

**DRAFT FINAL  
FIVE YEAR LANDFILL GROUDWATER MONITORING  
AND ANNUAL INSPECTION REPORT  
UNITED STATES MILITARY ACADEMY  
WEST POINT, NEW YORK**

Contract W912DR-12-D-0007

February 2017

VERSION: 01

*Prepared for:*



U.S. Army Corps of Engineers, Baltimore District  
10 South Howard Street  
Baltimore, Maryland 21201

*Prepared by:*



Weston Solutions, Inc.  
1400 Weston Way  
West Chester, Pennsylvania 19380  
(610) 701-3500



Bay West, Inc.  
5 Empire Drive  
St. Paul, Minnesota 55103  
(651) 291-0456

---

## TABLE OF CONTENTS

---

Title	Page
<b>1. INTRODUCTION - WEST POINT ANNUAL LANDFILL INSPECTION AND FIVE YEAR GROUNDWATER MONITORING PROGRAM - 2015.....</b>	<b>1-1</b>
<b>2. POST EXCHANGE PX LANDFILL (WSTPT-01).....</b>	<b>2-1</b>
2.1 LANDFILL CAP INSPECTION.....	2-1
2.2 MONITORING WELL NETWORK.....	2-1
2.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS .....	2-1
<b>3. MICHIE STADIUM LOT A (WSTPT-02).....</b>	<b>3-1</b>
3.1 LANDFILL CAP INSPECTION.....	3-1
3.2 MONITORING WELL NETWORK.....	3-1
3.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS .....	3-1
<b>4. MICHIE STADIUM LOT B (WSTPT-03).....</b>	<b>4-1</b>
4.1 LANDFILL CAP INSPECTION.....	4-1
4.2 MONITORING WELL NETWORK.....	4-1
4.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS .....	4-1
<b>5. MICHIE STADIUM LOT C (WSTPT-04).....</b>	<b>5-1</b>
5.1 LANDFILL CAP INSPECTION.....	5-1
5.2 MONITORING WELL NETWORK.....	5-1
5.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS .....	5-1
<b>6. MICHIE STADIUM LOT D (WSTPT-05).....</b>	<b>6-1</b>
6.1 LANDFILL CAP INSPECTION.....	6-1
6.2 MONITORING WELL NETWORK.....	6-1
6.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS .....	6-1
<b>7. MICHIE STADIUM LOT E (WSTPT-06).....</b>	<b>7-1</b>
7.1 LANDFILL CAP INSPECTION.....	7-1
7.2 MONITORING WELL NETWORK.....	7-1
7.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS .....	7-1
<b>8. MICHIE STADIUM LOT F (WSTPT-7A) .....</b>	<b>8-1</b>
8.1 LANDFILL CAP INSPECTION.....	8-1
8.2 MONITORING WELL NETWORK.....	8-1

8.3	MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS .....	8-1
<b>9.</b>	<b>SKI LOT LANDFILL (WSTPT-09) .....</b>	<b>9-1</b>
9.1	LANDFILL CAP INSPECTION .....	9-1
9.2	MONITORING WELL NETWORK.....	9-1
9.3	MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS .....	9-1
<b>10.</b>	<b>POST SCHOOL LANDFILL (WSTPT-10) .....</b>	<b>10-1</b>
10.1	LANDFILL CAP INSPECTION .....	10-1
10.2	MONITORING WELL NETWORK.....	10-1
10.3	MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS .....	10-1
<b>11.</b>	<b>HIGH SCHOOL LANDFILL (WSTPT-15B) .....</b>	<b>11-1</b>
11.1	LANDFILL CAP INSPECTION .....	11-1
11.2	MONITORING WELL NETWORK.....	11-1
11.3	MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS .....	11-1
<b>12.</b>	<b>ORGANIC COMPOST LANDFILL (WSTPT-16) .....</b>	<b>12-1</b>
12.1	LANDFILL CAP INSPECTION .....	12-1
12.2	MONITORING WELL NETWORK.....	12-1
12.3	MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS .....	12-1
<b>13.</b>	<b>CAMP BUCKNER LANDFILL (WSTPT-35A) .....</b>	<b>13-1</b>
13.1	LANDFILL CAP INSPECTION .....	13-1
13.2	MONITORING WELL NETWORK.....	13-1
13.3	MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS .....	13-1
<b>14.</b>	<b>BUILDING 706 PARKING LOT LANDFILL (WSTPT-48) .....</b>	<b>14-1</b>
14.1	LANDFILL CAP INSPECTION .....	14-1
14.2	MONITORING WELL NETWORK.....	14-1
14.3	MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS .....	14-1
<b>15.</b>	<b>CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>15-1</b>

---

## LIST OF ATTACHMENTS

---

### ATTACHMENT A – LONG TERM MONITORING AND LABORATORY DATA TABLES

Table A-1: Long Term Monitoring Program

Table A-2: Third RCRA Periodic Review Analytical Results

Table A-3: Third RCRA Periodic Review Historical Analytical Results

### ATTACHMENT B – DATA VALIDATION REPORT

### ATTACHMENT C – LABORATORY DATA PACKAGES

---

## TABLES

---

<b>Title</b>	<b>Page</b>
Table 2-1: Groundwater Exceedances at the Post Exchange Landfill Monitoring Well PXMW-01 .....	2-2
Table 3-1: Groundwater Exceedances at the Michie Stadium Lot A Landfill Monitoring Well LAMW-03.....	3-1
Table 5-1: Groundwater Exceedances at the Michie Stadium Lot C Landfill.....	5-1
Table 6-1: Groundwater Exceedances at the Michie Stadium Lot D Landfill Monitoring Well LDMW-04.....	6-1
Table 7-1: Groundwater Exceedances at the Michie Stadium Lot E Landfill Monitoring Well LEMW-04.....	7-1
Table 8-1: Groundwater Exceedances at the Michie Stadium Lot F Landfill Monitoring Well LF- 01.....	8-1
Table 9-1: Groundwater Exceedances at the Ski Lot Landfill Analyte Monitoring Well SL-05	9-1
Table 10-1: Groundwater Exceedances at the Post School Landfill Monitoring Well PS-4.....	10-1

Table 12-1: Groundwater Exceedances at the Organic Compost Landfill Monitoring Well OC-2/OC-5..... 12-1

Table 13-1: Groundwater Exceedances at the Camp Buckner Landfill Monitoring Well CBMW-03..... 13-1

## **1. INTRODUCTION - WEST POINT ANNUAL LANDFILL INSPECTION AND FIVE YEAR GROUNDWATER MONITORING PROGRAM - 2015**

Annual inspection and five year monitoring of groundwater quality of 13 Landfills associated with the West Point Academy, New York was conducted by Weston Solutions, Inc., from September 21 through 23 2015. The monitoring program is conducted in accordance with the Long Term Monitoring Program (LTMP) outlined in the 15 August 2012 LTMP letter to the New York State Department of Environmental Conservation (NYSDEC) for 14 landfills at West Point. NYSDEC approved the proposed LTMP without change in a letter dated 3 October 2012. At the request of the NYSDEC, landfill monitoring wells that were dry during the September 2015 monitoring event were attempted to be sampled in October 2016 concurrent to the annual Motor Pool Landfill (WPTST-11) monitoring event.

The 2015 and 2016 annual inspection and monitoring results from the Motor Pool landfill, the 14<sup>th</sup> of these landfills is provided as separate letter reports (West Point Former Motor Pool Landfill (WPTST-11) Draft Annual Groundwater Sampling Event Letter Report, January, 2016 and February 2017). The monitoring program includes a visual inspection of the landfill cap and cover, drainage, structures, and groundwater monitoring points as well as collection of samples from select wells for laboratory analysis of groundwater quality. No potential issues were identified during the inspections. The following sections summarize observations from the site inspections and the results of the groundwater sample collection.

Included in Attachment A, Table A-1 presents the 2015 sample schedule for the West Point 2015 groundwater monitoring program. The 2012 approved LTMP reduced the monitoring requirement for each of the 13 landfills to a sample frequency of once every five years. The sampling frequency would increase to once every two and a half years if a nonnutrient metal was detected in exceedance of a NYSDEC screening criteria. The validated laboratory analytical results from groundwater samples collected from the landfill monitoring wells is presented in Table A-2, and the analytical results in comparison to historical results, are presented in Table A-3. Groundwater samples were collected from 10 of the 13 landfills. Two of the landfills (Michie Stadium Lot B and the High School Landfills) do not have a groundwater monitoring requirement and the monitoring wells scheduled to be sampled from two of the landfills (Post Exchange PX and the

Building 706 Parking Lot Landfills) were dry at the time of sampling in 2015. Concurrent to the 2016 Motor Pool Landfill annual monitoring event, the Post Exchange PX monitoring well had sufficient water to collect a sample but the Building 706 Parking Lot Landfill monitoring well was dry. Attachment B contains the analytical data validation report and Attachment C includes the complete laboratory analytical data packages on CD.

## **2. POST EXCHANGE PX LANDFILL (WSTPT-01)**

### **2.1 LANDFILL CAP INSPECTION**

The Post Exchange Landfill cap and structures appeared to be in good condition during the 2015 inspection. There were no indications of subsidence or drainage issues.

### **2.2 MONITORING WELL NETWORK**

The Post Exchange Landfill is monitored by wells PXMW-01, PXMW-02, PXMW-03, and PXMW-04. These wells appeared to be in good condition during the 2015 inspection, free of damage, and secured with locks.

### **2.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS**

Post Exchange Landfill monitoring well PXMW-01 is scheduled to be sampled for total and soluble metals once every five years. This well was purged on 22 September 2015 and was purged dry using low flow purging rates of less than 1 liter per minute (LPM). There was no water present on 23 September 2015, so no sample could be collected.

In October 2016 a second attempt was made to sample well PXMW-01. During this sampling event there was a more substantial water column present in the well than was present during the 2015 monitoring event. A sample was collected using low flow purge procedures. Depth to water measurements collected during sampling indicated that a purge rate of approximately 0.1 LPM could not be sustained. Hence, a grab water sample was collected. The sample is likely a standing water sample from the well and surrounding sand pack that may not be completely representative of formation conditions.

Groundwater monitoring results for total and soluble metals resulted in exceedance of NYSDEC screening value for sodium for both filtered and unfiltered samples. Total chromium, lead and iron were all detected at concentrations greater than the corresponding NYSDEC screening value, however, the soluble metals result for these analytes were below the screening value. Total chromium at a concentration of 170 µg/L exceeded the 50 µg/L NYSDEC screening value. Soluble chromium was detected at an estimated concentration of 0.76 µg/L. Total lead at a



concentration of 40 µg/L was also greater than the 25 µg/L NYSDEC screening value. Soluble lead was reported as non-detect at the 10 µg/L detection limit. Total iron at a concentration of 6,400 µg/L was also detected in exceedance of the 300 µg/L NYSDEC screening value, but was detected in the filtered sample at a concentration of 42 J µg/L. Filtered analytical results with historic exceedances of the NYSDEC value are presented below:

**Table 2-1: Groundwater Exceedances at the Post Exchange Landfill Monitoring Well PXMW-01**

<b>Analyte</b>	<b>Screening Value <sup>(1)</sup></b>	<b>2005</b>	<b>2005 Dup</b>	<b>2016</b>
<b>Iron</b>	<b>300</b>	<b>257 J</b>	<b>748</b>	<b>42 J</b>
<b>Sodium</b>	<b>20,000</b>	<b>452,000 J</b>	<b>417,000</b>	<b>44,000</b>

**Note:** All Results (µg/L)

<sup>1</sup>Values from the NYSDEC Class GA Groundwater Quality Standards

J- estimated: The analyte was positively identified; the quantification is an estimate.

### 3. MICHIE STADIUM LOT A (WSTPT-02)

#### 3.1 LANDFILL CAP INSPECTION

The Michie Stadium Lot A Landfill cap and structures appeared to be in good condition during the 2015 inspection. There were no indications of subsidence or drainage issues.

#### 3.2 MONITORING WELL NETWORK

Michie Stadium Landfill Lot A is monitored by wells LAMW-01 and LAMW-03. These wells appeared to be in good condition during the 2015 inspection, free of damage, and secured with locks.

#### 3.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS

Groundwater samples are collected from Michie Stadium Lot A Landfill monitoring well LAMW-03 for total and soluble metals once every five years. Groundwater monitoring results for total and soluble metals resulted in exceedance of NYSDEC screening values for iron, manganese, sodium and thallium for both filtered and unfiltered samples. Total chromium at a concentration of 74 µg/L was also greater than the 50 µg/L NYSDEC screening value. The 17 µg/L detected concentration of chromium from the filtered sample was below the NYSDEC value. Filtered analytical results with historic exceedances of the NYSDEC value are presented below:

**Table 3-1: Groundwater Exceedances at the Michie Stadium Lot A Landfill  
Monitoring Well LAMW-03**

Analyte	Screening Value <sup>(1)</sup>	2005	2010	2011	2013 <sup>2</sup>	2015
Manganese	300	244	556	ND	1,360	890 Q
Iron	300	ND	1,170	2,980	13,800	1,300
Sodium	20,000	617,000	329,000	145,000	266,000	210,000
Thallium	8	5.8 J	ND	ND	ND	8.6 J

**Note:** All Results (µg/L)

<sup>1</sup>Values from the NYSDEC Class GA Groundwater Quality Standards

<sup>2</sup>2013 Report did not indicate whether the samples were filtered or unfiltered

Q – One or more quality control criteria failed

J – Estimated: The analyte was positively identified; the quantitation is an estimation

ND – Not detected

NA – Not available

## **4. MICHIE STADIUM LOT B (WSTPT-03)**

### **4.1 LANDFILL CAP INSPECTION**

The Michie Stadium Lot B Landfill cap and structures appeared to be in good condition during the 2015 inspection. There were no indications of subsidence or drainage issues.

### **4.2 MONITORING WELL NETWORK**

Michie Stadium Lot B Landfill is monitored by wells LBMW-01, LBMW-02 and LBMW-03. These wells appeared to be in good condition during the 2015 inspection, free of damage, and secured with locks.

### **4.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS**

No groundwater monitoring is conducted at Michie Stadium Lot B. The downgradient monitoring conducted at Michie Stadium Lot A serves as the monitoring program for both Lots A and B.

## 5. MICHIE STADIUM LOT C (WSTPT-04)

### 5.1 LANDFILL CAP INSPECTION

The Michie Stadium Lot C Landfill cap and structures appeared to be in good condition during the 2015 inspection. There were no indications of subsidence or drainage issues.

### 5.2 MONITORING WELL NETWORK

Michie Stadium Landfill Lot C is monitored by wells LCMW-02 and LCMW-03. These wells appeared to be in good condition during the 2015 inspection, free of damage, and secured with locks.

### 5.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS

Groundwater samples are collected from Michie Stadium Lot C Landfill monitoring well LCMW-03 for total and soluble metals once every five years. Groundwater monitoring results for total and soluble metals resulted in exceedance of NYSDEC screening values for iron, manganese and sodium for both filtered and unfiltered samples. Total thallium was also detected at a concentration greater than the NYSDEC screening value of 8 µg/L however the detection of 5.5 µg/L from the filtered sample was less than the screening value. Filtered analytical results with historic exceedances of the NYSDEC screening values are presented below:

**Table 5-1: Groundwater Exceedances at the Michie Stadium Lot C Landfill Monitoring Well LCMW-03**

Analyte	Screening Value <sup>(1)</sup>	2005	2008	2015
Iron	300	10,700	40,800 R	20,000
Sodium	20,000	201,000	199,000	580,000
Manganese	300	285	1,240 R	490 Q

**Note:** All Results (µg/L)

<sup>1</sup>Values from the NYSDEC Class GA Groundwater Quality Standards

R – Data has been rejected by the validator

U – Undetected at the Limit of Detection (LOD)

Q – One or more quality control criteria failed

## 6. MICHIE STADIUM LOT D (WSTPT-05)

### 6.1 LANDFILL CAP INSPECTION

The Michie Stadium Lot D Landfill cap and structures appeared to be in good condition during the 2015 inspection. There were no indications of subsidence or drainage issues.

### 6.2 MONITORING WELL NETWORK

Michie Stadium Landfill Lot D is monitored by wells LDMW-01, LDMW-04 and LDMW-05. These wells appeared to be in good condition during the 2015 inspection, free of damage, and secured with locks.

### 6.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS

Groundwater samples are collected from Michie Stadium Lot D Landfill monitoring well LDMW-04 for total and soluble metals once every five years. Groundwater monitoring results for total and soluble metals resulted in exceedance of the NYSDEC screening value for sodium for both filtered and unfiltered samples. The total iron result also exceeded the NYSDEC screening value. Filtered analytical results with historic exceedances of the NYSDEC screening value are presented below:

**Table 6-1: Groundwater Exceedances at the Michie Stadium Lot D Landfill Monitoring Well LDMW-04**

Analyte	Screening Value <sup>(1)</sup>	2005	2008	2009	2010	2015
Sodium	20,000	7,520	138,000	13,800 J	130,000	120,000

**Note:** All Results (µg/L)

<sup>1</sup>Values from the NYSDEC Class GA Groundwater Quality Standards

J – Estimated: The analyte was positively identified; the quantitation is an estimation

## 7. MICHIE STADIUM LOT E (WSTPT-06)

### 7.1 LANDFILL CAP INSPECTION

The Michie Stadium Lot E Landfill cap and structures appeared to be in good condition during the 2015 inspection. There were no indications of subsidence or drainage issues.

### 7.2 MONITORING WELL NETWORK

Michie Stadium Landfill Lot E is monitored by wells LEMW-01, LEMW-02, LEMW-03, LEMW-04 and LEMW-05. These wells appeared to be in good condition during the 2015 inspection, free of damage, and secured with locks.

### 7.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS

Groundwater samples are collected from Michie Stadium Lot E Landfill monitoring well LEMW-04 for total and soluble metals once every five years. Groundwater monitoring results for total and soluble metals resulted in exceedance of the NYSDEC screening values for iron, magnesium, manganese and sodium for both filtered and unfiltered samples. Thallium was also detected at a concentration in exceedance of the NYSDEC screening value for the soluble but not the total sample. Filtered analytical results with historic exceedances the NYSDEC screening values are presented below:

**Table 7-1: Groundwater Exceedances at the Michie Stadium Lot E Landfill  
Monitoring Well LEMW-04**

1

Analyte	Screening Value <sup>(1)</sup>	2005	2007	2008	2015
Magnesium	35,000	51,800	NA	NA	46,000
Manganese	300	918	774	863	1,000 Q
Iron	300	40,800	39,900	39,000	21,000
Sodium	20,000	232,000	72,600	273,000	400,000
Thallium	8	ND	ND	ND	8.6 J

**Note:** All Results (µg/L)

<sup>1</sup> Values from the NYSDEC Class GA Groundwater Quality Standards

Q – One or more quality control criteria failed

J – Estimated: The analyte was positively identified; the quantitation is an estimation

NA – Not available

ND – Not detected

## 8. MICHIE STADIUM LOT F (WSTPT-7A)

### 8.1 LANDFILL CAP INSPECTION

The Michie Stadium Lot F Landfill cap and structures appeared to be in good condition during the 2015 inspection. There were no indications of subsidence or drainage issues.

### 8.2 MONITORING WELL NETWORK

Michie Stadium Landfill Lot F is monitored by wells LF-01, LF-02, LF-03 and LFMW-04. These wells appeared to be in good condition during the 2015 inspection, free of damage, and secured with locks.

### 8.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS

Groundwater samples are collected from Michie Stadium Lot F Landfill monitoring well LF-01 for total and soluble metals once every five years. Groundwater monitoring results for total and soluble metals resulted in exceedance of the NYSDEC screening values for iron, manganese, sodium and thallium for both filtered and unfiltered samples. Filtered analytical results with historic exceedances of the NYSDEC screening values are presented below:

**Table 8-1: Groundwater Exceedances at the Michie Stadium Lot F Landfill Monitoring Well LF-01**

Analyte	Screening Value <sup>(1)</sup>	2007	2008	2009	2010	2015
Manganese	300	312	325	1,110 J	807	690 Q
Iron	300	56,900	65,600 J	61,700 J	24,800	46,000
Sodium	20,000	364,000	910,000	1,290,000	1,100,000	1,900,000
Thallium	8	ND	ND	ND	ND	8.5 J

**Note:** All Results (µg/L)

<sup>1</sup>Values from the NYSDEC Class GA Groundwater Quality Standards

Q – One or more quality control criteria failed

J – Estimated: The analyte was positively identified; the quantitation is an estimation

ND – Not detected

## 9. SKI LOT LANDFILL (WSTPT-09)

### 9.1 LANDFILL CAP INSPECTION

The Ski Lot Landfill cap and structures appeared to be in good condition during the 2015 inspection. There were no indications of subsidence or drainage issues.

### 9.2 MONITORING WELL NETWORK

The Ski Lot Landfill is monitored by wells SL-01, SL-02, SL-03, SL-04 and SL-05. These wells appeared to be in good condition during the 2015 inspection, free of damage, and secured with locks.

### 9.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS

Groundwater samples are collected from the Ski Lot Landfill monitoring well SL-05 for total and soluble metals once every five years. Groundwater monitoring results for total and soluble metals resulted in exceedance of the NYSDEC screening values for iron, manganese and sodium for both filtered and unfiltered samples. Filtered analytical results with historic exceedances of the NYSDEC screening values are presented below:

**Table 9-1: Groundwater Exceedances at the Ski Lot Landfill Analyte Monitoring Well SL-05**

Analyte	Screening Value <sup>(1)</sup>	2005	2007	2008	2015
<b>Manganese</b>	<b>300</b>	<b>505</b>	<b>324</b>	<b>441</b>	<b>400 Q</b>
<b>Iron</b>	<b>300</b>	<b>1,360</b>	<b>1,800</b>	<b>7,770</b>	<b>1,300</b>
<b>Sodium</b>	<b>20,000</b>	<b>431,000</b>	<b>286,000</b>	<b>538,000</b>	<b>500,000</b>

**Note:** All Results (µg/L)

<sup>1</sup>Values from the NYSDEC Class GA Groundwater Quality Standards

Q – One or more quality control criteria failed



## **10. POST SCHOOL LANDFILL (WSTPT-10)**

### **10.1 LANDFILL CAP INSPECTION**

The Post School Landfill cap and structures appeared to be in good condition during the 2015 inspection. There were no indications of subsidence or drainage issues.

### **10.2 MONITORING WELL NETWORK**

The Post School Landfill is monitored by wells PS-1, PS-2, PS-3 and PS-4. These wells appeared to be in good condition during the 2015 inspection, free of damage, and secured with locks. A fifth well labeled as PS-5 was likely mislabeled as PS-4 as described in the 2001 Long-Term Monitoring and Maintenance Program Report.

### **10.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS**

Groundwater samples are collected from the Post School Landfill monitoring well PS-4 for total and soluble metals once every five years. Groundwater monitoring results for total and soluble metals resulted in exceedance of the NYSDEC screening values for iron, manganese and sodium for both filtered and unfiltered samples. Filtered analytical results with historic exceedances of the NYSDEC screening values are presented below:

**Table 10-1: Groundwater Exceedances at the Post School Landfill Monitoring Well PS-4**

<b>Analyte</b>	<b>Screening Value <sup>(1)</sup></b>	<b>2005</b>	<b>2007</b>	<b>2008</b>	<b>2015</b>
<b>Manganese</b>	<b>300</b>	<b>4,490</b>	<b>2,680</b>	<b>1,300</b>	<b>800 Q</b>
<b>Iron</b>	<b>300</b>	<b>32,100</b>	<b>7,000</b>	<b>32,600</b>	<b>3,900</b>
<b>Sodium</b>	<b>20,000</b>	<b>18,800</b>	<b>14,800</b>	<b>17,200</b>	<b>26,000</b>

**Note:** All Results (µg/L)

<sup>1</sup>Values from the NYSDEC Class GA Groundwater Quality Standards  
Q – One or more quality control criteria failed

## **11. HIGH SCHOOL LANDFILL (WSTPT-15B)**

### **11.1 LANDFILL CAP INSPECTION**

The High School Landfill cap and structures appeared to be in good condition during the 2015 inspection. There were no indications of subsidence or drainage issues.

### **11.2 MONITORING WELL NETWORK**

The High School Landfill is monitored by a single monitoring well. This well could not be located during the 2015 monitoring event likely due to the presence of heavy vegetation during the inspection.

### **11.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS**

The High School Landfill does not have a groundwater monitoring requirement.

## 12. ORGANIC COMPOST LANDFILL (WSTPT-16)

### 12.1 LANDFILL CAP INSPECTION

The Organic Compost Landfill cap and structures appeared to be in good condition during the 2015 inspection. There were no indications of subsidence or drainage issues.

### 12.2 MONITORING WELL NETWORK

The Organic Compost Landfill is monitored by wells OC-1, OC-2, OC-3, OC-4 and OC-5. These wells appeared to be in good condition during the 2015 inspection, free of damage, and secured with locks. The well on the historical map labeled as OC-5, appears to be well OC-2A based on the 1 May 1995 drilling log. It is not clear whether the groundwater samples reported as OC-2 from 2008 through 2013 were collected from this well or the adjacent well labeled as OC-2 which was dry during this monitoring event.

### 12.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS

Groundwater samples are collected from the Organic Compost Landfill monitoring well OC-2 for total and soluble metals once every five years. The well labeled as OC-5 was sampled and submitted to the laboratory as OC-5. As discussed above it is not known if this sample was labeled OC-2 during the 2008 through 2013 monitoring events. Groundwater monitoring results for total and soluble metals resulted in exceedance of the NYSDEC screening value for sodium for both filtered and unfiltered samples. Filtered analytical results with historic exceedances of the NYSDEC screening values are presented below:

**Table 12-1: Groundwater Exceedances at the Organic Compost Landfill  
Monitoring Well OC-2/OC-5**

Well ID		OC-2	OC-5	OC-2	OC-2	OC-5
Analyte	Screening Value <sup>(1)</sup>	2005	2008	2009	2010	2015
Sodium	20,000	67,400	83,500	59,200 J	106,000	94,000

**Note:** All Results (µg/L)

<sup>1</sup>Values from the NYSDEC Class GA Groundwater Quality Standards

J – Estimated: The analyte was positively identified; the quantitation is an estimation

### 13. CAMP BUCKNER LANDFILL (WSTPT-35A)

#### 13.1 LANDFILL CAP INSPECTION

The Camp Buckner Landfill cap and structures appeared to be in good condition during the 2015 inspection. There were no indications of subsidence or drainage issues.

#### 13.2 MONITORING WELL NETWORK

The Camp Buckner Landfill is monitored by wells CBMW-01, CBMW-02 and CBMW-03. These wells appeared to be in good condition during the 2015 inspection, free of damage, and secured with locks.

#### 13.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS

Groundwater samples are collected from the Camp Buckner Landfill monitoring well CBMW-03 for total and soluble metals once every five years. Groundwater monitoring results for total and soluble metals resulted in exceedance of the NYSDEC screening values for iron and manganese for both filtered and unfiltered samples. Filtered analytic results with historic exceedances of the NYSDEC screening values are presented below:

**Table 13-1: Groundwater Exceedances at the Camp Buckner Landfill Monitoring Well CBMW-03**

Analyte	Screening Value <sup>(1)</sup>	2005	2007	2008	2015
Manganese	300	323	1,160	1,210	1,300
Iron	300	277	4,070	10,500	5,600

**Note:** All Results (µg/L)

<sup>1</sup>Values from the NYSDEC Class GA Groundwater Quality Standards

## **14. BUILDING 706 PARKING LOT LANDFILL (WSTPT-48)**

### **14.1 LANDFILL CAP INSPECTION**

The Building 706 Parking Lot Landfill cap and structures appeared to be in good condition during the 2015 inspection. There were no indications of subsidence or drainage issues.

### **14.2 MONITORING WELL NETWORK**

The Building 706 Parking Lot Landfill is monitored by wells LDMW-01 and MW48-01. These wells appeared to be in good condition during the 2015 inspection, free of damage, and secured with locks.

### **14.3 MONITORING WELL GROUNDWATER SAMPLE ANALYTICAL RESULTS**

The Building 706 Parking Lot Landfill monitoring well MW48-01 is scheduled to be sampled for total and soluble metals once every five years. There was no water present on 22 September 2015, so no sample could be collected. This well was also dry in October 2016 when a second attempt to collect a sample from this well was made concurrent to the Annual Motor Pool Landfill Monitoring Event.

## **15. CONCLUSIONS AND RECOMMENDATIONS**

The landfill site inspections did not indicate any potential issues during the site inspections conducted in September 2015. Groundwater monitoring results for the samples collected in 2015 or 2016 from 10 of the 13 landfills were compared against NYSDEC screening values. Analytes detected in exceedance of a corresponding NYSDEC screening value included total and soluble iron, magnesium, manganese, sodium and thallium from one or more locations. Total chromium was detected above the NYSDEC screening value two locations, each of which had soluble results that were below the screening value. The 12 August 2012 Long Term Monitoring Plan (LTMP) recommended that the monitoring frequency for the eleven wells sampled or attempted to be sampled during this monitoring event be conducted on a five-year frequency unless a non-nutrient metal was detected in exceedance of a NYSDEC screening value. Exceedance of a metal other than the nutrient metals aluminum, calcium, iron, magnesium, manganese, potassium and sodium would result in an increased sampling frequency from every five years to every two and a half years. Exceedance of NYSDEC screening values occurred for the non-nutrient metals thallium from samples collected from the Camp Buckner and Michie Stadium Lots A, C, E, and F and for chromium from Michie Stadium Lot A. The chromium result from Lot A and the thallium result from Lot C and Camp Buckner were detected in exceedance of the NYSDEC screening value from the total metals sample only.

Non-nutrient metals exceedances occurred for thallium and chromium. All of the total and soluble thallium detections are estimated concentrations, (J value) detections. The maximum thallium detection was at a concentration of 9.3 J  $\mu\text{g/L}$ , just above the 8  $\mu\text{g/L}$  NYSDEC screening value. The low level exceedance of the screening value and the uncertainty of the estimated concentration due to detection below the laboratory LOQ does not warrant an increased sampling frequency for these landfills. Similarly, the exceedance of chromium in the total and not the filtered sample for the sample collected from Michie Stadium Lot A indicate that the detected chromium is not mobile and does not warrant an increased sampling frequency. Based upon the results of the 2015 landfill inspections and 2015/2016 groundwater monitoring there does not appear to be any reason to alter the 2012 approved LTMP, hence the next scheduled monitoring event should be conducted in 2020, with the exception of the

Motor Pool Landfill which is monitored on an annual schedule.

---

**ATTACHMENT A**  
**LONG TERM MONITORING AND LABORATORY DATA TABLES**  
**TABLE A-1: LONG TERM MONITORING PROGRAM**

---



**Table A-1.  
NYSDEC Approved LTMP Sample Schedule  
Landfills at West Point, New York**

Landfill ID	Landfill Name	Landfill Inspection Frequency	No. of GW Samples	Monitoring Well	Analysis	Current Groundwater Sample Frequency
WSTPT-01	PX Landfill	Annual	1	PXMW-01	TAL Metals	Five Years**
WSTPT-02	Michie Stadium - Lot A	Annual	1	LAMW-03	TAL Metals	Five Years**
WSTPT-03	Michie Stadium - Lot B	Annual	0	No Sampling Requirements (annual inspections required)		
WSTPT-04	Michie Stadium - Lot C	Annual	1	LCMW-03	TAL Metals	Five Years**
WSTPT-05	Michie Stadium - Lot D	Annual	1	LDMW-04	TAL Metals	Five Years**
WSTPT-06	Michie Stadium - Lot E	Annual	1	LEMW-04	TAL Metals	Five Years**
WSTPT-07A	Michie Stadium - Lot F	Annual	1	LF-01	TAL Metals	Five Years**
WSTPT-09	Ski Lot Landfill	Annual	1	SL-5	TAL Metals	Five Years**
WSTPT-10	Post School Landfill	Annual	1	PS-4	TAL Metals	Five Years**
WSTPT-11	Motor Pool Landfill*	Annual	4	Multiple	Multiple	Annual
WSTPT-15B	High School Landfill	Annual	0	No Sampling Requirements (annual inspections required)		
WSTPT-16	Organic Compost Landfill	Annual	1	OC-2	TAL Metals	Five Years**
WSTPT-35A	Camp Buckner Landfill	Annual	1	CBMW-03	TAL Metals	Five Years**
WSTPT-48	Building 706 Parking Lot Landfill	Annual	1	MW48-01	TAL Metals	Five Years**

Key:

TAL - Target Analyte List

\* - Motor Pool Landfill requirements are separate from the other landfills and are fulfilled under a separate contract.

\*\* - Based on analytical results, sampling frequency may increase based on LTMP NYSDEC approved criteria (see 2012 letter).

---

**ATTACHMENT A**  
**LONG TERM MONITORING AND LABORATORY DATA TABLES**  
**TABLE A-2: THIRD RCRA PERIODIC REVIEW ANALYTICAL RESULTS**

---

Table A-2  
Third RCRA Periodic Review Analytical Results Table  
Landfills at West Point, New York

LANDFILL				Post Exchange	Lot A		Lot C		Lot D		Lot E		Lot F		Ski Lot		Post School		Organic Compost		Camp Buckner		QA/QC		QA/QC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Analyte	CAS Number	Units	Screening Value	WSTPT-01-LAMW-03	WSTPT-02-LAMW-03	WSTPT-04-LCMW-03	WSTPT-05-LDMW-04	WSTPT-06-LEMW-04	WSTPT-07A-LF-1	WSTPT-09-SL-5	WSTPT-10-PS-4	WSTPT-16-OC-5	WSTPT-35-CBMW-03	Equipment Blank		Equipment Blank																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Date Collected				10/25/2016	9/21/2015		9/22/2015		9/22/2015		9/21/2015		9/21/2015		9/23/2015		9/22/2015		9/22/2015		9/23/2015		9/22/2015		10/25/2016																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
				Laboratory Analytical Result	Validator Qualified Data	Laboratory Analytical Result	Validator Qualified Data	Laboratory Analytical Result	Validator Qualified Data	Laboratory Analytical Result	Validator Qualified Data	Laboratory Analytical Result	Validator Qualified Data	Laboratory Analytical Result	Validator Qualified Data	Laboratory Analytical Result	Validator Qualified Data	Laboratory Analytical Result	Validator Qualified Data	Laboratory Analytical Result	Validator Qualified Data	Laboratory Analytical Result	Validator Qualified Data	Laboratory Analytical Result	Validator Qualified Data	Laboratory Analytical Result	Validator Qualified Data																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
<b>Metals</b>																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Aluminum	7429-90-5	ug/l		5,500	290 J	360	91 J	940	59 J	400	60 J	73 J	120 J	70 U		70 U		Antimony	7440-36-0	ug/l	3	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	Arsenic	7440-38-2	ug/l	25	15 U	4.9 J	8.0 J	7.9 J	5.7 J	7.4 J	17 J	5.9 J	15 U	6.7 J	15 U		15 U		Barium	7440-39-3	ug/l	1,000	29	48	160	32	390	560	210	20	24	170	2.0 U		2.0 U		Beryllium	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U		1.2 U		Boron	7440-42-8	ug/l	10	10 J	32 J	61 J	28 J	190	87 J	13 J	5.9 J	28 J	18 J	15 U		15 U		Cadmium	7440-43-9	ug/l	5	0.52 J	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U		1.8 U		Calcium	7440-70-2	ug/l		20,000	66,000	90,000	40,000	220,000	120,000	81,000	65,000	60,000	110,000	140 U		140 U		Chromium	7440-47-3	ug/l	50	170		2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U		2.6 U		Cobalt	7440-48-4	ug/l		31	5.2 J	9.2 J	4.5 U	8.7 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	Copper	7440-50-8	ug/l	200	43	9.3 J	19	3.0 J	10 J	1.4 J	3.5 J	2.3 J	2.0 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	Iron	7439-89-6	ug/l	300	6,400	2,300	22,000	880	24,000	52,000	880	48,000	52,000	11,000	85 U		27 J		Lead	7439-92-1	ug/l	25	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U		10 U		Magnesium	7439-95-4	ug/l	35,000	4,400	6,200	16,000	8,600	45,000	18,000	12,000	14,000	12,000	17,000	40 U		13 J		Manganese	7439-96-5	ug/l	300	55	850 Q	620 Q	31 Q	690 Q	31 Q	530 Q	1,100 Q	1,100 Q	1,300 Q	1.0 U		1.0 U		Mercury	7439-97-6	ug/l	0.7	0.15 J	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.08 U		Nickel	7440-02-0	ug/l	100	33 J	17 J	1.6 J	5.0 U	3.0 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U		5.0 U		Potassium	7440-09-7	ug/l		2,900 J	3,300	9,300	2,100 J	26,000	13,000	4,400	5,000	2,800 J	2,500 J	940		940 U		Selenium	7782-49-2	ug/l	10	19 U	5.0 J	6.2 J	5.2 J	19 U	6.7 J	19 U	7.2 J	5.4 J	19 U	19 U		19 U		Silver	7440-22-4	ug/l	50	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	2.2 J	15 U	3.5 U		Sodium	7440-23-5	ug/l	20,000	43,000	210,000	620,000	130,000	400,000	1,900,000	130,000	490,000	96,000	8,900	100 J	5,000 U	280 J	5,000 U	Thallium	7440-28-0	ug/l	8	19 U	9.0 J	9.3 J	19 U	6.7 J	8.6 J	7.6 J	6.3 J	7.6 J	9.0 J	19 U		19 U		Tin	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U		20 U		Vanadium	7440-62-2	ug/l	14	12 J	2.2 J Q	4.0 U Q	4.0 U Q	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U		4.0 U		Zinc	7440-66-6	ug/L	Variable <sup>b</sup>	88 J	11 J	26 J	15 U	20 J	15 U	5.4 J	15 U	5.1 J	5.0 J	15 U		15 U		Aluminum, Dissolved	7429-90-5	ug/l		31 J	70 U	29 J	70 U	29 J	46 J	70 U	70 U	70 U	70 U	NS		70 U		Antimony, Dissolved	7440-36-0	ug/l	3	12 U	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q		12 U Q		Arsenic, Dissolved	7440-38-2	ug/l	25	4.6 J	5.8 J	13 J	15 U	8.0 J	15 U	15 U	5.8 J	6.2 J	8.0 J	NS		15 U		Barium, Dissolved	7440-39-3	ug/l	1,000	6.3 J	45	160	28	280	520	150	20	23	150	NS		2.0 U		Beryllium, Dissolved	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NS		1.2 U		Boron, Dissolved	7440-42-8	ug/l		11 J	34 J	100 U	63 J	100 U	89 J	100 U	7.2 J	100 U	30 J	100 U	21 J	NS		15 U		Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U	
Arsenic	7440-38-2	ug/l	25	15 U	4.9 J	8.0 J	7.9 J	5.7 J	7.4 J	17 J	5.9 J	15 U	6.7 J	15 U		15 U		Barium	7440-39-3	ug/l	1,000	29	48	160	32	390	560	210	20	24	170	2.0 U		2.0 U		Beryllium	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U		1.2 U		Boron	7440-42-8	ug/l	10	10 J	32 J	61 J	28 J	190	87 J	13 J	5.9 J	28 J	18 J	15 U		15 U		Cadmium	7440-43-9	ug/l	5	0.52 J	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U		1.8 U		Calcium	7440-70-2	ug/l		20,000	66,000	90,000	40,000	220,000	120,000	81,000	65,000	60,000	110,000	140 U		140 U		Chromium	7440-47-3	ug/l	50	170		2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U		2.6 U		Cobalt	7440-48-4	ug/l		31	5.2 J	9.2 J	4.5 U	8.7 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	Copper	7440-50-8	ug/l	200	43	9.3 J	19	3.0 J	10 J	1.4 J	3.5 J	2.3 J	2.0 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	Iron	7439-89-6	ug/l	300	6,400	2,300	22,000	880	24,000	52,000	880	48,000	52,000	11,000	85 U		27 J		Lead	7439-92-1	ug/l	25	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U		10 U		Magnesium	7439-95-4	ug/l	35,000	4,400	6,200	16,000	8,600	45,000	18,000	12,000	14,000	12,000	17,000	40 U		13 J		Manganese	7439-96-5	ug/l	300	55	850 Q	620 Q	31 Q	690 Q	31 Q	530 Q	1,100 Q	1,100 Q	1,300 Q	1.0 U		1.0 U		Mercury	7439-97-6	ug/l	0.7	0.15 J	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.08 U		Nickel	7440-02-0	ug/l	100	33 J	17 J	1.6 J	5.0 U	3.0 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U		5.0 U		Potassium	7440-09-7	ug/l		2,900 J	3,300	9,300	2,100 J	26,000	13,000	4,400	5,000	2,800 J	2,500 J	940		940 U		Selenium	7782-49-2	ug/l	10	19 U	5.0 J	6.2 J	5.2 J	19 U	6.7 J	19 U	7.2 J	5.4 J	19 U	19 U		19 U		Silver	7440-22-4	ug/l	50	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	2.2 J	15 U	3.5 U		Sodium	7440-23-5	ug/l	20,000	43,000	210,000	620,000	130,000	400,000	1,900,000	130,000	490,000	96,000	8,900	100 J	5,000 U	280 J	5,000 U	Thallium	7440-28-0	ug/l	8	19 U	9.0 J	9.3 J	19 U	6.7 J	8.6 J	7.6 J	6.3 J	7.6 J	9.0 J	19 U		19 U		Tin	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U		20 U		Vanadium	7440-62-2	ug/l	14	12 J	2.2 J Q	4.0 U Q	4.0 U Q	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U		4.0 U		Zinc	7440-66-6	ug/L	Variable <sup>b</sup>	88 J	11 J	26 J	15 U	20 J	15 U	5.4 J	15 U	5.1 J	5.0 J	15 U		15 U		Aluminum, Dissolved	7429-90-5	ug/l		31 J	70 U	29 J	70 U	29 J	46 J	70 U	70 U	70 U	70 U	NS		70 U		Antimony, Dissolved	7440-36-0	ug/l	3	12 U	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q		12 U Q		Arsenic, Dissolved	7440-38-2	ug/l	25	4.6 J	5.8 J	13 J	15 U	8.0 J	15 U	15 U	5.8 J	6.2 J	8.0 J	NS		15 U		Barium, Dissolved	7440-39-3	ug/l	1,000	6.3 J	45	160	28	280	520	150	20	23	150	NS		2.0 U		Beryllium, Dissolved	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NS		1.2 U		Boron, Dissolved	7440-42-8	ug/l		11 J	34 J	100 U	63 J	100 U	89 J	100 U	7.2 J	100 U	30 J	100 U	21 J	NS		15 U		Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																					
Beryllium	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U		1.2 U		Boron	7440-42-8	ug/l	10	10 J	32 J	61 J	28 J	190	87 J	13 J	5.9 J	28 J	18 J	15 U		15 U		Cadmium	7440-43-9	ug/l	5	0.52 J	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U		1.8 U		Calcium	7440-70-2	ug/l		20,000	66,000	90,000	40,000	220,000	120,000	81,000	65,000	60,000	110,000	140 U		140 U		Chromium	7440-47-3	ug/l	50	170		2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U		2.6 U		Cobalt	7440-48-4	ug/l		31	5.2 J	9.2 J	4.5 U	8.7 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	Copper	7440-50-8	ug/l	200	43	9.3 J	19	3.0 J	10 J	1.4 J	3.5 J	2.3 J	2.0 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	Iron	7439-89-6	ug/l	300	6,400	2,300	22,000	880	24,000	52,000	880	48,000	52,000	11,000	85 U		27 J		Lead	7439-92-1	ug/l	25	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U		10 U		Magnesium	7439-95-4	ug/l	35,000	4,400	6,200	16,000	8,600	45,000	18,000	12,000	14,000	12,000	17,000	40 U		13 J		Manganese	7439-96-5	ug/l	300	55	850 Q	620 Q	31 Q	690 Q	31 Q	530 Q	1,100 Q	1,100 Q	1,300 Q	1.0 U		1.0 U		Mercury	7439-97-6	ug/l	0.7	0.15 J	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.08 U		Nickel	7440-02-0	ug/l	100	33 J	17 J	1.6 J	5.0 U	3.0 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U		5.0 U		Potassium	7440-09-7	ug/l		2,900 J	3,300	9,300	2,100 J	26,000	13,000	4,400	5,000	2,800 J	2,500 J	940		940 U		Selenium	7782-49-2	ug/l	10	19 U	5.0 J	6.2 J	5.2 J	19 U	6.7 J	19 U	7.2 J	5.4 J	19 U	19 U		19 U		Silver	7440-22-4	ug/l	50	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	2.2 J	15 U	3.5 U		Sodium	7440-23-5	ug/l	20,000	43,000	210,000	620,000	130,000	400,000	1,900,000	130,000	490,000	96,000	8,900	100 J	5,000 U	280 J	5,000 U	Thallium	7440-28-0	ug/l	8	19 U	9.0 J	9.3 J	19 U	6.7 J	8.6 J	7.6 J	6.3 J	7.6 J	9.0 J	19 U		19 U		Tin	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U		20 U		Vanadium	7440-62-2	ug/l	14	12 J	2.2 J Q	4.0 U Q	4.0 U Q	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U		4.0 U		Zinc	7440-66-6	ug/L	Variable <sup>b</sup>	88 J	11 J	26 J	15 U	20 J	15 U	5.4 J	15 U	5.1 J	5.0 J	15 U		15 U		Aluminum, Dissolved	7429-90-5	ug/l		31 J	70 U	29 J	70 U	29 J	46 J	70 U	70 U	70 U	70 U	NS		70 U		Antimony, Dissolved	7440-36-0	ug/l	3	12 U	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q		12 U Q		Arsenic, Dissolved	7440-38-2	ug/l	25	4.6 J	5.8 J	13 J	15 U	8.0 J	15 U	15 U	5.8 J	6.2 J	8.0 J	NS		15 U		Barium, Dissolved	7440-39-3	ug/l	1,000	6.3 J	45	160	28	280	520	150	20	23	150	NS		2.0 U		Beryllium, Dissolved	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NS		1.2 U		Boron, Dissolved	7440-42-8	ug/l		11 J	34 J	100 U	63 J	100 U	89 J	100 U	7.2 J	100 U	30 J	100 U	21 J	NS		15 U		Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																									
Cadmium	7440-43-9	ug/l	5	0.52 J	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U		1.8 U		Calcium	7440-70-2	ug/l		20,000	66,000	90,000	40,000	220,000	120,000	81,000	65,000	60,000	110,000	140 U		140 U		Chromium	7440-47-3	ug/l	50	170		2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U		2.6 U		Cobalt	7440-48-4	ug/l		31	5.2 J	9.2 J	4.5 U	8.7 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	Copper	7440-50-8	ug/l	200	43	9.3 J	19	3.0 J	10 J	1.4 J	3.5 J	2.3 J	2.0 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	Iron	7439-89-6	ug/l	300	6,400	2,300	22,000	880	24,000	52,000	880	48,000	52,000	11,000	85 U		27 J		Lead	7439-92-1	ug/l	25	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U		10 U		Magnesium	7439-95-4	ug/l	35,000	4,400	6,200	16,000	8,600	45,000	18,000	12,000	14,000	12,000	17,000	40 U		13 J		Manganese	7439-96-5	ug/l	300	55	850 Q	620 Q	31 Q	690 Q	31 Q	530 Q	1,100 Q	1,100 Q	1,300 Q	1.0 U		1.0 U		Mercury	7439-97-6	ug/l	0.7	0.15 J	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.08 U		Nickel	7440-02-0	ug/l	100	33 J	17 J	1.6 J	5.0 U	3.0 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U		5.0 U		Potassium	7440-09-7	ug/l		2,900 J	3,300	9,300	2,100 J	26,000	13,000	4,400	5,000	2,800 J	2,500 J	940		940 U		Selenium	7782-49-2	ug/l	10	19 U	5.0 J	6.2 J	5.2 J	19 U	6.7 J	19 U	7.2 J	5.4 J	19 U	19 U		19 U		Silver	7440-22-4	ug/l	50	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	2.2 J	15 U	3.5 U		Sodium	7440-23-5	ug/l	20,000	43,000	210,000	620,000	130,000	400,000	1,900,000	130,000	490,000	96,000	8,900	100 J	5,000 U	280 J	5,000 U	Thallium	7440-28-0	ug/l	8	19 U	9.0 J	9.3 J	19 U	6.7 J	8.6 J	7.6 J	6.3 J	7.6 J	9.0 J	19 U		19 U		Tin	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U		20 U		Vanadium	7440-62-2	ug/l	14	12 J	2.2 J Q	4.0 U Q	4.0 U Q	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U		4.0 U		Zinc	7440-66-6	ug/L	Variable <sup>b</sup>	88 J	11 J	26 J	15 U	20 J	15 U	5.4 J	15 U	5.1 J	5.0 J	15 U		15 U		Aluminum, Dissolved	7429-90-5	ug/l		31 J	70 U	29 J	70 U	29 J	46 J	70 U	70 U	70 U	70 U	NS		70 U		Antimony, Dissolved	7440-36-0	ug/l	3	12 U	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q		12 U Q		Arsenic, Dissolved	7440-38-2	ug/l	25	4.6 J	5.8 J	13 J	15 U	8.0 J	15 U	15 U	5.8 J	6.2 J	8.0 J	NS		15 U		Barium, Dissolved	7440-39-3	ug/l	1,000	6.3 J	45	160	28	280	520	150	20	23	150	NS		2.0 U		Beryllium, Dissolved	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NS		1.2 U		Boron, Dissolved	7440-42-8	ug/l		11 J	34 J	100 U	63 J	100 U	89 J	100 U	7.2 J	100 U	30 J	100 U	21 J	NS		15 U		Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																													
Chromium	7440-47-3	ug/l	50	170		2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U		2.6 U		Cobalt	7440-48-4	ug/l		31	5.2 J	9.2 J	4.5 U	8.7 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	Copper	7440-50-8	ug/l	200	43	9.3 J	19	3.0 J	10 J	1.4 J	3.5 J	2.3 J	2.0 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	Iron	7439-89-6	ug/l	300	6,400	2,300	22,000	880	24,000	52,000	880	48,000	52,000	11,000	85 U		27 J		Lead	7439-92-1	ug/l	25	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U		10 U		Magnesium	7439-95-4	ug/l	35,000	4,400	6,200	16,000	8,600	45,000	18,000	12,000	14,000	12,000	17,000	40 U		13 J		Manganese	7439-96-5	ug/l	300	55	850 Q	620 Q	31 Q	690 Q	31 Q	530 Q	1,100 Q	1,100 Q	1,300 Q	1.0 U		1.0 U		Mercury	7439-97-6	ug/l	0.7	0.15 J	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.08 U		Nickel	7440-02-0	ug/l	100	33 J	17 J	1.6 J	5.0 U	3.0 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U		5.0 U		Potassium	7440-09-7	ug/l		2,900 J	3,300	9,300	2,100 J	26,000	13,000	4,400	5,000	2,800 J	2,500 J	940		940 U		Selenium	7782-49-2	ug/l	10	19 U	5.0 J	6.2 J	5.2 J	19 U	6.7 J	19 U	7.2 J	5.4 J	19 U	19 U		19 U		Silver	7440-22-4	ug/l	50	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	2.2 J	15 U	3.5 U		Sodium	7440-23-5	ug/l	20,000	43,000	210,000	620,000	130,000	400,000	1,900,000	130,000	490,000	96,000	8,900	100 J	5,000 U	280 J	5,000 U	Thallium	7440-28-0	ug/l	8	19 U	9.0 J	9.3 J	19 U	6.7 J	8.6 J	7.6 J	6.3 J	7.6 J	9.0 J	19 U		19 U		Tin	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U		20 U		Vanadium	7440-62-2	ug/l	14	12 J	2.2 J Q	4.0 U Q	4.0 U Q	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U		4.0 U		Zinc	7440-66-6	ug/L	Variable <sup>b</sup>	88 J	11 J	26 J	15 U	20 J	15 U	5.4 J	15 U	5.1 J	5.0 J	15 U		15 U		Aluminum, Dissolved	7429-90-5	ug/l		31 J	70 U	29 J	70 U	29 J	46 J	70 U	70 U	70 U	70 U	NS		70 U		Antimony, Dissolved	7440-36-0	ug/l	3	12 U	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q		12 U Q		Arsenic, Dissolved	7440-38-2	ug/l	25	4.6 J	5.8 J	13 J	15 U	8.0 J	15 U	15 U	5.8 J	6.2 J	8.0 J	NS		15 U		Barium, Dissolved	7440-39-3	ug/l	1,000	6.3 J	45	160	28	280	520	150	20	23	150	NS		2.0 U		Beryllium, Dissolved	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NS		1.2 U		Boron, Dissolved	7440-42-8	ug/l		11 J	34 J	100 U	63 J	100 U	89 J	100 U	7.2 J	100 U	30 J	100 U	21 J	NS		15 U		Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																	
Copper	7440-50-8	ug/l	200	43	9.3 J	19	3.0 J	10 J	1.4 J	3.5 J	2.3 J	2.0 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	Iron	7439-89-6	ug/l	300	6,400	2,300	22,000	880	24,000	52,000	880	48,000	52,000	11,000	85 U		27 J		Lead	7439-92-1	ug/l	25	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U		10 U		Magnesium	7439-95-4	ug/l	35,000	4,400	6,200	16,000	8,600	45,000	18,000	12,000	14,000	12,000	17,000	40 U		13 J		Manganese	7439-96-5	ug/l	300	55	850 Q	620 Q	31 Q	690 Q	31 Q	530 Q	1,100 Q	1,100 Q	1,300 Q	1.0 U		1.0 U		Mercury	7439-97-6	ug/l	0.7	0.15 J	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.08 U		Nickel	7440-02-0	ug/l	100	33 J	17 J	1.6 J	5.0 U	3.0 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U		5.0 U		Potassium	7440-09-7	ug/l		2,900 J	3,300	9,300	2,100 J	26,000	13,000	4,400	5,000	2,800 J	2,500 J	940		940 U		Selenium	7782-49-2	ug/l	10	19 U	5.0 J	6.2 J	5.2 J	19 U	6.7 J	19 U	7.2 J	5.4 J	19 U	19 U		19 U		Silver	7440-22-4	ug/l	50	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	2.2 J	15 U	3.5 U		Sodium	7440-23-5	ug/l	20,000	43,000	210,000	620,000	130,000	400,000	1,900,000	130,000	490,000	96,000	8,900	100 J	5,000 U	280 J	5,000 U	Thallium	7440-28-0	ug/l	8	19 U	9.0 J	9.3 J	19 U	6.7 J	8.6 J	7.6 J	6.3 J	7.6 J	9.0 J	19 U		19 U		Tin	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U		20 U		Vanadium	7440-62-2	ug/l	14	12 J	2.2 J Q	4.0 U Q	4.0 U Q	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U		4.0 U		Zinc	7440-66-6	ug/L	Variable <sup>b</sup>	88 J	11 J	26 J	15 U	20 J	15 U	5.4 J	15 U	5.1 J	5.0 J	15 U		15 U		Aluminum, Dissolved	7429-90-5	ug/l		31 J	70 U	29 J	70 U	29 J	46 J	70 U	70 U	70 U	70 U	NS		70 U		Antimony, Dissolved	7440-36-0	ug/l	3	12 U	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q		12 U Q		Arsenic, Dissolved	7440-38-2	ug/l	25	4.6 J	5.8 J	13 J	15 U	8.0 J	15 U	15 U	5.8 J	6.2 J	8.0 J	NS		15 U		Barium, Dissolved	7440-39-3	ug/l	1,000	6.3 J	45	160	28	280	520	150	20	23	150	NS		2.0 U		Beryllium, Dissolved	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NS		1.2 U		Boron, Dissolved	7440-42-8	ug/l		11 J	34 J	100 U	63 J	100 U	89 J	100 U	7.2 J	100 U	30 J	100 U	21 J	NS		15 U		Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																					
Lead	7439-92-1	ug/l	25	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U		10 U		Magnesium	7439-95-4	ug/l	35,000	4,400	6,200	16,000	8,600	45,000	18,000	12,000	14,000	12,000	17,000	40 U		13 J		Manganese	7439-96-5	ug/l	300	55	850 Q	620 Q	31 Q	690 Q	31 Q	530 Q	1,100 Q	1,100 Q	1,300 Q	1.0 U		1.0 U		Mercury	7439-97-6	ug/l	0.7	0.15 J	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.08 U		Nickel	7440-02-0	ug/l	100	33 J	17 J	1.6 J	5.0 U	3.0 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U		5.0 U		Potassium	7440-09-7	ug/l		2,900 J	3,300	9,300	2,100 J	26,000	13,000	4,400	5,000	2,800 J	2,500 J	940		940 U		Selenium	7782-49-2	ug/l	10	19 U	5.0 J	6.2 J	5.2 J	19 U	6.7 J	19 U	7.2 J	5.4 J	19 U	19 U		19 U		Silver	7440-22-4	ug/l	50	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	2.2 J	15 U	3.5 U		Sodium	7440-23-5	ug/l	20,000	43,000	210,000	620,000	130,000	400,000	1,900,000	130,000	490,000	96,000	8,900	100 J	5,000 U	280 J	5,000 U	Thallium	7440-28-0	ug/l	8	19 U	9.0 J	9.3 J	19 U	6.7 J	8.6 J	7.6 J	6.3 J	7.6 J	9.0 J	19 U		19 U		Tin	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U		20 U		Vanadium	7440-62-2	ug/l	14	12 J	2.2 J Q	4.0 U Q	4.0 U Q	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U		4.0 U		Zinc	7440-66-6	ug/L	Variable <sup>b</sup>	88 J	11 J	26 J	15 U	20 J	15 U	5.4 J	15 U	5.1 J	5.0 J	15 U		15 U		Aluminum, Dissolved	7429-90-5	ug/l		31 J	70 U	29 J	70 U	29 J	46 J	70 U	70 U	70 U	70 U	NS		70 U		Antimony, Dissolved	7440-36-0	ug/l	3	12 U	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q		12 U Q		Arsenic, Dissolved	7440-38-2	ug/l	25	4.6 J	5.8 J	13 J	15 U	8.0 J	15 U	15 U	5.8 J	6.2 J	8.0 J	NS		15 U		Barium, Dissolved	7440-39-3	ug/l	1,000	6.3 J	45	160	28	280	520	150	20	23	150	NS		2.0 U		Beryllium, Dissolved	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NS		1.2 U		Boron, Dissolved	7440-42-8	ug/l		11 J	34 J	100 U	63 J	100 U	89 J	100 U	7.2 J	100 U	30 J	100 U	21 J	NS		15 U		Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																										
Manganese	7439-96-5	ug/l	300	55	850 Q	620 Q	31 Q	690 Q	31 Q	530 Q	1,100 Q	1,100 Q	1,300 Q	1.0 U		1.0 U		Mercury	7439-97-6	ug/l	0.7	0.15 J	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.08 U		Nickel	7440-02-0	ug/l	100	33 J	17 J	1.6 J	5.0 U	3.0 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U		5.0 U		Potassium	7440-09-7	ug/l		2,900 J	3,300	9,300	2,100 J	26,000	13,000	4,400	5,000	2,800 J	2,500 J	940		940 U		Selenium	7782-49-2	ug/l	10	19 U	5.0 J	6.2 J	5.2 J	19 U	6.7 J	19 U	7.2 J	5.4 J	19 U	19 U		19 U		Silver	7440-22-4	ug/l	50	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	2.2 J	15 U	3.5 U		Sodium	7440-23-5	ug/l	20,000	43,000	210,000	620,000	130,000	400,000	1,900,000	130,000	490,000	96,000	8,900	100 J	5,000 U	280 J	5,000 U	Thallium	7440-28-0	ug/l	8	19 U	9.0 J	9.3 J	19 U	6.7 J	8.6 J	7.6 J	6.3 J	7.6 J	9.0 J	19 U		19 U		Tin	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U		20 U		Vanadium	7440-62-2	ug/l	14	12 J	2.2 J Q	4.0 U Q	4.0 U Q	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U		4.0 U		Zinc	7440-66-6	ug/L	Variable <sup>b</sup>	88 J	11 J	26 J	15 U	20 J	15 U	5.4 J	15 U	5.1 J	5.0 J	15 U		15 U		Aluminum, Dissolved	7429-90-5	ug/l		31 J	70 U	29 J	70 U	29 J	46 J	70 U	70 U	70 U	70 U	NS		70 U		Antimony, Dissolved	7440-36-0	ug/l	3	12 U	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q		12 U Q		Arsenic, Dissolved	7440-38-2	ug/l	25	4.6 J	5.8 J	13 J	15 U	8.0 J	15 U	15 U	5.8 J	6.2 J	8.0 J	NS		15 U		Barium, Dissolved	7440-39-3	ug/l	1,000	6.3 J	45	160	28	280	520	150	20	23	150	NS		2.0 U		Beryllium, Dissolved	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NS		1.2 U		Boron, Dissolved	7440-42-8	ug/l		11 J	34 J	100 U	63 J	100 U	89 J	100 U	7.2 J	100 U	30 J	100 U	21 J	NS		15 U		Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																														
Nickel	7440-02-0	ug/l	100	33 J	17 J	1.6 J	5.0 U	3.0 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U		5.0 U		Potassium	7440-09-7	ug/l		2,900 J	3,300	9,300	2,100 J	26,000	13,000	4,400	5,000	2,800 J	2,500 J	940		940 U		Selenium	7782-49-2	ug/l	10	19 U	5.0 J	6.2 J	5.2 J	19 U	6.7 J	19 U	7.2 J	5.4 J	19 U	19 U		19 U		Silver	7440-22-4	ug/l	50	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	2.2 J	15 U	3.5 U		Sodium	7440-23-5	ug/l	20,000	43,000	210,000	620,000	130,000	400,000	1,900,000	130,000	490,000	96,000	8,900	100 J	5,000 U	280 J	5,000 U	Thallium	7440-28-0	ug/l	8	19 U	9.0 J	9.3 J	19 U	6.7 J	8.6 J	7.6 J	6.3 J	7.6 J	9.0 J	19 U		19 U		Tin	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U		20 U		Vanadium	7440-62-2	ug/l	14	12 J	2.2 J Q	4.0 U Q	4.0 U Q	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U		4.0 U		Zinc	7440-66-6	ug/L	Variable <sup>b</sup>	88 J	11 J	26 J	15 U	20 J	15 U	5.4 J	15 U	5.1 J	5.0 J	15 U		15 U		Aluminum, Dissolved	7429-90-5	ug/l		31 J	70 U	29 J	70 U	29 J	46 J	70 U	70 U	70 U	70 U	NS		70 U		Antimony, Dissolved	7440-36-0	ug/l	3	12 U	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q		12 U Q		Arsenic, Dissolved	7440-38-2	ug/l	25	4.6 J	5.8 J	13 J	15 U	8.0 J	15 U	15 U	5.8 J	6.2 J	8.0 J	NS		15 U		Barium, Dissolved	7440-39-3	ug/l	1,000	6.3 J	45	160	28	280	520	150	20	23	150	NS		2.0 U		Beryllium, Dissolved	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NS		1.2 U		Boron, Dissolved	7440-42-8	ug/l		11 J	34 J	100 U	63 J	100 U	89 J	100 U	7.2 J	100 U	30 J	100 U	21 J	NS		15 U		Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																		
Selenium	7782-49-2	ug/l	10	19 U	5.0 J	6.2 J	5.2 J	19 U	6.7 J	19 U	7.2 J	5.4 J	19 U	19 U		19 U		Silver	7440-22-4	ug/l	50	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	2.2 J	15 U	3.5 U		Sodium	7440-23-5	ug/l	20,000	43,000	210,000	620,000	130,000	400,000	1,900,000	130,000	490,000	96,000	8,900	100 J	5,000 U	280 J	5,000 U	Thallium	7440-28-0	ug/l	8	19 U	9.0 J	9.3 J	19 U	6.7 J	8.6 J	7.6 J	6.3 J	7.6 J	9.0 J	19 U		19 U		Tin	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U		20 U		Vanadium	7440-62-2	ug/l	14	12 J	2.2 J Q	4.0 U Q	4.0 U Q	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U		4.0 U		Zinc	7440-66-6	ug/L	Variable <sup>b</sup>	88 J	11 J	26 J	15 U	20 J	15 U	5.4 J	15 U	5.1 J	5.0 J	15 U		15 U		Aluminum, Dissolved	7429-90-5	ug/l		31 J	70 U	29 J	70 U	29 J	46 J	70 U	70 U	70 U	70 U	NS		70 U		Antimony, Dissolved	7440-36-0	ug/l	3	12 U	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q		12 U Q		Arsenic, Dissolved	7440-38-2	ug/l	25	4.6 J	5.8 J	13 J	15 U	8.0 J	15 U	15 U	5.8 J	6.2 J	8.0 J	NS		15 U		Barium, Dissolved	7440-39-3	ug/l	1,000	6.3 J	45	160	28	280	520	150	20	23	150	NS		2.0 U		Beryllium, Dissolved	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NS		1.2 U		Boron, Dissolved	7440-42-8	ug/l		11 J	34 J	100 U	63 J	100 U	89 J	100 U	7.2 J	100 U	30 J	100 U	21 J	NS		15 U		Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																						
Sodium	7440-23-5	ug/l	20,000	43,000	210,000	620,000	130,000	400,000	1,900,000	130,000	490,000	96,000	8,900	100 J	5,000 U	280 J	5,000 U	Thallium	7440-28-0	ug/l	8	19 U	9.0 J	9.3 J	19 U	6.7 J	8.6 J	7.6 J	6.3 J	7.6 J	9.0 J	19 U		19 U		Tin	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U		20 U		Vanadium	7440-62-2	ug/l	14	12 J	2.2 J Q	4.0 U Q	4.0 U Q	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U		4.0 U		Zinc	7440-66-6	ug/L	Variable <sup>b</sup>	88 J	11 J	26 J	15 U	20 J	15 U	5.4 J	15 U	5.1 J	5.0 J	15 U		15 U		Aluminum, Dissolved	7429-90-5	ug/l		31 J	70 U	29 J	70 U	29 J	46 J	70 U	70 U	70 U	70 U	NS		70 U		Antimony, Dissolved	7440-36-0	ug/l	3	12 U	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q		12 U Q		Arsenic, Dissolved	7440-38-2	ug/l	25	4.6 J	5.8 J	13 J	15 U	8.0 J	15 U	15 U	5.8 J	6.2 J	8.0 J	NS		15 U		Barium, Dissolved	7440-39-3	ug/l	1,000	6.3 J	45	160	28	280	520	150	20	23	150	NS		2.0 U		Beryllium, Dissolved	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NS		1.2 U		Boron, Dissolved	7440-42-8	ug/l		11 J	34 J	100 U	63 J	100 U	89 J	100 U	7.2 J	100 U	30 J	100 U	21 J	NS		15 U		Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																																																										
Tin	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U		20 U		Vanadium	7440-62-2	ug/l	14	12 J	2.2 J Q	4.0 U Q	4.0 U Q	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U		4.0 U		Zinc	7440-66-6	ug/L	Variable <sup>b</sup>	88 J	11 J	26 J	15 U	20 J	15 U	5.4 J	15 U	5.1 J	5.0 J	15 U		15 U		Aluminum, Dissolved	7429-90-5	ug/l		31 J	70 U	29 J	70 U	29 J	46 J	70 U	70 U	70 U	70 U	NS		70 U		Antimony, Dissolved	7440-36-0	ug/l	3	12 U	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q		12 U Q		Arsenic, Dissolved	7440-38-2	ug/l	25	4.6 J	5.8 J	13 J	15 U	8.0 J	15 U	15 U	5.8 J	6.2 J	8.0 J	NS		15 U		Barium, Dissolved	7440-39-3	ug/l	1,000	6.3 J	45	160	28	280	520	150	20	23	150	NS		2.0 U		Beryllium, Dissolved	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NS		1.2 U		Boron, Dissolved	7440-42-8	ug/l		11 J	34 J	100 U	63 J	100 U	89 J	100 U	7.2 J	100 U	30 J	100 U	21 J	NS		15 U		Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																																																																																														
Zinc	7440-66-6	ug/L	Variable <sup>b</sup>	88 J	11 J	26 J	15 U	20 J	15 U	5.4 J	15 U	5.1 J	5.0 J	15 U		15 U		Aluminum, Dissolved	7429-90-5	ug/l		31 J	70 U	29 J	70 U	29 J	46 J	70 U	70 U	70 U	70 U	NS		70 U		Antimony, Dissolved	7440-36-0	ug/l	3	12 U	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q		12 U Q		Arsenic, Dissolved	7440-38-2	ug/l	25	4.6 J	5.8 J	13 J	15 U	8.0 J	15 U	15 U	5.8 J	6.2 J	8.0 J	NS		15 U		Barium, Dissolved	7440-39-3	ug/l	1,000	6.3 J	45	160	28	280	520	150	20	23	150	NS		2.0 U		Beryllium, Dissolved	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NS		1.2 U		Boron, Dissolved	7440-42-8	ug/l		11 J	34 J	100 U	63 J	100 U	89 J	100 U	7.2 J	100 U	30 J	100 U	21 J	NS		15 U		Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Antimony, Dissolved	7440-36-0	ug/l	3	12 U	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q	12 U Q		12 U Q		Arsenic, Dissolved	7440-38-2	ug/l	25	4.6 J	5.8 J	13 J	15 U	8.0 J	15 U	15 U	5.8 J	6.2 J	8.0 J	NS		15 U		Barium, Dissolved	7440-39-3	ug/l	1,000	6.3 J	45	160	28	280	520	150	20	23	150	NS		2.0 U		Beryllium, Dissolved	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NS		1.2 U		Boron, Dissolved	7440-42-8	ug/l		11 J	34 J	100 U	63 J	100 U	89 J	100 U	7.2 J	100 U	30 J	100 U	21 J	NS		15 U		Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Barium, Dissolved	7440-39-3	ug/l	1,000	6.3 J	45	160	28	280	520	150	20	23	150	NS		2.0 U		Beryllium, Dissolved	7440-41-7	ug/l	11 - 1,100 <sup>a</sup>	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	NS		1.2 U		Boron, Dissolved	7440-42-8	ug/l		11 J	34 J	100 U	63 J	100 U	89 J	100 U	7.2 J	100 U	30 J	100 U	21 J	NS		15 U		Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
Boron, Dissolved	7440-42-8	ug/l		11 J	34 J	100 U	63 J	100 U	89 J	100 U	7.2 J	100 U	30 J	100 U	21 J	NS		15 U		Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Cadmium, Dissolved	7440-43-9	ug/l	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	NS		1.8 U		Calcium, Dissolved	7440-70-2	ug/l		20,000	66,000	87,000	37,000	180,000	110,000	83,000	68,000	59,000	110,000	NS		140 U		Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Chromium, Dissolved	7440-47-3	ug/l	50	0.76 J	17	2.6 U	0.73 J	3.6 J	1.1 J	2.6 U	2.6 U	2.6 U	2.6 U	NS		2.6 U		Cobalt, Dissolved	7440-48-4	ug/l		13 J	4.5 J	6.0 J	4.5 U	7.1 J	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	NS		4.5 U		Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Copper, Dissolved	7440-50-8	ug/l	200	10 U	1.4 J	1.4 J	1.9 J	1.4 J	1.7 J	1.4 J	5.0 U	2.4 J	5.0 U	NS		10 U		Iron, Dissolved	7439-89-6	ug/l	300	42 J	1,300	20,000	290	21,000	46,000	1,300	3,900	22 J	100 U	5,600	NS		85 U		Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
Lead, Dissolved	7439-92-1	ug/l	25	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS		10 U		Magnesium, Dissolved	7439-95-4	ug/l	35,000	3,400	6,600	16,000	8,800	46,000	19,000	13,000	16,000	12,000	18,000	NS		13 J		Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Manganese, Dissolved	7439-96-5	ug/l	300	5.7 J	890 Q	490 Q	23 Q	1,000 Q	690 Q	400 Q	800 Q	1.0 J Q	1,300 Q	NS		1.0 U		Mercury, Dissolved	7439-97-6	ug/l	0.7	0.08 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	NS		0.080 U		Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Nickel, Dissolved	7440-02-0	ug/l	100	5 J	15 J	5.0 U	5.0 U	1.4 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS		5.0 U		Potassium, Dissolved	7440-09-7	ug/l		2,400 J	2,900 J	8,700	1,600 J	24,000	12,000	4,200	5,000	2,400 J	2,100 J	NS		940 U		Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
Selenium, Dissolved	7782-49-2	ug/l	10	5.6 J	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	19 U	NS		19 U		Silver, Dissolved	7440-22-4	ug/l	50	1.1 J	3.5 U	3.5 U	3.5 U	3.5 U	1.2 J	3.5 U	3.5 U	3.5 U	NS		3.5 U		Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
Sodium, Dissolved	7440-23-5	ug/l	20,000	44,000	210,000	580,000	120,000	400,000	1,900,000	500,000	26,000	94,000	10,000	NS		330 J	5,000 U	Thallium, Dissolved	7440-28-0	ug/l	8	19 U	8.6 J	5.5 J	19 U	8.6 J	8.5 J	7.7 J	6.5 J	6.6 J	6.4 J	NS		19 U		Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Tin, Dissolved	7440-31-5	ug/l		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS		20 U		Vanadium, Dissolved	7440-62-2	ug/l	14	3.6 J	1.2 J Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	4.0 U Q	NS		4.0 U		Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Zinc, Dissolved	7440-66-6	ug/L	Variable <sup>b</sup>	11 J	15 U	10 J	15 U	15 U	15 U	15 U	15 U	15 U	15 U	NS		15 U																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

Note:  
mg/L - milligrams per liter ug/L - micrograms per liter NS - Not Sampled  
U - Undetected at the Limit of Detection (LOD) for laboratory reported data and undetected at the LOQ for validator qualified data.  
J - Estimated: The analyte was positively identified; the quantification is an estimation.  
Q - One or more quality control criteria failed. B - Analyte was detected in associated blank.  
U Q - Undetected at the Limit of Detection (LOD). One or more quality control criteria failed.  
J Q - Estimated: The analyte was positively identified; the quantification is an estimation. One or more quality control criteria failed.  
<sup>a</sup> 11 µg/L when hardness is ≤75 ppm; 1,100 when hardness > 75 ppm.  
<sup>b</sup> exp[ln(hardness)]+0.5

---

**ATTACHMENT A**  
**LONG TERM MONITORING AND LABORATORY DATA TABLES**  
**TABLE A-3: THIRD RCRA PERIODIC REVIEW HISTORICAL**  
**ANALYTICAL RESULTS**

---

**Table A-3**  
**Third RCRA Periodic Review Historical Analytical Results Table**  
**Landfills at West Point, New York**

			Camp Buckner Landfill (WSTPT-35)					High School Landfill		Lot A Landfill (WSTPT-02)						Lot C Landfill (WSTPT-04)		Lot D Landfill (WSTPT-05)					Lot E Landfill (WSTPT-06)				
Analyte	Units	Screening Value	CBMW-03 9/18/07	CBMW-03 (DUP) 9/18/07	CBMW-03 8/28/08	CBMW-03 9/22/15	CBMW-02 6/11/10	HSMW-01 9/18/07	HSMW-01 8/28/08	LAMW-03 9/19/07	LAMW-03 8/29/08	LAMW-03 6/16/09	LAMW-03 (DUP) 6/16/09	LAMW-03 6/9/10	LAMW-03 9/21/15	LCMW-03 8/29/08	LCMW-03 9/22/15	LDMW-1 6/11/10	LDMW-4 8/28/08	LDMW-4 6/16/09	LDMW-4 6/11/10	LDMW-4 9/21/15	LEMW-04 10/4/07	LEMW-04 8/28/08	LEMW-04 9/21/15	LEMW-01 6/9/10	
<i>Filtered</i>																											
Aluminum	µg/L		NA	NA	30 U	70 U	7.8 U	NA	30 U	NA	600 U	60 U	60 U	12.1 J	70 U	600 U	29 J	243	300 U	47.2	7.8 U	70 U	NA	600 U	29 J	7.8 U	
Antimony	µg/L	3	NA	NA	5 U	12 U	2.2 U	NA	5 U	NA	50 U	10 U	10 U	2.2 U	12 U	50 U	12 U	2.2 U	50 U	5 U	2.2 U	12 U	NA	50 U	12 U	2.2 U	
Arsenic	µg/L	25	NA	NA	10 U	8.0 J	1.4 U	NA	10 U	NA	100 U	20 U	20 U	1.4 U	5.8 J	35.7 J	13 J	1.4 U	100 U	10 U	3 U	15 U	NA	100 U	8.0 J	1.4 U	
Barium	µg/L	1,000	NA	NA	114 J	150	10.6 J	NA	77.6 J	NA	41.9 J	54.1	53.9	55.6 J	45	822 J	160	200 U	64.1 J	16.2	85.9 J	28	NA	280	280	110 J	
Beryllium	µg/L	11 - 1,100 <sup>a</sup>	NA	NA	0.5 U	1.2 U	0.21 U	NA	0.5 U	NA	5 U	1 U	1 U	0.24 U	1.2 U	5 U	1.2 U	0.35 J	5 U	0.086 J	0.21 U	1.2 U	NA	5 U	1.2 U	0.24 U	
Cadmium	µg/L	5	NA	NA	0.5 U	1.8 U	0.35 U	NA	0.5 U	NA	5 U	1 U	1 U	0.35 U	1.8 U	5 U	1.8 U	0.35 U	5 U	0.5 U	0.35 U	1.8 U	NA	5 U	1.8 U	0.4 J	
Calcium	µg/L		NA	NA	83,800 J	110,000	14,300	NA	43,800 J	NA	43,900	54,000 J	52,900 J	50,000	66,000	795,000 R	87,000	200 U	64,700 J	14,200 J	59,800	37,000	NA	145,000 J	180,000	134,000	
Chromium	µg/L	50	NA	NA	10 U	2.6 U	10 U	NA	10 U	NA	100 U	59.6 R	560 R	11.7	17	100 U	2.6 U	10 U	100 U	10 U	0.7 J	0.73 J	NA	100 U	3.6 J	10 U	
Cobalt	µg/L		NA	NA	2 U	4.5 U	0.65 U	NA	2 U	NA	12 J	17.5 J	34.1 J	3.8 J	4.5 J	146	6.0 J	50 U	6.2 J	1.2 J	7.7 J	4.5 U	NA	20 U	7.1 J	0.65 U	
Copper	µg/L	200	NA	NA	2.4 U	5.0 U	10 U	NA	1.3 J	NA	24.3 U	3.4 J	2.5 J	7.8 J	1.4 J	24.3 U	1.4 J	15.5	24.3 U	0.94 J	10.2	1.9 J	NA	24.3 U	1.4 J	2.5 U	
Iron	µg/L	300	NA	NA	2,310	5,600	44.3 J	NA	50 U	NA	500 U	344 R	2,370 R	235	1,300	367,000 R	20,000	72.4 J	1,380	1,030	16,500	290	NA	38,500	21,000	24,800	
Lead	µg/L	25	NA	NA	3 U	10 U	1.9 U	NA	3 U	NA	30 U	6 U	6 U	1.9 U	10 U	30 U	10 U	1.9 U	30 U	3 U	1.9 U	10 U	NA	30 U	10 U	1.9 U	
Magnesium	µg/L	35,000	NA	NA	13,200	18,000	2,400 J	NA	3,170 J	NA	7,390 J	8,060	8,050	7,740	6,600	142,000 R	16,000	904 J	13,200	3,460	13,000	8,800	NA	36,000	46,000	25,500	
Manganese	µg/L	300	NA	NA	1,060	1,300 Q	15 U	NA	4.4	NA	1,400	1,710 J	1,740 J	556	890 Q	11,800 R	490 Q	84.3	3,070	153 J	2,280	23 Q	NA	865	1,000 Q	1,280	
Mercury	µg/L	0.7	NA	NA	0.2 U	0.080 U	0.082 U	NA	0.2 U	NA	0.13 J	0.2 U	0.2 U	0.082 U	0.080 U	0.080 U	0.080 U	0.082 U	0.2 U	0.2 U	0.082 U	0.080 U	NA	0.2 U	0.080 U	0.082 U	
Nickel	µg/L	100	NA	NA	2.1 J	5.0 U	14	NA	2.6 J	NA	7 J	31.5 R	224 R	32.1	15 J	100 U	5.0 U	7.9 J	50 U	2.1 J	10 U	5.0 U	NA	50 U	1.4 J	10 U	
Potassium	µg/L		NA	NA	1,250 J	2,100 J	10,000 U	NA	1,870 J	NA	2,860 J	2,540	2,540	6,020 J	2,900 J	57,300 R	8,700	10,000 U	3,340 J	707	10,000 U	1,600 J	NA	22,800	24,000	5,580 J	
Selenium	µg/L	10	NA	NA	5 U	19 U	1.9 U	NA	5 U	NA	50 U	10 U	10 U	1.9 U	19 U	50 U	19 U	1.9 U	50 U	5 U	1.9 U	19 U	NA	50 U	19 U	1.9 U	
Silver	µg/L	50	NA	NA	2 U	3.5 U	0.53 U	NA	2 U	NA	20 U	4 U	4 U	0.53 U	3.5 U	20 U	3.5 U	0.53 U	20 U	2 U	1 J	3.5 U	NA	20 U	3.5 U	0.53 U	
Sodium	µg/L	20,000	NA	NA	3,760 J	10,000	10,000 U	NA	3,100 J	NA	238,000	213,000	198,000	329,000	210,000	248,000	580,000	10,000 U	130,000	14,000	136,000	120,000	NA	244,000	400,000	306,000	
Thallium	µg/L	8.0	NA	NA	4.1 U	6.4 J	1.8 U	NA	4.1 U	NA	40.5 U	4 U	4 U	1.8 U	8.6 J	40.5 U	5.5 J	1.8 U	40.5 U	2 U	1.8 U	19 U	NA	40.5 U	8.6 J	1.8 U	
Vanadium	µg/L	14	NA	NA	10 U	4.0 U	0.56 U	NA	10 U	NA	100 U	20 U	20 U	1.5 J	1.2 J	100 U	4.0 U	0.56 U	100 U	10 U	0.56 U	4.0 U	NA	100 U	4.0 U	1.9 J	
Zinc	µg/L	Variable <sup>b</sup>	NA	NA	12 U	15 U	37.8	NA	74.3 J	NA	240 U	29.6	27.6	46.4	15 U	240 U	10 J	126	49.4 J	6.2 J	70.5	15 U	NA	240 U	15 U	20 U	
<i>Unfiltered</i>																											
Aluminum	µg/L		100 U	100 U	1,540	120 J	307	100 U	48.1	183	458 J	639 J	344 J	534	290 J	177,000	360	2,060	368	82.2 J	7.8 U	91 J	100 U	600 U	940	7.8 U	
Antimony	µg/L	3	60 U	60 U	5 U	12 U	2.2 U	60 U	5 U	60 U	50 U	10 U	10 U	2.2 U	12 U	50 U	12 U	2.2 U	50 U	5 U	2.2 U	12 U	60 U	50 U	12 U	2.2 U	
Arsenic	µg/L	25	5 U	5 U	10 U	6.7 J	1.4 U	5 U	10 U	5 U	100 U	20 U	20 U	1.4 U	4.9 J	100 U	8.0 J	5.3	100 U	10 U	1.4 U	7.9 J	5 U	100 U	5.7 J	1.4 U	
Barium	µg/L	1,000	132	131	150 J	170	200 U	96	80.7 J	48	44.5 J	59.5	56.3	56 J	48	88.2 J	160	200 U	117 J	17.4	86.1 J	32	274	282	390	110 J	
Beryllium	µg/L	11 - 1,100 <sup>a</sup>	5 U	5 U	0.5 U	1.2 U	0.33 J	5 U	0.5 U	5 U	5 U	1 U	0.16 J	0.24 U	1.2 U	5 U	1.2 U	1	1.4 J	0.14 J	1 U	1.2 U	5 U	5 U	1.2 U	0.24 U	
Cadmium	µg/L	5	5 U	5 U	0.5 U	1.8 U	0.35 U	5 U	0.5 U	5 U	5 U	1 U	1 U	0.35 U	1.8 U	6.3	1.8 U	0.35 U	5 U	0.5 U	0.35 U	1.8 U	5 U	5 U	1.8 U	0.4 J	
Calcium	µg/L		106,000	105,000	87,500	110,000	14,300	58,700	46,000	54,500	47,700	53,900 J	51,900 J	49,700	66,000	82,700 R	90,000	50,000 U	68,100	13,900 J	59,500	40,000	146,000	145,000	220,000	132,000	
Chromium	µg/L	50	8	5 U	3.2 J	2.6 U	32	5 U	10 U	21	100 U	20.8	12.2 J	49.8	74	100 U	2.6 U	10 U	100 U	10 U	2.6 U	5 U	100 U	100 U	3.8 J	10 U	
Cobalt	µg/L		50 U	50 U	0.99 J	4.5 U	1.4 J	50 U	2 U	50 U	13.6 J	16.3	16.6	3.9 J	5.2 J	23.5	9.2 J	5.3 J	8.9 J	1.8 J	8.2 J	4.5 U	50 U	20 U	8.7 J	0.65 U	
Copper	µg/L	200	5 U	5 U	3.2	5.0 U	10.4	5 U	2.4 J	12	24.3 U	8.4	7.1	16.7	9.3 J	24.3 U	19	29.9	24.3 U	1.4 J	11.3	3.0 J	5 U	24.3 U	10 J	2.9 J	
Iron	µg/L	300	4,070	4,040	10,500	11,000	803	95	150	1,520	807 J	1,440 J	818 J	1,170	2,300	40,800 R	22,000	13,900	107,000	6,400 J	20,200	880	39,900	39,000	24,000	25,500	
Lead	µg/L	25	5 U	5 U	1.5 J	10 U	1.9 U	5 U	3 U	5 U	30 U	3.1 J	2.8 J	1.9 U	10 U	30 U	10 U	4.2	30 U	3 U	1.9 U	10 U	5 U	30 U	10 U	1.9 U	
Magnesium	µg/L	35,000	15,400	15,200	13,800	17,000	2,550 J	4,170	3,310 J	8,470	7,820 J	8,560 J	8,130 J	7,740	6200	16,400 R	16,000	880 J	14,100	3,370 J	13,000	8,600	31,200	35,800	45,000	25,100	
Manganese	µg/L	300	1,160	1,150	1,210	1,300 Q	99.5	592	19	2,010	1,400	1,730 J	1,700 J	555	850 Q	1,240 R	620 Q	241	3,530	162 J	2,330	31 Q	744	863	1,100 Q	1,270	
Mercury	µg/L	0.7	0.2 U	0.2 U	0.2 U	0.080 U	0.082 U	0.2 U	0.2 U	0.2 U	0.15 J	0.2 U	0.2 U	0.082 U	0.080 U	0.069 J	0.080 U	0.082 U	0.2 U	0.2 U	0.082 U	0.080 U	0.2 U	0.2 U	0.080 U	0.082 U	
Nickel	µg/L	100	20 U	20 U	4.1 J	5.0 U	41.1	21	2.9 J	36	10.6 J	13.2	12.3	29.8	17 J	73.2 J	1.6 J	10 U	50 U	2.5 J	5.5 J	5.0 U	20 U	50 U	3.0 J	10 U	
Potassium	µg/L		1,840	1,810	1,500 J	2,500 J	669 J	2,740	1,960 J	5,660	3,050 J	2,550 J	2,410 J	6,100 J	3,300	6,330 R	9,300	1,260 J	3,580 J	697 J	10,000 U	2,100 J	38,200	23,200	26,000	5,540 J	
Selenium	µg/L	10	5 U	5 U	5 U	19 U	1.9 U	5 U	5 U	5 U	50 U	10 U	10 U	1.9 U	5.0 J	50 U	6.2 J	1.9 U	50 U	5 U	1.9 U	5.2 J	5 U	50 U	19 U	1.9 U	
Silver	µg/L	50	10 U	10 U	2 U	3.5 U	0.53 U	10 U	2 U	10 U	20 U	0.26 J	4 U	0.6 J	3.5 U	20 U	3.5 U	0.53 U	20 U	0.11 J	1.2 J	3.5 U	10 U	20 U	3.5 U	0.53 U	
Sodium	µg/L	20,000	4,260	4,200	3,970 J	8,900	10,000 U	4,990	3,290 J	200,000	234,000	205,000 J	201,000 J	317,000	210,000	199,000	620,000	10,000 U	138,000	13,800 J	130,000	130,000	72,600	273,000	400,000	306,000	
Thallium	µg/L	8.0	10 U	10 U																							

Table A-3  
Third RCRA Periodic Review Historical Analytical Results Table  
Landfills at West Point, New York

		Lot F Landfill						Bldg. 706 Landfill	Organic Compost Landfill					Post School Landfill				PX Landfill			Ski Lot Landfill					
Analyte	Units	Screening Value	LF-01 9/19/07	LF-01 8/29/08	LF-01 6/16/09	LF-01 6/10/10	LF-01 9/21/15	MW48-01 9/8/11	OC-5 9/18/07	OC-2 8/27/08	OC-2 6/16/09	OC-1 6/9/10	OC-2 6/9/10	OC-5 9/22/15	PS-04 10/4/07	PS-04 8/27/08	PS-04 9/22/15	PS-01 6/9/10	PXMW-03 10/4/07	PXMW-03 8/28/08	PXMW-03 (DUP) 8/28/08	SL-05 9/18/07	SL-05 8/28/08	SL-05 9/23/15	SL-01 6/10/10	SL-01 (DUP) 6/10/10
<i>Filtered</i>													Laboratory Analytical Results	Validator Qualified Data												
Aluminum	µg/L	NA	600 U	300 U	7.8 U	46 J	18.1 J	NA	300 U	30 U	7.8 U	7.8 U	70 U	NA	30 U	70 U	7.8 U	NA	600 U	600 U	NA	600 U	70 U	7.8 U	7.8 U	
Antimony	µg/L	3 NA	50 U	50 U	2.2 U	12 U	1.3 U	NA	50 U	5 U	2.2 U	2.2 U	12 U	NA	5 U	12 U	2.2 U	NA	50 U	50 U	NA	50 U	12 U	2.2 U	2.2 U	
Arsenic	µg/L	25 NA	100 U	100 U	1.4 U	15 U	0.92 U	NA	100 U	10 U	1.4 U	1.4 U	6.2 J	NA	10 U	5.8 J	1.4 U	NA	100 U	100 U	NA	100 U	15 U	1.4 U	1.4 U	
Barium	µg/L	1,000 NA	249 J	459	301	520	20.9 J	NA	32.1	30.5	24.2 J	42.2 J	23	NA	27.9	20	200 U	NA	31.3 J	32.7 J	NA	103 J	150	200 U	8.8 J	
Beryllium	µg/L	11 - 1,100 <sup>a</sup> NA	5 U	5 U	0.24 U	1.2 U	0.24 U	NA	5 U	0.5 U	0.24 U	0.24 U	1.2 U	NA	0.5 U	1.2 U	0.24 U	NA	5 U	5 U	NA	5 U	1.2 U	0.24 U	0.21 U	
Cadmium	µg/L	5 NA	5 U	5 U	0.5 J	1.8 U	0.17 U	NA	5 U	0.5 U	0.35 U	0.35 U	1.8 U	NA	0.5 U	1.8 U	0.35 U	NA	5 U	5 U	NA	5 U	1.8 U	0.35 U	0.35 U	
Calcium	µg/L	NA	64,400	119,000 J	80,800	110,000	22,300	NA	61,900 J	42,600 J	43,900	93,100	59,000	NA	90,400 J	68,000	15,900	NA	127,000 J	134,000	NA	67,700 J	83,000	18,100	17,200	
Chromium	µg/L	50 NA	100 U	100 U	0.59 U	1.1 J	9.3 J	NA	100 U	10 U	0.59 U	10 U	2.6 U	NA	10 U	2.6 U	10 U	NA	100 U	100 U	NA	100 U	2.6 U	0.59 U	0.56 U	
Cobalt	µg/L	NA	20 U	3.2 J	2.1 J	4.5 U	3.6 J	NA	20 U	0.3 J	2.9 J	6 J	4.5 U	NA	0.3 J	4.5 U	0.65 U	NA	20 U	20 U	NA	20 U	4.5 U	0.65 U	0.65 U	
Copper	µg/L	200 NA	24.3 U	30 U	15.6	1.7 J	3.1 J	NA	24.3 U	3.3	12.1	5 J	2.4 J	NA	2.4 U	5.0 U	3.3 J	NA	24.3 U	24.3 U	NA	24.3 U	1.4 J	2.5 U	2.5 U	
Iron	µg/L	300 NA	<b>48,700</b>	<b>49,500</b>	<b>19,800</b>	<b>46,000</b>	26.9 J	NA	500 U	51	100 U	<b>497</b>	22 J	100 U	NA	<b>10,400</b>	<b>3,900</b>	100 U	NA	500 U	500 U	NA	<b>558</b>	<b>1,300</b>	100 U	56.9 J
Lead	µg/L	25 NA	30 U	30 U	1.9 U	10 U	0.94 U	NA	30 U	3 U	1.9 U	1.9 U	10 U	NA	3 U	10 U	1.9 U	NA	30 U	30 U	NA	30 U	10 U	1.9 U	1.9 U	
Magnesium	µg/L	35,000 NA	9,510	20,600	12,400	19,000	3540 J	NA	12,200	7,440	10,400	17,600	12,000	NA	16,000	16,000	5,000 U	NA	<b>35,900</b>	<b>37,600</b>	NA	10,600	13,000	5,000 U	3,400 J	
Manganese	µg/L	300 NA	294	<b>1,180 J</b>	<b>798</b>	<b>690 Q</b>	0.4 J	NA	20 U	1.4 J	10.3 J	108	1.0 J	10 U	NA	<b>1,310</b>	<b>800 Q</b>	0.46 U	NA	20 U	20 U	NA	<b>394</b>	400 Q	15 U	0.46 U
Mercury	µg/L	0.7 NA	0.14 J	0.2 U	0.082 U	0.080 U	0.075 U	NA	0.2 U	0.2 U	0.082 U	0.082 U	0.080 U	NA	0.2 U	0.080 U	0.082 U	NA	0.12 J	0.2 U	NA	0.2 U	0.080 U	0.082 U	0.082 U	
Nickel	µg/L	100 NA	100 U	24.4 J	19.3	5.0 U	2.3 J	NA	6.6 J	4.1 J	13.3	10 U	5.0 U	NA	2.5 J	5.0 U	1 J	NA	50 U	100 U	NA	50 U	5.0 U	13	10 U	
Potassium	µg/L	NA	6,840 J	7,860	11,100	12,000	1,920 J	NA	2,900	5,600	1,170 J	6,230 J	2,400 J	NA	2,470	5,000	1,050 J	NA	6,050 J	6,530 J	NA	3,580 J	4,200	935 J	10,000 U	
Selenium	µg/L	10 NA	50 U	50 U	1.9 U	19 U	1.5 U	NA	50 U	5 U	1.9 U	1.9 U	19 U	NA	5 U	19 U	1.9 U	NA	<b>15.6 J</b>	<b>16.7 J</b>	NA	50 U	19 U	1.9 U	1.9 U	
Silver	µg/L	50 NA	20 U	20 U	0.53 U	1.2 J	0.72 U	NA	20 U	2 U	0.53 U	0.53 U	3.5 U	NA	2 U	3.5 U	0.53 U	NA	20 U	20 U	NA	20 U	3.5 U	0.6 J	0.53 U	
Sodium	µg/L	20,000 NA	<b>769,000</b>	<b>1,430,000</b>	<b>1,200,000</b>	<b>1,900,000</b>	<b>113,000</b>	NA	<b>86,000</b>	<b>58,200</b>	<b>33,800</b>	<b>106,000</b>	<b>94,000</b>	NA	18,300	26,000	<b>33,000</b>	NA	<b>628,000</b>	<b>529,000</b>	NA	<b>512,000</b>	<b>500,000</b>	<b>48,600</b>	<b>46,300</b>	
Thallium	µg/L	8.0 NA	40.5 U	20 U	1.8 U	<b>8.5 J</b>	0.17 U	NA	40.5 U	2 U	1.8 U	1.8 U	6.6 J	NA	4.1 U	6.5 J	1.8 U	NA	40.5 U	40.5 U	NA	40.5 U	7.7 J	1.8 U	1.8 U	
Vanadium	µg/L	14 NA	100 U	100 U	1.1 J	4.0 U	0.5 J	NA	100 U	10 U	0.56 U	0.56 U	4.0 U	NA	10 U	4.0 U	0.56 U	NA	100 U	100 U	NA	100 U	4.0 U	0.56 U	0.56 U	
Zinc	µg/L	Variable <sup>b</sup> NA	240 U	120 U	129 J	15 U	1.7 U	NA	46 J	12 U	79.9	36	4.8 J	NA	4.6 J	15 U	50.2	NA	240 U	240 U	NA	240 U	15 U	25.3	20 U	
<i>Unfiltered</i>																										
Aluminum	µg/L	178	600 U	98.7 J	7.8 U	59 J	1,850	100 U	624	374 J	381	593	73 J	100 U	18.2 J	60 J	238	627	290 J	231 J	204	588 J	400	43.7 J	18.2 J	
Antimony	µg/L	3	60 U	50 U	50 U	2.2 U	12 U	1.3 U	60 U	50 U	5 U	2.2 U	12 U	60 U	5 U	12 U	2.2 U	60 U	50 U	50 U	60 U	50 U	12 U	2.2 U	2.2 U	
Arsenic	µg/L	25	5 U	100 U	100 U	1.4 U	7.4 J	2 J	5 U	100 U	10 U	1.4 U	1.4 U	5 U	10 U	5.9 J	1.4 U	5 U	100 U	100 U	5 U	100 U	17 J	1.4 U	1.4 U	
Barium	µg/L	1,000	204	271	425	304	560	27.1 J	25	36 J	32.5	26.8 J	46.3 J	24	29	27	20	9 J	29	35.4 J	34.9 J	91	120 J	210	7.6 J	7.2 J
Beryllium	µg/L	11 - 1,100 <sup>a</sup>	5 U	5 U	5 U	0.24 U	1.2 U	0.24 U	5 U	5 U	0.5 U	0.24 U	0.24 U	5 U	0.5 U	1.2 U	0.24 U	5 U	5 U	5 U	5 U	5 U	1.2 U	0.24 U	0.21 U	
Cadmium	µg/L	5	5 U	5 U	0.9 J	1.8 U	0.17 U	5 U	5 U	0.5 U	0.35 U	0.35 U	1.8 U	5 U	0.5 U	1.8 U	0.35 U	5 U	5 U	5 U	5 U	5 U	1.8 U	0.35 U	0.35 U	
Calcium	µg/L	63,600	66,300	108,000 J	80,100	120,000	19,700	70,600	62,100	40,100 J	43,600	92,800	60,000	107,000	83,400	65,000	16,100	137,000	131,000	134,000	72,700	66,100	81,000	18,200	17,300	
Chromium	µg/L	50	5 U	100 U	100 U	0.59 U	2.6 U	1,900	5 U	<b>85.2 J</b>	<b>122</b>	0.59 U	<b>120</b>	5 U	10 U	2.6 U	10 U	5 U	100 U	100 U	5 U	100 U	2.6 U	0.59 U	0.56 U	
Cobalt	µg/L	50 U	20 U	7.7 J	2 J	4.5 U	8.3 J	50 U	20 U	0.97 J	3.1 J	6.1 J	4.5 U	50 U	2.1	4.5 U	0.8 J	50 U	20 U	20 U	50 U	20 U	4.5 U	0.65 U	0.65 U	
Copper	µg/L	200	5 U	24.3 U	10.6 J	79.4	1.4 J	46.3	5 U	24.3 U	8.4	12.1	18.4	5 U	1.4 J	2.3 J	5.7 J	5 U	24.3 U	24.3 U	5 U	24.3 U	3.5 J	2.5 U	2.5 U	
Iron	µg/L	300	<b>56,900</b>	<b>65,600 J</b>	<b>61,700 J</b>	<b>24,800</b>	<b>52,000</b>	<b>5,920</b>	50 U	<b>1,400</b>	<b>1,390 J</b>	<b>643</b>	<b>2,040</b>	44 J	<b>7,000</b>	<b>32,600</b>	<b>48,000</b>	<b>477</b>	<b>1,860</b>	<b>405 J</b>	<b>397 J</b>	<b>1,800</b>	<b>7,770</b>	<b>20,000</b>	<b>540</b>	201
Lead	µg/L	25	7	30 U	30 U	1.9 U	10 U	1.1 J	5 U	30 U	3 U	3.9	1.9 U	5 U	3 U	10 U	1.9 U	5 U	30 U	30 U	5 U	30 U	10 U	1.9 U	1.9 U	
Magnesium	µg/L	35,000	8,460	9,660	18,100 J	12,500	18,000	3180 J	13,100	12,300	7,070 J	10,400	17,800	12,000	16,300	14,900	14,000	5,000 U	33,600	<b>36,100</b>	<b>38,000</b>	10,700	10,200	12,000	5,000 U	3,410 J
Manganese	µg/L	300	<b>312</b>	<b>325</b>	<b>1,110 J</b>	<b>807</b>	<b>690 Q</b>	20.4	20 U	18 J	12.9 J	15 U	114	12 Q	<b>2,680</b>	<b>1,330</b>	<b>1,100 Q</b>	17.1	20 U	20 U	20 U	<b>324</b>	<b>441</b>	530 Q	6.9 J	15 U
Mercury	µg/L	0.7	0.2 U	0.11 J	0.2 U	0.082 U	0.080 U	0.075 U	0.2 U	0.2 U	0.2 U	0.082 U	0.080 U	0.2 U	0.2 U	0.080 U	0.082 U	0.2 U	0.14 J	0.2 U	0.2 U	0.2 U	0.2 U	0.080 U	0.082 U	
Nickel	µg/L	100	20 U	100 U	35.1 J	17.4	5.0 U	18.5	20 U	9.3 J	9.5	13.2	10 U	20 U	3.6 J	5.0 U	10 U	20 U	100 U	100 U	20 U	50 U	5.0 U	10 U	1.7 J	
Potassium	µg/L	12,900	7,050 J	7,230 J	11,000	13,000	1,810 J	2,850	2,890 J	5,510 J	1,250 J	6,420 J	2,800 J	2,900	2,250	5,000	1,130 J	10,300	6,400 J	6,670 J	5,020	3,430 J	4,400	923 J	10,000 U	
Selenium	µg/L	10	5 U	50 U	50 U	1.9 U	6.7 J	1.5 U	50 U	5 U	1.9 U	1.9 U	5.4 J	5 U	5 U	7.2 J	1.9 U	<b>22 S</b>	<b>16.5 J</b>	<b>17.8 J</b>	5 U	50 U	19 U	1.9 U	1.9 U	
Silver	µg/L	50	10 U	20 U	0.53 U	3.5 U	0.72 U	10 U	20 U	2 U	0.53 U	0.53 U	3.5 U	10 U	2 U	3.5 U	0.53 U	10 U	20 U	20 U	10 U	20 U	3.5 U	0.53 U	0.53 U	
Sodium	µg/L	20,000	<b>364,000</b>	<b>910,000</b>	<b>1,290,000</b>	<b>1,100,000</b>	<b>1,900,000&lt;/</b>																			

TABLE A-3 (Continued) ANALYTICAL DATA SUMMARY FOR UNFILTERED GROUNDWATER SAMPLES COLLECTED 11-14 APRIL 2005 AT SELECT LANDFILLS

Analyte	AWQS	Camp Buckner Landfill	High School Landfill	Michie Lot A	Michie Lot C	Michie Lot 13	Michie Lot E	Michie Lot F	Motor Pool East Landfill	Motor Pool Landfill	No. 706 Parking Lot	Organic Composit Landfill	Post School Landfill	PX Landfill		Ski Lot Landfill	Field QA/QC Samples			
		CBMW-03	HSMW-01	LAMW-03	LC MW-03	LDMW-04	LEMW-04	LF-01	MW 11-1	MP-4	MW48-01	0C-2	PS.4	PXMW-01	PXNIW-01 (Dup)	SL-5	SL-5 (Dup)	FB-05 Field Blank	RB-05 Rinsate Blank	
ALUMINUM	-	134.1	41.51	2751	(<14.6U)	48,21	24.81	1,860	360	42.41	75,81	(<14.61	22.81	3881	8143	1911	358	55.6.1	64.41	
ANTIMONY	3	0.491	1.21	0.781	0.523	0.513	0.51	0333	0.561	0.383	0.541	0.521	0.41	0.611	0.913	0.393	0.491	0.551	0.363	
ARSENIC	25	(<2.81U)	(<2.81U)	(<2.8111)	5.4J	(<2.811J)	3.0J	(<2.81U)	(<2.8111)	•(<2.81U)	(<2.8111)	3.81	(<2.81U)	(<2.81U)	(<2.81U)	(<2.811. (<2.8W)	(<2.8111)	(<2.811/)		
BARIIUM	1,000	92.3	62.3	56.3	72.8	19.4	269	1,100	45.2	34.7	54.6	66.1	37.6	69.3	71.2	106	110	(<0.581)	(<0.513)	
BERYLLIUM	-	0.321	(<0.22U)	(<0.22U)	0.31	0.731	(<0.4U)	(<0.22U)	(<0.4U)	(<0.221.1)	(<0.22U)	0.341	(<0.22U)	(<0.2211)	(<0.4U)	(<0.4U)	(<0.4U)	(<0.2211)	(<0.2211)	
CADMIUM	5	(<0.4111)	(<0.411.1)	(<0.4113)	(<0.411J)	(<0.41U)	(<2.29U)	(<0.41U)	(<2.29131)	(<0.41U)	(<0.41U)	(<0.41U)	(<0.411.1)	(<0.4111)	(<2.29111)	(<2.29W)	(<2.29U)	(<0.4111)	(<0.41U)	
CALCIUM	-	84,500	50,700	63,700	73,900	12,900	166,000	253,000	47,600	111,000	46,200	120,000	121,000	67,700	74,000	78,600	82,600	(<15.911)	72.5	
CHROMIUM	50	9.0.1	(<1.0111)	22.5	(<1.01.11)	7.61	3.81	(<1.011)	3.91	4.23	(<1.0W)	(<1.011)	(<1.0131)	14.13	14.83	2.0J	3.11	(<1.0U)	(<1.0U)	
COBALT	-	(<1.19U)	1.21	17.33	3.21	5.61	4.51	(<1.1911)	1.63	21.61	1.61	1.21	(<1.1911)	1.61	1.91	(<1.19U)	(<1.19U)	(<1.19U)	(<1.191.1)	
COPPER	200	(<1.16U)	(<1.1611)	9.51	(<1.16U)	(<1.16U)	(<2.52U)	(<1.16111)	6.4J	(<1.161.11)	(<1.16111)	(<1.161. (<1.16U)	36.01	28.0	3.01	(<2.52U)	(<1.16U)	(<1.16U)		
IRON	300	4,710	71.51	432	9,5601	11,900	40,200	128,000	448	56.01	(<21.413)	(<21.4U)	45.290	2463	748	2,4701	5,160	(<21.4U)	(<21.41.1)	
LEAD	25	(<2.0711)	2.21	(<2.071.1)	(<2.0711)	(<2.07U)	(<2.9711)	(<2.07U)	(<2.07U)	2.11	(<2.0711)	(<2.07U)	(<2.07U)	2.13	(<2.07U)	(<2.07U)	(<2.071.1)	(<2.07U)	(<2.07U)	
MAGNESIUM	-	14,900	4,410	14,300	14,600	2,860	50,300	35,800	6,100	39,600	7,110	19,800	20,700	10,500	11,000	12,900	13,600	(<7.9911)	(<7.9911)	
MANGANESE	300	449	11.3	350	297	211	887	2,950	102	1,180	3.83	(<0.231)	5,190	73.7	80,1	512	580	(<0.91U)	(<0.9111)	
MERCURY	0.7	0.041	0.033	0.063	0.041	0.041	0.033	0.041	0.043	0.041	0.041	0.033	0.031	0.041	0.043	0.033	0.031	0.033	0.041	
NICKEL	100	2.7J	(<1.2611)	15.21	(<1.26U)	(<1.26U)	1.81	1.73	4.21	17.51	3.4J	(<1.261 (<1.26U)	15.03	19.83	5.13	4.91	(<1.2611)	(<1.2681)		
POTASSIUM	-	1,260	2,5001	4,980	6,040	966J	29,000	12,400	4,860	4,510	2,870/	10,600	2,7001	8,210	9,120	3,180	3,370	(<62113)	(<62113)	
SELENIUM	ID	(<4.08U3)	(<4.08111)	(<4.08U)	(<4.08111)	(<4.08U1)	(<4.08111)	(<4.08U3)	(<4.08U3)	(<4.08111)	(<4.08W)	(<4.08U)	(<4.08W)	(<4.08W)	(<4.08W)	(<4.08U)	(<4.08W)	(<4.08U1)	(<4.081)	
SILVER	50	(<0.74U)	1.11	(<0.74U)	(<0.74U)	(.40.74U)	4.51	(<0.74U)	(<3.931.1)	(<0.74U)	(<0.74U)	(<0.741 (<0.7411)	7.6/	5.01	10.01	(<0.74U)	(<0.74U)			
SODIUM	-	20,000	5,170	5,640	655,000	210,000	7,590	224,000	2,000,000	77,000	glisgo	e. 196,000	67,900	19,000	394,0001	417,000	461,000	432,000	1693	1873
THALLIUM	-	9.21	(<4.26U)	(<4.26U)	(<426U)	(<4.2611)	(<4.2611)	6,11	(<4.26U)	(<4.26U)	5.51	(<4.26U)	5.63	(<4.26U)	7.93	4.91	(<4.2611)	(<4.26U3)	(<426111)	
VANADIUM	--	(<0.83U)	0.871	(<5.07U)	(<0.83U)	(<0.83U)	(<5.07U)	(<5.07U)	(<5.0711)	(<5.07U)	(<5.07U)	(<0.831 (<0.83U)	(<0.83U)	(<5.07U)	(<5.07U)	(<5.0711)	(<5.07U)	(<5.0711)	(<5.07U)	
ZINC	-	8.81	71.0	26.2	5.3J	4.11	10.01	10.71	94.3	10.81	6.63	3.81	3.9J	26.6	26.2	10.1)	14.11	1.6.1	7.51	

TABLE A-3 (Continued) ANALYTICAL DATA SUMMARY FOR FILTERED GROUNDWATER SAMPLES COLLECTED 11-14 APRIL 2005 AT SELECT LANDFILLS

Analyte	AWQS	Camp Buckner Landfill	High School Landfill	Miehie Lot A	Michie Lot C	?Amine Lot D	Michie Lot E	Motor Pool East Landfill	Motor Pool Landfill	No. 706 Parking	Organic Compost Landfill	Post School Landfill	PX Landfill		Ski Lot Landfill		Field QA/QC Samples	
		CBMW-03	HSMW-01	LAMW-03	LCMW-03	LDMW-04	LEMW-04	MW 11-1	MP-4	MW48-01	OC-2	PS-4	PXMW-01	PXMW-01 (Dup)	SL-5	SL-5 (Dup)	FB-05 Field Blank	RB-05 Rinsate Blank
ALUMINUM	-	(<14.611)	16.73	77.41	(<14.611)	26.61	72.71	44.31	(<14.6U)	(<14.6U)	(<14.6U)	(<20.5U)	2633	(<20.5U)	63.6.1	(<20.511)	54.2J	57.63
ANTIMONY	3	0.46.1	1.2J	0.62.1	0.491	0.431	0.511	0.483	0.413	0.461	0.52.1	0.471	0.81	0.791	0.333	0.48J	0.473	0.741
ARSENIC	25	(<2.81U)	3.11	(<2.81U)	5.03	(<2.81U)	(<2.8111)	(<2.81U)	(<2.81U)	(<2.81U)	3.3J	(<2.81.1)	(<2.81U)	(2.81U)	(<2.81U)	(<2.811J)	(<2.811J)	(<2.81U)
BARIUM	1,000	79.3	62.8	49.5	66.1	18.4	273	38.3	34.3	54.2	65.6	34.5	70.5	65.6	99.2	101	(<0.511)	(<0.5U)
BERYLLIUM	-	0.223	(<0.22U)	(<0.22U)	0.473	0.48.1	(<0AU)	(<0.4U)	(<02213)	(<0.22U)	0.261	(<0.4U)	(<0.2211)	(<0.4U)	(<0.411)	(<0.22U)	(<0.22U)	(<0.22U)
CADMIUM	5	(<0.41U)	(<0.41U)	(<0.411J)	(<0.41U)	(<0.41U)	(<2.29111)	(<2.29U3)	(<0.41U)	(<0.41U)	(<0.41U)	(<2.29133)	(<0.41U)	(<2.29U3)	(<2.291.1)	(<2.29 UJ)	(<0.41U)	(<0.41U)
CALCIUM	--	82,700	52,400	61,300	69,200	12,800	166,000	48,200	119,000	47,300	118,000	108,000	73,200	70,600	82,300	85,800	(<15.911)	36.91
CHROMIUM	50	(<1.0413)	(<1.0133)	2.51	(<1.0U.1)	(<1.0131)	2.61	1.83	(<1.0UJ)	(<1.01.1.1)	(< LOW)	2.61	2.4J	2.03	1.43	1.41	(<1.0U)	(<1.0U)
COBALT	-	(<1.1913)	(<1.19U)	16.31	3.51	2.73	3.23	1.63	18.21	(<1.19U)	(<1.19U)	1.71	1.21	(<1.19U)	(<1.19U)	(<1.191.1)	(<1.19U)	(<1.19U)
COPPER	200	(<1.16U)	(<1.16U)	(<1.16U.1)	(<1.16U)	(<1.1611)	(<2.52U)	(<2.52U)	(<1.16111)	(<1.16U.1)	(<1.16U)	(<2.52U)	4.71	10.33	(<2.52U)	(<2.5211)	(<1.16813)	(<1.16U)
IRON	300	277	(<21.4U)	(<21.4U)	<b>10,700.</b>	<b>40,800</b>	67.10	22.21	(<21.413)	(<21.413)	(<21.41.1)	...,32,100	(<21.4U)	56.73	1,360	1,350	(<21.4U)	(<21.411)
LEAD	25	(<2.07U)	(<2.07U)	(<2.0711)	(<2.07U)	(<2.07U)	(<2.07U)	(<2.07U)	(<2.07U)	2.41	(<2.0711)	(<2.07U)	(<2.07U)	(<2.0713)	(<2.071)	(<2.07U)	(<2.07U)	(<2.07U)
MAGNESIUM	-	14,500	4,560	14,500	13,600	2,840	51,800	5,740	<b>40,400</b>	7,120	19,700	17,000	10,800	10,900	12,800	12,800	(<7.99U)	9.11
MANAGANESE	300	323	0.921	244	285	204	.918	2.51	<b>1.290</b>	1.1	(<0.23U)	A.490	75.2	72.5	505	516	(<0.91U)	(<0.91U)
MERCURY	0.7	0.041	0.043	0.051	0.041	0.031	(<0.0213)	0.03.1	(<0.02U)	0.043	0.021	0.031	0.041	0.041	0.03J	0.041	0.041	0.043
NICKEL	100	(<1.26U)	(<1.26U)	9.81	(<1.26U)	(<1.2613)	1.31	3.7.1	9.31	2.11	(<1.26U)	(<1.2611)	8.9)	10.71	6.73	4.67	(<1.26U)	(<1.26U)
POTASSIUM	-	1,5001	2,9203	5,090	5,890	(<621U)	30,100	4,850	3,860	3,4103	10,700	3,0203	8,970	8,750	3,420	2,820	(<621U)	(<621U)
SELENIUM	10	(<4.08UJ)	(<4.08U1)	(<4.0811J)	(<4.081.1)	(<4.08111)	(<4.08111)	(<4.08U1)	(<4.08UJ)	(<4.08133)	(<4.08111)	(<4.081.1)	(<4.08111)	(<4.08111)	(<4.08U)	(<4.0801)	(<4.08U1)	(<4.081.1)
SILVER	50	(<0.74U)	(<0.74U)	(<0.74U)	(<0.74U)	(<0.74U)	(<3.9311)	4.11	(<0.74U)	(<0.7413)	0.961	(<3.93U)	(<0.74U)	5.21	8.13	8.13	(<0.74U)	(<0.74U)
SODIUM	20,000	4,970	5,870	<b>617,000</b>	<b>201,000</b>	7,520	232,000	<b>78,900</b>	<b>97,700</b>	<b>200,000</b>	<b>67,400</b>	<b>18,800</b>	<b>452,000J.</b>	<b>413,000</b>	<b>431,000</b>	<b>442,000</b>	2081	2001
THALLIUM	-	(<4.26U)	(<4.26U)	5.81	(<4.26U)	7.61	(<426U)	(<4.26U)	(<4.26U)	6.01	10.81	(<4.26U)	(<4.26U)	(<4.26U)	11.01	(<4.26U)	(<4261.3)	(<426U1)
VANADIUM	-	(<0.83U)	(<0.83U)	(<0.507U)	(<0.83U)	(<0.83U)	(<5.07U)	(<5.07U)	(<5.0711)	(<5.0711)	(<0.83U)	(<5.0711)	(<5.0711)	5.31	(<5.07U)	(<5.0711)	(<5.0711)	(<5.07U)
ZINC	-	4.91	70.5	15.5)	6.51	3.4J	5.21	9.01	6.2J	5.0.1	6.0.1	5.01	20.9	20.71	9.93	11.51	3.01	3.73



---

**ATTACHMENT B**  
**DATA VALIDATION REPORT**

---

## Laboratory Analytical Data Validation

**Site:** WPTST-11  
**Date Completed:** 12/29/2015  
**Submitted by:** Chemists Linda Adams and Gretchen Fodor  
**Sample Collection Date(s):** 09/21/2015, 09/22/2015, 09/23/2015  
**TestAmerica Project Number(s) (LPN):** 280-74684-1 and 280-74684-4

This data validation memo describes the validation of fourteen groundwater samples and two field blanks collected on September 21, 22, and 23, 2015 by Weston Solutions, Inc. (WESTON) and analyzed for volatile organic compounds (VOCs) via SW-846 Method 8260B, organochlorine pesticides via SW-846 Method 8081A, and/or total and dissolved metals via SW-846 Methods 6010C and 7470A at TestAmerica Laboratories in Denver, Colorado as sample delivery group (SDG) 280-74684-1 and 280-74684-4. Samples included as part of this validation are listed below:

Sample ID	Date Collected	Lab ID	VOC 8260B	Pesticides 8081A	Total Metals 6010C/7470A	Dissolved Metals 6010C/7470A
WSTPT-06-LEMW-04	09/21/2015	280-74684-1			X	X
WSTPT-02-LAMW-03	09/21/2015	280-74684-2			X	X
WSTPT-07A-LF-1	09/21/2015	280-74684-3			X	X
WSTPT-05-LDMW-04	09/21/2015	280-74684-4			X	X
WSTPT-04-LCMW-03	09/22/2015	280-74684-5			X	X
WSTPT-16-OC-5	09/22/2015	280-74684-6			X	X
WP11-MPLE-1-092215	09/22/2015	280-74684-7	X	X	X	X
WP11-MP-2-092215	09/22/2015	280-74684-8	X		X	X
WP11-MP-2-092215-DUP	09/22/2015	280-74684-9FD	X		X	X
WP11-MP-3-092215	09/22/2015	280-74684-10	X		X	X
WP11-MP-4-092215	09/22/2015	280-74684-11	X		X	X
WSTPT-10-PS-4	09/22/2015	280-74684-12			X	X
WSTPT-09-SL-5	09/23/2015	280-74684-13			X	X
WSTPT-35-CBMW-03	09/23/2015	280-74684-14			X	X
WQTB01-092215	09/22/2015	280-74684-15TB	X			
WQEB01-092215	09/22/2015	280-74684-16EB	X		X (6010C only)	

### Data Qualification Summary Tables

Data validation qualifiers were applied to the following samples and results were reported at the Limit of Quantitation (LOQ):

Sample ID	Date Sampled	TestAmerica, Denver	
		<i>Lab ID</i>	<i>VOC 8260B</i>
WP11-MPLE-1-092215	09/22/2015	280-74684-7	U: methylene chloride
WP11-MP-2-092215	09/22/2015	280-74684-8	U: methylene chloride
WP11-MP-2-092215-DUP	09/22/2015	280-74684-9FD	U: methylene chloride
WP11-MP-3-092215	09/22/2015	280-74684-10	U: methylene chloride
WP11-MP-4-092215	09/22/2015	280-74684-11	U: methylene chloride
WQEB01-092215	09/22/2015	280-74684-16EB	U: methylene chloride

Sample ID	Date Sampled	TestAmerica, Denver	
		<i>Lab ID</i>	<i>Metals 6010C/7470A</i>
WSTPT-02-LAMW-03	09/21/2015	280-74684-2	U: dissolved boron
WSTPT-07A-LF-1	09/21/2015	280-74684-3	U: dissolved boron
WSTPT-05-LDMW-04	09/21/2015	280-74684-4	U: dissolved boron
WSTPT-04-LCMW-03	09/22/2015	280-74684-5	U: dissolved boron
WSTPT-16-OC-5	09/22/2015	280-74684-6	U: dissolved boron, dissolved iron, and dissolved manganese
WP11-MPLE-1-092215	09/22/2015	280-74684-7	U: dissolved boron
WP11-MP-2-092215-DUP	09/22/2015	280-74684-9FD	U: dissolved iron
WP11-MP-3-092215	09/22/2015	280-74684-10	U: dissolved boron
WSTPT-10-PS-4	09/22/2015	280-74684-12	U: dissolved boron
WSTPT-09-SL-5	09/23/2015	280-74684-13	U: dissolved boron
WSTPT-35-CBMW-03	09/23/2015	280-74684-14	U: dissolved boron
WQEB01-092215	09/22/2015	280-74684-16	U: total silver and total sodium

Validation was conducted according to this hierarchy of validation guidance: Department of Defense (DoD) Quality Systems Manual for Environmental Laboratories, version 4.2 (QSM 4.2), October 2010 (DoD, 2010), United States Environmental Protection Agency (USEPA) Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA, 2008), and USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (USEPA, 2010). The site Quality Assurance Project Plan (QAPP) (WESTON, 2013) and analytical methods were also consulted during the data validation.

#### Data Validation Detail:

- **Data Package Completeness**

The Level IV data package was reviewed to make certain that it contained the data contractually required in the deliverable. This included checking the data package for the results of each analyte requested for each field sample submitted in the analytical batch, along with requested quality control (QC) documentation for the method.

The following issues were noted during the review of the data package:

- Upon receipt of the data package, it was determined that equipment blank sample WQEB01-092215 was inadvertently not requested for metals analysis on the chain-of-custody (COC). By the time that the error was discovered, the holding time for mercury had expired but the holding time for metals by inductively-coupled plasma (ICP) was still achievable. WESTON requested that the equipment blank be only analyzed for ICP metals; the sample was relogged in for analysis and reported under TestAmerica Denver report 280-74684-4. Two metals, silver and sodium, were detected in equipment blank sample WQEB01-092215. For the purposes of data validation, the equipment blank data package was reviewed only for method blank and instrument blank contamination for silver and sodium and qualified on that basis, as described in the appropriate section below.
- The raw data and the Form 5 for the 4-Bromofluorobenzene (BFB) tune analyzed July 8, 2015 at 14:48 on instrument VMS\_Z was missing from the data package. WESTON contacted the laboratory regarding this discrepancy. The tuning information was provided in the resubmitted data package. No further action was needed.

- The total and dissolved boron and selenium raw data for the analytical run analyzed 10/17/2015 on instrument MT\_026 was missing from the data package. The laboratory inadvertently included 6020A raw data for an analytical run analyzed 10/15/2015, which was not associated with this data package. WESTON contacted the laboratory regarding these discrepancies. The laboratory resubmitted the data package removing the 6020A data and adding the missing ICP boron and selenium data. No further action was needed.

- **Laboratory Case Narrative/Cooler Receipt Form**

Issues were noted in the review of the chain-of-custody (COC) documentation, case narrative, and sample receiving documents:

- Two of four coolers were received slightly below the acceptance criteria. Based on professional judgment, no validation action was taken due to low temperature since the samples were received not frozen.
- Total and Dissolved metals were not analyzed for WSTPT-01-PXMW-01 since the laboratory narrated that no volume was received.
- The laboratory narrated that the container labels for samples WSTPT-06-LEMW-04, WSTPT-02-LAMW-03, WSTPT-07A-LF-1, and WSTPT-05-LDMW-04 listed a collection date of 9/22/2015 however, the COC indicated that the collection date for these samples was 9/21/2015. Based on communications with WESTON, these samples were logged as per the COC. No validation action was taken on this basis.
- Samples WP11-MPLE-1-092215, WP11-MP-2-092215, WP11-MP-3-092215, and WP11-MP-4-092215 were listed on the COC twice for total and dissolved metals. Based on communications with WESTON, these samples were logged only once for total and dissolved metals. No validation action was taken on this basis.

- **Holding Times, Storage, and Preservation**

Review of the sample collection and analysis dates involved comparing the COC, the summary forms, and the data report for holding time compliance. Samples for the analyses validated were received correctly, intact, and properly preserved. All samples were prepared and analyzed within the turnaround time required by the project.

- **Instrument Performance Check**

- VOC

The instrument met all applicable performance check requirements. The instrument performance check included verification of 4-Bromofluorobenzene (BFB) tunes for VOCs. Samples were analyzed within 12 hours of the BFB tunes.

- **Initial Calibration (ICAL)/Initial Calibration Verification (ICV)**

VOC

ICAL and ICV acceptance criteria for relative response factors (RRFs), percent relative standard deviations (%RSD), the correlation coefficients (r) and/or coefficient of determinations ( $r^2$ ) were met for all compounds.

Pesticides

The percent breakdown of endrin and 4,4'-DDT in the performance evaluation checks met the DoD QSM 4.2 acceptance criteria of  $\leq 15\%$ .

A six-point ICAL was analyzed. ICAL acceptance criteria for the coefficient of determination ( $r^2$ ) were met for all compounds per DoD QSM 4.2.

- **Continuing Calibration Verification (CCV)**

VOC

CCV acceptance criteria for RRFs and percent differences or percent drifts (%Ds) were met for all compounds.

Pesticides

The percent breakdown of endrin and 4,4'-DDT in the performance evaluation checks met the DoD QSM 4.2 acceptance criteria of  $\leq 15\%$ .

The laboratory analyzed a mid-point calibration standard for toxaphene and all single component pesticides. The %Ds were met for all the single component pesticides as per DoD QSM 4.2. The average %D of toxaphene was met.

Metals

Initial calibration was performed for methods 6010C and 7470A per DoD QSM 4.2.

The laboratory analyzed mid-level ICVs and CCVs as well as low-level ICVs and CCVs required by SW-846 Method 6010C. The concentration of the target analytes in the mid-level ICVs and CCVs were at the same concentration as the standard used in the ICAL while the concentration of the target analytes in the low-level ICVs and CCVs were at or below the LOQ. The percent recoveries (%R) of all target analytes in the mid-level ICVs and CCVs were within DoD QSM 4.2 limits of 90-110%. The percent recoveries of all target analytes in the low-level ICVs and CCVs were within the SW-846 Method 6010C and laboratory's SOP criteria of 70-130% with the following exceptions.

Date and Time Analyzed	Analyte	%R	Associated Samples	Sample Qualifications
10/08/2015 16:44	Iron	141%	Dissolved Metals WP11-MPLE-1-092215	Qualification of the data was not required since iron was detected at a concentration above the LOQ.
10/08/2015 17:04	Iron	139%		

CCVL = Continuing calibration verification low-level

Per DoD QSM 4.2, the laboratory analyzed low-level check samples [Contract-Required Quantitation Level (CRQL) check standards] that were associated with all samples. All target analytes were spiked in the low-level check samples and all criteria met the limits of 80-120%R specified in DoD QSM 4.2.

- **Method Blank and Field Blanks**

VOC

Target analytes were not detected in trip blank WQTB01-092215. Methylene chloride was detected below the LOQ in the laboratory method blank associated with samples WP11-MPLE-1-092215, WP11-MP-2-092215, WP11-MP-2-092215-DUP, WP11-MP-3-092215, WP11-MP-4-092215, and equipment blank WQEB01-092215; 1,2,3-trichlorobenzene was detected below the Limit of Detection (LOD) in the laboratory method blank associated with trip blank WQTB01-092215.

The following table summarizes the VOC contamination detected and sample qualifications based on blank actions.

Blank Type or ID (QC Batch No.)	Compound	Conc. (µg/L)	Associated Samples	Sample Qualifications
MB 280-297307/6 Analyzed 10/01/2015	1,2,3-trichlorobenzene	0.278 J	WQTB01-092215	None; 1,2,3-trichlorobenzene was not detected in trip blank WQTB01-092215.
MB 280-297679/6 Analyzed 10/02/2015	methylene chloride	1.12 J	WP11-MPLE-1-092215 WP11-MP-2-092215 WP11-MP-2-092215-DUP WP11-MP-3-092215 WP11-MP-4-092215 WQEB01-092215	WP11-MPLE-1-092215, WP11-MP-2-092215, WP11-MP-2-092215-DUP, WP11-MP-3-092215, WP11-MP-4-092215, and WQEB01-092215: methylene chloride was reported as non-detected (U) and the detection limit was raised to the LOQ.

MB = Laboratory Method Blank

LOQ = Limit of Quantitation

µg/L = micrograms per liter

Pesticides

Target analytes were not detected the method blank. The equipment blank was not analyzed for pesticides. Data qualifiers were not applied.

Metals

The equipment blank was inadvertently not requested for metals on the COC and, upon receipt of the data package, the error on the COC was discovered (i.e., the analysis was not requested on the COC for metals for equipment blank sample WQEB01-092215). WESTON subsequently requested analysis by ICP metals only. The mercury holding time had expired by the time the error was discovered, therefore the equipment blank was not analyzed for mercury. The equipment blank metals results were reported in SDG 280-74684-4 and a Stage 2A level of validation was performed for the equipment blank sample package.

Several target analytes were detected in the laboratory method preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with the groundwater

Former Motor Pool Landfill (WPTST-11 and WP11), West Point, New York  
Groundwater Data Validation  
September 2015

samples. The following table summarizes laboratory method blank contamination and sample qualifications applied based on method blank actions.

Blank Type or ID (QC Batch No.)	Analyte	Conc. (µg/L)	Associated Samples	Sample Qualifications
MB (280-297176/1-A)	Barium	0.68 J	<u>Dissolved Metals</u> WP11-MPLE-1-092215	None
MB (280-304772/1-A)	Sodium	149 J	<u>Total Metals</u> WQEB01-092215	WQEB01-092215: The total sodium results were raised to the LOQ and qualified as U.
MB (280-303640/1-A)	Silver	2.17 J	<u>Total Metals</u> WQEB01-092215	WQEB01-092215: The total silver results were raised to the LOQ and qualified as U.
MB (280-297263/1-A)	Iron	34.2 J	<u>Dissolved Metals</u> WSTPT-06-LEMW-04 WSTPT-02-LAMW-03 WSTPT-07A-LF-1 WSTPT-05-LDMW-04 WSTPT-04-LCMW-03 WSTPT-16-OC-5 WP11-MPLE-1-092215 WP11-MP-2-092215 WP11-MP-2-092215-DUP WP11-MP-3-092215 WP11-MP-4-092215 WSTPT-10-PS-4 WSTPT-09-SL-5 WSTPT-35-CBMW-03	WSTPT-16-OC-5 and WP11-MP-2-092215-DUP: The dissolved iron results were raised to the LOQ and qualified as U.  <i>(Dissolved iron results were not detected or equal to or exceeded the LOQ in the remaining samples. No qualifiers applied.)</i>
	Manganese	0.520 J		WSTPT-16-OC-5: The dissolved manganese result was raised to the LOQ and qualified as U.  <i>(Dissolved manganese results were not detected or equal to or exceeded the LOQ in the remaining samples. No qualifiers applied.)</i>
	Boron	5.11 J		WSTPT-02-LAMW-03, WSTPT-07A-LF-1, WSTPT-05-LDMW-04, WSTPT-04-LCMW-03, WSTPT-16-OC-5, WP11-MP-3-092215, WSTPT-10-PS-4, WSTPT-09-SL-5, and WSTPT-35-CBMW-03: The dissolved boron results were raised to the LOQ and qualified as U.  <i>(Dissolved boron results were not detected or equal to or exceeded the LOQ in the remaining samples. No qualifiers applied.)</i>

The following table summarizes laboratory instrument blank contamination and sample qualifications applied based on instrument blank actions.

Blank Type or ID (QC Batch No.)	Analyte	Conc. (µg/L)	Associated Samples	Sample Qualifications
CCB Analyzed 10/17/2015 at 18:02	Boron	6.79 J	<u>Dissolved Metals</u> WSTPT-06-LEMW-04 WSTPT-02-LAMW-03 WSTPT-07A-LF-1 WSTPT-05-LDMW-04 WSTPT-04-LCMW-03 WSTPT-16-OC-5 WP11-MP-2-092215	WSTPT-02-LAMW-03, WSTPT-07A-LF-1, WSTPT-05-LDMW-04, WSTPT-04-LCMW-03, WSTPT-16-OC-5 – The dissolved boron results were raised to the LOQ and qualified as U.  WSTPT-06-LEMW-04 and WP11-MP-2-092215 – The dissolved boron result exceeded the LOQ. No qualifiers applied.
CCB Analyzed 10/08/2015 at 16:42	Boron	5.32 J	<u>Dissolved Metals</u> WP11-MPLE-1-092215	The dissolved boron result was raised to the LOQ and qualified as U.

Former Motor Pool Landfill (WPTST-11 and WP11), West Point, New York  
Groundwater Data Validation  
September 2015

Blank Type or ID (QC Batch No.)	Analyte	Conc. (µg/L)	Associated Samples	Sample Qualifications
	Sodium	172 J		None
CCB Analyzed 10/14/2015 at 19:49	Sodium	208 J	<u>Dissolved Metals</u> WSTPT-35-CBMW-03	None
CCB Analyzed 10/16/2015 at 17:46	Sodium	161 J	<u>Dissolved Metals</u> WSTPT-06-LEMW-04 WSTPT-02-LAMW-03 WSTPT-07A-LF-1 WSTPT-05-LDMW-04 WSTPT-04-LCMW-03 WSTPT-16-OC-5 WP11-MP-2-092215 WP11-MP-2-092215-DUP WP11-MP-3-092215 WP11-MP-4-092215 WSTPT-10-PS-4 WSTPT-09-SL-5	None

CCB = Continuing Calibration Blank  
U = Undetected

LOQ = Limit of Quantitation  
µg/L = micrograms per liter

- **Surrogate Spikes**

VOC

Surrogates were added to all samples and QC samples as required by the analytical method. All surrogate recoveries met the required QC criteria.

Pesticides

Surrogates were added to all samples and QC samples as required by the analytical method. All surrogate recoveries met the required QC criteria.

- **Matrix Spike/Matrix Spike Duplicates (MS/MSD)**

VOC

MS/MSD analyses were performed on sample WP11-MP-4-092215 in association with these field samples. All target analyte recoveries and RPDs were compared to the QAPP and the DoD QSM 4.2. All percent recoveries and RPDs were within the acceptance criteria in the MS/MSD analyses. Data validation qualifiers were not required.

Pesticides

MS/MSD analyses were not performed on the sample analyzed for pesticides in this data set. Data validation qualifiers were not required.

Metals

MS/MSD analyses were performed on total and dissolved mercury sample WP11-MPLE-1-092215 and WP11-MP-4-092215 in association with these field samples. All target analyte recoveries and RPDs were compared to the QAPP and the DoD QSM 4.2 with the



exceptions of boron and tin which were not listed in the QAPP or QSM DoD 4.2. The laboratory reported the laboratory's in-house limits for boron and tin.

All percent recoveries and RPDs were within the acceptance criteria in the MS/MSD analyses for total and dissolved sample WP11-MPLE-1-092215 and WP11-MP-4-092215.

The percent recovery of manganese (65%R) fell below the laboratory's acceptance criteria in the post-digestion spike of dissolved metals sample WP11-MP-4-092215. Qualification of the sample data on this basis was not required because the MS and MSD recoveries were within QC limits.

- **Laboratory Control Sample (LCS)**

All LCS recoveries were within the QAPP and the DoD QSM 4.2 acceptance criteria.

- **Field Duplicates**

VOC

Field duplicate samples WP11-MP-2-092215 and WP11-MP-2-092215-DUP were submitted as the field duplicate samples with this SDG. Methylene chloride was detected in field duplicate samples WP11-MP-2-092215 and WP11-MP-2-092215-DUP, however the detection limit for methylene chloride in these samples was raised to the LOQ and reported as non-detected (U) based on laboratory blank contamination. VOC field duplicate precision was deemed acceptable.

Pesticides

Field duplicate samples were not submitted with the sample in this data set, so no validation qualifiers were applied.

Metals

Precision is evaluated by calculating the RPD between the field duplicate results. The EPA National Functional Guidelines (NFG) have not established acceptance criteria for field duplicate precision, however, the QAPP specifies an RPD acceptance criteria of  $\leq 30\%$  when both sample results are greater than the LOQ. Additionally, based on professional judgment, the control limit used when either or both field duplicate samples contained analytes at concentrations less than five times the LOQ was  $\pm 2x$  LOQ.

Former Motor Pool Landfill (WPTST-11 and WP11), West Point, New York  
Groundwater Data Validation  
September 2015

Field duplicate total metals and dissolved metals results are summarized in the table below. Results qualified due to laboratory or field blank actions were not listed in the table. All criteria were met for field duplicate samples.

Analyte	WP11-MP-2-092215 Sample Conc. (µg/L)	WP11-MP-2-092215-DUP Field Duplicate Conc. (µg/L)	RPD	Action
Arsenic, Total	7.0 J	6.2 J	12	A
Arsenic, Dissolved	8.1 J	6.8 J	17	A
Barium, Total	120	120	9	A
Barium, Dissolved	110	120	9	A
Boron, Total	110	120	0	A
Boron, Dissolved	110	110	9	A
Calcium, Total	150,000	140,000	7	A
Calcium, Dissolved	140,000	150,000	7	A
Cobalt, Total	2.3 J	2.2 J	4	A
Cobalt, Dissolved	1.2 J	1.2 J	0	A
Copper, Total	2.1 J	2.4 J	13	A
Copper, Dissolved	1.6 J	2.7 J	51	A*
Iron, Total	44 J	35 J	23	A
Magnesium, Total	37,000	35,000	6	A
Magnesium, Dissolved	38,000	41,000	8	A
Manganese, Total	340	310	9	A
Manganese, Dissolved	220	240	9	A
Nickel, Total	2.6 J	2.8 J	5	A
Nickel, Dissolved	2.5 J	2.6 J	4	A
Selenium, Total	19 U	4.9 J	NC	A*
Potassium, Total	3800	3700	3	A
Potassium, Dissolved	3400	3600	6	A
Sodium, Total	130,000	130,000	0	A
Sodium, Dissolved	130,000	140,000	7	A
Thallium, Dissolved	8.4 J	6.2 J	30	A
Thallium, Total	8.5 J	9.9 J	15	A
Zinc, Total	6.7 J	15 U	NC	A*
A – Accept results without qualification A* - Accept since sample and duplicate results $\leq 5x$ the LOQ. NC – Not calculable µg/L = micrograms per liter				

- **Internal Standards**

VOC

All QC criteria were met for Internal Standards (IS) in all calibrations and field samples.

- **ICP Interference Check Samples**

Metals

Although Method 6010C only requires the analysis of an Interference Check Sample A (ICSA) solution and does not require the analysis of an Interference Check Sample AB (ICSAB) solution, the laboratory analyzed both an ICSA and an ICSAB as required by the QAPP and DoD QSM 4.2. The ICSA and ICSAB were analyzed at the proper frequency.

The ICSAB solution contained all target analytes of interest. Recoveries for the analytes of interest were within QAPP and DoD QSM 4.2 laboratory acceptance limits in the ICSAB analyses.

The ICSA solution associated with all total sample analyses contained chromium and manganese and the ICSA solution associated with all dissolved sample analyses contained manganese at a concentration which exceeded the QAPP and DoD QSM 4.2 criteria of <LOD. The laboratory narrated that antimony, manganese, and vanadium were confirmed to be trace impurities in the ICSA solution as noted by the ICSA vendor. No qualifications were applied since the concentration of the interferents (aluminum, calcium, iron, and magnesium) in all sample analyses were less than the concentration of interferents found in the ICSA solution.

- **Serial Dilution Results**

Metals

Serial dilution analyses were performed on total and dissolved sample WP11-MP-4-092215 for all analytes and on sample WP11-MPLE-1-092215 for total and dissolved mercury and dissolved thallium in association with these field samples. The percent differences of all target analytes which exceeded the LOQ by a factor of 50 were within the SW-846 Method 6010C acceptance criteria of <10% difference. No data qualifiers were applied.

- **Target Analyte Identification and Quantitation**

VOC

Target compound identification followed the analytical method. Retention times and mass spectra were consistent with the analytical standards. The LOQs are consistent with the LOQs listed in the QAPP. Dilutions were not required for any of the samples and therefore all LOQs, LODs, and Detection Limits (DLs) were not affected.

Non-detected results were reported to the LOD in accordance with DoD QSM 4.2. The laboratory also reported the LOQ for each analyte on the sample result sheet (Form 1). The laboratory reported target analytes, which were qualitatively identified at concentrations below the LOQs with a “J” qualifier to indicate that the result is estimated as required by DoD QSM 4.2. The “J” qualifier was retained by the validator.

### Pesticides

Target compound identification followed the analytical method. Retention times were consistent with the analytical standards. The LOQs are consistent with the LOQs listed in the QAPP. Dilutions were not required for sample WP11-MPLE-1-092215 and therefore all LOQs, LODs, and DLs were not affected.

Non-detected results were reported to the LOD in accordance with DoD QSM 4.2. The laboratory also reported the LOQ for each analyte on the sample result sheet (Form 1). Target analytes were not detected in sample WP11-MPLE-1-092215.

### Metals

The LOQs are consistent with the LOQs listed in the QAPP. Dilutions were not required for any of the samples and therefore all LOQs, LODs, and DLs were not affected.

Non-detected results were reported to the LOD in accordance with DoD QSM 4.2. The laboratory also reported the LOQ for each analyte on the sample result sheet (Form 1). The laboratory reported target analytes, which were qualitatively identified at concentrations below the LOQs, with a “J” qualifier to indicate that the result is estimated as required by DoD QSM 4.2. The “J” qualifier was retained by the validator.

## **Overall Evaluation**

Trace levels of methylene chloride were reported above the DL but below the LOD in five groundwater samples and above the LOD but below the LOQ in the equipment blank. The methylene chloride results were qualified as non-detected (U) at the LOQ for the five groundwater samples and the equipment blank.

Trace levels of barium, boron, iron, manganese, silver, and sodium were reported above the DL in the laboratory method blanks. The detection limits were raised to the LOQ and were reported as non-detected (U) in two groundwater samples for dissolved iron; in one groundwater sample for dissolved manganese; and in ten groundwater samples for dissolved boron. The detection limits were raised to the LOQ and were reported as non-detected (U) for silver and sodium in the equipment blank.

### Data Validation Qualifiers

Validation Qualifier	Definition
J	The reported positive result is considered estimated, because the result is less than the LOQ or because certain quality control criteria were not met.
U	The analyte was not detected and is reported as less than the LOD or as defined by the client.
UJ	The analyte was not detected in the sample. The LOD (or LOQ) should be considered estimated and may be inaccurate or imprecise.
R	The result for this analyte is unusable. The analyte may or may not be present.

### References

U.S. Department of Defense (DoD). DoD Quality Systems Manual for Environmental Laboratories, Version 4.2, October, 2010. (DoD, 2010).

U.S. Environmental Protection Agency (USEPA). USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June, 2008. (USEPA, 2008).

USEPA Contract Laboratory Program (USEPA), National Functional Guidelines for Superfund Inorganic Superfund Data Review (USEPA, 2010).

Weston Solutions, Inc. (WESTON). Uniform Federal Policy Quality Assurance Project Plan, Annual Monitoring at Former Motor Pool Landfill (WPTST-11) United States Military Academy, West Point, New York, Version 00, June 2013. (WESTON, 2013)

## Laboratory Analytical Data Validation

**Site:** WPTST-11  
**Date Completed:** 1/17/2017  
**Review by:** Tara Lambert  
**QA Review by:** Gretchen Fodor  
**Sample Collection Date(s):** 10/25/2016 and 10/26/2016  
**TestAmerica Project Number:** 280-90206-1 (Rev. 2)

This data validation memo describes the validation of five groundwater samples, one equipment rinsate blank, and one trip blank. Samples were collected on October 25 and 26, 2016 by Weston Solutions, Inc. (WESTON). Analyses included Volatile Organic Compounds (VOCs) and Total and Dissolved Metals, and Total Hardness by the U.S. Environmental Protection Agency (EPA) methods and Standard Methods (SM) indicated in the table below. Other general chemistry parameters included ammonia (EPA 350.1), Total Kjeldahl Nitrogen (TKN) (EPA 351.2), Chemical Oxygen Demand (COD) (EPA 410.4), Total Cyanide (EPA 9012B), Total Sulfide (EPA 9034), Total Organic Carbon (TOC) (EPA 9060A), Total Phenols (EPA 9066), Alkalinity (SM2320B), and Total Dissolved Solids (TDS) (SM2540C).

Samples were analyzed by TestAmerica Laboratories located in Denver, Colorado and reported as sample delivery group (SDG) 280-90206-1. Samples included as part of this validation are listed below:

Sample ID	Date Sampled	TestAmerica Denver Lab ID	VOC 8260B	<i>Total and Dissolved TAL Metals + Boron and Tin 6010C/7470A</i>	<i>Total Hardness SM2340C</i>	<i>General Chemistry</i>
WP11-MP-4-102516	10/25/2016	280-90206-1	X	X	X	X
WP11-MP-3-102516	10/25/2016	280-90206-2	X	X	X	X
WP11-MP-2-102516	10/25/2016	280-90206-3	X	X	X	X
WP11-MP-2-102516 DUP	10/25/2016	280-90206-4	X	X	X	
WP11-WQTB01-102516	10/25/2016	280-90206-5	X			
WP11-WQEB01-102516	10/25/2016	280-90206-6	X	X	X	
WSTPT-01-PXMW-01	10/26/2016	280-90206-7		X	X	

X – Analysis performed

**Data Qualification Summary Table**

The following data validation qualifiers were applied to field sample data based on WESTON's data review.

Sample ID	Date Sampled	TestAmerica, Denver Lab ID	Data Qualifiers
WP11-MP-4-102516	10/25/2016	280-90206-1	U: methylene chloride U: total iron U: dissolved potassium U: COD UJ: Total phenols
WP11-MP-3-102516	10/25/2016	280-90206-2	U: methylene chloride U: COD J: Total and dissolved calcium J: Total and dissolved magnesium J: Total and dissolved manganese J: Total and dissolved sodium
WP11-MP-2-102516	10/25/2016	280-90206-3	U: methylene chloride U: total iron U: dissolved arsenic U: COD
WP11-MP-2-102516 DUP	10/25/2016	280-90206-4	U: methylene chloride U: total iron
WP11-WQTB01-102516	10/25/2016	280-90206-5	U: methylene chloride
WP11-WQEB01-102516	10/25/2016	280-90206-6	U: methylene chloride U: total sodium U: dissolved sodium

Validation was conducted according to this hierarchy of validation guidance: Department of Defense (DoD) Quality Systems Manual for Environmental Laboratories, v. 4.2 (QSM 4.2), October 2010 (DoD, 2010), United States Environmental Protection Agency (USEPA) Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA, 2008), and USEPA Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Superfund Data Review (USEPA, 2010). The site Quality Assurance Project Plan (QAPP) (WESTON, 2013) and analytical methods were also consulted during the data validation. Sample results with data validation qualifiers are provided on Tables 1 through 3 as an attachment to this data validation memo.

**Data Validation Detail:**

- **Data Package Completeness and Correctness**

The Level IV data package was reviewed to make certain that it contained the data required in the deliverable. This included checking the data package for the results of each analyte requested for each field sample submitted in the analytical batch, along with requested quality control (QC) documentation for the method.

The following issues were noted during the review of the data package:

- The results for one VOC analyte, dichlorofluoromethane, were not reported on the laboratory control sample (LCS) and matrix spike/matrix spike duplicate (MS/MSD) forms in the original report. Based on a review of the raw data, these analytes were spiked. The laboratory was contacted regarding this discrepancy and resubmitted Revision 1 of the data package with the corrected forms. No validation action was taken on this basis.
- The field sample identifier (ID) for the equipment blank was incorrectly listed as WP11-WQEB01-102616 in the original report. The field sample ID was corrected to WP11-WQEB01-102516 in Revision 2 of the data package.
- The laboratory was asked to investigate why dissolved metals results for calcium, magnesium, manganese, potassium, and sodium were significantly higher than total metals results for these analytes in sample WP11-MP-3-102516. The resolution of this issue is discussed in the Target Analyte Identification and Quantitation section below.

- **Laboratory Case Narrative/Cooler Receipt Form**

Samples were received in two coolers. Other than issues noted in the sections of this data validation report below, there were no other significant issues noted in the review of the chain-of-custody (COC) documentation, case narrative, and sample receiving documents that affected data quality.

- **Holding Times, Storage, and Preservation**

Review of the sample collection and analysis dates involved comparing the chain-of-custody, the summary forms, and the data report for holding time compliance. Samples for the analyses validated were received correctly, intact, and properly preserved. All samples were prepared and analyzed within the turnaround time required by the project.

- **Instrument Performance Check**

VOC

The instrument met all applicable performance check requirements. The instrument performance check included verification of 4-Bromofluorobenzene (BFB) tunes for VOCs. Samples were analyzed within 12 hours of the BFB tunes.

- **Initial Calibration (ICAL)/Initial Calibration Verification (ICV)**

VOC

ICAL and ICV acceptance criteria for relative response factors (RRFs), percent relative standard deviations (%RSD), and/or correlation coefficients (r) were met for all analytes.



### Metals

Initial calibration was performed for Methods 6010C and 7470A as per DoD QSM 4.2. The laboratory analyzed high-level ICVs for aluminum, iron, and sodium, and mid-level ICVs well as low-level ICVs for all target analytes required by Method 6010C. The concentration of the target analytes in the mid-level ICVs were at the same concentration as the standard used in the ICAL while the concentration of the target analytes in the low-level ICVs were at or below the LOQ. The percent recoveries (%Rs) of all target analytes in the mid-level ICVs were within DoD QSM 4.2 limits of 90-110 %R. The percent recoveries of all target analytes in the low-level ICVs were within the Method 6010C, and the QAPP criteria of 70-130 %R.

### General Chemistry

Initial calibrations and ICVs, as applicable, were performed for Alkalinity, COD, ammonia, TKN, TOC, Sulfides, Total Phenols, and Total Cyanide as per the QAPP and laboratory standard operating procedures (SOPs). All acceptance criteria were met.

- **Continuing Calibration Verification (CCV)**

#### VOC

CCV acceptance criteria for RRFs and percent difference or percent drift (%D) were met for all parameters.

#### Metals

The laboratory analyzed high-level CCVs for aluminum, iron, and sodium, and mid-level CCVs as well as low-level CCVs for all target analytes required by Method 6010C. The concentration of the target analytes in the mid-level CCVs were at the same concentration as the standard used in the ICAL while the concentration of the target analytes in the low-level CCVs were at or below the Limit of Quantitation (LOQ). The percent recoveries of all target analytes in the mid-level CCVs were within DoD QSM 4.2 limits of 90-110 %R. The percent recoveries of all target analytes in the low-level CCVs were within the Method 6010C and the QAPP criteria of 70-130 %R.

As per DoD QSM 4.2, the laboratory analyzed low-level check samples (referred to as a "CRQL" check standard) that were associated with all samples. All target analytes were spiked in these low-level check samples and all analytes met the acceptance limits of 80-120 %R specified in DoD QSM 4.2.

### General Chemistry

CCVs were analyzed for Alkalinity, COD, Ammonia, TKN, TOC, Sulfides, Total Phenols, and Total Cyanide as per DoD QSM 4.2. All CCVs met the QAPP or Laboratory QC limits.

- **Method Blank and Field Blanks**

#### VOC

Methylene chloride was detected above ½ the LOQ in the laboratory method blank and 1,2,4-trichlorobenzene and 1,2-dichlorobenzene were detected slightly above the

Former Motor Pool Landfill (WPTST-11), West Point, New York  
Groundwater Data Validation  
January 2017

detection limit (DL) in the method blank (MB) associated with all field samples. Acetone was also detected in equipment blank WP11-WQEB01-102516 above the LOQ. The following table summarizes the contamination detected and sample qualifications based on blank actions.

Blank Type or ID (QC Batch No.)	Analyte	Conc. Detected (µg/L)	Associated Samples	Sample Qualifications
Equipment Blank WP11-WQEB01-102516 Collected 10/25/2016	Acetone	12	WP11-MP-4-102516 WP11-MP-3-102516 WP11-MP-2-102516 WP11-MP-2-102516 Dup	None. Not detected in field samples.
MB 280-350114/6 11/07/2016	1,2,4-tri-chlorobenzene	0.346 J	WP11-MP-4-102516 WP11-MP-3-102516 WP11-MP-2-102516 WP11-MP-2-102516 Dup WP11-WQTB01-102516 WP11-WQEB01-102516	None. Not detected in field samples.
	1,2-dichloro-benzene	0.153 J		None. Not detected in field samples.
	Methylene chloride	3.71 J		Result raised to LOQ and reported as non-detected (U) in all field samples.

MB = Laboratory Method Blank

Metals

All laboratory blanks (method blanks and instrument blanks) and the equipment rinsate blank results were reviewed to assess whether samples may have been contaminated in the laboratory or in the field. Instrument blank contamination was reported for antimony, sodium, arsenic, and potassium. Method blank contamination was reported for total and dissolved sodium and dissolved potassium. The total metals results for the equipment blank included detections for iron, magnesium, and sodium; however, the total sodium results in the equipment blank were attributed to and qualified as non-detected (U) due to laboratory blank contamination. The dissolved metals results for the equipment blank included detections for magnesium and sodium; however, the dissolved sodium results in the equipment blank were attributed to and qualified as non-detected (U) due to laboratory blank contamination.

The following table summarizes the contamination detected and sample qualifications based on blank actions. If the analyte was detected in both the method blank and the CCB, the method blank results were used to qualify results in the associated samples.

Blank Type or ID (QC Batch No.)	Analyte	Conc. Detected (µg/L)	Associated Samples	Sample Qualifications
MB 280-350306/1	total sodium	149 J	WP11-MP-4-102516 WP11-MP-3-102516 WP11-MP-2-102516 WP11-MP-2-102516 DUP WP11-WQEB01-102516 WSTPT-01-PXMW-01	Result raised to LOQ and reported as non-detected (U) in sample WP11-WQEB01-102516.  <i>Not detected in remaining field samples</i>

Former Motor Pool Landfill (WPTST-11), West Point, New York  
Groundwater Data Validation  
January 2017

Blank Type or ID (QC Batch No.)	Analyte	Conc. Detected (µg/L)	Associated Samples	Sample Qualifications
MB 280-350292/1	dissolved sodium	186 J	WP11-MP-4-102516 WP11-MP-3-102516 WP11-MP-2-102516 WP11-MP-2-102516 DUP WP11-WQEB01-102516 WSTPT-01-PXMW-01	Result raised to LOQ and reported as non-detected (U) in sample WP11-WQEB01-102516. <i>Not detected in remaining field samples.</i>
MB 280-350705/1	dissolved potassium	404 J	WP11-MP-4-102516	Result raised to LOQ and reported as non-detected (U).
CCB 280-351153/35	dissolved arsenic	4.54 J	WP11-MP-2-102516	Result raised to LOQ and reported as non-detected (U).
WP11-WQEB01-102516	total iron	27 J	WP11-MP-4-102516 WP11-MP-3-102516 WP11-MP-2-102516 WP11-MP-2-102516 DUP WSTPT-01-PXMW-01	Result raised to LOQ and reported as non-detected (U) in samples WP11-MP-4-102516, WP11-MP-2-102516, WP11-MP-2-102516 DUP. <i>Not detected in remaining field samples.</i>

MB = Laboratory Method Blank      CCB = continuing calibration blank

### General Chemistry

Total phenols, COD, and alkalinity were detected in the laboratory MB or CCBs associated with field samples. The following table summarizes the contamination detected and sample qualifications based on blank actions.

Blank Type or ID (QC Batch No.)	Analyte	Conc. Detected (µg/L)	Associated Samples	Sample Qualifications
MB 280-351881/2-A	Total Phenols	0.00966 J	WP11-MP-4-102516 WP11-MP-3-102516 WP11-MP-2-102516	Result raised to LOQ and reported as non-detected (U) in sample WP11-MP-4-102516. <i>Not detected in remaining field samples.</i>
MB 280-351005/5	COD	0.920 J	WP11-MP-4-102516 WP11-MP-3-102516 WP11-MP-2-102516	Result raised to LOQ and reported as non-detected (U) in samples WP11-MP-4-102516, WP11-MP-3-102516, and WP11-MP-2-102516.
<u>CCBs Batch 349858:</u> 11/03/2016 16:32 11/03/2016 17:46	Alkalinity	2.70 J	WP11-MP-4-102516 WP11-MP-3-102516 WP11-MP-2-102516	None. Sample results all >LOQ.
MB 280-349858/5 11/03/2016 15:23	Alkalinity	2.61 J	WP11-MP-4-102516 WP11-MP-3-102516 WP11-MP-2-102516	None. Sample results all >LOQ.

MB = Laboratory Method Blank  
CCB = Continuing Calibration Blank

- **Surrogate Spikes**

VOC

Surrogates were added to all samples and QC samples as required by the analytical method. All surrogate recoveries were within the QAPP and DoD QSM 4.2 acceptance criteria.

- **Matrix Spike/Matrix Spike Duplicates (MS/MSD)**

VOC

MS and MSD analyses were performed on sample WP11-MP-4-102516 in association with these field samples. All recoveries and relative percent differences (RPDs) were within the QAPP and the DoD QSM 4.2 acceptance criteria. No data qualifiers were necessary based on MS and MSD analyses.

Metals

MS and MSD analyses were performed on total metals sample WP11-MP-4-102516, and on dissolved metals samples WP11-MP-4-102516 and WP11-MP-3-102516 in association with these field samples. All target analyte recoveries and RPDs were within the QAPP and DoD QSM 4.2 acceptance limits. No data qualifiers were necessary based on MS and MSD analyses.

General Chemistry

MS and MSD analyses were only performed for Total Phenols on sample WP11-MP-4-102516 in association with these field samples. MS and MSD were not requested or performed for any other general chemistry analyses. All recoveries and RPDs were within the QAPP and the DoD QSM 4.2 acceptance criteria except for the following:

- The recoveries for total phenols in the MS (84%R) and MSD (83%R) were less than the QAPP lower QC limit of 90%R. The non-detected result for Total Phenols in sample WP11-MP-4-102516 was qualified as estimated (UJ); remaining sample results for Total Phenols were not qualified because the LCS recovery was acceptable.

- **Laboratory Control Sample (LCS)**

All LCS recoveries were within the QAPP and the DoD QSM 4.2 acceptance criteria except for one analyte:

- Recovery for methylene chloride (230%R) exceeded the 140%R upper QC limit. As mentioned previously, all field sample detections for methylene chloride were attributed to laboratory blank contamination and were reported as non-detected at the LOQ. No qualifiers were applied to the methylene chloride results based on the high recovery of methylene chloride in the LCS.

- **Field Duplicates**

Field duplicates were only collected for VOCs, total and dissolved metals, and total hardness. Samples WP11-MP-2-102516 and WP11-MP-2-102516-DUP were submitted as the field duplicate samples with this SDG.

VOC

Methylene chloride was reported in both field duplicate samples, however, the detected results for methylene chloride were reported as non-detected at the LOQ due to laboratory blank contamination. Field duplicate precision was deemed acceptable.

Metals and Hardness

Results for detections in field duplicate samples are presented below. Field duplicate precision is evaluated by calculating the RPD between the field duplicate results. The NFG has not established acceptance criteria for field duplicate precision; however, the QAPP specified RPD acceptance criteria of  $\leq 30\%$  when both sample results are greater than the reporting limit (RL) (i.e., the LOQ). Additionally, based on professional judgment, the control limit used when either or both field duplicate samples were non-detected or contained analytes at concentrations less than the LOQ was  $\pm 2x$  LOQ.

Analyte	WP11-MP-2-102516 Sample Conc. ( $\mu\text{g/L}$ )	WP11-MP-2-102516-Dup Field Duplicate Conc. ( $\mu\text{g/L}$ )	RPD	Action
Barium, Total	100	100	0	A
Calcium, Total	120,000	120,000	0	A
Boron, Total	100	100	0	A
Cobalt, Total	2.1 J	1.7 J	21.0	A*
Magnesium, Total	33,000	33,000	0	A
Manganese, Total	300	260	14.3	A
Nickel, Total	3.9 J	3.2 J	19.7	A*
Potassium, Total	3,200	3,300	3.1	A*
Sodium, Total	120,000	120,000	0	A
Hardness	460	460	0	A

A – Accept result without qualification.  
A\* - Accept result without qualification. Field duplicate results within  $\pm 2x$  LOQ control limit.  
RPD = Relative percent difference  
 $\mu\text{g/L}$  = micrograms per liter

Analyte	WP11-MP-2-102516 Sample Conc. ( $\mu\text{g/L}$ )	WP11-MP-2-102516-DUP Field Duplicate Conc. ( $\mu\text{g/L}$ )	RPD	Action
Barium, Dissolved	98	100	2.0	A
Cadmium, Dissolved	0.49 J	1.8 U	NC	A
Calcium, Dissolved	120,000	120,000	0	A
Cobalt, Dissolved	1.3 J	1.7 J	26.7	A*
Magnesium, Dissolved	34,000	35,000	2.9	A
Manganese, Dissolved	240	250	4.1	A
Nickel, Dissolved	3.6 J	3.7 J	2.7	A*
Potassium, Dissolved	3,100	3,400	9.2	A*
Sodium, Dissolved	120,000	130,000	8.0	A
Boron, Dissolved	110	110	0	A

A – Accept result without qualification.  
A\* - Accept result without qualification. Field duplicate results within  $\pm 2x$  LOQ control limit.  
NC – Not calculable  
RPD = Relative percent difference

Field duplicate criteria were met for the metals field duplicate sample analyses.

- **Internal Standards**

VOC

All QC criteria were met for Internal Standards (IS) in all calibrations and field samples.

- **ICP Interference Check Samples**

Metals

Although Method 6010C only requires the analysis of an Interference Check Sample A (ICSA) solution and does not require the analysis of an Interference Check Sample AB (ICSAB) solution, the laboratory analyzed both an ICSA and an ICSAB as required by the QAPP and DoD QSM 4.2. The ICSA and ICSAB were analyzed at the proper frequency.

The ICSAB solution contained all target analytes of interest. Recoveries for the analytes of interest were within QAPP and DoD QSM 4.2 laboratory acceptance limits in the ICSAB analyses.

- **Serial Dilution Results**

Metals

Serial dilution analyses were performed on total metals samples WP11-MP-4-102516 (all analytes except selenium) and WP-MP-3-102516 (for selenium only), and on dissolved metals samples WP11-MP-4-102516 (all analytes) and WP-MP-3-102516 (all analytes except arsenic, selenium, and zinc) in association with these field samples. The percent differences for all target analytes exceeding 50 times the LOQ were within the QSM 4.2, QAPP, and Method 6010C acceptance criteria of  $\leq 10\%D$ .

- **Target Analyte Identification and Quantitation**

Non-detected results were reported to the Limit of Detection (LOD) in accordance with DoD QSM 4.2. The laboratory also reported the LOQ for each analyte on the sample result sheet (Form 1). The laboratory reported target analytes, which were qualitatively identified at concentrations below the LOQs, with a "J" qualifier to indicate that the result is estimated as required by DoD QSM 4.2. The "J" qualifier was retained by the validator.

VOC

Target analyte identification followed the analytical method. Retention times and Mass Spectra were consistent with the analytical standards. The LOQs are consistent with the LOQs listed in the QAPP with the exception of 4-isopropyltoluene. The lab reported a lower LOQ and DL than listed in the QAPP. Two analytes, hexachlorobutadiene and n-butylbenzene, were reported with higher DLs (0.36  $\mu\text{g/L}$  and 0.32  $\mu\text{g/L}$ , respectively)

than those listed in the QAPP (0.12 µg/L and 0.14 µg/L, respectively). The Project Action Limit (PAL) for hexachlorobutadiene is 0.5 µg/L. A PAL has not been established for n-butylbenzene. Note: The QAPP listed three analytes, hexachlorobutadiene, 1,2-dibromo-3-chloropropane, and 1,2,3-trichloro-propane which had lower PALs than the reported LODs. All samples were non-detected for these three analytes.

Total and Dissolved Metals

The reported LOQs are consistent with the LOQs listed in the QAPP. Dilutions were not required for any of the samples, therefore, the LOQs, LODs, and DLs were not affected.

The laboratory was asked to investigate why dissolved metals results for several metals were significantly higher than the total metals results for these same analytes in sample WP11-MP-3-102516. On 1/12/2017, the laboratory re-analyzed the undigested contents for the bottle labeled “T” for total metals and the bottle labeled “SOL” for soluble or dissolved metals. The undigested metals results for these five metals were higher in concentration in the bottle labeled “SOL” than in the bottle labeled “T” which confirms that there was not a sample switch in the laboratory. WESTON calculated the percent difference (%D) between the total and dissolved metals and used 10%D as the criterion to qualify the sample data. All sample results for total and dissolved metals were within the 10%D criterion except for the following:

Sample WP11-MP-3-102516				
Analyte	Total Conc. (µg/L)	Dissolved Conc. (µg/L)	%D	Sample Qualification
calcium	14,000	28,000	-100%	J
magnesium	5,200	9,900	-90%	J
manganese	160	400	-150%	J
potassium	650 J	1,000 J	-54%	None. Results already qualified J because < LOQ.
sodium	8,800	22,000	-150%	J

These results suggest that the bottles containing the total and dissolved samples may have been mislabeled in the field. Total and Dissolved results for sample WP11-MP-3-102516 were qualified as indicated above.

General Chemistry

The LOQs are consistent with the LOQs listed in the QAPP with the exception of total phenols. The lab reported a lower LOQ [0.01 milligrams per liter (mg/L)] than that listed in the QAPP (0.02 mg/L). The PAL for Total Phenols is 0.002 mg/L, which is lower than the LOD of 0.01 mg/L and DL of 0.0068 mg/L, indicating that project the sensitivity for Total Phenols was not met.

Dilutions were not required for any of the general chemistry samples, therefore LOQs, LODs, and DLs were not affected.

### **Overall Evaluation**

The detected results for methylene chloride in all field samples were attributed to laboratory contamination and the results was raised to the LOQ and reported as non-detected.

The detected results for total and dissolved sodium in the equipment blank, dissolved arsenic in one groundwater sample, dissolved potassium in one sample, and total iron in three groundwater samples were attributed to laboratory contamination and the results were raised to the LOQ and reported as non-detected.

The detected results for total and dissolved calcium, magnesium, manganese, and sodium were qualified as estimated (J) in one sample because the %D between the total and dissolved results exceeded the 10% criterion.

The detected result for Total Phenols in one groundwater sample was attributed to laboratory contamination and the results was raised to the LOQ and reported as non-detected. This sample result was further qualified as estimated (UJ) due to the low recoveries of the MS and MSD prepared from this sample.

The detected results for COD in three groundwater samples were attributed to laboratory contamination and the results was raised to the LOQ and reported as non-detected.



**Data Validation Qualifiers**

<b>Validation Qualifier</b>	<b>Definition</b>
J	The reported positive result is considered estimated, because the result is less than the LOQ or because certain quality control criteria were not met.
U	The analyte was not detected and is reported as less than the LOD or as defined by the client.
UJ	The analyte was not detected in the sample. The LOD (or LOQ) should be considered estimated and may be inaccurate or imprecise.
R	The result for this analyte is unusable. The analyte may or may not be present.

**References**

U.S. Department of Defense (DoD). DoD Quality Systems Manual for Environmental Laboratories, Version 4.2, October, 2010. (DoD, 2010).

U.S. Environmental Protection Agency (USEPA). USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June, 2008. (USEPA, 2008).

USEPA Contract Laboratory Program (USEPA), National Functional Guidelines for Superfund Inorganic Superfund Data Review (USEPA, 2010).

Weston Solutions, Inc. (WESTON). Uniform Federal Policy Quality Assurance Project Plan, Annual Monitoring at Former Motor Pool Landfill (WPTST-11) United States Military Academy, West Point, New York, Version 00, June 2013. (WESTON, 2013)

**Table 1**  
**West Point Motor Pool Landfill**  
**Volatile Organic Compounds in Water**

		Field ID: WP11-MP-4-102516	WP11-MP-3-102516	WP11-MP-2-102516	WP11-MP-2-102516 DUP
		Lab Sample ID: 280-90206-1	280-90206-2	280-90206-3	280-90206-4
		Date Collected: 10/25/2016	10/25/2016	10/25/2016	10/25/2016
		Sample Type: Groundwater	Groundwater	Groundwater	FD of WP11-MP-2-102516
Method	Analyte	Qualified Result	Qualified Result	Qualified Result	Qualified Result
8260B	1,1,1,2-Tetrachloroethane	0.80 U	0.80 U	0.80 U	0.80 U
8260B	1,1,1-Trichloroethane	0.40 U	0.40 U	0.40 U	0.40 U
8260B	1,1,2,2-Tetrachloroethane	0.80 U	0.80 U	0.80 U	0.80 U
8260B	1,1,2-Trichloroethane	0.80 U	0.80 U	0.80 U	0.80 U
8260B	1,1-Dichloroethane	0.80 U	0.80 U	0.80 U	0.80 U
8260B	1,1-Dichloroethene	0.80 U	0.80 U	0.80 U	0.80 U
8260B	1,1-Dichloropropene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	1,2,3-Trichlorobenzene	0.80 U	0.80 U	0.80 U	0.80 U
8260B	1,2,3-Trichloropropane	0.80 U	0.80 U	0.80 U	0.80 U
8260B	1,2,4-Trichlorobenzene	0.80 U	0.80 U	0.80 U	0.80 U
8260B	1,2,4-Trimethylbenzene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	1,2-Dibromo-3-chloropropane	1.6 U	1.6 U	1.6 U	1.6 U
8260B	1,2-Dichlorobenzene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	1,2-Dichloroethane	0.40 U	0.40 U	0.40 U	0.40 U
8260B	1,2-Dichloropropane	0.40 U	0.40 U	0.40 U	0.40 U
8260B	1,3,5-Trimethylbenzene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	1,3-Dichlorobenzene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	1,3-Dichloropropane	0.80 U	0.80 U	0.80 U	0.80 U
8260B	1,4-Dichlorobenzene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	1-Chlorohexane	0.40 U	0.40 U	0.40 U	0.40 U
8260B	2,2-Dichloropropane	0.40 U	0.40 U	0.40 U	0.40 U
8260B	2-Butanone	4.0 U	4.0 U	4.0 U	4.0 U
8260B	2-Chlorotoluene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	2-Hexanone	4.0 U	4.0 U	4.0 U	4.0 U
8260B	4-Chlorotoluene	0.80 U	0.80 U	0.80 U	0.80 U
8260B	4-Isopropyltoluene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	4-Methyl-2-pentanone	3.2 U	3.2 U	3.2 U	3.2 U
8260B	Acetone	6.4 U	6.4 U	6.4 U	6.4 U
8260B	Benzene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	Bromobenzene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	Bromodichloromethane	0.40 U	0.40 U	0.40 U	0.40 U
8260B	Bromoform	0.40 U	0.40 U	0.40 U	0.40 U
8260B	Bromomethane	0.80 U	0.80 U	0.80 U	0.80 U
8260B	Carbon disulfide	1.6 U	1.6 U	1.6 U	1.6 U
8260B	Carbon tetrachloride	0.40 U	0.40 U	0.40 U	0.40 U
8260B	Chlorobenzene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	Chlorobromomethane	0.20 U	0.20 U	0.20 U	0.20 U
8260B	Chloroethane	1.6 U	1.6 U	1.6 U	1.6 U
8260B	Chloroform	0.40 U	0.40 U	0.40 U	0.40 U
8260B	Chloromethane	0.80 U	0.80 U	0.80 U	0.80 U
8260B	cis-1,2-Dichloroethene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	cis-1,3-Dichloropropene	0.40 U	0.40 U	0.40 U	0.40 U

**Table 1**  
**West Point Motor Pool Landfill**  
**Volatile Organic Compounds in Water**

Method	Analyte	Qualified Result	Qualified Result	Qualified Result	Qualified Result
8260B	Dibromochloromethane	0.40 U	0.40 U	0.40 U	0.40 U
8260B	Dibromomethane	0.40 U	0.40 U	0.40 U	0.40 U
8260B	Dichlorodifluoromethane	0.80 U	0.80 U	0.80 U	0.80 U
8260B	Dichlorofluoromethane	0.80 U	0.80 U	0.80 U	0.80 U
8260B	Ethylbenzene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	Hexachlorobutadiene	0.80 U	0.80 U	0.80 U	0.80 U
8260B	Isopropylbenzene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	Methyl tert-butyl ether	0.80 U	0.80 U	0.80 U	0.80 U
8260B	Methylene chloride	5.0 U	5.0 U	5.0 U	5.0 U
8260B	m-Xylene & p-Xylene	0.80 U	0.80 U	0.80 U	0.80 U
8260B	Naphthalene	0.80 U	0.80 U	0.80 U	0.80 U
8260B	n-Butylbenzene	0.80 U	0.80 U	0.80 U	0.80 U
8260B	N-Propylbenzene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	o-Xylene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	sec-Butylbenzene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	Styrene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	tert-Butylbenzene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	Tetrachloroethene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	Toluene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	trans-1,2-Dichloroethene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	trans-1,3-Dichloropropene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	Trichloroethene	0.40 U	0.40 U	0.40 U	0.40 U
8260B	Trichlorofluoromethane	0.80 U	0.80 U	0.80 U	0.80 U
8260B	Vinylchloride	0.20 U	0.20 U	0.20 U	0.20 U
8260B	Xylenes, Total	0.80 U	0.80 U	0.80 U	0.80 U

Results in micrograms per liter (µg/L).

FD = Field Duplicate

U = Analyte is not detected at the reported concentration.

J = The reported concentration is estimated.

UJ = The detection limit is estimated.

**Table 1**  
**West Point Motor Pool Landfill**  
**Volatile Organic Compounds in Water**

	Field ID:	WP11-WQTB01-102516	WP11-WQEB01-102516	
	Lab Sample ID:	280-90206-5	280-90206-6	
	Date Collected:	10/25/2016	10/25/2016	
	Sample Type:	Trip Blank	Equipment Blank	
Method	Analyte	Qualified Result	Qualified Result	
8260B	1,1,1,2-Tetrachloroethane	0.80 U	0.80 U	
8260B	1,1,1-Trichloroethane	0.40 U	0.40 U	
8260B	1,1,2,2-Tetrachloroethane	0.80 U	0.80 U	
8260B	1,1,2-Trichloroethane	0.80 U	0.80 U	
8260B	1,1-Dichloroethane	0.80 U	0.80 U	
8260B	1,1-Dichloroethene	0.80 U	0.80 U	
8260B	1,1-Dichloropropene	0.40 U	0.40 U	
8260B	1,2,3-Trichlorobenzene	0.80 U	0.80 U	
8260B	1,2,3-Trichloropropane	0.80 U	0.80 U	
8260B	1,2,4-Trichlorobenzene	0.80 U	0.80 U	
8260B	1,2,4-Trimethylbenzene	0.40 U	0.40 U	
8260B	1,2-Dibromo-3-chloropropane	1.6 U	1.6 U	
8260B	1,2-Dichlorobenzene	0.40 U	0.40 U	
8260B	1,2-Dichloroethane	0.40 U	0.40 U	
8260B	1,2-Dichloropropane	0.40 U	0.40 U	
8260B	1,3,5-Trimethylbenzene	0.40 U	0.40 U	
8260B	1,3-Dichlorobenzene	0.40 U	0.40 U	
8260B	1,3-Dichloropropane	0.80 U	0.80 U	
8260B	1,4-Dichlorobenzene	0.40 U	0.40 U	
8260B	1-Chlorohexane	0.40 U	0.40 U	
8260B	2,2-Dichloropropane	0.40 U	0.40 U	
8260B	2-Butanone	4.0 U	4.0 U	
8260B	2-Chlorotoluene	0.40 U	0.40 U	
8260B	2-Hexanone	4.0 U	4.0 U	
8260B	4-Chlorotoluene	0.80 U	0.80 U	
8260B	4-Isopropyltoluene	0.40 U	0.40 U	
8260B	4-Methyl-2-pentanone	3.2 U	3.2 U	
8260B	Acetone	6.4 U	12	
8260B	Benzene	0.40 U	0.40 U	
8260B	Bromobenzene	0.40 U	0.40 U	
8260B	Bromodichloromethane	0.40 U	0.40 U	
8260B	Bromoform	0.40 U	0.40 U	
8260B	Bromomethane	0.80 U	0.80 U	
8260B	Carbon disulfide	1.6 U	1.6 U	
8260B	Carbon tetrachloride	0.40 U	0.40 U	
8260B	Chlorobenzene	0.40 U	0.40 U	
8260B	Chlorobromomethane	0.20 U	0.20 U	
8260B	Chloroethane	1.6 U	1.6 U	
8260B	Chloroform	0.40 U	0.40 U	
8260B	Chloromethane	0.80 U	0.80 U	
8260B	cis-1,2-Dichloroethene	0.40 U	0.40 U	
8260B	cis-1,3-Dichloropropene	0.40 U	0.40 U	

**Table 1**  
**West Point Motor Pool Landfill**  
**Volatile Organic Compounds in Water**

Field ID:	WP11-WQTB01-102516	WP11-WQEB01-102516		
Lab Sample ID:	280-90206-5	280-90206-6		
Date Collected:	10/25/2016	10/25/2016		
Sample Type:	Trip Blank	Equipment Blank		
Method	Analyte	Qualified Result	Qualified Result	
8260B	Dibromochloromethane	0.40 U	0.40 U	
8260B	Dibromomethane	0.40 U	0.40 U	
8260B	Dichlorodifluoromethane	0.80 U	0.80 U	
8260B	Dichlorofluoromethane	0.80 U	0.80 U	
8260B	Ethylbenzene	0.40 U	0.40 U	
8260B	Hexachlorobutadiene	0.80 U	0.80 U	
8260B	Isopropylbenzene	0.40 U	0.40 U	
8260B	Methyl tert-butyl ether	0.80 U	0.80 U	
8260B	Methylene chloride	5.0 U	5.0 U	
8260B	m-Xylene & p-Xylene	0.80 U	0.80 U	
8260B	Naphthalene	0.80 U	0.80 U	
8260B	n-Butylbenzene	0.80 U	0.80 U	
8260B	N-Propylbenzene	0.40 U	0.40 U	
8260B	o-Xylene	0.40 U	0.40 U	
8260B	sec-Butylbenzene	0.40 U	0.40 U	
8260B	Styrene	0.40 U	0.40 U	
8260B	tert-Butylbenzene	0.40 U	0.40 U	
8260B	Tetrachloroethene	0.40 U	0.40 U	
8260B	Toluene	0.40 U	0.40 U	
8260B	trans-1,2-Dichloroethene	0.40 U	0.40 U	
8260B	trans-1,3-Dichloropropene	0.40 U	0.40 U	
8260B	Trichloroethene	0.40 U	0.40 U	
8260B	Trichlorofluoromethane	0.80 U	0.80 U	
8260B	Vinylchloride	0.20 U	0.20 U	
8260B	Xylenes, Total	0.80 U	0.80 U	

Results in micrograms per liter (µg/L).

FD = Field Duplicate

U = Analyte is not detected at the reported concentration.

J = The reported concentration is estimated.

UJ = The detection limit is estimated.

**Table 2**  
**West Point Motor Pool Landfill**  
**Total and Dissolved Metals in Water**

		WP11-MP-4-102516		WP11-MP-3-102516		WP11-MP-2-102516	
Field ID:		WP11-MP-4-102516		WP11-MP-3-102516		WP11-MP-2-102516	
Lab Sample ID:		280-90206-1		280-90206-2		280-90206-3	
Date Collected:		10/25/2016		10/25/2016		10/25/2016	
Sample Type:		Groundwater		Groundwater		Groundwater	
Method	Analyte	Total	Dissolved	Total	Dissolved	Total	Dissolved
6010C	Aluminum	70 U	70 U	70 U	70 U	70 U	70 U
6010C	Antimony	12 U	12 U	12 U	12 U	12 U	12 U
6010C	Arsenic	15 U	15 U	15 U	15 U	15 U	25 U
6010C	Barium	22	19	2.0 U	5.3 J	100	98
6010C	Beryllium	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
6010C	Boron	160	160	15 U	38 J	100	110
6010C	Cadmium	0.74 J	0.46 J	1.8 U	1.8 U	1.8 U	0.49 J
6010C	Calcium	71000	65000	14000 J	28000 J	120000	120000
6010C	Chromium	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U
6010C	Cobalt	4.5 U	4.5 U	4.5 U	4.5 U	2.1 J	1.3 J
6010C	Copper	10 U	10 U	10 U	10 U	10 U	10 U
6010C	Iron	100 U	30 J	14000	760	100 U	85 U
6010C	Lead	10 U	10 U	10 U	10 U	10 U	10 U
6010C	Magnesium	24000	23000	5200 J	9900 J	33000	34000
6010C	Manganese	1200	1200	160 J	400 J	300	240
6010C	Nickel	4.2 J	3.4 J	5.0 U	5.0 U	3.9 J	3.6 J
6010C	Potassium	2200 J	3000 U	650 J	1000 J	3200	3100
6010C	Selenium	19 U	19 U	19 U	19 U	19 U	19 U
6010C	Silver	3.5 U	0.95 J	3.5 U	3.5 U	3.5 U	3.5 U
6010C	Sodium	58000	56000	8800 J	22000 J	120000	120000
6010C	Thallium	5.5 J	19 U	19 U	19 U	19 U	19 U
6010C	Tin	20 U	20 U	20 U	20 U	20 U	20 U
6010C	Vanadium	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
6010C	Zinc	15 U	15 U	15 U	15 U	15 U	15 U
7470A	Mercury	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U

Results in micrograms per liter (µg/L).

FD = Field Duplicate

NA = Not analyzed

U = Analyte is not detected at the reported concentration.

J = The reported concentration is estimated.

UJ = The detection limit is estimated.

**Table 2**  
**West Point Motor Pool Landfill**  
**Total and Dissolved Metals in Water**

Field ID:	WP11-MP-2-102516 DUP	WP11-WQEB01-102616		WSTPT-01-PXMW-01			
Lab Sample ID:	280-90206-4	280-90206-6		280-90206-7			
Date Collected:	10/25/2016	10/25/2016		10/26/2016			
Sample Type:	FD of WP11-MP-2-102516	Equipment Blank		Groundwater			
Method	Analyte	Total	Dissolved	Total	Dissolved	Total	Dissolved
6010C	Aluminum	70 U	70 U	70 U	70 U	5500	31 J
6010C	Antimony	12 U	12 U	12 U	12 U	12 U	12 U
6010C	Arsenic	15 U	15 U	15 U	15 U	15 U	4.6 J
6010C	Barium	100	100	2.0 U	2.0 U	29	6.3 J
6010C	Beryllium	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
6010C	Boron	100	110	15 U	15 U	10 J	11 J
6010C	Cadmium	1.8 U	1.8 U	1.8 U	1.8 U	0.52 J	1.8 U
6010C	Calcium	120000	120000	140 U	140 U	20000	20000
6010C	Chromium	2.6 U	2.6 U	2.6 U	2.6 U	170	0.76 J
6010C	Cobalt	1.7 J	1.7 J	4.5 U	4.5 U	31	13 J
6010C	Copper	10 U	10 U	10 U	10 U	43	10 U
6010C	Iron	100 U	85 U	27 J	85 U	6400	42 J
6010C	Lead	10 U	10 U	10 U	10 U	40	10 U
6010C	Magnesium	33000	35000	13 J	13 J	4400	3400
6010C	Manganese	260	250	1.0 U	1.0 U	55	5.7 J
6010C	Nickel	3.2 J	3.7 J	5.0 U	5.0 U	33 J	5.0 J
6010C	Potassium	3300	3400	940 U	940 U	2900 J	2400 J
6010C	Selenium	19 U	19 U	19 U	19 U	19 U	5.6 J
6010C	Silver	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	1.1 J
6010C	Sodium	120000	130000	5000 U	5000 U	43000	44000
6010C	Thallium	19 U	19 U	19 U	19 U	19 U	19 U
6010C	Tin	20 U	20 U	20 U	20 U	20 U	20 U
6010C	Vanadium	4.0 U	4.0 U	4.0 U	4.0 U	12 J	3.6 J
6010C	Zinc	15 U	15 U	15 U	15 U	88 J	11 J
7470A	Mercury	0.080 U	0.080 U	0.080 U	0.080 U	0.15 J	0.080 U

Results in micrograms per liter (µg/L). FD = Field Duplicate

NA = Not analyzed

U = Analyte is not detected at the reported concentration.

J = The reported concentration is estimated.

UJ = The detection limit is estimated.

**Table 3**  
**West Point Motor Pool Landfill**  
**General Chemistry Results in Water**

Field ID:	WP11-MP-4-102516	WP11-MP-3-102516	WP11-MP-2-102516	WP11-MP-2-102516 DUP	
Lab Sample ID:	280-90206-1	280-90206-2	280-90206-3	280-90206-4	
Date Collected:	10/25/2016	10/25/2016	10/25/2016	10/25/2016	
Sample Type:	Groundwater	Groundwater	Groundwater	FD of WP11-MP-2-102516	
Method	Analyte	Qualified Result	Qualified Result	Qualified Result	Qualified Result
EPA 350.1	Ammonia	0.11	0.069 J	0.050 U	NA
EPA 351.2	Total Kjeldahl Nitrogen	0.21 J	0.50 U	0.50 U	NA
EPA 410.4	Chemical oxygen demand	20 U	20 U	20 U	NA
EPA 9012B	Total Cyanide	0.0092 J	0.0050 U	0.0050 U	NA
EPA 9034	Sulfide	1.9 U	1.9 U	1.9 U	NA
EPA 9060A	Total Organic Carbon (Quad)	1.9	0.49 J	2.7	NA
EPA 9066	Phenols, Total	0.010 UJ	0.010 U	0.010 U	NA
SM 2320B	Alkalinity (as CaCO3)	310	63	420	NA
SM 2340C	Total Hardness	290	75	460	460
SM 2540C	Total Dissolved Solids	460	97	750	NA

Results in milligrams per liter (mg/L).

FD = Field Duplicate

NA = Not analyzed

U = Analyte is not detected at the reported concentration.

J = The reported concentration is estimated.

UJ = The detection limit is estimated.



**Table 3**  
**West Point Motor Pool Landfill**  
**General Chemistry Results in Water**

Field ID:	WP11-WQEB01-102516	WSTPT-01-PXMW-01		
Lab Sample ID:	280-90206-6	280-90206-7		
Date Collected:	10/25/2016	10/26/2016		
Sample Type:	Equipment Blank	Groundwater		
Method	Analyte	Qualified Result	Qualified Result	
EPA 350.1	Ammonia	NA	NA	
EPA 351.2	Total Kjeldahl Nitrogen	NA	NA	
EPA 410.4	Chemical oxygen demand	NA	NA	
EPA 9012B	Total Cyanide	NA	NA	
EPA 9034	Sulfide	NA	NA	
EPA 9060A	Total Organic Carbon (Quad)	NA	NA	
EPA 9066	Phenols, Total	NA	NA	
SM 2320B	Alkalinity (as CaCO <sub>3</sub> )	NA	NA	
SM 2340C	Total Hardness	1.5 U	70	
SM 2540C	Total Dissolved Solids	NA	NA	

Results in milligrams per liter (mg/L).

NA = Not analyzed

U = Analyte is not detected at the reported concentration.

J = The reported concentration is estimated.

UJ = The detection limit is estimated.

---

**ATTACHMENT C**  
**LABORATORY DATA PACKAGES**

---