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FINAL RCRA FACILITY INVESTIGATION SUMMARY ADDENDUM FOR BUILDINGS 1015, 1027, 1060, 4064, 1190, 1191, 1194, 1414, 1602 AND 4210 NAS FORT WORTH TX

4/1/2002

INTERNATIONAL TECHNOLOGIES

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D.E.

NAVAL AIR STATION
FORT WORTH JRB
CARSWELL FIELD
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 725

File: 17-A-83-1
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FINAL

RCRA Facility Investigation Summary Addendum for Buildings 1015, 1027, 1060, 1064, 1190, 1191, 1194, 1414, 1602, and 4210 NAS Fort Worth JRB, Texas

Prepared for:
U.S. Air Force Center for Environmental Excellence
Brooks AFB, TX

CONTRACT NO. F41624-94-D-8047, DELIVERY ORDER D0003

Project No. 774902
April 2002

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE TEXAS

9 April, 2002

MEMORANDUM FOR RAY RISNER (TNRCC)

FROM: HQ AFCEE/ERD
P.O. Box 27008
Fort Worth, Texas 76127-0008

SUBJECT: Naval Air Station Joint Reserve Base
Formerly Carswell AFB
TNRCC Solid Waste Registration No. 65004
TNRCC Hazardous Waste Permit No. HW-50289
EPA ID No. TX0571924042
Final RCRA Facility Investigation Summary Addendum for Buildings 1015, 1027, 1060, 1064, 1190, 1191, 1194, 1414, 1602, and 4210

Dear Mr. Risner,

Two copies (one original and one copy) of the Final RCRA Facility Investigation (RFI) Summary Addendum requesting closure of the oil/water separators at Buildings 1015, 1027, 1060, 1064, 1190, 1191, 1194, 1414, 1602, and 4210 is enclosed for your review per the TNRCC RCRA permit No. HW50289 for NAS Fort Worth JRB. Additional copies of the Final Report are also being sent to the TNRCC Region 4 Office and to EPA Region 6.

Should you have any questions regarding this letter, please contact me at (210) 536-5290.

Sincerely,

Michael R Dodyk

Michael R. Dodyk, P.E.
Restoration Team Chief
NAS Ft. Worth JRB

Printed on Recycled Paper

cc:

EPA Region VI
Mr. Gary W. Miller
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

TNRCC Region 4 Office
Mr. Tim Sewell
1101 East Arkansas Lane
Arlington, TX 76010

HQ AFCEE/ERD
Mr. Mike Dodyk
P.O. Box 27008
Fort Worth, TX 76127-0008
2 copies (AR and working file)

Booz Allen Hamilton
Ms. Audrie Medina
300 Convent Street, Suite 1250
San Antonio, TX 78205

Don Ficklen
HQ AFCEE/ERD
3207 Sidney Brooks
Brooks AFB, TX 78235-5244

FINAL

RCRA FACILITY INVESTIGATION SUMMARY ADDENDUM FOR BUILDINGS 1015, 1027, 1060, 1064, 1190, 1191, 1194, 1414, 1602, AND 4210 NAS FORT WORTH JRB, TEXAS

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Final
RCRA Facility Investigation Summary Addendum for Buildings 1015, 1027, 1060, 1064, 1190, 1191, 1194, 1414, 1602, and 4210 NAS Fort Worth JRB, Texas

Prepared for:

Air Force Center for Environmental Excellence
HSC/PKVCB
Headquarters Human Systems Center
Brooks Air Force Base, Texas 78235-5353

Prepared by:

IT Corporation
312 Directors Drive
Knoxville, Tennessee 37923

April 2002

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List of Acronyms

AFCEE	Air Force Center for Environmental Excellence
AFP-4	Air Force Plant No. 4
AOC	area of concern
COC	constituent(s) of concern
DCE	dichloroethene
IT	IT Corporation
JRB	Joint Reserve Base
HGL	HydroGeoLogic, Inc.
Law	Law Environmental, Inc.
µg/L	micrograms per liter
mg/L	milligrams per liter
MQL	method quantitation limit
MSC	media-specific concentration
NAS	Naval Air Station
NFA	no further action
OWS	oil/water separator
PCB	polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RRP	Risk Reduction Program
RRS	Risk Reduction Standard
SPLP	synthetic precipitation leaching procedure
SVOC	semivolatile organic compound
SWMU	Solid Waste Management Unit
TAC	Texas Administrative Code
TCE	trichloroethene
TNRCC	Texas Natural Resource Conservation Commission
VOC	volatile organic compound

1.0 Introduction

The Air Force Center for Environmental Excellence (AFCEE) contracted IT Corporation (IT) to perform a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) at 13 oil/water separator (OWS) sites at Naval Air Station (NAS) Fort Worth Joint Reserve Base (JRB), Texas, to determine whether these units released hazardous constituents into the environment. The RFI report for these 13 OWS sites (Buildings 1015, 1027, 1060, 1064, 1190, 1191, 1194, 1414, 1602, 1643, 3358, 4146, and 4210) was submitted to the Texas Natural Resource Conservation Commission (TNRCC) for review in April 2001 (IT, 2001). The OWSs at Buildings 1643, 3358, and 4146 were recommended for no further action (NFA) under Risk Reduction Standard (RRS) 1 of the TNRCC Risk Reduction Program (RRP). The remaining sites (Buildings 1015, 1027, 1060, 1064, 1190, 1191, 1194, 1414, 1602, and 4210) were recommended for NFA and closure under RRS 2.

In a letter from Ray Risner, TNRCC, to Michael Dodyk, AFCEE, dated September 17, 2001, the TNRCC approved the investigation, conclusion, and request for NFA and RRS 1 closure of the OWS sites at Buildings 1643, 3358, and 4146. However, based upon the information provided in the RFI report, the TNRCC could not approve the RFI, conclusion, or request for closure under RRS 2 for the OWSs at Building 1015 (Solid Waste Management Unit [SWMU] 47), Building 1027 (SWMU 44), Building 1060 (Area of Concern [AOC] 11), Building 1064 (AOC 10), Building 1190 (SWMU 52), Building 1191 (SWMU 37), Building 1194 (SWMU 35), Building 1414 (SWMU 41), Building 1602 (part of SWMU 66), Building 1643 (SWMU 40), and Building 4210 (AOC 12). The TNRCC stated that the text of the RFI report failed to identify a clear reason for selecting RRS 2 for each of these units and which constituents of concern (COC) were applicable. The TNRCC also questioned whether four of the OWS sites (Buildings 1064, 1191, 1194, and 4210) were within the boundary of the trichloroethene (TCE) plume that originates at Air Force Plant No. 4 (AFP-4).

The purpose of this RFI summary addendum is to discuss the extent of the TCE plume at NAS Fort Worth JRB with respect to the four OWS sites questioned by the TNRCC in its September 17, 2001, letter to AFCEE. Additionally, the conclusions sections for the 10 sites presented for closure under RRS 2 were rewritten to provide a clear reason for RRS 2 closure and to specify the COCs and the affected media.

Chapter 2.0 of this addendum report discusses the current boundary of the TCE plume, as was presented in the 2000 annual report prepared by HydroGeoLogic, Inc. (HGL). Chapters 3.0

through 12.0 present the conclusions for the following sites that are recommended for closure under RRS 2: Building 1015 (SWMU 47), Building 1027 (SWMU 44), Building 1060 (AOC 11), Building 1064 (AOC 10), Building 1190 (SWMU 52), Building 1191 (SWMU 37), Building 1194 (SWMU 35), Building 1414 (SWMU 41), Building 1602 (part of SWMU 66), and Building 4210 (AOC 12). References cited in this RFI summary addendum are listed in Chapter 13.0. Appendix A contains replacement pages that are to be incorporated into the RFI report. The replacement pages are required to correct errors in Tables 10-4 and 11-4 of the final RFI report. These tables showed incorrect units for detected groundwater concentrations.

2.0 Discussion of TCE Plume in Groundwater

In a letter from Ray Risner, TNRCC, to Michael Dodyk, AFCEE, dated September 17, 2001, the TNRCC stated "The TNRCC is well aware of the TCE plume under the Carswell site; however, the latest TCE maps do not show that the locations of OWSs at Buildings 1064, 1191, 1194 and 4210 are above the identified plume. Please explain and/or provide updated TCE plume maps for this revision and all other appropriate reports." The purpose of this chapter is to show that these four OWS sites are located in areas that are impacted by the TCE plume that originates at AFP-4.

Figure 2-1 presents the TCE plume map for October 2000 as presented in the *Final Basewide Groundwater Sampling and Analysis Program, 2000 Annual Report* (HGL, 2001). Figure 2-2 shows the October 2000 plume map for cis-1,2-dichloroethene (DCE), which is a breakdown product of TCE. The locations of the OWS sites at Buildings 1064, 1191, 1194 and 4210 are included on Figures 2-1 and 2-2.

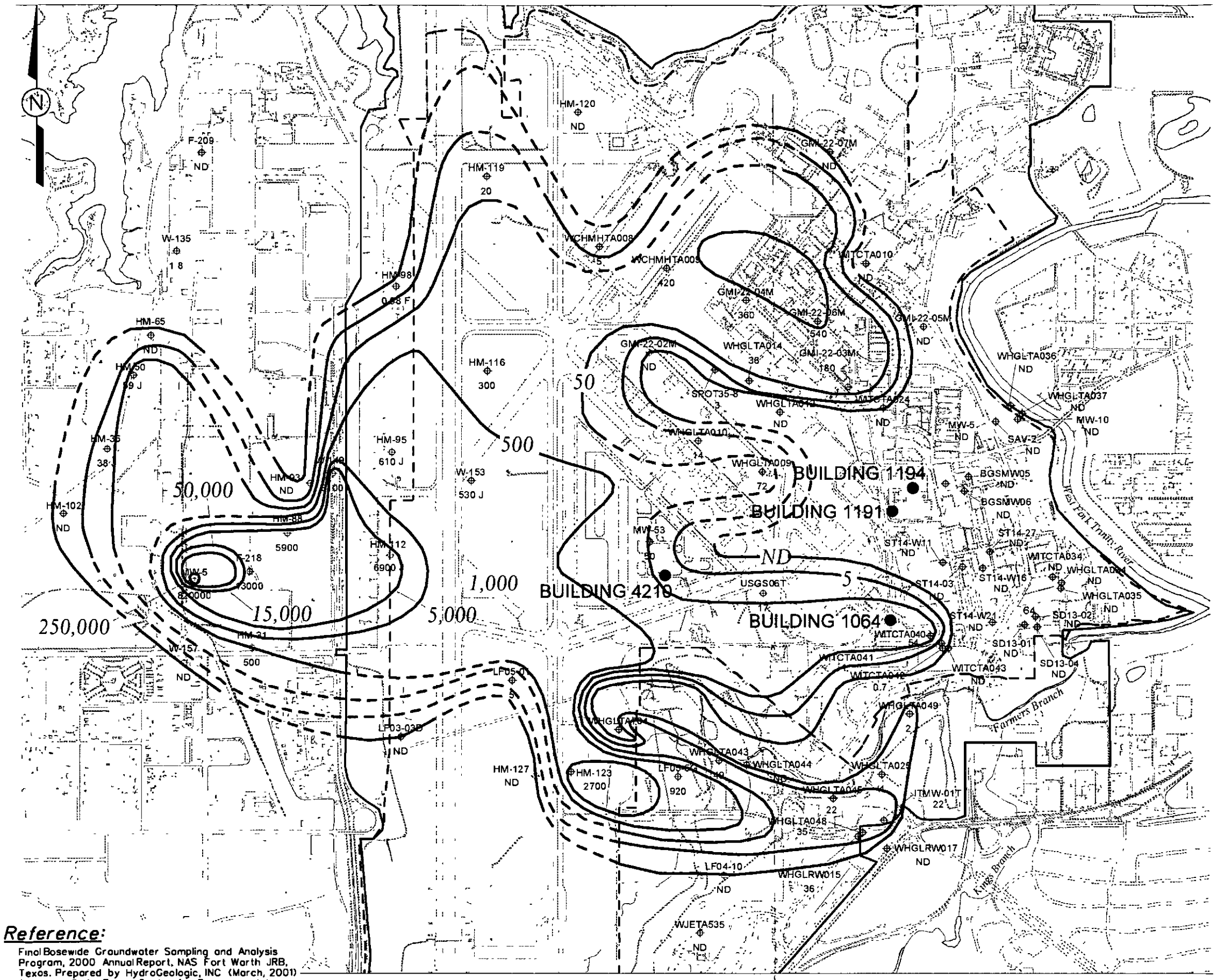
2.1 OWS at Building 1064

The October 2000 plume map of TCE concentrations in groundwater at NAS Fort Worth JRB (Figure 2-1) clearly shows that the Building 1064 OWS site is within the TCE plume originating from AFP-4.

2.2 OWS at Building 1191

The October 2000 plume map of cis-1,2-DCE concentrations in groundwater at NAS Fort Worth JRB (Figure 2-2) indicates that the leading edge of the cis-1,2-DCE plume originating from AFP-4 is very near the Building 1191 OWS site. The groundwater beneath the Building 1191 OWS site is impacted by the TCE plume originating from AFP-4.

Vinyl chloride, a degradation product of TCE and DCE, was the only volatile organic compound (VOC) detected above background (method quantitation limit [MQL]) in monitoring well WITCTA031 during the Phase 1 RFI. The detected vinyl chloride concentration was 0.0022 milligrams per liter (mg/L). cis-1,2-DCE was also detected in the Phase 1 groundwater sample from WITCTA031, but at a concentration (0.00069 J mg/L) that did not exceed background. A comparison of the October 2000 TCE plume map (Figure 2-1) and the cis-1,2-DCE plume map (Figure 2-2) shows that the AFP-4 plume extends to the OWS site at Building 1191.



Reference:

Final Bosewide Groundwater Sampling and Analysis Program, 2000 Annual Report, NAS Fort Worth JRB, Texas. Prepared by HydroGeologic, INC (March, 2001) for the U.S. Air Force Center for Environmental Excellence

LEGEND:

- - - - NAS Fort Worth JRB (Carswell Field)

——— Former Carswell Air Force Base

● Oil/Water Separator Site

—500— TCE Concentration Contour (µg/L)

MW-53 ⊕ 50 — NAS Fort Worth JRB Basewide Sampling Well; TCE Concentration (µg/L)

WHGLTA028 ⊕ 54 — Monitoring well data collected as part of other investigations during October and November 2000; TCE Concentration (µg/L)

HM-119 ⊕ 17 — AFP 4 Semi-Annual Monitoring Well; TCE Concentration (µg/L)

⊕ — Previous data from WHGLTA704 and GMI-22-06M have been used to shape the contours

ND = Not Detected at Laboratory Method Detection Limit of 0.5µg/L

F = The analyte was positively identified, but the associated value is below the PQL

J = The analyte was positively identified, but the quantitation is an estimation

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C.M.

600 0 600 1200
SCALE IN FEET

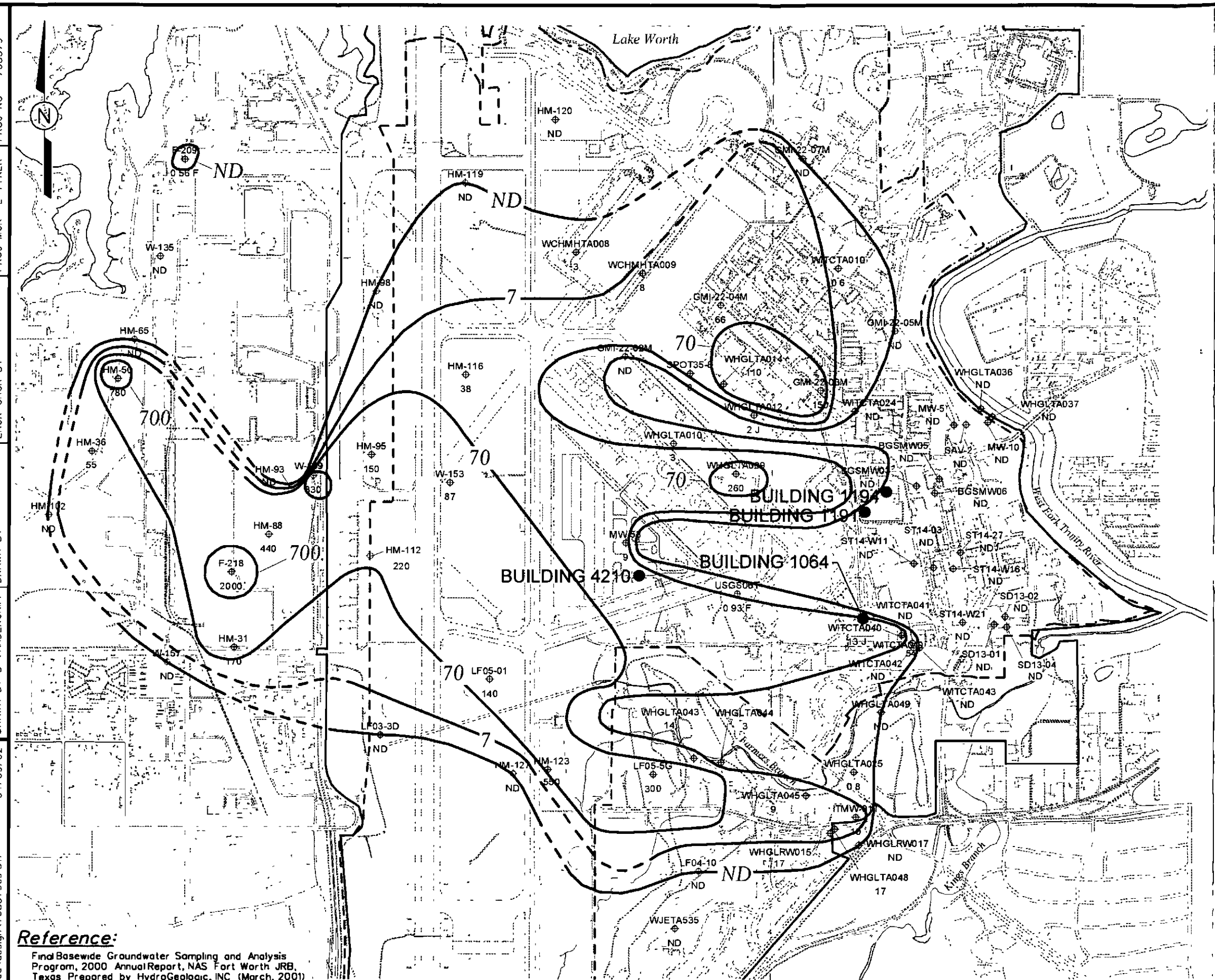
FIGURE 2-1
TCE PLUME MAP (OCTOBER 2000)
TERRACE ALLUVIUM

NAS FORT WORTH JRB
FORT WORTH, TEXAS

IT CORPORATION
A Member of The IT Group

STARTING DATE 02NOV01	DATE LAST REV	DRAFT CHCK BY C E TUMLIN	INITIATOR K HURLEY	DWG NO. \768579es 310	
DRAWN BY B VANDERGRIFF	DRAWN BY	ENGR CHCK BY	PROJ MGR L TYNER	PROJ NO 768579	

09 48 11 04/09/02 bvanderg c:\cadd\design\768579es 310



LEGEND:

- - - - NAS Fort Worth JRB (Carswell Field)

——— Former Carswell Air Force Base

● Oil/Water Separator Site

—70— cis-1,2-DCE Concentration Contour (µg/L)

MW-53 ⊕ 38 — NAS Fort Worth JRB Basewide Sampling Well; cis-1,2-DCE Concentration (µg/L)

WHGLTA028 ⊕ 260 — Monitoring well data collected as part of other investigations during October and November 2000; cis-1,2-DCE Concentration (µg/L)

USGS06T ⊕ 150 — AFP 4 Semi-Annual Monitoring Well; cis-1,2-DCE Concentration (µg/L)

ND = Not Detected at Laboratory Method Detection Limit of 0 5µg/L

F = The analyte was positively identified, but the associated value is below PQL

J = The analyte was positively identified, but the quantitation is an estimation

File: 17A-83-1
C.M.

600 0 600 1200
SCALE IN FEET

FIGURE 2-2
CIS-1,2-DCE PLUME MAP
(OCTOBER 2000)
TERRACE ALLUVIUM

NAS FORT WORTH JRB
FORT WORTH, TEXAS

IT CORPORATION
A Member of The IT Group

Reference:

Final Basewide Groundwater Sampling and Analysis Program, 2000 Annual Report, NAS Fort Worth JRB, Texas Prepared by HydroGeologic, INC (March, 2001) for the U.S. Air Force Center for Environmental Excellence

STARTING DATE 05NOV01	DATE LAST REV	DRAFT CHCK BY C E TUMLIN	INITIATOR K HURLEY	DWG NO \768579es 311
DRAWN BY B VANDERGRIFF	DRAWN BY	ENGR CHCK BY	PROJ MGR L TYNER	PROJ NO 768579

09 40 54 04/09/02

bvanderg c:\cadd\design\768579es 311

2.3 OWS at Building 1194

Figure 2-2 shows that the leading edge of the cis-1,2-DCE plume originating from AFP-4 is very close to the location of the OWS at Building 1194. The low concentration of TCE detected in monitoring well WITCTA027 shows that groundwater beneath the Building 1194 OWS site has been impacted by the TCE plume originating from AFP-4.

The units for the groundwater sample from WITCTA027 on Table 10-4 of the OWS RFI report are incorrect (they are in micrograms per liter (µg/L) rather than mg/L). This table has been revised, and replacement pages are provided in Appendix A of this addendum report. TCE was detected at a concentration (0.00025 J mg/L) that was below background (MQL of 0.001 mg/L) in the Phase 1 RFI groundwater sample from WITCTA027. Therefore, the TCE concentration detected at the Building 1194 site meets the requirements for closure under RRS 1.

2.4 OWS at Building 4210

The October 2000 plume map for TCE concentrations in groundwater at NAS Fort Worth JRB (Figure 2-1) clearly shows that the OWS site at Building 4210 is within the TCE plume originating from AFP-4.

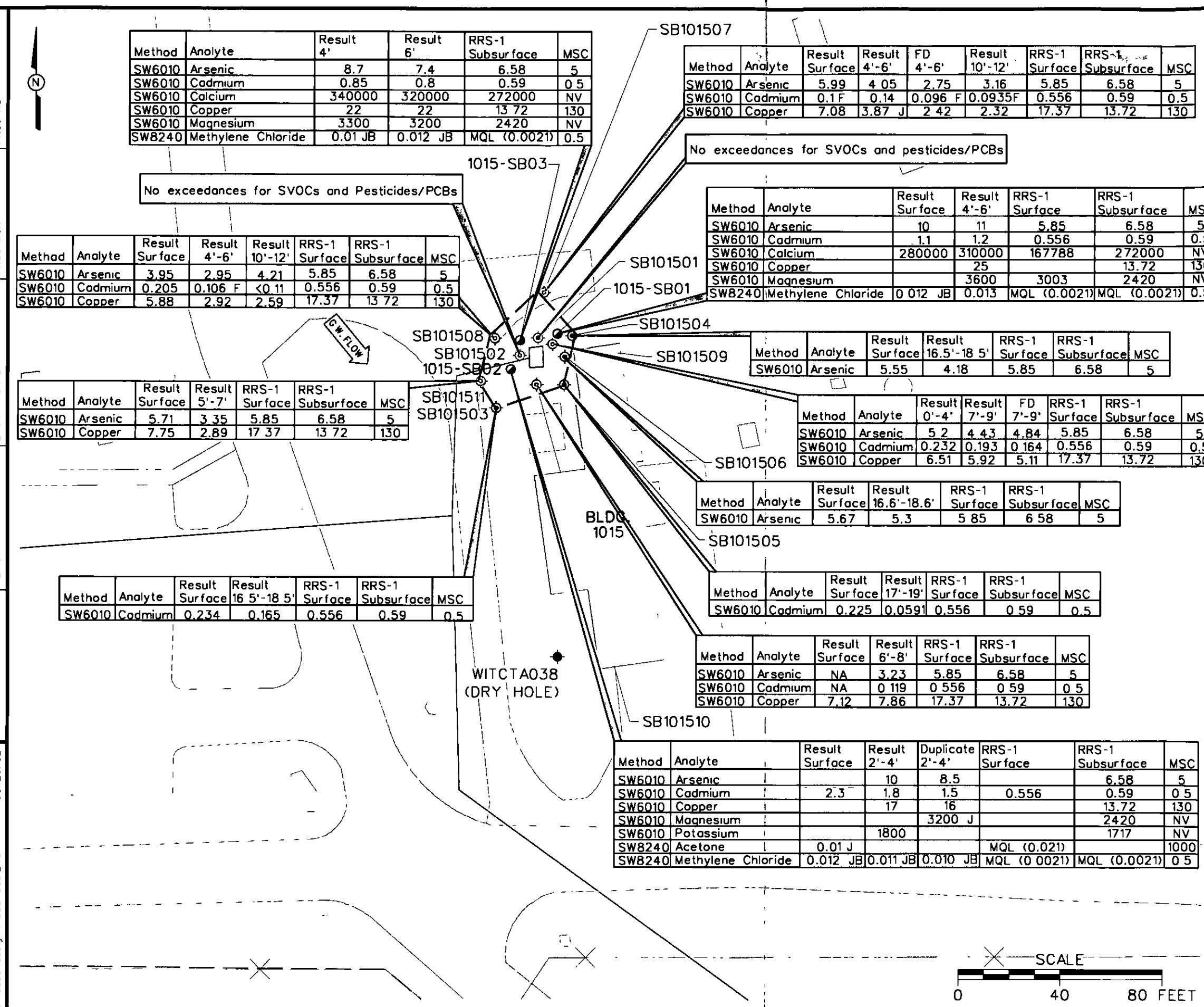
3.0 Building 1015 OWS Conclusions

Arsenic, cadmium, and copper were detected above background in surface and subsurface soil samples collected from Law Environmental, Inc. (Law) borings 1015-SB01, 1015-SB02, and 1015-SB03 (Law, 1995). No VOCs were detected above background (i.e., MQLs) in the soil samples collected from the three Law borings. No semivolatile organic compounds (SVOC) or pesticides/polychlorinated biphenyls (PCB) were detected in soil samples collected from Phase 1 RFI borings SB101501 and SB101502 (IT, 1998). The inorganics that were detected above background in the subsurface soil samples collected by Law (1995) were delineated to background by the results from Phase 2 RFI borings SB101504 through SB101506 and Phase 3 RFI borings SB101507 through SB101511 (IT, 2001).

IT attempted to replicate the arsenic and cadmium concentrations detected above background and media-specific concentrations (MSC) at former Law boring 1015-SB01 by collecting surface and subsurface soil samples from Phase 3 RFI boring SB101509. However, as shown in Figure 3-1, arsenic and cadmium concentrations detected from SB101509 were below both background and MSCs. Copper concentrations were also below background in the soil samples collected at SB101509.

NFA is warranted for the OWS at Building 1015, and the site is recommended for closure under RRS 2. The lack of detections of compounds present in hydraulic fluid, engine lubricating oil, and other petroleum byproducts handled by the OWS in soil samples collected at Building 1015 indicates that any releases that may have occurred from the OWS have not significantly impacted the environment. Closure under RRS 2 is recommended because the arsenic, cadmium, and copper concentrations detected above background in the three Law borings (1015-SB01 through 1015-SB03) have been delineated to background. Additionally, attempts to replicate the highest arsenic and cadmium concentrations from the Law boring 1015-SB01 were unsuccessful based upon the results from Phase 3 RFI boring SB101509, which indicates that the Law (1995) results for these inorganics may have been biased high.

If this recommendation is accepted, a letter stating that closure of SWMU 47 (OWS at Building 1015) was carried out in accordance with Texas Administrative Code (TAC) §335.555, signed by an Air Force representative, will be transmitted to TNRCC, along with a metes and bounds description of SWMU 47. The metes and bounds description will correspond to surveyed coordinates of the affected area shown in Figure 3-1. The COCs are arsenic, cadmium, and



Method	Analyte	Result 4'	Result 6'	RRS-1 Subsurface	MSC
SW6010	Arsenic	8.7	7.4	6.58	5
SW6010	Cadmium	0.85	0.8	0.59	0 5
SW6010	Calcium	340000	320000	272000	NV
SW6010	Copper	22	22	13 72	130
SW6010	Magnesium	3300	3200	2420	NV
SW8240	Methylene Chloride	0.01 JB	0.012 JB	MQL (0.0021)	0.5

No exceedances for SVOCs and Pesticides/PCBs

Method	Analyte	Result Surface	Result 4'-6'	Result 10'-12'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	3.95	2.95	4.21	5.85	6.58	5
SW6010	Cadmium	0.205	0.106 F	<0 11	0.556	0.59	0.5
SW6010	Copper	5.88	2.92	2.59	17.37	13 72	130

Method	Analyte	Result Surface	Result 5'-7'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	5.71	3 35	5.85	6.58	5
SW6010	Copper	7.75	2.89	17 37	13 72	130

Method	Analyte	Result Surface	Result 16 5'-18 5'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Cadmium	0.234	0.165	0.556	0.59	0.5

Method	Analyte	Result Surface	Result 4'-6'	FD 4'-6'	Result 10'-12'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	5.99	4 05	2.75	3.16	5.85	6.58	5
SW6010	Cadmium	0.1 F	0.14	0.096 F	0.0935F	0.556	0.59	0.5
SW6010	Copper	7.08	3.87 J	2 42	2.32	17.37	13.72	130

No exceedances for SVOCs and pesticides/PCBs

Method	Analyte	Result Surface	Result 4'-6'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	10	11	5.85	6.58	5
SW6010	Cadmium	1.1	1.2	0.556	0.59	0.5
SW6010	Calcium	280000	310000	167788	272000	NV
SW6010	Copper		25		13.72	130
SW6010	Magnesium		3600	3003	2420	NV
SW8240	Methylene Chloride	0 012 JB	0.013	MQL (0.0021)	MQL (0.0021)	0.5

Method	Analyte	Result Surface	Result 16.5'-18 5'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	5.55	4.18	5.85	6.58	5

Method	Analyte	Result 0'-4'	Result 7'-9'	FD 7'-9'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	5 2	4 43	4.84	5.85	6.58	5
SW6010	Cadmium	0.232	0.193	0 164	0.556	0.59	0.5
SW6010	Copper	6.51	5.92	5.11	17.37	13.72	130

Method	Analyte	Result Surface	Result 16.6'-18.6'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	5.67	5.3	5 85	6 58	5

Method	Analyte	Result Surface	Result 17'-19'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Cadmium	0.225	0.0591	0.556	0 59	0.5

Method	Analyte	Result Surface	Result 6'-8'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	NA	3.23	5.85	6.58	5
SW6010	Cadmium	NA	0 119	0 556	0 59	0 5
SW6010	Copper	7.12	7.86	17.37	13.72	130

Method	Analyte	Result Surface	Result 2'-4'	Duplicate 2'-4'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic		10	8.5		6.58	5
SW6010	Cadmium	2.3	1.8	1.5	0.556	0.59	0 5
SW6010	Copper		17	16		13.72	130
SW6010	Magnesium			3200 J		2420	NV
SW6010	Potassium		1800			1717	NV
SW8240	Acetone	0.01 J			MQL (0.021)		1000
SW8240	Methylene Chloride	0.012 JB	0.011 JB	0.010 JB	MQL (0 0021)	MQL (0.0021)	0 5

LEGEND

- BUILDING 1015 INDUSTRIAL WASTE OIL/WATER SEPARATOR UNIT
- IT CORP. SOIL BORING (SVOCs AND PESTICIDES/PCBs)
- IT CORP. PHASE 2 BORING (2000)
- IT CORP. PHASE 3 BORING (2000)
- IT CORP. MONITORING WELL
- LAW ENGINEERING SOIL BORING (VOCs AND METALS)
- G.W. FLOW — GROUNDWATER FLOW DIRECTION
- SEWER LINE AND DIRECTIONAL FLOW
- FENCE
- RRS 2 SURVEY BOUNDARY
- PHASE 1 RESULTS > BACKGROUND
- PHASE 2 RESULTS
- PHASE 3 RESULTS
- ANALYTE DETECTED ABOVE MSC SPLP NOT PERFORMED.

NOTES:

CONCENTRATIONS REPORTED IN MG/KG UNLESS NOTED OTHERWISE

MSC - MEDIA-SPECIFIC CONCENTRATION.

NV - NO VALUE, NA - NOT ANALYZED

B - FOR INORGANICS, THE QUANTITATION IS AN ESTIMATED CONCENTRATION BETWEEN THE MDL AND PQL. FOR ORGANICS, THE CONSTITUENT WAS ALSO DETECTED IN THE ASSOCIATED METHOD BLANK.

J - THE ANALYTE WAS POSITIVELY IDENTIFIED, THE QUANTITATION IS AN ESTIMATION

F - THE ANALYTE WAS POSITIVELY IDENTIFIED, BUT THE ASSOCIATED NUMERICAL VALUE IS BELOW THE REPORTING LIMIT.

SOURCE: DRAFT RCRA FACILITES INVESTIGATION SANITARY SEWER SYSTEM, SEPTEMBER 1997, IT CORPORATION.

FIGURE 3-1
SITE MAP SHOWING INVESTIGATION RESULTS OWS BUILDING 1015 (SWMU 47)

File: C.M. 17A-83-1

NAS FORT WORTH JRB
FORT WORTH, TEXAS

IT CORPORATION
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DWG NO. \768579es 249 | PROJ NO 768579
INITIATOR K HURLEY | PROJ MGR W CARTER
DRAFT CHCK BY D HALL | ENGR CHCK BY K HURLEY
DATE LAST REV 11/14/00 | REVISION NO 0
STARTING DATE 12/19/00 | DRAWN BY M CRAFT
01 32 05 PM 03/29/02
mcraft c:\cadd\design\768579es 249

copper, which were detected above background in surface and subsurface soil during the Law (1995) investigation.

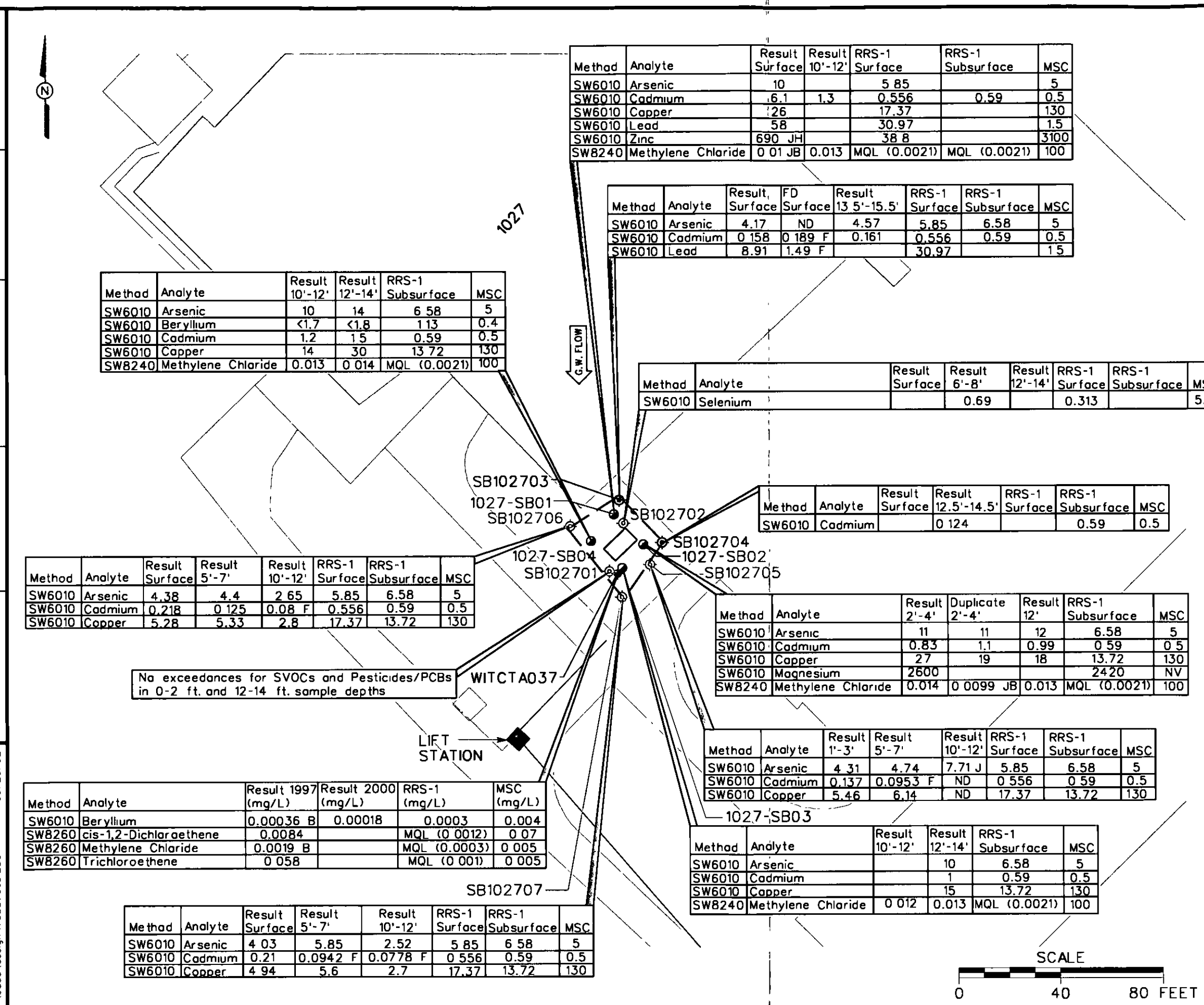
4.0 Building 1027 OWS Conclusions

Arsenic, cadmium, copper, and lead were detected above basewide background concentrations in the soil samples collected from Law borings 1027-SB01 through 1027-SB04 (Law, 1995) (Figure 4-1). Arsenic, cadmium, and lead concentrations detected during the Law investigation also exceeded their respective MSCs. No VOCs were detected above background (i.e., MQLs) in the soil samples collected at the four Law borings. No SVOCs or pesticides/PCBs were detected above background in soil samples from Phase 1 RFI soil borings SB102701 and SB102702 (IT, 1998). The inorganics that were detected above background during the 1995 Law investigation (arsenic, cadmium, and copper) were delineated by the results from surface and subsurface soil samples from Phase 2 RFI borings SB102703 and SB102704 and Phase 3 RFI borings SB102705 through SB102707 (IT, 2001).

Phase 2 RFI boring SB102703, located adjacent to former Law boring 1027-SB01, was sampled in an attempt to confirm arsenic, cadmium, and lead detections above background and MSCs in surface soil and to confirm arsenic and cadmium detections above background in subsurface soil. However, as shown in Figure 4-1, all detected concentrations of arsenic, cadmium, and lead in soil samples from SB102701 were below background. These results indicate that the elevated concentrations of arsenic and cadmium detected during the Law (1995) investigation are consistently higher than the concentrations detected in soil samples collected by IT.

NFA is warranted for the OWS at Building 1027, and the site is recommended for closure under RRS 2. The lack of elevated detections of VOCs and SVOCs that are typically found in aircraft rinsate and PD-680 in soil and groundwater samples provides evidence that a significant release of contaminants has not occurred. Closure under RRS 2 is recommended because the arsenic, cadmium, and copper concentrations detected above background in the former Law borings (1027-SB01 through 1027-SB04) have been delineated to background. Additionally, attempts to replicate the highest arsenic, cadmium, and lead detections from Law boring 1027-SB01 were unsuccessful, based upon the results from Phase 2 RFI boring SB102703, which indicates that the Law (1995) results for these inorganics were biased high.

If this recommendation is accepted, a letter stating that closure of SWMU 44 was carried out in accordance with TAC §335.555, signed by an Air Force representative, will be transmitted to TNRCC, along with a metes and bounds description of SWMU 44. The metes and bounds description will correspond to surveyed coordinates of the affected area shown in Figure 4-1. The COCs for this site will be documented as arsenic, cadmium, and copper, which were detected above background in subsurface soils.



Method	Analyte	Result Surface	Result 10'-12'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	10		5 85		5
SW6010	Cadmium	6.1	1.3	0.556	0.59	0.5
SW6010	Copper	26		17.37		130
SW6010	Lead	58		30.97		1.5
SW6010	Zinc	690 JH		38 8		3100
SW8240	Methylene Chloride	0 01 JB	0.013	MQL (0.0021)	MQL (0.0021)	100

Method	Analyte	Result, Surface	FD Surface	Result 13 5'-15.5'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	4.17	ND	4.57	5.85	6.58	5
SW6010	Cadmium	0 158	0 189 F	0.161	0.556	0.59	0.5
SW6010	Lead	8.91	1.49 F		30.97		1 5

Method	Analyte	Result 10'-12'	Result 12'-14'	RRS-1 Subsurface	MSC
SW6010	Arsenic	10	14	6 58	5
SW6010	Beryllium	<1.7	<1.8	1 13	0.4
SW6010	Cadmium	1.2	1 5	0.59	0.5
SW6010	Copper	14	30	13 72	130
SW8240	Methylene Chloride	0.013	0 014	MQL (0.0021)	100

Method	Analyte	Result Surface	Result 6'-8'	Result 12'-14'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Selenium		0.69		0.313		5.0

Method	Analyte	Result Surface	Result 12.5'-14.5'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Cadmium		0 124		0.59	0.5

Method	Analyte	Result Surface	Result 5'-7'	Result 10'-12'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	4.38	4.4	2 65	5.85	6.58	5
SW6010	Cadmium	0.218	0 125	0.08 F	0.556	0.59	0.5
SW6010	Copper	5.28	5.33	2.8	17.37	13.72	130

Method	Analyte	Result 2'-4'	Duplicate 2'-4'	Result 12'	RRS-1 Subsurface	MSC
SW6010	Arsenic	11	11	12	6.58	5
SW6010	Cadmium	0.83	1.1	0.99	0 59	0 5
SW6010	Copper	27	19	18	13.72	130
SW6010	Magnesium	2600			2420	NV
SW8240	Methylene Chloride	0.014	0 0099 JB	0.013	MQL (0.0021)	100

Method	Analyte	Result 1'-3'	Result 5'-7'	Result 10'-12'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	4 31	4.74	7.71 J	5.85	6.58	5
SW6010	Cadmium	0.137	0.0953 F	ND	0 556	0 59	0.5
SW6010	Copper	5.46	6.14	ND	17.37	13.72	130

Method	Analyte	Result 1997 (mg/L)	Result 2000 (mg/L)	RRS-1 (mg/L)	MSC (mg/L)
SW6010	Beryllium	0.00036 B	0.00018	0.0003	0.004
SW8260	cis-1,2-Dichloroethene	0.0084		MQL (0 0012)	0 07
SW8260	Methylene Chloride	0.0019 B		MQL (0.0003)	0 005
SW8260	Trichloroethene	0 058		MQL (0 001)	0 005

Method	Analyte	Result 10'-12'	Result 12'-14'	RRS-1 Subsurface	MSC
SW6010	Arsenic		10	6.58	5
SW6010	Cadmium		1	0.59	0.5
SW6010	Copper		15	13.72	130
SW8240	Methylene Chloride	0 012	0.013	MQL (0.0021)	100

Method	Analyte	Result Surface	Result 5'-7'	Result 10'-12'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	4 03	5.85	2.52	5 85	6 58	5
SW6010	Cadmium	0.21	0.0942 F	0.0778 F	0 556	0.59	0.5
SW6010	Copper	4 94	5.6	2.7	17.37	13.72	130

LEGEND

- BUILDING 1027 INDUSTRIAL WASTE OIL/WATER SEPARATOR UNIT
- IT CORP. SOIL BORING (1997)
- IT CORP. PHASE 2 BORING (2000)
- IT CORP. PHASE 3 BORING (2000)
- IT CORP. MONITORING WELL
- LAW ENGINEERING SOIL BORING (VOCs AND METALS)
- GROUNDWATER FLOW DIRECTION
- SEWER LINE AND DIRECTIONAL FLOW
- FENCE
- RRS 2 SURVEY BOUNDARY
- PHASE 1 > BACKGROUND
- PHASE 2 RESULTS
- PHASE 3 RESULTS
- ANALYTE DETECTED ABOVE MSC. SPLP NOT PERFORMED.

NOTES:

CONCENTRATIONS REPORTED IN MG/KG.

MSC - MEDIA-SPECIFIC CONCENTRATION.

NV - NO VALUE

B - FOR INORGANICS, THE QUANTITATION IS AN ESTIMATED CONCENTRATION BETWEEN THE MDL AND PQL. FOR ORGANICS, THE CONSTITUENT WAS ALSO DETECTED IN THE ASSOCIATED METHOD BLANK.

J - THE ANALYTE WAS POSITIVELY IDENTIFIED, THE QUANTITATION IS AN ESTIMATION.

F - THE ANALYTE WAS POSITIVELY IDENTIFIED, BUT THE ASSOCIATED NUMERICAL VALUE IS BELOW THE REPORTING LIMIT.

SOURCE: DRAFT RCRA FACILITES INVESTIGATION SANITARY SEWER SYSTEM, SEPTEMBER 1997, IT CORPORATION.

FIGURE 4-1
SITE MAP SHOWING INVESTIGATION RESULTS OWS BUILDING 1027 (SWMU 44)

NAS FORT WORTH JRB
FORT WORTH, TEXAS

File: C.M. 17A-83-1

IT CORPORATION
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DWG NO \768579es 250	PROJ NO 768579		
INITIATOR K HURLEY	PROJ MGR W CARTER		
DRAFT CHCK BY D HALL	ENGR CHCK BY K HURLEY		
DATE LAST REV 12/20/00	REVISION NO 0		
STARTING DATE 12/20/00	DRAWN BY M CRAFT		
01 31 23 PM	03/29/02		
mcraft	c \cadd\design\768579es 250		

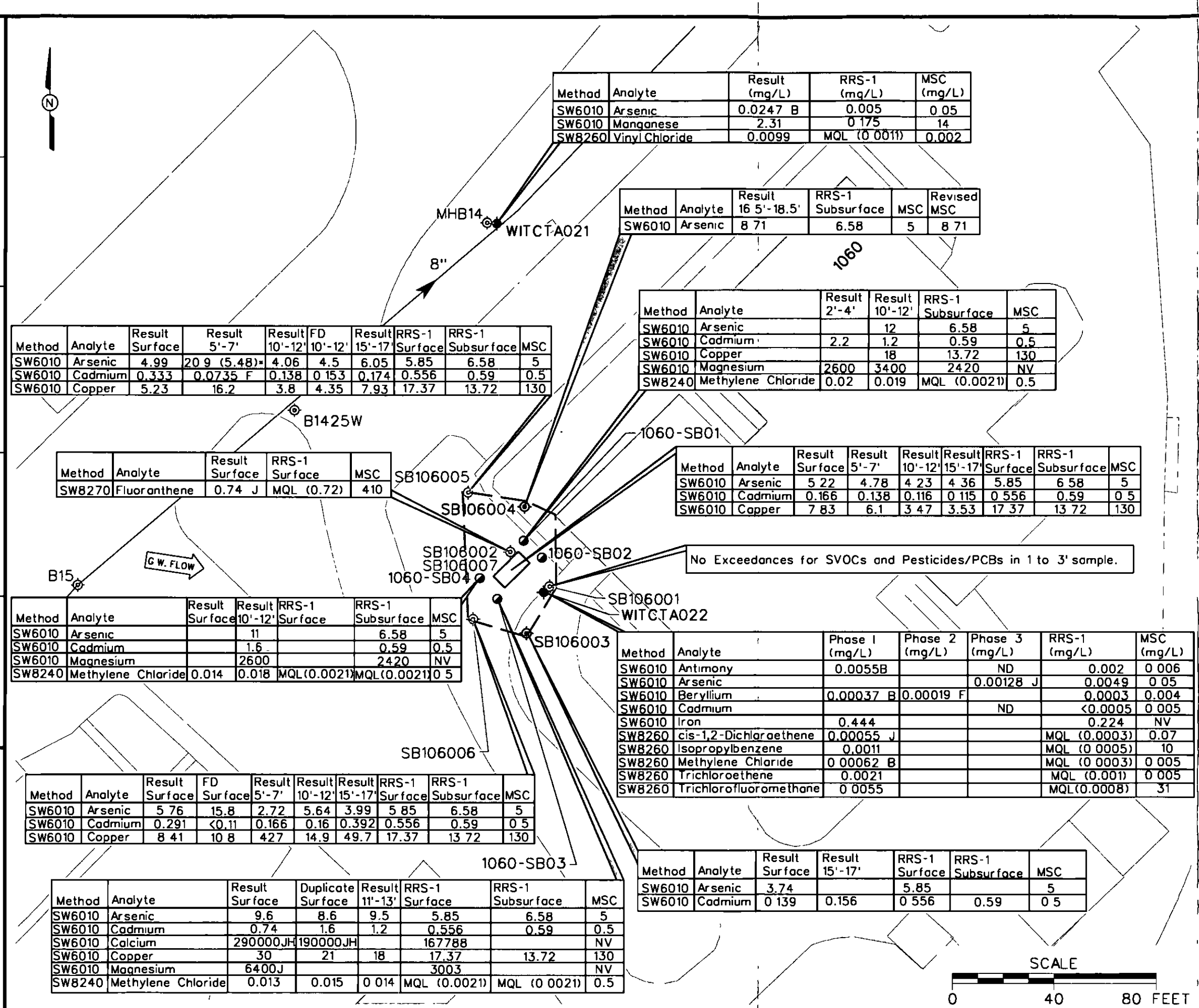
5.0 Building 1060 OWS Conclusions

Several inorganics, including arsenic, cadmium, and copper, were detected at concentrations exceeding background in the soil samples collected at former Law borings 1060-SB01, 1060-SB03, and 1060-SB04 (Law, 1995). Arsenic and cadmium concentrations detected during the Law (1995) investigation also exceeded their respective MSCs. No VOCs were detected above background in the Law borings. No SVOCs or pesticides/PCBs were detected at concentrations significantly above background in Phase 1 RFI borings SB106001 and SB106002 (IT, 1998). The elevated concentrations of arsenic, cadmium, and copper were delineated to background by analytical results from the Phase 2 RFI borings SB106003 and SB106004 and Phase 3 RFI borings SB106005 through SB106006 (IT, 2001).

The OWS at Building 1060 was removed in September 2000, and seven soil samples collected from the walls and floor of the excavation indicated that arsenic and cadmium concentrations were below background. During the Phase 3 RFI, surface and subsurface soil samples were taken in the center of the former excavation (SB106007) to characterize arsenic, cadmium, and copper concentrations in the excavated material. Arsenic, cadmium, and copper concentrations detected in the samples from SB106007 were all below background.

NFA is warranted for the OWS at Building 1060, and the site is recommended for closure under RRS 2. The absence of elevated concentrations exceeding RRS 2 for VOCs and SVOCs typically associated with petroleum-type products received by the OWS in soil and groundwater samples provides evidence that any release of contaminants that may have occurred from the OWS at Building 1060 has not significantly impacted the environment. Closure under RRS 2 is recommended because the arsenic, cadmium, and copper concentrations detected above background in the former Law borings (1060-SB01, 1060-SB03, and 1060-SB04) have been delineated to background. The results from confirmation soil samples collected from the walls and floor of the OWS excavation in September 2000 also indicated that arsenic and cadmium concentrations were below background.

If this recommendation is accepted, a letter stating that closure of AOC 11 (OWS at Building 1060) was carried out in accordance with TAC §335.555, signed by an Air Force representative, will be transmitted to TNRCC, along with a metes and bounds description of AOC 11. The metes and bounds description will correspond to surveyed coordinates of the affected area shown in Figure 5-1. The COCs will be identified as arsenic, cadmium, and copper in surface and subsurface soils.



Method	Analyte	Result (mg/L)	RRS-1 (mg/L)	MSC (mg/L)
SW6010	Arsenic	0.0247 B	0.005	0 05
SW6010	Manganese	2.31	0 175	14
SW8260	Vinyl Chloride	0.0099	MQL (0 0011)	0.002

Method	Analyte	Result 16 5'-18.5'	RRS-1 Subsurface	MSC	Revised MSC
SW6010	Arsenic	8 71	6.58	5	8 71

Method	Analyte	Result 2'-4'	Result 10'-12'	RRS-1 Subsurface	MSC
SW6010	Arsenic		12	6.58	5
SW6010	Cadmium	2.2	1.2	0.59	0.5
SW6010	Copper		18	13.72	130
SW6010	Magnesium	2600	3400	2420	NV
SW8240	Methylene Chloride	0.02	0.019	MQL (0.0021)	0.5

Method	Analyte	Result Surface	Result 5'-7'	Result 10'-12'	Result 15'-17'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	5 22	4.78	4 23	4 36	5.85	6 58	5
SW6010	Cadmium	0.166	0.138	0.116	0 115	0 556	0.59	0 5
SW6010	Copper	7 83	6.1	3 47	3.53	17 37	13 72	130

No Exceedances for SVOCs and Pesticides/PCBs in 1 to 3' sample.

Method	Analyte	Phase I (mg/L)	Phase 2 (mg/L)	Phase 3 (mg/L)	RRS-1 (mg/L)	MSC (mg/L)
SW6010	Antimony	0.0055B		ND	0.002	0 006
SW6010	Arsenic			0.00128 J	0.0049	0 05
SW6010	Beryllium	0.00037 B	0.00019 F		0.0003	0.004
SW6010	Cadmium			ND	<0.0005	0 005
SW6010	Iron	0.444			0.224	NV
SW8260	cis-1,2-Dichloroethene	0.00055 J			MQL (0.0003)	0.07
SW8260	Isopropylbenzene	0.0011			MQL (0 0005)	10
SW8260	Methylene Chloride	0 00062 B			MQL (0 0003)	0 005
SW8260	Trichloroethene	0.0021			MQL (0.001)	0 005
SW8260	Trichlorofluoromethane	0 0055			MQL(0.0008)	31

Method	Analyte	Result Surface	Result 5'-7'	Result 10'-12'	Result 15'-17'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	4.99	20 9 (5.48)*	4.06	4.5	6.05	5.85	6.58	5
SW6010	Cadmium	0.333	0.0735 F	0.138	0 153	0.174	0.556	0.59	0.5
SW6010	Copper	5.23	16.2	3.8	4.35	7.93	17.37	13.72	130

Method	Analyte	Result Surface	RRS-1 Surface	MSC
SW8270	Fluoranthene	0.74 J	MQL (0.72)	410

Method	Analyte	Result Surface	Result 10'-12'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic		11		6.58	5
SW6010	Cadmium		1.6		0.59	0.5
SW6010	Magnesium		2600		2420	NV
SW8240	Methylene Chloride	0.014	0.018	MQL(0.0021)	MQL(0.0021)	0 5

Method	Analyte	Result Surface	FD Surface	Result 5'-7'	Result 10'-12'	Result 15'-17'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	5 76	15.8	2.72	5.64	3.99	5 85	6.58	5
SW6010	Cadmium	0.291	<0.11	0.166	0.16	0.392	0.556	0.59	0 5
SW6010	Copper	8 41	10 8	427	14.9	49.7	17.37	13 72	130

Method	Analyte	Result Surface	Duplicate Surface	Result 11'-13'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	9.6	8.6	9.5	5.85	6.58	5
SW6010	Cadmium	0.74	1.6	1.2	0.556	0.59	0.5
SW6010	Calcium	290000JH	190000JH		167788		NV
SW6010	Copper	30	21	18	17.37	13.72	130
SW6010	Magnesium	6400J			3003		NV
SW8240	Methylene Chloride	0.013	0.015	0 014	MQL (0.0021)	MQL (0 0021)	0.5

Method	Analyte	Result Surface	Result 15'-17'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	3.74		5.85		5
SW6010	Cadmium	0 139	0.156	0 556	0.59	0 5

LEGEND

- BUILDING 1060 INDUSTRIAL WASTE OIL/WATER SEPARATOR UNIT
- IT CORP. SOIL BORING (1997)
- IT CORP. PHASE 2 BORING (2000)
- IT CORP. PHASE 3 BORING (2000)
- IT CORP. MONITORING WELL
- LAW ENGINEERING SOIL BORING
- G W. FLOW — GROUNDWATER FLOW DIRECTION
- SEWER LINE AND DIRECTIONAL FLOW
- FENCE
- RRS 2 SURVEY BOUNDARY
- PHASE 1 RESULTS > BACKGROUND
- PHASE 2 RESULTS
- PHASE 3 RESULTS
- ANALYTE DETECTED ABOVE MSC. SPLP NOT PERFORMED.
- ANALYTE DETECTED ABOVE MSC IN SOIL, BUT DETECTED BELOW MSC IN SPLP EXTRACT

NOTES:

CONCENTRATIONS REPORTED IN MG/KG UNLESS NOTED OTHERWISE

MSC - MEDIA-SPECIFIC CONCENTRATION.

REVISED MSC - VALUE BASED ON SPLP RESULT.

NV - NO VALUE

B - FOR INORGANICS, THE QUANTITATION IS AN ESTIMATED CONCENTRATION BETWEEN THE MDL AND PQL. FOR ORGANICS, THE CONSTITUENT WAS ALSO DETECTED IN THE ASSOCIATED METHOD BLANK.

J - THE ANALYTE WAS POSITIVELY IDENTIFIED, THE QUANTITATION IS AN ESTIMATION

F - THE ANALYTE WAS POSITIVELY IDENTIFIED, BUT THE ASSOCIATED NUMERICAL VALUE IS BELOW THE REPORTING LIMIT.

* RESULTS FROM RE-ANALYSIS (SPLIT SAMPLE).

SOURCE: DRAFT RCRA FACILITES INVESTIGATION SANITARY SEWER SYSTEM, SEPTEMBER 1997, IT CORPORATION

FIGURE 5-1
SITE MAP SHOWING INVESTIGATION RESULTS OWS BUILDING 1060 (AOC 11)

NAS FORT WORTH JRB
FORT WORTH, TEXAS

File: C.M. 17A-83-1

IT CORPORATION
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DWG NO. \768579es 251 | PROJ NO 768579
INITIATOR K HURLEY | PROJ MGR W CARTER
DRAFT CHCK BY D HALL | ENGR CHCK BY K HURLEY
DATE LAST REV 12/21/00 | REVISION NO 0
STARTING DATE 10/24/00 | DRAWN BY M CRAFT
01 30 46 PM 03/29/02
mcraft c:\cadd\design\768579es 251

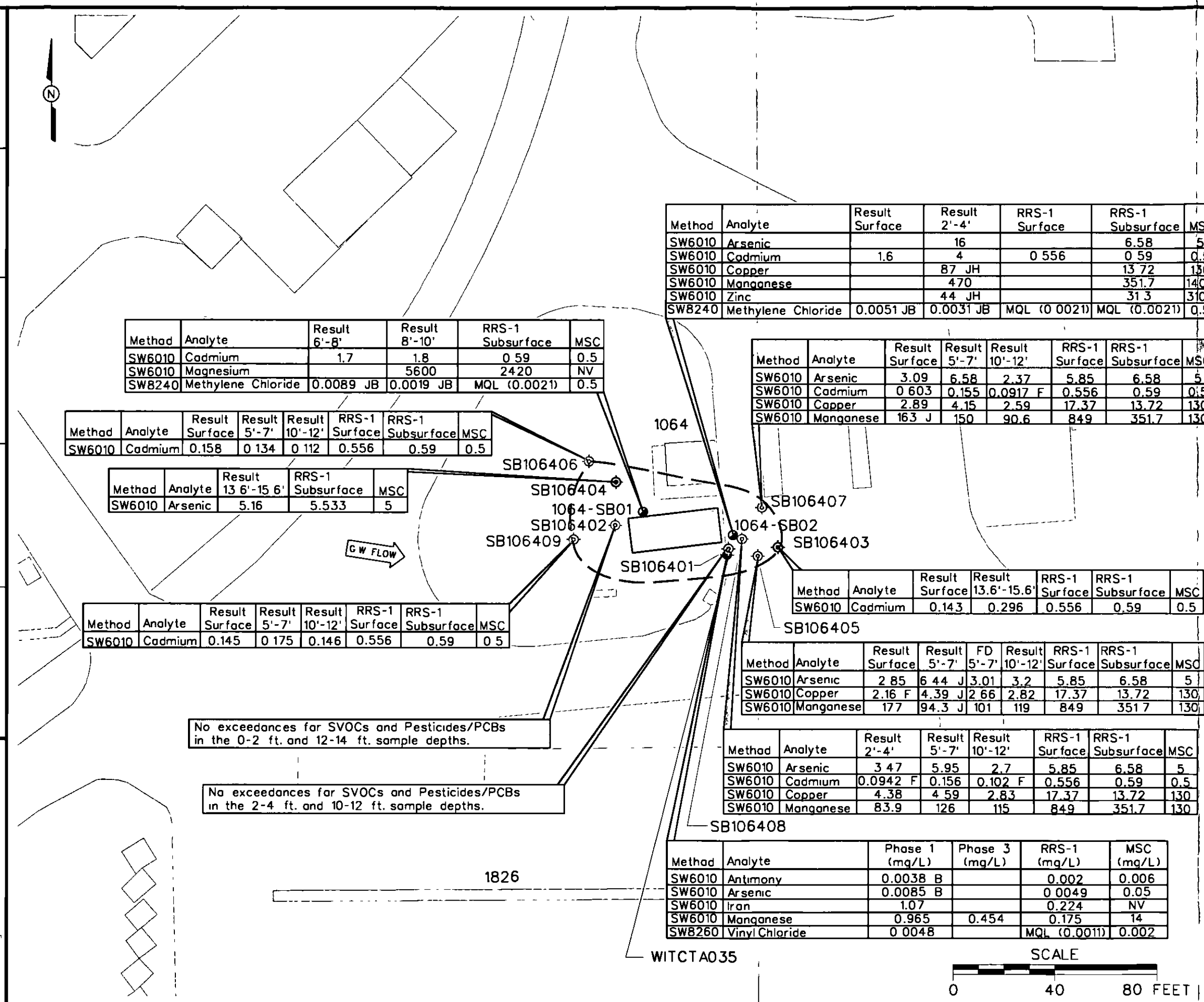
6.0 Building 1064 OWS Conclusions

Several inorganics, including arsenic, cadmium, copper, and manganese, were detected at concentrations exceeding background in the soil samples collected from former Law borings 1064-SB01 and 1064-SB02 (Law, 1995) (Figure 6-1). Arsenic and cadmium concentrations detected during the Law investigation also exceeded their respective MSCs. No VOCs were detected above background in the Law borings. No SVOCs or pesticides/PCBs were detected at concentrations significantly above background in Phase 1 RFI borings SB106401 and SB106402 (IT, 1998). The elevated concentrations of arsenic, cadmium, copper, and manganese were delineated by analytical results from soil samples collected from Phase 2 RFI borings SB106403 and SB106404 and Phase 3 RFI borings SB106405 through SB106409 (IT, 2001).

IT attempted to replicate the arsenic and cadmium concentrations detected above background and MSCs at former Law boring 1064-SB02 by collecting surface and subsurface soil samples from Phase 3 RFI boring SB106408. However, as shown in Figure 6-1, arsenic and cadmium concentrations detected from SB106408 were below both background and MSCs. Copper and manganese concentrations were also below background in the soil samples collected at SB106408.

NFA is warranted for the OWS at Building 1064, and the site is recommended for closure under RRS 2. The absence of elevated concentrations exceeding RRS 2 for VOCs and SVOCs typically associated with petroleum-type products in soil and groundwater samples provides evidence that any release of contaminants that may have occurred from the OWS at Building 1064 has not significantly impacted the environment. Closure under RRS 2 is recommended because the arsenic, cadmium, and copper concentrations detected above background in the former Law borings (1064-SB01 and 1064-SB02) have been delineated to background. The results from confirmation soil samples collected from Phase 3 RFI boring SB106408, adjacent to former Law boring 1064-SB02, indicated that arsenic, cadmium, copper, and manganese concentrations were also below background.

If this recommendation is accepted, a letter stating that closure of AOC 10 (OWS at Building 1064) was carried out in accordance with TAC §335.555, signed by an Air Force representative, will be transmitted to TNRCC, along with a metes and bounds description of AOC 10. The metes and bounds description will correspond to surveyed coordinates of the affected area shown in Figure 6-1. The COCs will be identified as cadmium in surface soil and arsenic, cadmium, copper, and manganese in subsurface soils.



Method	Analyte	Result 6'-8'	Result 8'-10'	RRS-1 Subsurface	MSC
SW6010	Cadmium	1.7	1.8	0 59	0.5
SW6010	Magnesium		5600	2420	NV
SW8240	Methylene Chloride	0.0089 JB	0.0019 JB	MQL (0.0021)	0.5

Method	Analyte	Result Surface	Result 5'-7'	Result 10'-12'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Cadmium	0.158	0 134	0 112	0.556	0.59	0.5

Method	Analyte	Result 13 6'-15 6'	RRS-1 Subsurface	MSC
SW6010	Arsenic	5.16	5.533	5

Method	Analyte	Result Surface	Result 5'-7'	Result 10'-12'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Cadmium	0.145	0 175	0.146	0.556	0.59	0 5

Method	Analyte	Result Surface	Result 2'-4'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic		16		6.58	5
SW6010	Cadmium	1.6	4	0 556	0 59	0.5
SW6010	Copper		87 JH		13 72	130
SW6010	Manganese		470		351.7	1400
SW6010	Zinc		44 JH		31 3	3100
SW8240	Methylene Chloride	0.0051 JB	0.0031 JB	MQL (0 0021)	MQL (0.0021)	0.5

Method	Analyte	Result Surface	Result 5'-7'	Result 10'-12'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	3.09	6.58	2.37	5.85	6.58	5
SW6010	Cadmium	0 603	0.155	0.0917 F	0.556	0.59	0.5
SW6010	Copper	2.89	4.15	2.59	17.37	13.72	130
SW6010	Manganese	163 J	150	90.6	849	351.7	130

Method	Analyte	Result Surface	Result 13.6'-15.6'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Cadmium	0.143	0.296	0.556	0.59	0.5

Method	Analyte	Result Surface	Result 5'-7'	FD 5'-7'	Result 10'-12'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	2 85	6 44 J	3.01	3.2	5.85	6.58	5
SW6010	Copper	2.16 F	4.39 J	2 66	2.82	17.37	13.72	130
SW6010	Manganese	177	94.3 J	101	119	849	351 7	130

Method	Analyte	Result 2'-4'	Result 5'-7'	Result 10'-12'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	3 47	5.95	2.7	5.85	6.58	5
SW6010	Cadmium	0.0942 F	0.156	0.102 F	0.556	0.59	0.5
SW6010	Copper	4.38	4 59	2.83	17.37	13.72	130
SW6010	Manganese	83.9	126	115	849	351.7	130

Method	Analyte	Phase 1 (mg/L)	Phase 3 (mg/L)	RRS-1 (mg/L)	MSC (mg/L)
SW6010	Antimony	0.0038 B		0.002	0.006
SW6010	Arsenic	0.0085 B		0 0049	0.05
SW6010	Iron	1.07		0.224	NV
SW6010	Manganese	0.965	0.454	0.175	14
SW8260	Vinyl Chloride	0 0048		MQL (0.0011)	0.002

LEGEND

- BUILDING 1064 INDUSTRIAL WASTE OIL/WATER SEPARATOR UNIT
- IT CORP. SOIL BORING (1997) (SVOCs AND PESTICIDES/PCBs)
- IT CORP. PHASE 2 BORING (2000)
- IT CORP. PHASE 3 BORING (2000)
- IT CORP. MONITORING WELL
- LAW ENGINEERING SOIL BORING (VOCs & METALS)
- GW FLOW — GROUNDWATER FLOW DIRECTION
- SEWER LINE AND DIRECTIONAL FLOW
- FENCE
- RRS 2 SURVEY BOUNDARY
- PHASE 1 RESULTS > BACKGROUND
- PHASE 2 RESULTS
- PHASE 3 RESULTS
- ANALYTE DETECTED ABOVE MSC. SPLP NOT PERFORMED

NOTES:

CONCENTRATIONS REPORTED IN MG/KG UNLESS NOTED OTHERWISE

MSC - MEDIA-SPECIFIC CONCENTRATION.

NV - NO VALUE

B - FOR INORGANICS, THE QUANTITATION IS AN ESTIMATED CONCENTRATION BETWEEN THE MDL AND PQL. FOR ORGANICS, THE CONSTITUENT WAS ALSO DETECTED IN THE ASSOCIATED METHOD BLANK.

J - THE ANALYTE WAS POSITIVELY IDENTIFIED, THE QUANTITATION IS AN ESTIMATION.

F - THE ANALYTE WAS POSITIVELY IDENTIFIED, BUT THE ASSOCIATED NUMERICAL VALUE IS BELOW THE REPORTING LIMIT.

SOURCE DRAFT RCRA FACILITES INVESTIGATION SANITARY SEWER SYSTEM, SEPTEMBER 1997, IT CORPORATION.

FIGURE 6-1
SITE MAP SHOWING INVESTIGATION RESULTS
OWS BUILDING 1064 (AOC 10)

NAS FORT WORTH JRB
FORT WORTH, TEXAS

File: 17A-83-1
D.E.

IT CORPORATION
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DWG NO. \768579es 252 | PROJ NO 768579
INITIATOR K HURLEY | PROJ MGR W CARTER
DRAFT CHCK BY D HALL | ENGR CHCK BY M MAKI
DATE LAST REV 12/21/00 | REVISION NO 0
STARTING DATE 10/23/00 | DRAWN BY M CRAFT
01 39 50 PM 03/29/02
mcraft c:\cadd\design\768579es 252

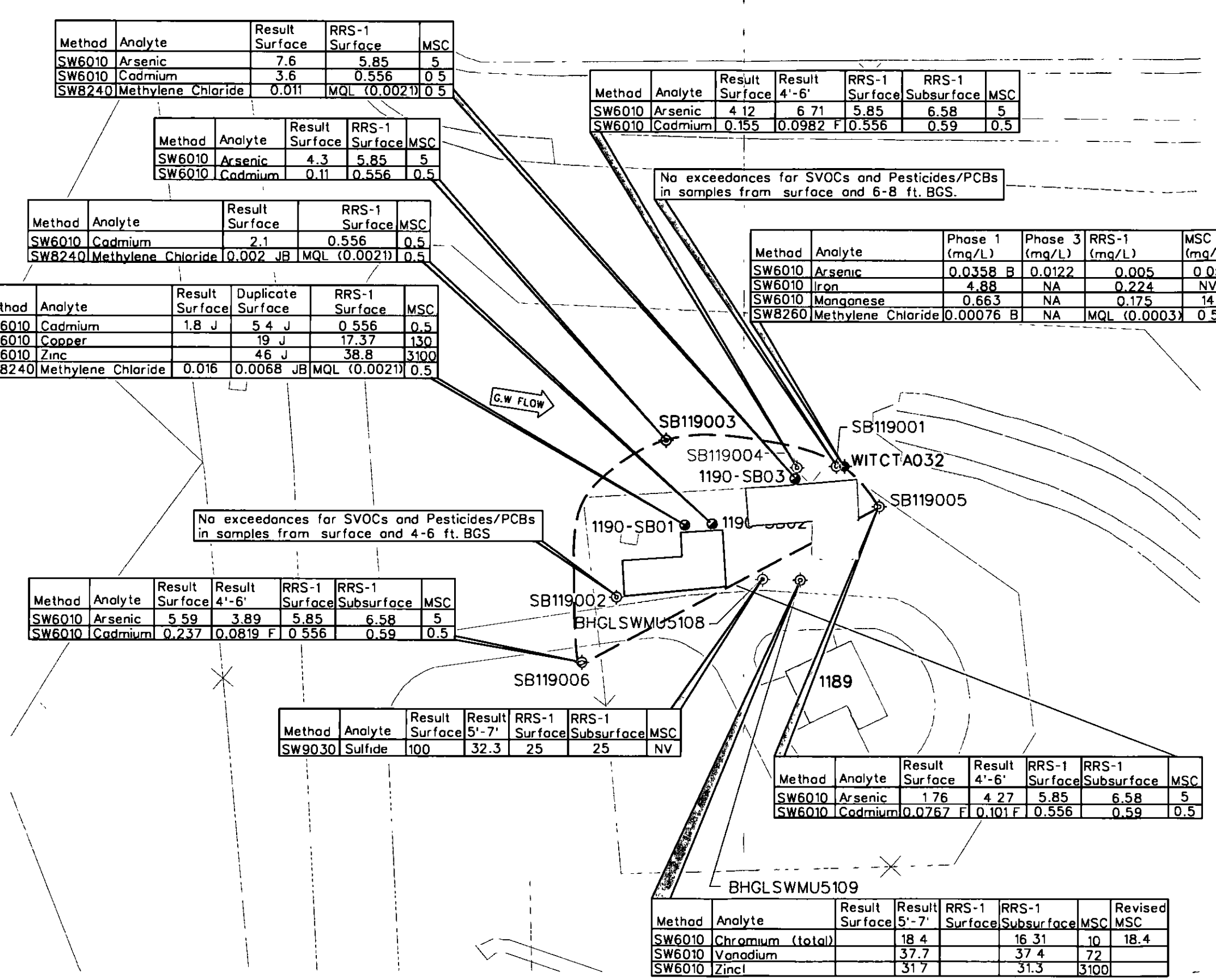
7.0 Building 1190 OWS Conclusions

Arsenic and cadmium were detected at concentrations exceeding background and MSCs in the surface soil samples collected at former Law borings 1190-SB01 through 1190-SB03 (Law, 1995) (Figure 7-1). Arsenic and cadmium concentrations detected during the Law investigation also exceeded their respective MSCs. No VOCs were detected above background in the Law borings. No SVOCs or pesticides/PCBs were detected above background in Phase 1 RFI borings SB119001 and SB119002 (IT, 1998). The elevated concentrations of arsenic and cadmium were delineated to background by analytical results from soil samples collected from Phase 2 RFI boring SB119003, Phase 3 RFI borings SB119005 through SB119006 (IT, 2001), and HGL borings BHGLSWMU5108 and BHGLSWMU5109 (HGL, 2001).

IT attempted to replicate the arsenic and cadmium concentrations detected above background and MSCs at former Law boring 1190-SB03 by collecting surface and subsurface soil samples from Phase 3 RFI boring SB119004. However, as shown in Figure 7-1, arsenic and cadmium concentrations detected from SB119004 were at or below their respective background values.

NFA is warranted for the OWS at Building 1190, and the site is recommended for closure under RRS 2. The absence of elevated concentrations exceeding RRS 2 for VOC and SVOC compounds contained in the influent to the OWS (e.g., engine oil, fuel, and antifreeze) in soil and groundwater samples provides evidence that any release of contaminants that may have occurred from the OWS at Building 1190 has not significantly impacted the environment. Closure under RRS 2 is recommended because the arsenic and cadmium concentrations detected above background in the former Law borings (1190-SB01 through 1190-SB02) have been delineated to background. The results from confirmation soil samples collected from Phase 3 RFI boring SB119004, adjacent to former Law boring 1190-SB03, indicated that arsenic and cadmium concentrations were below background.

If this recommendation is accepted, a letter stating that closure of SWMU 52 (OWS at Building 1190) was carried out in accordance with TAC §335.555, signed by an Air Force representative, will be transmitted to TNRCC, along with a metes and bounds description of SWMU 52. The metes and bounds description will correspond to surveyed coordinates of the affected area shown in Figure 7-1. The COCs will be identified as arsenic and cadmium in surface soil.



Method	Analyte	Result Surface	RRS-1 Surface	MSC
SW6010	Arsenic	7.6	5.85	5
SW6010	Cadmium	3.6	0.556	0 5
SW8240	Methylene Chloride	0.011	MQL (0.0021)	0 5

Method	Analyte	Result Surface	RRS-1 Surface	MSC
SW6010	Arsenic	4.3	5.85	5
SW6010	Cadmium	0.11	0.556	0.5

Method	Analyte	Result Surface	RRS-1 Surface	MSC
SW6010	Cadmium	2.1	0.556	0.5
SW8240	Methylene Chloride	0.002 JB	MQL (0.0021)	0.5

Method	Analyte	Result Surface	Duplicate Surface	RRS-1 Surface	MSC
SW6010	Cadmium	1.8 J	5 4 J	0 556	0.5
SW6010	Copper		19 J	17.37	130
SW6010	Zinc		46 J	38.8	3100
SW8240	Methylene Chloride	0.016	0.0068 JB	MQL (0.0021)	0.5

No exceedances for SVOCs and Pesticides/PCBs in samples from surface and 4-6 ft. BGS

Method	Analyte	Result Surface	Result 4'-6'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	5 59	3.89	5.85	6.58	5
SW6010	Cadmium	0.237	0.0819 F	0 556	0.59	0.5

Method	Analyte	Result Surface	Result 5'-7'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW9030	Sulfide	100	32.3	25	25	NV

Method	Analyte	Result Surface	Result 4'-6'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	4 12	6 71	5.85	6.58	5
SW6010	Cadmium	0.155	0.0982 F	0.556	0.59	0.5

No exceedances for SVOCs and Pesticides/PCBs in samples from surface and 6-8 ft. BGS.

Method	Analyte	Phase 1 (mg/L)	Phase 3 (mg/L)	RRS-1 (mg/L)	MSC (mg/L)
SW6010	Arsenic	0.0358 B	0.0122	0.005	0 05
SW6010	Iron	4.88	NA	0.224	NV
SW6010	Manganese	0.663	NA	0.175	14
SW8260	Methylene Chloride	0.00076 B	NA	MQL (0.0003)	0 5

Method	Analyte	Result Surface	Result 4'-6'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	1 76	4 27	5.85	6.58	5
SW6010	Cadmium	0.0767 F	0.101 F	0.556	0.59	0.5

Method	Analyte	Result Surface	Result 5'-7'	RRS-1 Surface	RRS-1 Subsurface	MSC	Revised MSC
SW6010	Chromium (total)		18 4		16 31	10	18.4
SW6010	Vanadium		37.7		37 4	72	
SW6010	Zinc		31 7		31.3	3100	

SCALE
0 40 80 FEET

LEGEND

- BUILDING 1190 INDUSTRIAL WASTE OIL/WATER SEPARATOR UNIT
- IT CORP. SOIL BORING (1997) (SVOCs AND PESITCIDES/PCBs)
- IT CORP. PHASE 2 BORING (2000)
- IT CORP. PHASE 3 BORING (2000)
- IT CORP. MONITORING WELL
- HGL SOIL BORING
- LAW ENGINEERING SOIL BORING (VOCs & METALS)
- GW FLOW — GROUNDWATER FLOW DIRECTION
- SEWER LINE AND DIRECTIONAL FLOW
- FENCE
- RRS 2 SURVEY BOUNDARY
- PHASE 1 RESULTS > BACKGROUND
- PHASE 2 RESULTS
- PHASE 3 RESULTS
- ANALYTE DETECTED ABOVE MSC. SPLP NOT PERFORMED.
- ANALYTE DETECTED ABOVE MSC IN SOIL, BUT DETECTED BELOW MSC IN SPLP EXTRACT

NOTES:

CONCENTRATIONS REPORTED IN MG/KG UNLESS NOTED OTHERWISE

MSC - MEDIA-SPECIFIC CONCENTRATION

REVISED MSC - VALUE BASED ON SPLP RESULT.

NV - NO VALUE, NA - NOT ANALYZED

B - FOR INORGANICS, THE QUANTITATION IS AN ESTIMATED CONCENTRATION BETWEEN THE MDL AND PQL FOR ORGANICS, THE CONSTITUENT WAS ALSO DETECTED IN THE ASSOCIATED METHOD BLANK.

J - THE ANALYTE WAS POSITIVELY IDENTIFIED, THE QUANTITATION IS AN ESTIMATION.

F - THE ANALYTE WAS POSITIVELY IDENTIFIED, BUT THE ASSOCIATED NUMERICAL VALUE IS BELOW THE REPORTING LIMIT.

SOURCE: DRAFT RCRA FACILITES INVESTIGATION SANITARY SEWER SYSTEM, SEPTEMBER 1997, IT CORPORATION.

FIGURE 7-1
SITE MAP SHOWING INVESTIGATION RESULTS OWS BUILDING 1190 (SWMU 52)

NAS FORT WORTH JRB
FORT WORTH, TEXAS

File: 17A-83-1
D.E.

IT CORPORATION
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DWG NO. 768579es 253 | PROJ NO 768579
INITIATOR K HURLEY | PROJ MGR W CARTER
DRAFT CHCK BY D HALL | ENGR CHCK BY K HURLEY
DATE LAST REV 12/21/00 | REVISION NO 0
STARTING DATE 10/26/00 | DRAWN BY M CRAFT
01:44 31 PM 03/29/02
mcraft c:\cadd\design\768579es 253

8.0 Building 1191 OWS Conclusions

Arsenic and cadmium were detected at concentrations exceeding background and MSCs in surface and subsurface soil samples collected at former Law borings 1191-SB01 through 1191-SB03 (Law, 1995) (Figure 8-1). No VOCs, other than methylene chloride (a common laboratory contaminant), were detected above background in the Law borings. No SVOCs or pesticides/PCBs were detected above background in Phase 1 RFI borings SB119101 and SB119102 (IT, 1998). No evidence of contamination was detected in Phase 1 RFI borings SB119103 and SB119104, located adjacent to the southern OWS at Building 1191. The elevated concentrations of arsenic and cadmium were delineated by analytical results from soil samples collected from Phase 2 RFI boring SB119105 and Phase 3 RFI borings SB119106 through SB119108 (IT, 2001).

IT attempted to replicate the arsenic and cadmium concentrations detected above background and MSCs at former Law boring 1191-SB03 by collecting surface soil samples from Phase 3 RFI boring SB119108. However, as shown in Figure 8-1, arsenic and cadmium concentrations detected from SB119108 were below their respective background values.

NFA is warranted for the OWS at Building 1191, and the site is recommended for closure under RRS 2. The absence of elevated concentrations exceeding RRS 2 for VOC and SVOC, compounds contained in the influent to the OWS (e.g., thinners and solvents, waste oil, fuel, and antifreeze) in soil and groundwater samples provides evidence that any release of contaminants that may have occurred from the OWS at Building 1191 has not significantly impacted the environment. Closure under RRS 2 is recommended because the arsenic and cadmium concentrations detected above background in the former Law borings (1191-SB01 through 1191-SB03) have been delineated to background. The results from confirmation soil samples collected from Phase 3 RFI boring SB119108, adjacent to former Law boring 1191-SB01, indicated that arsenic and cadmium concentrations were below background.

If this recommendation is accepted, a letter stating that closure of SWMU 37 (OWS at Building 1191) was carried out in accordance with TAC §335.555, signed by an Air Force representative, will be transmitted to TNRCC, along with a metes and bounds description of SWMU 37. The metes and bounds description will correspond to surveyed coordinates of the affected area shown in Figure 8-1. The COCs will be identified as arsenic and cadmium in surface and subsurface soil.

DWG NO. \768579es 254 | PROJ NO 768579
INITIATOR K HURLEY | PROJ MGR W CARTER
DRAFT CHCK BY D HALL | ENGR CHCK BY K HURLEY
DATE LAST REV 12/27/00 | REVISION NO 0
STARTING DATE 12/27/00 | DRAWN BY M CRAFT HALL
01 47 52 PM 03/29/02
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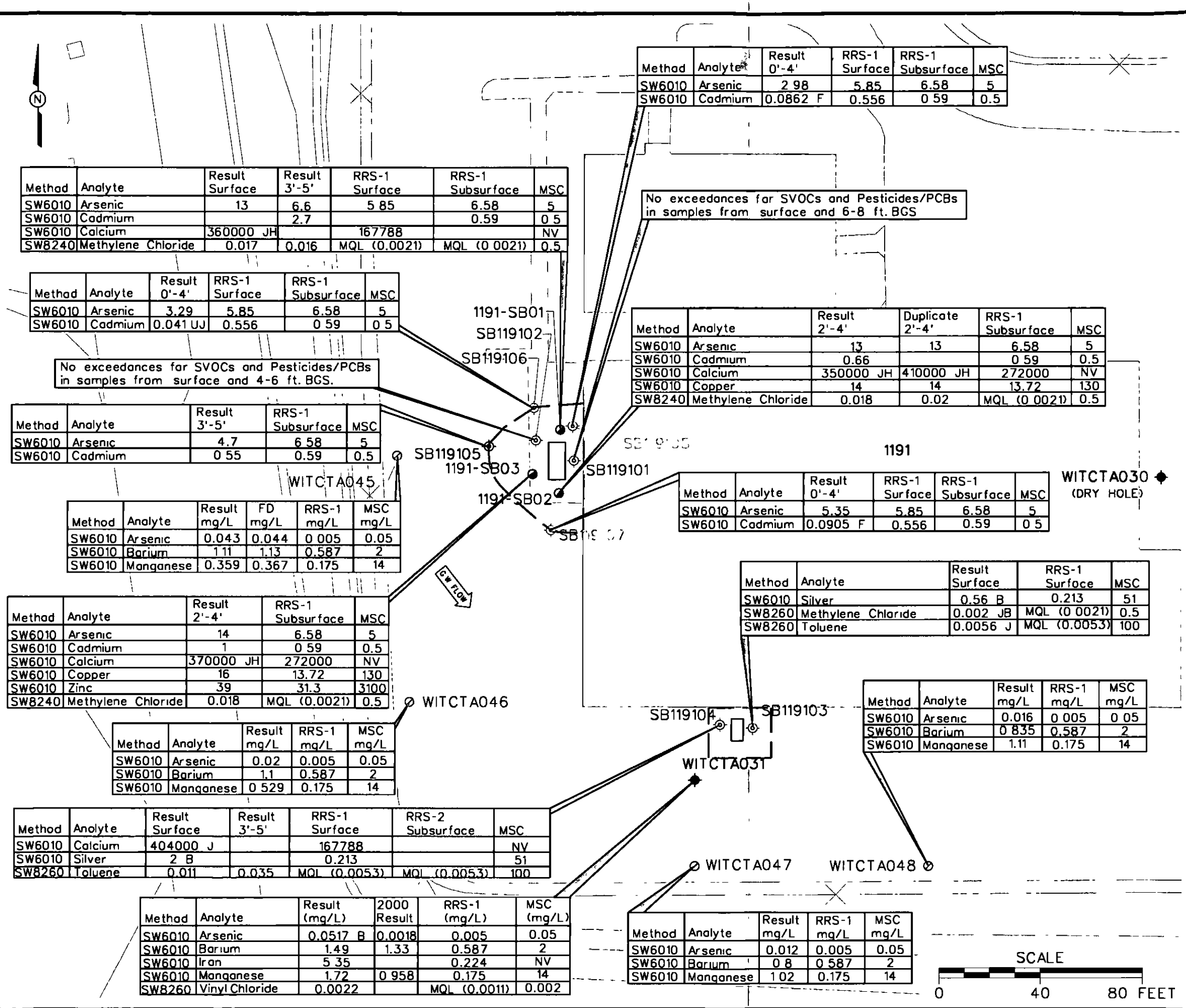

Method	Analyte	Result 0'-4'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	2 98	5.85	6.58	5
SW6010	Cadmium	0.0862 F	0.556	0 59	0.5

Method	Analyte	Result Surface	Result 3'-5'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	13	6.6	5 85	6.58	5
SW6010	Cadmium		2.7		0.59	0 5
SW6010	Calcium	360000 JH		167788		NV
SW8240	Methylene Chloride	0.017	0.016	MQL (0.0021)	MQL (0 0021)	0.5

No exceedances for SVOCs and Pesticides/PCBs in samples from surface and 6-8 ft. BGS

Method	Analyte	Result 0'-4'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	3.29	5.85	6.58	5
SW6010	Cadmium	0.041 UJ	0.556	0 59	0 5

No exceedances for SVOCs and Pesticides/PCBs in samples from surface and 4-6 ft. BGS.

Method	Analyte	Result 3'-5'	RRS-1 Subsurface	MSC
SW6010	Arsenic	4.7	6 58	5
SW6010	Cadmium	0 55	0.59	0.5

Method	Analyte	Result 2'-4'	Duplicate 2'-4'	RRS-1 Subsurface	MSC
SW6010	Arsenic	13	13	6.58	5
SW6010	Cadmium	0.66		0 59	0.5
SW6010	Calcium	350000 JH	410000 JH	272000	NV
SW6010	Copper	14	14	13.72	130
SW8240	Methylene Chloride	0.018	0.02	MQL (0 0021)	0.5

Method	Analyte	Result 0'-4'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	5.35	5.85	6.58	5
SW6010	Cadmium	0.0905 F	0.556	0.59	0 5

Method	Analyte	Result mg/L	FD mg/L	RRS-1 mg/L	MSC mg/L
SW6010	Arsenic	0.043	0.044	0 005	0.05
SW6010	Barium	1 11	1.13	0.587	2
SW6010	Manganese	0.359	0.367	0.175	14

Method	Analyte	Result 2'-4'	RRS-1 Subsurface	MSC
SW6010	Arsenic	14	6.58	5
SW6010	Cadmium	1	0 59	0.5
SW6010	Calcium	370000 JH	272000	NV
SW6010	Copper	16	13.72	130
SW6010	Zinc	39	31.3	3100
SW8240	Methylene Chloride	0.018	MQL (0.0021)	0.5

Method	Analyte	Result Surface	RRS-1 Surface	MSC
SW6010	Silver	0.56 B	0.213	51
SW8260	Methylene Chloride	0.002 JB	MQL (0 0021)	0.5
SW8260	Toluene	0.0056 J	MQL (0.0053)	100

Method	Analyte	Result mg/L	RRS-1 mg/L	MSC mg/L
SW6010	Arsenic	0.016	0 005	0 05
SW6010	Barium	0 835	0.587	2
SW6010	Manganese	1.11	0.175	14

Method	Analyte	Result mg/L	RRS-1 mg/L	MSC mg/L
SW6010	Arsenic	0.02	0.005	0.05
SW6010	Barium	1.1	0.587	2
SW6010	Manganese	0 529	0.175	14

Method	Analyte	Result Surface	Result 3'-5'	RRS-1 Surface	RRS-2 Subsurface	MSC
SW6010	Calcium	404000 J		167788		NV
SW6010	Silver	2 B		0.213		51
SW8260	Toluene	0.011	0.035	MQL (0.0053)	MQL (0.0053)	100

Method	Analyte	Result (mg/L)	2000 Result	RRS-1 (mg/L)	MSC (mg/L)
SW6010	Arsenic	0.0517 B	0.0018	0.005	0.05
SW6010	Barium	1.49	1.33	0.587	2
SW6010	Iron	5 35		0.224	NV
SW6010	Manganese	1.72	0 958	0.175	14
SW8260	Vinyl Chloride	0.0022		MQL (0.0011)	0.002

Method	Analyte	Result mg/L	RRS-1 mg/L	MSC mg/L
SW6010	Arsenic	0.012	0.005	0.05
SW6010	Barium	0 8	0 587	2
SW6010	Manganese	1 02	0.175	14

LEGEND

- BUILDING 1191 INDUSTRIAL WASTE OIL/WATER SEPARATOR UNIT
- IT CORP. SOIL BORING (1997)
- IT CORP PHASE 2 BORING (2000)
- IT CORP. PHASE 3 BORING (2000)
- IT CORP. MONITORING WELL
- IT CORP. MONITORING WELL LOCATION-PHASE 2
- LAW ENGINEERING SOIL BORING (VOCs & METALS)
- GW FLOW — GROUNDWATER FLOW DIRECTION
- SEWER LINE AND DIRECTIONAL FLOW
- FENCE
- RRS 2 SURVEY BOUNDARY
- PHASE 1 RESULTS > BACKGROUND
- PHASE 2 RESULTS
- PHASE 3 RESULTS
- ANALYTE DETECTED ABOVE MSC. SPLP NOT PERFORMED.

NOTES:

CONCENTRATIONS REPORTED IN MG/KG UNLESS NOTED OTHERWISE.

MSC - MEDIA-SPECIFIC CONCENTRATION.

NV - NO VALUE

B - FOR INORGANICS, THE QUANTITATION IS AN ESTIMATED CONCENTRATION BETWEEN THE MDL AND PQL FOR ORGANICS, THE CONSTITUENT WAS ALSO DETECTED IN THE ASSOCIATED METHOD BLANK.

J - THE ANALYTE WAS POSITIVELY IDENTIFIED, THE QUANTITATION IS AN ESTIMATION

F - THE ANALYTE WAS POSITIVELY IDENTIFIED, BUT THE ASSOCIATED NUMERICAL VALUE IS BELOW THE REPORTING LIMIT.

SOURCE: DRAFT RCRA FACILITES INVESTIGATION SANITARY SEWER SYSTEM, SEPTEMBER 1997, IT CORPORATION

FIGURE 8-1
SITE MAP SHOWING INVESTIGATION RESULTS OWS BUILDING 1191 (SWMU 37)

NAS FORT WORTH JRB
FORT WORTH, TEXAS

File: D.E. 17A-83-1

IT CORPORATION
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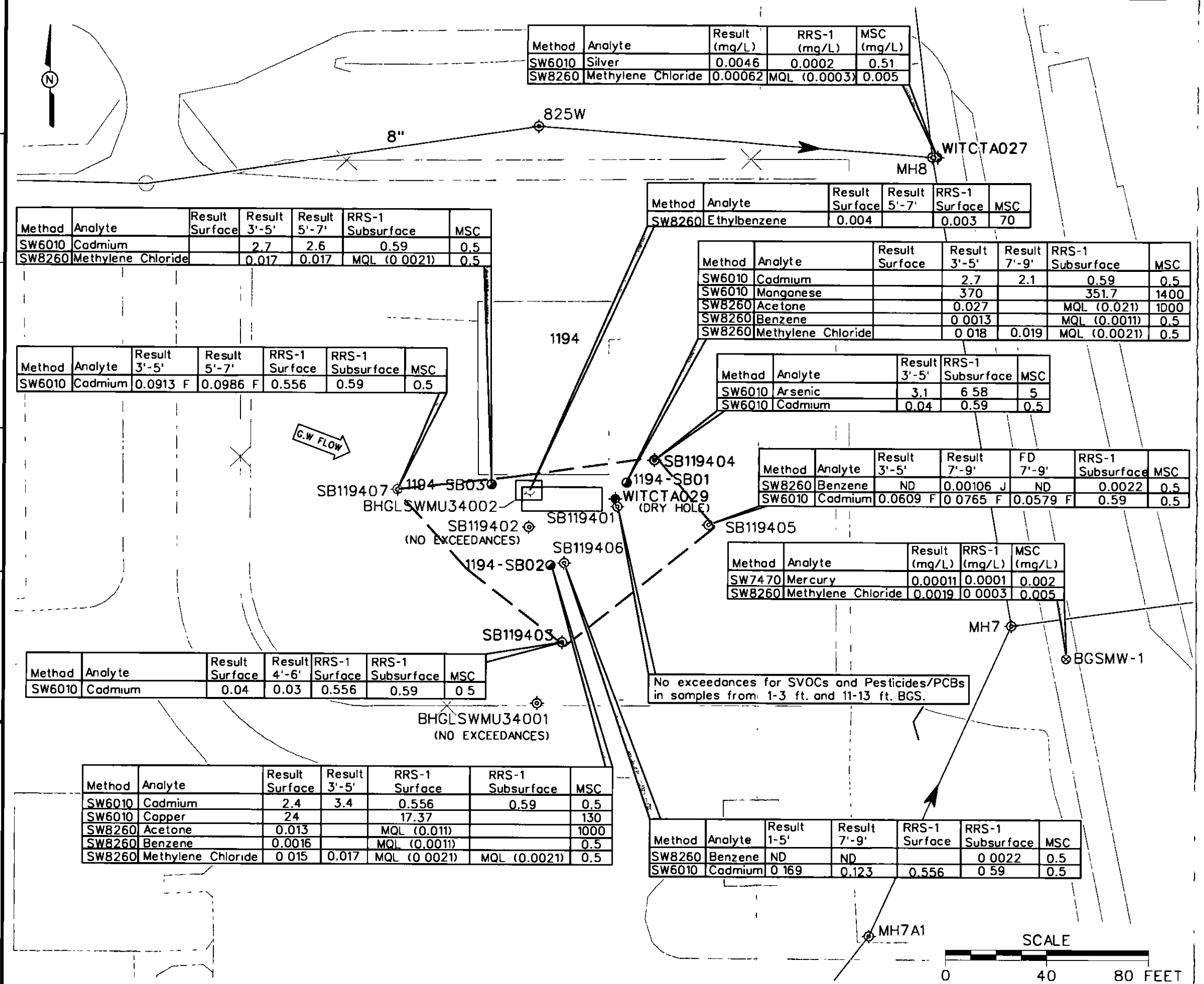
9.0 Building 1194 OWS Conclusions

Cadmium and copper were detected at concentrations exceeding background in surface soil collected at former Law boring 1194-SB02 (Law, 1995). Cadmium was also detected above background and MSC in subsurface soil samples collected from Law borings 1194-SB01 through 1194-SB03. Benzene was detected at a concentration slightly above background (MQL) in a subsurface soil sample from 3 to 5 feet below ground surface at Law boring 1194-SB01. No other VOCs, except for common laboratory contaminants methylene chloride and acetone, were detected above background in the Law borings. No SVOCs or pesticides/PCBs were detected above background in Phase 1 RFI borings SB119401 and SB119402 (IT, 1998). The elevated concentrations of cadmium and benzene were delineated by analytical results from Phase 2 RFI borings SB119403 and SB119404, Phase 3 RFI borings SB119405 through SB119407, and HGL borings BHGLSWMU34001 and BHGLSWMU34002 (HGL, 2001).

IT attempted to replicate the cadmium and benzene concentrations detected above background and MSCs at former Law boring 1194-SB02 by collecting surface and subsurface soil samples from Phase 3 RFI boring SB119406. However, as shown in Figure 9-1, cadmium and benzene concentrations detected at SB119406 were below their respective background values.

NFA is warranted for the OWS at Building 1194, and the site is recommended for closure under RRS 2. The absence of elevated concentrations exceeding RRS 2 for VOC and SVOC, compounds contained in the influent to the OWS (i.e., waste liquids such as diesel fuel, JP-4, and other petroleum-related compounds) in soil and groundwater samples provides evidence that any release of contaminants that may have occurred from the OWS at Building 1191 has not significantly impacted the environment. Closure under RRS 2 is recommended because the cadmium and benzene concentrations detected above background in the former Law borings (1194-SB01 through 1194-SB03) have been delineated to background. The results from confirmation soil samples collected from Phase 3 RFI boring SB119106, adjacent to former Law boring 1194-SB02, indicated that cadmium and benzene concentrations were below background.

If this recommendation is accepted, a letter stating that closure of SWMU 35 (OWS at Building 1194) was carried out in accordance with TAC §335.555, signed by an Air Force representative, will be transmitted to TNRCC, along with a metes and bounds description of SWMU 35. The metes and bounds description will correspond to surveyed coordinates of the affected area shown in Figure 9-1. The COCs will be identified as cadmium and benzene in subsurface soil.



Method	Analyte	Result (mg/L)	RRS-1 (mg/L)	MSC (mg/L)
SW6010	Silver	0.0046	0.0002	0.51
SW8260	Methylene Chloride	0.00062	MQL (0.0003)	0.005

Method	Analyte	Result Surface	Result 3'-5'	Result 5'-7'	RRS-1 Subsurface	MSC
SW6010	Cadmium		2.7	2.6	0.59	0.5
SW8260	Methylene Chloride		0.017	0.017	MQL (0 0021)	0.5

Method	Analyte	Result Surface	Result 5'-7'	RRS-1 Surface	MSC
SW8260	Ethylbenzene	0.004		0.003	70

Method	Analyte	Result Surface	Result 3'-5'	Result 7'-9'	RRS-1 Subsurface	MSC
SW6010	Cadmium		2.7	2.1	0.59	0.5
SW6010	Manganese		370		351.7	1400
SW8260	Acetone		0.027		MQL (0.021)	1000
SW8260	Benzene		0 0013		MQL (0.0011)	0.5
SW8260	Methylene Chloride		0 018	0.019	MQL (0.0021)	0.5

Method	Analyte	Result 3'-5'	Result 5'-7'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Cadmium	0.0913 F	0.0986 F	0.556	0.59	0.5

Method	Analyte	Result 3'-5'	RRS-1 Subsurface	MSC
SW6010	Arsenic	3.1	6 58	5
SW6010	Cadmium	0.04	0.59	0.5

Method	Analyte	Result 3'-5'	Result 7'-9'	FD 7'-9'	RRS-1 Subsurface	MSC
SW8260	Benzene	ND	0.00106 J	ND	0.0022	0.5
SW6010	Cadmium	0.0609 F	0 0765 F	0.0579 F	0.59	0.5

Method	Analyte	Result (mg/L)	RRS-1 (mg/L)	MSC (mg/L)
SW7470	Mercury	0.00011	0.0001	0.002
SW8260	Methylene Chloride	0.0019	0 0003	0.005

Method	Analyte	Result Surface	Result 4'-6'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Cadmium	0.04	0.03	0.556	0.59	0 5

No exceedances for SVOCs and Pesticides/PCBs in samples from 1-3 ft. and 11-13 ft. BGS.

Method	Analyte	Result Surface	Result 3'-5'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Cadmium	2.4	3.4	0.556	0.59	0.5
SW6010	Copper	24		17.37		130
SW8260	Acetone	0.013		MQL (0.011)		1000
SW8260	Benzene	0.0016		MQL (0.0011)		0.5
SW8260	Methylene Chloride	0 015	0.017	MQL (0 0021)	MQL (0.0021)	0.5

Method	Analyte	Result 1-5'	Result 7'-9'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW8260	Benzene	ND	ND		0 0022	0.5
SW6010	Cadmium	0 169	0.123	0.556	0 59	0.5

LEGEND

- BUILDING 1194 INDUSTRIAL WASTE OIL/WATER SEPARATOR UNIT
- WASTE ACCULUMATION AREA (SWMU 34)
- IT CORP. SOIL BORING (1997) (SVOCs AND PESTICIDES/PCBs)
- IT CORP. PHASE 2 BORING (2000)
- IT CORP PHASE 3 BORING (2000)
- IT CORP MONITORING WELL
- LAW ENGINEERING SOIL BORING (VOCs AND METALS)
- EXISTING MONITORING WELL
- HGL BORING LOCATION (SWMU 34)
- G.W FLOW — GROUNDWATER FLOW DIRECTION
- SEWER LINE AND DIRECTIONAL FLOW
- FENCE
- RRS 2 SURVEY BOUNDARY
- PHASE 1 RESULTS > BACKGROUND
- PHASE 2 RESULTS
- PHASE 3 RESULTS
- ANALYTE DETECTED ABOVE MSC. SPLP NOT PERFORMED.

NOTES:

CONCENTRATIONS REPORTED IN MG/KG UNLESS NOTED OTHERWISE.

MSC - MEDIA-SPECIFIC CONCENTRATION.

NV - NO VALUE, NA - NOT ANALYZED

B - FOR INORGANICS, THE QUANTITATION IS AN ESTIMATED CONCENTRATION BETWEEN THE MDL AND PQL. FOR ORGANICS, THE CONSTITUENT WAS ALSO DETECTED IN THE ASSOCIATED METHOD BLANK

J - THE ANALYTE WAS POSITIVELY IDENTIFIED, THE QUANTITATION IS AN ESTIMATION.

F - THE ANALYTE WAS POSITIVELY IDENTIFIED, BUT THE ASSOCIATED NUMERICAL VALUE IS BELOW THE REPORTING LIMIT.

SOURCE: DRAFT RCRA FACILITES INVESTIGATION SANITARY SEWER SYSTEM, SEPTEMBER 1997, IT CORPORATION.

FIGURE 9-1
SITE MAP SHOWING INVESTIGATION RESULTS OWS BUILDING 1194 (SWMU 35)

NAS FORT WORTH JRB
FORT WORTH, TEXAS

File: 17A-83-1
D.E.

IT CORPORATION
A Member of The IT Group

DWG NO. \768579es 255 | PROJ NO 768579
INITIATOR K HURLEY | PROJ MGR W CARTER
D HALL | K HURLEY
DRAFT CHCK BY | ENGR CHCK BY
DATE LAST REV 1/04/01
REVISION NO 0
STARTING DATE 10/23/00
DRAWN BY M CRAFT
01 51 16 PM 03/29/02
mcraft c:\cadd\design\768579es 255

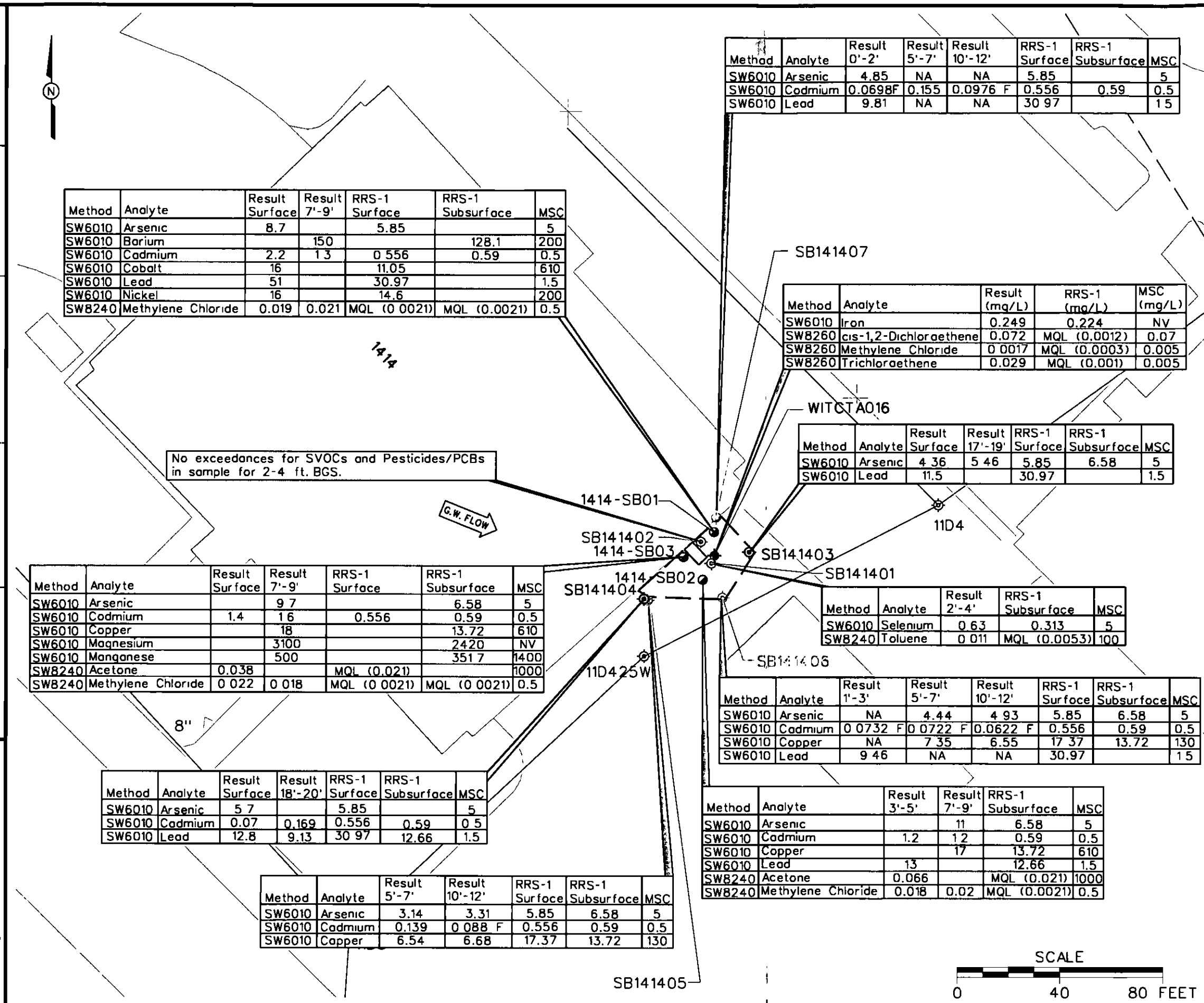
10.0 Building 1414 OWS Conclusions

Arsenic, cadmium, and lead were detected above background and MSCs in surface soil samples collected at former Law boring 1414-SB01 (Law, 1995) (Figure 10-1). Cadmium was also detected above background in the surface soil at former Law boring 1414-SB03. Subsurface soil samples collected from the Law borings (1414-SB01 through 1414-SB03) showed arsenic, cadmium, copper, and lead detections above background. No VOCs, other than common laboratory contaminants acetone and methylene chloride, were detected above background in soil samples collected from the Law borings. No SVOCs or pesticides/PCBs were detected above background in subsurface soil samples collected from Phase 1 RFI borings SB141401 and SB141402 (IT, 1998). The arsenic, cadmium, copper, and lead detections above background were delineated by analytical results from Phase 2 RFI borings SB141403 and SB141404 and Phase 3 RFI borings SB141405 through SB141407 (IT, 2001).

IT attempted to replicate the arsenic, cadmium, and lead concentrations detected above background and MSCs at former Law boring 1414-SB01 by collecting surface and subsurface soil samples from Phase 3 RFI boring SB141407. However, as shown in Figure 10-1, arsenic, cadmium, and lead concentrations detected at SB141407 were below their respective background values.

NFA is warranted for the OWS at Building 1414, and the site is recommended for closure under RRS 2. The absence of elevated concentrations exceeding RRS 2 for VOC and SVOC, compounds contained in the influent to the OWS (e.g., hydraulic fluid, antifreeze, JP-4, degreasing solvents and other cleaning agents, engine lubricating oil, and other petroleum byproducts) in soil and groundwater samples provides evidence that any release of contaminants that may have occurred from the OWS at Building 1414 has not significantly impacted the environment. Closure under RRS 2 is recommended because the arsenic, cadmium, copper, and lead concentrations detected above background in the former Law borings (1414-SB01 through 1414-SB03) have been delineated to background. The results from confirmation soil samples collected from Phase 3 RFI boring SB141407, adjacent to former Law boring 1414-SB01, indicated that concentrations of these inorganics were below background.

If this recommendation is accepted, a letter stating that closure of SWMU 41 (OWS at Building 1414) was carried out in accordance with TAC §335.555, signed by an Air Force representative, will be transmitted to TNRCC, along with a metes and bounds description of SWMU 41. The metes and bounds description will correspond to surveyed coordinates of the affected area shown in Figure 10-1. The COCs will be identified as arsenic, cadmium, and lead in surface soil and arsenic, cadmium, and copper in subsurface soil.



Method	Analyte	Result Surface	Result 7'-9'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	8.7		5.85		5
SW6010	Barium		150		128.1	200
SW6010	Cadmium	2.2	1 3	0 556	0.59	0.5
SW6010	Cobalt	16		11.05		610
SW6010	Lead	51		30.97		1.5
SW6010	Nickel	16		14.6		200
SW8240	Methylene Chloride	0.019	0.021	MQL (0 0021)	MQL (0.0021)	0.5

No exceedances for SVOCs and Pesticides/PCBs in sample for 2-4 ft. BGS.

Method	Analyte	Result Surface	Result 7'-9'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic		9 7		6.58	5
SW6010	Codmium	1.4	1 6	0.556	0.59	0.5
SW6010	Copper		18		13.72	610
SW6010	Magnesium		3100		2420	NV
SW6010	Manganese		500		351 7	1400
SW8240	Acetone	0.038		MQL (0.021)		1000
SW8240	Methylene Chloride	0 022	0 018	MQL (0 0021)	MQL (0 0021)	0.5

Method	Analyte	Result Surface	Result 18'-20'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	5 7		5.85		5
SW6010	Cadmium	0.07	0.169	0.556	0.59	0 5
SW6010	Lead	12.8	9.13	30 97	12.66	1.5

Method	Analyte	Result 5'-7'	Result 10'-12'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	3.14	3.31	5.85	6.58	5
SW6010	Cadmium	0.139	0 088 F	0.556	0.59	0.5
SW6010	Copper	6.54	6.68	17.37	13.72	130

Method	Analyte	Result 0'-2'	Result 5'-7'	Result 10'-12'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	4.85	NA	NA	5.85		5
SW6010	Codmium	0.0698F	0.155	0.0976 F	0.556	0.59	0.5
SW6010	Lead	9.81	NA	NA	30 97		1 5

Method	Analyte	Result (mg/L)	RRS-1 (mg/L)	MSC (mg/L)
SW6010	Iron	0.249	0.224	NV
SW8260	cis-1,2-Dichloroethene	0.072	MQL (0.0012)	0.07
SW8260	Methylene Chloride	0 0017	MQL (0.0003)	0.005
SW8260	Trichloroethene	0.029	MQL (0.001)	0.005

Method	Analyte	Result 17'-19'	Result 17'-19'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	4 36	5 46	5.85	6.58	5
SW6010	Lead	11.5		30.97		1.5

Method	Analyte	Result 2'-4'	RRS-1 Subsurface	MSC
SW6010	Selenium	0 63	0.313	5
SW8240	Toluene	0 011	MQL (0.0053)	100

Method	Analyte	Result 1'-3'	Result 5'-7'	Result 10'-12'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	NA	4.44	4 93	5.85	6.58	5
SW6010	Cadmium	0 0732 F	0 0722 F	0.0622 F	0.556	0.59	0.5
SW6010	Copper	NA	7 35	6.55	17 37	13.72	130
SW6010	Lead	9 46	NA	NA	30.97		1 5

Method	Analyte	Result 3'-5'	Result 7'-9'	RRS-1 Subsurface	MSC
SW6010	Arsenic		11	6.58	5
SW6010	Cadmium	1.2	1 2	0.59	0.5
SW6010	Copper		17	13.72	610
SW6010	Lead	13		12.66	1.5
SW8240	Acetone	0.066		MQL (0.021)	1000
SW8240	Methylene Chloride	0.018	0.02	MQL (0.0021)	0.5

LEGEND

- BUILDING 1414 INDUSTRIAL WASTE OIL/WATER SEPARATOR UNIT
- IT CORP SOIL BORING (1997)
- IT CORP. PHASE 2 BORING (2000)
- IT CORP PHASE 3 BORING (2000)
- IT CORP. MONITORING WELL
- LAW ENGINEERING SOIL BORING (VOCs AND METALS)
- G W. FLOW — GROUNDWATER FLOW DIRECTION
- SEWER LINE AND DIRECTIONAL FLOW
- FENCE
- RRS 2 SURVEY BOUNDARY
- PHASE 1 RESULTS > BACKGROUND
- PHASE 2 RESULTS
- PHASE 3 RESULTS
- ANALYTE DETECTED ABOVE MSC. SPLP NOT PERFORMED.

NOTES:

CONCENTRATIONS REPORTED IN MG/KG.

MSC - MEDIA-SPECIFIC CONCENTRATION

NV - NO VALUE, NA - NOT ANALYZED

B - FOR INORGANICS, THE QUANTITATION IS AN ESTIMATED CONCENTRATION BETWEEN THE MDL AND PQL. FOR ORGANICS, THE CONSTITUENT WAS ALSO DETECTED IN THE ASSOCIATED METHOD BLANK.

J - THE ANALYTE WAS POSITIVELY IDENTIFIED, THE QUANTITATION IS AN ESTIMATION.

F - THE ANALYTE WAS POSITIVELY IDENTIFIED, BUT THE ASSOCIATED NUMERICAL VALUE IS BELOW THE REPORTING LIMIT.

SOURCE: DRAFT RCRA FACILITES INVESTIGATION SANITARY SEWER SYSTEM, SEPTEMBER 1997, IT CORPORATION.

SCALE

0 40 80 FEET

FIGURE 10-1
SITE MAP SHOWING INVESTIGATION RESULTS
OWS BUILDING 1414 (SWMU 41)

NAS FORT WORTH JRB
FORT WORTH, TEXAS

File: D.E. 17A-83-1

IT CORPORATION
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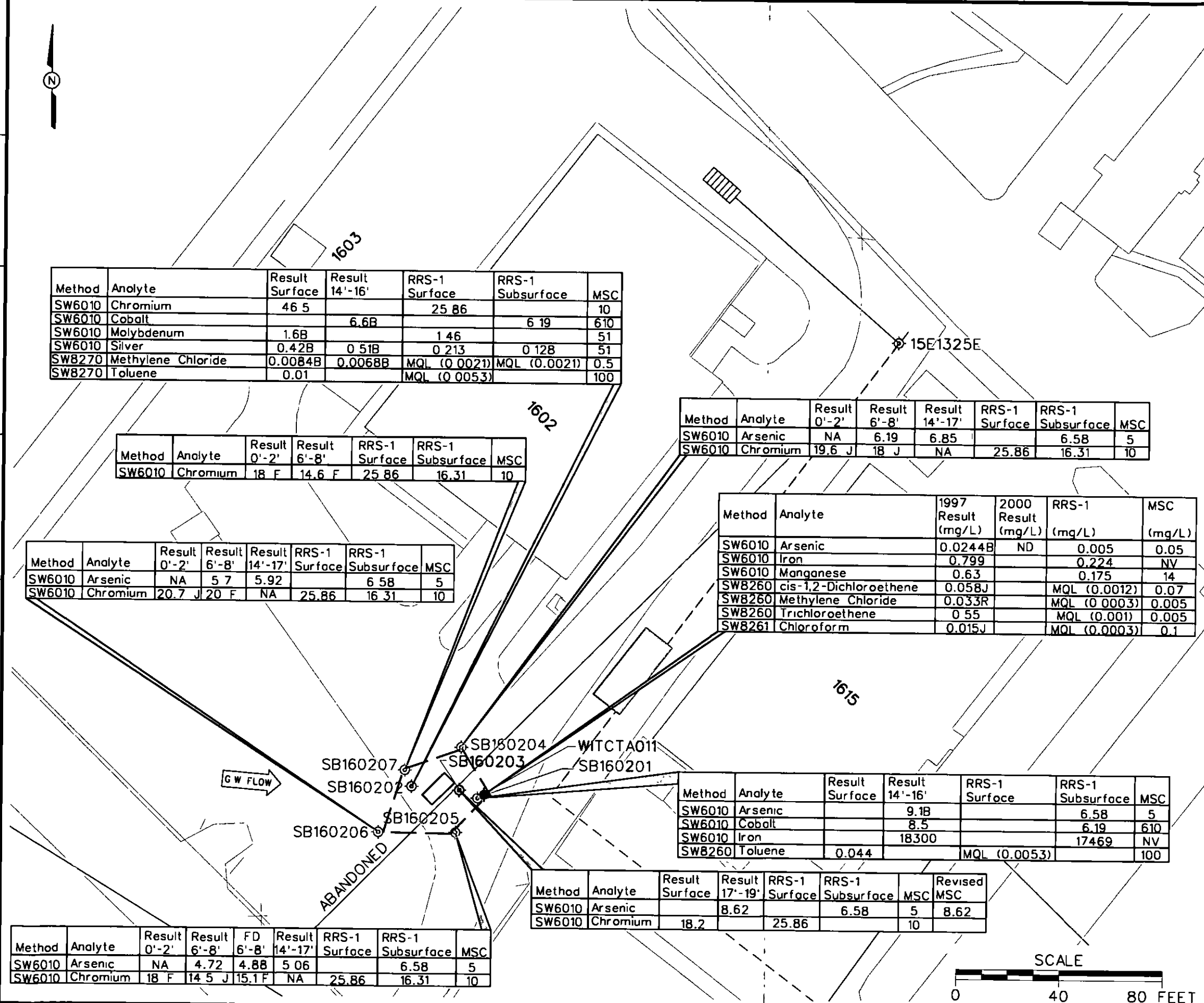
DWG NO. \768579es 256 | PROJ NO 768579
INITIATOR J FISHER | PROJ MGR W CARTER
DRAFT CHCK BY D HALL | ENGR CHCK BY K HURLEY
DATE LAST REV 1/08/01 | REVISION NO 0
STARTING DATE 1/08/01 | DRAWN BY M HALL
01 53 43 PM 03/29/02
mcraft c \cadd\design\768579es 256

11.0 Building 1602 OWS Conclusions

Arsenic was detected above its background and MSC values in the subsurface soil samples from Phase1 RFI boring SB160201 (Figure 11-1). Chromium was detected above background in a surface soil sample from Phase 1 boring SB160202. Chromium was not detected above background in the surface soil sample from Phase 2 boring SB160203. Arsenic was detected above background and MSC in the subsurface sample from SB160203; however, synthetic precipitation leaching procedure (SPLP) analysis was performed on the sample, and the SPLP result was below the MSC for arsenic in groundwater. Therefore, a revised MSC of 8.62 milligrams per kilogram was established for arsenic in soil at the site. The detected concentrations of chromium in surface soil and arsenic in subsurface soil were delineated by analytical results from the Phase 3 RFI borings SB160204 through SB1160207 (IT, 2001).

NFA is warranted for the OWS at Building 1602, and the site is recommended for closure under RRS 2. The absence of elevated concentrations exceeding RRS 2 for VOC and SVOC, compounds contained in the influent to the OWS (e.g., fuels, engine oil, brake fluid, and other petroleum byproducts) in soil and groundwater samples provides evidence that any release of contaminants that may have occurred from the OWS at Building 1602 has not significantly impacted the environment. Closure under RRS 2 is recommended because the arsenic and chromium concentrations detected above background in the Phase 1 RFI borings (SB160201 and SB160202) have been delineated to background. The results from confirmation soil samples collected from Phase 3 RFI boring SB160207, adjacent to Phase 1 RFI boring SB160202, indicated that chromium concentrations were below background.

If this recommendation is accepted, a letter stating that closure of the OWS at Building 1602 was carried out in accordance with TAC §335.555, signed by an Air Force representative, will be transmitted to TNRCC, along with a metes and bounds description of the affected area. The metes and bounds description will correspond to surveyed coordinates of the affected area shown in Figure 11-1. The COCs will be identified as chromium in surface soil and arsenic in subsurface soil.



Method	Analyte	Result Surface	Result 14'-16'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Chromium	46 5		25 86		10
SW6010	Cobalt		6.6B		6 19	610
SW6010	Molybdenum	1.6B		1 46		51
SW6010	Silver	0.42B	0 51B	0 213	0 12B	51
SW8270	Methylene Chloride	0.0084B	0.0068B	MQL (0 0021)	MQL (0.0021)	0.5
SW8270	Toluene	0.01		MQL (0 0053)		100

Method	Analyte	Result 0'-2'	Result 6'-8'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Chromium	18 F	14.6 F	25 86	16.31	10

Method	Analyte	Result 0'-2'	Result 6'-8'	Result 14'-17'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	NA	6.19	6.85		6.58	5
SW6010	Chromium	19.6 J	18 J	NA	25.86	16.31	10

Method	Analyte	Result 0'-2'	Result 6'-8'	Result 14'-17'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	NA	5 7	5.92		6 58	5
SW6010	Chromium	20.7 J	20 F	NA	25.86	16 31	10

Method	Analyte	1997 Result (mg/L)	2000 Result (mg/L)	RRS-1 (mg/L)	MSC (mg/L)
SW6010	Arsenic	0.0244B	ND	0.005	0.05
SW6010	Iron	0.799		0.224	NV
SW6010	Manganese	0.63		0.175	14
SW8260	cis-1,2-Dichloroethene	0.058J		MQL (0.0012)	0.07
SW8260	Methylene Chloride	0.033R		MQL (0 0003)	0.005
SW8260	Trichloroethene	0 55		MQL (0.001)	0.005
SW8261	Chloroform	0.015J		MQL (0.0003)	0.1

Method	Analyte	Result Surface	Result 14'-16'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic		9.1B		6.58	5
SW6010	Cobalt		8.5		6.19	610
SW6010	Iron		18300		17469	NV
SW8260	Toluene	0.044		MQL (0.0053)		100

Method	Analyte	Result Surface	Result 17'-19'	RRS-1 Surface	RRS-1 Subsurface	MSC	Revised MSC
SW6010	Arsenic		8.62		6.58	5	8.62
SW6010	Chromium	18.2		25.86		10	

Method	Analyte	Result 0'-2'	Result 6'-8'	FD 6'-8'	Result 14'-17'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	NA	4.72	4.88	5 06		6.58	5
SW6010	Chromium	18 F	14 5 J	15.1 F	NA	25.86	16.31	10

LEGEND

- BUILDING 1602 INDUSTRIAL WASTE OIL/WATER SEPARATOR UNIT
- IT CORP. SOIL BORING (1997)
- IT CORP. PHASE 2 BORING (2000)
- IT CORP. PHASE 3 BORING
- IT CORP. MONITORING WELL
- GW FLOW — GROUNDWATER FLOW DIRECTION
- SEWER LINE AND DIRECTIONAL FLOW
- FENCE
- RRS 2 SURVEY BOUNDARY
- PHASE 1 RESULTS > BACKGROUND
- PHASE 2 RESULTS
- PHASE 3 RESULTS
- ANALYTE DETECTED ABOVE MSC. SPLP NOT PERFORMED.
- ANALYTE DETECTED ABOVE MSC IN SOIL, BUT DETECTED BELOW MSC IN SPLP EXTRACT

NOTES:

CONCENTRATIONS REPORTED IN MG/KG UNLESS NOTED OTHERWISE

MSC - MEDIA-SPECIFIC CONCENTRATION.

REVISED MSC - VALUE BASED ON SPLP RESULT.

NV - NO VALUE, NA - NOT ANALYZED

B - FOR INORGANICS, THE QUANTITATION IS AN ESTIMATED CONCENTRATION BETWEEN THE MDL AND PQL. FOR ORGANICS, THE CONSTITUENT WAS ALSO DETECTED IN THE ASSOCIATED METHOD BLANK.

J - THE ANALYTE WAS POSITIVELY IDENTIFIED, THE QUANTITATION IS AN ESTIMATION.

F - THE ANALYTE WAS POSITIVELY IDENTIFIED, BUT THE ASSOCIATED NUMERICAL VALUE IS BELOW THE REPORTING LIMIT.

SOURCE: DRAFT RCRA FACILITES INVESTIGATION SANITARY SEWER SYSTEM, SEPTEMBER 1997, IT CORPORATION.

FIGURE 11-1
SITE MAP SHOWING INVESTIGATION RESULTS OWS BUILDING 1602

NAS FORT WORTH JRB
FORT WORTH, TEXAS

File: D.E. 17A-83-1

IT CORPORATION
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DWG NO. \768579es 258 | PROJ NO 768579
INITIATOR K HURLEY | PROJ MGR W CARTER
DRAFT CHCK BY D HALL | ENGR CHCK BY K HURLEY
DATE LAST REV 1/15/01 | REVISION NO 0
STARTING DATE 10/24/00 | DRAWN BY M CRAFT
01 56 04 PM 03/29/02
mcraft c:\cadd\design\768579es 258

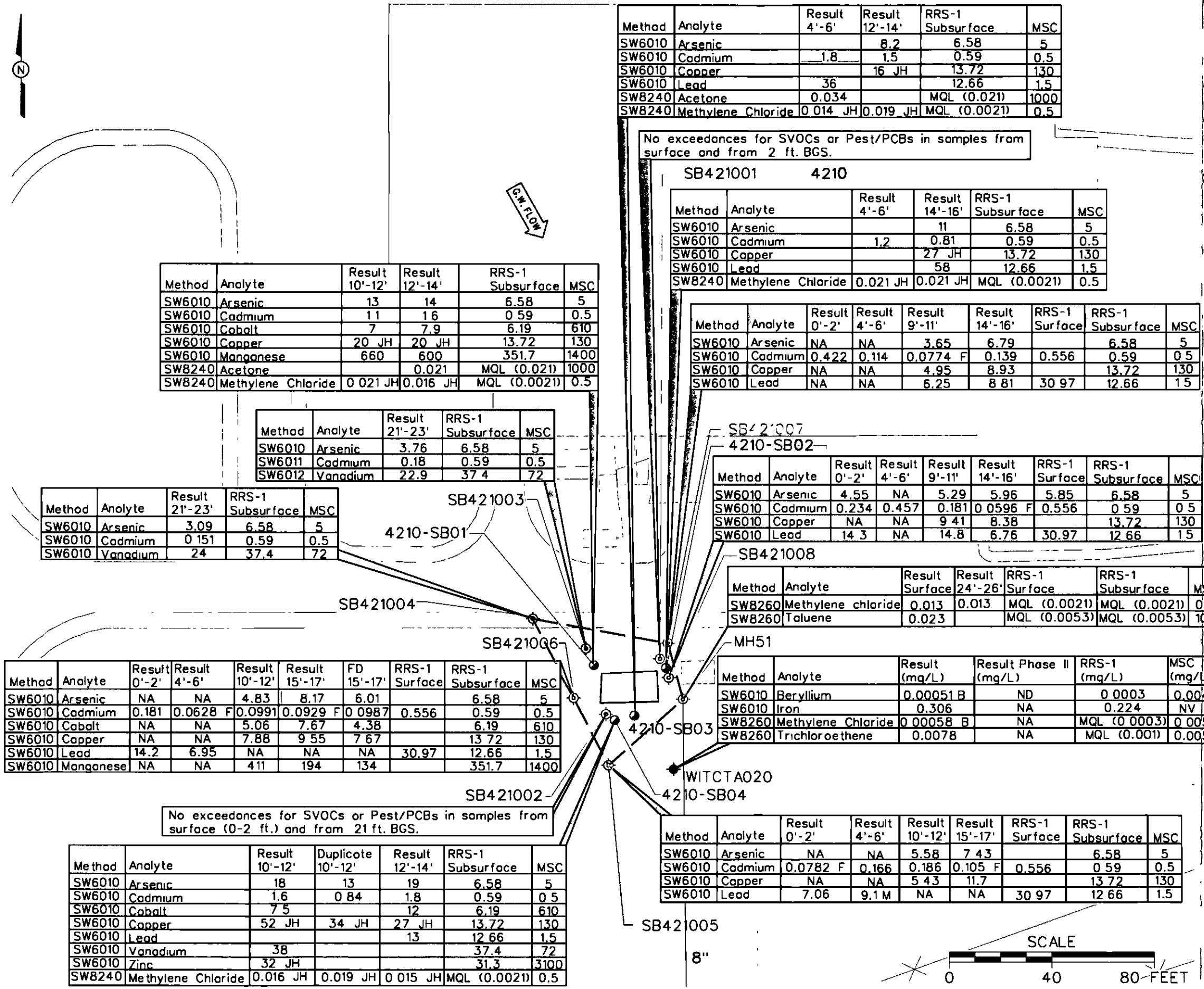
12.0 Building 4210 OWS Conclusions

Arsenic, cadmium, copper, and lead were detected above background in subsurface soil samples collected from Law borings 4210-SB01 through 4210-SB04 (Law, 1995) (Figure 12-1). Arsenic, cadmium, and lead concentrations also exceeded their respective MSCs in a portion of the subsurface samples collected from the Law borings. No VOCs, other than common laboratory contaminants acetone and methylene chloride, were detected above background in the soil samples collected from the Law soil borings. No SVOCs or pesticides/PCBs were detected above background (i.e., MQLs) in soil samples collected from Phase 1 RFI borings SB421001 and SB421002 (IT, 1998). The arsenic, cadmium, copper, and lead concentrations detected above background in the Law borings were delineated by the analytical results from soil samples collected at Phase 2 RFI borings SB421003 and SB421004 and Phase 3 RFI borings SB421005 through SB421008 (IT, 2001) The results from Phase 1 RFI soil boring MH51, completed during the sanitary sewer RFI (IT, 1997), also provides delineation of these inorganics.

IT attempted to replicate the arsenic, cadmium, copper, and lead concentrations detected above background and MSCs at former Law boring 4210-SB02 by collecting surface and subsurface soil samples from Phase 3 RFI boring SB421008. However, as shown in Figure 12-1, arsenic, cadmium, copper and, lead concentrations detected from SB421008 were at or below their respective background values.

NFA is warranted for the OWS at Building 4210, and the site is recommended for closure under RRS 2. The absence of elevated concentrations exceeding RRS 2 for VOC and SVOC, compounds present in jet fuel, lubricants, and other petroleum products in soil and groundwater samples provides evidence that any release of contaminants that may have occurred from the OWS at Building 4210 has not significantly impacted the environment. Closure under RRS 2 is recommended because the arsenic, cadmium, copper, and lead concentrations detected above background in the former Law borings (4210-SB01 through 4210-SB04) have been delineated to background. The results from confirmation soil samples collected from Phase 3 RFI boring SB421008, adjacent to former Law boring 4210-SB02, indicated that concentrations of these inorganics were below background.

If this recommendation is accepted, a letter stating that closure of AOC 12 (OWS at Building 4210) was carried out in accordance with TAC §335.555, signed by an Air Force representative, will be transmitted to TNRCC, along with a metes and bounds description of AOC 12. The



Method	Analyte	Result 4'-6'	Result 12'-14'	RRS-1 Subsurface	MSC
SW6010	Arsenic		8.2	6.58	5
SW6010	Cadmium	1.8	1.5	0.59	0.5
SW6010	Copper		16 JH	13.72	130
SW6010	Lead	36		12.66	1.5
SW8240	Acetone	0.034		MQL (0.021)	1000
SW8240	Methylene Chloride	0 014 JH	0.019 JH	MQL (0.0021)	0.5

No exceedances for SVOCs or Pest/PCBs in samples from surface and from 2 ft. BGS.

SB421001 4210

Method	Analyte	Result 4'-6'	Result 14'-16'	RRS-1 Subsurface	MSC
SW6010	Arsenic		11	6.58	5
SW6010	Cadmium	1.2	0.81	0.59	0.5
SW6010	Copper		27 JH	13.72	130
SW6010	Lead		58	12.66	1.5
SW8240	Methylene Chloride	0.021 JH	0.021 JH	MQL (0.0021)	0.5

Method	Analyte	Result 10'-12'	Result 12'-14'	RRS-1 Subsurface	MSC
SW6010	Arsenic	13	14	6.58	5
SW6010	Cadmium	1 1	1 6	0 59	0.5
SW6010	Cobalt	7	7.9	6.19	610
SW6010	Copper	20 JH	20 JH	13.72	130
SW6010	Manganese	660	600	351.7	1400
SW8240	Acetone		0.021	MQL (0.021)	1000
SW8240	Methylene Chloride	0 021 JH	0.016 JH	MQL (0.0021)	0.5

Method	Analyte	Result 0'-2'	Result 4'-6'	Result 9'-11'	Result 14'-16'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	NA	NA	3.65	6.79		6.58	5
SW6010	Cadmium	0.422	0.114	0.0774 F	0.139	0.556	0.59	0 5
SW6010	Copper	NA	NA	4.95	8.93		13.72	130
SW6010	Lead	NA	NA	6.25	8 81	30 97	12.66	1 5

Method	Analyte	Result 21'-23'	RRS-1 Subsurface	MSC
SW6010	Arsenic	3.76	6.58	5
SW6011	Cadmium	0.18	0.59	0.5
SW6012	Vanadium	22.9	37 4	72

Method	Analyte	Result 0'-2'	Result 4'-6'	Result 9'-11'	Result 14'-16'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	4.55	NA	5.29	5.96	5.85	6.58	5
SW6010	Cadmium	0.234	0.457	0.181	0 0596 F	0.556	0 59	0 5
SW6010	Copper	NA	NA	9 41	8.38		13.72	130
SW6010	Lead	14 3	NA	14.8	6.76	30.97	12 66	1 5

Method	Analyte	Result 21'-23'	RRS-1 Subsurface	MSC
SW6010	Arsenic	3.09	6.58	5
SW6010	Cadmium	0 151	0.59	0.5
SW6010	Vanadium	24	37.4	72

Method	Analyte	Result Surface	Result 24'-26'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW8260	Methylene chloride	0.013	0.013	MQL (0.0021)	MQL (0.0021)	0.5
SW8260	Toluene	0.023		MQL (0.0053)	MQL (0.0053)	100

Method	Analyte	Result 0'-2'	Result 4'-6'	Result 10'-12'	Result 15'-17'	FD 15'-17'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	NA	NA	4.83	8.17	6.01		6.58	5
SW6010	Cadmium	0.181	0.0628 F	0.0991	0.0929 F	0 0987	0.556	0.59	0.5
SW6010	Cobalt	NA	NA	5.06	7.67	4.38		6.19	610
SW6010	Copper	NA	NA	7.88	9 55	7 67		13 72	130
SW6010	Lead	14.2	6.95	NA	NA	NA	30.97	12.66	1.5
SW6010	Manganese	NA	NA	411	194	134		351.7	1400

Method	Analyte	Result (mg/L)	Result Phase II (mg/L)	RRS-1 (mg/L)	MSC (mg/L)
SW6010	Beryllium	0.00051 B	ND	0 0003	0.004
SW6010	Iron	0.306	NA	0.224	NV
SW8260	Methylene Chloride	0 00058 B	NA	MQL (0 0003)	0 005
SW8260	Trichloroethene	0.0078	NA	MQL (0.001)	0.005

No exceedances for SVOCs or Pest/PCBs in samples from surface (0-2 ft.) and from 21 ft. BGS.

Method	Analyte	Result 10'-12'	Duplicate 10'-12'	Result 12'-14'	RRS-1 Subsurface	MSC
SW6010	Arsenic	18	13	19	6.58	5
SW6010	Cadmium	1.6	0 84	1.8	0.59	0 5
SW6010	Cobalt	7 5		12	6.19	610
SW6010	Copper	52 JH	34 JH	27 JH	13.72	130
SW6010	Lead			13	12.66	1.5
SW6010	Vanadium	38			37.4	72
SW6010	Zinc	32 JH			31.3	3100
SW8240	Methylene Chloride	0.016 JH	0.019 JH	0 015 JH	MQL (0.0021)	0.5

Method	Analyte	Result 0'-2'	Result 4'-6'	Result 10'-12'	Result 15'-17'	RRS-1 Surface	RRS-1 Subsurface	MSC
SW6010	Arsenic	NA	NA	5.58	7 43		6.58	5
SW6010	Cadmium	0.0782 F	0.166	0.186	0.105 F	0.556	0 59	0.5
SW6010	Copper	NA	NA	5 43	11.7		13 72	130
SW6010	Lead	7.06	9.1 M	NA	NA	30 97	12 66	1.5

LEGEND

- BUILDING 4210 INDUSTRIAL WASTE OIL/WATER SEPARATOR UNIT
- IT CORP. SOIL BORING (1997)
- IT CORP. PHASE 2 BORING (2000)
- IT CORP. PHASE 3 BORING (2000)
- IT CORP. MONITORING WELL
- LAW ENGINEERING SOIL BORING (VOCs AND METALS)
- GW FLOW — GROUNDWATER FLOW DIRECTION
- SEWER LINE AND DIRECTIONAL FLOW
- FENCE
- RRS 2 SURVEY BOUNDARY
- PHASE 1 RESULTS > BACKGROUND
- PHASE 3 RESULTS
- PHASE 2 RESULTS
- ANALYTE DETECTED ABOVE MSC. SPLP NOT PERFORMED.

NOTES:

CONCENTRATIONS REPORTED IN MG/KG.

MSC - MEDIA-SPECIFIC CONCENTRATION.

NV - NO VALUE, NA - NOT ANALYZED

B - FOR INORGANICS, THE QUANTITATION IS AN ESTIMATED CONCENTRATION BETWEEN THE MDL AND PQL. FOR ORGANICS, THE CONSTITUENT WAS ALSO DETECTED IN THE ASSOCIATED METHOD BLANK.

J - THE ANALYTE WAS POSITIVELY IDENTIFIED, THE QUANTITATION IS AN ESTIMATION

F - THE ANALYTE WAS POSITIVELY IDENTIFIED, BUT THE ASSOCIATED NUMERICAL VALUE IS BELOW THE REPORTING LIMIT

SOURCE: DRAFT RCRA FACILITES INVESTIGATION SANITARY SEWER SYSTEM, SEPTEMBER 1997, IT CORPORATION.

FIGURE 12-1
SITE MAP SHOWING INVESTIGATION RESULTS OWS BUILDING 4210 (AOC 12)

NAS FORT WORTH JRB
FORT WORTH, TEXAS

File: 17A-83-1
D.E.

IT CORPORATION
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DWG NO. \768579es 262 | PROJ NO 768579
INITIATOR J FISHER | PROJ MGR W CARTER
DRAFT CHCK BY D HALL | ENGR CHCK BY K HURLEY
DATE LAST REV 1/15/01 | REVISION NO 0
STARTING DATE 10/25/00 | DRAWN BY M CRAFT
09 50 19 04/09/02
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metes and bounds description will correspond to surveyed coordinates of the affected area shown in Figure 12-1. The COCs will be identified as arsenic, cadmium, copper, and lead in subsurface soil.

13.0 References

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IT Corporation (IT), 2001, ***Final RCRA Facility Investigation Report for Buildings 1015, 1027, 1060, 1064, 1190, 1191, 1194, 1414, 1602, 1643, 4146, and 4210, NAS Fort Worth JRB, Texas,*** April.

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TAB

APPENDIX A

APPENDIX A

REPLACEMENT PAGES FOR RFI REPORT

Instructions
for Replacement Pages

Final RCRA Facility Investigation Report for Buildings 1015, 1027, 1060, 1064, 1190, 1191, 1194, 1414, 1602, 1643, 3358, 4146, and 4210, NAS Fort Worth JRB, Texas
April 2001

1) **Replace Table 10-4 in Chapter 10.0 (Pages 16 and 17)**

2) **Replace Table 11-4 in Chapter 11.0 (Page 16)**

Table 10-4

Table 10-4

Summary of RFI Groundwater Analytical Detections Compared to Background and MSCs
OWS Building 1194 - IT Corporation
NAS Fort Worth JRB, Texas

Location	Sample No.	Sample Date	Parameter	Reporting Limit (mg/L)	Result (mg/L)	Laboratory Qualifier	Validation Qualifier	Background UTL or MQL[1] (mg/L)	Does Result Support Closure Under RRS 1	TNRCC MSC[2] (mg/L)	Does Result Support Closure Under RRS 2?
Phase 1 - Groundwater - Location BGSMW01											
BGSMW01	MS1528	09-Apr-97	Methylene chloride	0.0003	0 0019	B	nv	0 0021	Yes	0 04	NA
BGSMW01	MS1528	09-Apr-97	Barium	0.02	0.0748		nv	0.587	Yes	2	NA
BGSMW01	MS1528	09-Apr-97	Beryllium	0 003	0.0003	B	nv	0.0003	Yes	0 000004	NA
BGSMW01	MS1528	09-Apr-97	Calcium	0.1	108		nv	266 3	NA	Essential Nutrient	NA
BGSMW01	MS1528	09-Apr-97	Iron	0.07	2 31		nv	0.2239	NA	Essential Nutrient	NA
BGSMW01	MS1528	09-Apr-97	Magnesium	0.3	9.4		nv	37.8	NA	Essential Nutrient	NA
BGSMW01	MS1528	09-Apr-97	Manganese	0.02	0.528		nv	0 175	No	14	Yes
BGSMW01	MS1528	09-Apr-97	Mercury	0 001	0 00011	B	nv	0.0001	No	0 002	Yes
BGSMW01	MS1528	09-Apr-97	Molybdenum	0.08	0.0062	B	nv	0.0144	Yes	0 51	NA
BGSMW01	MS1528	09-Apr-97	Potassium	5	0 596	B	nv	15.03	NA	Essential Nutrient	NA
BGSMW01	MS1528	09-Apr-97	Sodium	0 3	38 5		nv	167 2	NA	Essential Nutrient	NA
BGSMW01	MS1528	09-Apr-97	Zinc	0 02	0 0234		nv	0 118	Yes	31	NA
Phase 1 - Groundwater - Location WITCTA027											
WITCTA027	MS1551	24-Apr-97	Methylene chloride	0 0003	0.00062	B		0 0021	Yes	0 04	NA
WITCTA027	MS1551	24-Apr-97	Trichloroethene	0.001	0.00025	J		0.001	Yes	0 005	NA
WITCTA027	MS1551	24-Apr-97	Aluminum	0.5	0 0657	B		1.332	Yes	100	NA
WITCTA027	MS1551	24-Apr-97	Arsenic	0.01	0 0092	B		0 0049	No	0.05	Yes
WITCTA027	MS1551	24-Apr-97	Barium	0.02	0 0982			0 587	Yes	2	NA
WITCTA027	MS1551	24-Apr-97	Barium	0.1	0.101			0.587	Yes	2	NA
WITCTA027	MS1551	24-Apr-97	Calcium	0.1	151			266.3	NA	Essential Nutrient	NA
WITCTA027	MS1551	24-Apr-97	Iron	0 07	2.87	N		0.2239	NA	Essential Nutrient	NA
WITCTA027	MS1551	24-Apr-97	Magnesium	0.3	8.26			37.8	NA	Essential Nutrient	NA
WITCTA027	MS1551	24-Apr-97	Manganese	0 02	0.161			0.175	Yes	14	NA
WITCTA027	MS1551	24-Apr-97	Molybdenum	0 08	0.0034	B		0 0144	Yes	0 51	NA

Table 10-4

Summary of RFI Groundwater Analytical Detections Compared to Background and MSCs
OWS Building 1194 - IT Corporation
NAS Fort Worth JRB, Texas

Location	Sample No.	Sample Date	Parameter	Reporting Limit (mg/L)	Result (mg/L)	Laboratory Qualifier	Validation Qualifier	Background UTL or MQL[1] (mg/L)	Does Result Support Closure Under RRS 1	TNRCC MSC[2] (mg/L)	Does Result Support Closure Under RRS 2?
WITCTA027	MS1551	24-Apr-97	Potassium	5	0.492	B		15.03	NA	Essential Nutrient	NA
WITCTA027	MS1551	24-Apr-97	Silver	0 07	0 0046	B		0 0002	No	0.51	Yes
WITCTA027	MS1551	24-Apr-97	Sodium	0 3	55 5			167 2	NA	Essential Nutrient	NA
WITCTA027	MS1551	24-Apr-97	Zinc	0 02	0 0047	B		0 118	Yes	31	NA

MSC = Media Specific Concentration
NA = Not Applicable
MQL = Method Quantitation Limit.
RRS 1 = Risk Reduction Standard 1
RRS 2 = Risk Reduction Standard 2.
TNRCC = Texas Natural Resource Conservation Commission
UTL = Upper Tolerance Limit.
mg/L = milligrams per liter
Footnotes:
[1] UTLs for inorganics derived from Final Draft Basewide Background Study, Jacobs Engineering, 1998 MQLs for organics were derived by taking the most conservative reporting limit for a given analyte.
[2] TNRCC, 1999, "Updated Examples of Standard No 2, Appendix II Media Specific Concentrations (MSCs) - Industrial Setting", July 14
Validated Qualifier Definitions
J = For inorganics, the associated value is an estimated quantity. For organics, the analyte was positively identified; the associated numerical value is is the approximate concentration of the analyte in the sample.
U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
B = For inorganics, the reported value is an estimated quantity.
F = The analyte was positively identified but the associated numerical value is below the reporting limit.
nv = not validated

Table 11-4

Table 11-4

Summary of RFI Groundwater Analytical Detections Compared to Background and MSCs
OWS Building 1414 - IT Corporation
NAS Fort Worth JRB, Texas

Location	Sample No.	Sample Date	Parameter	Reporting Limit (mg/L)	Result (mg/L)	Laboratory Qualifier	Validation Qualifier	Background UTL or MQL[1] (mg/L)	Does Result Support Closure Under RRS 1	TNRCC MSC[2] (mg/L)	Does Result Support Closure Under RRS 2?
					Phase 1 - WITCTA016						
WITCTA016	MS1567	29-Apr-97	Cis-1,2-dichloroethene	0.006	0 072			0 0012	No	0 07	No
WITCTA016	MS1567	29-Apr-97	Methylene chloride	0.0015	0 0017	B		0.0021	Yes	0 04	NA
WITCTA016	MS1567	29-Apr-97	Trichloroethene	0 005	0 029			0 001	No	0 005	No
WITCTA016	MS1567	29-Apr-97	Aluminum	0 5	0.0387	B		1.332	Yes	100	NA
WITCTA016	MS1567	29-Apr-97	Barium	0.02	0.16			0.587	Yes	2	NA
WITCTA016	MS1567	29-Apr-97	Calcium	0 1	138			266 3	NA	Essential Nutrient	NA
WITCTA016	MS1567	29-Apr-97	Iron	0.07	0.249			0.2239	NA	Essential Nutrient	NA
WITCTA016	MS1567	29-Apr-97	Magnesium	0.3	12 2			37.8	NA	Essential Nutrient	NA
WITCTA016	MS1567	29-Apr-97	Manganese	0.02	0.0646			0.175	Yes	14	NA
WITCTA016	MS1567	29-Apr-97	Potassium	5	1.59	B		15.03	NA	Essential Nutrient	NA
WITCTA016	MS1567	29-Apr-97	Sodium	0.3	142			167 2	NA	Essential Nutrient	NA
WITCTA016	MS1567	29-Apr-97	Zinc	0 02	0.006	B		0 118	Yes	31	NA

MSC = Media Specific Concentration
NA = Not Applicable
MQL = Method Quantitation Limit
RRS 1 = Risk Reduction Standard 1.
RRS 2 = Risk Reduction Standard 2
TNRCC = Texas Natural Resource Conservation Commission.
UTL = Upper Tolerance Limit.
mg/L = milligrams per liter.
Footnotes:
[1] UTLs for inorganics derived from Final Draft Basewide Background Study, Jacobs Engineering, 1998. MQLs for organics were derived by taking the most conservative reporting limit for a given analyte.
[2] TNRCC, 1999, "Updated Examples of Standard No. 2, Appendix II Media Specific Concentrations (MSCs) - Industrial Setting", July 14.
Validated Qualifier Definitions:
B = For inorganics, the reported value is an estimated quantity

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FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE