

Trip Report

W&G Electroplating Site Removal Evaluation Sampling Events

Boothsville, Taylor County, West Virginia

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START V – West

Superfund Technical Assessment and Response Team

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TRIP REPORT
W&G Electroplating Site
Boothsville, Taylor County, West Virginia

Prepared for:

U.S. Environmental Protection Agency
Region III
Philadelphia, Pennsylvania

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1. INTRODUCTION

TechLaw, Inc.'s (TechLaw) Superfund Technical Assessment and Response Team (START) was tasked by the United States Environmental Protection Agency (USEPA or EPA) to prepare a Trip Report that summarizes the validated analytical results from samples collected during multiple sampling events conducted at the W&G Electroplating Site (Site). The Site is located in Boothsville, Taylor County, West Virginia. EPA tasked START to conduct the sampling events to verify the West Virginia Department of Environmental Protection's (WVDEP) sampling results of chromium and hexavalent chromium (chromium VI or Cr+6) in an on-site sump and to determine if any chromium or Cr+6 contamination was present in the soil or in the sediment, pore water and/or surface water of Booth's Run. Activities at the W&G Electroplating Site were conducted under the START contract EP-S3-10-04 and EP-S3-15-03, Technical Direction Documents (TDD) TL01-15-02-001 and T501-15-07-008, respectively.

2. BACKGROUND

2.1. Site Description

The W&G Electroplating Site is located adjacent to Route 73 South in Boothsville, Taylor County, WV. The site is divided by the boundary demarcating Marion and Taylor counties. Booths Creek and the sump area of the site are present within the Taylor County, WV, portion of the site, and the site building (former plating facility building) and former treatment area are present within Marion County, WV. The coordinates of the Site are 80°12'5" west, 39°23'17" north.

The Site consists of approximately one acre of land that is gently sloping to the north and northwest. The Site lies in the 100 year floodplain of Booths Creek. The Site is bordered to the west by Booths Creek, to the east by Route 73, and to the north and south by what appear to be commercial properties. The zoning of the surrounding properties was not investigated.

2.2. Site History

The W&G Electroplating Site operated from 1976 until 2000, with a brief interruption of activities from June 1991 – June 1992. A Consent Order was issued in 1991 by the West Virginia Department of Natural Resources (WVDNR). The purpose of this Consent Order was to allow the EPA to take actions to remove the chrome contamination at the facility. This Consent Order required the facility to cease and desist all operations at the facility. After the facility installed new equipment to meet a second Consent Order, in June 1992, the Cease and Desist order was lifted and plating operations were allowed to resume. Plating operations continued until 2000.

2.3. Previous Site Investigations

According to historical documents in WVDEP Office of Environmental Remediation (OER), multiple inspections and investigations have been conducted at the Site. A summary of these inspections and investigations and their findings follows:

January 19, 1983 – Inspection – The purpose was for the WVDNR, DWR to become familiar with the Site. No waste streams were identified on the property.

August 14, 1983 – Inspection – The purpose was for the WVDNR, DWR to investigate a claim that the facility was generating potentially hazardous waste. Approximately 40 gallons of sludge was stored behind the facility in five gallon containers. Analysis of the material revealed a high level of oxidation that made the material not able to be analyzed. The level of oxidation led the inspector to conclude the material was non-hazardous. The inspector notified the facility that plating solution that required disposal would most likely be considered a characteristic waste and that the WVDNR should be notified in the event of disposal of any plating solution.

September 14, 1989 – Inspection – The purpose was for the WVDEP, DWM to gain background information on the facility, their operations, and observe the site conditions. Dust from the grinding operations at the facility had not been tested for hazardous concentrations of chemicals (Chromium). The dust was vented outside the building and had accumulated on the ground surface. Excessive spillage was observed in the plating areas, as well as full drains and sumps. Odors were present in the facility. Chromic acid had spilled onto the floor of the facility as well as condensed in the exhaust system, which vented directly to the outside. Lead dross was being disposed of without characterization. Spent hydrochloric acid was slated for disposal at a landfill. Used oil was not properly containerized or disposed of. Yellowish-brown liquid was observed seeping from the ground and into Booths Creek. A yellow precipitate formed on the rocks at the bank of the creek where this liquid was seeping into the creek.

September 18, 1989 – Follow-up – The purpose was for the WVDEP, DWM to collect environmental samples based on the findings of the 9/14/89 Inspection. A soil sample collected under the plating exhaust exceeded the maximum concentration limit (MCL) for chromium while a sample of the lead dross exceeded the MCL for lead. Validated analytical results from samples collected from the surface water of Booths Creek exceeded the USEPA Region 3 BTAG Benchmarks for Chromium.

September 21, 1989 – Unannounced Site Visit – The WVDEP, DWM conducted an unannounced Site Visit to determine whether the facility was continuing to produce and dispose of waste material in a manner that was not compliant with regulations. The plating bath constituents included chromic acid, dura 60 catalyst, water, and sulfuric acid, but did not include cyanide. Sludge was not regularly removed from the plating tanks, records showing only one removal of sludge since the facility opened. 4,000 pounds of chromic acid had been purchased in

the last year. The sump beneath the plating tank contained liquid. Spent hydrochloric acid was being stored in 50 gallon drums outside the facility. Chromium liquid was visibly seeping into Booths Creek.

December 27, 1989 – Compliance Evaluation – The purpose was for the WVDNR, DWM to investigate the company's compliance with the Hazardous Waste Management Act and Order HW-226-89. Lead dross was no longer being shipped to a landfill but was being stored inside the facility in open containers. Air pollution equipment had been purchased, but not installed. Hazardous waste containers were marked, but accumulation start dates were unreadable. Inspectors were concerned that time limits from the Order were not being met and that chromic acid was still being released through multiple avenues.

September 12, 1991 – Sampling Events – The purpose of this event was to allow the USEPA Region III TAT team to collect soil samples during the groundwater collection system trench excavation work. 16 soil samples were collected and analyzed for TCLP RCRA metals. Eight samples were also analyzed for total chromium, hexavalent chromium, and total lead. Results from samples collected did exceed the hazardous waste MCL for TCLP chromium, but they did not exceed the industrial soil risk-based concentration action levels at the time.

December 7, 1993 – Compliance Inspection – The purpose was for the WVDEP, OWM to evaluate the compliance of the facility with three previously issued Orders (WH-226-89, HW-247-90, and HW-300-91). Violations noted during this inspection included open hazardous waste containers, a date of accumulation not being present on containers of hazardous waste, the facility was not maintained and operated in a manner that minimized the possibility of release, hazardous waste was still unlawfully stored at the facility, chromium contaminated material was still present near the exhaust vents, sampling in areas of excavation had not been reported to the Chief, and the facility had not installed groundwater monitoring wells.

August 28, 2000 – Routine Inspection of Groundwater Treatment System – The purpose was for the WVDEP, OWM to conduct a routine inspection of cleanup activities. The inspector noted that cleanup activities exceeded the allocated time, extension, and regulations. The inspector informed the facility that they needed to repair the roof of the facility, remove solid waste from the facility, sweep the floor and properly dispose of the sweepings, remove tanks from the secondary containment area and clean the area, clean the outside of the tanks, scrap and/or clearing of the lead smelting area needed to be completed, and all waste needed to be properly shipped off-site.

November 1, 2000 – Routine Inspection of Groundwater Treatment System – The purpose was for the WVDEP, OWM to conduct a routine sampling inspection of the Site. Samples were collected in the exhaust vent areas.

February 11, 2002 – Site Inspection – The purpose was for the WVDEP, OWM to conduct a sampling inspection. Two pools of yellow water were observed downstream of the Site. The pools were believed to be chromium. Samples were collected in Booths Creek. The surface water sample collected during this inspection exceeded the hazardous waste maximum concentration limit of 5.0 mg/L for TCLP chromium.

March 4, 2002 – Site Inspection – The purpose was for the WVDEP, OWM to conduct a sampling inspection of the Site. Samples were collected from Booths Creek, at the facility, upstream from the facility, and downstream from the facility.

September 27, 2005 – Site Assessment – This visit to the Site was to allow TRIAD Engineering, Inc. (TRIAD) to conduct a Site Assessment. The purpose of the Site Assessment was to collect samples to determine if any contamination had migrated off site, determine if the groundwater treatment system was functioning and/or adequate, and provide recommendations to the WVDEP and USEPA for future activities at the Site. 13 soil/sediment and 7 aqueous samples were collected and analyzed for hexavalent chromium.

August 27, 2014 – WVDEP conducted a sampling of the groundwater at the Site. Elevated levels of Cr+6 were detected. As a result of the recent sampling at the Site, on October 15, 2014, the WVDEP officially requested the USEPA take the site over. The State-run groundwater recovery system is no longer operational.

2.4. Previous Site Actions

As a result of the inspections and investigations at the Site, various reports and Orders were generated dealing with the W&G Electroplating Site. The reports and Orders are summarized below.

November 22, 1989 – Order Number HW-226-89 was issued by the WVDEP, under the Hazardous Waste Management Act, to W&G Electroplating under the Hazardous Waste Management Act. The Order required the immediate ceasing of disposal of lead dross in any manner other than shipment off-site to a permitted facility, immediately cease venting chromic acid fumes, generate and submit a plan for sampling and analysis required to determine the extent of contamination caused by improper disposal of wastes at the Site, and complete a hazardous waste determination of all wastes on site and ship all wastes presently stored on site to a permitted off-site facility.

April 1990 – Phase I Investigation Report for West Virginia Department of Natural Resources Order Number HW-226-89 was issued. The Phase I report focused on samples collected in March of 1990. These samples were analyzed for chromium and lead. Results of the sampling showed that there were observed releases of chromium to soils, sediments, and surface water of Booths Creek, however the concentrations did not exceed action levels.

June 12, 1990 – A meeting was held to discuss the results of the Phase I Site Investigation. Representatives from WVDNR, WMS, MSES Consultants, Inc., and W&G Electroplating were present at the meeting. During the meeting, the findings of the report were discussed. Conclusions drawn from the report were: the source of the contamination was the sump beneath the plating tank which were located below the groundwater table, groundwater beneath the site was contaminated, chromium concentrations were above characteristic limits in groundwater, soil was contaminated in localized areas near the exhaust vents, the immediate hazard at the site was the discharge of contaminated groundwater to Booths Creek. The Site was then referred to USEPA Region 3 Emergency Response for assessment.

June 20, 1990 – Region III EPA, TAT, Sampling Plan W&G Electroplating Site – This sampling plan stated the procedure for collecting samples at the Site. Samples of soil, dust, material, and surface water were analyzed for hexavalent chromium, total chromium, and total lead. Areas inside and outside the building exceeded levels for either hexavalent chromium or lead.

July 12, 1990 – Order Number HW-247-90 was issued by the WV Department of Commerce, Labor, and Environmental Resources, Waste Management Section (WMS). The Order required all known chromium contaminated material near the three exhaust vents be removed (6'X3'X3' excavation) within 15 days, the material properly stored in a clearly marked location with the initial accumulation start date noted, four samples were collected and analyzed for EP TOX, from each of the three excavation areas with the results available within 45 days. If any sample indicated chromium EP TOX greater than 50 ppm, additional excavation and sampling of the area must be completed within 7 days. After written notification was provided to W&G Electroplating that no additional excavation or sampling was needed, W&G Electroplating would have 60 days to provide evidence that all excavated material had been shipped off site to an appropriately permitted facility for disposal.

February 7, 1991 – HW-268-91 was issued by the WV Department of Commerce, Labor, and Environmental Resources, Waste Management Section, to W&G Electroplating, under the Hazardous Waste Management Act. This order required a cease and desist of electroplating activities within 15 days of receipt of notice. Chromium plating tanks were to be completely taken out of service beginning July 8, 1991. Work at the Site was not to resume until receipt from the Chief that USEPA had completed all remedial work at the Site.

August 19, 1991 – Removal Action was completed by EUSEPA Region III and TAT. This action included the removal of 270 tons of chromium contaminated soil and concrete, 11 drums of contaminated septic sludge, 9 drums of muriatic acid waste, 1 drum of chromic acid waste, 3 drums of lead dross, 39,455 gallons

of chromium contaminated groundwater, and the installation of a groundwater recovery and treatment system.

December 18, 1991 – Order Number HW-300-91 was issued to W&G Electroplating by the WV Department of Commerce, Labor, and Environmental Resources, Waste Management Section. The order required W&G Electroplating to submit a plan for prevention of recurrence of site contamination within 15 days, install a groundwater monitoring well, collect a sample of groundwater quarterly and analyze the sample for Toxic Characteristic Leaching Procedure (TCLP) chromium and lead, continue quarterly sampling until chromium and lead are below MCL – after which time the sampling schedule would change to yearly until chromium and lead are at or below Method Detection Limit (MDL), monitor all on site operations to ensure no releases of hazardous waste constituents occur, maintain monitoring logs, and provide a Contingency Plan describing the steps W&G Electroplating would take to prevent any releases to the environment.

August 23, 2001 – Compliance Evaluation Inspection Report – Notice of Violation was issued by the WVDEP, OWM. The report cited that all waste generated during routine operations and post closure cleanup had been shipped off site for disposal, hazardous waste and/or constituents remained in the concrete and soils, the inspector informed the site representatives that additional cleanup was necessary. A Notice of Violation was issued stating that the generators had failed to maintain and operate the facility in a manner that minimized the possibility of material to the environment.

November 21, 2005 – Site Assessment Report was submitted to the WVDEP Office of Environmental Remediation by TRIAD. Observations during the Site Assessment included: the Site was well maintained and did not appear to have had any major changes, tallow stained soil was observed beneath two of the former exhaust fan locations, there was no visible subsurface soil staining, there was a low water table at the site – possibly a result of less than average spring rainfall, no visible staining was observed along the shoreline of Booths Creek.

June 30, 2007 – Site Inspection Reassessment Final Report was issued to the WVDEP Office of Environmental Remediation by TRIAD. This report summarized sampling data from the September 2005 site assessment, determined a Preliminary Hazard Ranking System (HRS) site score, determined any human health and ecological exposure pathways, and provided recommendations to the WVDEP and USEPA for further actions, if any. Validated analytical results of soil (surface) samples collected from the Site were above Region migration to groundwater RBC, but below Region III industrial soil RBCs for hexavalent chromium. Two subsurface soil samples exhibited validated analytical results that were above Region III migration to groundwater RBCs, while none of the subsurface soil samples were above the Region III industrial soil RBCs. All surface water and sediment sample results were below the laboratory MDL. Groundwater sample results from samples collected on the Site were above both

Region III Tap Water RBCs and the USEPA Safe Drinking Water MCL. Background soil and aqueous sample results were below the laboratory MDL. Based on Site observations and data, the Site was assigned a preliminary HRS score of 0.52. Based on this Site Reassessment, the contractor concluded contamination exists on the Site, concentrations were below industrial soil RBC action levels, contamination existed downgradient of the groundwater collection system, and the W&G Electroplating Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Site did not qualify for the National Priority List (NPL). The contractor recommended the groundwater treatment at the Site continue, groundwater monitoring well be installed and periodically monitored, groundwater use restrictions be put in place, and land use of the property be restricted to non-residential.

3. SITE ACTIVITIES AND CHRONOLOGY

TechLaw START was tasked by EPA to conduct sampling events at the W&G Electroplating Site. In total, START conducted five sampling events (March 2015, July 2015, October 2015, December 2015, and August 2016). One geophysical survey (July 2016) was conducted by EPA Emergency Response Team (ERT). During the sampling events, START collected samples which included some or all of the following matrices: groundwater from the Site sump, groundwater from borehole (push point) locations, surface water, pore water, and soil. Photographic and written documentation of all events was conducted by START. Summaries of the events can be found in the subsequent sections below. See Tables 1-5 for a combined summary of all validated analytical data. Due to the short hold times on the samples for Cr+6 analysis, all samples were shipped overnight via FedEx to the assigned laboratories.

3.1. March 2015 Sampling Event

On March 24, 2015, START and the EPA On-Scene Coordinator (OSC) met at the Site. START and the OSC were met by a representative from the WVDEP. Weather conditions during the Site visit were clear and sunny. Water depth in Booths Creek was low and the flow was not excessive. The team attempted to locate two periphery sumps on the Site. Historical reports noted that there were three sump locations at the Site, two periphery earthen sumps, and one primary sump. The earthen sumps were assumed to have been filled in as they could not be located during the site walk through. Five dedicated grab sample locations were chosen for surface water sampling in Booths Creek. One sample was collected upstream from the Site, one downstream from the Site, and three locations were selected adjacent to the Site. A duplicate sample was also collected. One sample, along with a duplicate sample, was collected from the remaining primary sump at the Site. The groundwater samples collected from within the sump exhibited a greenish tint. No visible seeps of material were noticed during the sampling event. Samples were analyzed for Cr+6 by EPA Method 218.6 and total chromium by ICP-MS ISM02.2.

3.2. July 2015 Sampling Event

During this sampling event, START and the OSC were met at the Site by a representative from the US Fish and Wildlife Services (FWS). The representative walked Booths Creek looking for visual indications of stream impairment. She stated that there was a lack of noticeable fish and salamander activity in the creek which could indicate that the stream was impaired. After returning to the office, START investigated the impairment status of Booths Creek and discovered it had been listed at various times as impaired by the WVDEP (under 303d) for various metals and pH. During this sampling event, GPS coordinates were collected for the sampling locations for the March 2015 sampling event, as well as the July 2015 sampling event. Four of the five locations sampled in March 2015 were re-sampled in July 2015.

On July 22, 2015, START collected surface water samples from four discrete locations in Booths Creek. Water levels and flow rates in Booths Creek were lower than previous visits. Conditions at the Site were again sunny and clear during sampling activities. Samples were collected upstream, downstream, and adjacent to the Site. A duplicate sample was collected at the location adjacent to the Site. Two samples were collected from downstream locations.

START also collected pore water samples during this sampling event. Pore water samples were collected using push point samplers, a peristaltic pump, and dedicated tubing. Following each push point pore water sample, decontamination of the push point sampler was conducted in accordance with the Sampling QA/QC Work Plan (SQAP). One sample was collected from a downstream location, while the second sample, along with a duplicate, was collected at a location adjacent to the Site. Samples were analyzed for Cr+6 by EPA Method 218.7 and total chromium by ICP-MS ISM02.2.

3.3. October 2015 Sampling Event

On October 1, 2015, the OSC and START team members mobilized to the W&G Electroplating Site. Stream depth and flow were elevated from previous sampling events. Conditions at the Site were clear and sunny. The OSC directed START to place marker flags in the swale/ditch area near the old treatment system location to demarcate soil sampling locations.

Once sampling locations were determined, START commenced soil sample collection activities. An attempt was made to collect samples at 0-6" bgs and a second sample at 6-24" bgs. The attempts were successful at two of the four locations. At two of the sampling locations the 6-24" sample could not be collected due to ground resistance. In all, six soil samples, from four discrete locations, with two duplicates, were collected. The samples collected were analyzed for total chromium by ICP-MS ISM02.2, and Cr+6 using extraction SW846 3060A and analyzed by EPA Method 218.6.

START also collected surface and pore water samples. Samples were collected at previously sampled locations (pore and surface water). These previously sampled locations were identified by utilizing GPS navigation coordinates. In all, three pore water samples, from three discrete locations, and four surface water, from four discrete locations, plus one duplicate, were collected. At the location of two surface water

samples, a co-located pore water sample was also collected. At these locations, the surface water sample was collected prior to the pore water sample to minimize the sediment disturbance. The remaining surface and pore water samples were collected from their own discrete locations. All the water samples were analyzed for Cr+6 by EPA Method 218.6 and total chromium by ICP-MS ISM02.2. The team collected GPS coordinates for the soil samples and the new pore water collection point. The OSC and START determined the lower detection limit gained by using the more expensive method 218.7 was not necessary at the Site as the results from previous sampling events were well above the detection limit of 218.6.

While on site, one START team member (Matthew Gadd) stated that he observed a Fisher Cat across Booths Creek from the W&G Electroplating Site during sampling activities. The animal was not captured to identify the species. Fishers are not commonly found in this region of the United States, being predominantly located in the northern US. There are isolated populations in the Appalachian Mountains. Discovery of a Fisher in this area may indicate a need for further investigation into the wildlife in the region as the Fisher is considered endangered in some regions of the United States and Canada.

3.4. December 2015 Sampling Event

On December 9, 2015, the OSC and START mobilized to the W&G Electroplating Site. Stream flow and depth were similar to that of the March and July 2015 sampling events. Conditions were again sunny and clear at the Site. Surface water samples were collected from the bottom of the water column during this sampling event. The sampling team utilized a peristaltic pump with Tygon® tubing placed near the bottom of the stream bed to collect the samples.

The surface water samples were collected at a previously sampled location, as well as four (4) new locations. A total of five discrete locations were sampled. GPS coordinates were used to locate the previous sample locations as well as log the new locations. All the water samples were analyzed for Cr+6 by EPA Method 218.6 and total chromium by ICP-MS ISM02.2.

START also collected one sample, including one duplicate sample, from the primary sump location while on site. The sampled groundwater exhibited a distinct neon-yellow/green color, similar to the samples collected in March 2015. The sump samples were analyzed for Cr+6 by EPA Method 218.6 and total chromium by ICP-MS ISM02.2.

3.5. July 2016 Geophysical Survey

On July 20, 2016, START, along with the OSC, met with representatives from ERT at the Site. ERT, the OSC, and START discussed a plan to complete a geophysical study of the Site. ERT planned to use an EM-31 Electromagnetic Detector to conduct the survey. ERT experienced software issues and was unable to complete the study on 7/20/2016. ERT, START, and the OSC returned to the Site on 7/21/2016 to complete the survey.

On 7/21/2016, ERT used the EM-31 to walk the property to complete the geophysical survey. ERT began near the road and walked a northwest-southeast path. The path was repeated in parallel 10' increments, with transects moving away from the road and toward the building. As the survey approached the building, the increments were decreased to 5'. After the survey of the area between the building and road was completed, the northern side of the building was surveyed, followed by the southern side of the building. The western side of the building was surveyed in the same fashion as the eastern side of the building.

ERT verbally communicated the results of the Geophysical Survey which were interpreted to determine that no indication of buried drums or other anomalies (i.e. tanks) on the subject property.

3.6. August 2016 Soil Sampling and Geoprobe Event

After obtaining permission from the property owner to conduct additional sampling on the Site property and inside the building, the OSC and START submitted Request for Bids (RFB) to four drilling companies to conduct borehole installation activities at the Site. An award was made to JL Sexton and Son Drilling, and a lab request was submitted to CLP for lab services for the analysis of groundwater and soil samples for total chromium and hexavalent chromium.

On August 15, 2016, START met with JL Sexton and Son (Sexton) at the Site to discuss the anticipated work for the coming days. Locations were scouted for the installation of push point groundwater samplers, as well as the locations for the boreholes. Work was scheduled to begin the next morning.

On August 16, 2016, START, Sexton, the OSC, and a representative from ERT met at the Site to begin borehole installation activities. Sexton began by installing six push point groundwater samplers. START collected groundwater samples from each of these locations. The groundwater was purged using a peristaltic pump until the turbidity was visually cleared up and/or consistent, then samples were collected directly into dedicated sampling bottles and preserved on Site. Samples were analyzed for Cr+6 by EPA Method 218.6 and total chromium by ICP-MS ISM02.2.

Sexton then moved to the borehole and soil sampling portion of the work. A Geoprobe 54 series mounted on a Boxer Brute 427 rubber tracked mini-skid steer/loader was used for the work. Sexton completed boreholes, labeled core sleeves with pertinent information, and delivered the sleeves to the ERT representative for logging. After logging, the material was placed in dedicated aluminum pans and delivered to START in approximately 2' intervals (i.e. 0-2', 2-4', 4-6', and >6'). START homogenized the soil and collected samples at each interval. Sexton also collected cores from inside the building on the property. To collect these cores, Sexton began by using a concrete drill bit to remove a cylinder of concrete from predetermined locations. The depth of concrete removed was determined by the depth of the floor slab. The concrete ranged from approximately 3.75" (BH1) – approximately 6.75" (BH5). After clearing the

concrete, collection of sleeves and samples continued in the same fashion as the samples collected outside. After samples were collected and the borehole was deemed complete by START, Sexton backfilled the boreholes with a concrete slurry in a due diligence attempt to return the property to original state. For restoration of outside boreholes, topsoil was applied. All samples were analyzed for total chromium by ICP-MS ISM02.2, and Cr+6 using extraction SW846 3060A and analyzed by EPA Method 218.6.

Sample collection operations were completed on 8/17/2016. START returned to the Site on 8/18/2016 to collect information necessary to facilitate mapping the borehole locations. Due to overhead vegetation, START was not able to collect accurate GPS coordinates. Using a fixed point (the primary sump location), START collected a distance and degree measurement. START personnel were able to convert this data into GPS coordinates and produce a sample location map.

4. VALIDATED ANALYTICAL RESULTS

4.1. Contaminants of Concern

The Contaminants of Concern (COCs) for this project are chromium and hexavalent chromium (Cr+6). These COCs are expected to represent remnants of the chrome plating processes that occurred at the facility while it was operating.

4.2. Results Tables and Maps

Analytical data from all sampling events was validated by EPA Region III ESAT. Validated data is summarized and presented in Tables 1 – 6. The tables are organized by matrix, with each location grouped together for ease of comparison. Validated data was received from ESAT on 4/24/2015, 9/21/2015, 12/28/2015, 1/15/2016, and 10/3/2016 for Cr+6 samples. Validated data for the total chromium samples was received from ESAT on 4/16/2015, 9/14/2015, 11/3/2015, 2/5/2016, 10/6/2016, and 10/10/2016. All water samples were compared to Biological Technical Assistance Group (BTAG) screening levels for surface water, 85 µg/L for total chromium and 11 µg/L for Cr+6, (exceedance highlighted red). Note that the pore water validated analytical results were compared against MCLs for reference purposes only. Pore water is not a viable drinking water source, though pore water has the potential to impact surface water. Soil samples were compared to the November 2015 WV DeMinimis Standards for Industrial Soil (110 mg/kg) (exceedance highlighted orange), and the EPA Regional Screening Levels (RSL) for Industrial Soil (6.3 mg/kg) (highlighted in yellow). If the analyte concentration exceeded both benchmarks it will appear with a red highlight.

4.3. QC Samples

QC samples, such as field blanks and rinsate blanks were collected during the sampling events. Field blanks were collected during each of the sampling events. Rinsate blanks were only collected during the July 2015, October 2015, and August 2016 sampling events where non-dedicated equipment was utilized. The March and December

sampling events did not include non-dedicated sampling equipment and this did not require rinsate blank samples. Table 6 – QC Samples Total Chromium/Hexavalent Chromium contains the results for these QC samples. No exceedances were detected for BTAG or MCL.

4.4. Discussion of Results

4.4.1. Surface Water

A total of 22 surface water samples were collected during the 4 sampling events at the Site. Of these samples, four sets of duplicate samples were collected. Four samples were collected from locations upstream from the Site (WG-SW-005, WG-SW-0006, WG-SW-0011, and WG-SW-0015), eight were collected from locations downstream (WG-SW-0001, WG-SW-0007, WG-SW-0012, WG-SW-0016, WG-SW-0017, WG-SW-0018, WG-SW-0019, and WG-SW-0020), ten were collected from locations adjacent the Site, five from locations near the old groundwater treatment system (WG-SW-0002, WG-SW-0003, WG-SW-0008, WG-SW-0013, and WG-SW-0021), and five from locations near the sump (WG-SW-0004, WG-SW-0009, WG-SW-0010, WG-SW-0014, and WG-SW-0022).

All validated analytical results from samples collected upstream of the facility were either non-detect for chromium and Cr+6 or were detected at levels below BTAG. Validated total chromium results for upstream samples ranged from undetected levels to a maximum of 12.4 µg/L in sample WG-SW-0005 (located at WG-SW-005). Validated Cr+6 results ranged from undetected levels to a maximum of 1µg/L in samples WG-SW-0005 and WG-SW-0006 (located at WG-SW-006).

Validated analytical results from samples collected downstream of the Site were either non-detect for chromium and Cr+6 or were detected at levels below BTAG. Total chromium results from samples collected at locations downstream ranged from 2 µg/L (samples WG-SW-0012 and WG-SW-0016 [both located at WG-SW-001]) to 4.7 µg/L (WG-SW-0017, WG-SW-0018 [both located at WG-SW-001], and WG-SW-0020 [located at WG-SW-008]). Validated Cr+6 results ranged from 1 µg/L at WG-SW-0001 to 4.39 µg/L at WG-SW-0018 (both located at WG-SW-001).

Validated analytical results from samples collected at locations adjacent to the Site ranged from non-detect (WG-SW-0009, WG-SW-0010 [location WG-SW-004], WG-SW-0022 [location WG-SW-010]) to 1080 µg/L (WG_SW-0021 [location WG-SW-009]) for total chromium and 0.158 µg/L (WG-SW-0010* [location WG-SW-004]) to 963 µg/L (WG-SW-0021 [location WG-SW-009]) for Cr+6. The validated analytical result for sample WG-SW-0008 (location WG-SW-002) was reported as 355 µg/L for Cr+6. The validated analytical result reported is corrected for a 100X dilution of the sample. The concentration of Cr+6 in the sample reportedly exceeded the calibration range in the initial analysis.

Validated analytical results for samples WG-SW-0008 (location WG-SW-002), WG-SW-0004 (location WG-SW-004), and WG-SW-0021 (location WG-SW-009) exceeded the BTAG value of 11 µg/L for Cr+6 (355, 11.9, and 963 µg/L respectively).

Validated analytical results from all sampling activities are presented in Table 1 – Surface Water Samples Total Chromium/Hexavalent Chromium. The sample locations with accompanying validated analytical results labels are depicted in Figures 2 and 4.

4.4.2. **Sump Water**

Table 2 – Sump Water Samples Total Chromium/Hexavalent Chromium displays the validated analytical results for samples collected from the sump at the Site. Also included in the table are the analytical results from the WVDEP sampling of the sump in August 2014. START sampled ground water from the sump in March and December 2015. Duplicate sump water samples were collected during each sampling event.

All validated analytical results for samples collected at the sump exceeded the BTAG values for total chromium, with the lowest result being 3,540 µg/L in March 2015 and the highest result being 5,900 µg/L in December 2015. The samples all exceeded the BTAG values for Cr+6, with the lowest result being 3,500 µg/L collected in March of 2015 and the highest being 5,440 µg/L, collected in December of 2015. WVDEP data from their 2014 event exhibited similar levels, with total chromium levels being 4,660 µg/L and Cr+6 levels being 4,140 µg/L.

4.4.3. **Groundwater Screening Samples**

Groundwater screening samples were collected during the August 2016 Sampling Event. Groundwater screening samples were collected from push point samplers installed at six discrete locations, with a duplicate collected at one location, for a total of seven samples. All samples were compared to BTAG values for total and hexavalent chromium.

All groundwater screening samples exceeded the BTAG values for total chromium, with sample number WG-GW-0052 (location BH17) being the lowest (1,180 µg/L) and sample number WG-GW-0055 (location BH20) the highest (7,600 µg/L). All samples exceeded BTAG for Cr +6 except for WG-GW-0054 (BH19), which was undetected. For detected results, sample number WG-GW-0052 (location BH17) again exhibited the lowest result, (641 µg/L) and sample WG-GW-0055 (location BH20) exhibited the highest result (7,230 µg/L).

Table 3 – Groundwater Screening Samples Total Chrome/Hexavalent Chrome displays the total groundwater results. Figure 6 details the locations of the push point samplers and the validated results for the samples.

4.4.4. Pore Water

Pore Water samples were collected in July and October 2015. Validated analytical results from the Pore Water sampling are reported in Table 4 – Pore Water Samples Total Chromium/Hexavalent Chromium. Figures 2 and 3 detail the sampled locations and the associated validated results.

Validated analytical data for Hexavalent Chromium in pore water samples ranged from non-detect in samples WG-PW-0002 (location WG-SW-002), WG-PW-0003, and WG-PW-0006 (both at location WG-SW-004) to a maximum concentration of 1,150 µg/L at WG-PW-0001 (location WG-SW-001). Validated analytical data indicated that total chromium levels ranged from 2.2 µg/L at WG-PW-0002 and WG-PW-0003 (locations WG-SW-002 and WG-SW-004 respectively) to a maximum of 1,250 µg/L at WG-PW-0001 (location WG-SW-001). Validated analytical data from sample WG-SW-0001 exceeded BTAG for total chromium and Cr+6.

4.4.5. Soil Samples

Tables 5 – 5d contain benchmark comparisons of validated analytical data from the soil samples collected at the Site. Table 5 – Soil Samples Total Chrome/Hexavalent Chrome presents the combined data for all soil samples collected. Tables 5a – 5d contain breakdown comparisons of the data organized by sample depth. Figure 5 - Borehole Sample Locations details the locations where boreholes were advanced, while Figures 6-10 represent the validated data from these locations, organized by sample depth.

Soil samples were collected during the October 2015 and August 2016 sampling events. The samples collected during the October 2015 sampling event were from sample locations to the northwest of the building, in the area adjacent to the old/removed treatment area. The samples collected during August 2016 were collected in the area adjacent to (downgradient from) and inside the building.

During the October 2015 Sampling event, samples were collected at four discrete locations, with two locations (WG-SS-0003 and WG-SS-0004) being collected at two different depths (0-6" and 6-24"). An attempt was made at each location to collect surface and subsurface samples, however refusal was met at 6" at locations WG-SS-0001 and WG-SS-0002. During the August 2016 Sampling Event, soil samples were collected at 21 discrete locations. All 21 locations were sampled at the surface – 2' interval (BH21, WG-SS-0068 was sampled at a 0-3' interval as refusal was encountered near the 3' depth). 17 locations (BH2, BH3, BH4, BH5, BH6, BH7, BH8, BH9, BH10, BH12, BH13, BH14, BH15, BH16, BH18, BH19, and BH20) were sampled at the 2-4' interval (location BH2, WG-SS-0013

encountered refusal at ~3.3', therefore the interval at this location is 2-3'). 12 locations were sampled at the 4-6' interval (BH1, BH2, BH3, BH4, BH5, BH6, BH7, BH8, BH9, BH14, BH15, and BH16), and 7 locations were sampled at depths greater than 6' (BH1, BH2, BH3, BH4, BH5, BH6, and BH7).

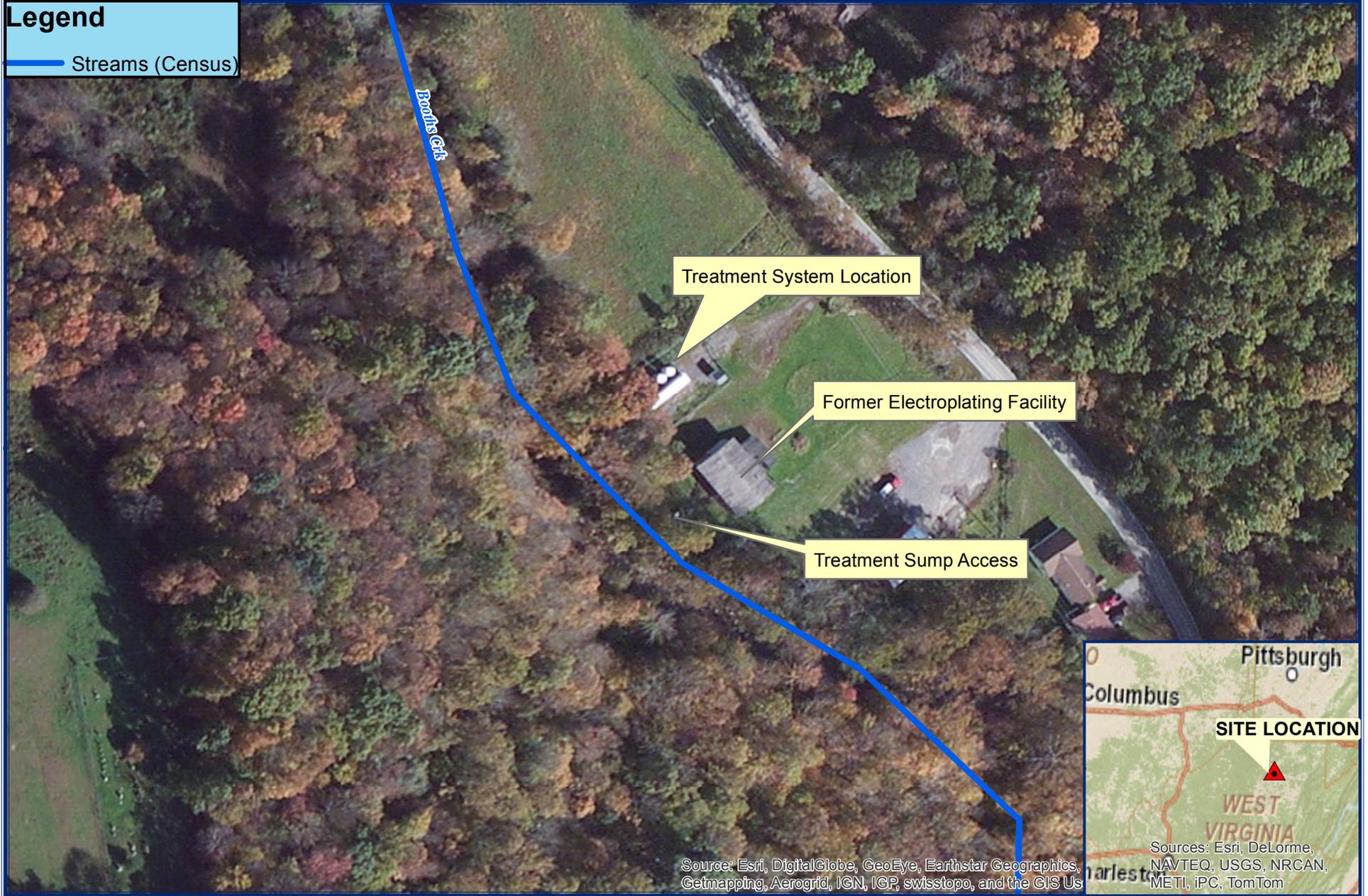
There are no WV DeMinimis or RSL levels for Industrial Soil for total chromium, therefore no benchmark/guidance levels were compared. Validated analytical data results from the October 2015 Sampling Event for total chromium at the Site ranged from 14.6 mg/kg at WG-SS-0004 (location WG-SS-0003 [6-12"]) to the maximum value of 156 mg/kg at WG-SS-0002 (location WG-SS-0002). Total chromium was detected in each of the samples. Validated analytical data results for Cr+6 ranged from non-detect at samples WG-SS-0003 (location WG-SS-003 [3-6"]) and WG-SS-0006 and WG-SS-0007 (both collected at location WG-SS-004 [3-6"]) to the maximum 13.7 at sample WG-SS-0001, location WG-SS-0001, which exceeds the RSL for Industrial Soil.

During the August 2016 Sampling Event, Cr+6 was detected at all but three locations, BH5 (4-6', and 6-8') and BH9 (4-6'). Validated analytical results for samples collected at shallower depths at these locations had positive detections for Cr+6. The highest concentrations of Cr+6 reported were from a sample collected at location BH14 (2-4') (1,340 mg/kg). This location is situated near the center of the southwest wall of the existing building. Samples collected at borehole locations from inside the building (BH1 – BH4) had validated analytical results indicating high concentrations of Cr+6 in areas where START observed visual potential contamination (yellow staining of the concrete believed to be from chromic acid). The surface sample collected at sample location BH5, also located inside the building, but without the visible staining, exhibited low concentrations of Cr+6, while slightly higher levels were indicated in validated analytical results for the sample collected at the 2-4' depth. Neither of these results exceeded either WV DeMinimus or RSL levels for Cr+6. There was no detection of Cr+6 reported for samples collected below the 4' depth at this location (BH5). With the exception of 11 samples (WG-SS-0021, WG-SS-0022, WG-SS-0023, WG-SS-0080, WG-SS-0029, WG-SS-0031, WG-SS-0034, WG-SS-0035, WG-SS-0039, WG-SS-0042, and WG-SS-0063) all locations sampled yielded validated analytical results that exceeded the WV DeMinimus of 110 mg/kg. Validated analytical results for samples WG-SS-0009, WG-SS-0011, WG-SS-0012, WG-SS-0013, WG-SS-0014, WG-SS-0082, WG-SS-0016, WG-SS-0017, WG-SS-0065, WG-SS-0018, WG-SS-0020, WG-SS-0038, WG-SS-0024, WG-SS-0025, WG-SS-0026, WG-SS-0078, WG-SS-0046, WG-SS-071, WG-SS-0049, WG-SS-0050, WG-SS-0055, WG-SS-0056, WG-SS-0064, WG-SS-0067, and WG-SS-0068 exceeded both the RSL and WV DeMinimus (6.3 mg/kg and 110 mg/kg respectively). See the tables below for a more detailed summary of the results.

5. CONCLUSION

In conclusion, validated analytical data, both from the START sampling activities, and the WVDEP sampling activities, indicates a significant presence of COCs (both total chromium and Cr+6) in the sump at the Site. Further, validated analytical data indicates that there are also COCs present in the waters of Booths Creek and the surface and subsurface soil at the Site, both surface soils and subsurface soils. The validated data indicate contaminated soils are present beneath the building. Groundwater screening data indicates that contamination from beneath the building is emanating into the soils present in the south side (Booths Creek side) of the site, with the potential for a contamination plume running in a slightly northwesterly direction directly to Booths Creek. It is recommended that removal actions or treatment options be investigated for the Site.

Figures



TDD No. TL03-15-02-001
START Contract No. EP-S3-10-04

Figure 1 - Site Location Map
W&G Electroplating Site
Boothville, Taylor County, West Virginia

0 0.0125 0.025 0.05 Miles

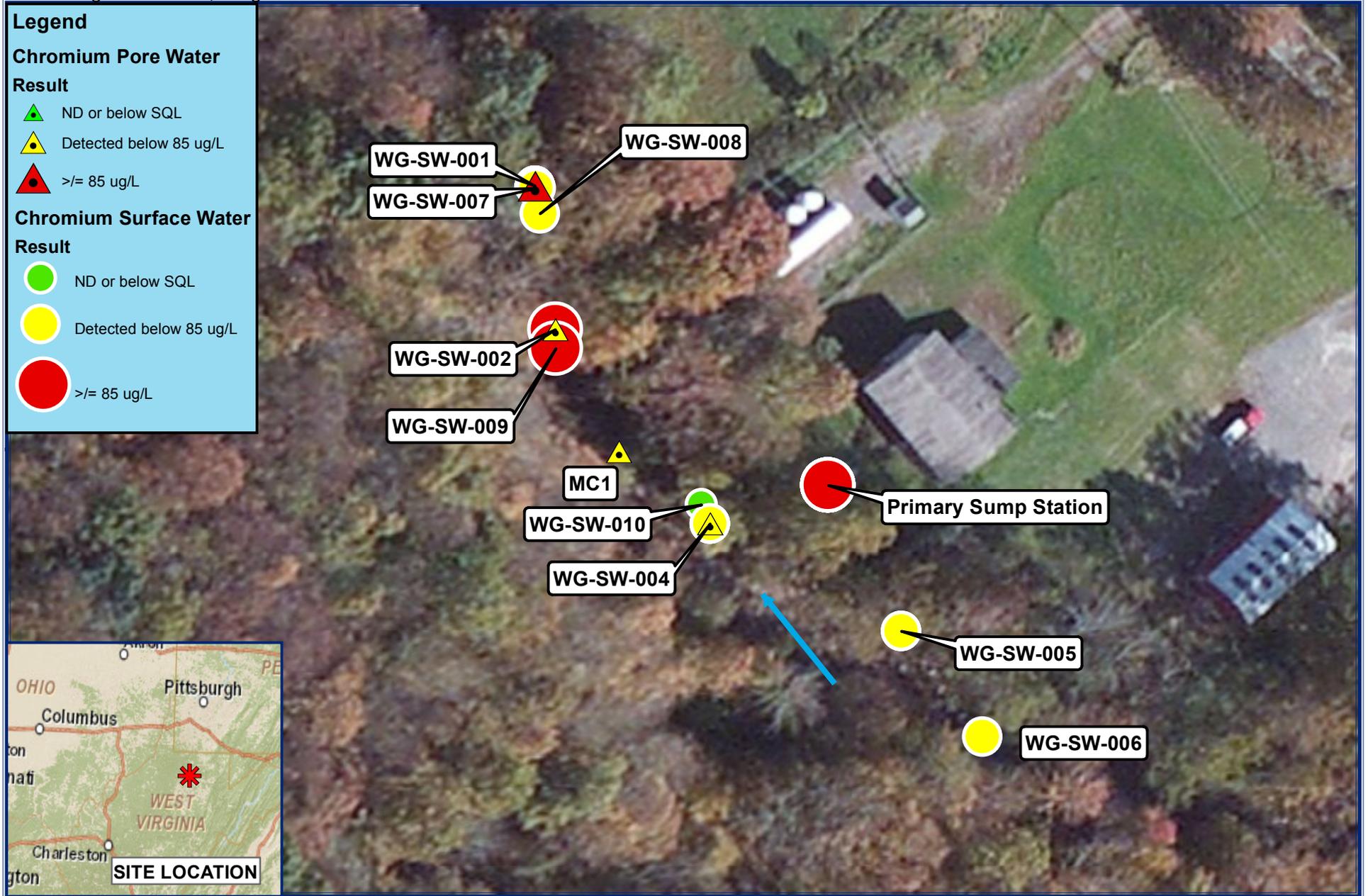
Map By:
WFH

Date Modified:
3/12/2015

Scale: 1:1,439



Source:
Online Services for ESRI - World Imagery
US Streams (U.S. Census Tiger Lines 2011)



TechLaw
 TDD No. T501-15-07-008
 START Contract No. EP-S3-15-03

Figure 2: Chromium Results Map
 Surface Water and Pore Water Sample Locations
 W&G Electroplating Site
 Boothsville, Taylor County, West Virginia

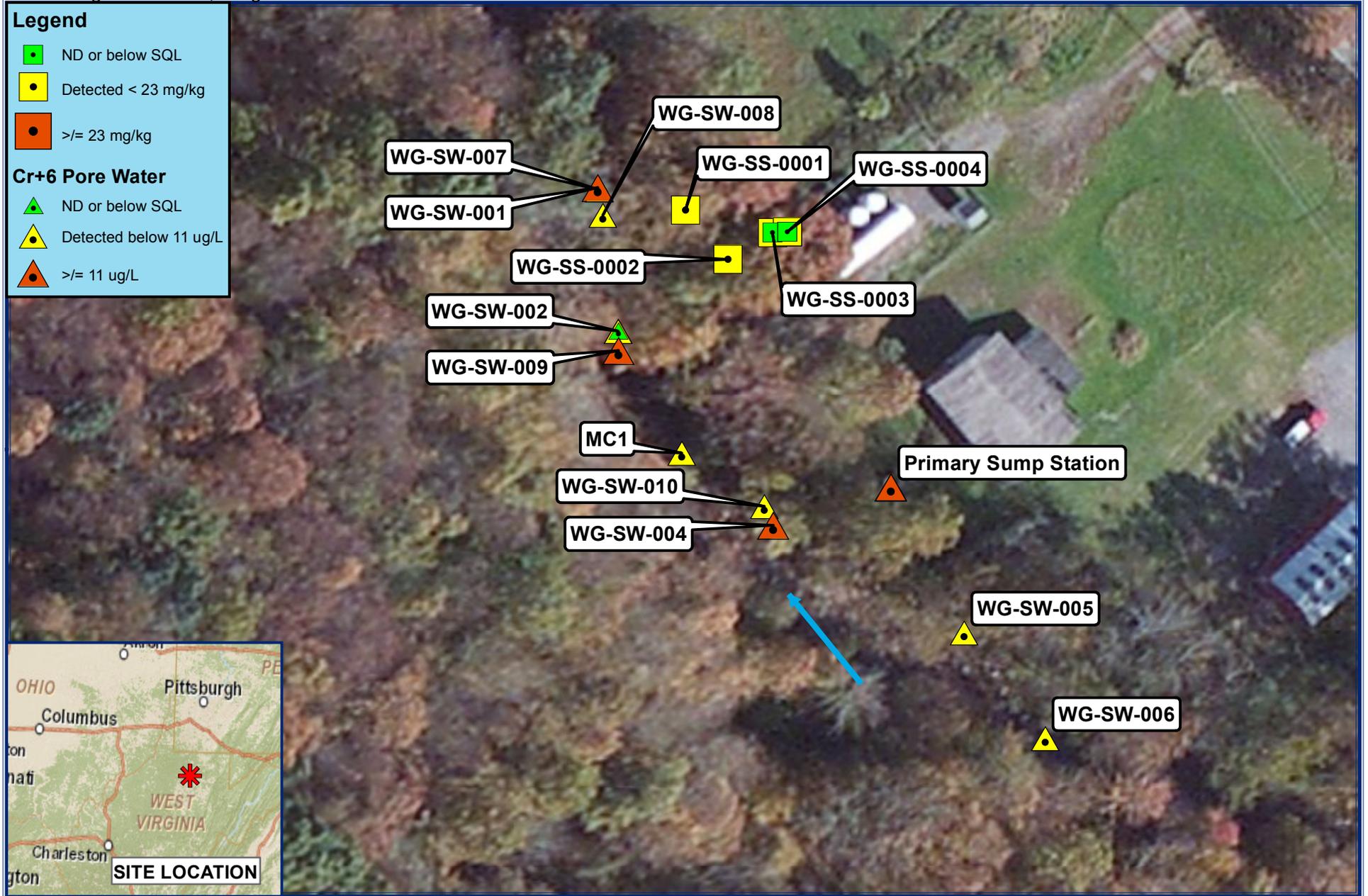
0 37.5 75 150 Feet

Map By:
 WFH
 Date Modified:
 5/16/2016
 Scale: 1:737



Source:
 Online Services for ESRI - World Imagery
 US Streams (U.S. Census Tiger Lines 2011)

Note:
 Surface water BTAG = 85 ug/L (2006)
 Sump water sample location included for
 reference only - not actually surface water



TechLaw
TDD No. T501-15-07-008
START Contract No. EP-S3-15-03

Figure 3: Hexavalent (Cr+6) Chromium Results Map
Pore Water and Soil Sample Locations
W&G Electroplating Site
Boothsville, Taylor County, West Virginia

0 37.5 75 150 Feet

Map By: WFH
Date Modified: 5/16/2016
Scale: 1:737



Source:
Online Services for ESRI - World Imagery
US Streams (U.S. Census Tiger Lines 2011)

Note:
Soil RSL = 23 mg/kg (1x10E6 risk, HQ0.1)
Surface water BTAG = 11 ug/L (2006)
Sump water sample location included for reference only - not actually pore water

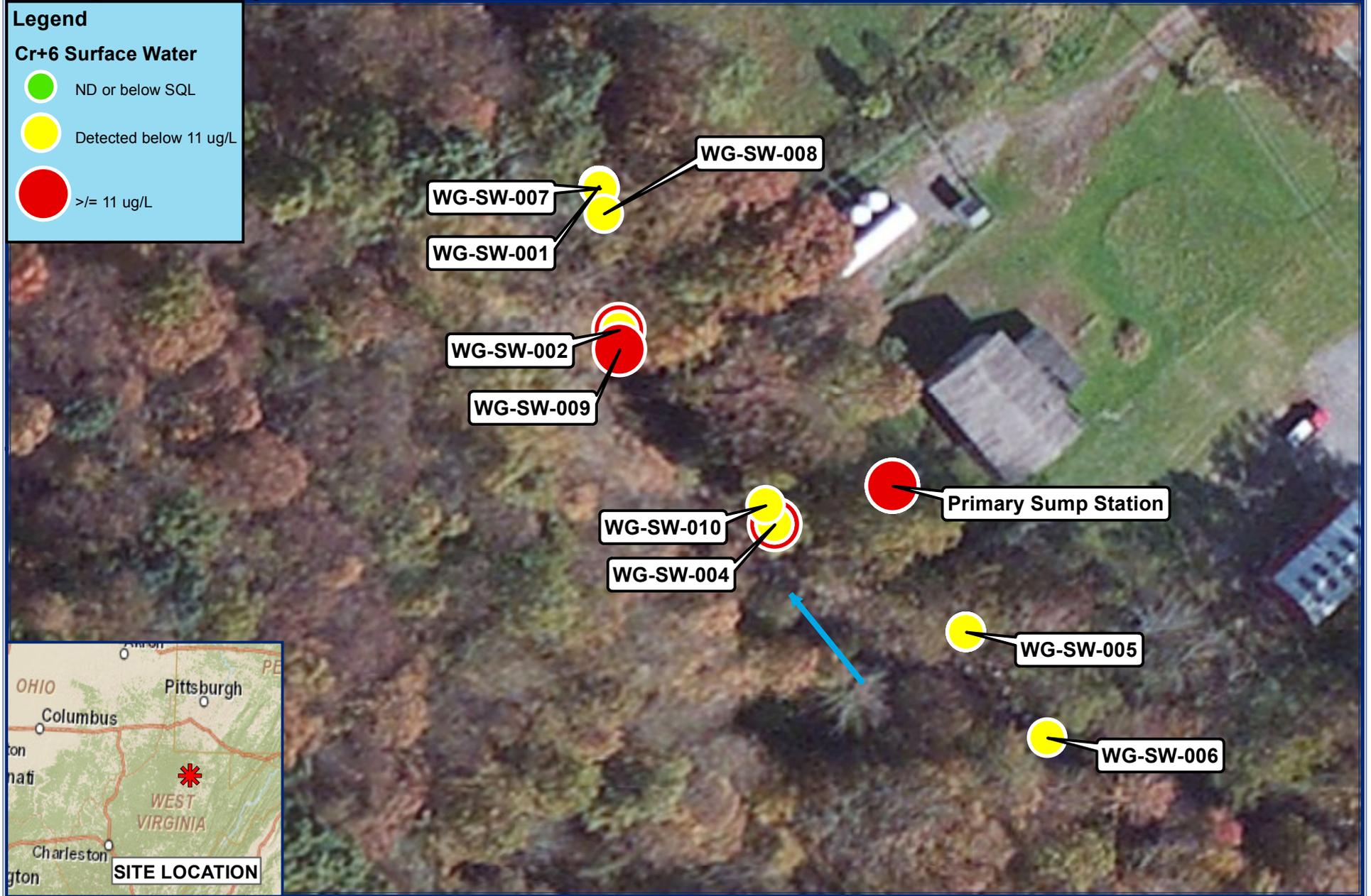


Figure 4: Hexavalent (Cr+6) Chromium Results Map
Surface Water Sample Locations
W&G Electroplating Site
Boothsville, Taylor County, West Virginia

0 37.5 75 150 Feet

Map By: WFH
Date Modified: 5/16/2016
Scale: 1:737



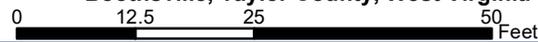
Source:
Online Services for ESRI - World Imagery
US Streams (U.S. Census Tiger Lines 2011)

Note:
Surface water BTAG = 11ug/L (2006)
Sump water sample location included for reference only - not actually surface water



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 TDD No. T501-15-07-008
 START Contract No. EP-S3-15-03

**Figure 5 - Borehole Sample Locations
 August 2016
 W&G Electroplating Site
 Boothsville, Taylor County, West Virginia**



Map By:
 WFH
 Date Modified:
 11/17/2016
 Scale: 1:241



Source:
 NAIP Imagery from ESRI Online Services
 US Streams (U.S. Census Tiger Lines 2011)
Note:
 BH = Borehole Location; ug/L = parts per billion
 All samples collected using direct push technology
 Water samples collected at Borehole Locations
 using Screen Point sampler and peristaltic pump



TechLaw
TDD No. T501-15-07-008
START Contract No. EP-S3-15-03

Figure 6-August 2016 Groundwater Screening Sample Location and Cr+6 Results Map
W&G Electroplating Site
Boothsville, Taylor County, West Virginia



Map By: WFH
Date Modified: 10/6/2016
Scale: 1:257



Source:
NAIP Imagery from ESRI Online Services
US Streams (U.S. Census Tiger Lines 2011)
Note:
BH = Borehole Location; ug/L = parts per billion
All samples collected using direct push technology
Water samples collected at Borehole Locations using Screen Point sampler and peristaltic pump



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 TDD No. T501-15-07-008
 START Contract No. EP-S3-15-03

Figure 7 - August 2016 Soil Sample Location and Results Map First Depth Interval (typically 0-2 feet) W&G Electroplating Site Boothsville, Taylor County, West Virginia

0 15 30 60 Feet

Map By: WFH
 Date Modified: 10/6/2016
 Scale: 1:261



Source:
 NAIP Imagery from ESRI Online Services
 US Streams (U.S. Census Tiger Lines 2011)

Note:
 BH = Borehole Location; ng/g = parts per billion
 All samples collected using direct push technology
 Water samples collected at Borehole Locations using Screen Point sampler and peristaltic pump



Legend

▲ Sample Locations August 2016



TechLaw
 TDD No. T501-15-07-008
 START Contract No. EP-S3-15-03

Figure 8 - August 2016 Soil Sample Location and Results Map Second Depth Interval (typically 2-4 feet)
 W&G Electroplating Site
 Boothsville, Taylor County, West Virginia

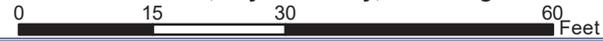
Map By: WFH
 Date Modified: 10/6/2016
 Scale: 1:257



Source:
 NAIP Imagery from ESRI Online Services
 US Streams (U.S. Census Tiger Lines 2011)
Note:
 BH = Borehole Location; ng/g = parts per billion
 All samples collected using direct push technology
 Water samples collected at Borehole Locations using Screen Point sampler and peristaltic pump



Figure 9 - August 2016 Soil Sample Location and Results Map Third Depth Interval (4-6 feet)
W&G Electroplating Site
Boothsville, Taylor County, West Virginia



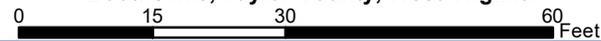
Map By: WFH
Date Modified: 10/6/2016
Scale: 1:257



Source:
NAIP Imagery from ESRI Online Services
US Streams (U.S. Census Tiger Lines 2011)
Note:
BH = Borehole Location; ng/g = parts per billion
All samples collected using direct push technology
Water samples collected at Borehole Locations using Screen Point sampler and peristaltic pump



**Figure 10: August 2016 Soil Sample Location and Cr+6 Results Map: Fourth Depth Interval (typically 6-8 feet)
W&G Electroplating Site
Boothsville, Taylor County, West Virginia**



Map By: WFH
Date Modified: 1/5/2017
Scale: 1:257



Source:
NAIP Imagery from ESRI Online Services
US Streams (U.S. Census Tiger Lines 2011)
Note:
BH = Borehole Location; ng/g = parts per billion
All samples collected using direct push technology
Water samples collected at Borehole Locations using Screen Point sampler and peristaltic pump

Tables

**Table 1 - Surface Water Samples
Total Chrome/Hexavalent Chrome**

		Sample #:	WG-SW-0001	WG-SW-0007	WG-SW-0012	WG-SW-0016	WG-SW-0017	WG-SW-0018	WG-SW-0002	WG-SW-0003	WG-SW-0008									
		Sampling Location:	WG-SW-001	WG-SW-001	WG-SW-001	WG-SW-001	WG-SW-001	WG-SW-001	WG-SW-002	WG-SW-002	WG-SW-002									
		Sampling Event:	March 2015	July 2015	October 2015	October 2015	December 2015	December 2015	March 2015	March 2015	July 2015									
		Matrix:	Surface Water																	
		Units:	ug/L																	
		Date Sampled:	3/24/2015	7/22/2015	10/1/2015	10/1/2015	12/9/2015	12/9/2015	3/24/2015	3/24/2015	7/22/2015									
		Date Analyzed:	3/26/2015	8/6/2015	10/21/2015	10/21/2015	12/10/2015	12/10/2015	3/26/2015	3/26/2015	8/6/2015									
Parameter	CAS No.	BTAG SW ug/L	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
Chromium	7440-47-3	85	E200.8/ICPMS	2.5		3.4		2		2		4.7		4.7	J	21.1		10.9		345
Hexavalent Chromium	18540-29-9	11	E218.6	1		2.56		1.52		1.46				4.39		1		1		355

**Table 1 - Surface Water Samples
Total Chrome/Hexavalent Chrome**

		Sample #:	WG-SW-0013	WG-SW-0004	WG-SW-0009	WG-SW-0010	WG-SW-0014	WG-SW-0005	WG-SW-0011	WG-SW-0015	WG-SW-0006								
		Sampling Location:	WG-SW-002	WG-SW-004	WG-SW-004	WG-SW-004	WG-SW-004	WG-SW-005	WG-SW-005	WG-SW-005	WG-SW-006								
		Sampling Event:	October 2015	March 2015	July 2015	July 2015	October 2015	March 2015	July 2015	October 2015	March 2015								
		Matrix:	Surface Water																
Shading:		Units:	ug/l																
Red Exceeds BTAG		Date Sampled:	10/1/2015	3/24/2015	7/22/2015	7/22/2015	10/1/2015	3/24/2015	7/22/2015	10/1/2015	3/24/2015								
		Date Analyzed:	10/21/2015	3/26/2015	8/6/2015	8/6/2015	10/21/2015	3/26/2015	8/6/2015	10/21/2015	3/26/2015								
Parameter	CAS No.	BTAG SW ug/L	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chromium	7440-47-3	85	E200.8/ICPMS	7.8		22.6		0.84		2		12.4		2		4			
Hexavalent Chromium	18540-29-9	11	E218.6	4.42	J-	11.9		0.16		0.726		1		0.167		0.63		1	

**Table 1 - Surface Water Samples
Total Chrome/Hexavalent Chrome**

Shading: Red Exceeds BTAG		Sample #:	WG-SW-0019	WG-SW-0020	WG-SW-0021	WG-SW-0022					
		Sampling Location:	WG-SW-007	WG-SW-008	WG-SW-009	WG-SW-010					
		Sampling Event	December	December	December	December					
		Matrix:	2015	2015	2015	2015					
		Units:	Surface Water	Surface Water	Surface Water	Surface Water					
Date Sampled:	ug/L	ug/L	ug/L	ug/L							
Date Analyzed:	12/9/2015	12/9/2015	12/9/2015	12/9/2015							
		12/10/2015	12/11/2015	12/10/2015	12/10/2015						
Parameter	CAS No.	BTAG SW ug/L	Analysis	Result	Q	Result	Q	Result	Q	Result	Q
Chromium	7440-47-3	85	E200.8/ICPMS	2.8	J	4.7	J	1080	J		
Hexavalent Chromium	18540-29-9	11	E218.6	2.4		4.37		963		1	

**Table 2 - Sump Water
Total Chrome/Hexavalent Chrome**

		Sample #:	WG-SP-0001	WG-SP-0002	WG-SP-0003	WG-SP-0004	WG Sump				
		Sampling Location:	Primary Sump Station								
		Sampling Event:	March 2015	March 2015	December 2015	December 2015	WV DEP				
		Matrix:	Ground Water								
		Units:	ug/L	ug/L	ug/L	ug/L	ug/L				
		Date Sampled:	3/24/2015	3/24/2015	12/9/2015	12/9/2015	8/27/2016				
		Date Analyzed:	3/26/2015	3/26/2015	12/10/2015	12/10/2015	9/9/2014				
Parameter	CAS No.	BTAG	Analysis	Result	Q	Result	Q	Result	Q	Result	Q
Chromium	7440-47-3	85	E200.8	3540		3620		5900 J		5730 J	
Hexavalent Chromium	18540-29-9	11	epA 218.6	3500		3500		5420		5440	
Chromium	7440-47-3	85	EPA200.7								4660
Hexavalent Chromium	18540-29-9	11	SM3500CRB-09								4140

**Table 3 - Groundwater Screening Samples
Total Chrome/Hexavalent Chrome**

		Sample #:	WG-GW-0050	WG-GW-0051	WG-GW-0052	WG-GW-0053	WG-GW-0056	WG-GW-0054	WG-GW-0055								
		Sampling Location:	BH13	BH15	BH17	BH18	BH18	BH19	BH20								
		Sampling Event	August 2016														
		Matrix:	Ground Water														
		Units:	ug/L														
		Date Sampled:	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016								
		Date Analyzed:	8/18/2016	8/18/2016	8/18/2016	8/18/2016	8/18/2016	8/18/2016	8/18/2016								
Parameter	CAS No.	BTAG	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q		
Chromium	7440-47-3	85	E200.8	4590		2990		1180		2600		2440		6080		7600	
Hexavalent Chromium	18540-29-9	11	epA 218.6	4730		2820		641		2410		2440				7230	

**Table 4 - Pore Water
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-PW-0001	WG-PW-0002	WG-PW-0004	WG-PW-0003	WG-PW-0006	WG-PW-0005	
				Sampling Location:	WG-SW-001	WG-SW-002	WG-SW-002	WG-SW-004	WG-SW-004	MC1	
				Sample Type	July 2015	July 2015	October 2015	July 2015	October 2015	October 2015	
				Matrix:	Pore Water	Pore Water	Pore Water	Pore Water	Pore Water	Pore Water	
				Units:	ug/L	ug/L	ug/l	ug/L	ug/l	ug/l	
Shading				Date Sampled:	7/22/2015	7/22/2015	10/1/2015	7/22/2015	10/1/2015	10/1/2015	
Red - Result Exceeds MCL				Date Analyzed:	8/6/2015	8/6/2015	10/21/2015	8/6/2015	10/21/2015	10/21/2015	
Parameter	CAS No.	BTAG	Analysis	Result	Q	Result	Q	Result	Q	Result	Q
Chromium	7440-47-3	85	E200.8/ICP	1250		2.2		20.5		2.2	
Hexavalent Chromium	18540-29-9	11	E218.6	1150				0.161	J+		
										6.1	
											17.5
											0.877

**Table 5 - Soil Samples
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0001	WG-SS-0002	WG-SS-0003	WG-SS-0004	WG-SS-0005	WG-SS-0006	WG-SS-0007	WG-SS-0008							
				Sampling Location:	WG-SS-0001	WG-SS-0002	WG-SS-0003	WG-SS-0003	WG-SS-0004	WG-SS-0004	WG-SS-0004	WG-SS-0004							
				Sampling Event:	October 2015														
Shading:				Matrix:	Soil														
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	3-6"	3-6"	3-6"	6-12"	3-6"	3-6"	6-14"	6-14"							
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	10/1/2015	10/1/2015	10/1/2015	10/1/2015	10/1/2015	10/1/2015	10/1/2015	10/1/2015							
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	10/2/2015	10/2/2015	10/2/2015	10/2/2015	10/2/2015	10/2/2015	10/2/2015	10/2/2015							
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	85.7		79.8		82.9		84.4		78.1		78.4		83.8		83.9
Chromium	7440-47-3			E200.7/ICPMS	78.9		156		17.9		14.6		22.9		21.2		22.9		23.3
Hexavalent Chromium	18540-29-9	6.3	110	epA 218.6/SW7199	13.7		4.6				0.96						2.94		2.72

**Table 5 - Soil Samples
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0009	WG-SS-0011	WG-SS-0062	WG-SS-0012	WG-SS-0013	WG-SS-0014	WG-SS-0081	WG-SS-0082	WG-SS-0015								
				Sampling Location:	BH1	BH1	BH1	BH2	BH2	BH2	BH2	BH2	BH3								
				Sampling Event:	August 2016																
Shading:				Matrix:	Soil																
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	0-2'	4-6'	6-8'	0-2'	2-3'	4-6'	6-7.1'	6-7.1'	0-2'								
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	8/17/2016	8/17/2016	8/17/2016	8/17/2016	8/16/2016	8/17/2016	8/17/2016	8/17/2016	8/17/2016								
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016								
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	82.4		79.4		78.6		85.5		79.8		80.1		83.9		82.3		83.3
Chromium	7440-47-3			E200.7/ICPMS	978		3860		1210		622		798		1110		910		1170		44.2
Hexavalent Chromium	18540-29-9	6.3	110	epA 218.6/SW7199	197		214		31		307		239		249		110		294		60.7

**Table 5 - Soil Samples
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0016	WG-SS-0017	WG-SS-0065	WG-SS-0018	WG-SS-0019	WG-SS-0020	WG-SS-0038	WG-SS-0021							
				Sampling Location:	BH3	BH3	BH3	BH4	BH4	BH4	BH4	BH5							
				Sampling Event:	August 2016														
Shading:				Matrix:	Soil														
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	2-4'	4-6'	6-8'	2-4'	0-2'	4-6'	6-7.3'	0-2'							
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	8/17/2016	8/17/2016	8/17/2016	8/17/2016	8/17/2016	8/17/2016	8/17/2016	8/17/2016							
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016							
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	83.2		80.2		82.6		82		84.8		77.9		83.7		84.7
Chromium	7440-47-3			E200.7/ICPMS	394		5310		944		2210		1070		9090		5870		21.7
Hexavalent Chromium	18540-29-9	6.3	110	epA 218.6/SW7199	373		123		161		247		64.4		948		1050		0.74

**Table 5 - Soil Samples
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0022	WG-SS-0023	WG-SS-0080	WG-SS-0024	WG-SS-0025	WG-SS-0026	WG-SS-0078	WG-SS-0027	WG-SS-0028								
				Sampling Location:	BH5	BH5	BH5	BH6	BH6	BH6	BH6	BH7	BH7								
				Sampling Event:	August 2016																
Shading:				Matrix:	Soil																
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	2-4'	4-6'	6-8'	0-2'	2-4'	4-6'	6-8'	0-2'	2-4'								
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	8/17/2016	8/17/2016	8/17/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016								
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016								
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	85.8		75.2		68.9		81.8		83.2		79		85.5		82.5		83.2
Chromium	7440-47-3			E200.7/ICPMS	18.9		21.4		109		4490		3500		2910		3330		28.4		63.8
Hexavalent Chromium	18540-29-9	6.3	110	epA 218.6/SW7199	4.27						191		175		115		177		9.82		6.97

**Table 5 - Soil Samples
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0029	WG-SS-0079	WG-SS-0030	WG-SS-0031	WG-SS-0032	WG-SS-0033	WG-SS-0034	WG-SS-0035	WG-SS-0036	WG-SS-0037									
				Sampling Location:	BH7	BH7	BH8	BH8	BH8	BH9	BH9	BH9	BH10	BH10									
				Sampling Event:	August 2016																		
Shading:				Matrix:	Soil																		
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	4-6'	6-8'	0-2'	2-4'	4-6'	0-2'	2-4'	4-6'	0-2'	2-4'									
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016									
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016									
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q									
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	81.8		80.8		82.8		84.4		81.5		84.3		82.8		80.9		81.5		82.7
Chromium	7440-47-3			E200.7/ICPMS	23.8		1120		135		19.6		5190		1310		16.1		30.5		1350		762
Hexavalent Chromium	18540-29-9	6.3	110	epA 218.6/SW7199	2.75		21.9		6.89		0.67		29.4		9.24		1.05				66.9		20.3

**Table 5 - Soil Samples
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0039	WG-SS-0042	WG-SS-0043	WG-SS-0045	WG-SS-0046	WG-SS-0071	WG-SS-0048	WG-SS-0049	WG-SS-0050	WG-SS-0051									
				Sampling Location:	BH11	BH12	BH12	BH13	BH13	BH13	BH14	BH14	BH14	BH15									
				Sampling Event:	August 2016																		
Shading:				Matrix:	Soil																		
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	0-2'	0-2'	2-4'	0-2'	2-4'	2-4'	0-2'	2-4'	4-6'	0-2'									
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016									
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016										
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q									
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	84.2		84		86.1		79.2		82.9		82.9		80.3		81.4		78.3		82.4
Chromium	7440-47-3			E200.7/ICPMS	25.2		460		512		134		3000		87.7		537		625		1350		1650
Hexavalent Chromium	18540-29-9	6.3	110	epA 218.6/SW7199	3.51		6.14		32.7		89.5		112		113		14.1		1340		694		91.7

**Table 5 - Soil Samples
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0052	WG-SS-0053	WG-SS-0054	WG-SS-0055	WG-SS-0070	WG-SS-0056	WG-SS-0057	WG-SS-0069	WG-SS-0060	WG-SS-0061									
				Sampling Location:	BH15	BH15	BH16	BH16	BH16	BH16	BH17	BH17	BH18	BH18									
				Sampling Event:	August 2016																		
Shading:				Matrix:	Soil																		
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	2-4'	4-6'	0-2'	2-4'	2-4'	4-6'	0-2'	0-2'	0-2'	2-4'									
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016									
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016									
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q									
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	81.7		73.7		81.4		82.9		82.2		81		80		82.8		78.4		84.2
Chromium	7440-47-3			E200.7/ICPMS	439		64.9		26.6		402		1080		3190		654		337		3010		911
Hexavalent Chromium	18540-29-9	6.3	110	epA 218.6/SW7199	80.1		89.5		40.7		189		109		495		48.6		20.7		52.3		99.5

**Table 5 - Soil Samples
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0063	WG-SS-0064	WG-SS-0066	WG-SS-0067	WG-SS-0068				
				Sampling Location:	BH19	BH19	BH20	BH20	BH21				
				Sampling Event:	August 2016								
Shading:				Matrix:	Soil	Soil	Soil	Soil	Soil				
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	0-2'	2-4'	0-2'	2-4'	0-3'				
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/17/2016				
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016				
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	73.5		88.2		78.9		85.3		81.3
Chromium	7440-47-3			E200.7/ICPMS	752		1430		325		1200		101
Hexavalent Chromium	18540-29-9	6.3	110	epa 218.6/SW7199	0.53		268		6.3		140		130

**Table 5a - Soil Samples (surface - 3'depth)
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0001	WG-SS-0002	WG-SS-0003	WG-SS-0004	WG-SS-0005	WG-SS-0006	WG-SS-0007	WG-SS-0008							
				Sampling Location:	WG-SS-0001	WG-SS-0002	WG-SS-0003	WG-SS-0003	WG-SS-0004	WG-SS-0004	WG-SS-0004	WG-SS-0004							
				Sampling Event:	October 2015														
Shading:				Matrix:	Soil														
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	3-6"	3-6"	3-6"	6-12"	3-6"	3-6"	6-14"	6-14"							
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	10/1/2015	10/1/2015	10/1/2015	10/1/2015	10/1/2015	10/1/2015	10/1/2015	10/1/2015							
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	10/2/2015	10/2/2015	10/2/2015	10/2/2015	10/2/2015	10/2/2015	10/2/2015	10/2/2015							
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	85.7		79.8		82.9		84.4		78.1		78.4		83.8		83.9
Chromium	7440-47-3			E200.7/ICPMS	78.9		156		17.9		14.6		22.9		21.2		22.9		23.3
Hexavalent Chromium	18540-29-9	6.3	110	epA 218.6/SW7199	13.7		4.6		0.96								2.94		2.72

**Table 5a - Soil Samples (surface - 3' depth)
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0009	WG-SS-0012	WG-SS-0015	WG-SS-0019	WG-SS-0021	WG-SS-0024	WG-SS-0027	WG-SS-0030								
				Sampling Location:	BH1	BH2	BH3	BH4	BH5	BH6	BH7	BH8								
				Sampling Event:	August 2016															
Shading:				Matrix:	Soil															
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'								
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	8/17/2016	8/17/2016	8/17/2016	8/17/2016	8/17/2016	8/16/2016	8/16/2016	8/16/2016								
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016								
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q		
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	82.4		85.5		83.3		84.8		84.7		81.8		82.5		82.8	
Chromium	7440-47-3			E200.7/ICPMS	978		622		44.2		1070		21.7		4490		28.4		135	
Hexavalent Chromium	18540-29-9	6.3	110	epA 218.6/SW7199	197		307		60.7		64.4		0.74		191		9.82		6.89	

**Table 5a - Soil Samples (surface - 3' depth)
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0033	WG-SS-0036	WG-SS-0039	WG-SS-0042	WG-SS-0045	WG-SS-0048	WG-SS-0051	WG-SS-0054							
				Sampling Location:	BH9	BH10	BH11	BH12	BH13	BH14	BH15	BH16							
				Sampling Event:	August 2016														
Shading:				Matrix:	Soil														
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'							
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016							
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016							
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	84.3		81.5		84.2		84		79.2		80.3		82.4		81.4
Chromium	7440-47-3			E200.7/ICPMS	1310		1350		25.2		460		134		537		1650		26.6
Hexavalent Chromium	18540-29-9	6.3	110	epA 218.6/SW7199	9.24		66.9		3.51		6.14		89.5		14.1		91.7		40.7

**Table 5a - Soil Samples (surface - 3' depth)
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0057	WG-SS-0069	WG-SS-0060	WG-SS-0063	WG-SS-0066	WG-SS-0068					
				Sampling Location:	BH17	BH17	BH18	BH19	BH20	BH21					
				Sampling Event:	August 2016										
Shading:				Matrix:	Soil	Soil	Soil	Soil	Soil	Soil					
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	0-2'	0-2'	0-2'	0-2'	0-2'	0-3'					
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/17/2016					
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016					
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	80		82.8		78.4		73.5		78.9		81.3
Chromium	7440-47-3			E200.7/ICPMS	654		337		3010		752		325		101
Hexavalent Chromium	18540-29-9	6.3	110	epA 218.6/SW7199	48.6		20.7		52.3		0.53		6.3		130

**Table 5b - Soil Samples (2-4' depth
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0013	WG-SS-0016	WG-SS-0018	WG-SS-0022	WG-SS-0025	WG-SS-0028	WG-SS-0031						
				Sampling Location:	BH2	BH3	BH4	BH5	BH6	BH7	BH8						
				Sampling Event:	August 2016												
Shading:				Matrix:	Soil												
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	2-3'	2-4'	2-4'	2-4'	2-4'	2-4'	2-4'						
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	8/16/2016	8/17/2016	8/17/2016	8/17/2016	8/16/2016	8/16/2016	8/16/2016						
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016						
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	79.8		83.2		82		85.8		83.2		83.2		84.4
Chromium	7440-47-3			E200.7/ICPMS	798		394		2210		18.9		3500		63.8		19.6
Hexavalent Chromium	18540-29-9	6.3	110	epA 218.6/SW7199	239		373		247		4.27		175		6.97		0.67

**Table 5b - Soil Samples (2-4' depth
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0034	WG-SS-0037	WG-SS-0043	WG-SS-0046	WG-SS-0071	WG-SS-0049	WG-SS-0052	WG-SS-0055							
				Sampling Location:	BH9	BH10	BH12	BH13	BH13	BH14	BH15	BH16							
				Sampling Event:	August 2016														
Shading:				Matrix:	Soil														
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	2-4'	2-4'	2-4'	2-4'	2-4'	2-4'	2-4'	2-4'							
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016	8/16/2016							
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016							
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	82.8		82.7		86.1		82.9		82.9		81.4		81.7		82.9
Chromium	7440-47-3			E200.7/ICPMS	16.1		762		512		3000		87.7		625		439		402
Hexavalent Chromium	18540-29-9	6.3	110	epA 218.6/SW7199	1.05		20.3		32.7		112		113		1340		80.1		189

**Table 5b - Soil Samples (2-4' depth
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0070	WG-SS-0061	WG-SS-0064	WG-SS-0067				
				Sampling Location:	BH16	BH18	BH19	BH20				
				Sampling Event:	August 2016	August 2016	August 2016	August 2016				
Shading:				Matrix:	Soil	Soil	Soil	Soil				
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	2-4'	2-4'	2-4'	2-4'				
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	8/16/2016	8/16/2016	8/16/2016	8/16/2016				
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	8/20/2016	8/20/2016	8/20/2016	8/20/2016				
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	82.2		84.2		88.2		85.3	
Chromium	7440-47-3			E200.7/ICPMS	1080		911		1430		1200	
Hexavalent Chromium	18540-29-9	6.3	110	epA 218.6/SW7199	109		99.5		268		140	

**Table 5c - Soil Samples (4-6 [or refusal]' depth)
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0011	WG-SS-0014	WG-SS-0017	WG-SS-0020	WG-SS-0023	WG-SS-0026	WG-SS-0029	WG-SS-0032							
				Sampling Location:	BH1	BH2	BH3	BH4	BH5	BH6	BH7	BH8							
				Sampling Event:	August 2016														
Shading:				Matrix:	Soil														
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	4-6'	4-6'	4-6'	4-6'	4-6'	4-6'	4-6'	4-6'							
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	8/17/2016	8/17/2016	8/17/2016	8/17/2016	8/17/2016	8/16/2016	8/16/2016	8/16/2016							
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016							
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	79.4		80.1		80.2		77.9		75.2		79		81.8		81.5
Chromium	7440-47-3			E200.7/ICPMS	3860		1110		5310		9090		21.4		2910		23.8		5190
Hexavalent Chromium	18540-29-9	6.3	110	epA 218.6/SW7199	214		249		123		948				115		2.75		29.4

**Table 5c - Soil Samples (4-6 [or refusal]' depth)
Total Chrome/Hexavalent Chrome**

				Sample #:	WG-SS-0035	WG-SS-0050	WG-SS-0053	WG-SS-0056				
				Sampling Location:	BH9	BH14	BH15	BH16				
				Sampling Event:	August 2016	August 2016	August 2016	August 2016				
Shading:				Matrix:	Soil	Soil	Soil	Soil				
Orange Exceeds WV DeMinimus Industrial Soil				Depth:	4-6'	4-6'	4-6'	4-6'				
Yellow Exceeds RSL for Industrial Soil				Date Sampled:	8/16/2016	8/16/2016	8/16/2016	8/16/2016				
Red Exceeds both RSL and WV Demimimus for Industrial Soil				Date Analyzed:	8/20/2016	8/20/2016	8/20/2016	8/20/2016				
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	80.9		78.3		73.7		81	
Chromium	7440-47-3			E200.7/ICPMS	30.5		1350		64.9		3190	
Hexavalent Chromium	18540-29-9	6.3	110	epa 218.6/SW7199			694		89.5		495	

**Table 5d - Soil Samples (>6' depth)
Total Chrome/Hexavalent Chrome**

		Sample #:		WG-SS-0062	WG-SS-0081	WG-SS-0082	WG-SS-0065	WG-SS-0038	WG-SS-0080	WG-SS-0078	WG-SS-0079									
		Sampling Location:		BH1	BH2	BH2	BH3	BH4	BH5	BH6	BH7									
		Sample Type		42583	42583	42583	42583	42583	42583	42583	42583									
Shading:		Matrix:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil									
Orange Exceeds WV DeMinimus Industrial Soil		Units:		6-8'	6-7.1'	6-7.1'	6-8'	6-7.3'	6-8'	6-8'	6-8'									
Yellow Exceeds RSL for Industrial Soil		Date Sampled:		8/17/2016	8/17/2016	8/17/2016	8/17/2016	8/17/2016	8/17/2016	8/16/2016	8/16/2016									
Red Exceeds both RSL and WV Demimimus for Industrial Soil		Date Analyzed:		8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016	8/20/2016									
Parameter	CAS No.	RSL Ind Soil mg/kg	WV Ind Soil mg/Kg	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q		
SOLIDS, PERCENT				ALS SOP/% Dry Weight (105C)	78.6		83.9		82.3		82.6		83.7		68.9		85.5		80.8	
Chromium	7440-47-3			E200.7/ICPMS	1210		910		1170		944		5870		109		3330		1120	
Hexavalent Chromium	18540-29-9	6.3	110	epa 218.6/SW7199	31		110		294		161		1050				177		21.9	

**Table 6 - QC Samples
Total Chrome/Hexavalent Chrome**

		Sample #:	WG-FB-0001	WG-FB-0002	WG-RB-0001	WG-FB-0003	WG-RB-0002	WG-FB-0004	WG-FB-0005	WG-RB-0004	WG-RB-0005											
Shading		Sampling Location:	Z	Z	Z	Z	Z	Z	Z	Z	Z											
Red - Result Exceeds MCL, MSC, and RSL		Sampling Event	March 2015	July 2015	July 2015	October 2015	October 2015	December 2015	August 2016	August 2016	August 2016											
Brown - Result Exceeds MCL		Matrix:	QC Water	QC Water	QC Water	QC Water	QC Water	QC Water	QC Water	QC Water	QC Water											
Yellow - Result Exceeds MSC		Units:	ug/L	ug/L	ug/L	ug/l	ug/l	ug/L	ug/L	ug/L	ug/L											
		Date Sampled:	3/24/2015	7/22/2015	7/22/2015	10/1/2015	10/1/2015	12/9/2015	8/16/2016	8/16/2016	8/17/2016											
		Date Analyzed:	3/26/2015	8/6/2015	8/6/2015	10/21/2015	10/21/2015	12/10/2015	8/17/2016	8/17/2016	8/19/2016											
Parameter	CAS No.	MCL	BTAG	Analysis	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q		
Chromium	7440-47-3	100	85	E200.8/16					2		2				2.8						1.1	J
Hexavalent Chromium	18540-29-9		11	epA 218	1		0.038		0.054		0.089		0.089		1							

ATTACHMENTS

Attachment 1 – Photologs



Photo No. IMG_2709; Taken on 03/24/15 at 14:07 hours by START-JW. Facing Down. START team member collecting sample WG-SW-01



Photo No. IMG_2710; Taken on 03/24/15 at 14:07 hours by START-JW. Facing Down. START team member collecting sample WG-SW-01



Photo No. IMG_2711; Taken on 03/24/15 at 14:16 hours by START-JW. Facing Down. START team member collecting sample WG-SW-02 and duplicate sample WG-SW-03



Photo No. IMG_2712; Taken on 03/24/15 at 14:16 hours by START-JW. Facing Down. START team member collecting sample WG-SW-02 and duplicate sample WG-SW-03



Photo No. IMG_2713; Taken on 03/24/15 at 14:23 hours by START-JW. Facing Down. START team member collecting sample WG-SW-04 by collecting surface water in a dedicated clean sample jar and purging it into the sample bottles.



Photo No. IMG_2714; Taken on 03/24/15 at 14:23 hours by START-JW. Facing Down. START team member collecting sample WG-SW-04 by collecting surface water in a dedicated clean sample jar and purging it into the sample bottles.



Photo No. IMG_2715; Taken on 03/24/15 at 14:26 hours by START-JW. Facing Down. START team member collecting sample WG-SW-04 by collecting surface water in a dedicated clean sample jar and purging it into the sample bottles.



Photo No. IMG_2716; Taken on 03/24/15 at 14:31 hours by START-JW. Facing Down. START team member collecting sample WG-SW-05



Photo No. IMG_2717; Taken on 03/24/15 at 14:40 hours by START-JW. Facing Down. START team member collecting sample WG-SW-06



Photo No. IMG_2718; Taken on 03/24/15 at 14:41 hours by START-JW. Facing Down. START team member collecting sample WG-SW-06



Photo No. IMG_3040; Taken on 07/22/15 at 12:18 hours by START-JW. Facing Down. Location of WG-SW-0007. Teal colored outfall PVC pipe noted downstream from sample location.



Photo No. IMG_3041; Taken on 07/22/15 at 12:19 hours by START-JW. Facing Down. Location of WG-SW-0007.



Photo No. IMG_3042; Taken on 07/22/15 at 12:19 hours by START-JW. Facing Down. Location of WG-SW-0007. Teal colored outfall PVC pipe noted downstream from sample location.



Photo No. IMG_3043; Taken on 07/22/15 at 12:20 hours by START-JW. Facing Down. START collecting WG-SW-0007.

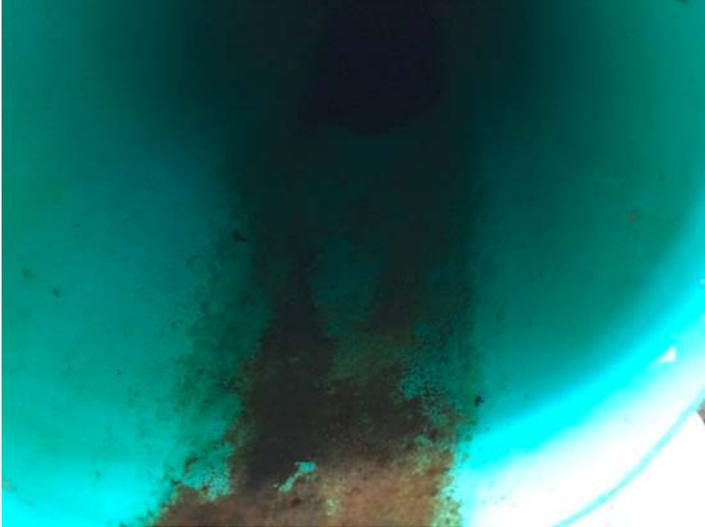


Photo No. IMG_0523; Taken on 07/22/15 at 12:45 hours by START-BH. Facing N/A. Inside the teal outfall pipe at WG-SW-0007.



Photo No. IMG_3044; Taken on 07/22/15 at 13:05 hours by START-JW. Facing Down. Location of the sample WG-PW-0001.



Photo No. IMG_3046; Taken on 07/22/15 at 13:27 hours by START-JW. Facing Down. START setting up for collection of sample WG-PW-0001.



Photo No. IMG_3047; Taken on 07/22/15 at 13:29 hours by START-JW. Facing Down. Beginning to pump water at WG-PW-0001.



Photo No. IMG_3048; Taken on 07/22/15 at 13:32 hours by START-JW. Facing Down. START collecting WG-PW-0001.



Photo No. IMG_3049; Taken on 07/22/15 at 13:32 hours by START-JW. Facing Down. Closeup of START collecting WG-PW-0001.



Photo No. IMG_3050; Taken on 07/22/15 at 13:41 hours by START-JW. Facing Down. START collecting WG-PW-0001.

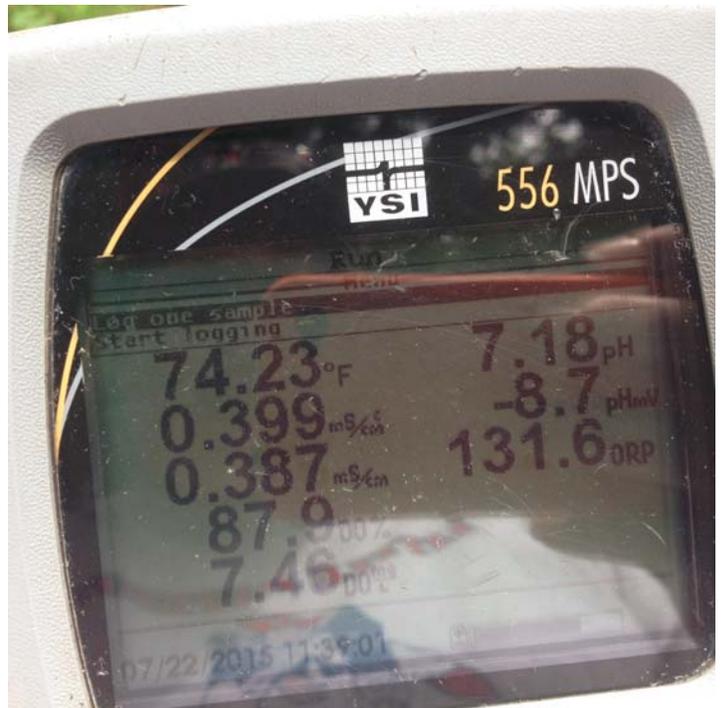


Photo No. IMG_3051; Taken on 07/22/15 at 13:50 hours by START-JW. Facing Down. YSI Meter face. Water quality measurements for sample WG-PW-0001.



Photo No. IMG_3052; Taken on 07/22/15 at 14:29 hours by START-JW. Facing Down. Set-up and location of sample WG-PW-0002 and duplicate WG-PW-0003.



Photo No. IMG_3053; Taken on 07/22/15 at 14:32 hours by START-JW. Facing Down. START collecting WG-PW-0002 and duplicate WG-PW-0003.



Photo No. IMG_3054; Taken on 07/22/15 at 14:33 hours by START-JW. Facing Down. START collecting WG-PW-0002 and duplicate WG-PW-0003.

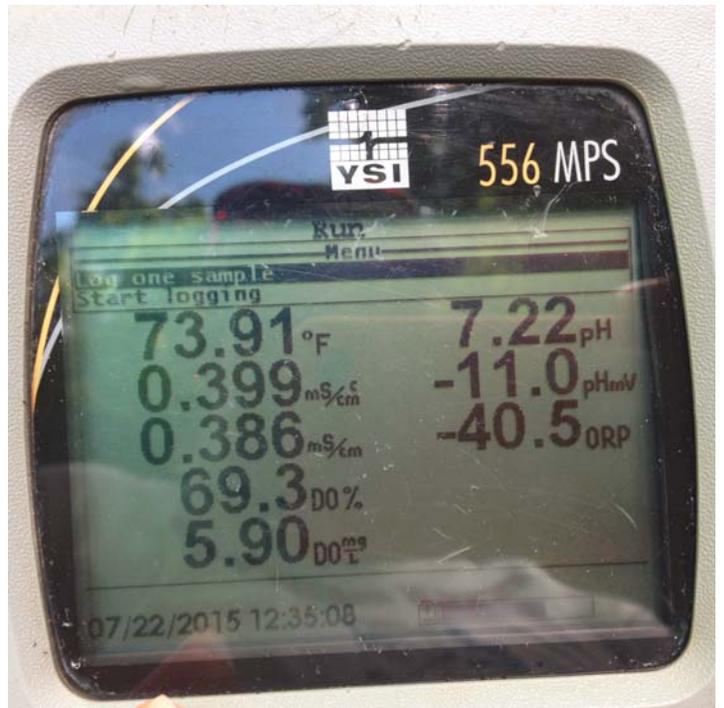


Photo No. IMG_3055; Taken on 07/22/15 at 14:46 hours by START-JW. Facing Down. YSI Meter face. Water quality measurements for sample WG-PW-0002/0003.



Photo No. IMG_0527; Taken on 07/22/15 at 15:26 hours by START-BH. Facing Down. YSI Meter face. Water quality measurements in stream during sampling of WG-PW-0001.



Photo No. IMG_0528; Taken on 07/22/15 at 15:27 hours by START-BH. Facing Down. YSI Meter face. Water quality measurements in stream during sampling of WG-PW-0001.



Photo No. IMG_0529; Taken on 07/22/15 at 15:27 hours by START-BH. Facing Down. YSI Meter face. Water quality measurements in stream during sampling of WG-PW-0001.



Photo No. IMG_0525; Taken on 07/22/15 at 15:10 hours by START-BH. Facing N/A. Diagram on side of sump.



Photo No. IMG_0526; Taken on 07/22/15 at 15:10 hours by
START-BH. Facing N/A. Diagram on side of sump.



Photo No. IMG_3094; Taken on 10/01/15 at 12:14 hours by START-JW. Facing Down. TechLaw collecting sample WG-SW-0012/dup WG-SW-0016



Photo No. IMG_3095; Taken on 10/01/15 at 12:14 hours by START-JW. Facing Down. TechLaw collecting sample WG-SW-0012/dup WG-SW-0016



Photo No. IMG_3096; Taken on 10/01/15 at 12:15 hours by START-JW. Facing Down. Water quality measurements at sample collection location WG-SW-001, sample number WG-SW-0012/dup WG-SW-0016



Photo No. IMG_0418; Taken on 10/01/15 at 12:10 hours by START-MG. Facing Down. WG-SS-0001 location



Photo No. IMG_0419; Taken on 10/01/15 at 12:45 hours by START-MG. Facing Down. WG-SS-0002 location



Photo No. IMG_0420; Taken on 10/01/15 at 13:15 hours by START-MG. Facing Down. WG-SS-0003 & WG-SS-0004 location



Photo No. IMG_0421; Taken on 10/01/15 at 14:35 hours by START-MG. Facing Down. WG-SS-0005 & WG-SS-0006 location



Photo No. IMG_3097; Taken on 10/01/15 at 13:48 hours by START-JW. Facing Down. TechLaw collecting sample WG-PW-004.



Photo No. IMG_3098; Taken on 10/01/15 at 13:48 hours by START-JW. Facing Down. Location photo of sample WG-PW-005. The sample was collected at a new location on an outfall of land in the creek.



Photo No. IMG_0422; Taken on 10/01/15 at 14:20 hours by START-MG. Facing Down. WG-SS-0007 location



Photo No. IMG_0423; Taken on 10/01/15 at 14:50 hours by START-MG. Facing Down. WG-SS-0008 location



Photo No. IMG_3099; Taken on 10/01/15 at 14:58 hours by START-JW. Facing Down. TechLaw collecting sample WG-PW-006



Photo No. IMG_0424; Taken on 10/01/15 at 14:59 hours by START-MG. Facing Down. Water Quality Readings at WG-PW-006.



Photo No. IMG_3100; Taken on 10/01/15 at 15:37 hours by START-JW. Facing Down. pH paper while field preserving the samples. One piece of paper was from unpreserved sample water (left) the other is after preservation (right) to test a new formulation of preservation from the lab. This was not used as a sample during this sampling event.

Page 2 of 2
USEPA CLP Generic COC (LAB COPY)

Page 1 of 2
USEPA CLP Generic COC (LAB COPY)

CHAIN OF CUSTODY RECORD

No: 3-100115-163402-0006
Lab: ALS Laboratory Group - Rochester
Lab Contact: Janice Jenger
Lab Phone: 888-288-5381

Date/Ship: 10/1/2015
Customer: Fx26
Analysis: 77483284021

Project Code: R34714
Cooler #: 001

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Parameter (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
WG-SW-0012	R3471401	Surface Water/ Bill Huggins	Grab	C-8(21)	001 (NH4OH)(NH4)2SO4 pH 8) (1)	WG-SW-001	10/01/2015 12:15	
WG-SW-0013	R3471403	Surface Water/ Bill Huggins	Grab	C-8(21)	003 (NH4OH)(NH4)2SO4 pH 8) (1)	WG-SW-002	10/01/2015 12:30	
WG-PW-0004	R3471405	Pore Water/ Bill Huggins	Grab	C-8(21)	005 (NH4OH)(NH4)2SO4 pH 8) (1)	WG-SW-002	10/01/2015 13:00	
WG-PW-0005	R3471407	Pore Water/ Bill Huggins	Grab	C-8(21)	007 (NH4OH)(NH4)2SO4 pH 8) (1)	MC1	10/01/2015 13:51	
WG-SW-0014	R3471409	Surface Water/ Bill Huggins	Grab	C-8(21)	009 (NH4OH)(NH4)2SO4 pH 8) (1)	WG-SW-003	10/01/2015 14:25	
WG-SW-0014	R3471411	Surface Water/ Bill Huggins	Grab	C-8(21)	011 (NH4OH)(NH4)2SO4 pH 8) (1)	WG-SW-003	10/01/2015 14:25	
WG-SW-0015	R3471413	Surface Water/ Bill Huggins	Grab	C-8(21)	013 (NH4OH)(NH4)2SO4 pH 8) (1)	WG-SW-004	10/01/2015 14:35	
WG-PW-0006	R3471415	Pore Water/ Bill Huggins	Grab	C-8(21)	015 (NH4OH)(NH4)2SO4 pH 8) (1)	WG-SW-004	10/01/2015 15:05	
WG-RB-0002	R3471417	Water/ Bill Huggins	Grab	C-8(21)	017 (NH4OH)(NH4)2SO4 pH 8) (1)	Z	10/01/2015 15:49	
WG-PB-0003	R3471419	Water/ Bill Huggins	Grab	C-8(21)	019 (NH4OH)(NH4)2SO4 pH 8) (1)	Z	10/01/2015 15:53	

Shipment for Case Complete? Y
Samples Transferred From Chain of Custody #

Samples to be used by Lab: WG-PW-0004 Tag 005, WG-SW-0014 Tag 005, WG-SW-0014 Tag 011, WG-SW-0015 Tag 013
713
SAMPLER: HAZARD WASTE
Analysis Key: C-8 (Hexavalent Chromium)

Item/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Center/PAE	Janice Jenger ALS	10/1/15 1800	Janice Jenger ALS	10/1/15 1800	

Photo No. IMG_3101; Taken on 10/01/15 at 17:31 hours by START-JW. Facing Down. Chain of Custody 1

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USEPA CLP Generic COC (LAB COPY)

Page 1 of 2
USEPA CLP Generic COC (LAB COPY)

CHAIN OF CUSTODY RECORD

No: 3-100115-163402-0006
Lab: ALS Laboratory Group - Rochester
Lab Contact: Janice Jenger
Lab Phone: 888-288-5381

Date/Ship: 10/1/2015
Customer: Fx26
Analysis: 77483284021

Project Code: R34714
Cooler #: 001

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Parameter (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
WG-SW-0012	R3471421	Surface Water/ Bill Huggins	Grab	C-8(21)	021 (NH4OH)(NH4)2SO4 pH 8) (1)	WG-SW-001	10/01/2015 15:00	
WG-SW-0001	R3471423	Soil Matt Grab	Composite	C-8(21)	023 (A C) (1)	WG-SW-001	10/01/2015 12:10	
WG-SW-0002	R3471425	Soil Matt Grab	Composite	C-8(21)	025 (A C) (1)	WG-SW-002	10/01/2015 12:45	
WG-SW-0003	R3471427	Soil Matt Grab	Composite	C-8(21)	027 (A C) (1)	WG-SW-003	10/01/2015 13:15	
WG-SW-0004	R3471429	Soil Matt Grab	Composite	C-8(21)	029 (A C) (1)	WG-SW-004	10/01/2015 13:35	
WG-SW-0005	R3471431	Soil Matt Grab	Composite	C-8(21)	031 (A C) (1)	WG-SW-004	10/01/2015 14:05	
WG-SW-0006	R3471433	Soil Matt Grab	Composite	C-8(21)	033 (A C) (1)	WG-SW-004	10/01/2015 14:35	
WG-SW-0007	R3471435	Soil Matt Grab	Composite	C-8(21)	035 (A C) (1)	WG-SW-004	10/01/2015 14:20	
WG-SW-0008	R3471437	Soil Matt Grab	Composite	C-8(21)	037 (A C) (1)	WG-SW-004	10/01/2015 14:50	

Shipment for Case Complete? Y
Samples Transferred From Chain of Custody #

Samples to be used by Lab: WG-SW-0001 Tag 003
713
SAMPLER: HAZARD WASTE
Analysis Key: C-8 (Hexavalent Chromium), C-8 (Surface Crystallinity)

Item/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Center/PAE	Janice Jenger ALS	10/1/15 1800	Janice Jenger ALS	10/1/15 1800	

Photo No. IMG_3102; Taken on 10/01/15 at 17:31 hours by START-JW. Facing Down. Chain of Custody 2



Photo No. IMG_3125; Taken on 12/09/15 at 12:26 hours by START-JW. Facing Down. The set up used by TechLaw to collect samples from the bottom of the water column at sample WG-SW-0017/dup WG-SW-0018.



Photo No. IMG_3126; Taken on 12/09/15 at 12:52 hours by START-JW. Facing Down. The Set up used by TechLaw to collect sample WG-SW-0019



Photo No. IMG_3127; Taken on 12/09/15 at 12:52 hours by START-JW. Facing Down. The Set up used by TechLaw to collect sample WG-SW-0019



Photo No. IMG_3128; Taken on 12/09/15 at 12:53 hours by START-JW. Facing Down. TechLaw collecting sample WG-SW-0019



Photo No. IMG_3129; Taken on 12/09/15 at 13:08 hours by START-JW. Facing Down. The Set up used by TechLaw to collect sample WG-SW-0020



Photo No. IMG_3130; Taken on 12/09/15 at 13:08 hours by START-JW. Facing Down. The Set up used by TechLaw to collect sample WG-SW-0020



Photo No. IMG_3131; Taken on 12/09/15 at 13:08 hours by START-JW. Facing Down. The Set up used by TechLaw to collect sample WG-SW-0020



Photo No. IMG_3132; Taken on 12/09/15 at 13:24 hours by START-JW. Facing Down. TechLaw collecting WG-SW-0021.



Photo No. IMG_3133; Taken on 12/09/15 at 13:40 hours by START-JW. Facing Down. TechLaw setting up to collect WG-SW-0022



Photo No. IMG_3134; Taken on 12/09/15 at 13:42 hours by START-JW. Facing Down. TechLaw collecting WG-SW-0022. The TechLaw Env. Scientist is teaching the TL Intern.



Photo No. IMG_3135; Taken on 12/09/15 at 14:00 hours by START-JW. Facing Down. Inside the Primary Sump Location. In the upper portion of the photo (near the bailer) there is evidence the sump casing has shifted at some point.



Photo No. IMG_3136; Taken on 12/09/15 at 14:01 hours by START-JW. Facing Down. Close-up of the shifted sump casing.



Photo No. IMG_3137; Taken on 12/09/15 at 14:01 hours by START-ET. Facing Down. Behind the TL scientist there are piles of dirt - either from animals or trespassers on the property.



Photo No. IMG_3138; Taken on 12/09/15 at 14:02 hours by START-ET. Facing South. TechLaw scientists using a bailer to collect a sample from the primary sump location.



Photo No. IMG_3139; Taken on 12/09/15 at 14:02 hours by START-ET. Facing Down. TechLaw Scientists using the bailer to collect WG-SP-0003/dup WG-SP-0004.



Photo No. IMG_3140; Taken on 12/09/15 at 14:02 hours by START-ET. Facing Down. TechLaw Scientists using the bailer to collect WG-SP-0003/dup WG-SP-0004.



Photo No. IMG_3141; Taken on 12/09/15 at 14:03 hours by START-ET. Facing Down. TechLaw Scientists using the bailer to collect WG-SP-0003/dup WG-SP-0004.

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USEPA CLP Sample COC (LAB COPY)
Date/Request: 12/09/15
Collection: Field
Analysis: 7715132935

CHAIN OF CUSTODY RECORD
Case # 434781
Code # 002

No: 3-120115-124132-0010
Lab: O&DCA
Lab Contact: Kevin Poff
Lab Phone: 410-305-3033

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Parameter (Days)	Tag/Preservative/Bottle	Location	Collection Date/Time	For Lab Use Only
WG-FB-004	R3478101	Water/Bill Huggins	Grab	C-H(2)	001 (NH4OH/NH42SO4) (1)	Z	12/09/2015 14:35	
WG-SP-0003	R3478103	Ground Water/Bill Huggins	Grab	C-H(2)	003 (NH4OH/NH42SO4) (1)	Primary Sump Station	12/09/2015 14:05	
WG-SP-0004	R3478104	Ground Water/Bill Huggins	Grab	C-H(2)	004 (NH4OH/NH42SO4) (1)	Primary Sump Station	12/09/2015 14:25	
WG-SW-0017	R3478105	Surface Water/Bill Huggins	Grab	C-H(2)	005 (NH4OH/NH42SO4) (2) 006 (NH4OH/NH42SO4) (2)		12/09/2015 12:40	
WG-SW-0018	R3478106	Surface Water/Bill Huggins	Grab	C-H(2)	006 (NH4OH/NH42SO4) (1)		12/09/2015 14:00	
WG-SW-0019	R3478107	Surface Water/Bill Huggins	Grab	C-H(2)	007 (NH4OH/NH42SO4) (1)		12/09/2015 13:50	
WG-SW-0020	R3478108	Surface Water/Bill Huggins	Grab	C-H(2)	008 (NH4OH/NH42SO4) (1)		12/09/2015 13:15	
WG-SW-0021	R3478110	Surface Water/Bill Huggins	Grab	C-H(2)	010 (NH4OH/NH42SO4) (1)		12/09/2015 13:30	
WG-SW-0022	R3478111	Surface Water/Bill Huggins	Grab	C-H(2)	011 (NH4OH/NH42SO4) (1)		12/09/2015 13:50	

SAMPLER: *william*

Samples to be used for Lab OC: WG-SW-0017 Tag 005, WG-SW-0017 Tag 008 - Special Instructions: Please return cooler with enclosed Field Kit

Analysis Key: C-H=Resealed Chromium

Item/Recess	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Ship to Lab	<i>William - Tuckler</i>	12/9/15/14:00			

Photo No. IMG_1171; Taken on 12/09/15 at 15:31 hours by START-BH. Facing Down. Chain of Custody 1

Page 1 of 1
USEPA CLP Sample COC (LAB COPY)
Date/Request: 12/09/2015
Collection: Field
Analysis: 7715132935

CHAIN OF CUSTODY RECORD
Case # 434817
Code # 001

No: 5-120115-123632-0009
Lab: Chemtech Consulting Group
Lab Contact: Debra Mente
Lab Phone: 800-758-9985

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Parameter (Days)	Tag/Preservative/Bottle	Location	Collection Date/Time	For Lab Use Only
WG-FB-004	MCSAF3	Water/Bill Huggins	Grab	ICP-C(2)	1053 (PHOS) (PH-2) (1)	Z	12/09/2015 14:35	
WG-SP-0003	MCSAF4	Ground Water/Bill Huggins	Grab	ICP-C(2)	1054 (PHOS) (PH-2) (1)	Primary Sump Station	12/09/2015 14:05	
WG-SP-0004	MCSAF5	Ground Water/Bill Huggins	Grab	ICP-C(2)	1055 (PHOS) (PH-2) (1)	Primary Sump Station	12/09/2015 14:25	
WG-SW-0017	MCSAF6	Surface Water/Bill Huggins	Grab	ICP-C(1)	1056 (PHOS) (PH-2) (2) 1058 (PHOS) (PH-2) (2)		12/09/2015 12:40	
WG-SW-0018	MCSAF7	Surface Water/Bill Huggins	Grab	ICP-C(1)	1057 (PHOS) (PH-2) (1)		12/09/2015 14:00	
WG-SW-0019	MCSAF8	Surface Water/Bill Huggins	Grab	ICP-C(1)	1058 (PHOS) (PH-2) (1)		12/09/2015 13:50	
WG-SW-0020	MCSAF9	Surface Water/Bill Huggins	Grab	ICP-C(1)	1059 (PHOS) (PH-2) (1)		12/09/2015 13:15	
WG-SW-0021	MCSA00	Surface Water/Bill Huggins	Grab	ICP-C(1)	1060 (PHOS) (PH-2) (1)		12/09/2015 13:30	
WG-SW-0022	MCSA01	Surface Water/Bill Huggins	Grab	ICP-C(1)	1061 (PHOS) (PH-2) (1)		12/09/2015 13:50	

SAMPLER: *william*

Samples to be used for Lab OC: WG-SW-0017 Tag 1056, WG-SW-0017 Tag 1055 - Special Instructions: Please return cooler with enclosed Field Kit

Analysis Key: ICP-C=CP-465 Total Chromium

Item/Recess	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Ship to Lab	<i>William - Tuckler</i>	12/9/15/14:00			

Photo No. IMG_1172; Taken on 12/09/15 at 15:31 hours by START-BH. Facing Down. Chain of Custody 2



Photo No. IMG_3471; Taken on 05/19/16 at 9:52 hours by START-JW. Facing Down. Chrome plating pit inside the building



Photo No. IMG_3472; Taken on 05/19/16 at 9:53 hours by START-JW. Facing Down. Potential Cr+6 seeping from the ground through the concrete floor near the chrome plating pit.



Photo No. IMG_3473; Taken on 05/19/16 at 9:53 hours by START-JW. Facing North. Old machinery inside the building



Photo No. IMG_3474; Taken on 05/19/16 at 9:53 hours by START-JW. Facing North. Old machinery inside the building



Photo No. IMG_3475; Taken on 05/19/16 at 9:55 hours by START-JW. Facing East. Old machinery inside the building



Photo No. IMG_3476; Taken on 05/19/16 at 9:58 hours by START-JW. Facing Down. Potential Cr+6 seeping from the ground through the concrete floor near the chrome plating pit.



Photo No. IMG_3477; Taken on 05/19/16 at 9:58 hours by START-JW. Facing NA. Under a free-standing dipping pit, potential Cr+6 coming through the concrete.



Photo No. IMG_3478; Taken on 05/19/16 at 10:02 hours by START-JW. Facing Down. The bottom of the chrome plating pit



Photo No. IMG_3479; Taken on 05/19/16 at 10:03 hours by START-JW. Facing Down. The bottom of the chrome plating pit

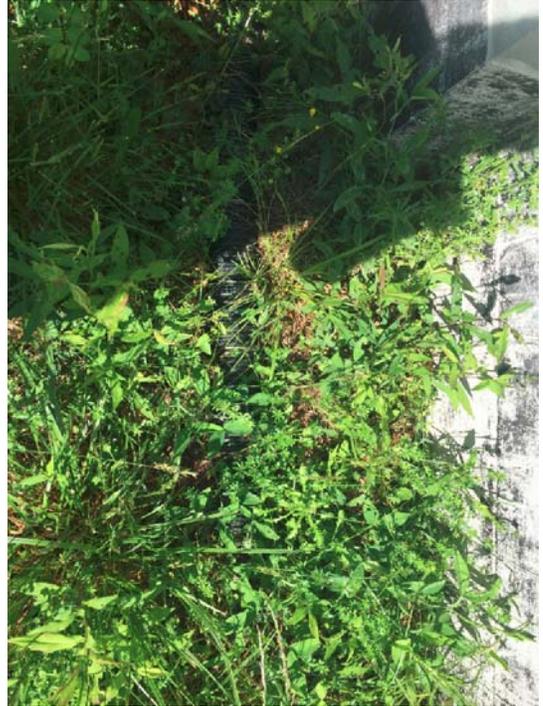


Photo No. IMG_3480; Taken on 05/19/16 at 10:18 hours by START-JW. Facing Down. French Drain along the south wall of the building.



Photo No. IMG_3481; Taken on 05/19/16 at 10:18 hours by START-JW. Facing Down. French Drain along the south wall of the building.



Photo No. IMG_3482; Taken on 05/19/16 at 10:18 hours by START-JW. Facing Down. French Drain that runs along side the building as it crosses the open area behind the building.



Photo No. IMG_3483; Taken on 05/19/16 at 10:19 hours by START-JW. Facing Down. Yellow residue (potential Cr+6) on the outside south wall of the building near the french drain.



Photo No. IMG_3484; Taken on 05/19/16 at 10:19 hours by START-JW. Facing Down. (Close up) Yellow residue (potential Cr+6) on the outside south wall of the building near the french drain.



Photo No. IMG_3485; Taken on 05/19/16 at 10:20 hours by START-JW. Facing Down. (Close up) Yellow residue (potential Cr+6) on the outside south wall of the building near the french drain.



Photo No. IMG_3486; Taken on 05/19/16 at 10:23 hours by START-JW. Facing Down. The end of the french drain as it enters the wooded area to the back of the building, approximately 20 feet from Booths Creek.



Photo No. IMG_3487; Taken on 05/19/16 at 10:24 hours by START-JW. Facing West. Dead tree stump in the area where it is suspected one of the periphery sumps was located.



Photo No. IMG_3488; Taken on 05/19/16 at 10:24 hours by START-JW. Facing South. Dead trees in the area where it is suspected one of the periphery sumps was located.



Photo No. IMG_3489; Taken on 05/19/16 at 10:27 hours by START-JW. Facing North. Dead trees in the area where it is suspected one of the periphery sumps was located.



Photo No. IMG_3490; Taken on 05/19/16 at 10:33 hours by START-JW. Facing Down. Large hole near the sump. Uncertain if it is man made or animals burrowing.

Attachment 2 – Data Validation Reports



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: April 14, 2015

SUBJECT: Region III Data QA Review

FROM: Brandon McDonald 
Region III ESAT PO (3EA22)

TO: Raj Sharma
On-Scene Coordinator (3HS31)

Attached is the inorganic data validation report for the W&G Electroplating site for Case/DAS#45172; SDG#MC0AA1 completed by the Region III Environmental Services Assistance Team (ESAT), ICF International, contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2607.

Attachment

cc: Gene Nance (TechLaw)
Jocelyn Welshhans (TechLaw)

TO: #0002 TDF: #0415017

OFFICE OF ANALYTICAL SERVICES AND QUALITY ASSURANCE



*Printed on 100% recycled/recyclable paper with 100% post-consumer fiber and process chlorine free.
Customer Service Hotline: 1-800-438-2474*

Sample Summary Report

Case No: 45172	Contract: EPW09038	SDG No: MC0AA1	Lab Code: CHEM
Sample Number: LCS	Method: ICP_MS	Matrix: Water	MA Number: DEFAULT
Sample Location:	pH:	Sample Date: 03/26/2015	Sample Time: 05:30:50
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Spike	3.8		ug/L	3.8		1	Yes	S4VEM

Case No: 45172	Contract: EPW09038	SDG No: MC0AA1	Lab Code: CHEM
Sample Number: MC0AA1	Method: ICP_MS	Matrix: Water	MA Number: DEFAULT
Sample Location: WG-SW-002	pH: 2	Sample Date: 03/24/2015	Sample Time: 14:16:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	21.1		ug/L	21.1		1	Yes	S4VEM

Case No: 45172	Contract: EPW09038	SDG No: MC0AA1	Lab Code: CHEM
Sample Number: MC0AA2	Method: ICP_MS	Matrix: Water	MA Number: DEFAULT
Sample Location: WG-SW-003	pH: 2	Sample Date: 03/24/2015	Sample Time: 15:19:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	10.9		ug/L	10.9		1	Yes	S4VEM

Case No: 45172	Contract: EPW09038	SDG No: MC0AA1	Lab Code: CHEM
Sample Number: MC0AA3	Method: ICP_MS	Matrix: Water	MA Number: DEFAULT
Sample Location: WG-SW-004	pH: 2	Sample Date: 03/24/2015	Sample Time: 14:26:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	22.6		ug/L	22.6		1	Yes	S4VEM

Case No: 45172	Contract: EPW09038	SDG No: MC0AA1	Lab Code: CHEM
Sample Number: MC0AA4	Method: ICP_MS	Matrix: Water	MA Number: DEFAULT
Sample Location: WG-SW-005	pH: 2	Sample Date: 03/24/2015	Sample Time: 14:32:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	12.4		ug/L	12.4		1	Yes	S4VEM

Case No: 45172	Contract: EPW09038	SDG No: MC0AA1	Lab Code: CHEM
Sample Number: MC0AA5	Method: ICP_MS	Matrix: Water	MA Number: DEFAULT
Sample Location: WG-SW-006	pH: 2	Sample Date: 03/24/2015	Sample Time: 14:41:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	4.0		ug/L	4.0		1	Yes	S4VEM

Case No: 45172	Contract: EPW09038	SDG No: MC0AA1	Lab Code: CHEM
Sample Number: MC0AA7	Method: ICP_MS	Matrix: Water	MA Number: DEFAULT
Sample Location: Primary Sump Station	pH: 2	Sample Date: 03/24/2015	Sample Time: 15:00:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	3540		ug/L	3540	D	20	Yes	S4VEM

Case No: 45172	Contract: EPW09038	SDG No: MC0AA1	Lab Code: CHEM
Sample Number: MC0AA7D	Method: ICP_MS	Matrix: Water	MA Number: DEFAULT
Sample Location: G1648-07	pH: 2	Sample Date: 03/24/2015	Sample Time: 15:00:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	3620		ug/L	3620		20	Yes	S4VEM

Case No: 45172	Contract: EPW09038	SDG No: MC0AA1	Lab Code: CHEM
Sample Number: MC0AA7S	Method: ICP_MS	Matrix: Water	MA Number: DEFAULT
Sample Location: G1648-08	pH: 2	Sample Date: 03/24/2015	Sample Time: 15:00:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Spike	3880		ug/L	3880		20	Yes	S4VEM

Case No: 45172	Contract: EPW09038	SDG No: MC0AA1	Lab Code: CHEM
Sample Number: MC0AA8	Method: ICP_MS	Matrix: Water	MA Number: DEFAULT
Sample Location: Primary Sump Station	pH: 2	Sample Date: 03/24/2015	Sample Time: 15:30:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	3620		ug/L	3620	D	20	Yes	S4VEM

Case No: 45172	Contract: EPW09038	SDG No: MC0AA1	Lab Code: CHEM
Sample Number: MC0AB1	Method: ICP_MS	Matrix: Water	MA Number: DEFAULT
Sample Location: WG-SW-001	pH: 2	Sample Date: 03/24/2015	Sample Time: 14:10:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2.5		ug/L	2.5		1	Yes	S4VEM

Case No: 45172	Contract: EPW09038	SDG No: MC0AA1	Lab Code: CHEM
Sample Number: MC0AB2	Method: ICP_MS	Matrix: Water	MA Number: DEFAULT
Sample Location: WG-FB-0001	pH: 2	Sample Date: 03/24/2015	Sample Time: 16:05:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2.0	UJ	ug/L	2.0	U	1	Yes	S4VEM

Case No: 45172	Contract: EPW09038	SDG No: MC0AA1	Lab Code: CHEM
Sample Number: PBW04	Method: ICP_MS	Matrix: Water	MA Number: DEFAULT
Sample Location:	pH:	Sample Date: 03/26/2015	Sample Time: 05:23:01
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2.0	U	ug/L	2.0	U	1	Yes	S4VEM



ICF International
ESAT Region 3
US Environmental Protection Agency Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Phone 410-305-3011

Date: April 09, 2015

To: Brandon McDonald
ESAT Region 3 Project Officer

From: Kenneth W. Curry
Senior Data Reviewer

Kurt Roby
Oversight Chemist

Subject: Inorganic Data Validation (S4VEM)
Site: W & G Electroplating
Case: 45172 SDG: MC0AA1

OVERVIEW

Case 45172, Sample Delivery Group (SDG) MC0AA1, consisted of seven (7) surface water samples including one (1) field duplicate pair and one (1) field blank in addition to one (1) ground water field duplicate pair analyzed for total chromium (Cr) by ICP-MS. All analyses were performed by ChemTech Consulting Group (CHEM) in accordance with Contract Laboratory Program (CLP) Statement of Work (SOW) ISM01.3 through the Routine Analytical Services (RAS) program.

SUMMARY

Data were validated according to inorganic National Functional Guidelines, utilizing Environmental Data Exchange and Evaluation System (EXES) and is assigned the Superfund Data Validation Label S4VEM (Stage_4_Validation_Electronic_Manual). The following validation narrative is an evaluation of laboratory reported data for the purpose of usability.

MINOR PROBLEM

Laboratory instrumentation reported negative values for chromium (Cr) greater than the absolute value of the Method Detection Limit (MDL) in blank analyses. All positive results reported for this analyte in associated samples were greater than two times (>2X) the absolute value of the blank. The quantitation limit for this analyte in sample MC0AB2 is estimated and has been qualified "UJ".

NOTES

No positive results were detected below the Contract Required Quantitation Limits (CRQLs).

Laboratory and field blanks associated with this data set were free of contamination.

The reported results for field duplicate pair MC0AA1/MC0AA2 were not within twenty (20) RPD, \pm CRQL for this analyte. No data were qualified based on these findings.

The reported results for field duplicate pair MC0AA7/MC0AA8 were within twenty (20) RPD, \pm CRQL for this analyte. No data were qualified based on these findings.

Samples MC0AA7 and MC0AA8 were analyzed at twenty-fold (20X) dilutions due to the concentrations of Cr found in these samples.

The Analytical Request Form (ARF) lists analyses are to follow ISM02.2; however, the laboratory followed the protocol according to ISM01.3. No action was taken by the reviewer based on this finding

Glossary of Data Qualifier Codes (INORGANIC)

- U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- B The result is presumed a blank contaminant. This qualifier is used only for drinking water samples.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
- UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

DCN: ESATR3-2015-V236



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 Region 3 Environmental Science Center
 Office of Analytical Services and Quality Assurance
 701 Mapes Road
 Fort Meade, Maryland 20755-5350



Final Analytical Report

Site Name.....	W & G Electroplating
Sample Collection Date(s).....	03/24/15 14:10- 03/24/15 16:05
Contact.....	Raj Sharma
Report Date.....	04/24/15 12:13
Project #.....	DAS R34588
Work Order.....	1503016

Analyses included in this report:

Hexavalent Chromium IC by EPA 218.6 (ESAT)

Approved for Release

Karen Costa

OASQA Representative

1503016 FINAL DAS R34588 04 24 15 1214



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating

Project #: DAS R34588

Report Narrative

Hexavalent Chromium Analysis Note:

This report contains the results for dissolved hexavalent chromium in water by EPA Method 218.6. This report provides reporting units in ug/L.

All samples were preserved in the field. Upon receipt, the measured pH of samples 1503016-02 and 1503016-03 were below the preservation requirements (pH of 9 +/- 0.5). This could have been due to an insufficient amount of preservative used at the time of sampling or the buffering characteristics of the sample matrix. The samples were; therefore, treated as unpreserved (following R3QA161-102213) and analyzed within the 24 hour holding time.

1503016 FINAL DAS R34588 04 24 15 1214



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating

Project #: DAS R34588

ANALYTICAL REPORT FOR SAMPLES

Station ID	Laboratory ID	Matrix	Date Sampled	Date Received
WG-FB-0001	1503016-01	Surface Water	03/24/15 16:05	03/25/15 11:22
WG-SP-0001	1503016-02	Groundwater	03/24/15 15:00	03/25/15 11:22
WG-SP-0002	1503016-03	Groundwater	03/24/15 15:30	03/25/15 11:22
WG-SW-0001	1503016-04	Surface Water	03/24/15 14:10	03/25/15 11:22
WG-SW-0002	1503016-05	Surface Water	03/24/15 14:16	03/25/15 11:22
WG-SW-0003	1503016-06	Surface Water	03/24/15 15:19	03/25/15 11:22
WG-SW-0004	1503016-07	Surface Water	03/24/15 14:26	03/25/15 11:22
WG-SW-0005	1503016-08	Surface Water	03/24/15 14:32	03/25/15 11:22
WG-SW-0006	1503016-09	Surface Water	03/24/15 14:41	03/25/15 11:22



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
 Office of Analytical Services and Quality Assurance
 701 Mapes Road
 Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating **Project #: DAS R34588**

Page 1 of 1

USEPA

Date Shipped: 3/24/2015
 Carrier Name: FedEx
 Airbill No: 0201773189166134

CHAIN OF CUSTODY RECORD

Site #: 037C
 Contact Name: Jocelyn Welshhans
 DAS# R34588

No: 3-032415-155506-0001

Cooler #: 001
 Lab: OASQA
 Lab Phone: 410-305-3032

1503016

Lab #	Sample #	Sampler	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
-01	WG-FB-0001	Jocelyn Welshhans	WG-FB-0001	Hexavalent Chromium	Surface Water	3/24/2015	16:05	1	500 mL	NH4OH pH9.5	N
-02	WG-SP-0001	Jocelyn Welshhans	Primary Sump Station	Hexavalent Chromium	Ground Water	3/24/2015	15:00	2	500 mL	NH4OH pH9.5	Y
-03	WG-SP-0002	Jocelyn Welshhans	Primary Sump Station	Hexavalent Chromium	Ground Water	3/24/2015	15:30	1	500 mL	NH4OH pH9.5	N
-04	WG-SW-0001	Bill Huggins	WG-SW-001	Hexavalent Chromium	Surface Water	3/24/2015	14:10	2	500 mL	NH4OH pH9.5	Y
-05	WG-SW-0002	Jocelyn Welshhans	WG-SW-002	Hexavalent Chromium	Surface Water	3/24/2015	14:16	1	500 mL	NH4OH pH9.5	N
-06	WG-SW-0003	Bill Huggins	WG-SW-003	Hexavalent Chromium	Surface Water	3/24/2015	15:19	1	500 mL	NH4OH pH9.5	N
-07	WG-SW-0004	Bill Huggins	WG-SW-004	Hexavalent Chromium	Surface Water	3/24/2015	14:26	1	500 mL	NH4OH pH9.5	N
-08	WG-SW-0005	Bill Huggins	WG-SW-005	Hexavalent Chromium	Surface Water	3/24/2015	14:32	1	500 mL	NH4OH pH9.5	N
-09	WG-SW-0006	Bill Huggins	WG-SW-006	Hexavalent Chromium	Surface Water	3/24/2015	14:41	1	500 mL	NH4OH pH9.5	N

Special Instructions: Please return cooler with enclosed label. CASE COMPLETE: Yes

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Code: FedEx	Jocelyn Welshhans Technician	3/24/15 17:00	Ryan Sims EST	3/25/15 11:22	4°C 3/25/15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating	Project #: DAS R34588
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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1503016-01
Station ID: WG-FB-0001
Sample Matrix: Surface Water
Collected: 03/24/2015

Hexavalent Chromium	U		1.00	ug/L	1	03/25/15	03/25/15 12:29	EPA 218.6/R3QA161
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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1503016-02
Station ID: WG-SP-0001
Sample Matrix: Groundwater
Collected: 03/24/2015

Hexavalent Chromium	3500		50.0	ug/L	50	03/25/15	03/25/15 12:59	EPA 218.6/R3QA161
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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1503016-03
Station ID: WG-SP-0002
Sample Matrix: Groundwater
Collected: 03/24/2015

Hexavalent Chromium	3500		50.0	ug/L	50	03/25/15	03/25/15 13:31	EPA 218.6/R3QA161
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating	Project #: DAS R34588
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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
---------	--------	----------------------	-----------------------	-------	----------	----------	----------	-------------

Lab ID: 1503016-04
Station ID: WG-SW-0001
Sample Matrix: Surface Water
Collected: 03/24/2015

Hexavalent Chromium	U		1.00	ug/L	1	03/25/15	03/25/15 13:52	EPA 218.6/R3QA161
---------------------	---	--	------	------	---	----------	----------------	-------------------

Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
---------	--------	----------------------	-----------------------	-------	----------	----------	----------	-------------

Lab ID: 1503016-05
Station ID: WG-SW-0002
Sample Matrix: Surface Water
Collected: 03/24/2015

Hexavalent Chromium	U		1.00	ug/L	1	03/25/15	03/25/15 14:16	EPA 218.6/R3QA161
---------------------	---	--	------	------	---	----------	----------------	-------------------

Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1503016-06
Station ID: WG-SW-0003
Sample Matrix: Surface Water
Collected: 03/24/2015

Hexavalent Chromium	U		1.00	ug/L	1	03/25/15	03/25/15 14:23	EPA 218.6/R3QA161
---------------------	---	--	------	------	---	----------	----------------	-------------------



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating	Project #: DAS R34588
--	------------------------------

Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
---------	--------	----------------------	-----------------------	-------	----------	----------	----------	-------------

Lab ID: 1503016-07
Station ID: WG-SW-0004
Sample Matrix: Surface Water
Collected: 03/24/2015

Hexavalent Chromium	11.9		1.00	ug/L	1	03/25/15	03/25/15 14:31	EPA 218.6/R3QA161
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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
---------	--------	----------------------	-----------------------	-------	----------	----------	----------	-------------

Lab ID: 1503016-08
Station ID: WG-SW-0005
Sample Matrix: Surface Water
Collected: 03/24/2015

Hexavalent Chromium	U		1.00	ug/L	1	03/25/15	03/25/15 14:38	EPA 218.6/R3QA161
---------------------	---	--	------	------	---	----------	----------------	-------------------

Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
---------	--------	----------------------	-----------------------	-------	----------	----------	----------	-------------

Lab ID: 1503016-09
Station ID: WG-SW-0006
Sample Matrix: Surface Water
Collected: 03/24/2015

Hexavalent Chromium	U		1.00	ug/L	1	03/25/15	03/25/15 14:44	EPA 218.6/R3QA161
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating Project #: DAS R34588

QC Data
Classical Chemistry Parameters

Table with 11 columns: Analyte, Result, Quantitation Limit, Units, Spike Level, Source Result, %REC, %REC Limits, RPD, RPD Limit, Notes

Batch BC52502 - Hex Chrom Prep ESAT

Main data table with columns for Analyte, Result, Quantitation Limit, Units, Spike Level, Source Result, %REC, %REC Limits, RPD, RPD Limit, Notes. Includes rows for Blank, LCS, Duplicate, and Matrix Spike.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating	Project #: DAS R34588
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Notes and Definitions

TD Spike concentration is too dilute for accurate quantitation resulting in inaccurate recovery calculations..

%REC Percent Recovery

RPD Relative Percent Difference

U Analyte included in the analysis, but not detected at or above the quantitation limit.

NR Not Reported

QUANTITATION LIMIT: The lowest concentration of an analyte that can be reliably measured within specified limits of precision and accuracy for a specific laboratory analytical method and that takes into account analytical adjustments made during sample preparation and analysis.

SOLID SAMPLE RESULTS - REPORTING PROTOCOL: Percent Solids (percent dry wt at 105 degrees C) determinations are routinely performed for most organic and inorganic analyses. Consequently, these samples are analyzed wet and converted to a dry weight result for reporting purposes. If metals and mercury analyses are requested, they are routinely prepared for analyses by an initial drying at 60 degrees C, homogenized prior to digestion, and are analyzed and reported on a dry weight basis. Oil-type samples are analyzed and reported on a wet weight basis for all analyses because of the nature of the sample matrix. Any exceptions to this protocol will be noted in the narrative.

ON-DEMAND: The term 'on-demand' analysis, if noted in the report narrative, refers to Section 13.1.4 in the Region III OASQA Laboratory Quality Manual, which provides procedures for non-routine analyses or analytes.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: September 11, 2015
SUBJECT: Region III Data QA Review
FROM: Brandon McDonald 
Region III ESAT PO (3EA22)
TO: Raj Sharma
On-Scene Coordinator (3HS31)

Attached is the inorganic data validation report for the W&G Electroplating site for Case/DAS#45475; SDG#MC0AB3 completed by the Region III Environmental Services Assistance Team (ESAT), ICF International, contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2607.

Attachment

cc: Gene Nance (TechLaw)
Jocelyn Welshans (TechLaw)

TO: #0002 TDF: #0815147

OFFICE OF ANALYTICAL SERVICES AND QUALITY ASSURANCE



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ICF International
ESAT Region 3
US Environmental Protection Agency Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Phone 410-305-3011

Date: September 03, 2015

To: Brandon McDonald
ESAT Region 3 Project Officer

From: Kurt Roby
Data Reviewer

Dean Gouveia
ESAT Region 3 Team Leader

Subject: Inorganic Data Validation (S4VEM)
Site: W & G Electroplating
Case: 45475 SDG: MC0AB3

Overview

Case 45475, Sample Delivery Group (SDG) MC0AB3, consisted of one (1) rinsate blank, one (1) field blank, three (3) pore water samples including one (1) field duplicate pair, and five (5) surface water samples including one (1) field duplicate pair, analyzed for total chromium (Cr) by ICP-MS. Analyses were performed by ALS Laboratory Group (ALS) according to Contract Laboratory Program (CLP) Statement of Work (SOW) ISM02.2 through the Routine Analytical Services (RAS) program.

Summary

Data were validated with guidance from inorganic National Functional Guidelines, utilizing Environmental Data Exchange and Evaluation System (EXES) and is assigned the Superfund Data Validation Label S4VEM (Stage_4_Validation_Electronic_Manual). The following validation narrative is an evaluation of laboratory reported data for the purpose of usability.

Notes

Cr has been positively identified in laboratory blanks associated with the samples in this SDG. Samples which reported positive results for this analyte less than the Contract Required Quantitation Limit (CRQL) have been reported at the CRQL and qualified "U".

No positive results other than those attributed to blank contamination were detected in field duplicate pair MC0AB5/MC0AB6. No data were qualified based on field duplicate precision.

Results reported for field duplicate pair MC0AB8/MC0AB9 were within twenty (20) Relative Percent Difference (RPD), \pm CRQL. No data were qualified based on field duplicate precision.

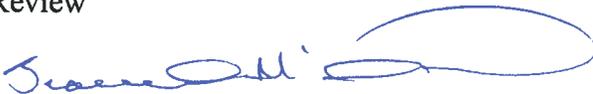
Glossary of Data Qualifier Codes (INORGANIC)

- U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- B The result is presumed a blank contaminant. This qualifier is used only for drinking water samples.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
- UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

DCN: ESATR3-2015-V561



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: September 18, 2015
SUBJECT: Region III Data QA Review
FROM: Brandon McDonald 
Region III ESAT PO (3EA22)
TO: Raj Sharma
On-Scene Coordinator (3HS31)

Attached is the data validation report for the W&G Electroplating site for Case/DAS#R34666; SDG#R1505950 completed by the Region III Environmental Services Assistance Team (ESAT), ICF International, contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2607.

Attachment

cc: Gene Nance (TechLaw)
Jocelyn Welshhans (TechLaw)

TO: #0002 TDF: #0915006

OFFICE OF ANALYTICAL SERVICES AND QUALITY ASSURANCE





ICF International
ESAT Region 3
US Environmental Protection Agency Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Phone 410-305-3011

Date: September 15, 2015

To: Brandon McDonald
ESAT Region 3 Project Officer

From: Kurt Roby
Data Reviewer

Dean Gouveia
ESAT Region 3 Team Leader

Subject: Inorganic Data Validation (S4VM)
Site: W & G Electroplating
Case: R34666 SDG: R1505950

Overview

Case R34666, Sample Delivery Group (SDG) R1505950, consisted of one (1) field blank, one (1) rinsate blank, and five (5) surface water samples analyzed for hexavalent chromium (Cr^{6+}) by ion chromatography. Analyses were performed by ALS Environmental (ALS) according to USEPA Method 218.7.

Summary

Data were validated with guidance from inorganic National Functional Guidelines, and is assigned the Superfund Data Validation Label S4VM (Stage_4_Validation_Manual).

Samples were submitted to the laboratory directly by the contractor and not through the EPA Technical Services Branch (TSB). Environmental Services Assistance Team (ESAT) has been tasked to evaluate laboratory reported data for the purpose of usability.

Notes

All samples in this SDG reported results above the Method Reporting Limit (MRL).

Positive results reported in the field and rinsate blanks did not qualify field sample data.

Accuracy and precision criteria were met by the laboratory in the initial and continuing calibration verification standard analyses associated with the samples in this SDG.

The concentration of Cr⁶⁺ exceeded the calibration range in the initial analysis for sample WG-SW-0008. This sample was re-analyzed at one hundred fold (100X) dilution to bring the concentration of the analyte within the calibration range. The result for this analyte is reported from the dilution noted.

Glossary of Data Qualifier Codes (INORGANIC)

- U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- B The result is presumed a blank contaminant. This qualifier is used only for drinking water samples.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
- UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

DCN: ESATR3-2015-V623

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34666
Sample Matrix: Water
Sample Name: WG-SW-0007
Lab Code: R1505950-001

Service Request: R1505950
Date Collected: 7/22/15 12:21
Date Received: 7/23/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	218.7	2.56	µg/L	0.030	0.010	1	NA	8/5/15 15:53	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34666
Sample Matrix: Water
Sample Name: WG-SW-0008
Lab Code: R1505950-002

Service Request: R1505950
Date Collected: 7/22/15 13:17
Date Received: 7/23/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	- 218.7	355	µg/L	3.0	1.0	100	NA	8/5/15 18:16	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34666
Sample Matrix: Water
Sample Name: WG-SW-0009
Lab Code: R1505950-003

Service Request: R1505950
Date Collected: 7/22/15 1423
Date Received: 7/23/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	218.7	0.160	µg/L	0.030	0.010	1	NA	8/5/15 16:17	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34666
Sample Matrix: Water
Sample Name: WG-SW-0010
Lab Code: R1505950-004

Service Request: R1505950
Date Collected: 7/22/15 1445
Date Received: 7/23/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	218.7	0.158	µg/L	0.030	0.010	1	NA	8/5/15 16:29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
 Project: Wheeling Project #R34666
 Sample Matrix: Water
 Sample Name: WG-SW-0011
 Lab Code: R1505950-005

Service Request: R1505950
 Date Collected: 7/22/15 15:21
 Date Received: 7/23/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	218.7	0.167	µg/L	0.030	0.010	1	NA	8/5/15 16:41	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34666
Sample Matrix: Water
Sample Name: WG-FB-0002
Lab Code: R1505950-009

Service Request: R1505950
Date Collected: 7/22/15 1600
Date Received: 7/23/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	218.7	0.038	µg/L	0.030	0.010	1	NA	8/5/15 17:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34666
Sample Matrix: Water
Sample Name: WG-RB-0001
Lab Code: R1505950-010

Service Request: R1505950
Date Collected: 7/22/15 1700
Date Received: 7/23/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	218.7	0.054	µg/L	0.030	0.010	1	NA	8/5/15 17:40	



Final Analytical Report

Site Name.....	W & G Electroplating
Sample Collection Date(s).....	10/01/15 12:10- 10/01/15 16:00
Contact.....	Raj Sharma
Report Date.....	11/03/15 09:52
Project #.....	DAS R34719
Work Order.....	1510003

Analyses included in this report:

Total Metals by CLP Equivalent (ICPMS)

Approved for Release

Karen Costa

OASQA Representative



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating **Project #: DAS R34719**

ANALYTICAL REPORT FOR SAMPLES

Station ID	Laboratory ID	Matrix	Date Sampled	Date Received
WG-SW-0012	1510003-01	Surface Water	10/01/15 12:15	10/2/15 13:52
WG-SW-0013	1510003-02	Surface Water	10/01/15 12:30	10/2/15 13:52
WG-PW-0004	1510003-03	Water	10/01/15 13:00	10/2/15 13:52
WG-PW-0005	1510003-04	Water	10/01/15 13:51	10/2/15 13:52
WG-SW-0014	1510003-05	Surface Water	10/01/15 14:25	10/2/15 13:52
WG-SW-0015	1510003-06	Surface Water	10/01/15 14:35	10/2/15 13:52
WG-PW-0006	1510003-07	Water	10/01/15 15:05	10/2/15 13:52
WG-RB-0002	1510003-08	Water	10/01/15 15:49	10/2/15 13:52
WG-FB-0003	1510003-09	Water	10/01/15 15:53	10/2/15 13:52
WG-SW-0016	1510003-10	Surface Water	10/01/15 16:00	10/2/15 13:52
WG-SS-0001	1510003-11	Soil	10/01/15 12:10	10/2/15 13:52
WG-SS-0002	1510003-12	Soil	10/01/15 12:45	10/2/15 13:52
WG-SS-0003	1510003-13	Soil	10/01/15 13:15	10/2/15 13:52
WG-SS-0004	1510003-14	Soil	10/01/15 13:30	10/2/15 13:52
WG-SS-0005	1510003-15	Soil	10/01/15 14:05	10/2/15 13:52
WG-SS-0006	1510003-16	Soil	10/01/15 14:35	10/2/15 13:52
WG-SS-0007	1510003-17	Soil	10/01/15 14:20	10/2/15 13:52
WG-SS-0008	1510003-18	Soil	10/01/15 14:50	10/2/15 13:52

DAS

USEPA CLP Generaly COC (LAB COPY)

CHAIN OF CUSTODY RECORD

No: 3-100115-165329-0008

Date Shipped: 10/1/2015

DAS #
Project Code: R34719
Cooler #: 001

Lab: OASQA

Carrier Name: FedEx

Lab Contact: Kevin Poff

Airbill No: 774633043594

Lab Phone: 410-305-3032

Sample Identifier	Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
WG-SW-0012	R3471902	Surface Water/ Bill Huggins	Grab	totCR(21)	002 (HNO3 pH<2) (1)	WG-SW-001	10/01/2015 12:15	1510003 -01
WG-SW-0013	R3471904	Surface Water/ Bill Huggins	Grab	totCR(21)	004 (HNO3 pH<2) (1)	WG-SW-002	10/01/2015 12:30	-02
WG-PW-0004	R3471906	Pore Water/ Bill Huggins	Grab	totCR(21)	006 (HNO3 pH<2) (1)	WG-SW-002	10/01/2015 13:00	-03
WG-PW-0005	R3471908	Pore Water/ Bill Huggins	Grab	totCR(21)	008 (HNO3 pH<2) (1)	MC1	10/01/2015 13:51	-04
WG-SW-0014	R3471910	Surface Water/ Bill Huggins	Grab	totCR(21)	010 (HNO3 pH<2) (1)	WG-SW-003	10/01/2015 14:25	-05
WG-SW-0014	R3471912	Surface Water/ Bill Huggins	Grab	totCR(21)	012 (HNO3 pH<2) (1)	WG-SW-003	10/01/2015 14:25	-05
WG-SW-0015	R3471914	Surface Water/ Bill Huggins	Grab	totCR(21)	014 (HNO3 pH<2) (1)	WG-SW-004	10/01/2015 14:35	-06
WG-PW-0006	R3471916	Pore Water/ Bill Huggins	Grab	totCR(21)	016 (HNO3 pH<2) (1)	WG-SW-004	10/01/2015 15:05	-07
WG-RB-0002	R3471918	Water/ Bill Huggins	Grab	totCR(21)	018 (HNO3 pH<2) (1)	Z	10/01/2015 15:49	-08
WG-FB-0003	R3471920	Water/ Bill Huggins	Grab	totCR(21)	020 (HNO3 pH<2) (1)	Z	10/01/2015 15:53	-09

Sample(s) to be used for Lab QC: WG-PW-0004 Tag 006, WG-SW-0014 Tag 010, WG-SW-0014 Tag 012, WG-SW-0015 Tag 014 - Special Instructions: Please return Cooler. Sampler: <i>Wendy, Matt Gadd</i>	Shipment for Case Complete? Y
	Samples Transferred From Chain of Custody #
Analysis Key: totCR=ICP-MS Total Chromium-nonCLP	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Cooler/ Fedex	<i>Facelyn Welshhaus Hecklow</i>	10/1/15 1800	<i>Nisa Peters ESAF</i>	13:57 10/2/15	120C <i>add</i> 10/1/15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating

Project #: DAS R34719

Total Metals

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1510003-01
Station ID: WG-SW-0012
Sample Matrix: Surface Water
Collected: 10/01/2015

Chromium	U		2.0	ug/L	2.5	10/14/15	10/16/15 12:31	R3QA155/R3QA116
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Lab ID: 1510003-02
Station ID: WG-SW-0013
Sample Matrix: Surface Water
Collected: 10/01/2015

Chromium	7.8		2.0	ug/L	2.5	10/14/15	10/16/15 12:33	R3QA155/R3QA116
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Lab ID: 1510003-03
Station ID: WG-PW-0004
Sample Matrix: Water
Collected: 10/01/2015

Chromium	20.5		2.0	ug/L	2.5	10/14/15	10/16/15 12:36	R3QA155/R3QA116
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Lab ID: 1510003-04
Station ID: WG-PW-0005
Sample Matrix: Water
Collected: 10/01/2015

Chromium	17.5		2.0	ug/L	2.5	10/14/15	10/16/15 12:38	R3QA155/R3QA116
----------	------	--	-----	------	-----	----------	----------------	-----------------

Lab ID: 1510003-05
Station ID: WG-SW-0014
Sample Matrix: Surface Water
Collected: 10/01/2015

Chromium	U		2.0	ug/L	2.5	10/14/15	10/16/15 12:41	R3QA155/R3QA116
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating

Project #: DAS R34719

Total Metals

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
Lab ID:	1510003-06							
Station ID:	WG-SW-0015							
Sample Matrix:	Surface Water							
Collected:	10/01/2015							
Chromium	U		2.0	ug/L	2.5	10/14/15	10/16/15 12:46	R3QA155/R3QA116
Lab ID:	1510003-07							
Station ID:	WG-PW-0006							
Sample Matrix:	Water							
Collected:	10/01/2015							
Chromium	6.1		2.0	ug/L	2.5	10/14/15	10/16/15 12:48	R3QA155/R3QA116
Lab ID:	1510003-08							
Station ID:	WG-RB-0002							
Sample Matrix:	Water							
Collected:	10/01/2015							
Chromium	U		2.0	ug/L	2.5	10/14/15	10/16/15 13:03	R3QA155/R3QA116
Lab ID:	1510003-09							
Station ID:	WG-FB-0003							
Sample Matrix:	Water							
Collected:	10/01/2015							
Chromium	U		2.0	ug/L	2.5	10/14/15	10/16/15 13:06	R3QA155/R3QA116
Lab ID:	1510003-10							
Station ID:	WG-SW-0016							
Sample Matrix:	Surface Water							
Collected:	10/01/2015							
Chromium	U		2.0	ug/L	2.5	10/14/15	10/16/15 13:08	R3QA155/R3QA116
Lab ID:	1510003-11							
Station ID:	WG-SS-0001							
Sample Matrix:	Soil							
Collected:	10/01/2015	dry						
Chromium	78.9		0.4	ug/g	5	10/14/15	10/16/15 13:22	R3QA155/R3QA116



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating

Project #: DAS R34719

Total Metals

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
Lab ID:	1510003-12							
Station ID:	WG-SS-0002							
Sample Matrix:	Soil							
Collected:	10/01/2015	dry						
Chromium	156		1.2	ug/g	15	10/14/15	10/16/15 14:00	R3QA155/R3QA116
Lab ID:	1510003-13							
Station ID:	WG-SS-0003							
Sample Matrix:	Soil							
Collected:	10/01/2015	dry						
Chromium	17.9		0.4	ug/g	5	10/14/15	10/16/15 13:32	R3QA155/R3QA116
Lab ID:	1510003-14							
Station ID:	WG-SS-0004							
Sample Matrix:	Soil							
Collected:	10/01/2015	dry						
Chromium	14.6		0.4	ug/g	5	10/14/15	10/16/15 13:34	R3QA155/R3QA116
Lab ID:	1510003-15							
Station ID:	WG-SS-0005							
Sample Matrix:	Soil							
Collected:	10/01/2015	dry						
Chromium	22.9		0.4	ug/g	5	10/14/15	10/16/15 13:37	R3QA155/R3QA116
Lab ID:	1510003-16							
Station ID:	WG-SS-0006							
Sample Matrix:	Soil							
Collected:	10/01/2015	dry						
Chromium	21.2		0.4	ug/g	5	10/14/15	10/16/15 13:47	R3QA155/R3QA116
Lab ID:	1510003-17							
Station ID:	WG-SS-0007							
Sample Matrix:	Soil							
Collected:	10/01/2015	dry						
Chromium	22.9		0.4	ug/g	5	10/14/15	10/16/15 13:49	R3QA155/R3QA116



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating

Project #: DAS R34719

Total Metals

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
Lab ID:	1510003-18							
Station ID:	WG-SS-0008							
Sample Matrix:	Soil							
Collected:	10/01/2015	dry						
Chromium	23.3		0.4	ug/g	5	10/14/15	10/16/15 13:52	R3QA155/R3QA116



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
 Office of Analytical Services and Quality Assurance
 701 Mapes Road
 Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating **Project #: DAS R34719**

QC Data
Total Metals

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch BJ51401 - Metals Solid prep

Blank (BJ51401-BLK1)				Prepared: 10/14/15 09:31	Analyzed: 10/16/15 13:14						
Chromium	U	0.4	ug/g								
LCS (BJ51401-BS1)				Prepared: 10/14/15 09:31	Analyzed: 10/16/15 13:16						
Chromium	4.86718	0.4	ug/g	5.0000	97		85-115				
Duplicate (BJ51401-DUP1)				Source: 1510003-11			Prepared: 10/14/15 09:31	Analyzed: 10/16/15 13:24			
Chromium	65.6369	0.4	ug/g		78.8637			18	35		
Matrix Spike (BJ51401-MS1)				Source: 1510003-12			Prepared: 10/14/15 09:31	Analyzed: 10/16/15 14:03			
Chromium	151.627	1.2	ug/g	4.9310	155.747	NR	70-130			TD	
Reference (BJ51401-SRM1)				Prepared: 10/14/15 09:31	Analyzed: 10/16/15 13:19						
Chromium	55.7758	19.4	ug/g	69.500	80		79-121				

Batch BJ51402 - Metals Water Prep

Blank (BJ51402-BLK1)				Prepared: 10/14/15 09:36	Analyzed: 10/16/15 12:25						
Chromium	U	2.0	ug/L								
LCS (BJ51402-BS1)				Prepared: 10/14/15 09:36	Analyzed: 10/16/15 12:28						
Chromium	48.3726	2.0	ug/L	50.000	97		85-115				
Duplicate (BJ51402-DUP1)				Source: 1510003-05			Prepared: 10/14/15 09:36	Analyzed: 10/16/15 12:43			
Chromium	U	2.0	ug/L		U				20		
Matrix Spike (BJ51402-MS1)				Source: 1510003-07			Prepared: 10/14/15 09:36	Analyzed: 10/16/15 13:01			
Chromium	52.5750	2.0	ug/L	50.000	6.08839	93	70-130				



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating

Project #: DAS R34719

Notes and Definitions

TD Spike concentration is too dilute for accurate quantitation resulting in inaccurate recovery calculations..

dry Reported on a Dry Weight Basis

%REC Percent Recovery

RPD Relative Percent Difference

U Analyte included in the analysis, but not detected at or above the quantitation limit.

NR Not Reported

QUANTITATION LIMIT: The lowest concentration of an analyte that can be reliably measured within specified limits of precision and accuracy for a specific laboratory analytical method and that takes into account analytical adjustments made during sample preparation and analysis.

SOLID SAMPLE RESULTS - REPORTING PROTOCOL: Percent Solids (percent dry wt at 105 degrees C) determinations are routinely performed for most organic and inorganic analyses. Consequently, these samples are analyzed wet and converted to a dry weight result for reporting purposes. If metals and mercury analyses are requested, they are routinely prepared for analyses by an initial drying at 60 degrees C, homogenized prior to digestion, and are analyzed and reported on a dry weight basis. Oil-type samples are analyzed and reported on a wet weight basis for all analyses because of the nature of the sample matrix. Any exceptions to this protocol will be noted in the narrative.

ON-DEMAND: The term 'on-demand' analysis, if noted in the report narrative, refers to Section 13.1.4 in the Region III OASQA Laboratory Quality Manual, which provides procedures for non-routine analyses or analytes.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: December 23, 2015
SUBJECT: Region III Data QA Review
FROM: Brandon McDonald 
Region III ESAT PO (3EA22)
TO: Raj Sharma
On-Scene Coordinator (3HS31)

Attached is the data validation report for the W&G Electroplating site for Case/DAS#R34714; SDG#R1508317 completed by the Region III Environmental Services Assistance Team (ESAT), ICF International, contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2607.

Attachment

cc: Gene Nance (TechLaw)
Jocelyn Welshans (TechLaw)

TO: #0002 TDF: #1215004

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ICF International
ESAT Region 3
US Environmental Protection Agency Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Phone 410-305-3011

DATE: December 21, 2015

TO: Brandon McDonald
ESAT Region 3 Project Officer

FROM: Kenneth W. Curry
Senior Data Reviewer

Kurt Roby
Oversight Chemist

SUBJECT: Inorganic Data Validation (S4VM)
Site: W & G Electroplating
Case: R34714, SDG: R1508317

OVERVIEW

Case R34714, Sample Delivery Group (SDG) R1508317, consisted of one (1) field blank, one (1) rinsate blank, five (5) surface water samples including one (1) field duplicate pair, three (3) pore water samples and eight (8) soil samples including two (2) field duplicate pairs analyzed for hexavalent chromium (Cr^{6+}) by ion chromatography. Analyses were performed by ALS Environmental (ALS) according to USEPA Method 218.6 (aqueous) and SW-846 Method 7199 (soil).

SUMMARY

Data were validated based on the inorganic National Functional Guidelines, and is assigned the Superfund Data Validation Label S4VM (Stage_4_Validation_Manual).

Samples were submitted to the laboratory directly by the contractor and not through the EPA Technical Services Branch (TSB). Environmental Services Assistance Team (ESAT) has been tasked to evaluate laboratory reported data for the purpose of usability.

MINOR PROBLEMS

Matrix Spike Duplicate (MSD) recovery was outside the lower control limit in the MS/MSD analyses of sample R3471403. The Matrix Spike (MS) recovery and the Relative Percent Difference (RPD) were within the control limits in these analyses. The positive result reported for Cr^{6+} in this sample may be biased low and has been qualified "J-".

The rinsate and field blanks reported results for Cr⁶⁺ above the reporting Limit (RL). Sample R3471405 which reported a result for this analyte less than two times (<2X) the blank concentration may indicate contribution from blank contamination and has been qualified "J+".

NOTES

All samples results in this SDG reported below the Method Reporting Limit (MRL) were attributed to blank contamination.

The soil laboratory blank reported a value for Cr⁶⁺ greater than the Minimum Detection Limit (MDL) but less than the MRL. Results for this analyte in the soil matrix less than the MRL were raised to the MRL and qualified "U".

The field and rinsate blanks reported a value of Cr⁶⁺ above the MRL. Results for this analyte less than the blank concentration have been reported at the MRL and qualified "U".

Accuracy and precision criteria were met by the laboratory in the initial and continuing calibration verification standard analyses associated with the samples in this SDG.

Laboratory duplicate analysis of sample R3471423 was within the control limit. No data were qualified based on this finding.

All Laboratory Control Sample (LCS) recoveries were within control limits. No data were qualified based on this finding.

All MS/MSD recoveries and RPDs were within control limits in the of MS/MSD analyses of sample R3471409 and the MS analyses of sample R3471423. No other data were qualified based on this finding.

The concentrations of Cr⁶⁺ exceeded the calibration range in the initial analyses of the samples listed below. These samples were re-analyzed the dilutions given to bring the concentration of this analyte within the calibration range. Result for this analyte are reported from the dilutions noted.

<u>Dilution Factor</u>	<u>Sample(s)</u>
2X	R3471401, R3471421
10X	R3471403

Results reported for field duplicate pairs R3471401/R3471421, R3471431/R3471433 and R3471435/R3471437 were within twenty (20) Relative Percent Difference (RPD), \pm MRL. No data were qualified based on field duplicate precision.

Glossary of Data Qualifier Codes (INORGANIC)

- U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- B The result is presumed a blank contaminant. This qualifier is used only for drinking water samples.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
- UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

DCN: ESATR3-2015-V861

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34714
Sample Matrix: Water
Sample Name: R3471401
Lab Code: R1508317-001

Service Request: R1508317
Date Collected: 10/1/15 12:15
Date Received: 10/2/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent, Dissolved	218.6 LL	1.52		µg/L	0.040	0.020	2	NA	10/21/15 16:45	

D)
12/16/15

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34714
Sample Matrix: Water
Sample Name: R3471403
Lab Code: R1508317-002

Service Request: R1508317
Date Collected: 10/ 1/15 1230
Date Received: 10/ 2/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent, Dissolved	218.6 LL	4.42	J-	µg/L	0.20	0.10	10	NA	10/21/15 16:59	

JJ
12/16/15

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34714
Sample Matrix: Water
Sample Name: R3471405
Lab Code: R1508317-003

Service Request: R1508317
Date Collected: 10/ 1/15 1300
Date Received: 10/ 2/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent, Dissolved	218.6 LL	0.161	J+	µg/L	0.020	0.010	1	NA	10/21/15 01:39	

DJ
12/16/15

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34714
Sample Matrix: Water
Sample Name: R3471407
Lab Code: R1508317-004

Service Request: R1508317
Date Collected: 10/ 1/15 1351
Date Received: 10/ 2/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent, Dissolved	218.6 LL	0.877	0-	µg/L	0.020	0.010	1	NA	10/21/15 01:54	

DJ
12/16/15

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34714
Sample Matrix: Water
Sample Name: R3471409
Lab Code: R1508317-005

Service Request: R1508317
Date Collected: 10/ 1/15 1425
Date Received: 10/ 2/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent, Dissolved	218.6 LL	0.726		µg/L	0.020	0.010	1	NA	10/21/15 02:08	

DJ
12/11/15

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34714
Sample Matrix: Water
Sample Name: R3471413
Lab Code: R1508317-007

Service Request: R1508317
Date Collected: 10/ 1/15 1435
Date Received: 10/ 2/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent, Dissolved	218.6 LL	0.630		µg/L	0.020	0.010	1	NA	10/21/15 15:04	

12/16/15

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
 Project: Wheeling Project #R34714
 Sample Matrix: Water
 Sample Name: R3471415
 Lab Code: R1508317-008

Service Request: R1508317
 Date Collected: 10/1/15 1505
 Date Received: 10/2/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent, Dissolved	218.6 LL	0.20	0.044	µg/L	0.020	0.010	1	NA	10/21/15 15:47	

DJ
12/16/15

Rensselaer

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34714
Sample Matrix: Water
Sample Name: R3471417
Lab Code: R1508317-009

Service Request: R1508317
Date Collected: 10/ 1/15 1549
Date Received: 10/ 2/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent, Dissolved	218.6 LL	0.089		µg/L	0.020	0.010	1	NA	10/21/15 16:02	

12/16/15

Field Blank

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34714
Sample Matrix: Water
Sample Name: R3471419
Lab Code: R1508317-010

Service Request: R1508317
Date Collected: 10/ 1/15 1553
Date Received: 10/ 2/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent, Dissolved	218.6 LL	0.089	µg/L	0.020	0.010	1	NA	10/21/15 16:16	

D
12/16/14

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34714
Sample Matrix: Water
Sample Name: R3471421
Lab Code: R1508317-011

Service Request: R1508317
Date Collected: 10/ 1/15 1600
Date Received: 10/ 2/15

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent, Dissolved	218.6 LL	1.46	µg/L	0.040	0.020	2	NA	10/21/15 16:31	

D
12/16/15

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34714
Sample Matrix: Soil
Sample Name: R3471423
Lab Code: R1508317-012

Service Request: R1508317
Date Collected: 10/ 1/15 1210
Date Received: 10/ 2/15

Basis: Dry
Percent Solids: 85.7

General Chemistry Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	7199	13.6	mg/Kg	0.46	0.05	1	10/ 7/15	10/9/15 15:46	
Chromium, Hexavalent	7199	13.7	mg/Kg	0.46	0.05	1	10/ 7/15	10/9/15 15:55	

JW
12/14/15

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34714
Sample Matrix: Soil
Sample Name: R3471425
Lab Code: R1508317-013

Service Request: R1508317
Date Collected: 10/ 1/15 1245
Date Received: 10/ 2/15

Basis: Dry
Percent Solids: 79.8

General Chemistry Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	7199	4.60	mg/Kg	0.48	0.06	1	10/ 7/15	10/9/15 17:34	
Chromium, Hexavalent	7199	4.60	mg/Kg	0.48	0.06	1	10/ 7/15	10/9/15 17:43	

DD
12/6/15

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
 Project: Wheeling Project #R34714
 Sample Matrix: Soil
 Sample Name: R3471427
 Lab Code: R1508317-014

Service Request: R1508317
 Date Collected: 10/ 1/15 1315
 Date Received: 10/ 2/15

Basis: Dry
 Percent Solids: 82.9

General Chemistry Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	7199	0.48 0.35 BSL	mg/Kg	0.48	0.06	1	10/ 7/15	10/9/15 17:52	
Chromium, Hexavalent	7199	0.48 0.35 BSL	mg/Kg	0.48	0.06	1	10/ 7/15	10/9/15 18:01	

Handwritten: 0.1
 10/16/15

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34714
Sample Matrix: Soil
Sample Name: R3471429
Lab Code: R1508317-015

Service Request: R1508317
Date Collected: 10/ 1/15 1330
Date Received: 10/ 2/15

Basis: Dry
Percent Solids: 84.4

General Chemistry Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	7199	0.96 B	mg/Kg	0.47	0.05	1	10/ 7/15	10/9/15 18:09	
Chromium, Hexavalent	7199	0.96 B	mg/Kg	0.47	0.05	1	10/ 7/15	10/9/15 18:19	

DJ
12/14/15

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
 Project: Wheeling Project #R34714
 Sample Matrix: Soil
 Sample Name: R3471431
 Lab Code: R1508317-016

Service Request: R1508317
 Date Collected: 10/ 1/15 1405
 Date Received: 10/ 2/15

Basis: Dry
 Percent Solids: 78.1

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	7199	0.51	0.11	mg/Kg	0.51	0.06	1	10/ 7/15	10/9/15 18:27	
Chromium, Hexavalent	7199	0.51	0.11	mg/Kg	0.51	0.06	1	10/ 7/15	10/9/15 18:36	

DJ
12/16/15

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
 Project: Wheeling Project #R34714
 Sample Matrix: Soil
 Sample Name: R3471433
 Lab Code: R1508317-017

Service Request: R1508317
 Date Collected: 10/ 1/15 1435
 Date Received: 10/ 2/15

Basis: Dry
 Percent Solids: 78.4

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	7199	0.07	BJ4	mg/Kg	0.51	0.06	1	10/ 7/15	10/9/15 18:45	
Chromium, Hexavalent	7199	0.08	BJ4	mg/Kg	0.51	0.06	1	10/ 7/15	10/9/15 18:54	

DJ
 12/16/14

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34714
Sample Matrix: Soil
Sample Name: R3471435
Lab Code: R1508317-018

Service Request: R1508317
Date Collected: 10/ 1/15 1420
Date Received: 10/ 2/15

Basis: Dry
Percent Solids: 83.8

General Chemistry Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	7199	2.94	mg/Kg	0.48	0.06	1	10/ 7/15	10/9/15 19:54	
Chromium, Hexavalent	7199	2.93	mg/Kg	0.48	0.06	1	10/ 7/15	10/9/15 20:04	

DJ
10/11/15

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: TechLaw, Inc.
Project: Wheeling Project #R34714
Sample Matrix: Soil
Sample Name: R3471437
Lab Code: R1508317-019

Service Request: R1508317
Date Collected: 10/ 1/15 1450
Date Received: 10/ 2/15

Basis: Dry
Percent Solids: 83.9

General Chemistry Parameters

Analyte Name	Method	Result Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	7199	2.72	mg/Kg	0.46	0.05	1	10/ 7/15	10/9/15 20:12	
Chromium, Hexavalent	7199	2.72	mg/Kg	0.46	0.05	1	10/ 7/15	10/9/15 20:21	

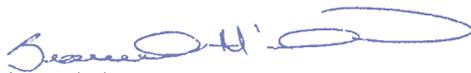
DL
12/6/15



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: February 4, 2016

SUBJECT: Region III Data QA Review

FROM: Brandon McDonald 
Region III ESAT PO (3EA22)

TO: Raj Sharma
On-Scene Coordinator (3HS31)

Attached is the inorganic data validation report for the W&G Electroplating site for Case/DAS#45857; SDG#MC0AF3 completed by the Region III Environmental Services Assistance Team (ESAT), ICF International, contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2607.

Attachment

cc: Gene Nance (TechLaw)
Jocelyn Welshhans (TechLaw)

TO: #0002 TDF: #1215083

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ICF International
ESAT Region 3
US Environmental Protection Agency Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Phone 410-305-3011

Date: January 21, 2016

To: Brandon McDonald
ESAT Region 3 Project Officer

From: Kurt Roby
Data Reviewer

Dean Gouveia
ESAT Region 3 Team Leader

Subject: Inorganic Data Validation (S4VEM)
Site: W & G Electroplating
Case: 45857 SDG: MC0AF3

Overview

Case 45857, Sample Delivery Group (SDG) MC0AF3, consisted of one (1) field blank as well as six surface water samples and two (2) ground water samples, each matrix of which include one (1) field duplicate pair, analyzed for total chromium (Cr) by ICP-MS. Analyses were performed by ChemTech Consulting Group (CHM) according to Contract Laboratory Program (CLP) Statement of Work (SOW) ISM02.3 through the Routine Analytical Services (RAS) program.

Summary

Data were validated with guidance from inorganic National Functional Guidelines, utilizing Environmental Data Exchange and Evaluation System (EXES) and are assigned the Superfund Data Validation Label S4VEM (Stage_4_Validation_Electronic_Manual). The following validation narrative is an evaluation of laboratory reported data for the purpose of usability.

Minor Problem

The percent difference (%D) in the ICP serial dilution analysis was outside the control limit (>10%) for Cr. Positive results and quantitation limits for this analyte are estimated due to possible physical or chemical interferences in the sample matrix and have been qualified “J” and “UJ”, respectively.

Notes

Target analyte Cr has been positively identified in laboratory blanks associated with the samples in this SDG. Samples which reported positive results for these analytes less than the Contract Required Quantitation Limit (CRQL) have been reported at the CRQL and qualified "U".

Concentrations of Cr exceeded the calibration range in the initial analysis for samples MC0AF4, MC0AF5 and MC0AG0. These samples were re-analyzed at 50X, 50X and 10X dilutions, respectively, to bring the concentration of the analyte within the calibration range. Results for this analyte are reported from the dilutions noted.

Results reported for field duplicate pairs MC0AF4/MC0AF5 and MC0AF6/MC0AF7 were within twenty (20) Relative Percent Difference (RPD), \pm CRQL. No data were qualified based on field duplicate precision.

Glossary of Data Qualifier Codes (INORGANIC)

- U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- B The result is presumed a blank contaminant. This qualifier is used only for drinking water samples.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
- UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

DCN: ESATR3-2015-V929

Sample Summary Report

Case No: 45857	Contract: EPW14030	SDG No: MC0AF3	Lab Code: CHM
Sample Number: LCS007	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH: 2	Sample Date:	Sample Time:
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Spike	4.2		ug/L	4.2		1.0	Yes	S4VEM

Case No: 45857	Contract: EPW14030	SDG No: MC0AF3	Lab Code: CHM
Sample Number: MC0AF3	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: Z	pH: 2	Sample Date: 12/09/2015	Sample Time: 14:35:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2.0	UJ	ug/L	2.0	U*	1.0	Yes	S4VEM

Case No: 45857	Contract: EPW14030	SDG No: MC0AF3	Lab Code: CHM
Sample Number: MC0AF4	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: Primary Sump Station	pH: 2	Sample Date: 12/09/2015	Sample Time: 14:05:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	5900	J	ug/L	5900	D*	50.0	Yes	S4VEM

Case No: 45857	Contract: EPW14030	SDG No: MC0AF3	Lab Code: CHM
Sample Number: MC0AF5	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: Primary Sump Station	pH: 2	Sample Date: 12/09/2015	Sample Time: 14:25:00
% Moisture :	% Solids :		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	5730	J	ug/L	5730	D*	50.0	Yes	S4VEM

Case No: 45857	Contract: EPW14030	SDG No: MC0AF3	Lab Code: CHM
Sample Number: MC0AF6	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: WG-SW-001	pH: 2	Sample Date: 12/09/2015	Sample Time: 12:40:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	5.1	J	ug/L	5.1	*	1.0	Yes	S4VEM

Case No: 45857	Contract: EPW14030	SDG No: MC0AF3	Lab Code: CHM
Sample Number: MC0AF6D	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH: 2	Sample Date: 12/09/2015	Sample Time: 12:40:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	4.7		ug/L	4.7		1.0	Yes	S4VEM

Case No: 45857	Contract: EPW14030	SDG No: MC0AF3	Lab Code: CHM
Sample Number: MC0AF6L	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	6.3		ug/L	6.3	J*	5.0	Yes	S4VEM

Case No: 45857	Contract: EPW14030	SDG No: MC0AF3	Lab Code: CHM
Sample Number: MC0AF6S	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH: 2	Sample Date: 12/09/2015	Sample Time: 12:40:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Spike	218		ug/L	218		1.0	Yes	S4VEM

Case No: 45857	Contract: EPW14030	SDG No: MC0AF3	Lab Code: CHM
Sample Number: MC0AF7	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: WG-SW-001	pH: 2	Sample Date: 12/09/2015	Sample Time: 14:00:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	4.7	J	ug/L	4.7	*	1.0	Yes	S4VEM

Case No: 45857	Contract: EPW14030	SDG No: MC0AF3	Lab Code: CHM
Sample Number: MC0AF8	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: WG-SW-007	pH: 2	Sample Date: 12/09/2015	Sample Time: 13:00:00
% Moisture :	% Solids :		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2.8	J	ug/L	2.8	*	1.0	Yes	S4VEM

Case No: 45857	Contract: EPW14030	SDG No: MC0AF3	Lab Code: CHM
Sample Number: MC0AF9	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: WG-SW-008	pH: 2	Sample Date: 12/09/2015	Sample Time: 13:15:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	4.7	J	ug/L	4.7	*	1.0	Yes	S4VEM

Case No: 45857	Contract: EPW14030	SDG No: MC0AF3	Lab Code: CHM
Sample Number: MC0AG0	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: WG-SW-009	pH: 2	Sample Date: 12/09/2015	Sample Time: 13:30:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1080	J	ug/L	1080	D*	10.0	Yes	S4VEM

Case No: 45857	Contract: EPW14030	SDG No: MC0AF3	Lab Code: CHM
Sample Number: MC0AG1	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: WG-SW-010	pH: 2	Sample Date: 12/09/2015	Sample Time: 13:50:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2.0	U	ug/L	0.69	J*	1.0	Yes	S4VEM

Case No: 45857	Contract: EPW14030	SDG No: MC0AF3	Lab Code: CHM
Sample Number: PBW007	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH: 2	Sample Date:	Sample Time:
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2.0	U	ug/L	2.0	U	1.0	Yes	S4VEM



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Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Final Analytical Report

Site Name.....	W & G Electroplating
Sample Collection Date(s).....	12/09/15 12:40- 12/09/15 14:35
Contact.....	Raj Sharma
Report Date.....	01/15/16 14:27
Project #.....	DAS R34781
Work Order.....	1512011

Analyses included in this report:

Hexavalent Chromium IC by EPA 218.6 (ESAT)

Approved for Release

Karen Costa

OASQA Representative



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Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating	Project #: DAS R34781
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Report Narrative

Hexavalent Chromium Analysis Note:

This report contains the results for dissolved hexavalent chromium in water by EPA Method 218.6. This report provides reporting units in ug/L.

All samples were preserved in the field. Upon receipt, the measured pH of samples 1512011-02, 1512011-03 and 1512011-06 through 1512011-08 were below the preservation requirements (pH of 9 +/- 0.5). This could have been due to an insufficient amount of preservative used at the time of sampling or the buffering characteristics of the sample matrix. Therefore, the samples were treated as unpreserved (following R3QA161-102213) and analyzed within the 24 hour holding time.

1512011 FINAL DAS R34781 01 15 16 1427



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Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating

Project #: DAS R34781

ANALYTICAL REPORT FOR SAMPLES

Station ID	Laboratory ID	Matrix	Date Sampled	Date Received
WG-FB-0004	1512011-01	Water	12/09/15 14:35	12/10/15 11:01
WG-SP-0003	1512011-02	Groundwater	12/09/15 14:05	12/10/15 11:01
WG-SP-0004	1512011-03	Groundwater	12/09/15 14:25	12/10/15 11:01
WG-SW-0017	1512011-04	Surface Water	12/09/15 12:40	12/10/15 11:01
WG-SW-0018	1512011-05	Surface Water	12/09/15 14:00	12/10/15 11:01
WG-SW-0019	1512011-06	Surface Water	12/09/15 13:00	12/10/15 11:01
WG-SW-0020	1512011-07	Surface Water	12/09/15 13:15	12/10/15 11:01
WG-SW-0021	1512011-08	Surface Water	12/09/15 13:30	12/10/15 11:01
WG-SW-0022	1512011-09	Surface Water	12/09/15 13:50	12/10/15 11:01

USEPA CLP Generic COC (LAB COPY)

CHAIN OF CUSTODY RECORD

No: 3-120115-124132-0010

Date Shipped: 12/9/2015

Lab: OASQA

Carrier Name: FedEx

DAS #: R34781

Lab Contact: Kevin Poff

Airbill No: 775153329365

Cooler #: 002

Lab Phone: 410-305-3032

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
WG-FB-0004	R3478101	Water/ Bill Huggins	Grab	Cr+6(21)	001 (NH4OH/(NH4)2SO4) (1)	Z	12/09/2015 14:35	1512011 -01
WG-SP-0003	R3478103	Ground Water/ Bill Huggins	Grab	Cr+6(21)	003 (NH4OH/(NH4)2SO4) (1)	Primary Sump Station	12/09/2015 14:05	-02
WG-SP-0004	R3478104	Ground Water/ Bill Huggins	Grab	Cr+6(21)	004 (NH4OH/(NH4)2SO4) (1)	Primary Sump Station	12/09/2015 14:25	-03
WG-SW-0017	R3478105	Surface Water/ Bill Huggins	Grab	Cr+6(21)	005 (NH4OH/(NH4)2SO4), 009 (NH4OH/(NH4)2SO4) (2)	WG-SW-001	12/09/2015 12:40	-04
WG-SW-0018	R3478106	Surface Water/ Bill Huggins	Grab	Cr+6(21)	006 (NH4OH/(NH4)2SO4) (1)	WG-SW-001	12/09/2015 14:00	-05
WG-SW-0019	R3478107	Surface Water/ Bill Huggins	Grab	Cr+6(21)	007 (NH4OH/(NH4)2SO4) (1)	WG-SW-007	12/09/2015 13:00	-06
WG-SW-0020	R3478108	Surface Water/ Bill Huggins	Grab	Cr+6(21)	008 (NH4OH/(NH4)2SO4) (1)	WG-SW-008	12/09/2015 13:15	-07
WG-SW-0021	R3478110	Surface Water/ Bill Huggins	Grab	Cr+6(21)	010 (NH4OH/(NH4)2SO4) (1)	WG-SW-009	12/09/2015 13:30	-08
WG-SW-0022	R3478111	Surface Water/ Bill Huggins	Grab	Cr+6(21)	011 (NH4OH/(NH4)2SO4) (1)	WG-SW-010	12/09/2015 13:50	-09

SAMPLER: *with [signature]*

Sample(s) to be used for Lab QC: WG-SW-0017 Tag 005, WG-SW-0017 Tag 009 - Special Instructions: Please return Cooler with Enclosed FedEx Label	Shipment for Case Complete? Y
	Samples Transferred From Chain of Custody #
Analysis Key: Cr+6=Hexavalent Chromium	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Ship to Lab	<i>William - Techlan</i>	12/9/15 1630	<i>Rosalie Jones ESAT</i>	11:01 12/10/15	3°C <i>dot</i> 12/10/15

Page 4 of 9 1512011 FINAL 01 15 16 1427



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Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating Project #: DAS R34781

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1512011-01
Station ID: WG-FB-0004
Sample Matrix: Water
Collected: 12/09/2015

Table row for Hexavalent Chromium with values: U, 1.00, ug/L, 1, 12/10/15, 12/10/15 12:58, EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1512011-02
Station ID: WG-SP-0003
Sample Matrix: Groundwater
Collected: 12/09/2015

Table row for Hexavalent Chromium with values: 5420, 100, ug/L, 100, 12/10/15, 12/10/15 13:11, EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1512011-03
Station ID: WG-SP-0004
Sample Matrix: Groundwater
Collected: 12/09/2015

Table row for Hexavalent Chromium with values: 5440, 100, ug/L, 100, 12/10/15, 12/10/15 13:18, EPA 218.6/R3QA161



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Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating **Project #: DAS R34781**

Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1512011-04
Station ID: WG-SW-0017
Sample Matrix: Surface Water
Collected: 12/09/2015

Hexavalent Chromium	4.34		1.00	ug/L	1	12/10/15	12/10/15 11:54	EPA 218.6/R3QA161
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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1512011-05
Station ID: WG-SW-0018
Sample Matrix: Surface Water
Collected: 12/09/2015

Hexavalent Chromium	4.39		1.00	ug/L	1	12/10/15	12/10/15 12:14	EPA 218.6/R3QA161
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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1512011-06
Station ID: WG-SW-0019
Sample Matrix: Surface Water
Collected: 12/09/2015

Hexavalent Chromium	2.40		1.00	ug/L	1	12/10/15	12/10/15 12:20	EPA 218.6/R3QA161
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Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating

Project #: DAS R34781

Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1512011-07
Station ID: WG-SW-0020
Sample Matrix: Surface Water
Collected: 12/09/2015

Hexavalent Chromium 4.37 1.00 ug/L 1 12/10/15 12/10/15 12:26 EPA 218.6/R3QA161

Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1512011-08
Station ID: WG-SW-0021
Sample Matrix: Surface Water
Collected: 12/09/2015

Hexavalent Chromium 963 10.0 ug/L 10 12/10/15 12/10/15 13:05 EPA 218.6/R3QA161

Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
---------	--------	----------------------	-----------------------	-------	----------	----------	----------	-------------

Lab ID: 1512011-09
Station ID: WG-SW-0022
Sample Matrix: Surface Water
Collected: 12/09/2015

Hexavalent Chromium U 1.00 ug/L 1 12/10/15 12/10/15 12:39 EPA 218.6/R3QA161



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Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating Project #: DAS R34781

QC Data
Classical Chemistry Parameters

Table with 11 columns: Analyte, Result, Quantitation Limit, Units, Spike Level, Source Result, %REC, %REC Limits, RPD, RPD Limit, Notes

Batch BL51002 - Hex Chrom Prep ESAT

Main data table with columns for Analyte, Result, Quantitation Limit, Units, Spike Level, Source Result, %REC, %REC Limits, RPD, RPD Limit, Notes. Includes rows for Blank, LCS, Duplicate, MRL Check, and Matrix Spike.



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701 Mapes Road
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Site Name: W & G Electroplating **Project #: DAS R34781**

Notes and Definitions

- %REC Percent Recovery
- RPD Relative Percent Difference
- U Analyte included in the analysis, but not detected at or above the quantitation limit.
- NR Not Reported

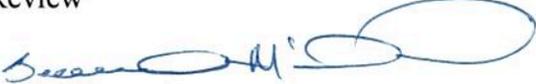
QUANTITATION LIMIT: The lowest concentration of an analyte that can be reliably measured within specified limits of precision and accuracy for a specific laboratory analytical method and that takes into account analytical adjustments made during sample preparation and analysis.

SOLID SAMPLE RESULTS - REPORTING PROTOCOL: Percent Solids (percent dry wt at 105 degrees C) determinations are routinely performed for most organic and inorganic analyses. Consequently, these samples are analyzed wet and converted to a dry weight result for reporting purposes. If metals and mercury analyses are requested, they are routinely prepared for analyses by an initial drying at 60 degrees C, homogenized prior to digestion, and are analyzed and reported on a dry weight basis. Oil-type samples are analyzed and reported on a wet weight basis for all analyses because of the nature of the sample matrix. Any exceptions to this protocol will be noted in the narrative.

ON-DEMAND: The term 'on-demand' analysis, if noted in the report narrative, refers to Section 13.1.4 in the Region III OASQA Laboratory Quality Manual, which provides procedures for non-routine analyses or analytes.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: October 4, 2016
SUBJECT: Region III Data QA Review
FROM: Brandon McDonald 
Region III ESAT PO (3EA22)
TO: Raj Sharma
On-Scene Coordinator (3HS31)

Attached is the inorganic data validation report for the W&G Electroplating site for Case/DAS#46378; SDG#MC0AL9 completed by the Region III Environmental Services Assistance Team (ESAT), ICF International, contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2607.

Attachment

cc: Gene Nance (TechLaw)
Jocelyn Welshans (TechLaw)

TO: #0002 TDF: #0816163

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ICF International
ESAT Region 3
US Environmental Protection Agency Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Phone 410-305-3011

Date: September 22, 2016

To: Brandon McDonald
ESAT Region 3 Project Officer

From: Mahboobeh Mecanic
Data Review Chemist

Kurt Roby
Oversight Chemist

Subject: Inorganic Data Validation (S4VEM)
Site: W & G Electroplating
Case: 46378, SDG: MC0AL9

OVERVIEW

Case 46378, Sample Delivery Group (SDG) MC0AL9, consisted of seventeen (17) soil samples including one (1) field duplicate sample and one (1) field duplicate pair analyzed for total chromium by ICP AES. All samples were analyzed by Chemtex (CHX) according to Contract Laboratory Program (CLP) Statement of Work (SOW) ISM02.3 through the Routine Analytical Services (RAS) program.

SUMMARY

Validation of data was performed with guidance from the Inorganic National Functional Guidelines utilizing the Environmental Data Exchange and Evaluation System (EXES) and has been assigned the Superfund Data Validation Label S4VEM (Stage_4_Validation_Electronic_Manual). No areas of concern with respect to data usability were noted during the validation.

Sample MC0AQ0 is the field blank and samples MC0AQ1 and MC0AQ2 are the rinsate blanks associated with samples in this SDG. Samples MC0AQ0, MC0AQ1 and MC0AQ2 were analyzed in SDG MC0AP3. No data were qualified based on the results of these blanks.

Sample MC0AL1 is the field duplicate pair to sample MC0AN6. Sample MC0AL1 was analyzed in SDG MC0AJ5. Comparison of results for the field duplicate pairs is provided below.

NOTES

All soil samples reported positive results greater than Contract Required Quantitation Limit (CRQL).

Chromium (Cr) exceeded the calibration range in the initial analysis of samples listed below. These samples were reanalyzed at dilution factors (DF) listed to bring the concentration of the analyte within the calibration range. The results for Cr in these samples are reported from the diluted analysis.

<u>Sample</u>	<u>DF</u>
MC0AM1, MC0AM5, MC0AQ7	5X
MC0AM6, MC0AM7, MC0AM9, MC0AN0, MC0AN2, MC0AN5	2X

Results for the field duplicate pairs, Samples MC0AM2/MC0AN4 and MC0AN6/MC0AL1, were not comparable.

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

- U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- B The result is presumed a blank contaminant. This qualifier is used only for drinking water samples.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
- UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Sample Summary Report

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: LCS160	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids : 100	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2.1		mg/kg	2.1		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AL9	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH16	pH:	Sample Date: 08/16/2016	Sample Time: 15:01:00
% Moisture :		% Solids : 81.1	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	26.6		mg/kg	26.6		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AL9D	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date: 08/16/2016	Sample Time: 15:01:00
% Moisture :		% Solids : 81.1	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	27.1		mg/kg	27.1		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AL9L	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids : 81.1	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	28.7		mg/kg	28.7		5	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AL9S	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date: 08/16/2016	Sample Time: 15:01:00
% Moisture :		% Solids : 81.1	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Spike	70.4		mg/kg	70.4		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AM0	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH16	pH:	Sample Date: 08/16/2016	Sample Time: 15:17:00
% Moisture :		% Solids : 84.3	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	402		mg/kg	402		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AM1	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH16	pH:	Sample Date: 08/16/2016	Sample Time: 15:09:00
% Moisture :		% Solids : 84.8	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	3190		mg/kg	3190	D	5	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AM2	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH17	pH:	Sample Date: 08/16/2016	Sample Time: 14:20:00
% Moisture :		% Solids : 83.2	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	654		mg/kg	654		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AM5	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH18	pH:	Sample Date: 08/16/2016	Sample Time: 14:12:00
% Moisture :		% Solids : 79.4	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	3010		mg/kg	3010	D	5	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AM6	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH18	pH:	Sample Date: 08/16/2016	Sample Time: 14:05:00
% Moisture :		% Solids : 84.5	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	911		mg/kg	911	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AM7	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH1	pH:	Sample Date: 08/17/2016	Sample Time: 10:45:00
% Moisture :		% Solids : 78.9	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1210		mg/kg	1210	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AM8	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH19	pH:	Sample Date: 08/16/2016	Sample Time: 14:32:00
% Moisture :		% Solids : 75.3	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	752		mg/kg	752		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AM9	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH19	pH:	Sample Date: 08/16/2016	Sample Time: 14:41:00
% Moisture :		% Solids : 89.2	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1430		mg/kg	1430	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AN0	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH3	pH:	Sample Date: 08/17/2016	Sample Time: 09:56:00
% Moisture :		% Solids : 86.5	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	944		mg/kg	944	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AN1	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH20	pH:	Sample Date: 08/16/2016	Sample Time: 13:51:00
% Moisture :		% Solids : 80.3	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	325		mg/kg	325		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AN2	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH20	pH:	Sample Date: 08/16/2016	Sample Time: 13:58:00
% Moisture :		% Solids : 76.7	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1200		mg/kg	1200	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AN3	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH21	pH:	Sample Date: 08/17/2016	Sample Time: 08:35:00
% Moisture :		% Solids : 80.7	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	101		mg/kg	101		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AN4	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH17	pH:	Sample Date: 08/16/2016	Sample Time: 14:35:00
% Moisture :		% Solids : 83.1	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	337		mg/kg	337		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AN5	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH16	pH:	Sample Date: 08/16/2016	Sample Time: 15:37:00
% Moisture :		% Solids : 84.3	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1080		mg/kg	1080	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AN6	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH13	pH:	Sample Date: 08/16/2016	Sample Time: 17:20:00
% Moisture :		% Solids : 83.1	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	87.7		mg/kg	87.7		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: MC0AQ7	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH6	pH:	Sample Date: 08/16/2016	Sample Time: 15:57:00
% Moisture :		% Solids : 84.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	3330		mg/kg	3330	D	5	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AL9	Lab Code: CHX
Sample Number: PBS160	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids : 100	

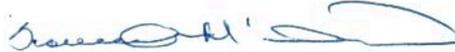
Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1.0	U	mg/kg	1.0	U	1	Yes	S4VEM



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: October 6, 2016

SUBJECT: Region III Data QA Review

FROM: Brandon McDonald 
Region III ESAT PO (3EA22)

TO: Raj Sharma
On-Scene Coordinator (3HS31)

Attached is the inorganic data validation report for the W&G Electroplating site for Case/DAS#46378; SDG#MC0AG4 completed by the Region III Environmental Services Assistance Team (ESAT), ICF International, contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2607.

Attachment

cc: Gene Nance (TechLaw)
Jocelyn Welshhans (TechLaw)

TO: #0002 TDF: #0816161

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ICF International
ESAT Region 3
US Environmental Protection Agency Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Phone 410-305-3011

Date: September 21, 2016

To: Brandon McDonald
ESAT Region 3 Project Officer

From: Mahboobeh Mecanic
Data Review Chemist

Dean Gouveia
Oversight Chemist

Subject: Inorganic Data Validation (S4VEM)
Site: W & G Electroplating
Case: 46378, SDG: MC0AG4

OVERVIEW

Case 46378, Sample Delivery Group (SDG) MC0AG4, consisted of twenty (20) soil samples analyzed for total chromium by ICP AES. All samples were analyzed by Chemtex (CHX) according to Contract Laboratory Program (CLP) Statement of Work (SOW) ISM02.3 through the Routine Analytical Services (RAS) program.

SUMMARY

Validation of data was performed with guidance from the Inorganic National Functional Guidelines utilizing the Environmental Data Exchange and Evaluation System (EXES) and has been assigned the Superfund Data Validation Label S4VEM (Stage_4_Validation_Electronic_Manual). No areas of concern with respect to data usability were noted during the validation.

Sample MC0AQ0 is the field blank and samples MC0AQ1 and MC0AQ2 are the rinsate blanks associated with samples in this SDG. Samples MC0AQ0, MC0AQ1 and MC0AQ2 were analyzed in SDG MC0AP3. No data were qualified based on the results of these blanks.

NOTES

All soil samples reported positive results greater than Contract Required Quantitation Limit (CRQL).

Chromium (Cr) exceeded the calibration range in the initial analysis of samples listed below. These samples were reanalyzed at dilution factors (DF) listed to bring the concentration of the analyte within the calibration range. The results for Cr in these samples are reported from the diluted analysis.

<u>Sample</u>	<u>DF</u>
MC0AH5	25X
MC0AH2, MC0AH9	10X
MC0AG6, MC0AH3, MC0AJ0, MC0AJ1	5X
MC0AG9, MC0AH4	2X

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

- U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- B The result is presumed a blank contaminant. This qualifier is used only for drinking water samples.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
- UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Sample Summary Report

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: LCS158	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids : 100	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2.2		mg/kg	2.2		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AG4	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH1	pH:	Sample Date: 08/17/2016	Sample Time: 10:35:00
% Moisture :		% Solids : 83.8	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	978		mg/kg	978		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AG4D	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date: 08/17/2016	Sample Time: 10:35:00
% Moisture :		% Solids : 83.8	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	848		mg/kg	848		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AG4L	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids : 83.8	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1030		mg/kg	1030		5	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AG4S	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date: 08/17/2016	Sample Time: 10:35:00
% Moisture :		% Solids : 83.8	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Spike	326		mg/kg	326		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AG6	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH1	pH:	Sample Date: 08/17/2016	Sample Time: 10:41:00
% Moisture :		% Solids : 80.2	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	3860		mg/kg	3860	D	5	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AG7	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH2	pH:	Sample Date: 08/17/2016	Sample Time: 10:17:00
% Moisture :		% Solids : 87.3	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	622		mg/kg	622		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AG8	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH2	pH:	Sample Date: 08/16/2016	Sample Time: 10:11:00
% Moisture :		% Solids : 81.3	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	798		mg/kg	798		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AG9	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH2	pH:	Sample Date: 08/17/2016	Sample Time: 10:24:00
% Moisture :		% Solids : 81.3	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1110		mg/kg	1110	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AH0	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH3	pH:	Sample Date: 08/17/2016	Sample Time: 09:51:00
% Moisture :		% Solids : 86.8	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	44.2		mg/kg	44.2		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AH1	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH3	pH:	Sample Date: 08/17/2016	Sample Time: 10:06:00
% Moisture :		% Solids : 83.3	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	394		mg/kg	394		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AH2	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH3	pH:	Sample Date: 08/17/2016	Sample Time: 10:00:00
% Moisture :		% Solids : 81.2	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	5310		mg/kg	5310	D	10	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AH3	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH4	pH:	Sample Date: 08/17/2016	Sample Time: 11:27:00
% Moisture :		% Solids : 83.1	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2210		mg/kg	2210	D	5	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AH4	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH4	pH:	Sample Date: 08/17/2016	Sample Time: 11:14:00
% Moisture :		% Solids : 86.7	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1070		mg/kg	1070	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AH5	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH4	pH:	Sample Date: 08/17/2016	Sample Time: 11:09:00
% Moisture :		% Solids : 78.7	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	9090		mg/kg	9090	D	25	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AH6	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH5	pH:	Sample Date: 08/17/2016	Sample Time: 09:24:00
% Moisture :		% Solids : 87.6	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	21.7		mg/kg	21.7		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AH7	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH5	pH:	Sample Date: 08/17/2016	Sample Time: 09:30:00
% Moisture :		% Solids : 86.9	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	18.9		mg/kg	18.9		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AH8	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH5	pH:	Sample Date: 08/17/2016	Sample Time: 09:36:00
% Moisture :		% Solids : 72.9	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	21.4		mg/kg	21.4		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AH9	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH6	pH:	Sample Date: 08/16/2016	Sample Time: 16:19:00
% Moisture :		% Solids : 83.4	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	4490		mg/kg	4490	D	10	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AJ0	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH6	pH:	Sample Date: 08/16/2016	Sample Time: 16:15:00
% Moisture :		% Solids : 82.8	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	3500		mg/kg	3500	D	5	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AJ1	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH6	pH:	Sample Date: 08/16/2016	Sample Time: 16:02:00
% Moisture :		% Solids : 79.3	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2910		mg/kg	2910	D	5	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AJ2	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH7	pH:	Sample Date: 08/16/2016	Sample Time: 16:39:00
% Moisture :		% Solids : 84.2	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	28.4		mg/kg	28.4		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AJ3	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH7	pH:	Sample Date: 08/16/2016	Sample Time: 16:35:00
% Moisture :		% Solids : 85.1	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	63.8		mg/kg	63.8		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: MC0AJ4	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH7	pH:	Sample Date: 08/16/2016	Sample Time: 16:30:00
% Moisture :		% Solids : 83.2	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	23.8		mg/kg	23.8		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AG4	Lab Code: CHX
Sample Number: PBS158	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids : 100	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1.0	U	mg/kg	1.0	U	1	Yes	S4VEM



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: October 6, 2016

SUBJECT: Region III Data QA Review

FROM: Brandon McDonald 
Region III ESAT PO (3EA22)

TO: Raj Sharma
On-Scene Coordinator (3HS31)

Attached is the inorganic data validation report for the W&G Electroplating site for Case/DAS#46378; SDG#MC0AJ5 completed by the Region III Environmental Services Assistance Team (ESAT), ICF International, contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2607.

Attachment

cc: Gene Nance (TechLaw)
Jocelyn Welshhans (TechLaw)

TO: #0002 TDF: #0816159

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US Environmental Protection Agency Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Phone 410-305-3011

Date: September 21, 2016

To: Brandon McDonald
ESAT Region 3 Project Officer

From: Mahboobeh Mecanic
Data Review Chemist

Dean Gouveia
Oversight Chemist

Subject: Inorganic Data Validation (S4VEM)
Site: W & G Electroplating
Case: 46378, SDG: MC0AJ5

OVERVIEW

Case 46378, Sample Delivery Group (SDG) MC0AJ5, consisted of twenty (20) soil samples analyzed for total chromium by ICP AES. All samples were analyzed by Chemtex (CHX) according to Contract Laboratory Program (CLP) Statement of Work (SOW) ISM02.3 through the Routine Analytical Services (RAS) program.

SUMMARY

Validation of data was performed with guidance from the Inorganic National Functional Guidelines utilizing the Environmental Data Exchange and Evaluation System (EXES) and has been assigned the Superfund Data Validation Label S4VEM (Stage_4_Validation_Electronic_Manual). No areas of concern with respect to data usability were noted during the validation.

Sample MC0AQ0 is the field blank and sample MC0AQ1 is the rinsate blank associated with samples in this SDG. Samples MC0AQ0 and MC0AQ1 were analyzed in SDG MC0AP3. No data were qualified based on the results of these blanks.

NOTES

All soil samples reported positive results greater than Contract Required Quantitation Limit (CRQL).

Chromium (Cr) exceeded the calibration range in the initial analysis of samples listed below. These samples were reanalyzed at dilution factors (DF) listed to bring the concentration of the analyte within the calibration range. The results for Cr in these samples are reported from the diluted analysis.

<u>Sample</u>	<u>DF</u>
MC0AJ7, MC0AK3	10X
MC0AL1	5X
MC0AJ8, MC0AK1, MC0AL5, MC0AL6	2X

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

- U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- B The result is presumed a blank contaminant. This qualifier is used only for drinking water samples.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
- UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Sample Summary Report

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: LCS159	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids : 100	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2.2		mg/kg	2.2		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AJ5	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH8	pH:	Sample Date: 08/16/2016	Sample Time: 16:48:00
% Moisture :		% Solids : 83.6	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	135		mg/kg	135		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AJ6	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH8	pH:	Sample Date: 08/16/2016	Sample Time: 16:52:00
% Moisture :		% Solids : 84.7	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	19.6		mg/kg	19.6		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AJ7	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH8	pH:	Sample Date: 08/16/2016	Sample Time: 17:01:00
% Moisture :		% Solids : 82.2	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	5190		mg/kg	5190	D	10	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AJ8	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH9	pH:	Sample Date: 08/16/2016	Sample Time: 18:27:00
% Moisture :		% Solids : 83.9	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1310		mg/kg	1310	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AJ9	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH9	pH:	Sample Date: 08/16/2016	Sample Time: 18:31:00
% Moisture :		% Solids : 84.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	16.1		mg/kg	16.1		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AK0	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH9	pH:	Sample Date: 08/16/2016	Sample Time: 18:35:00
% Moisture :		% Solids : 83.2	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	30.5		mg/kg	30.5		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AK1	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH10	pH:	Sample Date: 08/16/2016	Sample Time: 18:03:00
% Moisture :		% Solids : 82.5	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1350		mg/kg	1350	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AK2	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH10	pH:	Sample Date: 08/16/2016	Sample Time: 17:56:00
% Moisture :		% Solids : 84.4	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	762		mg/kg	762		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AK3	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH4	pH:	Sample Date: 08/17/2016	Sample Time: 11:19:00
% Moisture :		% Solids : 86.7	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	5870		mg/kg	5870	D	10	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AK4	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH11	pH:	Sample Date: 08/16/2016	Sample Time: 17:49:00
% Moisture :		% Solids : 85.4	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	25.2		mg/kg	25.2		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AK7	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH12	pH:	Sample Date: 08/16/2016	Sample Time: 14:47:00
% Moisture :		% Solids : 87.9	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	460		mg/kg	460		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AK8	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH12	pH:	Sample Date: 08/16/2016	Sample Time: 14:54:00
% Moisture :		% Solids : 84.8	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	512		mg/kg	512		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AL0	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH13	pH:	Sample Date: 08/16/2016	Sample Time: 17:06:00
% Moisture :		% Solids : 82.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	134		mg/kg	134		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AL1	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH13	pH:	Sample Date: 08/16/2016	Sample Time: 17:15:00
% Moisture :		% Solids : 83.6	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	3000		mg/kg	3000	D	5	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AL3	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH14	pH:	Sample Date: 08/16/2016	Sample Time: 15:51:00
% Moisture :		% Solids : 83.1	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	537		mg/kg	537		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AL4	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH14	pH:	Sample Date: 08/16/2016	Sample Time: 15:44:00
% Moisture :		% Solids : 80.1	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	625		mg/kg	625		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AL4D	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date: 08/16/2016	Sample Time: 15:44:00
% Moisture :		% Solids : 80.1	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	576		mg/kg	576		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AL4L	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids : 80.1	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	677		mg/kg	677		5	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AL4S	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date: 08/16/2016	Sample Time: 15:44:00
% Moisture :		% Solids : 80.1	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Spike	716		mg/kg	716		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AL5	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH14	pH:	Sample Date: 08/16/2016	Sample Time: 15:37:00
% Moisture :		% Solids : 84.1	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1350		mg/kg	1350	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AL6	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH15	pH:	Sample Date: 08/16/2016	Sample Time: 17:40:00
% Moisture :		% Solids : 83.5	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1650		mg/kg	1650	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AL7	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH15	pH:	Sample Date: 08/16/2016	Sample Time: 17:14:00
% Moisture :		% Solids : 87.2	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	439		mg/kg	439		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: MC0AL8	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH15	pH:	Sample Date: 08/16/2016	Sample Time: 17:06:00
% Moisture :		% Solids : 84.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	64.9		mg/kg	64.9		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AJ5	Lab Code: CHX
Sample Number: PBS159	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids : 100	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1.0	U	mg/kg	1.0	U	1	Yes	S4VEM



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: October 4, 2016
SUBJECT: Region III Data QA Review
FROM: Brandon McDonald 
Region III ESAT PO (3EA22)
TO: Raj Sharma
On-Scene Coordinator (3HS31)

Attached is the inorganic data validation report for the W&G Electroplating site for Case/DAS#46378; SDG#MC0AP0 completed by the Region III Environmental Services Assistance Team (ESAT), ICF International, contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2607.

Attachment

cc: Gene Nance (TechLaw)
Jocelyn Welshhans (TechLaw)

TO: #0002 TDF: #0816164

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Phone 410-305-3011

Date: September 22, 2016

To: Brandon McDonald
ESAT Region 3 Project Officer

From: Mahboobeh Mecanic
Data Review Chemist

Kurt Roby
Oversight Chemist

Subject: Inorganic Data Validation (S4VEM)
Site: W & G Electroplating
Case: 46378, SDG: MC0AP0

OVERVIEW

Case 46378, Sample Delivery Group (SDG) MC0AP0, consisted of one (1) IDW soil sample extracted by Toxicity Characteristic Leaching Procedure and the extract analyzed for total chromium by ICP AES. The sample was analyzed by Chemtex (CHX) according to Contract Laboratory Program (CLP) Statement of Work (SOW) ISM02.3 through the Routine Analytical Services (RAS) program.

SUMMARY

Validation of data was performed with guidance from the Inorganic National Functional Guidelines utilizing the Environmental Data Exchange and Evaluation System (EXES) and has been assigned the Superfund Data Validation Label S4VEM (Stage_4_Validation_Electronic_Manual). Areas of concern with respect to data usability are listed below.

MINOR PROBLEM

The matrix spike recovery was outside the upper control limit (>125%). The post digestion spike recovery was within control limit (75%-125%). The positive result for chromium (Cr) in this sample has been qualified estimated "J".

NOTES

The extraction blank reported a positive result for Cr greater than Method Detection Limit (>MDL). The positive result detected in the sample was greater than Contract Required

Quantitation Limit (>CRQL). No data were qualified based on blank contamination.

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

- U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- B The result is presumed a blank contaminant. This qualifier is used only for drinking water samples.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
- UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

DCN: ESATR3-CY4-V155

Sample Summary Report

Case No: 46378	Contract: EPW15007	SDG No: MC0AP0	Lab Code: CHX
Sample Number: LCS164	Method: Metals by ICP-AES	Matrix: Water	MA Number: 2604.0
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	0.023		mg/L	0.023		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP0	Lab Code: CHX
Sample Number: MC0AP0	Method: Metals by ICP-AES	Matrix: Water	MA Number: 2604.0
Sample Location: IDW	pH:	Sample Date: 08/17/2016	Sample Time: 11:57:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	0.68	J	mg/L	0.68	*	1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP0	Lab Code: CHX
Sample Number: MC0AP0A	Method: Metals by ICP-AES	Matrix: Water	MA Number: 2604.0
Sample Location:	pH:	Sample Date: 08/17/2016	Sample Time: 11:57:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Spike	2.0		mg/L	2.0		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP0	Lab Code: CHX
Sample Number: MC0AP0D	Method: Metals by ICP-AES	Matrix: Water	MA Number: 2604.0
Sample Location:	pH:	Sample Date: 08/17/2016	Sample Time: 11:57:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	0.71		mg/L	0.71		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP0	Lab Code: CHX
Sample Number: MC0AP0L	Method: Metals by ICP-AES	Matrix: Water	MA Number: 2604.0
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	0.70		mg/L	0.70		5	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP0	Lab Code: CHX
Sample Number: MC0AP0S	Method: Metals by ICP-AES	Matrix: Water	MA Number: 2604.0
Sample Location:	pH:	Sample Date: 08/17/2016	Sample Time: 11:57:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Spike	0.98		mg/L	0.98	*	1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP0	Lab Code: CHX
Sample Number: PBW164	Method: Metals by ICP-AES	Matrix: Water	MA Number: 2604.0
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	0.010	U	mg/L	0.010	U	1	Yes	S4VEM

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III

Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350



DATE: October 6, 2016

SUBJECT: Region III Data QA Review

FROM: Brandon McDonald 
Region III ESAT PO (3EA22)

TO: Raj Sharma
On-Scene Coordinator (3HS31)

Attached is the inorganic data validation report for the W&G Electroplating site for Case/DAS#46378; SDG#MC0AP3 completed by the Region III Environmental Services Assistance Team (ESAT), ICF International, contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2607.

Attachment

cc: Gene Nance (TechLaw)
Jocelyn Welshhans (TechLaw)

TO: #0002 TDF: #0816160

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ESAT Region 3
US Environmental Protection Agency Environmental Science Center
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Phone 410-305-3011

Date: September 21, 2016

To: Brandon McDonald
ESAT Region 3 Project Officer

From: Mahboobeh Mecanic
Data Review Chemist

Dean Gouveia
Oversight Chemist

Subject: Inorganic Data Validation (S4VEM)
Site: W & G Electroplating
Case: 46378, SDG: MC0AP3

OVERVIEW

Case 46378, Sample Delivery Group (SDG) MC0AP3, consisted of two (2) rinsate blanks, one (1) field blank, one (1) IDW water and seven (7) ground water samples including one (1) field duplicate pair analyzed for total chromium by ICP MS. All samples were analyzed by Chemtex (CHX) according to Contract Laboratory Program (CLP) Statement of Work (SOW) ISM02.3 through the Routine Analytical Services (RAS) program.

SUMMARY

Validation of data was performed with guidance from the Inorganic National Functional Guidelines utilizing the Environmental Data Exchange and Evaluation System (EXES) and has been assigned the Superfund Data Validation Label S4VEM (Stage_4_Validation_Electronic_Manual). No areas of concern with respect to data usability were noted during the validation.

NOTES

Chromium (Cr) results detected below Contract Required Quantitation Limit (CRQL) have been qualified "J" unless raised to CRQL and qualified "U" due to blank contamination.

The preparation blank reported a positive result >MDL but <CRQL for Cr. The positive result for this analyte <CRQL in sample MC0AQ0 has been raised to the CRQL and qualified "U" due to blank contamination.

Chromium exceeded the calibration range in the initial analysis of several field samples. These samples were reanalyzed at dilution factors (DF) listed to bring the concentration of the analyte within the calibration range. The results for Cr in these samples are reported from the diluted analysis.

<u>Sample</u>	<u>DF</u>
MC0AP3, MC0AP7, MC0AP8	10X
MC0AP4, MC0AP6, MC0AP9	5X
MC0AP5	2X
MC0AQ4	200X

Results for the field duplicate pair, samples MC0AP6/MC0AP9, were comparable.

Laboratory preparation blank PBWD50 and Laboratory Control Sample LCSD50 were named PBWD45 and LCS45, respectively, on the laboratory raw data and instrument run log. No data were impacted. No action was taken by the reviewer based on these discrepancies.

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

- U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- B The result is presumed a blank contaminant. This qualifier is used only for drinking water samples.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
- UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Sample Summary Report

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: LCSD50	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	4.0		ug/L	4.0		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: LCSD51	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	4.2		ug/L	4.2		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: MC0AP3	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: BH13	pH:	Sample Date: 08/16/2016	Sample Time: 14:56:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	4590		ug/L	4590	D	10	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: MC0AP4	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: BH15	pH:	Sample Date: 08/16/2016	Sample Time: 14:32:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2990		ug/L	2990	D	5	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: MC0AP5	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: BH17	pH:	Sample Date: 08/16/2016	Sample Time: 12:38:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1180		ug/L	1180	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: MC0AP6	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: BH18	pH:	Sample Date: 08/16/2016	Sample Time: 12:08:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2600		ug/L	2600	D	5	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: MC0AP7	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: BH19	pH:	Sample Date: 08/16/2016	Sample Time: 11:24:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	6180		ug/L	6180	D	10	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: MC0AP7D	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date: 08/16/2016	Sample Time: 11:24:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	6080		ug/L	6080	D	10	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: MC0AP7L	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	5800		ug/L	5800	D	50	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: MC0AP7S	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date: 08/16/2016	Sample Time: 11:24:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Spike	6470		ug/L	6470	D	10	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: MC0AP8	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: BH20	pH:	Sample Date: 08/16/2016	Sample Time: 10:14:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	7600		ug/L	7600	D	10	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: MC0AP9	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: BH18	pH:	Sample Date: 08/16/2016	Sample Time: 14:25:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2440		ug/L	2440	D	5	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: MC0AQ0	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: Z	pH:	Sample Date: 08/16/2016	Sample Time: 14:40:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2.8		ug/L	2.8		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: MC0AQ1	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: Z	pH:	Sample Date: 08/16/2016	Sample Time: 16:11:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2.0	U	ug/L	1.5	J	1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: MC0AQ2	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: Z	pH:	Sample Date: 08/17/2016	Sample Time: 10:40:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1.1	J	ug/L	1.1	J	1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: MC0AQ4	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location: IDW	pH:	Sample Date: 08/17/2016	Sample Time: 11:45:00
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	105000		ug/L	105000	D	200	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: PBWD50	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1.3	J	ug/L	1.3	J	1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AP3	Lab Code: CHX
Sample Number: PBWD51	Method: Metals by ICP-MS	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids :	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2.0	U	ug/L	2.0	U	1	Yes	S4VEM



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: October 6, 2016
SUBJECT: Region III Data QA Review
FROM: Brandon McDonald 
Region III ESAT PO (3EA22)
TO: Raj Sharma
On-Scene Coordinator (3HS31)

Attached is the inorganic data validation report for the W&G Electroplating site for Case/DAS#46378; SDG#MC0AQ8 completed by the Region III Environmental Services Assistance Team (ESAT), ICF International, contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2607.

Attachment

cc: Gene Nance (TechLaw)
Jocelyn Welshhans (TechLaw)

TO: #0002 TDF: #0816162

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ICF International
ESAT Region 3
US Environmental Protection Agency Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Phone 410-305-3011

Date: September 23, 2016

To: Brandon McDonald
ESAT Region 3 Project Officer

From: Mahboobeh Mecanic
Data Review Chemist

Kurt Roby
Oversight Chemist

Subject: Inorganic Data Validation (S4VEM)
Site: W & G Electroplating
Case: 46378, SDG: MC0AQ8

OVERVIEW

Case 46378, Sample Delivery Group (SDG) MC0AQ8, consisted of four (4) soil samples including one (1) field duplicate pair analyzed for total chromium by ICP AES. All samples were analyzed by Chemtex (CHX) according to Contract Laboratory Program (CLP) Statement of Work (SOW) ISM02.3 through the Routine Analytical Services (RAS) program.

SUMMARY

Validation of data was performed with guidance from the Inorganic National Functional Guidelines utilizing the Environmental Data Exchange and Evaluation System (EXES) and has been assigned the Superfund Data Validation Label S4VEM (Stage_4_Validation_Electronic_Manual). No areas of concern with respect to data usability were noted during the validation.

Sample MC0AQ0 is the field blank and samples MC0AQ1 and MC0AQ2 are the rinsate blanks associated with samples in this SDG. Samples MC0AQ0, MC0AQ1 and MC0AQ2 were analyzed in SDG MC0AP3. No data were qualified based on the results of these blanks.

NOTES

All soil samples reported positive results greater than Contract Required Quantitation Limit (CRQL).

Chromium (Cr) exceeded the calibration range in the initial analysis of samples MC0AQ8 and MC0AR1. These samples were reanalyzed at a 2X dilution to bring the concentration of the

analyte within the calibration range. The results for Cr in these samples are reported from the diluted analysis.

Results for the field duplicate pair, samples MC0AR0/MC0AR1, were comparable.

Laboratory preparation blank PBS161 and Laboratory Control Sample LCS161 were named PBS159 and LCS159, respectively, on the ICP raw data. No data were impacted. No action was taken by the reviewer based on these discrepancies.

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

- U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- B The result is presumed a blank contaminant. This qualifier is used only for drinking water samples.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
- UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

DCN: ESATR3-CY4-V153

Sample Summary Report

Case No: 46378	Contract: EPW15007	SDG No: MC0AQ8	Lab Code: CHX
Sample Number: LCS161	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids : 100	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	2.0		mg/kg	2.0		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AQ8	Lab Code: CHX
Sample Number: MC0AQ8	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH7	pH:	Sample Date: 08/16/2016	Sample Time: 16:26:00
% Moisture :		% Solids : 82.4	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1120		mg/kg	1120	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AQ8	Lab Code: CHX
Sample Number: MC0AQ9	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH5	pH:	Sample Date: 08/17/2016	Sample Time: 09:44:00
% Moisture :		% Solids : 70.5	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	109		mg/kg	109		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AQ8	Lab Code: CHX
Sample Number: MC0AR0	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH2	pH:	Sample Date: 08/17/2016	Sample Time: 10:24:00
% Moisture :		% Solids : 82.6	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	910		mg/kg	910		1	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AQ8	Lab Code: CHX
Sample Number: MC0AR1	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location: BH2	pH:	Sample Date: 08/17/2016	Sample Time: 10:56:00
% Moisture :		% Solids : 83.3	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1170		mg/kg	1170	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AQ8	Lab Code: CHX
Sample Number: MC0AR1D	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date: 08/17/2016	Sample Time: 10:56:00
% Moisture :		% Solids : 83.3	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1330		mg/kg	1330	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AQ8	Lab Code: CHX
Sample Number: MC0AR1L	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids : 83.3	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1220		mg/kg	1220	D	10	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AQ8	Lab Code: CHX
Sample Number: MC0AR1S	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date: 08/17/2016	Sample Time: 10:56:00
% Moisture :		% Solids : 83.3	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Spike	1020		mg/kg	1020	D	2	Yes	S4VEM

Case No: 46378	Contract: EPW15007	SDG No: MC0AQ8	Lab Code: CHX
Sample Number: PBS161	Method: Metals by ICP-AES	Matrix: Soil	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids : 100	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Target	1.0	U	mg/kg	1.0	U	1	Yes	S4VEM



Final Analytical Report

Site Name.....	W & G Electroplating
Sample Collection Date(s).....	08/16/16 10:11- 08/17/16 11:27
Contact.....	Raj Sharma
Report Date.....	10/03/16 16:38
Project #.....	DAS R34974
Work Order.....	1608009

Analyses included in this report:

Hexavalent Chromium IC by EPA 218.6 (ESAT)

Percent Dry Weight (105C) by USGS

Approved for Release

Karen Costa

OASQA Representative



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating

Project #: DAS R34974

Report Narrative

Hexavalent Chromium Aqueous Analysis Note:

This report contains the results for dissolved hexavalent chromium in water by EPA Method 218.6. This report provides reporting units in ug/L.

The matrix spike (BH61703-MS1) performed on sample 1608009-06 was too dilute for accurate quantitation, resulting in an inaccurate recovery calculation (TD).

Hexavalent Chromium Soil Analysis Note:

Soil samples were digested using SW-846 Method 3060A; digestates were analyzed by EPA Method 218.6.

Due to irregular analysis of hexavalent chromium in soil, the samples and appropriate quality control checks were analyzed based on the "On-Demand" criteria outlined in the EPA Region III OASQA Laboratory Quality Manual and section 6.11 of SOP R3QA069-013014.

The matrix spikes (BH62202-MS1, BH62202-MS3, BH62204-MS1, BH62204-MS3, BH62205-MS1, and BH62205-MS3) performed on samples 1608009-10, 1608009-20, 1608009-45, 1608009-49, 1608009-52 and 1608009-70 were too dilute for accurate quantitation, resulting in inaccurate recovery calculations (TD).

The relative percent differences of the duplicates (BH62203-DUP1, BH62204-DUP, and BH62205-DUP2) of samples 1608009-24, 1608009-45 and 1608009-70 are outside control limits (>20% RPD). Therefore, the samples are qualified as estimated (J).

The matrix spike recovery (BH62204-MS2) of sample 1608009-45 was outside of control limits. Due to the inconsistent results between 1608009-45 and related quality control (BH62204-DUP1, BH62204-MS1, and BH62204-MS2), the sample and quality control were re-digested and re-analyzed. The re-analysis confirmed the irregularity of the soil matrix. This could be due to the heterogeneity of the sample and potential conditions under which the hexavalent chromium would reduce to trivalent chromium. The highest result is reported and the sample (1608009-45) is qualified as estimated (J).

1608009 Final Repo DAS R34974 10 03 16 1639



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating **Project #: DAS R34974**

ANALYTICAL REPORT FOR SAMPLES

Station ID	Laboratory ID	Matrix	Date Sampled	Date Received
WG-FB-0005	1608009-01	Water	08/16/16 14:40	08/17/16 11:44
WG-GW-0050	1608009-02	Groundwater	08/16/16 14:56	08/17/16 11:44
WG-GW-0051	1608009-03	Groundwater	08/16/16 14:32	08/17/16 11:44
WG-GW-0052	1608009-04	Groundwater	08/16/16 12:38	08/17/16 11:44
WG-GW-0053	1608009-05	Groundwater	08/16/16 12:08	08/17/16 11:44
WG-GW-0054	1608009-06	Groundwater	08/16/16 11:24	08/17/16 11:44
WG-GW-0055	1608009-07	Groundwater	08/16/16 10:14	08/17/16 11:44
WG-GW-0056	1608009-08	Groundwater	08/16/16 14:25	08/17/16 11:44
WG-RB-0004	1608009-09	Water	08/16/16 16:11	08/17/16 11:44
WG-SS-0009	1608009-10	Soil	08/17/16 10:35	08/19/16 11:45
WG-SS-0011	1608009-11	Soil	08/17/16 10:41	08/19/16 11:45
WG-SS-0012	1608009-12	Soil	08/17/16 10:17	08/19/16 11:45
WG-SS-0013	1608009-13	Soil	08/16/16 10:11	08/19/16 11:45
WG-SS-0014	1608009-14	Soil	08/17/16 10:24	08/19/16 11:45
WG-SS-0015	1608009-15	Soil	08/17/16 09:51	08/19/16 11:45
WG-SS-0016	1608009-16	Soil	08/17/16 10:06	08/19/16 11:45
WG-SS-0017	1608009-17	Soil	08/17/16 10:00	08/19/16 11:45
WG-SS-0018	1608009-18	Soil	08/17/16 11:27	08/19/16 11:45
WG-SS-0019	1608009-19	Soil	08/17/16 11:14	08/19/16 11:45
WG-SS-0020	1608009-20	Soil	08/17/16 11:09	08/19/16 11:45
WG-SS-0021	1608009-21	Soil	08/17/16 09:24	08/19/16 11:45
WG-SS-0022	1608009-22	Soil	08/17/16 09:30	08/19/16 11:45
WG-SS-0023	1608009-23	Soil	08/17/16 09:36	08/19/16 11:45
WG-SS-0024	1608009-24	Soil	08/16/16 16:19	08/19/16 11:45
WG-SS-0025	1608009-25	Soil	08/16/16 16:15	08/19/16 11:45
WG-SS-0026	1608009-26	Soil	08/16/16 16:02	08/19/16 11:45
WG-SS-0027	1608009-27	Soil	08/16/16 16:39	08/19/16 11:45



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating **Project #: DAS R34974**

ANALYTICAL REPORT FOR SAMPLES

Station ID	Laboratory ID	Matrix	Date Sampled	Date Received
WG-SS-0028	1608009-28	Soil	08/16/16 16:35	08/19/16 11:45
WG-SS-0029	1608009-29	Soil	08/16/16 16:30	08/19/16 11:45
WG-SS-0030	1608009-30	Soil	08/16/16 16:48	08/19/16 11:45
WG-SS-0031	1608009-31	Soil	08/16/16 16:52	08/19/16 11:45
WG-SS-0032	1608009-32	Soil	08/16/16 17:01	08/19/16 11:45
WG-SS-0033	1608009-33	Soil	08/16/16 18:27	08/19/16 11:45
WG-SS-0034	1608009-34	Soil	08/16/16 18:31	08/19/16 11:45
WG-SS-0035	1608009-35	Soil	08/16/16 18:35	08/19/16 11:45
WG-SS-0036	1608009-36	Soil	08/16/16 18:03	08/19/16 11:45
WG-SS-0037	1608009-37	Soil	08/16/16 17:56	08/19/16 11:45
WG-SS-0038	1608009-38	Soil	08/17/16 11:19	08/19/16 11:45
WG-SS-0039	1608009-39	Soil	08/16/16 17:49	08/19/16 11:45
WG-SS-0042	1608009-40	Soil	08/16/16 14:47	08/19/16 11:32
WG-SS-0043	1608009-41	Soil	08/16/16 14:54	08/19/16 11:32
WG-SS-0045	1608009-42	Soil	08/16/16 17:06	08/19/16 11:32
WG-SS-0046	1608009-43	Soil	08/16/16 17:15	08/19/16 11:32
WG-SS-0048	1608009-44	Soil	08/16/16 15:51	08/19/16 11:32
WG-SS-0049	1608009-45	Soil	08/16/16 15:44	08/19/16 11:32
WG-SS-0050	1608009-46	Soil	08/16/16 15:37	08/19/16 11:32
WG-SS-0051	1608009-47	Soil	08/16/16 17:40	08/19/16 11:32
WG-SS-0052	1608009-48	Soil	08/16/16 17:14	08/19/16 11:32
WG-SS-0053	1608009-49	Soil	08/16/16 17:06	08/19/16 11:32
WG-SS-0054	1608009-50	Soil	08/16/16 15:01	08/19/16 11:32
WG-SS-0055	1608009-51	Soil	08/16/16 15:17	08/19/16 11:32
WG-SS-0056	1608009-52	Soil	08/16/16 15:09	08/19/16 11:32
WG-SS-0057	1608009-53	Soil	08/16/16 14:20	08/19/16 11:32
WG-SS-0060	1608009-54	Soil	08/16/16 14:12	08/19/16 11:32



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 3 Environmental Science Center
Office of Analytical Services and Quality Assurance
701 Mapes Road
Fort Meade, Maryland 20755-5350



Site Name: W & G Electroplating **Project #: DAS R34974**

ANALYTICAL REPORT FOR SAMPLES

Station ID	Laboratory ID	Matrix	Date Sampled	Date Received
WG-SS-0061	1608009-55	Soil	08/16/16 14:05	08/19/16 11:32
WG-SS-0062	1608009-56	Soil	08/17/16 10:45	08/19/16 11:32
WG-SS-0063	1608009-57	Soil	08/16/16 14:32	08/19/16 11:32
WG-SS-0064	1608009-58	Soil	08/16/16 14:41	08/19/16 11:32
WG-SS-0065	1608009-59	Soil	08/17/16 09:56	08/19/16 11:32
WG-SS-0066	1608009-60	Soil	08/16/16 13:51	08/19/16 11:32
WG-SS-0067	1608009-61	Soil	08/16/16 13:58	08/19/16 11:32
WG-SS-0068	1608009-62	Soil	08/17/16 08:35	08/19/16 11:32
WG-SS-0069	1608009-63	Soil	08/16/16 14:35	08/19/16 11:32
WG-SS-0070	1608009-64	Soil	08/16/16 15:37	08/19/16 11:32
WG-SS-0071	1608009-65	Soil	08/16/16 17:20	08/19/16 11:32
WG-SS-0078	1608009-66	Soil	08/16/16 15:57	08/19/16 11:32
WG-SS-0079	1608009-67	Soil	08/16/16 16:26	08/19/16 11:32
WG-SS-0080	1608009-68	Soil	08/17/16 09:44	08/19/16 11:32
WG-SS-0081	1608009-69	Soil	08/17/16 10:24	08/19/16 11:32
WG-SS-0082	1608009-70	Soil	08/17/16 10:56	08/19/16 11:32
WG-RB-0005	1608009-71	Water	08/17/16 10:40	08/19/16 11:32

USEPA CLP Generic COC (LAB COPY)

CHAIN OF CUSTODY RECORD

No: 3-081016-104036-0013

Date Shipped: 8/17/2016

Carrier Name: FedEx

Airbill No: 777009555074

DAS #: R34974

Cooler #: K32

Lab: OASQA

Lab Contact: Kevin Poff

Lab Phone: 410-305-3032

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
WG-FB-0005		Water/ Bill Huggins	Grab	Cr VI Water(14)	1162 (NH4OH pH9.5) (1)	Z	08/16/2016 14:40	1608009-01
WG-GW-0050		Ground Water/ Bill Huggins	Grab	Cr VI Water(14)	1163 (NH4OH pH9.5) (1)	BH13	08/16/2016 14:56	-02
WG-GW-0051		Ground Water/ Bill Huggins	Grab	Cr VI Water(14)	1168 (NH4OH pH9.5) (1)	BH15	08/16/2016 14:32	-03
WG-GW-0052		Ground Water/ Bill Huggins	Grab	Cr VI Water(14)	1165 (NH4OH pH9.5) (1)	BH17	08/16/2016 12:38	-04
WG-GW-0053		Ground Water/ Bill Huggins	Grab	Cr VI Water(14)	1164 (NH4OH pH9.5) (1)	BH18	08/16/2016 12:08	-05
WG-GW-0054		Ground Water/ Bill Huggins	Grab	Cr VI Water(14)	1159 (NH4OH pH9.5), 1169 (NH4OH pH9.5), 1170 (NH4OH pH9.5) (3)	BH19	08/16/2016 11:24	-06
WG-GW-0055		Ground Water/ Bill Huggins	Grab	Cr VI Water(14)	1160 (NH4OH pH9.5) (1)	BH20	08/16/2016 10:14	-07
WG-GW-0056		Ground Water/	Grab	Cr VI Water(14)	1161 (NH4OH pH9.5) (1)	BH18	08/16/2016 14:25	-08
WG-RB-0004		Water/ Bill Huggins	Grab	Cr VI Water(14)	1158 (NH4OH pH9.5) (1)	Z	08/16/2016 16:11	-09

Sample(s) to be used for Lab QC: WG-GW-0054 Tag 1159, WG-GW-0054 Tag 1169, WG-GW-0054 Tag 1170 - Special Instructions: Please return Cooler with Enclosed FedEx Label	Shipment for Case Complete? N
	Samples Transferred From Chain of Custody #
Analysis Key: Cr VI Water=GW Hex Chrome	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Ship to CAB	<i>reling / Tech law</i>	8/16/16 18:15	<i>[Signature]</i> ESAT	8-17-16 11:44	4 °C EC 8-17-16

USEPA CLP Generic COC (LAB COPY)

CHAIN OF CUSTODY RECORD

No: 3-081716-145921-0014

DateShipped: 8/18/2016

Lab: OASQA

CarrierName: FedEx

DAS #: R34974

Lab Contact: Kevin Poff

AirbillNo: 777016863440

Cooler #: H59

Lab Phone: 410-305-3032

Sample Identifier	Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
WG-SS-0009	R34974-01	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1132 (4 C) (1)	BH1	08/17/2016 10:35	1608009-10
WG-SS-0011	R34974-02	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1134 (4 C) (1)	BH1	08/17/2016 10:41	-11
WG-SS-0012	R34974-03	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1135 (4 C) (1)	BH2	08/17/2016 10:17	-12
WG-SS-0013	R34974-04	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1136 (4 C) (1)	BH2	08/16/2016 10:11	-13
WG-SS-0014	R34974-05	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1137 (4 C) (1)	BH2	08/17/2016 10:24	-14
WG-SS-0015	R34974-06	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1138 (4 C) (1)	BH3	08/17/2016 09:51	-15
WG-SS-0016	R34974-07	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1139 (4 C) (1)	BH3	08/17/2016 10:06	-16
WG-SS-0017	R34974-08	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1140 (4 C) (1)	BH3	08/17/2016 10:00	-17
WG-SS-0018	R34974-09	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1141 (4 C) (1)	BH4	08/17/2016 11:27	-18
WG-SS-0019	R34974-10	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1142 (4 C) (1)	BH4	08/17/2016 11:14	-19

Special Instructions: Please return Cooler with Enclosed FedEx Label	Shipment for Case Complete? Y
	Samples Transferred From Chain of Custody #
Analysis Key: Cr VI Soil=Soil Hex Chrome SW846 3060A (extract)/218.6 equiv	

Sampler: 6 P. 08/18

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Cooler FedEx	St. L. Ojeli/TechLaw	8/18/2016 15:00	Kevin Poff ESAT	8/19/16 11:45	30C & 10/19/16

USEPA CLP Generic COC (LAB COPY)

CHAIN OF CUSTODY RECORD

No: 3-081716-145921-0014

Date Shipped: 8/18/2016

Lab: OASQA

Carrier Name: FedEx

DAS #: R34974

Lab Contact: Kevin Poff

Airbill No: 777016863440

Cooler #: H59

Lab Phone: 410-305-3032

Sample Identifier	^{DAS} CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
WG-SS-0020	R34974-11	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1143 (4 C) (1)	BH4	08/17/2016 11:09	1608009-20
WG-SS-0021	R34974-12	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1144 (4 C) (1)	BH5	08/17/2016 09:24	-21
WG-SS-0022	R34974-13	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1145 (4 C) (1)	BH5	08/17/2016 09:30	-22
WG-SS-0023	R34974-14	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1146 (4 C) (1)	BH5	08/17/2016 09:36	-23
WG-SS-0024	R34974-15	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1147 (4 C) (1)	BH6	08/16/2016 16:19	-24
WG-SS-0025	R34974-16	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1148 (4 C) (1)	BH6	08/16/2016 16:15	-25
WG-SS-0026	R34974-17	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1149 (4 C) (1)	BH6	08/16/2016 16:02	-26
WG-SS-0027	R34974-18	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1150 (4 C) (1)	BH7	08/16/2016 16:39	-27
WG-SS-0028	R34974-19	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1151 (4 C) (1)	BH7	08/16/2016 16:35	-28
WG-SS-0029	R34974-20	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1152 (4 C) (1)	BH7	08/16/2016 16:30	-29

Special Instructions: Please return Cooler with Enclosed FedEx Label	Shipment for Case Complete? Y
	Samples Transferred From Chain of Custody #
Analysis Key: Cr VI Soil=Soil Hex Chrome SW846 3060A (extract)/218.6 equiv	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Cooler FedEx	^{sample: 68009} Ethan Tobin	8/18/2016 15:00	[Signature] ESAT	8/19/16 11:45	30C dust 8/19/16

USEPA CLP Generic COC (LAB COPY)

CHAIN OF CUSTODY RECORD

No: 3-081716-145921-0014

DateShipped: 8/18/2016

CarrierName: FedEx

AirbillNo: 777016863440

DAS #: R34974

Cooler #: H59

Lab: OASQA

Lab Contact: Kevin Poff

Lab Phone: 410-305-3032

DAS

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
WG-SS-0030	R34974-21	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1153 (4 C) (1)	BH8	08/16/2016 16:48	1608009-30
WG-SS-0031	R34974-22	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1154 (4 C) (1)	BH8	08/16/2016 16:52	-31
WG-SS-0032	R34974-23	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1155 (4 C) (1)	BH8	08/16/2016 17:01	-32
WG-SS-0033	R34974-24	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1156 (4 C) (1)	BH9	08/16/2016 18:27	-33
WG-SS-0034	R34974-25	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1157 (4 C) (1)	BH9	08/16/2016 18:31	-34
WG-SS-0035	R34974-26	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1158 (4 C) (1)	BH9	08/16/2016 18:35	-35
WG-SS-0036	R34974-27	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1159 (4 C) (1)	BH10	08/16/2016 18:03	-36
WG-SS-0037	R34974-28	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1160 (4 C) (1)	BH10	08/16/2016 17:56	-37
WG-SS-0038	R34974-29	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1161 (4 C) (1)	BH4	08/17/2016 11:19	-38
WG-SS-0039	R34974-30	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1162 (4 C) (1)	BH11	08/16/2016 17:49	-39

Special Instructions: Please return Cooler with Enclosed FedEx Label	Shipment for Case Complete? Y
	Samples Transferred From Chain of Custody #
Analysis Key: Cr VI Soil=Soil Hex Chrome SW846 3060A (extract)/218.6 equiv	

Samplers 6 8 050

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
<i>Cooler FedEx</i>	<i>6 8 050 / Techlow</i>	<i>8/18/2016</i>	<i>[Signature] ESAT</i>	<i>8/19/16 11:45</i>	<i>3°C dry 8/19/16</i>

USEPA CLP Generic COC (LAB COPY)

CHAIN OF CUSTODY RECORD

No: 3-081716-151226-0018

Date Shipped: 8/18/2016

Carrier Name: FedEx

Airbill No: 777017131464

DAS #: R34974

Cooler #: K3

Lab: OASQA

Lab Contact: Kevin Poff

Lab Phone: 410-305-3032

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
WG-SS-0042	R34974-31	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1165 (4 C) (1)	BH12	08/16/2016 14:47	1608009-40
WG-SS-0043	R34974-32	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1166 (4 C) (1)	BH12	08/16/2016 14:54	-41
WG-SS-0045	R34974-33	Soil/ Jocelyn Welshhans	Grab	Cr VI Soil(14)	1168 (4 C) (1)	BH13	08/16/2016 17:06	-42
WG-SS-0046	R34974-34	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1169 (4 C) (1)	BH13	08/16/2016 17:15	-43
WG-SS-0048	R34974-35	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1171 (4 C) (1)	BH14	08/16/2016 15:51	-44
WG-SS-0049	R34974-36	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1174 (4 C) (1)	BH14	08/16/2016 15:44	-45
WG-SS-0050	R34974-37	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1175 (4 C) (1)	BH14	08/16/2016 15:37	-46
WG-SS-0051	R34974-38	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1176 (4 C) (1)	BH15	08/16/2016 17:40	-47
WG-SS-0052	R34974-39	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1177 (4 C) (1)	BH15	08/16/2016 17:14	-48
WG-SS-0053	R34974-40	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1178 (4 C) (1)	BH15	08/16/2016 17:06	-49

Sample(s) to be used for Lab QC: WG-SS-0049 Tag 1174, WG-SS-0053 Tag 1178 - Special Instructions: Please return Cooler with Enclosed FedEx Label Analysis Key: Cr VI Soil=Soil Hex Chrome SW846 3060A (extract)/218.6 equiv	Shipment for Case Complete? Y
	Samples Transferred From Chain of Custody #

Sampler: G. J. Poff / Jocelyn Welshhans

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Cooler FedEx	<i>G. J. Poff / TechLab</i>	8/18/2016 15:00	<i>[Signature] ESAT</i>	8-19-16 11:32	3.5 °C EC 8-19-16

USEPA CLP Generic COC (LAB COPY)

Date Shipped: 8/18/2016

Carrier Name: FedEx

Airbill No: 777017131464

CHAIN OF CUSTODY RECORD

DAS #: R34974

Cooler #: K3

No: 3-081716-151226-0018

Lab: OASQA

Lab Contact: Kevin Poff

Lab Phone: 410-305-3032

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
WG-SS-0054	R34974-41	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1179 (4 C) (1)	BH16	08/16/2016 15:01	1608009-50
WG-SS-0055	R34974-42	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1180 (4 C) (1)	BH16	08/16/2016 15:17	-51
WG-SS-0056	R34974-43	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1181 (4 C) (1)	BH16	08/16/2016 15:09	-52
WG-SS-0057	R34974-44	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1182 (4 C) (1)	BH17	08/16/2016 14:20	-53
WG-SS-0060	R34974-45	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1185 (4 C) (1)	BH18	08/16/2016 14:12	-54
WG-SS-0061	R34974-46	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1186 (4 C) (1)	BH18	08/16/2016 14:05	-55
WG-SS-0062	R34974-47	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1187 (4 C) (1)	BH1	08/17/2016 10:45	-56
WG-SS-0063	R34974-48	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1188 (4 C) (1)	BH19	08/16/2016 14:32	-57
WG-SS-0064	R34974-49	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1189 (4 C) (1)	BH19	08/16/2016 14:41	-58
WG-SS-0065	R34974-50	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1190 (4 C) (1)	BH3	08/17/2016 09:56	-59

Special Instructions: Please return Cooler with Enclosed FedEx Label <i>Sampler: G & J</i>	Shipment for Case Complete? Y
	Samples Transferred From Chain of Custody #
Analysis Key: Cr VI Soil=Soil Hex Chrome SW846 3060A (extract)/218.6 equiv	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Cooler FedEx	<i>G. J. Tobin</i>	8/18/2016 15:00	<i>[Signature]</i> ESAT	8-19-16 11:32	3.5 °C EC 8-19-16

USEPA CLP Generic COC (LAB COPY)

CHAIN OF CUSTODY RECORD

No: 3-081716-151226-0018

DateShipped: 8/18/2016

Lab: OASQA

CarrierName: FedEx

DAS #: R34974

Lab Contact: Kevin Poff

AirbillNo: 777017131464

Cooler #: K3

Lab Phone: 410-305-3032

DAS

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
WG-SS-0066	R34974-51	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1191 (4 C) (1)	BH20	08/16/2016 13:51	1608009-60
WG-SS-0067	R34974-52	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1192 (4 C) (1)	BH20	08/16/2016 13:58	-61
WG-SS-0068	R34974-53	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1193 (4 C) (1)	BH21	08/17/2016 08:35	-62
WG-SS-0069	R34974-54	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1194 (4 C) (1)	BH17	08/16/2016 14:35	-63
WG-SS-0070	R34974-55	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1195 (4 C) (1)	BH16	08/16/2016 15:37	-64
WG-SS-0071	R34974-56	Soil/ Jocelyn Welshhans	Grab	Cr VI Soil(14)	1196 (4 C) (1)	BH13	08/16/2016 17:20	-65 -64
WG-SS-0078	R34974-57	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1149 (4 C) (1)	BH6	08/16/2016 15:57	-66 -67
WG-SS-0079	R34974-58	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1152 (4 C) (1)	BH7	08/16/2016 16:26	-67 -68
WG-SS-0080	R34974-59	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1146 (4 C) (1)	BH5	08/17/2016 09:44	-68 -69
WG-SS-0081	R34974-60	Soil/ Ethan Tobin	Grab	Cr VI Soil(14)	1137 (4 C) (1)	BH2	08/17/2016 10:24	-69 -70

Sample(s) to be used for Lab QC: WG-SS-0082 Tag 1137 - Special Instructions: Please return Cooler with Enclosed FedEx Label Sampler: <i>68 506 J. U. Johnson</i>	Shipment for Case Complete? Y Samples Transferred From Chain of Custody #
Analysis Key: Cr VI Soil=Soil Hex Chrome SW846 3060A (extract)/218.6 equiv	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Cooler FedEx	<i>G. S. Johnson / Techlon</i>	8/18/16 15:00	<i>[Signature]</i> ESAT	8-19-16 11:32	3.5 °C EC 8-19-16



2208 Warwood Avenue
Wheeling, WV 26003
304.907.0631/Fax: 304.277.1300
www.techlawinc.com

August 23, 2016

T501-15-07-008-DCN0402

USEPA, Region 3
Attn: Robert McGovern
Office of Analytical Services and Quality Assurance (OASQA)
701 Mapes Road
Fort Meade, MD 20755

Re: Letter to File, W&G Electroplating, DAS R34974, COC Nos. 3-081716-145921-0014 and 3-081016-104036-0013, Sampling Event, 8/16/2016; Contract No. EP-S3-15-03, TDD No. T501-15-07-008,

Dear Mr. McGovern:

This Memo to File is to address errors on COC 3-081016-104036-0013 and COC 3-081716-145921-0014, as well as errors on sampling tags associated with COC 3-081016-104036-0013. The errors and their solutions are as follows:

- The DAS number listed on COC 3-081016-104036-0013 was listed incorrectly. The DAS number was listed as R3497. The correct DAS number was R34974.
- The DAS number was listed on sample tags associated with COC 3-081016-104036-0013 was incorrect. The DAS number was listed as R3497. The correct DAS number was R34974.
- Page 3 of COC 3-081716-145921-0014 is missing a "Relinquished Time" in the signature line. This should be corrected to match the relinquished time of pages 1 and 2 of the COC (1500 hours).

This Memo to File is being created to document the corrections to the sample documentation and will remain a part of the project file.

Respectfully submitted,

Jocelyn Welshhans
Site Leader

cc:
OSC Raj Sharma
Colleen Walling
Site File



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701 Mapes Road
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Site Name: W & G Electroplating **Project #: DAS R34974**

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-10
Station ID: WG-SS-0009
Sample Matrix: Soil
Collected: 08/17/2016

% Solids **82.4** % by Weight 1 08/23/16 08/24/16 15:45 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-11
Station ID: WG-SS-0011
Sample Matrix: Soil
Collected: 08/17/2016

% Solids **79.4** % by Weight 1 08/23/16 08/24/16 15:45 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-12
Station ID: WG-SS-0012
Sample Matrix: Soil
Collected: 08/17/2016

% Solids **85.5** % by Weight 1 08/23/16 08/24/16 15:45 USGS
I-5753-85/R3QA056



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Project #: DAS R34974

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-13
Station ID: WG-SS-0013
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 79.8 % by Weight 1 08/23/16 08/24/16 15:45 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-14
Station ID: WG-SS-0014
Sample Matrix: Soil
Collected: 08/17/2016

% Solids 80.1 % by Weight 1 08/23/16 08/24/16 15:45 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-15
Station ID: WG-SS-0015
Sample Matrix: Soil
Collected: 08/17/2016

% Solids 83.3 % by Weight 1 08/23/16 08/24/16 15:45 USGS
I-5753-85/R3QA056



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Site Name: W & G Electroplating **Project #: DAS R34974**

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-16
Station ID: WG-SS-0016
Sample Matrix: Soil
Collected: 08/17/2016

% Solids **83.2** % by Weight 1 08/23/16 08/24/16 15:45 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-17
Station ID: WG-SS-0017
Sample Matrix: Soil
Collected: 08/17/2016

% Solids **80.2** % by Weight 1 08/23/16 08/24/16 15:45 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-18
Station ID: WG-SS-0018
Sample Matrix: Soil
Collected: 08/17/2016

% Solids **82.0** % by Weight 1 08/23/16 08/24/16 15:45 USGS
I-5753-85/R3QA056



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Site Name: W & G Electroplating

Project #: DAS R34974

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-19
Station ID: WG-SS-0019
Sample Matrix: Soil
Collected: 08/17/2016

% Solids 84.8 % by Weight 1 08/23/16 08/24/16 15:45 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-20
Station ID: WG-SS-0020
Sample Matrix: Soil
Collected: 08/17/2016

% Solids 77.9 % by Weight 1 08/23/16 08/24/16 15:45 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-21
Station ID: WG-SS-0021
Sample Matrix: Soil
Collected: 08/17/2016

% Solids 84.7 % by Weight 1 08/23/16 08/24/16 15:45 USGS I-5753-85/R3QA056



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Site Name: W & G Electroplating **Project #: DAS R34974**

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-22
Station ID: WG-SS-0022
Sample Matrix: Soil
Collected: 08/17/2016

% Solids **85.8** % by Weight 1 08/23/16 08/24/16 15:45 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-23
Station ID: WG-SS-0023
Sample Matrix: Soil
Collected: 08/17/2016

% Solids **75.2** % by Weight 1 08/23/16 08/24/16 15:45 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-24
Station ID: WG-SS-0024
Sample Matrix: Soil
Collected: 08/16/2016

% Solids **81.8** % by Weight 1 08/23/16 08/24/16 15:45 USGS
I-5753-85/R3QA056



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Site Name: W & G Electroplating

Project #: DAS R34974

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-25
Station ID: WG-SS-0025
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 83.2 % by Weight 1 08/23/16 08/24/16 15:45 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-26
Station ID: WG-SS-0026
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 79.0 % by Weight 1 08/23/16 08/24/16 15:45 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-27
Station ID: WG-SS-0027
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 82.5 % by Weight 1 08/23/16 08/24/16 15:45 USGS I-5753-85/R3QA056



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Project #: DAS R34974

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-28
Station ID: WG-SS-0028
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 83.2 % by Weight 1 08/23/16 08/24/16 15:45 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-29
Station ID: WG-SS-0029
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 81.8 % by Weight 1 08/23/16 08/24/16 15:45 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-30
Station ID: WG-SS-0030
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 82.8 % by Weight 1 08/23/16 08/24/16 15:45 USGS
I-5753-85/R3QA056



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Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-31
Station ID: WG-SS-0031
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 84.4 % by Weight 1 08/23/16 08/24/16 15:45 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-32
Station ID: WG-SS-0032
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 81.5 % by Weight 1 08/23/16 08/24/16 15:45 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-33
Station ID: WG-SS-0033
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 84.3 % by Weight 1 08/23/16 08/24/16 15:45 USGS I-5753-85/R3QA056



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Project #: DAS R34974

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-34
Station ID: WG-SS-0034
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 82.8 % by Weight 1 08/23/16 08/24/16 15:45 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-35
Station ID: WG-SS-0035
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 80.9 % by Weight 1 08/23/16 08/24/16 15:45 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-36
Station ID: WG-SS-0036
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 81.5 % by Weight 1 08/23/16 08/24/16 15:45 USGS I-5753-85/R3QA056



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Site Name: W & G Electroplating

Project #: DAS R34974

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-37
Station ID: WG-SS-0037
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 82.7 % by Weight 1 08/23/16 08/24/16 15:45 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-38
Station ID: WG-SS-0038
Sample Matrix: Soil
Collected: 08/17/2016

% Solids 83.7 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-39
Station ID: WG-SS-0039
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 84.2 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056



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Site Name: W & G Electroplating

Project #: DAS R34974

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-40
Station ID: WG-SS-0042
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 84.0 % by Weight 1 09/02/16 09/02/16 10:00 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-41
Station ID: WG-SS-0043
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 86.1 % by Weight 1 09/02/16 09/02/16 10:00 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-42
Station ID: WG-SS-0045
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 79.2 % by Weight 1 09/02/16 09/02/16 10:00 USGS
I-5753-85/R3QA056



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Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-43
Station ID: WG-SS-0046
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 82.9 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-44
Station ID: WG-SS-0048
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 80.3 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-45
Station ID: WG-SS-0049
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 81.4 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056



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Site Name: W & G Electroplating **Project #: DAS R34974**

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-46
Station ID: WG-SS-0050
Sample Matrix: Soil
Collected: 08/16/2016

% Solids **78.3** % by Weight 1 09/02/16 09/02/16 10:00 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-47
Station ID: WG-SS-0051
Sample Matrix: Soil
Collected: 08/16/2016

% Solids **82.4** % by Weight 1 09/02/16 09/02/16 10:00 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-48
Station ID: WG-SS-0052
Sample Matrix: Soil
Collected: 08/16/2016

% Solids **81.7** % by Weight 1 09/02/16 09/02/16 10:00 USGS
I-5753-85/R3QA056



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Site Name: W & G Electroplating

Project #: DAS R34974

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-49
Station ID: WG-SS-0053
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 73.7 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-50
Station ID: WG-SS-0054
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 81.4 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-51
Station ID: WG-SS-0055
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 82.9 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056



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Site Name: W & G Electroplating

Project #: DAS R34974

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-52
Station ID: WG-SS-0056
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 81.0 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-53
Station ID: WG-SS-0057
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 80.0 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-54
Station ID: WG-SS-0060
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 78.4 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056



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Site Name: W & G Electroplating **Project #: DAS R34974**

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-55
Station ID: WG-SS-0061
Sample Matrix: Soil
Collected: 08/16/2016

% Solids **84.2** % by Weight 1 09/02/16 09/02/16 10:00 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-56
Station ID: WG-SS-0062
Sample Matrix: Soil
Collected: 08/17/2016

% Solids **78.6** % by Weight 1 09/02/16 09/02/16 10:00 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-57
Station ID: WG-SS-0063
Sample Matrix: Soil
Collected: 08/16/2016

% Solids **73.5** % by Weight 1 09/02/16 09/02/16 10:00 USGS
I-5753-85/R3QA056



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Site Name: W & G Electroplating

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Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-58
Station ID: WG-SS-0064
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 88.2 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-59
Station ID: WG-SS-0065
Sample Matrix: Soil
Collected: 08/17/2016

% Solids 82.6 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-60
Station ID: WG-SS-0066
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 78.9 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056



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Site Name: W & G Electroplating Project #: DAS R34974

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-61
Station ID: WG-SS-0067
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 85.3 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-62
Station ID: WG-SS-0068
Sample Matrix: Soil
Collected: 08/17/2016

% Solids 81.3 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056

Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-63
Station ID: WG-SS-0069
Sample Matrix: Soil
Collected: 08/16/2016

% Solids 82.8 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056



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Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-64
Station ID: WG-SS-0070
Sample Matrix: Soil
Collected: 08/16/2016

% Solids **82.2** % by Weight 1 09/02/16 09/02/16 10:00 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-65
Station ID: WG-SS-0071
Sample Matrix: Soil
Collected: 08/16/2016

% Solids **82.9** % by Weight 1 09/02/16 09/02/16 10:00 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-66
Station ID: WG-SS-0078
Sample Matrix: Soil
Collected: 08/16/2016

% Solids **85.5** % by Weight 1 09/02/16 09/02/16 10:00 USGS
I-5753-85/R3QA056



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Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-67
Station ID: WG-SS-0079
Sample Matrix: Soil
Collected: 08/16/2016

% Solids **80.8** % by Weight 1 09/02/16 09/02/16 10:00 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-68
Station ID: WG-SS-0080
Sample Matrix: Soil
Collected: 08/17/2016

% Solids **68.9** % by Weight 1 09/02/16 09/02/16 10:00 USGS
I-5753-85/R3QA056

Physical Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-69
Station ID: WG-SS-0081
Sample Matrix: Soil
Collected: 08/17/2016

% Solids **83.9** % by Weight 1 09/02/16 09/02/16 10:00 USGS
I-5753-85/R3QA056



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Physical Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-70
Station ID: WG-SS-0082
Sample Matrix: Soil
Collected: 08/17/2016

% Solids 82.3 % by Weight 1 09/02/16 09/02/16 10:00 USGS I-5753-85/R3QA056

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-01
Station ID: WG-FB-0005
Sample Matrix: Water
Collected: 08/16/2016

Hexavalent Chromium U 1.00 ug/L 1 08/17/16 08/17/16 12:08 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-02
Station ID: WG-GW-0050
Sample Matrix: Groundwater
Collected: 08/16/2016

Hexavalent Chromium 4730 100 ug/L 100 08/17/16 08/17/16 12:45 EPA 218.6/R3QA161



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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-03
Station ID: WG-GW-0051
Sample Matrix: Groundwater
Collected: 08/16/2016

Hexavalent Chromium 2820 50.0 ug/L 50 08/17/16 08/17/16 12:39 EPA 218.6/R3QA161

Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-04
Station ID: WG-GW-0052
Sample Matrix: Groundwater
Collected: 08/16/2016

Hexavalent Chromium 641 50.0 ug/L 50 08/17/16 08/17/16 15:14 EPA 218.6/R3QA161

Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-05
Station ID: WG-GW-0053
Sample Matrix: Groundwater
Collected: 08/16/2016

Hexavalent Chromium 2410 50.0 ug/L 50 08/17/16 08/17/16 13:25 EPA 218.6/R3QA161



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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-06
Station ID: WG-GW-0054
Sample Matrix: Groundwater
Collected: 08/16/2016

Hexavalent Chromium 5680 100 ug/L 100 08/17/16 08/17/16 13:31 EPA 218.6/R3QA161

Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-07
Station ID: WG-GW-0055
Sample Matrix: Groundwater
Collected: 08/16/2016

Hexavalent Chromium 7230 100 ug/L 100 08/17/16 08/17/16 14:37 EPA 218.6/R3QA161

Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-08
Station ID: WG-GW-0056
Sample Matrix: Groundwater
Collected: 08/16/2016

Hexavalent Chromium 2440 50.0 ug/L 50 08/17/16 08/17/16 13:59 EPA 218.6/R3QA161



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Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-09
Station ID: WG-RB-0004
Sample Matrix: Water
Collected: 08/16/2016

Hexavalent Chromium U 1.00 ug/L 1 08/17/16 08/17/16 14:05 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-10
Station ID: WG-SS-0009
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium 197 23.9 ug/g dry 50 08/22/16 08/25/16 12:26 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-11
Station ID: WG-SS-0011
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium 214 25.1 ug/g dry 50 08/22/16 08/25/16 13:26 EPA 218.6/R3QA161



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Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-12
Station ID: WG-SS-0012
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium 307 23.3 ug/g dry 50 08/22/16 08/25/16 13:32 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-13
Station ID: WG-SS-0013
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 239 25.2 ug/g dry 50 08/22/16 08/25/16 13:38 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-14
Station ID: WG-SS-0014
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium 249 24.4 ug/g dry 50 08/22/16 08/25/16 13:44 EPA 218.6/R3QA161



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Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-15
Station ID: WG-SS-0015
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium 60.7 4.65 ug/g dry 10 08/22/16 08/25/16 14:41 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-16
Station ID: WG-SS-0016
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium 373 24.7 ug/g dry 50 08/22/16 08/25/16 14:02 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-17
Station ID: WG-SS-0017
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium 123 24.4 ug/g dry 50 08/22/16 08/25/16 14:08 EPA 218.6/R3QA161



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Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-18
Station ID: WG-SS-0018
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium 247 23.9 ug/g dry 50 08/22/16 08/25/16 14:14 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-19
Station ID: WG-SS-0019
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium 64.4 4.63 ug/g dry 10 08/22/16 08/25/16 14:21 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-20
Station ID: WG-SS-0020
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium 948 50.1 ug/g dry 100 08/22/16 08/25/16 15:00 EPA 218.6/R3QA161



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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-21
Station ID: WG-SS-0021
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium	0.74		0.46	ug/g dry	1	08/22/16	08/25/16 15:58	EPA 218.6/R3QA161
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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-22
Station ID: WG-SS-0022
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium	4.27		0.47	ug/g dry	1	08/22/16	08/25/16 16:04	EPA 218.6/R3QA161
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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-23
Station ID: WG-SS-0023
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium	U		0.55	ug/g dry	1	08/22/16	08/25/16 16:11	EPA 218.6/R3QA161
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Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-24
Station ID: WG-SS-0024
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 191 J 9.75 ug/g dry 20 08/30/16 09/01/16 10:13 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-25
Station ID: WG-SS-0025
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 175 4.73 ug/g dry 10 08/30/16 09/01/16 11:20 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-26
Station ID: WG-SS-0026
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 115 5.06 ug/g dry 10 08/30/16 09/01/16 11:26 EPA 218.6/R3QA161



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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-27
Station ID: WG-SS-0027
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium	9.82		0.48	ug/g dry	1	08/30/16	09/01/16 13:31	EPA 218.6/R3QA161
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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-28
Station ID: WG-SS-0028
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium	6.97		0.48	ug/g dry	1	08/30/16	09/01/16 13:38	EPA 218.6/R3QA161
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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-29
Station ID: WG-SS-0029
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium	2.75		0.48	ug/g dry	1	08/30/16	09/01/16 13:44	EPA 218.6/R3QA161
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Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-30
Station ID: WG-SS-0030
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 6.89 0.47 ug/g dry 1 08/30/16 09/01/16 14:06 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-31
Station ID: WG-SS-0031
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 0.67 0.47 ug/g dry 1 08/30/16 09/01/16 14:12 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-32
Station ID: WG-SS-0032
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 29.4 4.78 ug/g dry 10 08/30/16 09/01/16 12:16 EPA 218.6/R3QA161



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Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-33
Station ID: WG-SS-0033
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 9.24 0.47 ug/g dry 1 08/30/16 09/01/16 14:19 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-34
Station ID: WG-SS-0034
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 1.05 0.48 ug/g dry 1 08/30/16 09/01/16 12:28 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-35
Station ID: WG-SS-0035
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium U 0.48 ug/g dry 1 08/30/16 09/01/16 14:25 EPA 218.6/R3QA161



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Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-36
Station ID: WG-SS-0036
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 66.9 2.42 ug/g dry 5 08/30/16 09/01/16 13:19 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-37
Station ID: WG-SS-0037
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 20.3 2.37 ug/g dry 5 08/30/16 09/01/16 13:25 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-38
Station ID: WG-SS-0038
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium 1050 47.8 ug/g dry 100 08/24/16 08/29/16 13:32 EPA 218.6/R3QA161



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Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-39
Station ID: WG-SS-0039
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 3.51 0.46 ug/g dry 1 08/24/16 08/29/16 17:09 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-40
Station ID: WG-SS-0042
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 6.14 0.46 ug/g dry 1 08/24/16 08/29/16 17:15 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-41
Station ID: WG-SS-0043
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 32.7 4.50 ug/g dry 10 08/24/16 08/29/16 17:22 EPA 218.6/R3QA161



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Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-42
Station ID: WG-SS-0045
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 89.5 4.93 ug/g dry 10 08/24/16 08/29/16 17:28 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-43
Station ID: WG-SS-0046
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 112 4.84 ug/g dry 10 08/24/16 08/29/16 17:47 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-44
Station ID: WG-SS-0048
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 14.1 0.48 ug/g dry 1 08/24/16 08/29/16 14:23 EPA 218.6/R3QA161



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Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-45
Station ID: WG-SS-0049
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 1340 J 50.3 ug/g dry 100 08/30/16 09/01/16 14:44 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-46
Station ID: WG-SS-0050
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 694 26.0 ug/g dry 50 08/24/16 08/29/16 15:24 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-47
Station ID: WG-SS-0051
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 91.7 4.91 ug/g dry 10 08/24/16 08/29/16 15:33 EPA 218.6/R3QA161



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Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-48
Station ID: WG-SS-0052
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 80.1 5.09 ug/g dry 10 08/24/16 08/29/16 15:50 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-49
Station ID: WG-SS-0053
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 89.5 2.75 ug/g dry 5 08/30/16 09/01/16 15:38 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-50
Station ID: WG-SS-0054
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 40.7 4.81 ug/g dry 10 08/24/16 08/29/16 16:57 EPA 218.6/R3QA161



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Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-51
Station ID: WG-SS-0055
Sample Matrix: Soil
Collected: 08/16/2016

Table row for Hexavalent Chromium with values: 189, 4.90, ug/g dry, 10, 08/24/16, 08/29/16 17:03, EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-52
Station ID: WG-SS-0056
Sample Matrix: Soil
Collected: 08/16/2016

Table row for Hexavalent Chromium with values: 495, 49.1, ug/g dry, 100, 08/30/16, 08/31/16 11:36, EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-53
Station ID: WG-SS-0057
Sample Matrix: Soil
Collected: 08/16/2016

Table row for Hexavalent Chromium with values: 48.6, 9.85, ug/g dry, 20, 08/30/16, 08/31/16 12:16, EPA 218.6/R3QA161



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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-54
Station ID: WG-SS-0060
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium	52.3		10.1	ug/g dry	20	08/30/16	08/31/16 12:49	EPA 218.6/R3QA161
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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-55
Station ID: WG-SS-0061
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium	99.5		9.33	ug/g dry	20	08/30/16	08/31/16 12:55	EPA 218.6/R3QA161
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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-56
Station ID: WG-SS-0062
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium	31.0		10.1	ug/g dry	20	08/30/16	08/31/16 13:02	EPA 218.6/R3QA161
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Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-57
Station ID: WG-SS-0063
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 0.53 0.53 ug/g dry 1 08/30/16 08/31/16 14:07 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-58
Station ID: WG-SS-0064
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 268 9.01 ug/g dry 20 08/30/16 08/31/16 13:14 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-59
Station ID: WG-SS-0065
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium 161 9.62 ug/g dry 20 08/30/16 08/31/16 13:21 EPA 218.6/R3QA161



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Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-60
Station ID: WG-SS-0066
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 6.30 0.50 ug/g dry 1 08/30/16 08/31/16 14:13 EPA 218.6/R3QA161

Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-61
Station ID: WG-SS-0067
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 140 9.18 ug/g dry 20 08/30/16 08/31/16 13:33 EPA 218.6/R3QA161

Classical Chemistry Parameters

Analyte	Result	Flags/ Qualifiers	Quantitation Limit	Units	Dilution	Prepared	Analyzed	Method/SOP#
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Lab ID: 1608009-62
Station ID: WG-SS-0068
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium 130 9.81 ug/g dry 20 08/30/16 08/31/16 13:39 EPA 218.6/R3QA161



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Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-63
Station ID: WG-SS-0069
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 20.7 9.66 ug/g dry 20 08/30/16 08/31/16 13:46 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-64
Station ID: WG-SS-0070
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 109 4.80 ug/g dry 10 08/30/16 08/31/16 14:22 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-65
Station ID: WG-SS-0071
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 113 4.78 ug/g dry 10 08/30/16 08/31/16 14:28 EPA 218.6/R3QA161



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Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-66
Station ID: WG-SS-0078
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 177 4.59 ug/g dry 10 08/30/16 08/31/16 14:35 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-67
Station ID: WG-SS-0079
Sample Matrix: Soil
Collected: 08/16/2016

Hexavalent Chromium 21.9 4.85 ug/g dry 10 08/30/16 08/31/16 14:41 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-68
Station ID: WG-SS-0080
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium U 0.57 ug/g dry 1 08/30/16 08/31/16 15:09 EPA 218.6/R3QA161



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Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-69
Station ID: WG-SS-0081
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium 110 4.72 ug/g dry 10 08/30/16 08/31/16 14:56 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-70
Station ID: WG-SS-0082
Sample Matrix: Soil
Collected: 08/17/2016

Hexavalent Chromium 294 J 24.1 ug/g dry 50 08/30/16 08/31/16 15:40 EPA 218.6/R3QA161

Classical Chemistry Parameters

Table with 9 columns: Analyte, Result, Flags/Qualifiers, Quantitation Limit, Units, Dilution, Prepared, Analyzed, Method/SOP#

Lab ID: 1608009-71
Station ID: WG-RB-0005
Sample Matrix: Water
Collected: 08/17/2016

Hexavalent Chromium U 1.00 ug/L 1 08/19/16 08/19/16 12:08 EPA 218.6/R3QA161



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QC Data
Physical Parameters

Table with 11 columns: Analyte, Result, Quantitation Limit, Units, Spike Level, Source Result, %REC, %REC Limits, RPD, RPD Limit, Notes

Batch BH62302 - PD60/PD105 ESAT

Table with 6 columns: Duplicate ID, Source, Prepared, Analyzed, % Solids, RPD Limit. Includes rows for BH62302-DUP1, DUP2, DUP3, and DUP4.

Batch BH62902 - PD60/PD105 ESAT

Table with 6 columns: Duplicate ID, Source, Prepared & Analyzed, % Solids, RPD Limit. Includes rows for BH62902-DUP1, DUP2, DUP3, and DUP4.



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QC Data
Classical Chemistry Parameters

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BH61703 - Hex Chrom Prep ESAT

Blank (BH61703-BLK1)				Prepared: 08/17/16 08:00	Analyzed: 08/17/16 10:24					
Hexavalent Chromium	U	1.00	ug/L							
LCS (BH61703-BS1)				Prepared: 08/17/16 08:00	Analyzed: 08/17/16 10:36					
Hexavalent Chromium	40.4	1.00	ug/L	40.000		101	90-110			
Duplicate (BH61703-DUP1)				Source: 1608009-06		Prepared: 08/17/16 12:00	Analyzed: 08/17/16 13:40			
Hexavalent Chromium	5690	100	ug/L		5680			0.1	20	
Duplicate (BH61703-DUP2)				Source: 1608009-04		Prepared: 08/17/16 12:00	Analyzed: 08/17/16 15:20			
Hexavalent Chromium	648	50.0	ug/L		641			1	20	
MRL Check (BH61703-MRL1)				Prepared: 08/17/16 08:00	Analyzed: 08/17/16 10:30					
Hexavalent Chromium	1.17	1.00	ug/L	1.0000		117	60-140			
Matrix Spike (BH61703-MS1)				Source: 1608009-06		Prepared: 08/17/16 12:00	Analyzed: 08/17/16 13:46			
Hexavalent Chromium	5650	100	ug/L	40.000	5680	NR	90-110			TD
Matrix Spike (BH61703-MS2)				Source: 1608009-04		Prepared: 08/17/16 12:00	Analyzed: 08/17/16 15:47			
Hexavalent Chromium	677	50.0	ug/L	40.000	641	91	90-110			

Batch BH61803 - Hex Chrom Prep ESAT

Blank (BH61803-BLK1)				Prepared: 08/19/16 08:00	Analyzed: 08/19/16 10:30					
Hexavalent Chromium	U	1.00	ug/L							
LCS (BH61803-BS1)				Prepared: 08/19/16 08:00	Analyzed: 08/19/16 10:43					
Hexavalent Chromium	40.2	1.00	ug/L	40.000		100	90-110			



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QC Data
Classical Chemistry Parameters

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BH61803 - Hex Chrom Prep ESAT

Duplicate (BH61803-DUP1)		Source: 1608009-71		Prepared: 08/19/16 12:00		Analyzed: 08/19/16 12:14				
Hexavalent Chromium	U	1.00	ug/L		U				20	
MRL Check (BH61803-MRL1)				Prepared: 08/19/16 08:00		Analyzed: 08/19/16 10:37				
Hexavalent Chromium	0.995	1.00	ug/L	1.0000		100	60-140			
Matrix Spike (BH61803-MS1)		Source: 1608009-71		Prepared: 08/19/16 12:00		Analyzed: 08/19/16 12:21				
Hexavalent Chromium	40.6	1.00	ug/L	40.000	U	102	90-110			

Batch BH62202 - Hex Chrom Prep ESAT

Blank (BH62202-BLK1)				Prepared: 08/22/16 16:00		Analyzed: 08/25/16 11:45				
Hexavalent Chromium	U	0.40	ug/g wet							
LCS (BH62202-BS1)				Prepared: 08/22/16 16:00		Analyzed: 08/25/16 11:57				
Hexavalent Chromium	3.96	0.40	ug/g wet	4.0000		99	80-120			
Duplicate (BH62202-DUP1)		Source: 1608009-10		Prepared: 08/22/16 16:00		Analyzed: 08/25/16 12:36				
Hexavalent Chromium	196	24.8	ug/g dry		197			0.7	20	
Duplicate (BH62202-DUP2)		Source: 1608009-20		Prepared: 08/22/16 16:00		Analyzed: 08/25/16 15:19				
Hexavalent Chromium	1020	50.3	ug/g dry		948			8	20	
MRL Check (BH62202-MRL1)				Prepared: 08/22/16 16:00		Analyzed: 08/25/16 11:51				
Hexavalent Chromium	0.468	0.40	ug/g wet	0.40000		117	60-140			
Matrix Spike (BH62202-MS1)		Source: 1608009-10		Prepared: 08/22/16 16:00		Analyzed: 08/25/16 12:43				
Hexavalent Chromium	181	24.2	ug/g dry	4.8476	197	NR	75-125			TD



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QC Data
Classical Chemistry Parameters

Table with 11 columns: Analyte, Result, Quantitation Limit, Units, Spike Level, Source Result, %REC, %REC Limits, RPD, RPD Limit, Notes

Batch BH62202 - Hex Chrom Prep ESAT

Table containing data for Matrix Spike (BH62202-MS2, MS3, MS4), Post Spike (BH62202-PS1, PS2), and Reference (BH62202-SRM1) for Hexavalent Chromium.

Batch BH62203 - Hex Chrom Prep ESAT

Table containing data for Blank (BH62203-BLK1), LCS (BH62203-BS1), and Duplicate (BH62203-DUP1) for Hexavalent Chromium.



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QC Data
Classical Chemistry Parameters

Table with 11 columns: Analyte, Result, Quantitation Limit, Units, Spike Level, Source Result, %REC, %REC Limits, RPD, RPD Limit, Notes

Batch BH62203 - Hex Chrom Prep ESAT

Main data table containing multiple rows for different samples (Duplicate, MRL Check, Matrix Spike, Post Spike, Reference) with columns for analyte, result, limit, units, spike level, source result, %REC, %REC limits, RPD, and RPD limit.

Batch BH62204 - Hex Chrom Prep ESAT

Table for Batch BH62204 - Hex Chrom Prep ESAT, showing Hexavalent Chromium result as 'U' with a limit of 0.40 ug/g wet.



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QC Data
Classical Chemistry Parameters

Analyte	Result	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BH62204 - Hex Chrom Prep ESAT

LCS (BH62204-BS1)				Prepared: 08/24/16 15:45	Analyzed: 08/29/16 13:14					
Hexavalent Chromium	3.98	0.40	ug/g wet	4.0000		100	80-120			
Duplicate (BH62204-DUP1)				Source: 1608009-45		Prepared: 08/30/16 15:15	Analyzed: 09/01/16 14:56			
Hexavalent Chromium	769	49.1	ug/g dry		1340			54	20	A
Duplicate (BH62204-DUP2)				Source: 1608009-49		Prepared: 08/30/16 15:15	Analyzed: 09/01/16 15:50			
Hexavalent Chromium	100	2.83	ug/g dry		89.5			11	20	
MRL Check (BH62204-MRL1)				Prepared: 08/24/16 15:45	Analyzed: 08/29/16 13:07					
Hexavalent Chromium	0.438	0.40	ug/g wet	0.40000		110	60-140			
Matrix Spike (BH62204-MS1)				Source: 1608009-45		Prepared: 08/30/16 15:15	Analyzed: 09/01/16 15:04			
Hexavalent Chromium	417	49.6	ug/g dry	4.9558	1340	NR	75-125			TD
Matrix Spike (BH62204-MS2)				Source: 1608009-45		Prepared: 08/30/16 15:15	Analyzed: 09/01/16 15:11			
Hexavalent Chromium	1860	98.4	ug/g dry	1346.3	1340	39	75-125			A
Matrix Spike (BH62204-MS3)				Source: 1608009-49		Prepared: 08/30/16 15:15	Analyzed: 09/01/16 15:56			
Hexavalent Chromium	99.7	2.79	ug/g dry	5.5739	89.5	184	75-125			TD
Matrix Spike (BH62204-MS4)				Source: 1608009-49		Prepared: 08/30/16 15:15	Analyzed: 09/01/16 16:03			
Hexavalent Chromium	1130	55.9	ug/g dry	1160.3	89.5	89	75-125			
Post Spike (BH62204-PS1)				Source: 1608009-45		Prepared: 08/30/16 15:15	Analyzed: 09/01/16 15:17			
Hexavalent Chromium	74600		ug/L	50000	26700	96	85-115			
Post Spike (BH62204-PS2)				Source: 1608009-49		Prepared: 08/30/16 15:15	Analyzed: 09/01/16 16:09			
Hexavalent Chromium	4780		ug/L	3000.0	1630	105	85-115			



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QC Data
Classical Chemistry Parameters

Table with columns: Analyte, Result, Quantitation Limit, Units, Spike Level, Source Result, %REC, %REC Limits, RPD, RPD Limit, Notes. Rows include Batch BH62204, Reference (BH62204-SRM1), Batch BH62205, Blank (BH62205-BLK1), LCS (BH62205-BS1), Duplicate (BH62205-DUP1), Duplicate (BH62205-DUP2), MRL Check (BH62205-MRL1), Matrix Spike (BH62205-MS1), Matrix Spike (BH62205-MS2), Matrix Spike (BH62205-MS3).



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QC Data
Classical Chemistry Parameters

Table with 11 columns: Analyte, Result, Quantitation Limit, Units, Spike Level, Source Result, %REC, %REC Limits, RPD, RPD Limit, Notes

Batch BH62205 - Hex Chrom Prep ESAT

Table with 4 main sections: Matrix Spike (BH62205-MS4), Post Spike (BH62205-PS1), Post Spike (BH62205-PS2), Reference (BH62205-SRM1). Each section contains data for Hexavalent Chromium including source, result, limit, units, spike level, source result, %REC, and RPD.



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Notes and Definitions

- TD Spike concentration is too dilute for accurate quantitation resulting in inaccurate recovery calculations..
- J The identification of the analyte is acceptable; the reported value is an estimate.
- A Quality control value is outside acceptance limits.

- %REC Percent Recovery
- RPD Relative Percent Difference
- U Analyte included in the analysis, but not detected at or above the quantitation limit.
- NR Not Reported

QUANTITATION LIMIT: The lowest concentration of an analyte that can be reliably measured within specified limits of precision and accuracy for a specific laboratory analytical method and that takes into account analytical adjustments made during sample preparation and analysis.

SOLID SAMPLE RESULTS - REPORTING PROTOCOL: Percent Solids (percent dry wt at 105 degrees C) determinations are routinely performed for most organic and inorganic analyses. Consequently, these samples are analyzed wet and converted to a dry weight result for reporting purposes. If metals and mercury analyses are requested, they are routinely prepared for analyses by an initial drying at 60 degrees C, homogenized prior to digestion, and are analyzed and reported on a dry weight basis. Oil-type samples are analyzed and reported on a wet weight basis for all analyses because of the nature of the sample matrix. Any exceptions to this protocol will be noted in the narrative.

ON-DEMAND: The term 'on-demand' analysis, if noted in the report narrative, refers to Section 13.1.4 in the Region III OASQA Laboratory Quality Manual, which provides procedures for non-routine analyses or analytes.