

Table 4-3  
 Summary of Positive Analytical Results  
 for Soil Samples  
 Former Forbes Atlas Missile Site S-5  
 Bushong, Kansas

Results in mg/kg  
 Sampled 05/23/90

Parameter	Sample Designation								
	S5S1	S5S2	S5S3	S5S4	S5S5	S5S6	D5S52	R5S52 *	S5T81 *
<b>Volatile Organics</b>									
Acetone	BDL	BDL	0.002 BJ	BDL	BDL	BDL	0.010 B	BDL	BDL
Chloroform	BDL	0.002 BJ	0.002 BJ	0.002 BJ	BDL	0.002 BJ	0.002 BJ	BDL	0.002 J
Methylene Chloride	0.015 B	0.033 B	0.022 B	0.021 B	0.011 B	0.017 B	0.036 B	0.008 B	0.017 B
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.001 J	BDL
Trichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	0.010	BDL	BDL
<b>Semi-Volatile Organics</b>									
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	0.071 J	BDL	NA
<b>Metals</b>									
Arsenic	6.7	3.6	5.3	4.9	4.7	BDL	3.2	BDL	NA
Barium	134	129	179	2180	152	76.6	155	BDL	NA
Cadmium	BDL	1.3	BDL	BDL	BDL	BDL	1.4	BDL	NA
Chromium	18.9	12.6	14.7	15.7	11.7	20.8	13.1	BDL	NA
Lead	23.0	41.6	33.0	19.8	18.8	12.0	63.8	BDL	NA

Notes:

- \* = Results in mg/l
- BDL = Below Detection Limit
- B = Analyte detected in the method blank as well as in the sample
- J = Estimated value of concentration below detection limit
- NA = Not Analyzed

Table 4-5  
 Summary of Positive Analytical Results  
 for Ground Water Samples  
 Former Forbes Atlas Missile Site S-5  
 Bushong, Kansas

Results in mg/l  
 Sampled 08/21/90 - 08/30/90

Parameter	Sample Designation					Trip Blank
	GMW501	GMW502	DGMW502	RGW502	S51B2	
<b>Volatile Organics</b>						
Acetone	BDL	BDL	BDL	0.004 J	0.004 J	BDL
Bromodichloromethane	BDL	BDL	BDL	0.002 J	BDL	0.002 J
Chloroform	BDL	BDL	BDL	0.054	BDL	0.040
Trans-1,2-Dichloroethene	BDL	0.098	0.104	BDL	BDL	BDL
Trichloroethene	0.002 J	0.076	0.085	BDL	BDL	BDL
<b>Metals</b>						
Barium	0.134	0.234	0.235	BDL	NA	NA
Chromium	BDL	0.021	0.019	BDL	NA	NA
Lead	0.045	BDL	BDL	BDL	NA	NA

**Notes:**

- BDL = Below Detection Limit
- J = Estimated value of concentration below detection limit
- NA = Not Analyzed

TABLE 2

ANALYTICAL DATA SUMMARY FOR SHALLOW SOIL SAMPLES  
FORMER ATLAS S-S, LYON COUNTY, KANSAS  
JANUARY 2007

Analyte	Benchmarks			Sample ID (ft bgs) and Results												
	RfD	CR	Three Times Background Concentration	3324-1 (0-2)	3324-3 (0-2)	3324-4 (2-4)	3324-5 (2-4)	3324-7 (0-2)	3324-9 (0-2)	3324-11 (0-2)	3324-13 (0-2)	3324-15 (0-2)	3324-16 (0-2)	3324-18 (2-4) BKG	3324-19 (0-1)	3324-25 FB
<b>Metals (mg/kg)</b>																
Arsenic	23	0.43	66.3	6.51 J	4.96 J	5.95 J	5.18 J	6.23 J	5.74 J	4.90 J	4.56 J	7.56 J	2.39 J	22.1 J	6.87 J	NA
Barium	5,500	NE	567	169	136	178	129	218	124	202	169	229	161	189	134	NA
Beryllium	160	NE	2.46	0.800 J	0.616 UJ	0.811 J	0.728 J	0.821 J	0.623 J	0.754 J	0.710 J	0.805 J	0.729 J	0.820 J	0.718 U	NA
Chromium	230	NE	85.2	21.3	16.2	21.4	25.0	19.2	19.6	17.4	19.6	19.4	20.8	28.4	20.7	NA
Copper	NE	NE	27.66	16.6	8.12	12.0	17.5	12.8	15.0	9.87	10.7	11.5	15.0	9.22	14.6	NA
Lead	NE	NE	50.4	12.5 J	24.6 J	14.0 J	7.73 J	24.9 J	16.0 J	12.9 J	8.82 J	23.3 J	5.73 J	16.8 J	12.7 J	NA
Zinc	23,000	NE	88.2	49.3	40.9	43.5	48.2	46.8	53.0	31.4	30.2	32.1	33.7	29.4	40.7	NA
<b>VOCs (µg/kg)</b>																
bis(2-ethylhexyl)phthalate	1,600,000	46,000	> 240	210 U	210 U	200 U	200 U	220 U	200 U	240 U	230	290	210 U	240 U	250 U	88
2-Butanone	NE	NE	> 14	16 J	20	12 U	11 U	12 U	10 U	15 U	14 U	13 U	15	14 U	29 U	5.0 U
Acetone	70,000,000	NE	> 14	52 J	140	46	14	60	10 U	58	32	30	100	14 U	66	5.0 U
Benzene	310,000	12,000	> 7.0	6.4 J	6.6 U	6.0 U	5.5 U	5.9 U	5.1 U	7.5 U	7.2 U	6.7 U	6.0 U	7.0 U	15 U	5.0 U
Carbon disulfide	7,800,000	NE	> 7.0	N/A R	6.6 U	6.0 U	5.5 U	10	5.1 U	7.5 U	7.2 U	6.7 U	6.0 U	7.0 U	15 U	5.0 U
m and/or p-Xylene	16,000,000	NE	> 7.0	19 J	6.6 U	6.0 U	5.5 U	15 J	5.1 U	13	7.2 U	6.7 U	6.0 U	7.0 U	15 U	5.0 U
Methylcyclohexane	NE	NE	> 7.0	N/A R	6.6 U	6.0 U	5.5 U	5.9 U	5.1 U	7.5 U	7.2 U	6.7 U	6.0 U	7.0 U	15 U	5.0 U
Methylene chloride	4,700,000	85,000	> 7.0	N/A R	6.6 U	6.0 U	5.5 U	5.9 U	5.1 U	7.5 U	7.2 U	6.7 U	6.0 U	7.0 U	15 U	88
o-Xylene	16,000,000	NE	> 7.0	6.3 J	6.6 U	6.0 U	5.5 U	5.9 U	5.1 U	7.5 U	7.2 U	6.7 U	6.0 U	7.0 U	15 U	10 U

Notes:

Bold value indicates a concentration that exceeds a benchmark value.

Shaded cell indicates a concentration that exceeds three times the background concentration or the background sample detection limit.

BKG	Background sample location	N/A R	Not analyzed, internal standards had an unacceptable response
CR	Cancer Risk Screening Concentration from SCDM	NE	Not established
FB	Field blank	RfD	Reference Dose Screening Concentration from SCDM
ft bgs	Feet below ground surface	SCDM	Superfund Chemical Data Matrix (EPA 2004)
ID	Identification	U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; reported value is an estimate.	UJ	The analyte was not detected at or above the reporting limit.
mg/kg	Milligrams per kilogram		The reporting limit is an estimate
µg/kg	Micrograms per kilogram	VOC	Volatile organic compound

TABLE 3

ANALYTICAL DATA SUMMARY FOR DEEP SOIL SAMPLES  
FORMER ATLAS S-5, LYON COUNTY, KANSAS  
JANUARY 2007

Analyte	Benchmarks			Sample ID (ft bgs) and Results								
	RfD	CR	Three Times Background Concentration	3324-2 (16-18)	3324-6 (8-10)	3324-8 (9-11)	3324-10 (10-12)	3324-12 (6-8)	3324-14 (10-12)	3324-17 (4-6)	3324-18 (2-4') BKG	3324-25 FB
<b>Metals (mg/kg)</b>												
Arsenic	23	0.43	66.3	1.93 J	8.24 J	4.72 J	14.7 J	7.03 J	7.51 J	1.14 UJ	22.1 J	NA
Barium	5,500	NE	567	40.5	85.8	73.0	149	93.6	174	84.3	189	NA
Beryllium	160	NE	2.46	0.511 UJ	0.583 UJ	0.614 J	1.06 J	0.644 UJ	0.783 J	0.763 J	0.820 J	NA
Chromium	230	NE	85.2	2.67	22.2	23.6	35.6	30.2	31.2	21.5	28.4	NA
Copper	NE	NE	27.66	2.55 U	19.1	14.9	16.1	7.38	18.4	15.2	9.22	NA
Lead	NE	NE	50.4	2.22 UJ	19.3 J	4.79 J	30.3 J	9.59 J	8.39 J	5.17 J	16.8 J	NA
Zinc	23,000	NE	88.2	7.34	33.9	38.8	30.8	21.0	40.0	36.9	29.4	NA
<b>VOCs (µg/kg)</b>												
Bis(2-ethylhexyl)phthalate	1,600,000	46,000	> 240	180 U	210 U	190 U	240 U	310	270 U	230 U	240 U	88
2-Butanone	NE	NE	> 14	23 U	12 U	12 U	46	12 U	14 U	29	14 U	5.0 U
Acetone	70,000,000	NE	> 14	23 U	12 U	12 U	140	15	14 U	170	14 U	5.0 U
Benzene	310,000	12,000	> 7.0	11 U	6.2 U	6.2 U	6.1 U	6.0 U	7.2 U	7.2 U	7.0 U	5.0 U
Carbon disulfide	7,800,000	NE	> 7.0	11 U	6.2 U	6.2 U	6.1 U	6.0 U	7.2 U	7.2 U	7.0 U	5.0 U
m and/or p-Xylene	16,000,000	NE	> 7.0	11 U	6.2 U	6.2 U	15	6.0 U	7.2 U	7.2 U	7.0 U	5.0 U
Methylcyclohexane	NE	NE	> 7.0	11 U	6.2 U	6.2 U	6.1 U	6.0 U	18 J	7.2 U	7.0 U	5.0 U
Methylene chloride	4,700,000	85,000	> 7.0	11 U	6.2 U	6.2 U	6.1 U	6.0 U	7.2 U	7.2 U	7.0 U	88
o-Xylene	16,000,000	NE	> 7.0	11 U	6.2 U	6.2 U	6.1 U	6.0 U	7.2 U	7.2 U	7.0 U	10 U

Notes:

Bold value indicates a concentration that exceeds a benchmark value.

Shaded cell indicates a concentration that exceeds three times the background concentration or the background sample detection limit.

BKG	Background sample location	NA	Not analyzed
CR	Cancer Risk Screening Concentration from SCDM	NE	Not established
FB	Field blank	RfD	Reference Dose Screening Concentration from SCDM
ft bgs	Feet below ground surface	SCDM	Superfund Chemical Data Matrix (EPA 2004)
ID	Identification	U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; reported value is an estimate.	UJ	The analyte was not detected at or above the reporting limit. The reporting limit is an estimate
mg/kg	Milligrams per kilogram	VOC	Volatile organic compound
µg/kg	Micrograms per kilogram		

**TABLE 5**  
**ANALYTICAL DATA SUMMARY FOR SEDIMENT SAMPLES**  
**FORMER ATLAS S-5, LYON COUNTY, KANSAS**  
**JANUARY 2007**

Analyte	Benchmarks			Sample ID and Results				
	R/D	CR	Three Times Background Concentration	3324-26	3324-27	3324-28	3324-29 BKG	3324-25 FB
<b>Metals (mg/kg)</b>								
Arsenic	23	0.43	<b>26.13</b>	<b>4.72 J</b>	<b>6.43 J</b>	<b>4.73 J</b>	<b>8.71 J</b>	NA
Barium	5,500	NE	714	236	195	186	238	NA
Beryllium	160	NE	> 1.10	0.964 U	1.11	0.673 U	1.10 U	NA
Cadmium	39	NE	> 1.10	0.731 U	0.784 U	1.80	1.10 U	NA
Chromium	230	NE	69.3	22.8	23.5	20.7	23.1	NA
Copper	NE	NE	45	17.5	18.8	65.3	15.0	NA
Lead	NE	NE	73.5	17.7 J	24.6 J	71.3 J	24.5 J	NA
Mercury	23	NE	> 0.220	0.143 U	0.152 U	0.416	0.220 U	NA
Zinc	23,000	NE	141.3	58.8	57.2	646	47.1	NA
<b>VOCs (µg/kg)</b>								
Acetone	70,000,000	NE	> 15	14 U	15 U	26	15 U	5.0 U
m and/or p-xylene	16,000,000	NE	> 7.5	19 J	7.3 U	6.4 U	7.5 U	5.0 U
Methylene chloride	4,700,000	85,000	> 7.5	7.2 U	7.3 U	6.6	7.5 U	88
<b>TPH (µg/kg)</b>								
Extractable TPH	NE	NE	> 99.9	97.4 U	98.5 U	306	99.9 U	10 U
Purgeable TPH	NE	NE	> 104	50 U	50 U	50 U	104 U	11

Notes:

Bold value indicates a concentration that exceeds a benchmark value.

Shaded cell indicates a concentration that exceeds three times the background concentration or the background sample detection limit.

BKG Background sample location

CR Cancer Risk Screening Concentration from SCDM

FB Field blank

ID Identification

J The identification of the analyte is acceptable; reported value is an estimate

mg/kg Milligrams per kilogram

µg/kg Micrograms per kilogram

NA Not analyzed

NE Not established

R/D Reference Dose Screening Concentration from SCDM

SCDM Superfund Chemical Data Matrix (EPA 2004)

TPH Total petroleum hydrocarbons

U The analyte was not detected at or above the reporting limit

VOC Volatile organic compound

**TABLE 7**  
**ANALYTICAL DATA SUMMARY FOR GROUNDWATER SAMPLES**  
**FORMER ATLAS S-5, LYON COUNTY, KANSAS**  
**JANUARY 2007**

Analyte	Benchmark Values (µg/L)				Sample ID and Results (µg/L)				
	MCL	RfD	CR	Three Times Background Concentration	3324-201 (Background Private Well Sample)	3324-202 (Private Well Sample)	3324-110 (FB)	3324-209 (FB)	3324-101 (Monitoring Well Sample)
<b>Total Metals / [Dissolved Metals]</b>									
Antimony	6.0	15	NE	> 6.00	2.00 U	<b>12.7</b>	2.00 U	NA	2.00 U [2.00 U]
Arsenic	10	11	0.057	> 3.00	1.00 U	<b>5.32</b>	1.00 U	NA	1.00 U [1.00 U]
Barium	2,000	2,600	NE	312	104	10.0 U	10.0 U	NA	57.9 [187 J]
Beryllium	4.0	73	NE	> 3.00	1.00 U	2.88	1.00 U	NA	1.00 U [1.00 U]
Cadmium	5.0	18	NE	> 3.00	1.00 U	3.18	1.00 U	NA	1.00 U [1.00 U]
Chromium	100	110	NE	> 6.00	2.00 U	6.33	2.00 U	NA	2.00 U [2.00 U]
Copper	1,300	NE	NE	> 14.31	4.77 U	28.8	2.00 U	NA	3.71 U [2.45 U]
Lead	15	NE	NE	> 3.00	1.00 U	7.96	1.00 U	NA	3.63 U [14.1 J]
Selenium	50	180	NE	> 15.00	5.00 U	15.2	5.00 U	NA	5.00 U [5.00 U]
Silver	NE	180	NE	> 3.00	1.00 U	3.12	1.00 U	NA	1.00 U [1.00 U]
Thallium	0.50	NE	NE	> 3.00	1.00 UJ	<b>3.21</b>	1.00 UJ	NA	1.00 UJ [1.00UJ]
Zinc	NE	11,000	NE	63.3	21.1 J	16.8 J	2.00 UJ	NA	199 J [2.66 UJ]
<b>VOCs</b>									
<i>cis</i> -1,2-Dichloroethene	70	360	NE	> 1.5	0.50 U	0.50 U	1.0 U	0.50 U	57
Methylene chloride	5.0	22,000	11	> 1.5	0.50 U	0.50 U	<b>5.3</b>	0.50 U	1.0 U
Trichloroethene	5.0	11	0.21	> 1.5	0.50 U	0.50 U	1.0 U	0.50 U	<b>87</b>

Notes:

Bold value indicates a concentration that exceeds a benchmark value.

Shaded cell indicates a concentration that exceeds three times the background concentration or the background sample detection limit.

[value]	Bracketed values indicates a dissolved metal concentration	NE	Not established
CR	Cancer Risk Screening Concentration from SCDM	RfD	Reference Dose Screening Concentration from SCDM
FB	Field blank	SCDM	Superfund Chemical Data Matrix (EPA 2004)
ID	Identification	U	The analyte was not detected at or above the reporting limit
J	The identification of the analyte is acceptable; reported value is an estimate	UJ	The analyte was not detected at or above the reporting limit. The reporting limit is an estimate
µg/L	Micrograms per liter	VOC	Volatile organic compound
NA	Not analyzed		