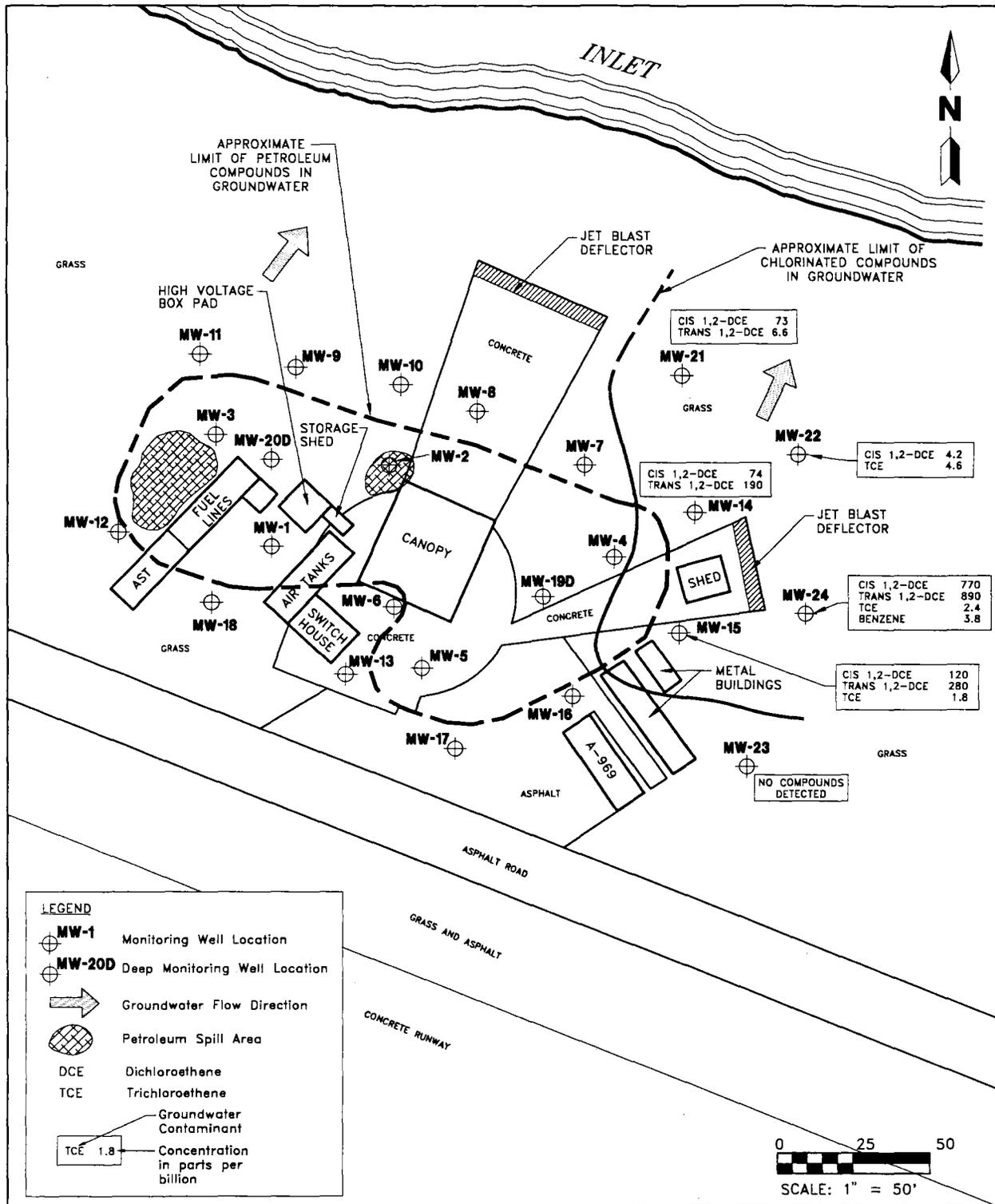
Compound <sup>1</sup>	Monitoring Well						MCL <sup>2</sup>
	MW-14/Dup	MW-15	MW-21	MW-22	MW-23	MW-24	
<i>cis</i> -1,2-Dichloroethene	74/73	120	73	4.2	ND	770	70
<i>trans</i> -1,2-Dichloroethene	180/190	280	6.6	4.6	ND	890	100
Trichloroethene	ND/ND	1.8	ND	ND	ND	2.4	3
Benzene	ND/ND	ND	ND	ND	ND	3.8	<sup>3</sup> 200

<sup>1</sup> Compound concentrations are expressed in parts per billion (ppb).

<sup>2</sup> Maximum contaminant level (MCL) (Chapter 17-550, Florida Administrative Code [FAC]).

<sup>3</sup> State target level for G-III groundwater (Chapter 17-770, FAC).

ND = compounds not detected above method detection limit.



**FIGURE 4-2**  
**APPROXIMATE AREAL EXTENT OF**  
**PETROLEUM COMPOUNDS AND**  
**CHLORINATED COMPOUNDS IN GROUNDWATER**



**JET ENGINE TEST CELL SITE**

**BOCA CHICA FIELD**  
**NAVAL AIR STATION**  
**KEY WEST, FLORIDA**