NSRP Panel Project Final Report

December 1, 2014

Control Technology Comparison for Heavy Metals Removal from Shipyard Storm Water Runoff

Submitted By:

Brian Ketchum, PE
Jake White, PE
Environmental Compliance Services, Inc.

Brian McVey
Kevin Kowalewski
Huntington Ingalls Industries - Ingalls Shipbuilding

Agreement #: 2014-413

TABLE OF CONTENTS

APPENDICIES

1.0 EXECUTIVE SUMMARY

Storm water pollution has been a National Enforcement Initiative for the U.S. Environmental Protection Agency since 2008, and has led to more stringent storm water permitting requirements for shipyards, whichcommonly encounter high concentrations of heavy metals in storm watereffluent. Heavy metals are common at shipyards as a result of storm water exposure to metal materials, metalworking operations (grinding, polishing, fabricating, blasting, and welding), and use of coatings containing heavy metals. Recent studies have been conducted on filtration systems designed to remove metals and other contaminants from large and intermittent volumes of storm water. These systems require a substantial initial investment, have high operating and maintenance costs, and require a relatively large footprint. Water-front shipyards tend to be large-scale industrial operations with minimal available space for such a system.

In the previous project, *Removal of Metals from Shipyard Storm Water Runoff* (NSRP/ECS, 2013), adsorbent sponge media was deployed into filtration units using manufacturer recommendations followed by baseline sampling data at four test locations.Samples for four (4) storm water events of pre- and post-filteredstorm water were taken to determine the actual adsorption or removal and efficiency for each sampling event. Initial adsorption or removal efficiency at the test location where flow rates and adsorbent polymer media contact time were controlled, was 93.33% and 91.30% for Copper (Cu) and Zinc (Zn) respectively. The results showed that reductions in Total Suspended Solids (TSS) generally corresponded to reductions in heavy metals in storm water, and the adsorption or removal efficiency of the MetalZorb^{TM} media degraded linearly over time.

As a follow up to the previous project, the primaryintent of this project was to test and compare the ability of various adsorbent materials to decrease heavy metal concentrations in shipyard storm water runoff and determine the most cost-effective control technology. Six (6) control technologies were selected as part of the project to be compared for the ability to remove heavy metals. Of the six (6) technologies, three (3) were selected for being designed specifically for heavy metal adsorption. The other three (3) technologies were selected as general mechanical filtration options due to the correlation between TSS removal and Heavy Metal reductions in the previous project. The six (6) control technologies were deployed at six (6) test locations, which housed similar shipyard activities. The locations were selected at Huntington Ingalls Inc., Ingalls Shipbuilding Division, Pascagoula Operations (Ingalls) as representative areas of significant metalworking operations at their shipyard and similar operations at other shipyards. The material was tested throughout the twelve (12) month project to determine removal efficiencies and life expectancy for each control technology.

During the twelve (12) month project, despite various issues related to damage and relocation of control materials and restricted storm water flow to the test areas, a total of nine (9) sampling events occurred. The results show thatthe control technologies have varying useful lives with one (1) material being completely ineffective at filtering storm water in the method used. The maximum useful life in this project belonged to CleanwayMetalzorb™ and covered five (5) sampling events (or about 6 months).

Costs were compared for all technologies. The item with the least amount of cost as purchased was the pine bark material; however, pine bark material used in this project did not allow storm water to filter through and is, therefore, not a valid alternative as used in this project. The second item with the least initial cost as purchased was coconut husk. As some of the control technologies come in differing forms (e.g., booms of various lengths, material by the cubic yard, etc.), costs were broken down to a dollar amount per linear foot of control technology in boom form as utilized in this project. The technology with the least cost per linear foot was Filtrexx Sediment Control®.

Throughout the project, sample results varied and were not observed to be proportional to the degradation of the control technologies. This finding is believed to be due, in large part, to various issues regarding operational impacts and control technology and sampling point setups. Degradations for all materials occurred as the project progressed, although a linear degradation was not observed. Analysis of sample results yielded CleanwayMetalzorb™ as having the highest removal efficiencies (24.90% for Cu and 22.84% for Zn) over the life of the project, including samples taken after the useful life had surpassed. CleanwayMetalzorb™ also returned the greatest removal efficiencies (53.74% for Cu and 54.53% for Zn) in a comparison of removal efficiencies over the useful life of each technology.

As the project was designed to include a cost feasibility determination, the removal rates of heavy metals were compared to the cost per linear foot of each control technology. As a result, Filtrexx Sediment Control® returned the greatest removal efficiency rates per cost at 10.07% per dollar for Cu and 13.63% per dollar for Zn.

At the conclusion of the storm water testing events, the control technologiesand sand bags wereanalyzed utilizing a toxicity characteristic leaching procedure (TCLP) analysis to confirm that the spent media was not characterized as a hazardous waste. In addition, TCLP analyses for Cu and Zn were performed on the sand bags. Due to the operational impacts, sand was consistently observed in the downstream sampling areas. The TCLP was performed to ensure that the sand did not negatively impact the sampling results. Finally, each control technology was analyzed to determine a useful life and constituent removal rates over time for this project.

This report details the issues presented during the life of the project, recommendations on filtration unit deployment, and conclusions based on costs and analytical testing results.

2.0 INTRODUCTION

2.1 Reviewof Adsorbent Materials

For this project, three (3) control technologies were selected for their ability to specifically adsorb heavy metals from storm water runoff. Material #1, CleanwayMetalzorb™, was selected as it was used in the previous project. As a result, this will provide a benchmark for comparison with alternative technologies selected. The control technologies selected for this project are as follows:

2.1.1 Material #1 - CleanwayMetalzorb™

CleanwayMetalzorb™ was the first product selected for purposes of continuity with the previous project, *Removal of Metals from Shipyard Storm Water Runoff* (NSRP/ECS, 2013). Results in the previous project suggested the material was efficient in removing heavy metals from shipyard storm water. Having a high affinity for heavy metals, this material was also shown to sequester the adsorbed heavy metals, thereby significantly decreasing disposal burdens. The product, which contains a water-insoluble polyamide chelating polymer, has previously been documented as removing up to 97% of heavy metal concentrations from groundwater in CERCLA Superfund sites. In addition, our previous project yielded removal efficiencies of 93.33% for Cu and 91.30% for Zn.

2.1.2 Material #2 - FiltrexxEnviroSoxx®

FiltrexxEnviroSoxx® was selected as a product designed to adsorb heavy metals from urban and post-construction runoff. The material was created with the application of natural additives to a compost material. The specific additives used have been incorporated by the company due to their abilities to remove cadmium, chromium, copper, nickel, lead, and zinc.

2.1.3 Material #3 - Ultra-Filter Sock®

Ultra-Filter Sock® was chosen as another product designed to adsorb heavy metals, including zinc and copper, from storm water runoff. This product offers a more durable casing than other options. The material inside of the casing contains quartz, free silica, and coconut based activated carbon, and has been shown to remove up to 1,145 grams of heavy metals per unit.

2.2 Review of Materials for Mechanical Filtration

2.2.1 Material #4-FiltrexxSediment Control®

Filtrexx Sediment Control® was selected as the first material designed as a mechanical means of storm water pollution control. As the previous project suggested, heavy metals removal appeared to correlate to removal of total suspended solids. This material is constructed of carbon neutral composted materials.

In contrast to FiltrexxEnviroSoxx®, this material is developed without any addition of chemicals or polymers.

2.2.2 Material #5 - Coconut Husk

Given the nature and location of many shipyards, coconut husk was picked as a mechanical means of storm water filtration due to the relatively waterproof, fibrous nature of the material. Coconut husk is known to be one of few natural materials resistant to damage and degradation from a coastal environment. With varying options for implementation such as woven mats and rolled wattles, coconut husk was found to be a low cost, easily accessible, renewable material.

2.2.3 Material #6 - Pine Bark

Similar to coconut husk, pine bark was chosen as a mechanical means of storm water filtration due to low cost, the fact that it is a renewable resource, and is readily accessible in many areas. In addition, previous research projects (*"Treatment of heavily contaminated storm water from an industrial site area by filtration through an adsorbent barrier with pine bark (PinusSilvestris), polonite and active carbon in a comparison study",* Nehrenheim, Ribe, Carlsson, Eneroth, and Odlare, 2011) have used pine bark in industrial applications to remove heavy metals, particularly zinc, from storm water runoff.

2.3 Project Overview

This project investigated the effectiveness of each of the six (6) control technologies at removing heavy metals in similar locations at the Ingalls shipyard. The locations were representative of significant metalworking operations that occur at the majority of NSRP participant shipyards. Each control technology was obtained in wattles (booms) and deployed in a similar manner. Over the course of the project, storm water samples were collected immediately upstream and downstream of the control technologies to determine removal efficiencies.

The practical implementation of any control technology also depends upon cost and life expectancy. As such, the comparisons between the materials included a cost analysis breakdown and an analysis of degradation and determination of useful life for this project.

3.0 PROJECT IMPLEMENTATION

3.1 Site Evaluations

Typical of most NSRP participant shipyards, the Ingalls shipyard is relatively flat with operations occurring in all available locations. Active metalworking operations were selected as significant contributors of heavy metals to storm water runoff, which occur at most, if not all, NSRP participant shipyards. Treatment efforts at interior locations around the site were seen as more practical for deployment, maintenance, and removal purposes. In addition, interior locations potentially offer control technologies a better opportunity to remove heavy metals from areas of potentially heavy concentrationbefore combining with other drainage areas and exiting the property. Based on these criteria, the locations selected for the project are detailed below:

3.1.1 Production Bays

The production bays onsite are areas where significant metal working operations expose a large amount of raw material to storm water. The two (2) bays selected are approximately 110 feet in width by 500 feet in length with concrete barriers on the east and west borders. With elevation decreasing from north to south, the concrete barriers restrict all storm water flow inside the bays to exit from the south border. The production bays were selected for these reasons. The drainage area for each of the two (2) bays was determined to be approximately 0.92 acres. Primary heavy metal contributing activities in the area are outdoor storage of metal materials, metal cutting and grinding, outdoor exposure or abrasive removal of pre-construction primer containing high levels of Zinc, and welding. Rain that falls within the confines of either bay is routed from north to south, via sheet flow, prior to leaving the bay and comingling with other storm water. One of the concerns with this location included controlling storm water across the 110' width of each bay and creating a funnel so that all storm water filtered through the control technology. This concern was counteracted by deploying sand bags across the width of the bays at an obtuse angle to direct storm water through two locations at each bay where the control technologies were located. With two (2) test locations in each bay, four (4) total control technologies could be tested simultaneously. An aerial view of the drainage area has been provided as Figure 1.

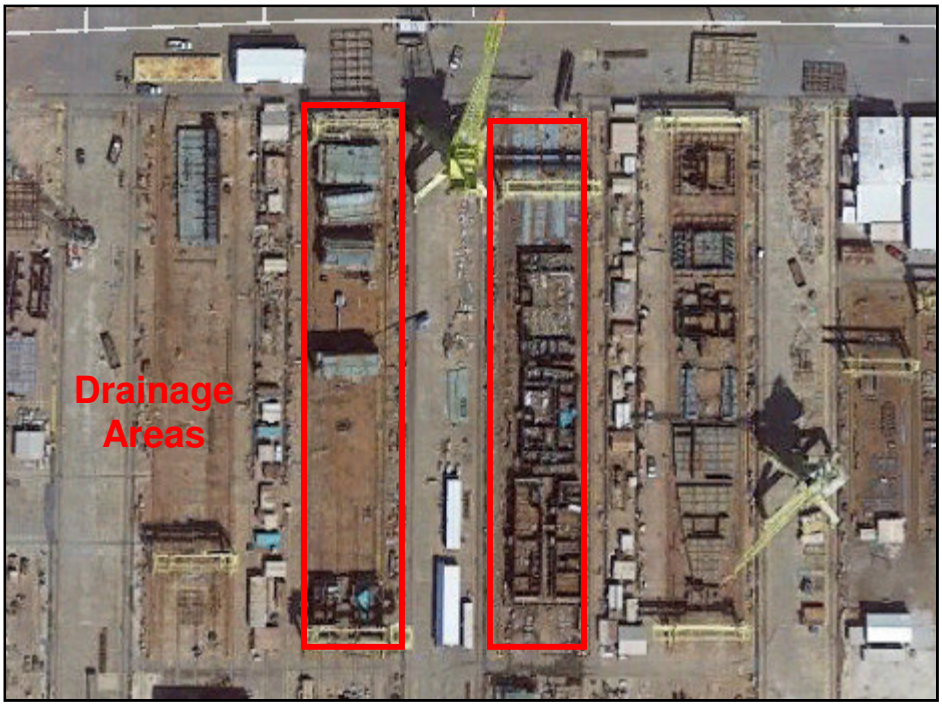


Figure 1: Aerial View of Production Bays

3.1.2 Slurry Pit

The slurry pit is an area where structural ship components are blasted with abrasive material to clean or remove pre-construction primer and prepare surfaces for additional coatings. Coating applications also occur in this area using coatings that may contain high concentrations of zinc. The area is approximately 1.19 acres and is surrounded by an asphalt berm to prevent water in the area from discharging. Storm water is typically discharged from the pit during normal operations through valves installed in the berm. For this project, two voids were cut into the south side of the asphalt berm, allowing storm water to flow through.Two (2) of the remaining six (6) control technologies were deployed to at each location. Sand bags were installed upstream of the control technology and in line with the berm to hold storm water for accumulation. An aerial view of the slurry pit is provided in Figure 2.

Figure 2: Aerial View of Slurry Pit

3.2 Control Installation

Control technologies were installed in each of location described previously. With three (3) technologies specifically designed for metal adsorption and three (3) designed for general mechanical filtration, one (1) technology of each design was installed at each of the production bays and the slurry pit. Based on the site evaluations and the restrictions that each location presented, control installation took place as detailed below.

3.2.1 Production Bays

With heavy work activity within each bay and equipment and vehicular travel directly south of each bay, the control technology was deployed at the southern edges with storm water sheet flow from north to south. To control storm water flow through the bays, sand bags were deployed along the southern border of the bays in a manner which funneled storm water to the control technologies.

For each control technology, a uniform setup was used. Three (3) nine (9) feet long booms, approximately nine (9) inches in diameter, were placed close to the outfall location in sequential order perpendicular to the progression of storm water flow in the area. Later in the projectas the material degraded and became coated it was difficult for storm water to pass through. Tested materials were simultaneously reduced to two (2) booms, and later one (1) by removing the lead boom to allow adequate flow.Spray foam was utilized to plug crevices between sand bags and along the outer edges of the control technology to prevent storm water bypass. A picture showing the installation of the control technologies and a plan view of the installation and sample locations are provided as Figures 3 and 4, respectively.

Figure 3:Control technology installation at production bays.

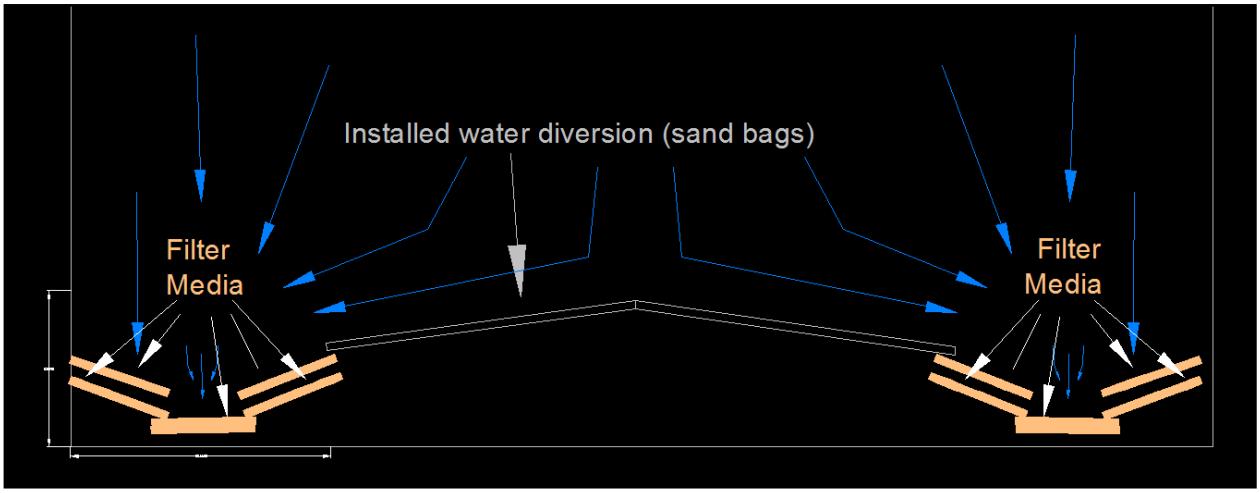


Figure 4: Plan View of Production Bay Installation Plan

3.2.2 Slurry Pit

Control installation for the slurry pit had to be constructed in such a way as to not interfere with production that takes place at this location. In keeping with the design installation for the production bays, the facility cut two (2) voids into the southern edge of the asphalt berm. In each void, a control technology was located, consisting of three (3) nine (9) feet long booms, approximately nine (9) inches in diameter, placed in sequential order perpendicular to the progression of storm water flow in the area. Sand bags were located in front of the control technology, and in line with the asphalt berm, to allow for accumulation of storm water. Later in the projectas the material degraded and became coated, reducing flow, all tested materials were simultaneously reduced to two (2) booms, and later one (1) boom. Spray foam was utilized to plug crevices between sand bags and along the outer edges of the control technology to prevent bypass. A photo showing deployment of control technologies in the slurry pit is provided as Figure 5.

Figure 5: Slurry Pit Technology Installation

3.3 Controlled Sampling

The control technology installation and sampling procedures were uniform for all locations. Each sampling event occurred during an associated rain event. Sand bags were removed, which allowed storm water to flow through the controls. As storm water flowed through, grab samples were taken immediately upstream and downstream of the technology. After each rain event, accumulated storm water was allowed to completely flow out of each production bay and the slurry pit to ensure separate rain events were being tested. Analytical results for each test location and analysis of the analytical data is further detailed in Section 3.4.

3.4 Data Analysis of Adsorbent Materials

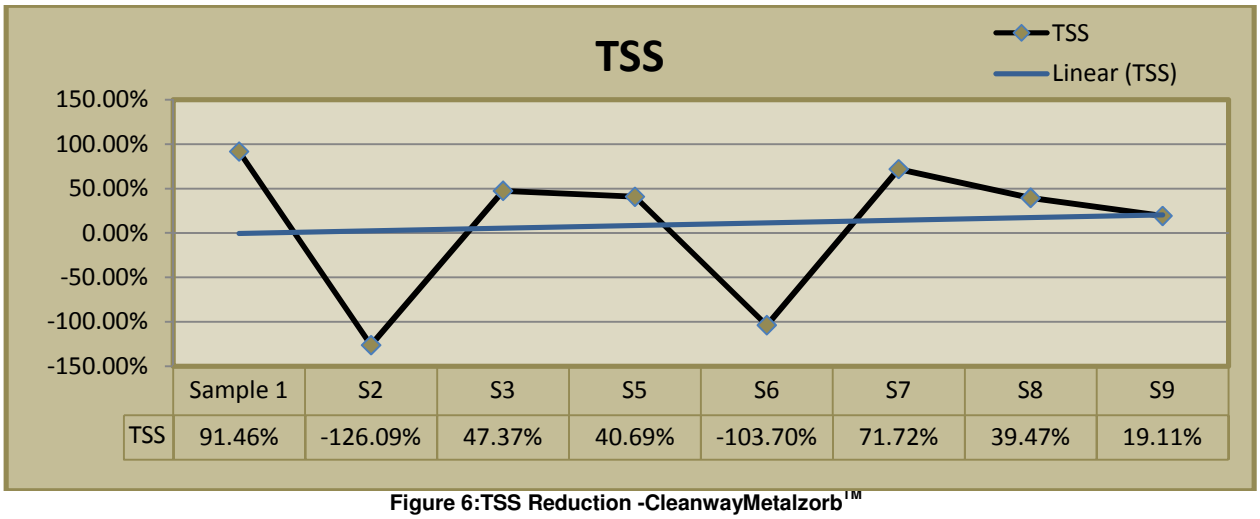
Data collected for adsorbent material technologies during the project was reviewed to determine removal efficiencies, data trends, and the useful life of the control technologies.Copies of the analytical results obtained from each sampling event have been provided in Appendix A.The results from each control technology are discussed further below. As observed throughout the project, equipment and foot traffic in the production bays and slurry pit continuously and consistently impacted the control technology installations. This ultimately led to rain events occurring that were not able to be collected and sampled.

3.4.1 Material #1 - CleanwayMetalzorb™

Analytical results for CleanwayMetalzorb™varied slightly over the course of the project. Sampling analyses are detailed in Table 1 below while Figures 6, 7, and 8 graphically represent percent reductions in total suspended solids (TSS), copper (Cu), and zinc (Zn), respectively, for the control technology over the life of the project. Blue trend lines are incorporated in the figures. The trend lines for Cu and Zn represent a steady degradation rate over the course of the project, where afterfive (5) sampling events and about five (5) or six (6) months, sufficient removal was no longer consistently observed. TSS returned positive results showing an increasing trend line. Sample 2 and Sample 6 returned increases rather than reductions, but were not outside of the standard deviation. Removing these two (2) outlier sampling events would reveal a slight decrease in reduction over the life of the project.

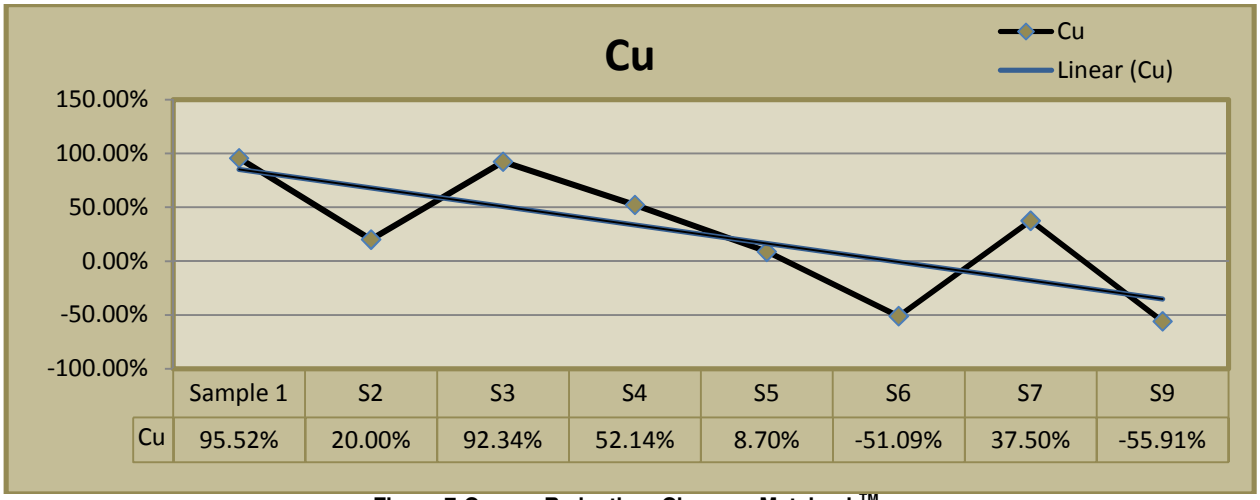
Sample Date	Criteria	Analytical Results		Reduction
		Pre-Control	Post-Control	
		mg/L	mg/L	
2/11/2014	TSS	281.0	24.0	91.46%
	Cu	2.120	0.095	95.52%
	Zn	7.840	0.412	94.74%
	pH	7.60	7.33	0.27
2/26/2014	TSS	6.90	15.60	-126.09%
	Cu	0.03	0.02	20.00%
	Zn	0.32	0.26	19.81%
	pH	7.29	7.31	-0.02
3/11/2014	TSS	38.00	20.00	47.37%
	Cu	0.65	0.05	92.34%
	Zn	2.23	0.67	69.96%
	pH	7.44	7.54	-0.10
3/28/2014	TSS	8.40	39.50	-370.24%
	Cu	0.12	0.06	52.14%
	Zn	1.00	0.38	62.50%
	pH	7.64	7.60	0.04
6/13/2014	TSS	87.00	51.60	40.69%
	Cu	0.09	0.08	8.70%
	Zn	1.01	0.75	25.64%
	pH	7.16	7.14	0.02
7/11/2014	TSS	27.00	55.00	-103.70%
	Cu	0.09	0.14	-51.09%
	Zn	1.210	1.050	13.22%
	pH	7.71	7.82	-0.11
7/18/2014	TSS	198.00	56.00	71.72%
	Cu	0.22	0.14	37.50%
	Zn	2.02	0.95	52.87%
	pH	8.16	8.15	0.01
10/2/2014	TSS	1140.00	690.00	39.47%
	Cu	1.01	3.22	-218.81%
	Zn	7.76	13.90	-79.12%
	pH	8.33	8.30	0.03
10/3/2014	TSS	900.00	100.00	88.89%
	Cu	0.42	0.77	-83.77%
	Zn	3.25	4.75	-46.15%
	pH	7.81	7.68	0.13

Table 1: Analytical Results for CleanwayMetalzorb™



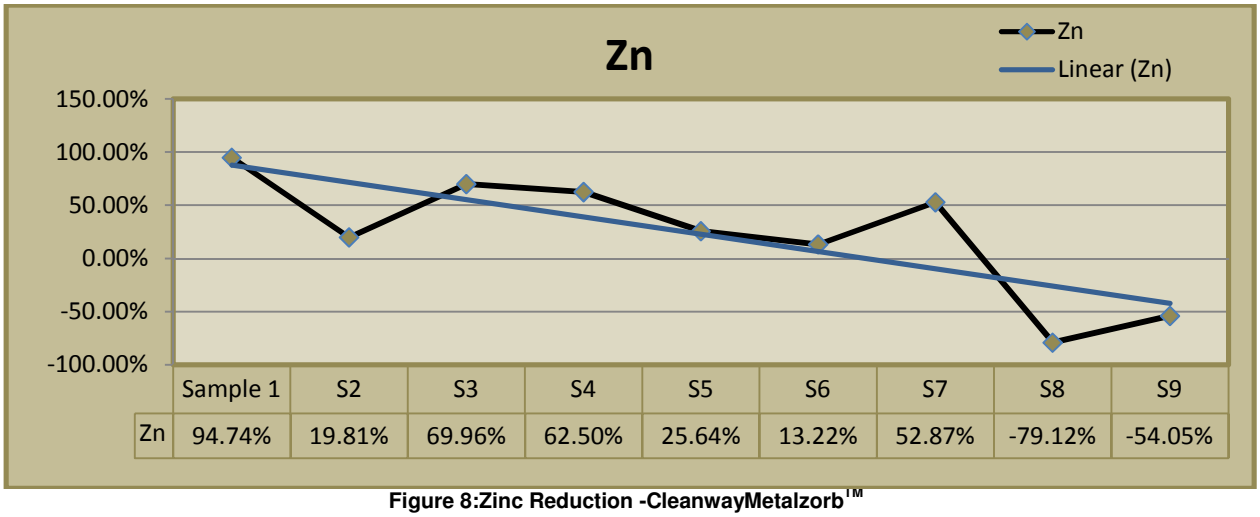
	Sample 1	S2	S3	S5	S6	S7	S8	S9
TSS	91.46%	-126.09%	47.37%	40.69%	-103.70%	71.72%	39.47%	19.11%

Figure 6:TSS Reduction -CleanwayMetalzorb™



	Sample 1	S2	S3	S4	S5	S6	S7	S9
Cu	95.52%	20.00%	92.34%	52.14%	8.70%	-51.09%	37.50%	-55.91%

Figure 7:Copper Reduction -CleanwayMetalzorb™



	Sample 1	S2	S3	S4	S5	S6	S7	S8	S9
Zn	94.74%	19.81%	69.96%	62.50%	25.64%	13.22%	52.87%	-79.12%	-54.05%

Figure 8:Zinc Reduction -CleanwayMetalzorb™

3.4.2 Material #2 - FiltrexxEnviroSoxx®

Analytical results for FiltrexxEnviroSoxx®varied over the course of the project. Sampling analyses are detailed in Table 2 below while Figures 9, 10, and 11 graphically represent percent reductions of TSS, Cu, and Zn, respectively, for the control technology over the life of the project. Blue trend lines are incorporated in the figures. The trend lines for TSS, Cu, and Zn represent a steady degradation rate over the course of the project. The trend lines represent a degradation suggesting the material has reached removal capacity after the fourth sampling event for Cu and Zn. The control technology, in this setup, was inefficient in removing TSS.This, in part, could be due to the destruction of sand bag barriers and interference that occurred with the technology over the course of the project.

Sample Date	Criteria	Analytical Results		Reduction
		Pre-Control	Post-Control	
		mg/L	mg/	
2/11/2014	TSS	33.0	46.0	-39.39%
	Cu	0.089	0.100	-12.36%
	Zn	0.565	0.585	-3.54%
	pH	7.35	7.35	0.00
2/26/2014	TSS	6.10	9.40	-54.10%
	Cu	0.14	0.02	85.93%
	Zn	0.71	0.32	55.32%
	pH	7.23	7.22	0.01
3/11/2014	TSS	25.00	45.00	-80.00%
	Cu	0.08	0.17	-110.00%
	Zn	0.76	1.23	-62.27%
	pH	7.45	7.51	-0.06
3/28/2014	TSS	19.40	9.80	49.48%
	Cu	0.08	0.02	70.51%
	Zn	0.87	0.39	54.71%
	pH	9.41	8.95	0.46
6/13/2014	TSS	8.60	237.00	-2655.81%
	Cu	0.02	0.04	-80.95%
	Zn	0.35	0.39	-12.72%
	pH	7.34	7.18	0.16
7/11/2014	TSS	27.00	37.00	-37.04%
	Cu	0.09	0.09	-2.25%
	Zn	0.846	0.786	7.09%
	pH	7.19	7.21	-0.02
7/18/2014	TSS	28.00	129.00	-360.71%
	Cu	0.04	0.05	-27.03%
	Zn	0.27	0.30	-11.85%
	pH	8.09	7.88	0.21
10/2/2014	TSS	608.00	702.00	-15.46%
	Cu	0.61	0.98	-60.26%
	Zn	5.35	7.78	-45.42%
	pH	8.33	7.75	0.58

Sample Date	Criteria	Analytical Results		Reduction
		Pre-Control	Post-Control	
		mg/L	mg/	
10/3/2014	TSS	1300.00	1370.00	-5.38%
	Cu	0.41	0.51	-23.67%
	Zn	3.45	5.07	-46.96%
	pH	7.50	7.58	-0.08

Table 2: Analytical Results for FiltrexxEnviroSoxx®

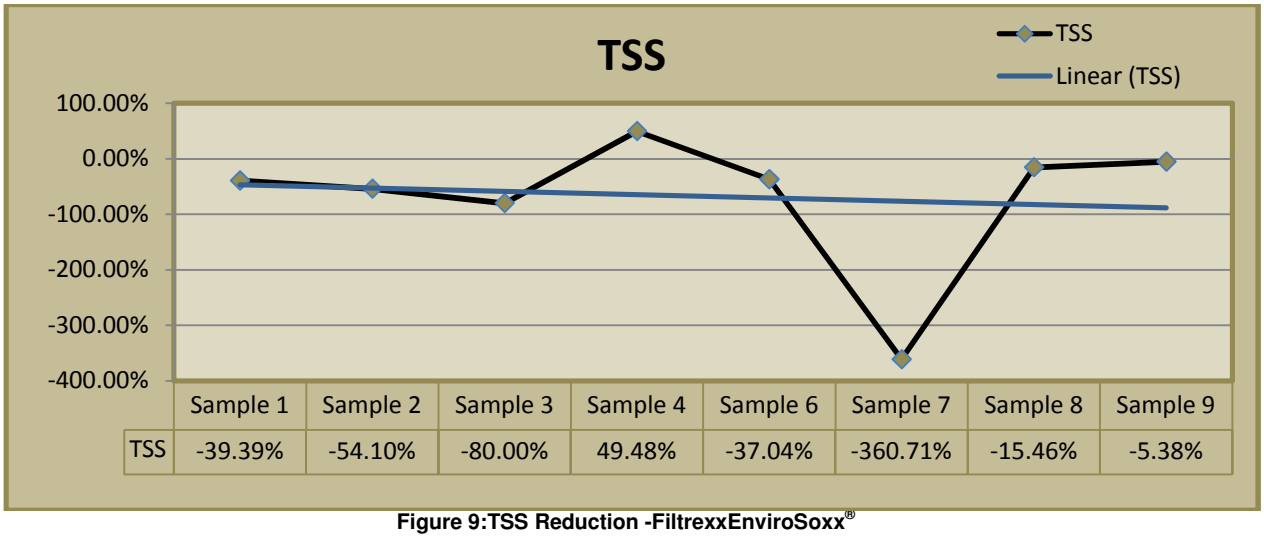


Figure 9:TSS Reduction -FiltrexxEnviroSoxx®

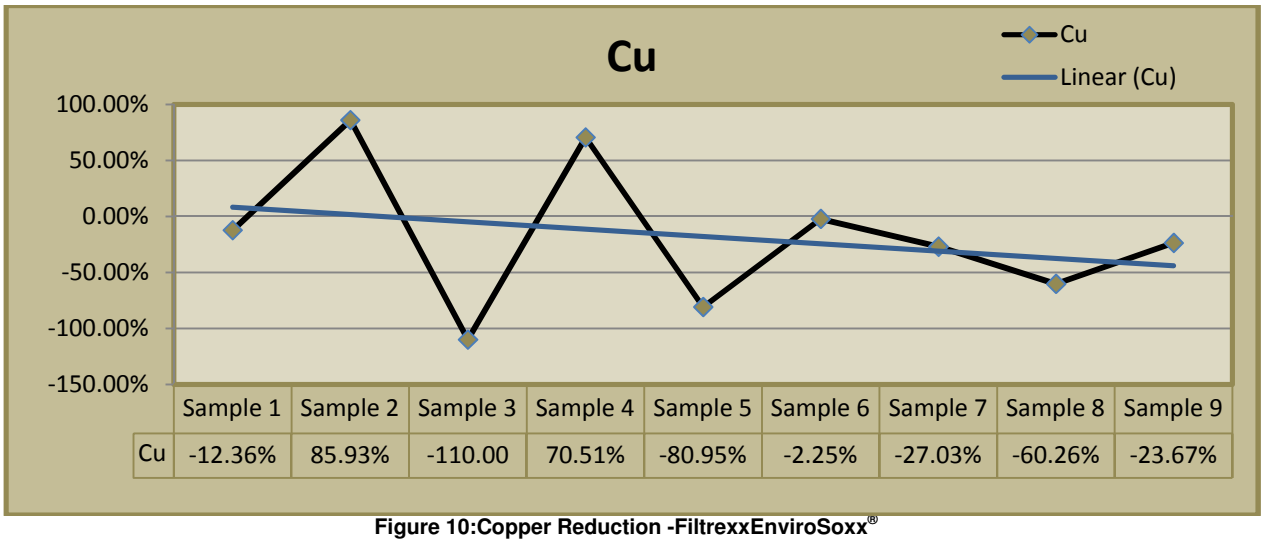
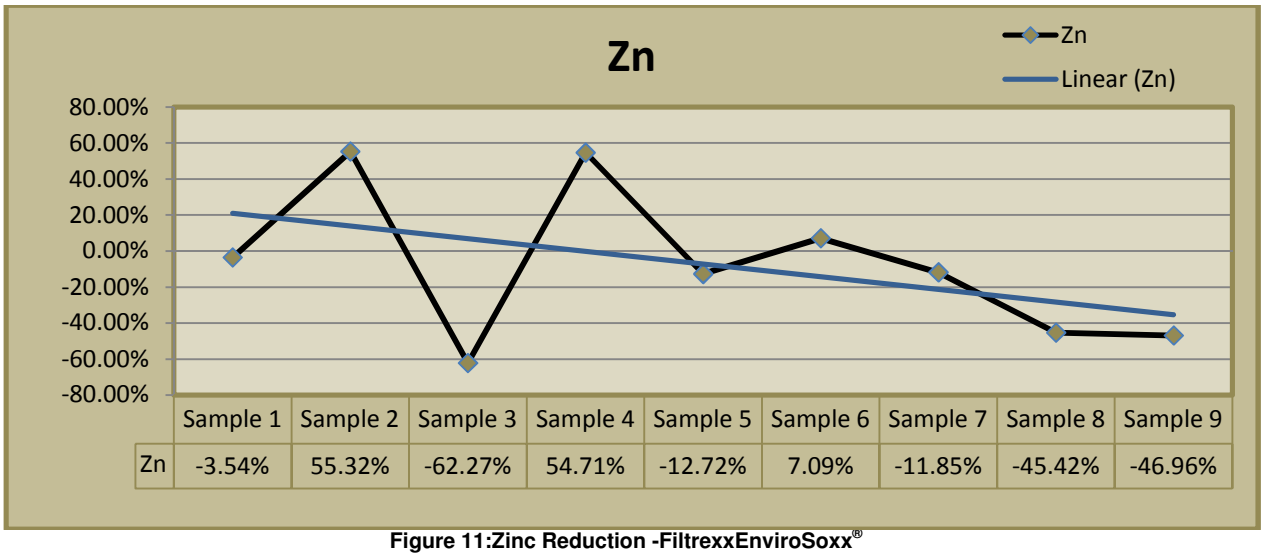


Figure 10:Copper Reduction -FiltrexxEnviroSoxx®



	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8	Sample 9
Zn	-3.54%	55.32%	-62.27%	54.71%	-12.72%	7.09%	-11.85%	-45.42%	-46.96%

Figure 11:Zinc Reduction -FiltrexxEnviroSoxx®

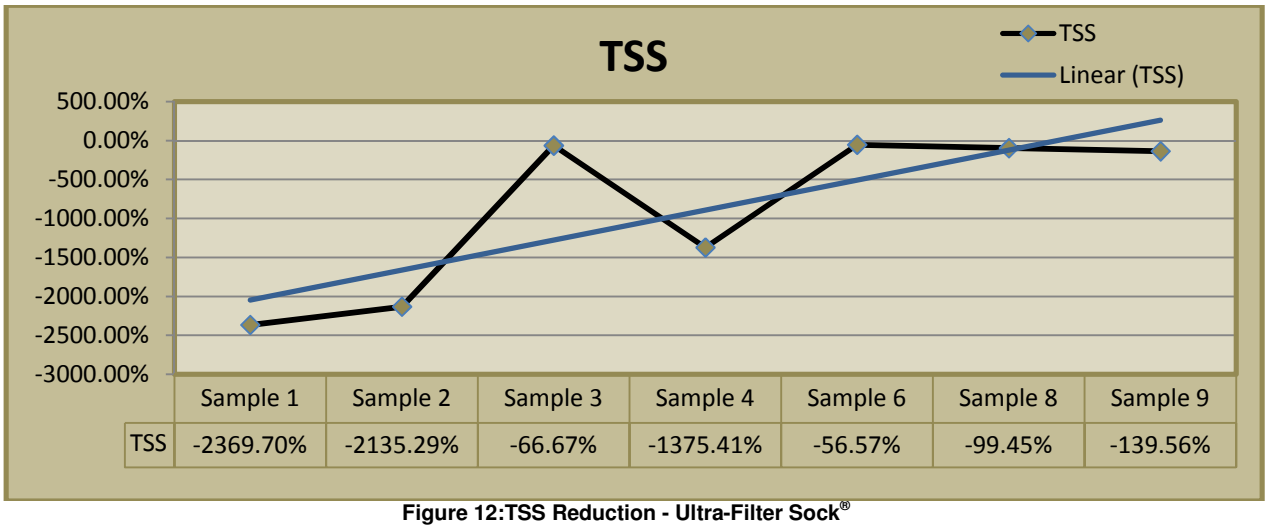
3.4.3 Material #3 - Ultra-Filter Sock®

Analytical results for Ultra-Filter Sock® revealed inefficiencies throughout the project in removing TSS, Cu, and Zn from storm water at the shipyard. Sampling analyses are detailed in Table 3 below while Figures 12,13, and 14 graphically represent percent reductions in TSS, Cu, and Zn, respectively, for the control technology over the life of the project. Blue trend lines are incorporated in the figures. The trend lines for Cu and Zn represent a steady degradation rate over the course of the project.TSS analytical results showed an increase in efficiency throughout the project. After further review, the other control technology (coconut husk) used in the slurry pit returned similar results for TSS, which suggests operations may have changed to alter the profile of suspended solids exposed to the technologies in this location.

During sampling events, Ultra-Filter Sock® was observed releasing a plume downstream of the control technology that became less noticeable over time. Ultra-Filter Sock®internalcomponents consist of quartz, free silica, and activated carbon. It appears that smaller components within the technology were released from the woven casing during exposure to storm water flows. The material is advertised as being able to remove 1,145 grams of heavy metals per boom (wattle), which equates to approximately 2.5 pounds. With the significant amount of blasting and painting that occurred in the slurry pit throughout the project, there appears to be great potential that Ultra-Filter Sock®reached inundation early in the project. While Zn removal efficiencies appear to dissipate around the third sampling event, Cu and TSS removal was not observed during this project in any measure of consistency.

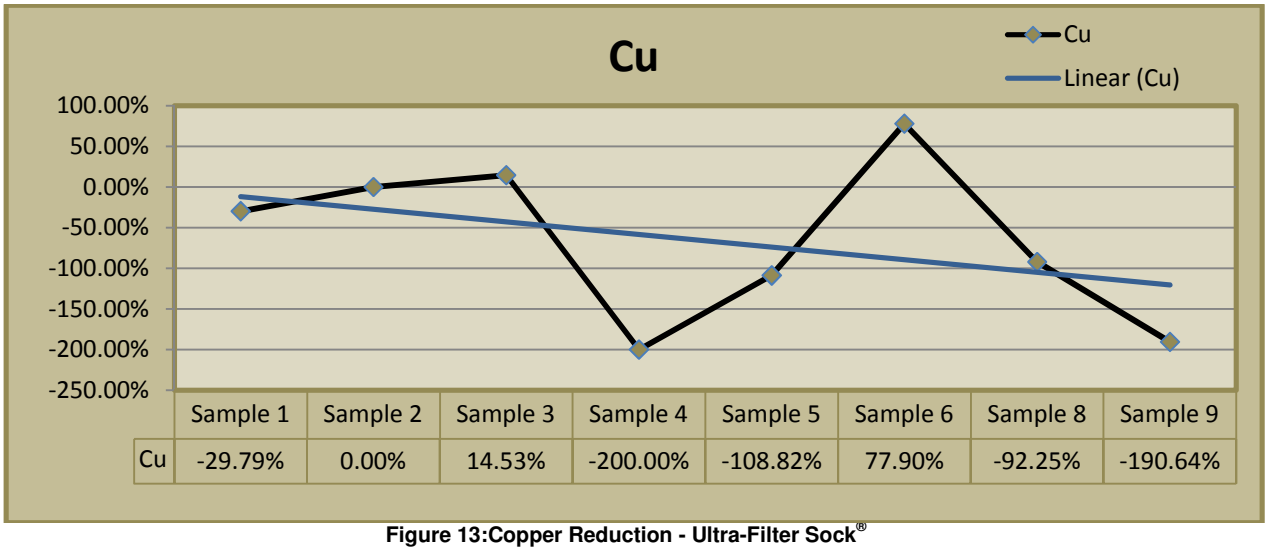
Sample Date	Criteria	Analytical Results		Reduction
		Pre-Control	Post-Control	
		mg/L	mg/	
2/11/2014	TSS	33.0	815.0	-2369.70%
	Cu	0.047	0.061	-29.79%
	Zn	1.420	1.430	-0.70%
	pH	7.39	7.54	-0.15
2/26/2014	TSS	3.40	76.00	-2135.29%
	Cu	0.00	0.00	0.00%
	Zn	0.39	0.31	19.59%
	pH	7.06	6.96	0.10
3/11/2014	TSS	73.20	122.00	-66.67%
	Cu	0.12	0.10	14.53%
	Zn	2.66	2.51	5.64%
	pH	7.62	7.81	-0.19
3/28/2014	TSS	6.10	90.00	-1375.41%
	Cu	0.02	0.06	-200.00%
	Zn	0.50	1.22	-144.00%
	pH	7.06	6.74	0.32
6/13/2014	TSS	50.40	135.00	-167.86%
	Cu	0.03	0.07	-108.82%
	Zn	1.26	1.77	-40.48%
	pH	7.33	7.33	0.00
7/11/2014	TSS	99.00	155.00	-56.57%
	Cu	0.28	0.06	77.90%
	Zn	20.700	4.370	78.89%
	pH	7.26	7.28	-0.02
7/18/2014	TSS	Sample was not obtained due to sediment buildup from abrasive blasting in the slurry pit. Storm water did not drain to control technology.		
	Cu			
	Zn			
	pH			
10/2/2014	TSS	722.00	1440.00	-99.45%
	Cu	0.67	1.29	-92.25%
	Zn	5.28	11.20	-112.12%
	pH	8.33	7.78	0.55
10/3/2014	TSS	910.00	2180.00	-139.56%
	Cu	0.41	1.18	-190.64%
	Zn	3.52	9.49	-169.60%
	pH	7.31	7.43	-0.12

Table 3: Analytical Results for Ultra-Filter Sock®



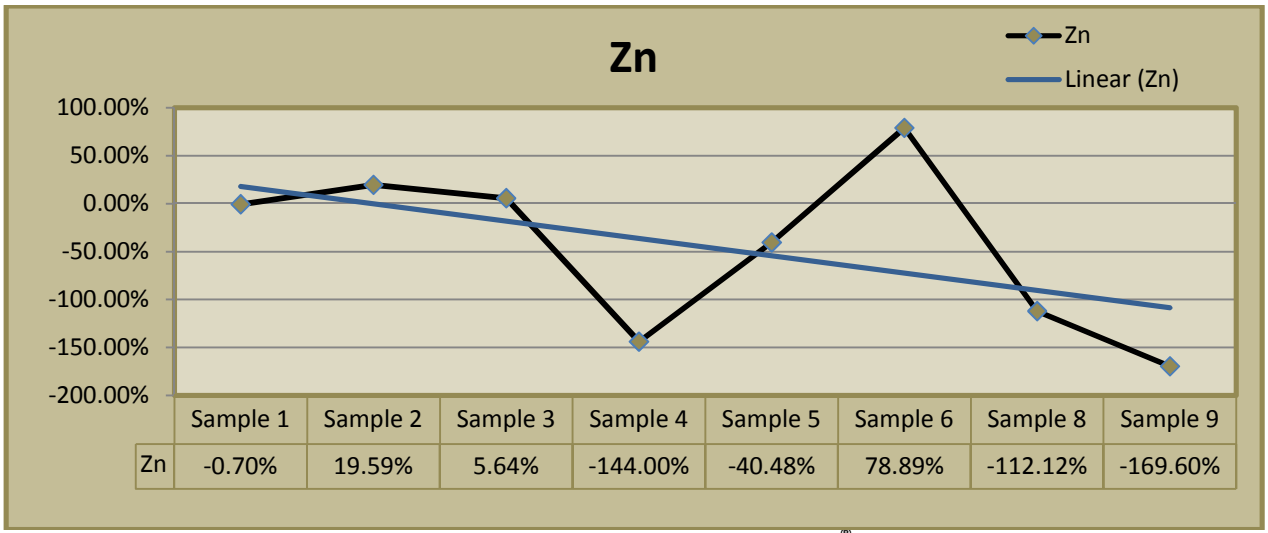
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 6	Sample 8	Sample 9
TSS	-2369.70%	-2135.29%	-66.67%	-1375.41%	-56.57%	-99.45%	-139.56%

Figure 12:TSS Reduction - Ultra-Filter Sock®



	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 8	Sample 9
Cu	-29.79%	0.00%	14.53%	-200.00%	-108.82%	77.90%	-92.25%	-190.64%

Figure 13:Copper Reduction - Ultra-Filter Sock®



	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 8	Sample 9
Zn	-0.70%	19.59%	5.64%	-144.00%	-40.48%	78.89%	-112.12%	-169.60%

Figure 14:Zinc Reduction - Ultra-Filter Sock®

3.5 Data Analysis of Materials for Mechanical Filtration

Data collected for mechanical filtration technologies during the project was reviewed to determine removal efficiencies, data trends, and the useful life of the control technologies. Copies of the analytical results obtained from each sampling event have been provided in Appendix A. The results from each control technology are discussed further below. As observed throughout the project, equipment and foot traffic in the production bays and slurry pit impacted the control technology installations. This ultimately led to rain events occurring that were not able to be collected and sampled.

3.5.1 Material #4 - FiltrexxSediment Control®

Analytical results for Filtrexx*Sediment Control®*revealed slight variations in removal efficiencies over the course of the project; however, removal efficiency variations trended in a decreasing manner as would be expected.Sampling analyses are detailed in Table 4 below while Figures 15, 16, and 17 graphically represent percent reductions in TSS, Cu, and Zn, respectively, for the control technology over the life of the project. Blue trend lines are incorporated in the figures. The trend lines for TSS, Cu, and Zn represent a steady degradation rate over the course of the project,which correlated to about five (5) sampling events occurring over approximately four (4) months before effective removal was no longer consistently observed. TSS returned negative results for six (6) of the eight (8) sampling events for this technology, and resulted in a decreasing trend line. Cu and Zn both returned negative results for four (4) of the eight (8) sampling events, resulting in decreasing trend lines as well. For Cu and Zn, no sampling analyses returned were outside of the standard deviation. For this technology, Cu and Zn removal does appear to follow TSS trends; however, trends are not directly proportionate.

Sample Date	Criteria	Analytical Results		Reduction
		Pre-Control	Post-Control	
		mg/L	mg/	
2/11/2014	TSS	71.0	52.0	26.76%
	Cu	0.138	0.102	26.09%
	Zn	0.872	0.680	22.02%
	pH	7.05	7.05	0.00
2/26/2014	TSS	5.30	10.70	-101.89%
	Cu	0.02	0.02	-10.00%
	Zn	0.41	0.30	25.85%
	pH	7.27	7.30	-0.03
3/11/2014	TSS	19.00	42.00	-121.05%
	Cu	0.10	0.07	27.08%
	Zn	1.09	0.60	44.68%
	pH	7.11	7.21	-0.10
3/28/2014	TSS	72.00	48.00	33.33%
	Cu	0.07	0.03	57.53%
	Zn	0.92	0.52	43.78%
	pH	8.25	7.71	0.54

Sample Date	Criteria	Analytical Results		Reduction
		Pre-Control	Post-Control	
		mg/L	mg/	
6/13/2014	TSS	7.90	14.60	-84.81%
	Cu	0.05	0.05	-6.25%
	Zn	0.50	0.60	-19.64%
	pH	7.37	7.14	0.23
7/11/2014	TSS	69.00	227.00	-228.99%
	Cu	0.19	0.12	38.66%
	Zn	0.988	0.896	9.31%
	pH	7.21	7.21	0.00
7/18/2014	TSS	147.00	175.00	-19.05%
	Cu	0.10	0.24	-156.84%
	Zn	0.63	1.11	-76.75%
	pH	8.21	8.00	0.21
10/2/2014	TSS	394.00	1360.00	-245.18%
	Cu	0.61	1.17	-92.12%
	Zn	5.37	8.91	-65.92%
	pH	8.33	7.87	0.46
10/3/2014	TSS	730.00	1170.00	-60.27%
	Cu	0.31	0.53	-73.53%
	Zn	2.48	4.71	-89.92%
	pH	7.56	7.48	0.08

Table 4: Analytical Results for FiltrexxSediment Control®

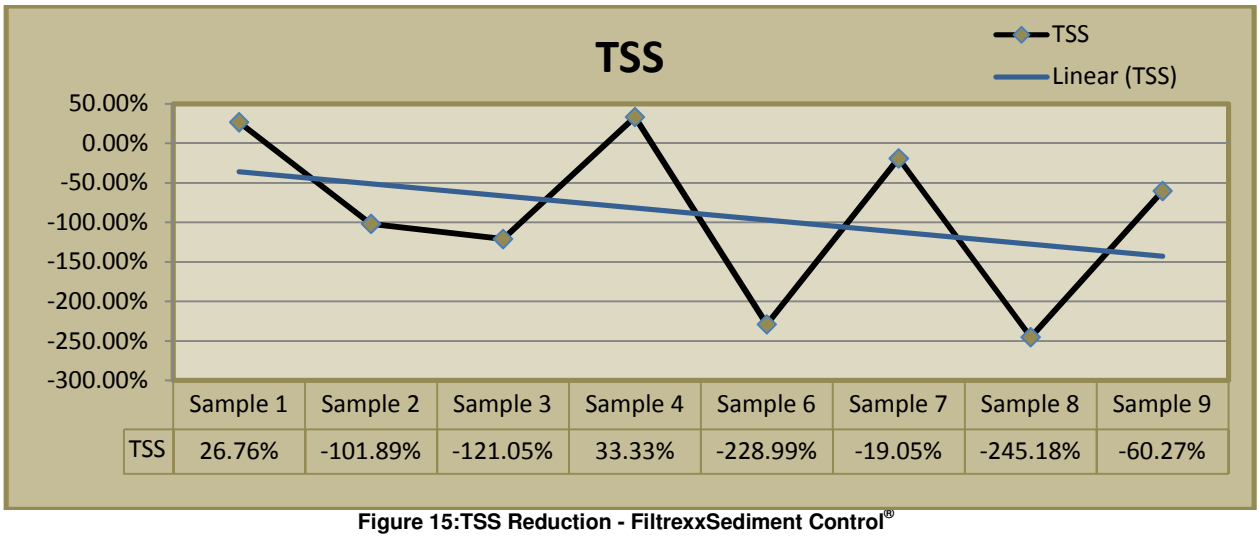
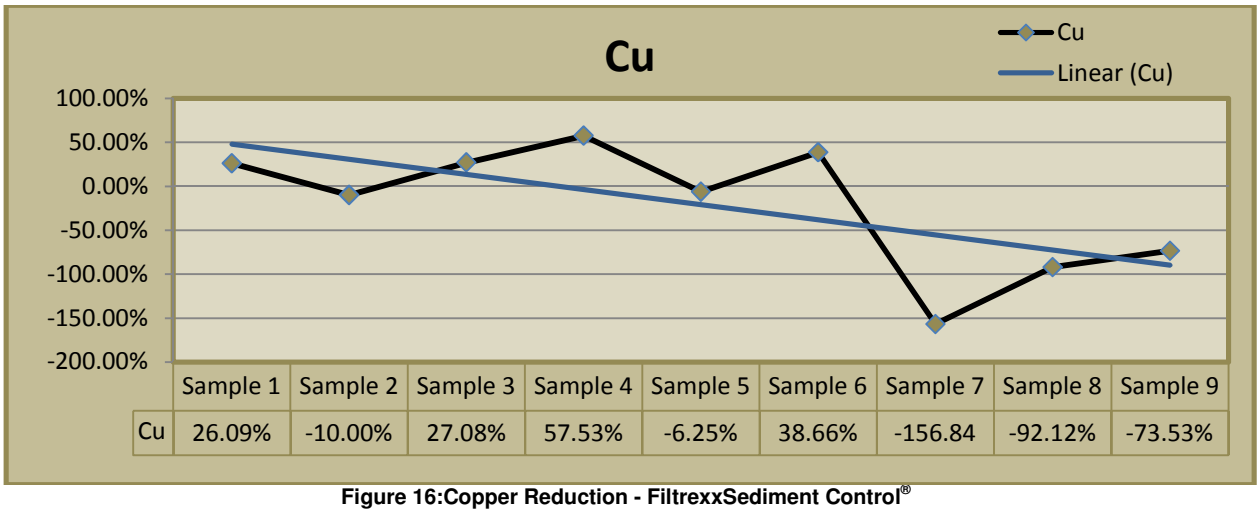
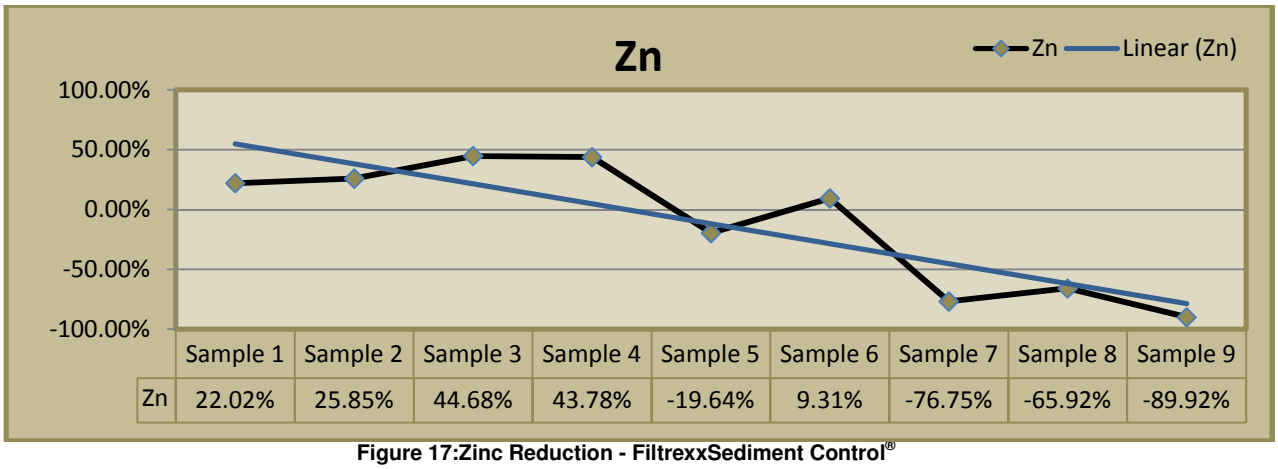


Figure 15:TSS Reduction - FiltrexxSediment Control®



	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8	Sample 9
Cu	26.09%	-10.00%	27.08%	57.53%	-6.25%	38.66%	-156.84	-92.12%	-73.53%

Figure 16:Copper Reduction - FiltrexxSediment Control®



	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8	Sample 9
Zn	22.02%	25.85%	44.68%	43.78%	-19.64%	9.31%	-76.75%	-65.92%	-89.92%

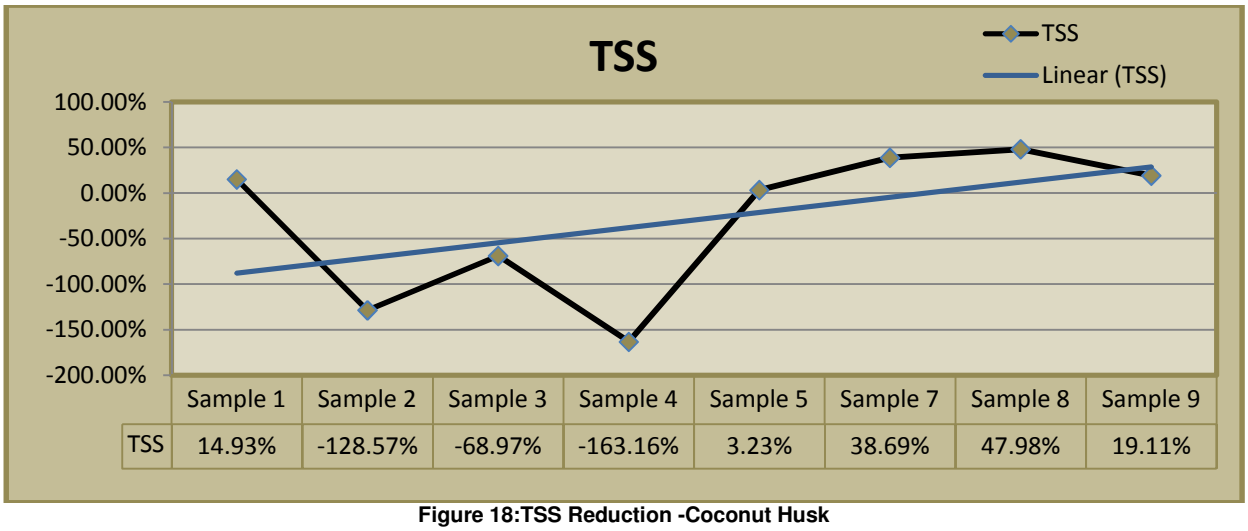
Figure 17:Zinc Reduction - FiltrexxSediment Control®

3.5.2 Material #5- Coconut Husk

Analytical results for coconut huskvaried throughout the project. Sampling analyses are detailed in Table 5 below while Figures 18, 19, and 20 graphically represent percent reductions in TSS, Cu, and Zn, respectively, for the control technology over the life of the project. Blue trend lines are incorporated in the figures. Based upon standard deviations, no outliers were observed in samples sets for this control technology. The trend lines for Cu and Zn represent a degradation rate over the course of the project, with Zn being more pronounced and Cu being more gradual. TSS analytical results displayed an increase in removal efficiency throughout the project, similar to the Ultra-Filter Sock®, the other material tested in the slurry pit. Both materials tested in the slurry pit showed similar trends. Until the fourth sampling event, removal efficiencies of TSS decreased into the negative significantly. Beginning on the fifth sampling event, a slight removal efficiency was observed.

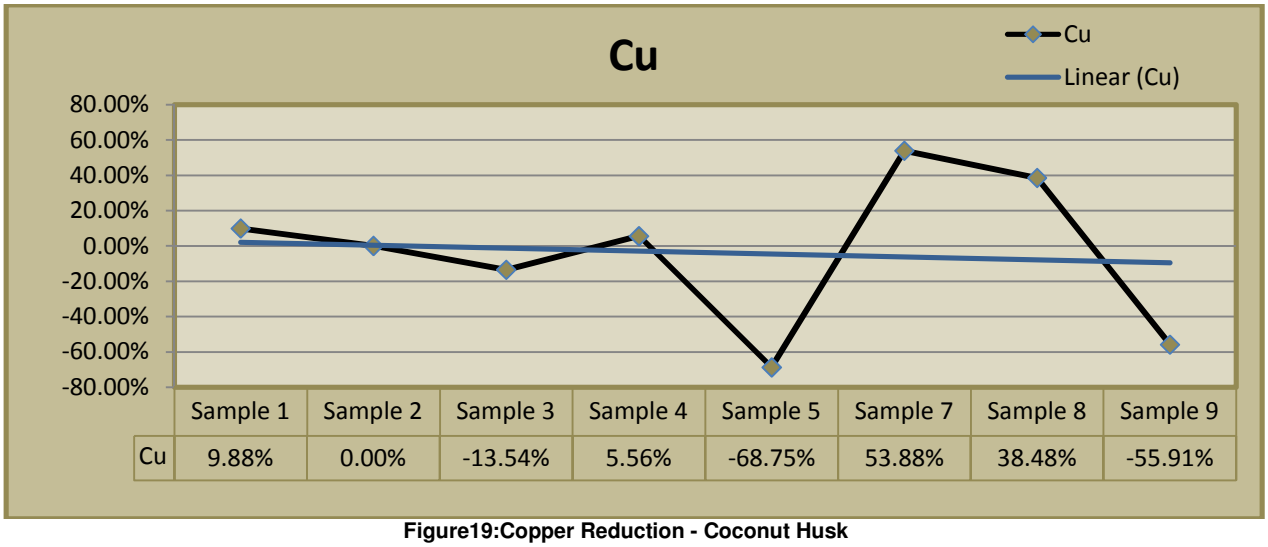
Sample Date	Criteria	Analytical Results		Reduction
		Pre-Control	Post-Control	
		mg/L	mg/	
2/11/2014	TSS	67.0	57.0	14.93%
	Cu	0.081	0.073	9.88%
	Zn	2.920	1.860	36.30%
	pH	7.50	7.02	0.48
2/26/2014	TSS	2.80	6.40	-128.57%
	Cu	0.00	0.00	0.00%
	Zn	0.51	0.51	0.00%
	pH	7.31	7.18	0.13
3/11/2014	TSS	58.00	98.00	-68.97%
	Cu	0.10	0.11	-13.54%
	Zn	2.15	2.53	-17.67%
	pH	7.54	7.75	-0.21
3/28/2014	TSS	5.70	15.00	-163.16%
	Cu	0.02	0.02	5.56%
	Zn	0.61	0.55	11.07%
	pH	7.03	6.88	0.15
6/13/2014	TSS	93.00	90.00	3.23%
	Cu	0.02	0.03	-68.75%
	Zn	1.17	1.30	-11.11%
	pH	7.30	7.24	0.06
7/11/2014	TSS	Sample was not obtained due to sediment buildup from abrasive blasting in the slurry pit. Storm water did not drain to control technology.		
	Cu			
	Zn			
	pH			
7/18/2014	TSS	274.00	168.00	38.69%
	Cu	0.25	0.11	53.88%
	Zn	10.20	6.05	40.69%
	pH	8.25	8.24	0.01
10/2/2014	TSS	642.00	334.00	47.98%
	Cu	0.51	0.32	38.48%
	Zn	4.09	4.00	2.20%
	pH	8.33	8.13	0.20
10/3/2014	TSS	1570.00	1270.00	19.11%
	Cu	0.74	1.16	-55.91%
	Zn	5.18	7.98	-54.05%
	pH	7.88	7.89	-0.01

Table 5: Analytical Results for Coconut Husk



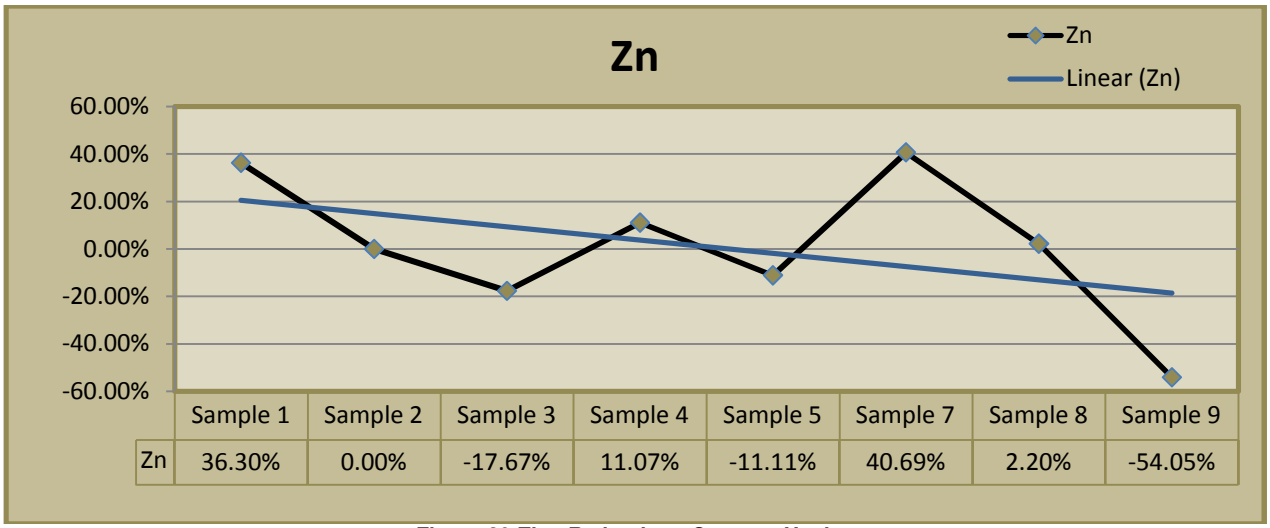
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 7	Sample 8	Sample 9
TSS	14.93%	-128.57%	-68.97%	-163.16%	3.23%	38.69%	47.98%	19.11%

Figure 18:TSS Reduction -Coconut Husk



	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 7	Sample 8	Sample 9
Cu	9.88%	0.00%	-13.54%	5.56%	-68.75%	53.88%	38.48%	-55.91%

Figure19:Copper Reduction - Coconut Husk



	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 7	Sample 8	Sample 9
Zn	36.30%	0.00%	-17.67%	11.07%	-11.11%	40.69%	2.20%	-54.05%

Figure 20:Zinc Reduction - Coconut Husk

3.5.3 Material #6 - Pine Bark

The pine bark media selected for this project was untreated log shavings from a local timber industry. Socks were ordered from Filtrexx to be used as the casing. The material was impregnated into the Filtrexx socks to create wattles of similar length and diameter as the other control technologies being tested. Throughout the project, the pine bark wattles allowed no measurable flow to pass through. As composted material is utilized in other control technologies used in this project, it is believed that the natural pine bark material experienced early degradation and decomposition, which resulted in compacted contentswithin the wattles and no storm water penetration. As a result, no samples were obtained from this material.

3.6 Cost Analysis

Average removal efficiencies over the life of the project were compared against the cost of each technology. Results can be observed in Table 6 below. During this project, the technology with the greatest average removal of Cu and Zn over the life of the project was CleanwayMetalzorb™. This technology yielded an average Cu removal efficiency of 0.23% per dollar and an average Zn removal efficiency of 0.21% per dollar. All other media, with the exclusion of coconut husk for Zn removal, returned negative removal efficiencies per dollar over the life of the project. It is believed that removal efficiencies are potentially much lower than would be expected in a fully controlled setting and by not using technologies past the point where they are no longer effective. On an operating shipyard, complications and issues arise often that jeopardize the control installations. In addition, changes in operations that contribute to storm water pollution vary significantly and at a rapid pace. The complications and issues observed during this project, which are believed to have affected removal efficiencies, are discussed in Section 4.0.

Technology	Average Removal Efficiency				Cost per linear foot	Cu Removal per Dollar	Zn Removal per Dollar
	TSS	Copper	Zinc	pH			
Ultra-Filter Sock®	-801.31%	-66.13%	-45.35%	0.06	$15.44	-4.28%	-2.94%
CleanwayMetalzorb™	10.00%	24.90%	22.84%	0.01	$109.90	0.23%	0.21%
FiltrexxEnviroSoxx®	-67.83%	-17.79%	-7.29%	0.14	$11.25	-1.58%	-0.65%
FiltrexxSediment Control®	-71.52%	-21.04%	-11.84%	0.15	$2.50	-8.42%	-4.74%
Coconut Husk	-29.60%	-3.80%	0.93%	0.10	$10.62	-0.36%	0.09%
Pine Bark	-	-	-	0.00	$8.35	-	-

Table 6: Cost AnalysisOver the Life of the Project

To counteract issues and data from ineffective use of technologies, each technology's removal efficiencies have also been determined based upon a perceived effective use time period. This was determined by reviewing data and selecting an average time in sampling where removal efficiencies

decreased below zero. The determination was based upon heavy metals removal efficiencies alone. Again, as seen inTable 7, the greatest removal efficiencies were by CleanwayMetalzorb™. In terms of costs, however, Filtrexx Sediment Control®showed the greatest removal of Cu and Zn per initial investment dollar over the effective use of the product.

Technology	Effective Use (# of samples)	Average Removal Efficiency				Cost per linear foot	Cu Removal per Dollar	Zn Removal per Dollar
		TSS	Copper	Zinc	pH			
Ultra-Filter Sock®	3	-1523.89%	-5.09%	8.17%	-0.08	$15.44	-0.33%	0.53%
CleanwayMetalzorb™	5	-63.36%	53.74%	54.53%	0.04	$109.90	0.49%	0.50%
FiltrexxEnviroSoxx®	4	-31.00%	8.52%	11.06%	0.10	$11.25	0.76%	0.98%
FiltrexxSediment Control®	4	-40.71%	25.18%	34.08%	0.10	$2.50	10.07%	13.63%
Coconut Husk	4	-86.44%	0.47%	7.43%	0.14	$10.62	0.04%	0.70%
Pine Bark	0	-	-	-	-	$8.35	-	-

Table 7: Cost Analysis During Effective Use

To further compare a relative cost for each material, the cost per linear foot per effective sample has been determined. Table 8 represents a value for each control technology. The value defines the cost associated with a single effective use for each control technology. Again, in this project, Filtrexx Sediment Control® yielded the least cost per effective use. It is important to note that CleanwayMetalzorb™ had the highest cost.

Technology	Effective Use (# of samples)	Total Cost of Purchase	Total Material (ft)	Cost per linear foot	Cost per linear foot per effective sample
Ultra-Filter Sock®	3	$139.00	9	$15.44	$5.15
CleanwayMetalzorb™	5	$1,318.80	12	$109.90	$21.98
FiltrexxEnviroSoxx®	4	$1,800.00	160	$11.25	$2.81
FiltrexxSediment Control®	4	$400.00	160	$2.50	$0.63
Coconut Husk	4	$127.43	12	$10.62	$2.65
Pine Bark	0	$100.23	12	$8.35	-

Table 8: Cost Analysis Per Effective Sample

3.7 Disposal Requirements

After sampling was finalized, a Toxicity Characteristic Leaching Procedure (TCLP) analysiswas performed on each of the six (6) control technologies to determine if any materials would be classified as a hazardous waste after treating shipyard storm water runoff. The analytical results indicated that none of the control technologiesfor this project were classified as characteristic wastes and the spent materialsare

also not listed wastes; therefore,the spent materials were able to be disposed of as a solid waste. Table 9 below summarizes the results. A copy of the TCLP analyses has been provided as Appendix B.

Parameter	Units	MRL	Limit	FiltrexxEnviroSoxx®	Filtrexx Sediment Control®	CleanwayMetalzorb™	Pine Bark	Ultra-Filter Sock®	Coconut Husk
Arsenic	mg/L	0.100	5.0	ND	ND	ND	ND	ND	ND
Barium	mg/L	0.500	100.0	ND	1.00	1.12	ND	ND	1.39
Cadmium	mg/L	0.100	1.0	ND	ND	ND	ND	ND	ND
Chromium	mg/L	0.100	5.0	ND	ND	ND	ND	ND	ND
Lead	mg/L	0.100	5.0	ND	ND	ND	ND	ND	ND
Selenium	mg/L	0.100	1.0	ND	ND	ND	ND	ND	ND
Silver	mg/L	0.100	5.0	ND	ND	ND	ND	ND	ND
Mercury	mg/L	0.015	0.2	ND	ND	ND	ND	ND	ND
Copper	mg/L	0.100	-	ND	ND	0.241	ND	0.225	0.213
Zinc	mg/L	0.100	-	0.808	1.700	2.820	2.190	16.300	100.000

Table 9: TCLP Analyses

The sand used in sand bags was analyzed and also determined to not have any hazardous characteristics that would alter sample results. The numerous sand bags and sand used in this project could have been disposed of as a solid waste. TCLP analysis results can be seen in Table 10.

Parameter	Units	MRL	Limit	Sand
Arsenic	mg/L	0.250	5.0	ND
Barium	mg/L	0.500	100.0	ND
Cadmium	mg/L	0.100	1.0	ND
Chromium	mg/L	0.100	5.0	ND
Lead	mg/L	0.250	5.0	ND
Selenium	mg/L	0.250	1.0	ND
Silver	mg/L	0.100	5.0	ND
Mercury	mg/L	0.015	0.2	ND
Copper	mg/L	0.100	N/A	ND
Zinc	mg/L	0.100	N/A	ND

Table 10: TCLP Analyses

4.0 PROJECT COMPLICATIONS AND ISSUES

During the course of the project, several complications and issues were encountered that hindered the progress and/or impacted the results that were obtained from the project. Each issue encountered is discussed below:

- System configurations, particularly in the production bays, were installed in active working areas. Throughout the project, damage occurred on multiple occasions from equipment driving over the sand bags. In addition, control technologies were relocated by people working in the areas, presumably to prevent damage. Therefore, multiple rain events did not result in samples being taken as water was not held in the bays. The repeated relocation of control technologies resulted in the wattle casings being compromised with tears, so new cases had to be placed on multiple technologies. In addition, the effective life of the controls lapsed without sample collections presumably resulting in lower efficiencies over time.
- During a storm event after initial deployment of the control technologies and sand bags, storm water was observed leaching through the sand bags and avoiding the control technology. The configurations were improved by adding additional sand bags and utilizing spray foam in bag crevices and crane tracks to prevent the leaching. Spray foam was used on multiple occasions to seal any voids that allowed storm water to bypass the control technology.
- Storm water was observed passing under, and attempting to go around control materials. Initially, it is believed that head pressure in the sheet flow existed in quantities too small to create flow through the technologies. Sand bags were utilized to allow the storm water to accumulate. As the project progressed, materials became more inundated with sediment and other constituents over the course of the project. To alleviate the issue of insufficient head pressure, control technologies were decreased from three (3) wattles each down to two (2) wattles each. This decrease occurred during the July 11, 2014 sampling event, approximately five (5) months after the technologies were initially deployed. The issue is not believed to be a direct result of degradation of material, but more of a result of product coating or of dense treatment technologies requiring higher head pressure to allow storm water to pass through three (3) parallel wattles.
- In June 2014, the two (2) production bays housed production on large modules that spanned nearly the entire length of each bay. As a result, the surface area within the production bays that were exposed to storm water was significantly reduced. The presence of the modules existed throughout the remainder of the project, which ended in October 2014. Two (2) sample sets were taken in July and two (2) were taken in October. Much larger rain events were required to create a conveyance of water for adequate sampling. Multiple rain events occurred during this five (5) month time period that did not result in enough flow for samples to be taken.

- In July 2014, the slurry pit was observed as having a large accumulation of abrasive blasting material near the control technologies. This buildup prevented samples from being taken, but was later alleviated for future events. However, it is possible that this contact reduced the life expectancy and ability to control the monitored pollutants.

5.0 CONCLUSIONS AND RECOMMENDATIONS

One of the objectives of the project was to analyze sample results to determine overall reduction efficiencies for each control technology. Upon analysis of the entire set of data from each technology, there appeared to be a general relationship, or correlation, between the amount of Cu removed and the amount of Zn removed for each technology. Although TSS, Zn, and Cu followed similar trends at times in the project, no consistent, direct correlations appeared that would suggest TSS reductions played a significant role in reducing total recoverable metals in storm water runoff. The reduction rates of TSS and heavy metals fluctuated throughout the project, due in part to changes in operation and impacts to the deployed configurations.While TSS varied more significantly, Cu and Zn removal efficiencies displayed a general degradation over the course of the project. The simple mechanical filtrations also displayed noticeable removal efficienciesuntil the point of a perceived end of the effective use period, at which point the material was no longer consistent in removing heavy metals,.

Ultimately, the reduction efficiencies and costs were compared to determine the most cost-effective means of removing heavy metals from shipyard storm water runoff. For this project, Table 11 below depicts a summary for each control technology, including the effective use during this project, a cost per linear foot per effective sample, and average Cu and Zn removal efficiencies per dollar during the effective use period. In comparison, Filtrexx Sediment Control® yielded the least expense per effective sample combined with the greatest Cu and Zn average removal efficiencies over the effective use period of 4 sample events.

Technology	Effective Use (# of samples)	Cost per linear foot per effective sample	Cu Removal per Dollar	Zn Removal per Dollar
Ultra-Filter Sock®	3	$5.15	-0.33%	0.53%
CleanwayMetalzorb™	5	$21.98	0.49%	0.50%
FiltrexxEnviroSoxx®	4	$5.63	0.76%	0.98%
FiltrexxSediment Control®	4	$0.63	10.07%	13.63%
Coconut Husk	4	$2.65	0.04%	0.70%
Pine Bark	0	-	-	-

Table 11: Project Summary of Results

The effective use period for all technologies was likely reduced from complications early on in the project. Degradation of materials occurred from exposure to the elements during periods when samples were not able to be taken. As a result of the issues noted previously in this report, samples were not able to be taken during multiple rain events. It is highly recommended that any deployed materials be located in a manner which specifically limits disturbance and destruction from site operations.

APPENDICES

APPENDIX A

ANALYTICAL RESULTS

MICRO-METHODS
LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228.875.6420 Phone
228.875.6423 Fax

February 13, 2014

Jake White

Work Order # : 1402196

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs, MS 39566

Purchase Order #:

RE: Metals Removal

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 02/11/14 12:48. If you have any questions concerning this report, please feel free to contact the office.

Sincerely,

Harry P. Howell

President
Micro-Methods Laboratory, Inc.

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Metals Removal
Project Number: SCRA
Project Manager: Jake White

Reported:
02/13/14 15:55

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
Ultra F Un.	1402196-01	Water	02/11/14 10:20	*Jake White*	02/11/14 12:48
Ultra F Cont.	1402196-02	Water	02/11/14 10:20	*Jake White*	02/11/14 12:48
Cleanway Cont.	1402196-03	Water	02/11/14 09:55	*Jake White*	02/11/14 12:48
Cleanway Uncont.	1402196-04	Water	02/11/14 09:55	*Jake White*	02/11/14 12:48
COC Cont.	1402196-05	Water	02/11/14 10:10	*Jake White*	02/11/14 12:48
COC Un.	1402196-06	Water	02/11/14 10:10	*Jake White*	02/11/14 12:48
FMU	1402196-07	Water	02/11/14 09:30	*Jake White*	02/11/14 12:48
FMC	1402196-08	Water	02/11/14 09:30	*Jake White*	02/11/14 12:48
FMU Metal	1402196-09	Water	02/11/14 09:40	*Jake White*	02/11/14 12:48
FMC Metal	1402196-10	Water	02/11/14 09:40	*Jake White*	02/11/14 12:48

Sample Receipt Conditions

Date/Time Received: 2/11/2014 12:48
Received by: Sarah E. Tomek
Date/Time Logged: 2/11/2014 12:59
Cooler ID: #700

Shipped by: Client Delivery
Submitted by: Justin Bates
Logged by: Sarah E. Tomek
Receipt Temperature: 2.7 °C

Custody Seals	*No*	*Received on Ice*	*Yes*
Containers Intact	*Yes*	*No Ice, Short Trip*	*No*
COC/Labels Agree	*Yes*	*Obvious Contamination*	*No*
Labels Complete	*No*	*Rush to meet HT*	*No*
COC Complete	*Yes*		

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Metals Removal Project Number: SCRA Project Manager: Jake White	**Reported:** 02/13/14 15:55

CASE NARRATIVE SUMMARY

All reported results are within Micro-Methods Laboratory, Inc.defined laboratory quality control objectives unless detailed in narrative summary or identified as qualifications. NOTE: All results listed on this report are calculated on a wet weight basis (as received by the laboratory) unless otherwise noted in the analysis qualification sections.

Summary Comments: *No Summary Comments*

Qualification: *No Data Qualification*

Analyte & Samples(s) Qualified: *None*

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Metals Removal
Project Number: SCRA
Project Manager: Jake White

Reported:
02/13/14 15:55

Ultra F Un.

1402196-01 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**33.0**	1.0	mg/L	1	4B12010	DLW	02/11/14 13:45	02/11/14 13:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.047**	0.010	mg/L	1	4B12005	SCH	02/12/14 09:30	02/12/14 14:23	EPA 200.7	
Zinc	**1.42**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Metals Removal
Project Number: SCRA
Project Manager: Jake White

Reported:
02/13/14 15:55

Ultra F Cont.

1402196-02 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**815**	1.0	mg/L	1	4B12010	DLW	02/11/14 13:45	02/11/14 13:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.061**	0.010	mg/L	1	4B12005	SCH	02/12/14 09:30	02/12/14 14:33	EPA 200.7	
Zinc	**1.43**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Metals Removal
Project Number: SCRA
Project Manager: Jake White

Reported:
02/13/14 15:55

Cleanway Cont.

1402196-03 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**24.0**	1.0	mg/L	1	4B12010	DLW	02/11/14 13:45	02/11/14 13:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.095**	0.010	mg/L	1	4B12005	SCH	02/12/14 09:30	02/12/14 14:37	EPA 200.7	
Zinc	**0.412**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Metals Removal
Project Number: SCRA
Project Manager: Jake White

Reported:
02/13/14 15:55

Cleanway Uncont.

1402196-04 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**281**	1.0	mg/L	1	4B12010	DLW	02/11/14 13:45	02/11/14 13:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**2.12**	0.010	mg/L	1	4B12005	SCH	02/12/14 09:30	02/12/14 14:41	EPA 200.7	
Zinc	**7.84**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Metals Removal
Project Number: SCRA
Project Manager: Jake White

Reported:
02/13/14 15:55

COC Cont.

1402196-05 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**57.0**	1.0	mg/L	1	4B12010	DLW	02/11/14 13:45	02/11/14 13:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.073**	0.010	mg/L	1	4B12005	SCH	02/12/14 09:30	02/12/14 14:45	EPA 200.7	
Zinc	**1.86**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Metals Removal
Project Number: SCRA
Project Manager: Jake White

Reported:
02/13/14 15:55

COC Un.

1402196-06 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**67.0**	1.0	mg/L	1	4B12010	DLW	02/11/14 13:45	02/11/14 13:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.081**	0.010	mg/L	1	4B12005	SCH	02/12/14 09:30	02/12/14 14:49	EPA 200.7	
Zinc	**2.92**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Metals Removal
Project Number: SCRA
Project Manager: Jake White

Reported:
02/13/14 15:55

FMU

1402196-07 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**71.0**	1.0	mg/L	1	4B12010	DLW	02/11/14 13:45	02/11/14 13:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.138**	0.010	mg/L	1	4B12005	SCH	02/12/14 09:30	02/12/14 14:53	EPA 200.7	
Zinc	**0.872**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Metals Removal
Project Number: SCRA
Project Manager: Jake White

Reported:
02/13/14 15:55

FMC

1402196-08 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**52.0**	1.0	mg/L	1	4B12010	DLW	02/11/14 13:45	02/11/14 13:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.102**	0.010	mg/L	1	4B12005	SCH	02/12/14 09:30	02/12/14 14:57	EPA 200.7	
Zinc	**0.680**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Metals Removal
Project Number: SCRA
Project Manager: Jake White

Reported:
02/13/14 15:55

FMU Metal

1402196-09 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**33.0**	1.0	mg/L	1	4B12010	DLW	02/11/14 13:45	02/11/14 13:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.089**	0.010	mg/L	1	4B12005	SCH	02/12/14 09:30	02/12/14 15:01	EPA 200.7	
Zinc	**0.565**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Metals Removal
Project Number: SCRA
Project Manager: Jake White

Reported:
02/13/14 15:55

FMC Metal

1402196-10 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**46.0**	1.0	mg/L	1	4B12010	DLW	02/11/14 13:45	02/11/14 13:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.100**	0.010	mg/L	1	4B12005	SCH	02/12/14 09:30	02/12/14 15:05	EPA 200.7	
Zinc	**0.585**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Metals Removal
Project Number: SCRA
Project Manager: Jake White

Reported:
02/13/14 15:55

Classical Chemistry Parameters - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4B12010 - Default Prep GenChem										
Blank (4B12010-BLK1)							***Prepared & Analyzed: 02/11/14***			
Total Suspended Solids	ND	1.0	mg/L							
LCS (4B12010-BS1)							***Prepared & Analyzed: 02/11/14***			
Total Suspended Solids	84.0		mg/L	100		84.0	75-125			
LCS Dup (4B12010-BSD1)							***Prepared & Analyzed: 02/11/14***			
Total Suspended Solids	83.0		mg/L	100		83.0	75-125	1.20	25	
Duplicate (4B12010-DUP1)		**Source: 1402196-10**					***Prepared & Analyzed: 02/11/14***			
Total Suspended Solids	48.0	1.0	mg/L		46.0			4.26	5	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Metals Removal
Project Number: SCRA
Project Manager: Jake White

Reported:
02/13/14 15:55

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4B12005 - EPA 200.2										
Blank (4B12005-BLK1)						***Prepared & Analyzed: 02/12/14***				
Copper	ND	0.010	mg/L							
Zinc	ND	0.020	"							
LCS (4B12005-BS1)						***Prepared & Analyzed: 02/12/14***				
Copper	0.212	0.010	mg/L	0.200		106	85-115			
Zinc	0.203	0.020	"	0.200		102	85-115			
LCS Dup (4B12005-BSD1)						***Prepared & Analyzed: 02/12/14***				
Copper	0.210	0.010	mg/L	0.200		105	85-115	1.27	20	
Zinc	0.201	0.020	"	0.200		100	85-115	1.22	20	
Matrix Spike (4B12005-MS1)	**Source: 1402196-01**					***Prepared & Analyzed: 02/12/14***				
Copper	0.251	0.010	mg/L	0.200	0.047	102	70-130			
Zinc	1.60	0.020	"	0.200	1.42	89.6	70-130			
Matrix Spike Dup (4B12005-MSD1)	**Source: 1402196-01**					***Prepared & Analyzed: 02/12/14***				
Copper	0.251	0.010	mg/L	0.200	0.047	102	70-130	0.0460	20	
Zinc	1.60	0.020	"	0.200	1.42	92.1	70-130	0.303	20	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Metals Removal Project Number: SCRA Project Manager: Jake White	**Reported:** 02/13/14 15:55

Certified Analyses Included in this Report

Analyte	Certification Code
EPA 200.7 in Water	
Aluminum	C01,C02
Antimony	C01,C02
Arsenic	C01,C02
Barium	C01,C02,C04
Beryllium	C01,C02,C04
Boron	C01,C02
Cadmium	C01,C02,C04
Calcium	C01,C02,C04
Chromium	C01,C02,C04
Cobalt	C01,C02
Copper	C01,C02,C04
Iron	C01,C02,C04
Lead	C01,C02,C04
Magnesium	C01,C02
Manganese	C01,C02
Molybdenum	C01,C02
Nickel	C01,C02,C04
Potassium	C01,C02
Selenium	C01,C02,C04
Silver	C01,C02
Sodium	C01,C02,C04
Strontium	C01,C02
Thallium	C01,C02
Tin	C01,C02
Titanium	C01,C02,C04
Vanadium	C01,C02
Zinc	C01,C02
Phosphorus	C01,C02
SM 2540 D in Water	
Total Suspended Solids	C01,C02

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Metals Removal
Project Number: SCRA
Project Manager: Jake White

Reported:
02/13/14 15:55

Laboratory Accreditations/Certifications

Code	Description	Number	Expires
C01	*La Environmental Lab Accreditation Program*	*01960*	*06/30/2014*
C02	*National Environmental Lab Accreditation Program*	*TNI01397*	*06/30/2014*
C03	*Ms Dept of Health (Coliform)*	*MS00021*	*12/31/2014*
C04	*Ms Dept of Health (Drinking Water Certificate)*	*MS00021*	*12/31/2014*
C05	*Ms DEQ Lead Firm Certification*	*PBF-00000028*	*10/15/2014*
C06	*MsDEQ Asbestos Inspector : C.D. Bingham*	*ABI-00001348*	*04/19/2014*
C07	*MsDEQ Air Monitor : C.D. Bingham*	*AM-011572*	*04/04/2014*
C08	*MsDEQ Asbestos Inspector: C. W. Meins*	*ABI-00001821*	*10/03/2014*
C09	*MsDEQ Air Monitor : C.W. Meins*	*AM-011189*	*04/04/2014*
C12	*MsDEQ Asbestos Inspector : H.P. Howell*	*ABI-00001345*	*05/23/2014*
C13	*MsDEQ Air Monitor: H.P. Howell*	*ABM-00001344*	*03/22/2014*
C14	*MsDEQ Lead Paint Inspector : C.D. Bingham*	*PBI-00003690*	*03/30/2014*
C15	*MsDEQ Lead Paint Inspector : C.W. Meins*	*PBI-00001740*	*03/30/2014*

Report Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the minimum reporting limit
NR	Not Reported
RPD	Relative Percent Difference
ICV	Initial Calibration Verfiication
CCV	Continuing Calibration Verification Standard
SSV	Secondary Source Verfication Standard
LCS	Lab Control Spike - Lab matrix prepared with known concentration of analyte/s of interest analyzed by method.
MS	Matrix Spike - Sample prepared with known concentration of analyte/s of interest analyzed by method.
MSD	Matrix Spike Duplicate - Duplicate sample prepared with known concentration of anlayte/s of interest analyzed by method.
MRL	Minimum Reporting Limit
%REC	Percentage Recovery of known concentration added to matrix
Batch	Group of samples prepared for analysis not to exceed 20 samples.
Matrix	Material containing analyte/s of interest
Surrogate	Analyte added to sample to determine extraction efficiency of method.

MICRO-METHODS LABORATORY, INC.
6500 Sunplex Drive, Ocean Springs, MS 39564
(228) 875-6420 FAX (228) 875-6423
www.micromethodslab.com

Chain of Custody Record

M-M Lab WO # 1402196

Company Name: Environmental Compliance Services
Address:
City: State: Zip:
Phone: 228-217-6254
Fax:

Project Manager: Jake White
Purchase Order #:
Email Address: JWhite@envirocomp.net
Sampler Name Printed: Jake White
Sampler Name Signed:

Turn Around Time & Reporting

Our normal turn around time is 7-10 working days

✓ Normal
__Next Day*
__2nd Day*
__Other*_____

*All rush order requests must be prior approved.

__Phone
__Mail
__Fax
__Email

Project Name: Metals Removal
Project #: SCRA

Test Analytes Requested

Sample Identification	Sampling Date/Time	# of Containers	Sample Code	TSS	Metals (Zn, Cu)
ULTRA F UN	2/11/14 1020	2		✓	✓
ULTRA F CONT	1020	2		✓	✓
CLEARWAY CONT	0955	2		✓	✓
CLEARWAY UNCONT	0955	2		✓	✓
COC CONT	1010	2		✓	✓
COC UN	1010	2		✓	✓
FMU	0930	2		✓	✓
FMC	0930	2		✓	✓
FMU METAL	0940	2		✓	✓
FMC METAL	0940	2		✓	✓

Note Special Instructions/Comments

Field pH _____ Collect Time_____ ReadTime _____
Field D.O. _____Collect Time_____ Read Time _____
Field Temp._____Collect Time_____ Read Time _____
QC Level: Level 1 ☐ Level 2 ☐ Level 3 ☐

Matrix Code: W= Water, S= Soil, O= Oil, L= Liquid, SL= Sludge
Sample Code: G= Grab C= Composite

Lab Use Only
Notes

	Signature	Printed Name	Company	Date	Time
Relinquished by		James J. White	ECS	2/11/14	1125
Received by		Justin Bates	ECS	2/11/14	1125
Relinquished by		Justin Bates	ECS	2/11/14	1248
Received by		Sarah Tomek	MM	2/11/14	1248
Relinquished by					
Received by					

Sample Rcvd. on Ice Yes ☒ No ☐
Thermometer # 3 Cooler # 700
Receipt Temp.[°C] 2.7°C Sample ☐ Blank ☒
By: ST
Date & Time _____

	Issue Date: 7/18/11	Micro-Methods Laboratory Log-In Checklist	
	Implementation Date: 7/18/11		DCN: F207
			Date Revised: 7-18-11
			Revision: 4

Client ECS **WO** 1402196 **Shipped By** client SI
Date/Time Received 2/11/14 @ 1248 **Unpacked/Checked By** ____

Cooler ID	Ice Present Yes/No	Temperature	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
#700	yes	2.7°C	T#3	no	n/a

If not iced, were samples received within one hour of collection? Yes ___ No ___ N/A X
Temperature Blank Used Yes X No _____ If not, temperature taken from cooler ____ or bottle____
Multi Cooler shipment: ID of samples in coolers that exceed 6°C_____

Custody Seals on Bottles Present Yes ___ No X
Containers Intact Yes X No___
Proper Containers for Requested Analysis Yes X No___

Correct Preservation Used for All Samples Yes X No___
Adequate Sample for Analysis Requested Yes X No___

Volatile Vials Headspace Greater than 6mm in Diameter Yes ___ No ___ N/A X

Chain of Custody Form Included Yes X No___
Chain of Custody Form Complete Yes X No___
Chain of Custody Form Properly Relinquished Yes X No___
Field Sheets/Special Instructions Included Yes ___ No___ N/A X
Samples Missing on COC or From Cooler Yes ___ No X
Sample Container Labels Match COC Yes X No___

Samples Received Within Holding Time Yes X No___
Dept. Manager Notified of Rush/Short Holding Times Yes ___ No___ N/A X

Does work order meet Micro Methods sample acceptance criteria Yes X No ___
Note: Samples that do not meet acceptance criteria must be documented in the Sample Rejection Log.

Client Contacted _____ **Contacted By** _____ **Date/Time**_____
Client Instructions: Cancel Work Order _____
Proceed with Work Order _____ **(Data will be qualified)**
Comments: _____

LELAP Certification # 01960

6500 Sunplex Drive
Ocean Springs, MS 39564
228.875.6420 Phone
228.875.6423 Fax

March 03, 2014

Jake White

Work Order # : 1402422

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs, MS 39566

Purchase Order #:

RE: SCRA Mult. Controls

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 02/26/14 10:20. If you have any questions concerning this report, please feel free to contact the office.

Sincerely,

Harry P. Howell

President
Micro-Methods Laboratory, Inc.

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: SCRA Mult. Controls
Project Number: [none]
Project Manager: Jake White

Reported:
03/03/14 14:44

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
COC-UN	1402422-01	Water	02/26/14 08:50	*Jake White*	02/26/14 10:20
COC-C	1402422-02	Water	02/26/14 08:58	*Jake White*	02/26/14 10:20
UFUN	1402422-03	Water	02/26/14 09:02	*Jake White*	02/26/14 10:20
UFC	1402422-04	Water	02/26/14 09:25	*Jake White*	02/26/14 10:20
FMUN	1402422-05	Water	02/26/14 07:40	*Jake White*	02/26/14 10:20
FMC	1402422-06	Water	02/26/14 07:50	*Jake White*	02/26/14 10:20
FSUN	1402422-07	Water	02/26/14 07:54	*Jake White*	02/26/14 10:20
FSC	1402422-08	Water	02/26/14 08:08	*Jake White*	02/26/14 10:20
MTLUC	1402422-09	Water	02/26/14 08:20	*Jake White*	02/26/14 10:20
MTLC	1402422-10	Water	02/26/14 08:35	*Jake White*	02/26/14 10:20

Sample Receipt Conditions

Date/Time Received: 2/26/2014 10:20
Received by: Sarah E. Tomek
Date/Time Logged: 2/26/2014 10:35
Cooler ID: #700

Shipped by: Client Delivery
Submitted by: Jake White
Logged by: Sarah E. Tomek
Receipt Temperature: 5.1 °C

Custody Seals	*No*	*Received on Ice*	*Yes*
Containers Intact	*Yes*	*No Ice, Short Trip*	*No*
COC/Labels Agree	*Yes*	*Obvious Contamination*	*No*
Labels Complete	*No*	*Rush to meet HT*	*No*
COC Complete	*Yes*		

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: SCRA Mult. Controls Project Number: [none] Project Manager: Jake White	**Reported:** 03/03/14 14:44

CASE NARRATIVE SUMMARY

All reported results are within Micro-Methods Laboratory, Inc.defined laboratory quality control objectives unless detailed in narrative summary or identified as qualifications. NOTE: All results listed on this report are calculated on a wet weight basis (as received by the laboratory) unless otherwise noted in the analysis qualification sections.

Summary Comments: *No Summary Comments*

Qualification: *No Data Qualification*

Analyte & Samples(s) Qualified: *None*

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: SCRA Mult. Controls
Project Number: [none]
Project Manager: Jake White

Reported:
03/03/14 14:44

COC-UN

1402422-01 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**2.8**	1.0	mg/L	1	4B26010	DLW	02/26/14 12:00	02/26/14 12:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	ND	0.010	mg/L	1	4B28005	SCH	02/28/14 08:45	02/28/14 12:16	EPA 200.7	
Zinc	**0.509**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: SCRA Mult. Controls
Project Number: [none]
Project Manager: Jake White

Reported:
03/03/14 14:44

COC-C

1402422-02 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**6.4**	1.0	mg/L	1	4B26010	DLW	02/26/14 12:00	02/26/14 12:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	ND	0.010	mg/L	1	4B28005	SCH	02/28/14 08:45	02/28/14 12:25	EPA 200.7	
Zinc	**0.509**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: SCRA Mult. Controls
Project Number: [none]
Project Manager: Jake White

Reported:
03/03/14 14:44

UFUN

1402422-03 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**3.4**	1.0	mg/L	1	4B26010	DLW	02/26/14 12:00	02/26/14 12:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	ND	0.010	mg/L	1	4B28005	SCH	02/28/14 08:45	02/28/14 12:30	EPA 200.7	
Zinc	**0.388**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: SCRA Mult. Controls
Project Number: [none]
Project Manager: Jake White

Reported:
03/03/14 14:44

UFC

1402422-04 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**76.0**	1.0	mg/L	1	4B26010	DLW	02/26/14 12:00	02/26/14 12:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	ND	0.010	mg/L	1	4B28005	SCH	02/28/14 08:45	02/28/14 12:34	EPA 200.7	
Zinc	**0.312**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.	Project: SCRA Mult. Controls	
P O Box 906	Project Number: [none]	**Reported:**
Ocean Springs MS, 39566	Project Manager: Jake White	03/03/14 14:44

FMUN

1402422-05 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**6.1**	1.0	mg/L	1	4B26010	DLW	02/26/14 12:00	02/26/14 12:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.135**	0.010	mg/L	1	4B28005	SCH	02/28/14 08:45	02/28/14 12:38	EPA 200.7	
Zinc	**0.705**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: SCRA Mult. Controls
Project Number: [none]
Project Manager: Jake White

Reported:
03/03/14 14:44

FMC

1402422-06 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**9.4**	1.0	mg/L	1	4B26010	DLW	02/26/14 12:00	02/26/14 12:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.019**	0.010	mg/L	1	4B28005	SCH	02/28/14 08:45	02/28/14 12:42	EPA 200.7	
Zinc	**0.315**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: SCRA Mult. Controls
Project Number: [none]
Project Manager: Jake White

Reported:
03/03/14 14:44

FSUN

1402422-07 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**5.3**	1.0	mg/L	1	4B26010	DLW	02/26/14 12:00	02/26/14 12:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.020**	0.010	mg/L	1	4B28005	SCH	02/28/14 08:45	02/28/14 12:46	EPA 200.7	
Zinc	**0.410**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: SCRA Mult. Controls
Project Number: [none]
Project Manager: Jake White

Reported:
03/03/14 14:44

FSC

1402422-08 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**10.7**	1.0	mg/L	1	4B26010	DLW	02/26/14 12:00	02/26/14 12:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.022**	0.010	mg/L	1	4B28005	SCH	02/28/14 08:45	02/28/14 12:50	EPA 200.7	
Zinc	**0.304**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: SCRA Mult. Controls
Project Number: [none]
Project Manager: Jake White

Reported:
03/03/14 14:44

MTLUC

1402422-09 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**6.9**	1.0	mg/L	1	4B26010	DLW	02/26/14 12:00	02/26/14 12:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.025**	0.010	mg/L	1	4B28005	SCH	02/28/14 08:45	02/28/14 12:54	EPA 200.7	
Zinc	**0.318**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: SCRA Mult. Controls
Project Number: [none]
Project Manager: Jake White

Reported:
03/03/14 14:44

MTLC

1402422-10 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**15.6**	1.0	mg/L	1	4B26010	DLW	02/26/14 12:00	02/26/14 12:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.020**	0.010	mg/L	1	4B28005	SCH	02/28/14 08:45	02/28/14 12:58	EPA 200.7	
Zinc	**0.255**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: SCRA Mult. Controls
Project Number: [none]
Project Manager: Jake White

Reported:
03/03/14 14:44

Classical Chemistry Parameters - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4B26010 - Default Prep GenChem										
Blank (4B26010-BLK1)							***Prepared & Analyzed: 02/26/14***			
Total Suspended Solids	ND	1.0	mg/L							
LCS (4B26010-BS1)							***Prepared & Analyzed: 02/26/14***			
Total Suspended Solids	88.0		mg/L	100		88.0	75-125			
LCS Dup (4B26010-BSD1)							***Prepared & Analyzed: 02/26/14***			
Total Suspended Solids	88.0		mg/L	100		88.0	75-125	0.00	25	
Duplicate (4B26010-DUP1)		**Source: 1402422-04**					***Prepared & Analyzed: 02/26/14***			
Total Suspended Solids	75.0	1.0	mg/L		76.0			1.32	5	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: SCRA Mult. Controls
Project Number: [none]
Project Manager: Jake White

Reported:
03/03/14 14:44

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4B28005 - EPA 200.2										
Blank (4B28005-BLK1)						***Prepared & Analyzed: 02/28/14***				
Copper	ND	0.010	mg/L							
Zinc	ND	0.020	"							
LCS (4B28005-BS1)						***Prepared & Analyzed: 02/28/14***				
Copper	0.199	0.010	mg/L	0.200		99.6	85-115			
Zinc	0.201	0.020	"	0.200		101	85-115			
LCS Dup (4B28005-BSD1)						***Prepared & Analyzed: 02/28/14***				
Copper	0.195	0.010	mg/L	0.200		97.6	85-115	2.00	20	
Zinc	0.196	0.020	"	0.200		97.9	85-115	2.65	20	
Matrix Spike (4B28005-MS1)	**Source: 1402422-01**					***Prepared & Analyzed: 02/28/14***				
Copper	0.202	0.010	mg/L	0.200	0.009	96.4	70-130			
Zinc	0.694	0.020	"	0.200	0.509	92.8	70-130			
Matrix Spike Dup (4B28005-MSD1)	**Source: 1402422-01**					***Prepared & Analyzed: 02/28/14***				
Copper	0.211	0.010	mg/L	0.200	0.009	101	70-130	4.15	20	
Zinc	0.707	0.020	"	0.200	0.509	99.3	70-130	1.86	20	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: SCRA Mult. Controls Project Number: [none] Project Manager: Jake White	**Reported:** 03/03/14 14:44

Certified Analyses Included in this Report

Analyte	Certification Code
EPA 200.7 in Water	
Aluminum	C01,C02
Antimony	C01,C02
Arsenic	C01,C02
Barium	C01,C02,C04
Beryllium	C01,C02,C04
Boron	C01,C02
Cadmium	C01,C02,C04
Calcium	C01,C02,C04
Chromium	C01,C02,C04
Cobalt	C01,C02
Copper	C01,C02,C04
Iron	C01,C02,C04
Lead	C01,C02,C04
Magnesium	C01,C02
Manganese	C01,C02
Molybdenum	C01,C02
Nickel	C01,C02,C04
Potassium	C01,C02
Selenium	C01,C02,C04
Silver	C01,C02
Sodium	C01,C02,C04
Strontium	C01,C02
Thallium	C01,C02
Tin	C01,C02
Titanium	C01,C02,C04
Vanadium	C01,C02
Zinc	C01,C02
Phosphorus	C01,C02
SM 2540 D in Water	
Total Suspended Solids	C01,C02

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: SCRA Mult. Controls Project Number: [none] Project Manager: Jake White	**Reported:** 03/03/14 14:44

Laboratory Accreditations/Certifications

Code	Description	Number	Expires
C01	*La Environmental Lab Accreditation Program*	*01960*	*06/30/2014*
C02	*National Environmental Lab Accreditation Program*	*TNI01397*	*06/30/2014*
C03	*Ms Dept of Health (Coliform)*	*MS00021*	*12/31/2014*
C04	*Ms Dept of Health (Drinking Water Certificate)*	*MS00021*	*12/31/2014*
C05	*Ms DEQ Lead Firm Certification*	*PBF-00000028*	*10/15/2014*
C06	*MsDEQ Asbestos Inspector : C.D. Bingham*	*ABI-00001348*	*04/19/2014*
C07	*MsDEQ Air Monitor : C.D. Bingham*	*AM-011572*	*04/04/2014*
C08	*MsDEQ Asbestos Inspector: C. W. Meins*	*ABI-00001821*	*10/03/2014*
C09	*MsDEQ Air Monitor : C.W. Meins*	*AM-011189*	*04/04/2014*
C12	*MsDEQ Asbestos Inspector : H.P. Howell*	*ABI-00001345*	*05/23/2014*
C13	*MsDEQ Air Monitor: H.P. Howell*	*ABM-00001344*	*03/22/2014*
C14	*MsDEQ Lead Paint Inspector : C.D. Bingham*	*PBI-00003690*	*03/30/2014*
C15	*MsDEQ Lead Paint Inspector : C.W. Meins*	*PBI-00001740*	*03/30/2014*

Report Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the minimum reporting limit
NR	Not Reported
RPD	Relative Percent Difference
ICV	Initial Calibration Verfiication
CCV	Continuing Calibration Verification Standard
SSV	Secondary Source Verfication Standard
LCS	Lab Control Spike - Lab matrix prepared with known concentration of analyte/s of interest analyzed by method.
MS	Matrix Spike - Sample prepared with known concentration of analyte/s of interest analyzed by method.
MSD	Matrix Spike Duplicate - Duplicate sample prepared with known concentration of anlayte/s of interest analyzed by method.
MRL	Minimum Reporting Limit
%REC	Percentage Recovery of known concentration added to matrix
Batch	Group of samples prepared for analysis not to exceed 20 samples.
Matrix	Material containing analyte/s of interest
Surrogate	Analyte added to sample to determine extraction efficiency of method.

MICRO-METHODS LABORATORY, INC.
6500 Sunplex Drive, Ocean Springs, MS 39564
(228) 875-6420 FAX (228) 875-6423
www.micromethodslab.com

Chain of Custody Record

M-M Lab WO # 1402422

Company Name: Environmental Compliance Services (ECS)	Project Manager: Jake White
Address:	Purchase Order #:
City: Ocean Springs State: MS Zip:	Email Address: jwhite@envirocomp.net
Phone: (228) 217-6254	Sampler Name Printed: Jake White
Fax:	Sampler Name Signed: James J. White

Turn Around Time & Reporting

Our normal turn around time is 7-10 working days

✓ Normal
__Next Day*
__2nd Day*
__Other*_____

*All rush order requests must be prior approved.

__Phone
__Mail
__Fax
__Email

Project Name: SCRA Mult. Controls
Project #:

List Analysis Requested

Sample Identification	Sampling Date/Time	# of Containers	Sample Code	TSS	Zinc	Copper
COC-UN	2/26 0850	2		1	1	1
COC-C	2/26 0858	2		1	1	1
UFUN	2/26 0902	2		1	1	1
UFC	2/26 0925	2		1	1	1
FMUN	2/26 0740	2		1	1	1
FMC	2/26 0750	2		1	1	1
FSUN	2/26 0754	2		1	1	1
FSC	2/26 0808	2		1	1	1
MTLUC	2/26 0820	2		1	1	1
MTLC	2/26 0835	2		1	1	1

Note Special Instructions/Comments

Field pH _____ Collect Time_____ ReadTime _____
Field D.O. _____Collect Time_____ Read Time _____
Field Temp._____Collect Time_____ Read Time _____
QC Level: Level 1 ☐ Level 2 ☐ Level 3 ☐

Matrix Code: W= Water, S= Soil, O= Oil, L= Liquid, SL= Sludge
Sample Code: G= Grab C= Composite

Lab Use Only
Notes

	Signature	Printed Name	Company	Date	Time
Relinquished by	James J. White	JAMES J. (JAKE) WHITE	ECS	2/26/14	1020
Received by	Sarah Tomel	Sarah Tomel	MM	2/26/14	1020
Relinquished by					
Received by					
Relinquished by					
Received by					

Sample Rcvd. on Ice Yes ☒ No ☐
Thermometer # 3 Cooler # 700
Receipt Temp (°C) 5.1°C Sample☐ Blank ☒
By: SJ
Date & Time _____

	Issue Date: 7/18/11	Micro-Methods Laboratory Log-In Checklist	
	Implementation Date: 7/18/11		DCN: F207
			Date Revised: 7-18-11
			Revision: 4

Client ECS **WO** 1402422 **Shipped By** client
Date/Time Received 2/26/14@1020 **Unpacked/Checked By** SF

Cooler ID	Ice Present Yes/No	Temperature	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
#700	yes	5.1°C	TT3	no	n/a

If not iced, were samples received within one hour of collection? Yes ___ No ___ N/A Y
Temperature Blank Used Yes X No ___ If not, temperature taken from cooler ___ or bottle ___
Multi Cooler shipment: ID of samples in coolers that exceed 6°C ___

Custody Seals on Bottles Present Yes ___ No X
Containers Intact Yes X No ___
Proper Containers for Requested Analysis Yes X No ___

Correct Preservation Used for All Samples Yes X No ___
Adequate Sample for Analysis Requested Yes X No ___

Volatile Vials Headspace Greater than 6mm in Diameter Yes ___ No ___ N/A X

Chain of Custody Form Included Yes X No ___
Chain of Custody Form Complete Yes X No ___
Chain of Custody Form Properly Relinquished Yes X No ___
Field Sheets/Special Instructions Included Yes ___ No ___ N/A X
Samples Missing on COC or From Cooler Yes ___ No X
Sample Container Labels Match COC Yes X No ___

Samples Received Within Holding Time Yes X No ___
Dept. Manager Notified of Rush/Short Holding Times Yes ___ No ___ N/A X

Does work order meet Micro Methods sample acceptance criteria Yes X No ___
Note: Samples that do not meet acceptance criteria must be documented in the Sample Rejection Log.

Client Contacted ___ **Contacted By** ___ **Date/Time** ___
Client Instructions: Cancel Work Order ___
Proceed with Work Order ___ **(Data will be qualified)**
Comments: ___

LELAP Certification # 01960

6500 Sunplex Drive
Ocean Springs, MS 39564
228.875.6420 Phone
228.875.6423 Fax

March 25, 2014

Jake White

Work Order # : 1403251

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs, MS 39566

Purchase Order #:

RE: NSRD

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 03/14/14 12:19. If you have any questions concerning this report, please feel free to contact the office.

Sincerely,

Harry P. Howell

President
Micro-Methods Laboratory, Inc.

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: NSRD
Project Number: Sample Event #3
Project Manager: Jake White

Reported:
03/25/14 10:33

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
MZC	1403251-01	Water	03/11/14 16:00	*Justin Bates*	03/14/14 12:19
MZUC	1403251-02	Water	03/11/14 16:00	*Justin Bates*	03/14/14 12:19
FSC	1403251-03	Water	03/11/14 16:00	*Justin Bates*	03/14/14 12:19
FSUC	1403251-04	Water	03/11/14 16:00	*Justin Bates*	03/14/14 12:19
FMC	1403251-05	Water	03/11/14 16:00	*Justin Bates*	03/14/14 12:19
FMUC	1403251-06	Water	03/11/14 16:00	*Justin Bates*	03/14/14 12:19
CHC	1403251-07	Water	03/11/14 16:00	*Justin Bates*	03/14/14 12:19
CHUC	1403251-08	Water	03/11/14 16:00	*Justin Bates*	03/14/14 12:19
UFSC	1403251-09	Water	03/11/14 16:00	*Justin Bates*	03/14/14 12:19
UFSUC	1403251-10	Water	03/11/14 16:00	*Justin Bates*	03/14/14 12:19

Sample Receipt Conditions

Date/Time Received: 3/14/2014 12:19
Received by: Barbara K. McMillan
Date/Time Logged: 3/14/2014 13:20
Cooler ID: #700

Shipped by: Client Delivery
Submitted by: Justin Bates
Logged by: Sarah E. Tomek
Receipt Temperature: 1.4 °C

Custody Seals	*No*	*Received on Ice*	*Yes*
Containers Intact	*Yes*	*No Ice, Short Trip*	*No*
COC/Labels Agree	*Yes*	*Obvious Contamination*	*No*
Labels Complete	*No*	*Rush to meet HT*	*No*
COC Complete	*Yes*		

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: NSRD Project Number: Sample Event #3 Project Manager: Jake White	**Reported:** 03/25/14 10:33

CASE NARRATIVE SUMMARY

All reported results are within Micro-Methods Laboratory, Inc.defined laboratory quality control objectives unless detailed in narrative summary or identified as qualifications. NOTE: All results listed on this report are calculated on a wet weight basis (as received by the laboratory) unless otherwise noted in the analysis qualification sections.

Summary Comments: *No Summary Comments*

Qualification: *No Data Qualification*

Analyte & Samples(s) Qualified: *None*

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: NSRD
Project Number: Sample Event #3
Project Manager: Jake White

Reported:
03/25/14 10:33

MZC

1403251-01 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**20.0**	1.0	mg/L	1	4C17039	DLW	03/17/14 10:15	03/17/14 10:15	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.050**	0.010	mg/L	1	4C17024	SCH	03/17/14 09:45	03/21/14 12:12	EPA 200.7	
Zinc	**0.670**	0.020	"	"	"	SCH	"	03/19/14 16:10	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: NSRD
Project Number: Sample Event #3
Project Manager: Jake White

Reported:
03/25/14 10:33

MZUC

1403251-02 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**38.0**	1.0	mg/L	1	4C17039	DLW	03/17/14 10:15	03/17/14 10:15	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.653**	0.010	mg/L	1	4C17024	SCH	03/17/14 09:45	03/21/14 12:20	EPA 200.7	
Zinc	**2.23**	0.020	"	"	"	SCH	"	03/19/14 16:19	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: NSRD
Project Number: Sample Event #3
Project Manager: Jake White

Reported:
03/25/14 10:33

FSC

1403251-03 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**42.0**	1.0	mg/L	1	4C17039	DLW	03/17/14 10:15	03/17/14 10:15	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.070**	0.010	mg/L	1	4C17024	SCH	03/17/14 09:45	03/21/14 12:22	EPA 200.7	
Zinc	**0.603**	0.020	"	"	"	SCH	"	03/19/14 16:23	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: NSRD
Project Number: Sample Event #3
Project Manager: Jake White

Reported:
03/25/14 10:33

FSUC

1403251-04 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**19.0**	1.0	mg/L	1	4C17039	DLW	03/17/14 10:15	03/17/14 10:15	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.096**	0.010	mg/L	1	4C17024	SCH	03/17/14 09:45	03/21/14 12:24	EPA 200.7	
Zinc	**1.09**	0.020	"	"	"	SCH	"	03/19/14 16:27	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: NSRD
Project Number: Sample Event #3
Project Manager: Jake White

Reported:
03/25/14 10:33

FMC

1403251-05 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**45.0**	1.0	mg/L	1	4C17039	DLW	03/17/14 10:15	03/17/14 10:15	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.168**	0.010	mg/L	1	4C17024	SCH	03/17/14 09:45	03/21/14 12:27	EPA 200.7	
Zinc	**1.23**	0.020	"	"	"	SCH	"	03/19/14 16:31	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: NSRD
Project Number: Sample Event #3
Project Manager: Jake White

Reported:
03/25/14 10:33

FMUC

1403251-06 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**25.0**	1.0	mg/L	1	4C17039	DLW	03/17/14 10:15	03/17/14 10:15	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.080**	0.010	mg/L	1	4C17024	SCH	03/17/14 09:45	03/21/14 12:29	EPA 200.7	
Zinc	**0.758**	0.020	"	"	"	SCH	"	03/19/14 16:35	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: NSRD
Project Number: Sample Event #3
Project Manager: Jake White

Reported:
03/25/14 10:33

CHC

1403251-07 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**98.0**	1.0	mg/L	1	4C17039	DLW	03/17/14 10:15	03/17/14 10:15	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.109**	0.010	mg/L	1	4C17024	SCH	03/17/14 09:45	03/21/14 12:32	EPA 200.7	
Zinc	**2.53**	0.020	"	"	"	SCH	"	03/19/14 16:39	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: NSRD
Project Number: Sample Event #3
Project Manager: Jake White

Reported:
03/25/14 10:33

CHUC

1403251-08 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**58.0**	1.0	mg/L	1	4C17039	DLW	03/17/14 10:15	03/17/14 10:15	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.096**	0.010	mg/L	1	4C17024	SCH	03/17/14 09:45	03/21/14 12:34	EPA 200.7	
Zinc	**2.15**	0.020	"	"	"	SCH	"	03/19/14 16:43	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: NSRD
Project Number: Sample Event #3
Project Manager: Jake White

Reported:
03/25/14 10:33

UFSC

1403251-09 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**122**	1.0	mg/L	1	4C17039	DLW	03/17/14 10:15	03/17/14 10:15	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.100**	0.010	mg/L	1	4C17024	SCH	03/17/14 09:45	03/21/14 12:36	EPA 200.7	
Zinc	**2.51**	0.020	"	"	"	SCH	"	03/19/14 16:47	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: NSRD
Project Number: Sample Event #3
Project Manager: Jake White

Reported:
03/25/14 10:33

UFSUC

1403251-10 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**73.2**	1.0	mg/L	1	4C17039	DLW	03/17/14 10:15	03/17/14 10:15	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.117**	0.010	mg/L	1	4C17024	SCH	03/17/14 09:45	03/21/14 12:49	EPA 200.7	
Zinc	**2.66**	0.020	"	"	"	SCH	"	03/19/14 16:51	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: NSRD
Project Number: Sample Event #3
Project Manager: Jake White

Reported:
03/25/14 10:33

Classical Chemistry Parameters - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4C17039 - Default Prep GenChem										
Blank (4C17039-BLK1)							***Prepared & Analyzed: 03/17/14***			
Total Suspended Solids	ND	1.0	mg/L							
LCS (4C17039-BS1)							***Prepared & Analyzed: 03/17/14***			
Total Suspended Solids	84.0		mg/L	100		84.0	75-125			
LCS Dup (4C17039-BSD1)							***Prepared & Analyzed: 03/17/14***			
Total Suspended Solids	85.0		mg/L	100		85.0	75-125	1.18	25	
Duplicate (4C17039-DUP1)		**Source: 1403251-10**					***Prepared & Analyzed: 03/17/14***			
Total Suspended Solids	74.4	1.0	mg/L		73.2			1.63	5	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: NSRD
Project Number: Sample Event #3
Project Manager: Jake White

Reported:
03/25/14 10:33

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4C17024 - EPA 200.2										
Blank (4C17024-BLK1)						***Prepared: 03/17/14 Analyzed: 03/21/14***				
Copper	ND	0.010	mg/L							
Zinc	ND	0.020	"							
LCS (4C17024-BS1)						***Prepared: 03/17/14 Analyzed: 03/21/14***				
Copper	0.209	0.010	mg/L	0.200		104	85-115			
Zinc	0.201	0.020	"	0.200		101	85-115			
LCS Dup (4C17024-BSD1)						***Prepared: 03/17/14 Analyzed: 03/21/14***				
Copper	0.210	0.010	mg/L	0.200		105	85-115	0.594	20	
Zinc	0.206	0.020	"	0.200		103	85-115	2.40	20	
Matrix Spike (4C17024-MS1)	**Source: 1403251-01**					***Prepared: 03/17/14 Analyzed: 03/21/14***				
Copper	0.253	0.010	mg/L	0.200	0.050	101	70-130			
Zinc	0.865	0.020	"	0.200	0.670	97.7	70-130			
Matrix Spike Dup (4C17024-MSD1)	**Source: 1403251-01**					***Prepared: 03/17/14 Analyzed: 03/21/14***				
Copper	0.261	0.010	mg/L	0.200	0.050	105	70-130	3.11	20	
Zinc	0.867	0.020	"	0.200	0.670	98.8	70-130	0.262	20	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: NSRD Project Number: Sample Event #3 Project Manager: Jake White	**Reported:** 03/25/14 10:33

Certified Analyses Included in this Report

Analyte	Certification Code
EPA 200.7 in Water	
Aluminum	C01,C02
Antimony	C01,C02
Arsenic	C01,C02
Barium	C01,C02,C04
Beryllium	C01,C02,C04
Boron	C01,C02
Cadmium	C01,C02,C04
Calcium	C01,C02,C04
Chromium	C01,C02,C04
Cobalt	C01,C02
Copper	C01,C02,C04
Iron	C01,C02,C04
Lead	C01,C02,C04
Magnesium	C01,C02
Manganese	C01,C02
Molybdenum	C01,C02
Nickel	C01,C02,C04
Potassium	C01,C02
Selenium	C01,C02,C04
Silver	C01,C02
Sodium	C01,C02,C04
Strontium	C01,C02
Thallium	C01,C02
Tin	C01,C02
Titanium	C01,C02,C04
Vanadium	C01,C02
Zinc	C01,C02
Phosphorus	C01,C02
SM 2540 D in Water	
Total Suspended Solids	C01,C02

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: NSRD Project Number: Sample Event #3 Project Manager: Jake White	**Reported:** 03/25/14 10:33

Laboratory Accreditations/Certifications

Code	Description	Number	Expires
C01	*La Environmental Lab Accreditation Program*	*01960*	*06/30/2014*
C02	*National Environmental Lab Accreditation Program*	*TNI01397*	*06/30/2014*
C03	*Ms Dept of Health (Coliform)*	*MS00021*	*12/31/2014*
C04	*Ms Dept of Health (Drinking Water Certificate)*	*MS00021*	*12/31/2014*
C05	*Ms DEQ Lead Firm Certification*	*PBF-00000028*	*10/15/2014*
C06	*MsDEQ Asbestos Inspector : C.D. Bingham*	*ABI-00001348*	*04/19/2014*
C07	*MsDEQ Air Monitor : C.D. Bingham*	*AM-011572*	*04/04/2014*
C08	*MsDEQ Asbestos Inspector: C. W. Meins*	*ABI-00001821*	*10/03/2014*
C09	*MsDEQ Air Monitor : C.W. Meins*	*AM-011189*	*04/04/2014*
C12	*MsDEQ Asbestos Inspector : H.P. Howell*	*ABI-00001345*	*05/23/2014*
C13	*MsDEQ Air Monitor: H.P. Howell*	*AM-00001344*	*03/22/2014*
C14	*MsDEQ Lead Paint Inspector : C.D. Bingham*	*PBI-00003690*	*03/30/2014*
C15	*MsDEQ Lead Paint Inspector : C.W. Meins*	*PBI-00001740*	*03/30/2014*

Report Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the minimum reporting limit
NR	Not Reported
RPD	Relative Percent Difference
ICV	Initial Calibration Verfiication
CCV	Continuing Calibration Verification Standard
SSV	Secondary Source Verfication Standard
LCS	Lab Control Spike - Lab matrix prepared with known concentration of analyte/s of interest analyzed by method.
MS	Matrix Spike - Sample prepared with known concentration of analyte/s of interest analyzed by method.
MSD	Matrix Spike Duplicate - Duplicate sample prepared with known concentration of anlayte/s of interest analyzed by method.
MRL	Minimum Reporting Limit
%REC	Percentage Recovery of known concentration added to matrix
Batch	Group of samples prepared for analysis not to exceed 20 samples.
Matrix	Material containing analyte/s of interest
Surrogate	Analyte added to sample to determine extraction efficiency of method.

MICRO-METHODS LABORATORY, INC.
6500 Sunplex Drive, Ocean Springs, MS 39564
(228) 875-6420 FAX (228) 875-6423
www.micromethodslab.com

Chain of Custody Record

M-M Lab WO # 1403251

Company Name: ECS	Project Manager: Jake White
Address: Po Box 356	Purchase Order #:
City: Sherman State: MS Zip: 38869	Email Address: Jwhite@enviroCMP.net
Phone: (228) 217-6254	Sampler Name Printed: Justin Bates
Fax:	Sampler Name Signed:

Turn Around Time & Reporting

Our normal turn around time is 7-10 working days

__Normal __Next Day* __2nd Day* __Other*_____ *All rush order requests must be prior approved. __Phone __Mail __Fax __Email

Project Name: NSRD
Project #: Sample Event #3

List Analysis Requested

Note Special Instructions/Comments

Field pH _____ Collect Time_____ ReadTime _____
Field D.O. _____Collect Time_____ Read Time _____
Field Temp._____Collect Time_____ Read Time _____
QC Level: Level 1 ☐ Level 2 ☐ Level 3 ☐

Sample Identification	Sampling Date/Time	# of Containers	Sample Code	CU	ZN	TSS
PBC - No Sample	3/11/14-1600	0	PBC	0	0	0
PBUC - No Sample	3/11/14-1600	0	PBUC	0	0	0
MZC	3/11/14-1600	2	MZC	1	1	1
MZUC	3/11/14-1600	2	MZUC	1	1	1
FSC	3/11/14-1600	2	FSC	1	1	1
FSUC	3/11/14-1600	2	FSUC	1	1	1
FMC	3/11/14-1600	2		1	1	1
FMUC	3/11/14-1600	2		1	1	1
CHC	3/11/14-1600	2		1	1	1
CHUC	3/11/14-1600	2		1	1	1
UFSC	3/11/14-1600	2		1	1	1
UFSUC	3/11/14-1600	2		1	1	1

Matrix Code: W= Water, S= Soil, O= Oil, L= Liquid, SL= Sludge
Sample Code: G= Grab C= Composite

Lab Use Only
Notes

	Signature	Printed Name	Company	Date	Time
Relinquished by		Justin Bates	ECS	3/14/14	12PM
Received by	Barbara McMillan	Barbara McMillan	MM	3/14/14	12:49
Relinquished by					
Received by					
Relinquished by					
Received by					

Sample Rcvd. on Ice Yes ☒ No ☐
Thermometer # 3 Cooler # 700
Receipt Temp (°C) 1.4 Sample ☐ Blank ☒
By Barbara McMillan
Date & Time 3/14/14 1249

DCN# F316 Rev.#1

	Issue Date: 7/18/11	Micro-Methods Laboratory Log-In Checklist	
	Implementation Date: 7/18/11		DCN: F207
			Date Revised: 7-18-11
			Revision: 4

Client ECS **WO** 14032571 **Shipped By** Client
Date/Time Received 3/14/14 @ 1219 **Unpacked/Checked By** ST

Cooler ID	Ice Present Yes/No	Temperature	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
#700	yes	1.4°C	T#3	no	n/a

If not iced, were samples received within one hour of collection? Yes ___ No___ N/A X
Temperature Blank Used Yes X No _____ If not, temperature taken from cooler ____ or bottle____
Multi Cooler shipment: ID of samples in coolers that exceed 6°C_____

Custody Seals on Bottles Present Yes ___ No X
Containers Intact Yes X No___
Proper Containers for Requested Analysis Yes X No___

Correct Preservation Used for All Samples Yes X No___
Adequate Sample for Analysis Requested Yes X No___

Volatile Vials Headspace Greater than 6mm in Diameter Yes ___ No ___ N/A X

Chain of Custody Form Included Yes X No___
Chain of Custody Form Complete Yes X No___
Chain of Custody Form Properly Relinquished Yes X No___
Field Sheets/Special Instructions Included Yes ___No___ N/A X
Samples Missing on COC or From Cooler Yes ___No X
Sample Container Labels Match COC Yes X No___

Samples Received Within Holding Time Yes X No___
Dept. Manager Notified of Rush/Short Holding Times Yes ___No___N/A X

Does work order meet Micro Methods sample acceptance criteria Yes X No ___
Note: Samples that do not meet acceptance criteria must be documented in the Sample Rejection Log.

Client Contacted _____ **Contacted By** _____ **Date/Time**_____
Client Instructions: Cancel Work Order _____
Proceed with Work Order _____ **(Data will be qualified)**
Comments: _____

LELAP Certification # 01960

6500 Sunplex Drive
Ocean Springs, MS 39564
228.875.6420 Phone
228.875.6423 Fax

April 07, 2014

Jake White

Work Order # : 1403481

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs, MS 39566

Purchase Order #:

RE: Multiple Controls

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 03/28/14 13:00. If you have any questions concerning this report, please feel free to contact the office.

Sincerely,

Harry P. Howell

President
Micro-Methods Laboratory, Inc.

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
04/07/14 11:07

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
COC-C	1403481-01	Water	03/28/14 10:53	*Jake White*	03/28/14 13:00
COC-UC	1403481-02	Water	03/28/14 10:59	*Jake White*	03/28/14 13:00
UFS-C	1403481-03	Water	03/28/14 11:21	*Jake White*	03/28/14 13:00
UFS-UC	1403481-04	Water	03/28/14 11:09	*Jake White*	03/28/14 13:00
MZ-C	1403481-05	Water	03/28/14 10:47	*Jake White*	03/28/14 13:00
MZ-UC	1403481-06	Water	03/28/14 10:44	*Jake White*	03/28/14 13:00
FM-C	1403481-07	Water	03/28/14 10:28	*Jake White*	03/28/14 13:00
FM-UC	1403481-08	Water	03/28/14 10:24	*Jake White*	03/28/14 13:00
FS-C	1403481-09	Water	03/28/14 10:33	*Jake White*	03/28/14 13:00
FS-UC	1403481-10	Water	03/28/14 10:38	*Jake White*	03/28/14 13:00

Sample Receipt Conditions

Date/Time Received: 3/28/2014 13:00
Received by: Sarah E. Tomek
Date/Time Logged: 3/28/2014 13:15
Cooler ID: #700

Shipped by: Client Delivery
Submitted by: Jake White
Logged by: Sarah E. Tomek
Receipt Temperature: 2.3 °C

Custody Seals	*No*	*Received on Ice*	*Yes*
Containers Intact	*Yes*	*No Ice, Short Trip*	*No*
COC/Labels Agree	*Yes*	*Obvious Contamination*	*No*
Labels Complete	*No*	*Rush to meet HT*	*No*
COC Complete	*Yes*		

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Multiple Controls Project Number: [none] Project Manager: Jake White	**Reported:** 04/07/14 11:07

CASE NARRATIVE SUMMARY

All reported results are within Micro-Methods Laboratory, Inc.defined laboratory quality control objectives unless detailed in narrative summary or identified as qualifications. NOTE: All results listed on this report are calculated on a wet weight basis (as received by the laboratory) unless otherwise noted in the analysis qualification sections.

Summary Comments: *No Summary Comments*

Qualification: *No Data Qualification*

Analyte & Samples(s) Qualified: *None*

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
04/07/14 11:07

COC-C

1403481-01 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**15.0**	1.0	mg/L	1	4C31010	DLW	03/31/14 10:30	03/31/14 10:30	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.017**	0.010	mg/L	1	4D01003	SCH	04/01/14 09:00	04/02/14 14:15	EPA 200.7	
Zinc	**0.546**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
04/07/14 11:07

COC-UC

1403481-02 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**5.7**	1.0	mg/L	1	4C31010	DLW	03/31/14 10:30	03/31/14 10:30	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.018**	0.010	mg/L	1	4D01003	SCH	04/01/14 09:00	04/02/14 14:56	EPA 200.7	
Zinc	**0.614**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
04/07/14 11:07

UFS-C

1403481-03 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**90.0**	1.0	mg/L	1	4C31010	DLW	03/31/14 10:30	03/31/14 10:30	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.063**	0.010	mg/L	1	4D01003	SCH	04/01/14 09:00	04/02/14 15:00	EPA 200.7	
Zinc	**1.22**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
04/07/14 11:07

UFS-UC

1403481-04 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**6.1**	1.0	mg/L	1	4C31010	DLW	03/31/14 10:30	03/31/14 10:30	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.021**	0.010	mg/L	1	4D01003	SCH	04/01/14 09:00	04/02/14 15:04	EPA 200.7	
Zinc	**0.500**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
04/07/14 11:07

MZ-C

1403481-05 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**39.5**	1.0	mg/L	1	4C31010	DLW	03/31/14 10:30	03/31/14 10:30	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.056**	0.010	mg/L	1	4D01003	SCH	04/01/14 09:00	04/02/14 15:08	EPA 200.7	
Zinc	**0.375**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
04/07/14 11:07

MZ-UC

1403481-06 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**8.4**	1.0	mg/L	1	4C31010	DLW	03/31/14 10:30	03/31/14 10:30	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.117**	0.010	mg/L	1	4D01003	SCH	04/01/14 09:00	04/02/14 15:12	EPA 200.7	
Zinc	**1.00**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
04/07/14 11:07

FM-C

1403481-07 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**9.8**	1.0	mg/L	1	4C31010	DLW	03/31/14 10:30	03/31/14 10:30	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.023**	0.010	mg/L	1	4D01003	SCH	04/01/14 09:00	04/02/14 15:16	EPA 200.7	
Zinc	**0.394**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
04/07/14 11:07

FM-UC

1403481-08 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**19.4**	1.0	mg/L	1	4C31010	DLW	03/31/14 10:30	03/31/14 10:30	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.078**	0.010	mg/L	1	4D01003	SCH	04/01/14 09:00	04/02/14 15:20	EPA 200.7	
Zinc	**0.870**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
04/07/14 11:07

FS-C

1403481-09 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**48.0**	1.0	mg/L	1	4C31010	DLW	03/31/14 10:30	03/31/14 10:30	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.031**	0.010	mg/L	1	4D01003	SCH	04/01/14 09:00	04/02/14 15:24	EPA 200.7	
Zinc	**0.515**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
04/07/14 11:07

FS-UC

1403481-10 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**72.0**	1.0	mg/L	1	4C31010	DLW	03/31/14 10:30	03/31/14 10:30	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.073**	0.010	mg/L	1	4D01003	SCH	04/01/14 09:00	04/02/14 15:28	EPA 200.7	
Zinc	**0.916**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
04/07/14 11:07

Classical Chemistry Parameters - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4C31010 - Default Prep GenChem										
Blank (4C31010-BLK1)							***Prepared & Analyzed: 03/31/14***			
Total Suspended Solids	ND	1.0	mg/L							
LCS (4C31010-BS1)							***Prepared & Analyzed: 03/31/14***			
Total Suspended Solids	83.0		mg/L	100		83.0	75-125			
LCS Dup (4C31010-BSD1)							***Prepared & Analyzed: 03/31/14***			
Total Suspended Solids	83.0		mg/L	100		83.0	75-125	0.00	25	
Duplicate (4C31010-DUP1)		**Source: 1403481-10**					***Prepared & Analyzed: 03/31/14***			
Total Suspended Solids	69.2	1.0	mg/L		72.0			3.97	5	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
04/07/14 11:07

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4D01003 - EPA 200.2										
Blank (4D01003-BLK1)						***Prepared: 04/01/14 Analyzed: 04/02/14***				
Copper	ND	0.010	mg/L							
Zinc	ND	0.020	"							
LCS (4D01003-BS1)						***Prepared: 04/01/14 Analyzed: 04/02/14***				
Copper	0.207	0.010	mg/L	0.200		104	85-115			
Zinc	0.188	0.020	"	0.200		94.2	85-115			
LCS Dup (4D01003-BSD1)						***Prepared: 04/01/14 Analyzed: 04/02/14***				
Copper	0.206	0.010	mg/L	0.200		103	85-115	0.664	20	
Zinc	0.189	0.020	"	0.200		94.4	85-115	0.275	20	
Matrix Spike (4D01003-MS1)	**Source: 1403481-01**					***Prepared: 04/01/14 Analyzed: 04/02/14***				
Copper	0.219	0.010	mg/L	0.200	0.017	101	70-130			
Zinc	0.746	0.020	"	0.200	0.546	100	70-130			
Matrix Spike Dup (4D01003-MSD1)	**Source: 1403481-01**					***Prepared: 04/01/14 Analyzed: 04/02/14***				
Copper	0.219	0.010	mg/L	0.200	0.017	101	70-130	0.0332	20	
Zinc	0.738	0.020	"	0.200	0.546	96.2	70-130	1.04	20	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
04/07/14 11:07

Certified Analyses Included in this Report

Analyte	Certification Code
EPA 200.7 in Water	
Aluminum	C01,C02
Antimony	C01,C02
Arsenic	C01,C02
Barium	C01,C02,C04
Beryllium	C01,C02,C04
Boron	C01,C02
Cadmium	C01,C02,C04
Calcium	C01,C02,C04
Chromium	C01,C02,C04
Cobalt	C01,C02
Copper	C01,C02,C04
Iron	C01,C02,C04
Lead	C01,C02,C04
Magnesium	C01,C02
Manganese	C01,C02
Molybdenum	C01,C02
Nickel	C01,C02,C04
Potassium	C01,C02
Selenium	C01,C02,C04
Silver	C01,C02
Sodium	C01,C02,C04
Strontium	C01,C02
Thallium	C01,C02
Tin	C01,C02
Titanium	C01,C02,C04
Vanadium	C01,C02
Zinc	C01,C02
Phosphorus	C01,C02
SM 2540 D in Water	
Total Suspended Solids	C01,C02

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
04/07/14 11:07

Laboratory Accreditations/Certifications

Code	Description	Number	Expires
C01	*La Environmental Lab Accreditation Program*	*01960*	*06/30/2014*
C02	*National Environmental Lab Accreditation Program*	*TNI01397*	*06/30/2014*
C03	*Ms Dept of Health (Coliform)*	*MS00021*	*12/31/2014*
C04	*Ms Dept of Health (Drinking Water Certificate)*	*MS00021*	*12/31/2014*
C05	*Ms DEQ Lead Firm Certification*	*PBF-00000028*	*10/15/2014*
C06	*MsDEQ Asbestos Inspector : C.D. Bingham*	*ABI-00001348*	*04/19/2014*
C07	*MsDEQ Air Monitor : C.D. Bingham*	*AM-011572*	*04/04/2014*
C08	*MsDEQ Asbestos Inspector: C. W. Meins*	*ABI-00001821*	*10/03/2014*
C09	*MsDEQ Air Monitor : C.W. Meins*	*AM-011189*	*04/04/2014*
C12	*MsDEQ Asbestos Inspector : H.P. Howell*	*ABI-00001345*	*05/23/2014*
C13	*MsDEQ Air Monitor: H.P. Howell*	*AM-00001344*	*03/22/2014*
C14	*MsDEQ Lead Paint Inspector : C.D. Bingham*	*PBI-00003690*	*03/30/2014*
C15	*MsDEQ Lead Paint Inspector : C.W. Meins*	*PBI-00001740*	*03/30/2014*

Report Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the minimum reporting limit
NR	Not Reported
RPD	Relative Percent Difference
ICV	Initial Calibration Verfiication
CCV	Continuing Calibration Verification Standard
SSV	Secondary Source Verfication Standard
LCS	Lab Control Spike - Lab matrix prepared with known concentration of analyte/s of interest analyzed by method.
MS	Matrix Spike - Sample prepared with known concentration of analyte/s of interest analyzed by method.
MSD	Matrix Spike Duplicate - Duplicate sample prepared with known concentration of anlayte/s of interest analyzed by method.
MRL	Minimum Reporting Limit
%REC	Percentage Recovery of known concentration added to matrix
Batch	Group of samples prepared for analysis not to exceed 20 samples.
Matrix	Material containing analyte/s of interest
Surrogate	Analyte added to sample to determine extraction efficiency of method.

MICRO-METHODS LABORATORY, INC.
6500 Sunplex Drive, Ocean Springs, MS 39564
(228) 875-6420 FAX (228) 875-6423
www.micromethodslab.com

Chain of Custody Record

M-M Lab WO # 1403481

Company Name: ECS, Inc.	Project Manager: JAKE WHITE
Address: PO BOX 356	Purchase Order #:
City: SILVERMAN State: MS Zip: 38869	Email Address: jwhite@envirocomp.net
Phone: (228) 217-6254	Sampler Name Printed: JAKE WHITE
Fax:	Sampler Name Signed: Jake White

Turn Around Time & Reporting

Our normal turn around time is 7-10 working days

- ✓ Normal
- __Next Day*
- __2nd Day*
- __Other*_____

*All rush order requests must be prior approved.

- __Phone
- __Mail
- __Fax
- __Email

Project Name: Multiple Controls
Project #:

Sample Identification	Sampling Date/Time	# of Containers	Sample Code	TSS	Metals (Zn & Cu)
COC-C	3/28/14 10:53	2		1	1
COC-UC	3/28/14 10:59	2		1	1
UFS-C	3/28/14 11:21	2		1	1
UFS-UC	3/28/14 11:09	2		1	1
MZ-C	3/28/14 10:47	2		1	1
MZ-UC	3/28/14 10:44	2		1	1
FM-C	3/28/14 10:28	2		1	1
FM-UC	3/28/14 10:24	2		1	1
FS-C	3/28/14 10:33	2		1	1
FS-UC	3/28/14 10:38	2		1	1

List Analyses Requested

Note Special Instructions/Comments

Field pH _____ Collect Time_____ ReadTime _____
Field D.O. _____Collect Time_____ Read Time _____
Field Temp._____Collect Time_____ Read Time _____
QC Level: Level 1 ☐ Level 2 ☐ Level 3 ☐

Matrix Code: W= Water, S= Soil, O= Oil, L= Liquid, SL= Sludge
Sample Code: G= Grab C= Composite

Lab Use Only
Notes

	Signature	Printed Name	Company	Date	Time
Relinquished by	Jake White	JAKE WHITE	ECS	3/28/14	1300
Received by	Sarah Tomek	Sarah Tomek	MM	3/28/14	1300
Relinquished by					
Received by					
Relinquished by					
Received by					

Sample Rcvd. on Ice Yes X No ☐
Thermometer # 3 Cooler # 700
Receipt Temp (°C) 2.3 Sample ☐ Blank X
By: ST
Date & Time _____

DCN# F316 Rev.#1

	Issue Date: 7/18/11 Implementation Date: 7/18/11	**Micro-Methods Laboratory Log-In Checklist**	DCN: F207 Date Revised: 7-18-11 Revision: 4

Client ECS **WO** 1403481 **Shipped By** Client
Date/Time Received 3/28/14@1300 **Unpacked/Checked By** SS

Cooler ID	Ice Present Yes/No	Temperature	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
#700	yes	2.3°c	F#3	no	n/a

If not iced, were samples received within one hour of collection? Yes ___ No ___ N/A X
Temperature Blank Used Yes X No ___ If not, temperature taken from cooler ___ or bottle ___
Multi Cooler shipment: ID of samples in coolers that exceed 6°C _____

Custody Seals on Bottles Present Yes ___ No X
Containers Intact Yes X No ___
Proper Containers for Requested Analysis Yes X No ___

Correct Preservation Used for All Samples Yes X No ___
Adequate Sample for Analysis Requested Yes X No ___

Volatile Vials Headspace Greater than 6mm in Diameter Yes ___ No ___ N/A X

Chain of Custody Form Included Yes X No ___
Chain of Custody Form Complete Yes X No ___
Chain of Custody Form Properly Relinquished Yes X No ___
Field Sheets/Special Instructions Included Yes ___ No ___ N/A X
Samples Missing on COC or From Cooler Yes ___ No X
Sample Container Labels Match COC Yes X No ___

Samples Received Within Holding Time Yes X No ___
Dept. Manager Notified of Rush/Short Holding Times Yes ___ No ___ N/A X

Does work order meet Micro Methods sample acceptance criteria Yes X No ___
Note: Samples that do not meet acceptance criteria must be documented in the Sample Rejection Log.

Client Contacted _____ **Contacted By** _____ **Date/Time** _____
Client Instructions: Cancel Work Order _____
Proceed with Work Order _____ **(Data will be qualified)**
Comments: _____

MICRO-METHODS
LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228.875.6420 Phone
228.875.6423 Fax

June 19, 2014

Jake White

Work Order # : 1406271

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs, MS 39566

Purchase Order #:

RE: Multiple Controls

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 06/13/14 11:48. If you have any questions concerning this report, please feel free to contact the office.

Sincerely,

Harry P. Howell

President
Micro-Methods Laboratory, Inc.

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: NSRP
Project Manager: Jake White

Reported:
06/19/14 14:55

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
CW-C	1406271-01	Water	06/13/14 09:14	*Jake White*	06/13/14 11:48
CW-U	1406271-02	Water	06/13/14 09:13	*Jake White*	06/13/14 11:48
FS-C	1406271-03	Water	06/13/14 10:18	*Jake White*	06/13/14 11:48
FS-UC	1406271-04	Water	06/13/14 10:13	*Jake White*	06/13/14 11:48
FM-C	1406271-05	Water	06/13/14 10:02	*Jake White*	06/13/14 11:48
FM-UC	1406271-06	Water	06/13/14 09:58	*Jake White*	06/13/14 11:48
CH-C	1406271-07	Water	06/13/14 09:31	*Jake White*	06/13/14 11:48
CH-U	1406271-08	Water	06/13/14 09:27	*Jake White*	06/13/14 11:48
UFS-C	1406271-09	Water	06/13/14 09:45	*Jake White*	06/13/14 11:48
UFS-UC	1406271-10	Water	06/13/14 09:41	*Jake White*	06/13/14 11:48

Sample Receipt Conditions

Date/Time Received: 6/13/2014 11:48:00AM
Received by: Sarah E. Tomek
Date/Time Logged: 6/13/2014 12:02:00PM
Cooler ID: #700

Shipped by: Client Delivery
Submitted by: Jake White
Logged by: Sarah E. Tomek
Receipt Temperature: 2.8 °C

Custody Seals	*No*	*Received on Ice*	*Yes*
Containers Intact	*Yes*	*No Ice, Short Trip*	*No*
COC/Labels Agree	*No*	*Obvious Contamination*	*No*
Labels Complete	*No*	*Rush to meet HT*	*No*
COC Complete	*Yes*		

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Multiple Controls Project Number: NSRP Project Manager: Jake White	**Reported:** 06/19/14 14:55

CASE NARRATIVE SUMMARY

All reported results are within Micro-Methods Laboratory, Inc.defined laboratory quality control objectives unless detailed in narrative summary or identified as qualifications. NOTE: All results listed on this report are calculated on a wet weight basis (as received by the laboratory) unless otherwise noted in the analysis qualification sections.

Summary Comments:

Chain of custody does not match sample labels on first 2 samples. Contacted J. White on 6/13/14 @1153 to notify. Client said labels on containers are correct.- SET

Qualification: *No Data Qualification*

Analyte & Samples(s) Qualified: *None*

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: NSRP
Project Manager: Jake White

Reported:
06/19/14 14:55

CW-C

1406271-01 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**51.6**	1.0	mg/L	1	4F16007	DLW	06/16/14 09:40	06/16/14 09:40	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.084**	0.010	mg/L	1	4F16023	SCH	06/16/14 09:15	06/17/14 13:56	EPA 200.7	
Zinc	**0.751**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: NSRP
Project Manager: Jake White

Reported:
06/19/14 14:55

CW-U

1406271-02 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**87.0**	1.0	mg/L	1	4F16007	DLW	06/16/14 09:40	06/16/14 09:40	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.092**	0.010	mg/L	1	4F16023	SCH	06/16/14 09:15	06/17/14 14:00	EPA 200.7	
Zinc	**1.01**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: NSRP
Project Manager: Jake White

Reported:
06/19/14 14:55

FS-C

1406271-03 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**14.6**	1.0	mg/L	1	4F16007	DLW	06/16/14 09:40	06/16/14 09:40	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.051**	0.010	mg/L	1	4F16023	SCH	06/16/14 09:15	06/17/14 14:03	EPA 200.7	
Zinc	**0.597**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: NSRP
Project Manager: Jake White

Reported:
06/19/14 14:55

FS-UC

1406271-04 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**7.9**	1.0	mg/L	1	4F16007	DLW	06/16/14 09:40	06/16/14 09:40	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.048**	0.010	mg/L	1	4F16023	SCH	06/16/14 09:15	06/17/14 14:07	EPA 200.7	
Zinc	**0.499**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: NSRP
Project Manager: Jake White

Reported:
06/19/14 14:55

FM-C

1406271-05 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**237**	1.0	mg/L	1	4F16007	DLW	06/16/14 09:40	06/16/14 09:40	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.038**	0.010	mg/L	1	4F16023	SCH	06/16/14 09:15	06/17/14 14:16	EPA 200.7	
Zinc	**0.390**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: NSRP
Project Manager: Jake White

Reported:
06/19/14 14:55

FM-UC

1406271-06 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**8.6**	1.0	mg/L	1	4F16007	DLW	06/16/14 09:40	06/16/14 09:40	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.021**	0.010	mg/L	1	4F16023	SCH	06/16/14 09:15	06/17/14 14:20	EPA 200.7	
Zinc	**0.346**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: NSRP
Project Manager: Jake White

Reported:
06/19/14 14:55

CH-C

1406271-07 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**90.0**	1.0	mg/L	1	4F16007	DLW	06/16/14 09:40	06/16/14 09:40	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.027**	0.010	mg/L	1	4F16023	SCH	06/16/14 09:15	06/17/14 14:24	EPA 200.7	
Zinc	**1.30**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: NSRP
Project Manager: Jake White

Reported:
06/19/14 14:55

CH-U

1406271-08 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**93.0**	1.0	mg/L	1	4F16007	DLW	06/16/14 09:40	06/16/14 09:40	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.016**	0.010	mg/L	1	4F16023	SCH	06/16/14 09:15	06/17/14 14:57	EPA 200.7	
Zinc	**1.17**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: NSRP
Project Manager: Jake White

Reported:
06/19/14 14:55

UFS-C

1406271-09 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**135**	1.0	mg/L	1	4F16007	DLW	06/16/14 09:40	06/16/14 09:40	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.071**	0.010	mg/L	1	4F16023	SCH	06/16/14 09:15	06/17/14 15:01	EPA 200.7	
Zinc	**1.77**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.	Project: Multiple Controls	
P O Box 906	Project Number: NSRP	**Reported:**
Ocean Springs MS, 39566	Project Manager: Jake White	06/19/14 14:55

UFS-UC

1406271-10 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**50.4**	1.0	mg/L	1	4F16007	DLW	06/16/14 09:40	06/16/14 09:40	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.034**	0.010	mg/L	1	4F16023	SCH	06/16/14 09:15	06/17/14 15:05	EPA 200.7	
Zinc	**1.26**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: NSRP
Project Manager: Jake White

Reported:
06/19/14 14:55

Classical Chemistry Parameters - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4F16007 - Default Prep GenChem										
Blank (4F16007-BLK1)							***Prepared & Analyzed: 06/16/14***			
Total Suspended Solids	ND	1.0	mg/L							
LCS (4F16007-BS1)							***Prepared & Analyzed: 06/16/14***			
Total Suspended Solids	80.0		mg/L	100		80.0	75-125			
LCS Dup (4F16007-BSD1)							***Prepared & Analyzed: 06/16/14***			
Total Suspended Solids	83.0		mg/L	100		83.0	75-125	3.68	25	
Duplicate (4F16007-DUP1)		**Source: 1406271-10**					***Prepared & Analyzed: 06/16/14***			
Total Suspended Solids	48.0	1.0	mg/L		50.4			4.88	5	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: NSRP
Project Manager: Jake White

Reported:
06/19/14 14:55

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4F16023 - EPA 200.2										
Blank (4F16023-BLK1)						***Prepared: 06/16/14 Analyzed: 06/17/14***				
Copper	ND	0.010	mg/L							
Zinc	ND	0.020	"							
LCS (4F16023-BS1)						***Prepared: 06/16/14 Analyzed: 06/17/14***				
Copper	0.212	0.010	mg/L	0.200		106	85-115			
Zinc	0.188	0.020	"	0.200		93.9	85-115			
LCS Dup (4F16023-BSD1)						***Prepared: 06/16/14 Analyzed: 06/17/14***				
Copper	0.207	0.010	mg/L	0.200		103	85-115	2.42	20	
Zinc	0.190	0.020	"	0.200		94.8	85-115	0.951	20	
Matrix Spike (4F16023-MS1)	**Source: 1406271-04**					***Prepared: 06/16/14 Analyzed: 06/17/14***				
Copper	0.253	0.010	mg/L	0.200	0.048	103	70-130			
Zinc	0.681	0.020	"	0.200	0.499	91.0	70-130			
Matrix Spike Dup (4F16023-MSD1)	**Source: 1406271-04**					***Prepared: 06/16/14 Analyzed: 06/17/14***				
Copper	0.254	0.010	mg/L	0.200	0.048	103	70-130	0.127	20	
Zinc	0.675	0.020	"	0.200	0.499	88.0	70-130	0.891	20	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Multiple Controls Project Number: NSRP Project Manager: Jake White	**Reported:** 06/19/14 14:55

Certified Analyses Included in this Report

Analyte	Certification Code
EPA 200.7 in Water	
Aluminum	C01,C02
Antimony	C01,C02
Arsenic	C01,C02
Barium	C01,C02,C04
Beryllium	C01,C02,C04
Boron	C01,C02
Cadmium	C01,C02,C04
Calcium	C01,C02,C04
Chromium	C01,C02,C04
Cobalt	C01,C02
Copper	C01,C02,C04
Iron	C01,C02,C04
Lead	C01,C02,C04
Magnesium	C01,C02
Manganese	C01,C02
Molybdenum	C01,C02
Nickel	C01,C02,C04
Potassium	C01,C02
Selenium	C01,C02,C04
Silver	C01,C02
Sodium	C01,C02,C04
Strontium	C01,C02
Thallium	C01,C02
Tin	C01,C02
Titanium	C01,C02,C04
Vanadium	C01,C02
Zinc	C01,C02
Phosphorus	C01,C02
SM 2540 D in Water	
Total Suspended Solids	C01,C02

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Multiple Controls Project Number: NSRP Project Manager: Jake White	**Reported:** 06/19/14 14:55

Laboratory Accreditations/Certifications

Code	Description	Number	Expires
C01	*La Environmental Lab Accreditation Program*	*01960*	*06/30/2014*
C02	*National Environmental Lab Accreditation Program*	*TNI01397*	*06/30/2014*
C03	*Ms Dept of Health (Coliform)*	*MS00021*	*12/31/2014*
C04	*Ms Dept of Health (Drinking Water Certificate)*	*MS00021*	*12/31/2014*
C05	*Ms DEQ Lead Firm Certification*	*PBF-00000028*	*10/15/2014*
C06	*MsDEQ Asbestos Inspector : C.D. Bingham*	*ABI-00001348*	*03/14/2015*
C07	*MsDEQ Air Monitor : C.D. Bingham*	*AM-011572*	*03/13/2015*
C08	*MsDEQ Asbestos Inspector: C. W. Meins*	*ABI-00001821*	*10/03/2014*
C09	*MsDEQ Air Monitor : C.W. Meins*	*AM-011189*	*03/13/2015*
C12	*MsDEQ Asbestos Inspector : H.P. Howell*	*ABI-00001345*	*03/14/2015*
C14	*MsDEQ Lead Paint Inspector : C.D. Bingham*	*PBI-00003690*	*04/20/2015*
C15	*MsDEQ Lead Paint Inspector : C.W. Meins*	*PBI-00001740*	*04/20/2015*

Report Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the minimum reporting limit
NR	Not Reported
RPD	Relative Percent Difference
ICV	Initial Calibration Verfiication
CCV	Continuing Calibration Verification Standard
SSV	Secondary Source Verfication Standard
LCS	Lab Control Spike - Lab matrix prepared with known concentration of analyte/s of interest analyzed by method.
MS	Matrix Spike - Sample prepared with known concentration of analyte/s of interest analyzed by method.
MSD	Matrix Spike Duplicate - Duplicate sample prepared with known concentration of anlayte/s of interest analyzed by method.
MRL	Minimum Reporting Limit
%REC	Percentage Recovery of known concentration added to matrix
Batch	Group of samples prepared for analysis not to exceed 20 samples.
Matrix	Material containing analyte/s of interest
Surrogate	Analyte added to sample to determine extraction efficiency of method.

MICRO-METHODS LABORATORY, INC.
6500 Sunplex Drive, Ocean Springs, MS 39564
(228) 875-6420 FAX (228) 875-6423
www.micromethodslab.com

Chain of Custody Record

M-M Lab WO # 1406271

Company Name: ECS, Inc.	Project Manager: JAKE WHITE
Address: PO Box 356	Purchase Order #:
City: SHERMAN State: MS Zip: 38869	Email Address: jwhite@envirocomp.net
Phone: (228) 217-6254	Sampler Name Printed: JAKE WHITE
Fax:	Sampler Name Signed:

Turn Around Time & Reporting

Our normal turn around time is 7-10 working days

✓ Normal
__Next Day*
__2nd Day*
__Other*_____

*All rush order requests must be prior approved.

__Phone
__Mail
__Fax
__Email

Project Name: NSRP - Mutiple Controls
Project #:

List Analysis Requested

Sample Identification	Sampling Date/Time	# of Containers	Sample Code	TSS	Metals (Zn; Cu)
~~MZC~~ CWC	6/13/14 0914	2		X	X
~~MZU~~ CWU	6/13/14 0913	2		X	X
FSC	6/13/14 1018	2		X	X
FSU	6/13/14 1013	2		X	X
FMC	6/13/14 1002	2		X	X
FMU	6/13/14 0958	2		X	X
CHC	6/13/14 0931	2		X	X
CHU	6/13/14 0927	2		X	X
UFSC	6/13/14 0945	2		X	X
UFSU	6/13/14 0941	2		X	X

per Pavement

Note Special Instructions/Comments

Field pH _____ Collect Time_____ ReadTime _____
Field D.O. _____Collect Time_____ Read Time _____
Field Temp._____Collect Time_____ Read Time _____
QC Level: Level 1 ☐ Level 2 ☐ Level 3 ☐

Matrix Code: W= Water, S= Soil, O= Oil, L= Liquid, SL= Sludge
Sample Code: G= Grab C= Composite

Lab Use Only

Notes

	Signature	Printed Name	Company	Date	Time
Relinquished by		JAKE WHITE	ECS	6/13/14	1148
Received by		Sarah Tomek	MM	6/13/14	1148
Relinquished by					
Received by					
Relinquished by					
Received by					

Sample Rcvd. on Ice Yes ☒ No ☐
Thermometer # 3 Cooler # 700
Receipt Temp (°C) 2.8° Sample ☐ Blank ☐
By: ST
Date & Time _____

DCN# F316 Rev.#1

	Issue Date: 7/18/11	**Micro-Methods Laboratory Log-In Checklist**	DCN: F207
	Implementation Date: 7/18/11		Date Revised: 7-18-11
			Revision: 4

Client ECS **WO** 140627 **Shipped By** client **8T**
Date/Time Received 6/13/14 @ 1148 **Unpacked/Checked By** 8T

Cooler ID	Ice Present Yes/No	Temperature	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
#700	yes	2.8°c	T#3	no	n/a

If not iced, were samples received within one hour of collection? Yes ___ No ___ N/A X
Temperature Blank Used Yes X No ___ If not, temperature taken from cooler ___ or bottle ___
Multi Cooler shipment: ID of samples in coolers that exceed 6°C ___

Custody Seals on Bottles Present Yes ___ No X
Containers Intact Yes X No ___
Proper Containers for Requested Analysis Yes X No ___

Correct Preservation Used for All Samples Yes X No ___
Adequate Sample for Analysis Requested Yes X No ___

Volatile Vials Headspace Greater than 6mm in Diameter Yes ___ No ___ N/A X

Chain of Custody Form Included Yes X No ___
Chain of Custody Form Complete Yes X No ___
Chain of Custody Form Properly Relinquished Yes X No ___
Field Sheets/Special Instructions Included Yes ___ No ___ N/A X
Samples Missing on COC or From Cooler Yes ___ No X
Sample Container Labels Match COC Yes ___ No X first 2 samples on COC does not match labels on containers

Samples Received Within Holding Time Yes X No ___
Dept. Manager Notified of Rush/Short Holding Times Yes ___ No ___ N/A X

Does work order meet Micro Methods sample acceptance criteria Yes X No ___
Note: Samples that do not meet acceptance criteria must be documented in the Sample Rejection Log.

Client Contacted J. White **Contacted By** 8T **Date/Time** 6/13/14 @ 1153
Client Instructions: Cancel Work Order ___
Proceed with Work Order X **(Data will be qualified)**
Comments: Client said that labels on containers are correct.

6500 Sunplex Drive
Ocean Springs, MS 39564
228.875.6420 Phone
228.875.6423 Fax

July 25, 2014

Jake White

Work Order # : 1407248

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs, MS 39566

Purchase Order #:

RE: Multiple Controls

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 07/14/14 16:59. If you have any questions concerning this report, please feel free to contact the office.

Sincerely,

Harry P. Howell

President
Micro-Methods Laboratory, Inc.

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/25/14 12:41

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
MZ-C	1407248-01	Water	07/11/14 15:30	*Justin Bates*	07/14/14 16:59
MZ-UC	1407248-02	Water	07/11/14 15:30	*Justin Bates*	07/14/14 16:59
FS-C	1407248-03	Water	07/11/14 15:35	*Jake White*	07/14/14 16:59
FS-UC	1407248-04	Water	07/11/14 15:35	*Justin Bates*	07/14/14 16:59
FM-C	1407248-05	Water	07/11/14 15:40	*Justin Bates*	07/14/14 16:59
FM-UC	1407248-06	Water	07/11/14 15:40	*Justin Bates*	07/14/14 16:59
UFS-C	1407248-07	Water	07/11/14 16:05	*Justin Bates*	07/14/14 16:59
UFS-UC	1407248-08	Water	07/11/14 16:05	*Justin Bates*	07/14/14 16:59

Sample Receipt Conditions

Date/Time Received: 7/14/2014 4:59:00PM
Received by: Harry P. Howell
Date/Time Logged: 7/15/2014 8:00:00AM
Cooler ID: **#700**

Shipped by: Client Delivery
Submitted by: Justin Bates
Logged by: Sarah E. Tomek
Receipt Temperature: 1.5 °C

Custody Seals	*No*	*Received on Ice*	*Yes*
Containers Intact	*Yes*	*No Ice, Short Trip*	*No*
COC/Labels Agree	*Yes*	*Obvious Contamination*	*No*
Labels Complete	*No*	*Rush to meet HT*	*No*
COC Complete	*Yes*		

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Multiple Controls Project Number: [none] Project Manager: Jake White	**Reported:** 07/25/14 12:41

CASE NARRATIVE SUMMARY

All reported results are within Micro-Methods Laboratory, Inc.defined laboratory quality control objectives unless detailed in narrative summary or identified as qualifications. NOTE: All results listed on this report are calculated on a wet weight basis (as received by the laboratory) unless otherwise noted in the analysis qualification sections.

Summary Comments: *No Summary Comments*

Total Suspended Solids-SM 2540 D

Qualification:

RPD04 The RPD between the sample and sample duplicate exceeded the acceptance limits. The batch was accepted based on the lab controls.

Total Suspended Solids
4G15032-DUP1

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/25/14 12:41

MZ-C

1407248-01 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**55.0**	1.0	mg/L	1	4G15032	DLW	07/15/14 13:00	07/15/14 13:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.139**	0.010	mg/L	1	4G16007	KRL	07/16/14 09:00	07/22/14 14:24	EPA 200.7	
Zinc	**1.05**	0.020	"	"	"	KRL	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/25/14 12:41

MZ-UC

1407248-02 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**27.0**	1.0	mg/L	1	4G15032	DLW	07/15/14 13:00	07/15/14 13:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.092**	0.010	mg/L	1	4G16007	KRL	07/16/14 09:00	07/22/14 14:28	EPA 200.7	
Zinc	**1.21**	0.020	"	"	"	KRL	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/25/14 12:41

FS-C

1407248-03 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**227**	1.0	mg/L	1	4G15032	DLW	07/15/14 13:00	07/15/14 13:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.119**	0.010	mg/L	1	4G16007	KRL	07/16/14 09:00	07/22/14 14:32	EPA 200.7	
Zinc	**0.896**	0.020	"	"	"	KRL	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/25/14 12:41

FS-UC

1407248-04 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**69.0**	1.0	mg/L	1	4G15032	DLW	07/15/14 13:00	07/15/14 13:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.194**	0.010	mg/L	1	4G16007	KRL	07/16/14 09:00	07/22/14 14:36	EPA 200.7	
Zinc	**0.988**	0.020	"	"	"	KRL	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/25/14 12:41

FM-C

1407248-05 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**37.0**	1.0	mg/L	1	4G15032	DLW	07/15/14 13:00	07/15/14 13:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.091**	0.010	mg/L	1	4G16007	KRL	07/16/14 09:00	07/22/14 14:39	EPA 200.7	
Zinc	**0.786**	0.020	"	"	"	KRL	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/25/14 12:41

FM-UC

1407248-06 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**27.0**	1.0	mg/L	1	4G15032	DLW	07/15/14 13:00	07/15/14 13:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.089**	0.010	mg/L	1	4G16007	KRL	07/16/14 09:00	07/22/14 14:43	EPA 200.7	
Zinc	**0.846**	0.020	"	"	"	KRL	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/25/14 12:41

UFS-C

1407248-07 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**155**	1.0	mg/L	1	4G15032	DLW	07/15/14 13:00	07/15/14 13:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.061**	0.010	mg/L	1	4G16007	KRL	07/16/14 09:00	07/22/14 14:47	EPA 200.7	
Zinc	**4.37**	0.020	"	"	"	KRL	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/25/14 12:41

UFS-UC

1407248-08 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**99.0**	1.0	mg/L	1	4G15032	DLW	07/15/14 13:00	07/15/14 13:00	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.276**	0.010	mg/L	1	4G16007	KRL	07/16/14 09:00	07/22/14 14:51	EPA 200.7	
Zinc	**20.7**	0.020	"	"	"	KRL	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/25/14 12:41

Classical Chemistry Parameters - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4G15032 - Default Prep GenChem										
Blank (4G15032-BLK1)						***Prepared & Analyzed: 07/15/14***				
Total Suspended Solids	ND	1.0	mg/L							
LCS (4G15032-BS1)						***Prepared & Analyzed: 07/15/14***				
Total Suspended Solids	81.0		mg/L	100		81.0	75-125			
LCS Dup (4G15032-BSD1)						***Prepared & Analyzed: 07/15/14***				
Total Suspended Solids	83.0		mg/L	100		83.0	75-125	2.44	25	
Duplicate (4G15032-DUP1)		**Source: 1407248-01**				***Prepared & Analyzed: 07/15/14***				
Total Suspended Solids	59.0	1.0	mg/L		55.0			7.02	5	RPD04

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/25/14 12:41

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4G16007 - EPA 200.2										
Blank (4G16007-BLK1)						***Prepared: 07/16/14 Analyzed: 07/22/14***				
Copper	ND	0.010	mg/L							
Zinc	ND	0.020	"							
LCS (4G16007-BS1)						***Prepared: 07/16/14 Analyzed: 07/22/14***				
Copper	0.196	0.010	mg/L	0.200		98.0	85-115			
Zinc	0.182	0.020	"	0.200		91.2	85-115			
LCS Dup (4G16007-BSD1)						***Prepared: 07/16/14 Analyzed: 07/22/14***				
Copper	0.206	0.010	mg/L	0.200		103	85-115	4.86	20	
Zinc	0.195	0.020	"	0.200		97.7	85-115	6.92	20	
Matrix Spike (4G16007-MS1)	**Source: 1407253-02**					***Prepared: 07/16/14 Analyzed: 07/22/14***				
Copper	0.196	0.010	mg/L	0.200	ND	98.2	70-130			
Zinc	0.177	0.020	"	0.200	ND	88.5	70-130			
Matrix Spike Dup (4G16007-MSD1)	**Source: 1407253-02**					***Prepared: 07/16/14 Analyzed: 07/22/14***				
Copper	0.194	0.010	mg/L	0.200	ND	96.8	70-130	1.41	20	
Zinc	0.173	0.020	"	0.200	ND	86.3	70-130	2.58	20	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Multiple Controls Project Number: [none] Project Manager: Jake White	**Reported:** 07/25/14 12:41

Certified Analyses Included in this Report

Analyte	Certification Code
EPA 200.7 in Water	
Aluminum	C01,C02
Antimony	C01,C02
Arsenic	C01,C02
Barium	C01,C02,C04
Beryllium	C01,C02,C04
Boron	C01,C02
Cadmium	C01,C02,C04
Calcium	C01,C02,C04
Chromium	C01,C02,C04
Cobalt	C01,C02
Copper	C01,C02,C04
Iron	C01,C02,C04
Lead	C01,C02,C04
Magnesium	C01,C02
Manganese	C01,C02
Molybdenum	C01,C02
Nickel	C01,C02,C04
Potassium	C01,C02
Selenium	C01,C02,C04
Silver	C01,C02
Sodium	C01,C02,C04
Strontium	C01,C02
Thallium	C01,C02
Tin	C01,C02
Titanium	C01,C02,C04
Vanadium	C01,C02
Zinc	C01,C02
Phosphorus	C01,C02
SM 2540 D in Water	
Total Suspended Solids	C01,C02

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Multiple Controls Project Number: [none] Project Manager: Jake White	**Reported:** 07/25/14 12:41

Laboratory Accreditations/Certifications

Code	Description	Number	Expires
C01	*La Environmental Lab Accreditation Program*	*01960*	*06/30/2015*
C02	*National Environmental Lab Accreditation Program*	*TNI01397*	*06/30/2015*
C03	*Ms Dept of Health (Coliform)*	*MS00021*	*12/31/2014*
C04	*Ms Dept of Health (Drinking Water Certificate)*	*MS00021*	*12/31/2014*
C05	*Ms DEQ Lead Firm Certification*	*PBF-00000028*	*10/15/2014*
C06	*MsDEQ Asbestos Inspector : C.D. Bingham*	*ABI-00001348*	*03/14/2015*
C07	*MsDEQ Air Monitor : C.D. Bingham*	*AM-011572*	*03/13/2015*
C08	*MsDEQ Asbestos Inspector: C. W. Meins*	*ABI-00001821*	*10/03/2014*
C09	*MsDEQ Air Monitor : C.W. Meins*	*AM-011189*	*03/13/2015*
C12	*MsDEQ Asbestos Inspector : H.P. Howell*	*ABI-00001345*	*03/14/2015*
C14	*MsDEQ Lead Paint Inspector : C.D. Bingham*	*PBI-00003690*	*04/20/2015*
C15	*MsDEQ Lead Paint Inspector : C.W. Meins*	*PBI-00001740*	*04/20/2015*

Report Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the minimum reporting limit
NR	Not Reported
RPD	Relative Percent Difference
ICV	Initial Calibration Verfiication
CCV	Continuing Calibration Verification Standard
SSV	Secondary Source Verfication Standard
LCS	Lab Control Spike - Lab matrix prepared with known concentration of analyte/s of interest analyzed by method.
MS	Matrix Spike - Sample prepared with known concentration of analyte/s of interest analyzed by method.
MSD	Matrix Spike Duplicate - Duplicate sample prepared with known concentration of anlayte/s of interest analyzed by method.
MRL	Minimum Reporting Limit
%REC	Percentage Recovery of known concentration added to matrix
Batch	Group of samples prepared for analysis not to exceed 20 samples.
Matrix	Material containing analyte/s of interest
Surrogate	Analyte added to sample to determine extraction efficiency of method.

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive, Ocean Springs, MS 39564
(228) 875-6420 FAX (228) 875-6423
www.micromethodslab.com

Chain of Custody Record

M-M Lab WO # 1407248

Company Name: ECS, Inc	Project Manager: Jake White
Address: P.O. Box 356	Purchase Order #:
City: Sherman State: MS Zip: 38869	Email Address: jwhite@envirocompact
Phone: (228) 217-6254	Sampler Name Printed: Justin Bates
Fax:	Sampler Name Signed: [signature]

Turn Around Time & Reporting

Our normal turn around time is 7-10 working days

✓ Normal
__Next Day*
__2nd Day*
__Other*______

*All rush order requests must be prior approved.

__Phone
__Mail
__Fax
__Email

Project Name: Multiple Controls
Project #:

Lab Analyses Required

Sample Identification	Sampling Date/Time	# of Containers	Sample Code	TSS	Metals Zn	Metals Cu
MZC	7/11/14 3:30 PM	2		X	X	X
MZU	7/11/14 3:30 PM	2		X	X	X
FSC	7/11/14 3:35 PM	2		X	X	X
FSU	7/11/14 3:35 PM	2		X	X	X
FMC	7/11/14 3:40 PM	2		X	X	X
FMU	7/11/14 3:40 PM	2		X	X	X
UFSC	7/11/14 4:05 PM	2		X	X	X
UFSU	7/11/14 4:05 PM	2		X	X	X

Note Special Instructions/Comments

Field pH _____ Collect Time______ ReadTime ______
Field D.O. _____Collect Time_______ Read Time ______
Field Temp._____Collect Time______ Read Time ______
QC Level: Level 1 ☐ Level 2 ☐ Level 3 ☐

Matrix Code: W= Water, S= Soil, O= Oil, L= Liquid, SL= Sludge
Sample Code: G= Grab C= Composite

	Signature	Printed Name	Company	Date	Time
Relinquished by	[signature]	Justin Bates	ECS	7/14	4:59 PM
Received by	[signature]	Harry Howell	MM	7/14	1659
Relinquished by					
Received by					
Relinquished by					
Received by					

Lab Use Only

Notes

Sample Rcvd. on Ice: Yes ☒ No ☐
Thermometer # T3 Cooler # 7**
Receipt Temp (°C) 1.5 Sample ☐ Blank ☒
By: [initials]
Date & Time 7-14-14

DCN# F316 Rev.#1

	Issue Date: 7/18/11	Micro-Methods Laboratory Log-In Checklist	
	Implementation Date: 7/18/11		DCN: F207
			Date Revised: 7-18-11
			Revision: 4

Client ECS **WO** 1407248 **Shipped By** client ST
Date/Time Received 7/14/14 @ 1659 **Unpacked/Checked By** ST

Cooler ID	Ice Present Yes/No	Temperature	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
#700	yes	1.5°c	T#3	no	n/a

If not iced, were samples received within one hour of collection? Yes ___ No ___ N/A X
Temperature Blank Used Yes X No ____ If not, temperature taken from cooler ____ or bottle ____
Multi Cooler shipment: ID of samples in coolers that exceed 6°C _____

Custody Seals on Bottles Present Yes ___ No X
Containers Intact Yes X No ___
Proper Containers for Requested Analysis Yes X No ___

Correct Preservation Used for All Samples Yes X No ___
Adequate Sample for Analysis Requested Yes X No ___

Volatile Vials Headspace Greater than 6mm in Diameter Yes ___ No ___ N/A X

Chain of Custody Form Included Yes X No ___
Chain of Custody Form Complete Yes X No ___
Chain of Custody Form Properly Relinquished Yes X No ___
Field Sheets/Special Instructions Included Yes ___ No ___ N/A X
Samples Missing on COC or From Cooler Yes ___ No X
Sample Container Labels Match COC Yes X No ___

Samples Received Within Holding Time Yes X No ___
Dept. Manager Notified of Rush/Short Holding Times Yes ___ No ___ N/A X

Does work order meet Micro Methods sample acceptance criteria Yes X No ___
Note: Samples that do not meet acceptance criteria must be documented in the Sample Rejection Log.

Client Contacted _____ **Contacted By** _____ **Date/Time** _____
Client Instructions: Cancel Work Order ____
Proceed with Work Order _____ **(Data will be qualified)**
Comments: _____

MICRO-METHODS
LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228.875.6420 Phone
228.875.6423 Fax

July 30, 2014

Jake White

Work Order # : 1407404

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs, MS 39566

Purchase Order #:

RE: Multiple Controls

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 07/21/14 16:26. If you have any questions concerning this report, please feel free to contact the office.

Sincerely,

Harry P. Howell

President
Micro-Methods Laboratory, Inc.

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/30/14 10:35

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
MZ-C	1407404-01	Water	07/18/14 15:59	*Jake White*	07/21/14 16:26
MZ-UC	1407404-02	Water	07/18/14 15:57	*Jake White*	07/21/14 16:26
FM-UC	1407404-03	Water	07/18/14 16:12	*Jake White*	07/21/14 16:26
FM-C	1407404-04	Water	07/18/14 16:16	*Jake White*	07/21/14 16:26
CH-C	1407404-05	Water	07/18/14 15:43	*Jake White*	07/21/14 16:26
CH-U	1407404-06	Water	07/18/14 15:38	*Jake White*	07/21/14 16:26
FS-C	1407404-07	Water	07/18/14 16:09	*Jake White*	07/21/14 16:26
FS-UC	1407404-08	Water	07/18/14 16:06	*Jake White*	07/21/14 16:26

Sample Receipt Conditions

Date/Time Received: 7/21/2014 4:26:00PM
Received by: Sarah E. Tomek
Date/Time Logged: 7/22/2014 8:20:00AM
Cooler ID: #700

Shipped by: Client Delivery
Submitted by: Justin Bates
Logged by: Sarah E. Tomek
Receipt Temperature: 0.0 °C

Custody Seals	*No*	*Received on Ice*	*Yes*
Containers Intact	*Yes*	*No Ice, Short Trip*	*No*
COC/Labels Agree	*Yes*	*Obvious Contamination*	*No*
Labels Complete	*No*	*Rush to meet HT*	*No*
COC Complete	*Yes*		

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Multiple Controls Project Number: [none] Project Manager: Jake White	**Reported:** 07/30/14 10:35

CASE NARRATIVE SUMMARY

All reported results are within Micro-Methods Laboratory, Inc.defined laboratory quality control objectives unless detailed in narrative summary or identified as qualifications. NOTE: All results listed on this report are calculated on a wet weight basis (as received by the laboratory) unless otherwise noted in the analysis qualification sections.

Summary Comments: *No Summary Comments*

Qualification: *No Data Qualification*

Analyte & Samples(s) Qualified: *None*

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/30/14 10:35

MZ-C

1407404-01 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**56.0**	1.0	mg/L	1	4G23004	DLW	07/22/14 11:20	07/23/14 08:39	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.140**	0.010	mg/L	1	4G22010	KRL	07/22/14 10:00	07/28/14 14:49	EPA 200.7	
Zinc	**0.952**	0.020	"	"	"	KRL	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/30/14 10:35

MZ-UC

1407404-02 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**198**	1.0	mg/L	1	4G23004	DLW	07/22/14 11:20	07/23/14 08:39	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.224**	0.010	mg/L	1	4G22010	KRL	07/22/14 10:00	07/28/14 14:53	EPA 200.7	
Zinc	**2.02**	0.020	"	"	"	KRL	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/30/14 10:35

FM-UC

1407404-03 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**28.0**	1.0	mg/L	1	4G23004	DLW	07/22/14 11:20	07/23/14 08:39	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.037**	0.010	mg/L	1	4G22010	KRL	07/22/14 10:00	07/28/14 14:58	EPA 200.7	
Zinc	**0.270**	0.020	"	"	"	KRL	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/30/14 10:35

FM-C

1407404-04 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**129**	1.0	mg/L	1	4G23004	DLW	07/22/14 11:20	07/23/14 08:39	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.047**	0.010	mg/L	1	4G22010	KRL	07/22/14 10:00	07/28/14 15:02	EPA 200.7	
Zinc	**0.302**	0.020	"	"	"	KRL	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/30/14 10:35

CH-C

1407404-05 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**168**	1.0	mg/L	1	4G23004	DLW	07/22/14 11:20	07/23/14 08:39	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.113**	0.010	mg/L	1	4G22010	KRL	07/22/14 10:00	07/28/14 15:06	EPA 200.7	
Zinc	**6.05**	0.020	"	"	"	KRL	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/30/14 10:35

CH-U

1407404-06 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**274**	1.0	mg/L	1	4G23004	DLW	07/22/14 11:20	07/23/14 08:39	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.245**	0.010	mg/L	1	4G22010	KRL	07/22/14 10:00	07/28/14 15:10	EPA 200.7	
Zinc	**10.2**	0.020	"	"	"	KRL	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/30/14 10:35

FS-C

1407404-07 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**175**	1.0	mg/L	1	4G23004	DLW	07/22/14 11:20	07/23/14 08:39	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.244**	0.010	mg/L	1	4G22010	KRL	07/22/14 10:00	07/28/14 15:14	EPA 200.7	
Zinc	**1.11**	0.020	"	"	"	KRL	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/30/14 10:35

FS-UC

1407404-08 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**147**	1.0	mg/L	1	4G23004	DLW	07/22/14 11:20	07/23/14 08:39	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.095**	0.010	mg/L	1	4G22010	KRL	07/22/14 10:00	07/28/14 15:18	EPA 200.7	
Zinc	**0.628**	0.020	"	"	"	KRL	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/30/14 10:35

Classical Chemistry Parameters - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4G23004 - Default Prep GenChem										
Blank (4G23004-BLK1)						***Prepared: 07/22/14 Analyzed: 07/23/14***				
Total Suspended Solids	ND	1.0	mg/L							
LCS (4G23004-BS1)						***Prepared: 07/22/14 Analyzed: 07/23/14***				
Total Suspended Solids	84.0		mg/L	100		84.0	75-125			
LCS Dup (4G23004-BSD1)						***Prepared: 07/22/14 Analyzed: 07/23/14***				
Total Suspended Solids	83.0		mg/L	100		83.0	75-125	1.20	25	
Duplicate (4G23004-DUP1)		**Source: 1407404-01**				***Prepared: 07/22/14 Analyzed: 07/23/14***				
Total Suspended Solids	57.0	1.0	mg/L		56.0			1.77	5	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
07/30/14 10:35

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4G22010 - EPA 200.2										
Blank (4G22010-BLK1)						***Prepared: 07/22/14 Analyzed: 07/28/14***				
Copper	ND	0.010	mg/L							
Zinc	ND	0.020	"							
LCS (4G22010-BS1)						***Prepared: 07/22/14 Analyzed: 07/28/14***				
Copper	0.209	0.010	mg/L	0.200		105	85-115			
Zinc	0.187	0.020	"	0.200		93.5	85-115			
LCS Dup (4G22010-BSD1)						***Prepared: 07/22/14 Analyzed: 07/28/14***				
Copper	0.208	0.010	mg/L	0.200		104	85-115	0.651	20	
Zinc	0.187	0.020	"	0.200		93.3	85-115	0.225	20	
Matrix Spike (4G22010-MS1)	**Source: 1407397-01**					***Prepared: 07/22/14 Analyzed: 07/28/14***				
Copper	0.193	0.010	mg/L	0.200	ND	96.6	70-130			
Zinc	0.181	0.020	"	0.200	ND	90.7	70-130			
Matrix Spike Dup (4G22010-MSD1)	**Source: 1407397-01**					***Prepared: 07/22/14 Analyzed: 07/28/14***				
Copper	0.197	0.010	mg/L	0.200	ND	98.3	70-130	1.70	20	
Zinc	0.181	0.020	"	0.200	ND	90.5	70-130	0.164	20	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Multiple Controls Project Number: [none] Project Manager: Jake White	**Reported:** 07/30/14 10:35

Certified Analyses Included in this Report

Analyte	Certification Code
EPA 200.7 in Water	
Aluminum	C01,C02
Antimony	C01,C02
Arsenic	C01,C02
Barium	C01,C02,C04
Beryllium	C01,C02,C04
Boron	C01,C02
Cadmium	C01,C02,C04
Calcium	C01,C02,C04
Chromium	C01,C02,C04
Cobalt	C01,C02
Copper	C01,C02,C04
Iron	C01,C02,C04
Lead	C01,C02,C04
Magnesium	C01,C02
Manganese	C01,C02
Molybdenum	C01,C02
Nickel	C01,C02,C04
Potassium	C01,C02
Selenium	C01,C02,C04
Silver	C01,C02
Sodium	C01,C02,C04
Strontium	C01,C02
Thallium	C01,C02
Tin	C01,C02
Titanium	C01,C02,C04
Vanadium	C01,C02
Zinc	C01,C02
Phosphorus	C01,C02
SM 2540 D in Water	
Total Suspended Solids	C01,C02

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Multiple Controls Project Number: [none] Project Manager: Jake White	**Reported:** 07/30/14 10:35

Laboratory Accreditations/Certifications

Code	Description	Number	Expires
C01	*La Environmental Lab Accreditation Program*	*01960*	*06/30/2015*
C02	*National Environmental Lab Accreditation Program*	*TNI01397*	*06/30/2015*
C03	*Ms Dept of Health (Coliform)*	*MS00021*	*12/31/2014*
C04	*Ms Dept of Health (Drinking Water Certificate)*	*MS00021*	*12/31/2014*
C05	*Ms DEQ Lead Firm Certification*	*PBF-00000028*	*10/15/2014*
C06	*MsDEQ Asbestos Inspector : C.D. Bingham*	*ABI-00001348*	*03/14/2015*
C07	*MsDEQ Air Monitor : C.D. Bingham*	*AM-011572*	*03/13/2015*
C08	*MsDEQ Asbestos Inspector: C. W. Meins*	*ABI-00001821*	*10/03/2014*
C09	*MsDEQ Air Monitor : C.W. Meins*	*AM-011189*	*03/13/2015*
C12	*MsDEQ Asbestos Inspector : H.P. Howell*	*ABI-00001345*	*03/14/2015*
C14	*MsDEQ Lead Paint Inspector : C.D. Bingham*	*PBI-00003690*	*04/20/2015*
C15	*MsDEQ Lead Paint Inspector : C.W. Meins*	*PBI-00001740*	*04/20/2015*

Report Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the minimum reporting limit
NR	Not Reported
RPD	Relative Percent Difference
ICV	Initial Calibration Verfiication
CCV	Continuing Calibration Verification Standard
SSV	Secondary Source Verfication Standard
LCS	Lab Control Spike - Lab matrix prepared with known concentration of analyte/s of interest analyzed by method.
MS	Matrix Spike - Sample prepared with known concentration of analyte/s of interest analyzed by method.
MSD	Matrix Spike Duplicate - Duplicate sample prepared with known concentration of anlayte/s of interest analyzed by method.
MRL	Minimum Reporting Limit
%REC	Percentage Recovery of known concentration added to matrix
Batch	Group of samples prepared for analysis not to exceed 20 samples.
Matrix	Material containing analyte/s of interest
Surrogate	Analyte added to sample to determine extraction efficiency of method.

MICRO-METHODS LABORATORY, INC.
6500 Sunplex Drive, Ocean Springs, MS 39564
(228) 875-6420 FAX (228) 875-6423
www.micromethodslab.com

Chain of Custody Record

M-M Lab WO # 1407404

Company Name: ECS	Project Manager: JAKE WHITE
Address: P.O. Box 356	Purchase Order #:
City: SHERMAN State: MS Zip: 38869	Email Address : Jwhite@envirocomp.net
Phone: (228) 217-6254	Sampler Name Printed: JAKE WHITE
Fax:	Sampler Name Signed:

Turn Around Time & Reporting

Our normal turn around time is 7-10 working days

✓ Normal
__Next Day*
__2nd Day*
__Other*_____

*All rush order requests must be prior approved.

__Phone
__Mail
__Fax
__Email

Project Name: Multiple Controls
Project #:

List Analyses Requested

Sample Identification	Sampling Date/Time	# of Containers	Sample Code	TSS	Metals (Zn & Cu)
MZC	7/18/14 1559	2		X	X
MZU	7/18/14 1557	2		X	X
EMU	7/18/14 1612	2		X	X
EMC	7/18/14 1616	2		X	X
CHC	7/18/14 1543	2		X	X
CHU	7/18/14 1538	2		X	X
ESC	7/18/14 1609	2		X	X
ESU	7/18/14 1606	2		X	X

Note Special Instructions/Comments

Field pH _____ Collect Time_____ ReadTime _____
Field D.O. _____Collect Time_____ Read Time _____
Field Temp._____Collect Time_____ Read Time _____
QC Level: Level 1 ☐ Level 2 ☐ Level 3 ☐

Matrix Code: W= Water, S= Soil, O= Oil, L= Liquid, SL= Sludge
Sample Code: G= Grab C= Composite

Lab Use Only

Notes

	Signature	Printed Name	Company	Date	Time
Relinquished by		JAKE WHITE	ECS	7/18/14	1712
Received by		Justin Bates	ECS	7/18/14	1712
Relinquished by		Justin Bates	ECS	7/21/14	1626
Received by		Sarah Tomek	MM	7/21/14	1626
Relinquished by					
Received by					

Sample Rcvd. on Ice Yes ☒ No ☐
Thermometer # 3 Cooler # 700
Receipt Temp (°C) 2.0 Sample ☐ Blank ☒
By: SJ
Date & Time _____

	Issue Date: 7/18/11	Micro-Methods Laboratory Log-In Checklist	
	Implementation Date: 7/18/11		DCN: F207
			Date Revised: 7-18-11
			Revision: 4

Client ECS **WO** 1407404 **Shipped By** Client
Date/Time Received 7/21/14 @ 1626 **Unpacked/Checked By** ST

Cooler ID	Ice Present Yes/No	Temperature	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
#700	Yes	0.0°C	T#3	No	n/a

If not iced, were samples received within one hour of collection? Yes ___ No___ N/A X
Temperature Blank Used Yes X No _____ If not, temperature taken from cooler ____or bottle____
Multi Cooler shipment: ID of samples in coolers that exceed 6°C_____

Custody Seals on Bottles Present Yes ___ No X
Containers Intact Yes X No___
Proper Containers for Requested Analysis Yes X No___

Correct Preservation Used for All Samples Yes X No___
Adequate Sample for Analysis Requested Yes X No___

Volatile Vials Headspace Greater than 6mm in Diameter Yes ___ No ___ N/A X

Chain of Custody Form Included Yes X No___
Chain of Custody Form Complete Yes X No___
Chain of Custody Form Properly Relinquished Yes X No___
Field Sheets/Special Instructions Included Yes ___No___ N/A X
Samples Missing on COC or From Cooler Yes ___No X
Sample Container Labels Match COC Yes X No___

Samples Received Within Holding Time Yes X No___
Dept. Manager Notified of Rush/Short Holding Times Yes ___No___N/A X

Does work order meet Micro Methods sample acceptance criteria Yes X No ___
Note: Samples that do not meet acceptance criteria must be documented in the Sample Rejection Log.

Client Contacted _____ **Contacted By** _____ **Date/Time**_____
Client Instructions: Cancel Work Order _____
Proceed with Work Order _____**(Data will be qualified)**
Comments: _____

6500 Sunplex Drive
Ocean Springs, MS 39564
228.875.6420 Phone
228.875.6423 Fax

October 06, 2014

Jake White

Work Order # : 1410055

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs, MS 39566

Purchase Order #:

RE: Multiple Controls

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 10/02/14 15:59. If you have any questions concerning this report, please feel free to contact the office.

Sincerely,

Harry P. Howell

President
Micro-Methods Laboratory, Inc.

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/06/14 12:14

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
FM-UC	1410055-01	Water	10/02/14 11:07	*Jake White*	10/02/14 15:59
FM-C	1410055-02	Water	10/02/14 11:12	*Jake White*	10/02/14 15:59
FS-C	1410055-03	Water	10/02/14 11:24	*Jake White*	10/02/14 15:59
FS-UC	1410055-04	Water	10/02/14 11:19	*Jake White*	10/02/14 15:59
CW-U	1410055-05	Water	10/02/14 11:36	*Jake White*	10/02/14 15:59
CW-C	1410055-06	Water	10/02/14 11:42	*Jake White*	10/02/14 15:59
CH-U	1410055-07	Water	10/02/14 11:59	*Jake White*	10/02/14 15:59
CH-C	1410055-08	Water	10/02/14 12:07	*Jake White*	10/02/14 15:59
UF-U	1410055-09	Water	10/02/14 12:21	*Justin Bates*	10/02/14 15:59
UF-C	1410055-10	Water	10/02/14 12:28	*Justin Bates*	10/02/14 15:59

Sample Receipt Conditions

Date/Time Received: 10/2/2014 3:59:00PM
Received by: Sarah E. Tomek
Date/Time Logged: 10/3/2014 8:03:00AM
Cooler ID: **#383**

Shipped by: Client Delivery
Submitted by: Jake White
Logged by: Sarah E. Tomek
Receipt Temperature: 2.1 °C

Custody Seals	*No*	*Received on Ice*	*Yes*
Containers Intact	*Yes*	*No Ice, Short Trip*	*No*
COC/Labels Agree	*Yes*	*Obvious Contamination*	*No*
Labels Complete	*No*	*Rush to meet HT*	*No*
COC Complete	*Yes*		

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Multiple Controls Project Number: [none] Project Manager: Jake White	**Reported:** 10/06/14 12:14

CASE NARRATIVE SUMMARY

All reported results are within Micro-Methods Laboratory, Inc.defined laboratory quality control objectives unless detailed in narrative summary or identified as qualifications. NOTE: All results listed on this report are calculated on a wet weight basis (as received by the laboratory) unless otherwise noted in the analysis qualification sections.

Summary Comments: *No Summary Comments*

Total Metals-EPA 200.8

Qualification:

QD-10 The analyte concentration is greater than 10 times the spike concentration. The Matrix Spike result reported as Duplicate. The QC batch was accepted based on LCS/LCSD and Duplicate recoveries within the acceptance limits.

Zinc
4J03016-DUP1

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/06/14 12:14

FM-UC

1410055-01 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**608**	1.0	mg/L	1	4J03013	DLW	10/03/14 10:45	10/03/14 10:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.614**	0.010	mg/L	10	4J03016	SCH	10/03/14 10:00	10/03/14 14:12	EPA 200.8	
Zinc	**5.35**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/06/14 12:14

FM-C

1410055-02 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**702**	1.0	mg/L	1	4J03013	DLW	10/03/14 10:45	10/03/14 10:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.984**	0.010	mg/L	10	4J03016	SCH	10/03/14 10:00	10/03/14 14:14	EPA 200.8	
Zinc	**7.78**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/06/14 12:14

FS-C

1410055-03 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**1360**	1.0	mg/L	1	4J03013	DLW	10/03/14 10:45	10/03/14 10:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**1.17**	0.010	mg/L	10	4J03016	SCH	10/03/14 10:00	10/03/14 14:17	EPA 200.8	
Zinc	**8.91**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/06/14 12:14

FS-UC

1410055-04 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**394**	1.0	mg/L	1	4J03013	DLW	10/03/14 10:45	10/03/14 10:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.609**	0.010	mg/L	10	4J03016	SCH	10/03/14 10:00	10/03/14 14:20	EPA 200.8	
Zinc	**5.37**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/06/14 12:14

CW-U

1410055-05 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**1140**	1.0	mg/L	1	4J03013	DLW	10/03/14 10:45	10/03/14 10:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**1.01**	0.010	mg/L	10	4J03016	SCH	10/03/14 10:00	10/03/14 14:23	EPA 200.8	
Zinc	**7.76**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/06/14 12:14

CW-C

1410055-06 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**690**	1.0	mg/L	1	4J03013	DLW	10/03/14 10:45	10/03/14 10:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**3.22**	0.010	mg/L	10	4J03016	SCH	10/03/14 10:00	10/03/14 14:29	EPA 200.8	
Zinc	**13.9**	0.200	"	100	"	SCH	"	10/03/14 15:29	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/06/14 12:14

CH-U

1410055-07 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**642**	1.0	mg/L	1	4J03013	DLW	10/03/14 10:45	10/03/14 10:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.512**	0.010	mg/L	10	4J03016	SCH	10/03/14 10:00	10/03/14 14:31	EPA 200.8	
Zinc	**4.09**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/06/14 12:14

CH-C

1410055-08 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**334**	1.0	mg/L	1	4J03013	DLW	10/03/14 10:45	10/03/14 10:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.315**	0.001	mg/L	1	4J03016	SCH	10/03/14 10:00	10/03/14 15:21	EPA 200.8	
Zinc	**4.00**	0.020	"	10	"	SCH	"	10/03/14 14:34	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/06/14 12:14

UF-U

1410055-09 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**722**	1.0	mg/L	1	4J03013	DLW	10/03/14 10:45	10/03/14 10:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.671**	0.010	mg/L	10	4J03016	SCH	10/03/14 10:00	10/03/14 14:48	EPA 200.8	
Zinc	**5.28**	0.020	"	"	"	SCH	"	"	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/06/14 12:14

UF-C

1410055-10 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**1440**	1.0	mg/L	1	4J03013	DLW	10/03/14 10:45	10/03/14 10:45	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**1.29**	0.010	mg/L	10	4J03016	SCH	10/03/14 10:00	10/03/14 14:51	EPA 200.8	
Zinc	**11.2**	0.200	"	100	"	SCH	"	10/03/14 15:31	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/06/14 12:14

Classical Chemistry Parameters - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4J03013 - Default Prep GenChem										
Blank (4J03013-BLK1)							***Prepared & Analyzed: 10/03/14***			
Total Suspended Solids	ND	1.0	mg/L							
LCS (4J03013-BS1)							***Prepared & Analyzed: 10/03/14***			
Total Suspended Solids	82.0		mg/L	100		82.0	75-125			
LCS Dup (4J03013-BSD1)							***Prepared & Analyzed: 10/03/14***			
Total Suspended Solids	87.0		mg/L	100		87.0	75-125	5.92	25	
Duplicate (4J03013-DUP1)		**Source: 1410055-10**					***Prepared & Analyzed: 10/03/14***			
Total Suspended Solids	1420	1.0	mg/L		1440			1.40	5	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/06/14 12:14

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4J03016 - EPA 200.2										
Blank (4J03016-BLK1)							***Prepared & Analyzed: 10/03/14***			
Copper	ND	0.001	mg/L							
Zinc	ND	0.002	"							
LCS (4J03016-BS1)							***Prepared & Analyzed: 10/03/14***			
Copper	0.218	0.001	mg/L	0.200		109	85-115			
Zinc	0.197	0.002	"	0.200		98.7	85-115			
LCS Dup (4J03016-BSD1)							***Prepared & Analyzed: 10/03/14***			
Copper	0.202	0.001	mg/L	0.200		101	85-115	7.93	20	
Zinc	0.187	0.002	"	0.200		93.4	85-115	5.53	20	
Duplicate (4J03016-DUP1)	**Source: 1410055-08**						***Prepared & Analyzed: 10/03/14***			
Zinc	4.28	0.020	mg/L		4.00			6.86	20	QD-10
Matrix Spike (4J03016-MS1)	**Source: 1410055-08**						***Prepared & Analyzed: 10/03/14***			
Copper	0.497	0.001	mg/L	0.200	0.315	91.4	70-130			
Matrix Spike (4J03016-MS2)	**Source: 1410061-01**						***Prepared & Analyzed: 10/03/14***			
Copper	0.210	0.001	mg/L	0.200	0.003	104	70-130			
Zinc	0.213	0.002	"	0.200	0.018	97.8	70-130			
Matrix Spike Dup (4J03016-MSD1)	**Source: 1410055-08**						***Prepared & Analyzed: 10/03/14***			
Copper	0.483	0.001	mg/L	0.200	0.315	84.2	70-130	2.95	20	
Matrix Spike Dup (4J03016-MSD2)	**Source: 1410061-01**						***Prepared & Analyzed: 10/03/14***			
Copper	0.204	0.001	mg/L	0.200	0.003	101	70-130	2.95	20	
Zinc	0.209	0.002	"	0.200	0.018	95.5	70-130	2.18	20	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Multiple Controls Project Number: [none] Project Manager: Jake White	**Reported:** 10/06/14 12:14

Certified Analyses Included in this Report

Analyte	Certification Code
SM 2540 D in Water	
Total Suspended Solids	C01,C02

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Multiple Controls Project Number: [none] Project Manager: Jake White	**Reported:** 10/06/14 12:14

Laboratory Accreditations/Certifications

Code	Description	Number	Expires
C01	*La Environmental Lab Accreditation Program*	*01960*	*06/30/2015*
C02	*National Environmental Lab Accreditation Program*	*TNI01397*	*06/30/2015*
C03	*Ms Dept of Health (Coliform)*	*MS00021*	*12/31/2014*
C04	*Ms Dept of Health (Drinking Water Certificate)*	*MS00021*	*12/31/2014*
C05	*Ms DEQ Lead Firm Certification*	*PBF-00000028*	*10/15/2014*
C06	*MsDEQ Asbestos Inspector : C.D. Bingham*	*ABI-00001348*	*03/14/2015*
C07	*MsDEQ Air Monitor : C.D. Bingham*	*AM-011572*	*03/13/2015*
C08	*MsDEQ Asbestos Inspector: C. W. Meins*	*ABI-00001821*	*10/03/2014*
C09	*MsDEQ Air Monitor : C.W. Meins*	*AM-011189*	*03/13/2015*
C12	*MsDEQ Asbestos Inspector : H.P. Howell*	*ABI-00001345*	*03/14/2015*
C14	*MsDEQ Lead Paint Inspector : C.D. Bingham*	*PBI-00003690*	*04/20/2015*
C15	*MsDEQ Lead Paint Inspector : C.W. Meins*	*PBI-00001740*	*04/20/2015*

Report Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the minimum reporting limit
NR	Not Reported
RPD	Relative Percent Difference
ICV	Initial Calibration Verfiication
CCV	Continuing Calibration Verification Standard
SSV	Secondary Source Verfication Standard
LCS	Lab Control Spike - Lab matrix prepared with known concentration of analyte/s of interest analyzed by method.
MS	Matrix Spike - Sample prepared with known concentration of analyte/s of interest analyzed by method.
MSD	Matrix Spike Duplicate - Duplicate sample prepared with known concentration of anlayte/s of interest analyzed by method.
MRL	Minimum Reporting Limit
%REC	Percentage Recovery of known concentration added to matrix
Batch	Group of samples prepared for analysis not to exceed 20 samples.
Matrix	Material containing analyte/s of interest
Surrogate	Analyte added to sample to determine extraction efficiency of method.

MICRO-METHODS LABORATORY, INC.
6500 Sunplex Drive, Ocean Springs, MS 39564
(228) 875-6420 FAX (228) 875-6423
www.micromethodslab.com

Chain of Custody Record

M-M Lab WO # 1410055

Company Name: ECS, Inc.	Project Manager: Jake White
Address: P.O. Box 356	Purchase Order #:
City: Sherman State: MS Zip: 38869	Email Address: Jwhite@envirocomp.net
Phone: (228) 217-6254	Sampler Name Printed: Jake White
Fax:	Sampler Name Signed:

Turn Around Time & Reporting

Our normal turn around time is 7-10 working days

✓ Normal
__Next Day*
__2nd Day*
__Other*_____

*All rush order requests must be prior approved.

__Phone
__Mail
__Fax
__Email

Project Name: Multiple Controls
Project #:

List Analyses Requested

Note Special Instructions/Comments

Field pH _____ Collect Time_____ ReadTime _____
Field D.O. _____Collect Time_____ Read Time _____
Field Temp._____Collect Time_____ Read Time _____
QC Level: Level 1 ☐ Level 2 ☐ Level 3 ☐

Sample Identification	Sampling Date/Time	# of Containers	Sample Code	TSS	Metals (Cu)
FMU	10/2/14 1107 AM	2		X	X
FMC	10/2/14 1112 AM	2		X	X
FSC	1124 AM	2		X	X
FSU	1119 AM	2		X	X
CWU	1136 AM	2		X	X
CWC	1142 AM	2		X	X
CHU	11:59 AM	2		X	X
CHC	12:07 PM	2		X	X
UFU	12:21 PM	2		X	X
UFC	12:28 PM	2		X	X

Matrix Code: W= Water, S= Soil, O= Oil, L= Liquid, SL= Sludge
Sample Code: G= Grab C= Composite

Lab Use Only
Notes

	Signature	Printed Name	Company	Date	Time
Relinquished by		Jake White	ECS	10/2/14	1559
Received by			MM	10/2/14	1559
Relinquished by					
Received by					
Relinquished by					
Received by					

Sample Rcvd. on Ice Yes ☒ No ☐
Thermometer # 3 Cooler # 383
Receipt Temp (°C) 2.1 °C Sample ☐ Blank ☒
By:
Date & Time

	Issue Date: 7/18/11	**Micro-Methods Laboratory Log-In Checklist**	
	Implementation Date: 7/18/11		DCN: F207
			Date Revised: 7-18-11
			Revision: 4

Client ECS **WO** 1410055 **Shipped By** client SF
Date/Time Received 10/2/14 @ 1559 **Unpacked/Checked By** SF

Cooler ID	Ice Present Yes/No	Temperature	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
#383	Yes	2.1°c	TH3	no	n/a

If not iced, were samples received within one hour of collection? Yes ___ No___ N/A X
Temperature Blank Used Yes X No _____ If not, temperature taken from cooler ____or bottle____
Multi Cooler shipment: ID of samples in coolers that exceed 6°C_____

Custody Seals on Bottles Present Yes ___ No X
Containers Intact Yes X No___
Proper Containers for Requested Analysis Yes X No___

Correct Preservation Used for All Samples Yes X No___
Adequate Sample for Analysis Requested Yes X No___

Volatile Vials Headspace Greater than 6mm in Diameter Yes ___ No ___ N/A X

Chain of Custody Form Included Yes X No___
Chain of Custody Form Complete Yes X No___
Chain of Custody Form Properly Relinquished Yes X No___
Field Sheets/Special Instructions Included Yes ___No___ N/A X
Samples Missing on COC or From Cooler Yes ___No X
Sample Container Labels Match COC Yes X No___

Samples Received Within Holding Time Yes X No___
Dept. Manager Notified of Rush/Short Holding Times Yes ___No___N/A X

Does work order meet Micro Methods sample acceptance criteria Yes X No ___
Note: Samples that do not meet acceptance criteria must be documented in the Sample Rejection Log.

Client Contacted _____**Contacted By** _____**Date/Time**_____
Client Instructions: Cancel Work Order _____
Proceed with Work Order _____**(Data will be qualified)**
Comments: _____

MICRO-METHODS
LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228.875.6420 Phone
228.875.6423 Fax

October 09, 2014

Jake White

Work Order # : 1410071

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs, MS 39566

Purchase Order #:

RE: Multiple Controls

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 10/03/14 13:54. If you have any questions concerning this report, please feel free to contact the office.

Sincerely,

Harry P. Howell

President
Micro-Methods Laboratory, Inc.

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/09/14 15:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
FM-UC	1410071-01	Water	10/03/14 08:17	*Jake White*	10/03/14 13:54
FM-C	1410071-02	Water	10/03/14 08:24	*Jake White*	10/03/14 13:54
FS-UC	1410071-03	Water	10/03/14 08:36	*Jake White*	10/03/14 13:54
FS-C	1410071-04	Water	10/03/14 08:41	*Jake White*	10/03/14 13:54
CW-U	1410071-05	Water	10/03/14 08:55	*Jake White*	10/03/14 13:54
CW-C	1410071-06	Water	10/03/14 08:59	*Jake White*	10/03/14 13:54
UF-U	1410071-07	Water	10/03/14 09:08	*Jake White*	10/03/14 13:54
UF-C	1410071-08	Water	10/03/14 09:14	*Jake White*	10/03/14 13:54
CH-U	1410071-09	Water	10/03/14 09:27	*Jake White*	10/03/14 13:54
CH-C	1410071-10	Water	10/03/14 09:33	*Jake White*	10/03/14 13:54

Sample Receipt Conditions

Date/Time Received: 10/3/2014 1:54:00PM
Received by: Sarah E. Tomek
Date/Time Logged: 10/3/2014 2:02:00PM
Cooler ID: **#700**

Shipped by: Client Delivery
Submitted by: Jake White
Logged by: Sarah E. Tomek
Receipt Temperature: 0.7 °C

Custody Seals	*No*	*Received on Ice*	*Yes*
Containers Intact	*Yes*	*No Ice, Short Trip*	*No*
COC/Labels Agree	*Yes*	*Obvious Contamination*	*No*
Labels Complete	*No*	*Rush to meet HT*	*No*
COC Complete	*Yes*		

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Multiple Controls Project Number: [none] Project Manager: Jake White	**Reported:** 10/09/14 15:13

CASE NARRATIVE SUMMARY

All reported results are within Micro-Methods Laboratory, Inc.defined laboratory quality control objectives unless detailed in narrative summary or identified as qualifications. NOTE: All results listed on this report are calculated on a wet weight basis (as received by the laboratory) unless otherwise noted in the analysis qualification sections.

Summary Comments: *No Summary Comments*

Total Metals-EPA 200.8

Qualification:

QD-10 The analyte concentration is greater than 10 times the spike concentration. The Matrix Spike result reported as Duplicate. The QC batch was accepted based on LCS/LCSD and Duplicate recoveries within the acceptance limits.

Zinc
4J06002-DUP1

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/09/14 15:13

FM-UC

1410071-01 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**1300**	1.0	mg/L	1	4J06017	DLW	10/06/14 11:10	10/06/14 11:10	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.414**	0.001	mg/L	1	4J06002	SCH	10/06/14 10:00	10/08/14 12:53	EPA 200.8	
Zinc	**3.45**	0.020	"	10	"	SCH	"	10/08/14 13:53	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/09/14 15:13

FM-C

1410071-02 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**1370**	1.0	mg/L	1	4J06017	DLW	10/06/14 11:10	10/06/14 11:10	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.512**	0.001	mg/L	1	4J06002	SCH	10/06/14 10:00	10/08/14 13:01	EPA 200.8	
Zinc	**5.07**	0.020	"	10	"	SCH	"	10/08/14 14:37	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/09/14 15:13

FS-UC

1410071-03 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**730**	1.0	mg/L	1	4J06017	DLW	10/06/14 11:10	10/06/14 11:10	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.306**	0.001	mg/L	1	4J06002	SCH	10/06/14 10:00	10/08/14 13:04	EPA 200.8	
Zinc	**2.48**	0.020	"	10	"	SCH	"	10/08/14 14:40	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/09/14 15:13

FS-C

1410071-04 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**1170**	1.0	mg/L	1	4J06017	DLW	10/06/14 11:10	10/06/14 11:10	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.531**	0.001	mg/L	1	4J06002	SCH	10/06/14 10:00	10/08/14 13:06	EPA 200.8	
Zinc	**4.71**	0.020	"	10	"	SCH	"	10/08/14 14:09	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/09/14 15:13

CW-U

1410071-05 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**900**	1.0	mg/L	1	4J06017	DLW	10/06/14 11:10	10/06/14 11:10	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.419**	0.001	mg/L	1	4J06002	SCH	10/06/14 10:00	10/08/14 13:09	EPA 200.8	
Zinc	**3.25**	0.020	"	10	"	SCH	"	10/08/14 14:12	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/09/14 15:13

CW-C

1410071-06 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**1000**	1.0	mg/L	1	4J06017	DLW	10/06/14 11:10	10/06/14 11:10	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.770**	0.001	mg/L	1	4J06002	SCH	10/06/14 10:00	10/08/14 13:12	EPA 200.8	
Zinc	**4.75**	0.020	"	10	"	SCH	"	10/08/14 14:15	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/09/14 15:13

UF-U

1410071-07 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**910**	1.0	mg/L	1	4J06017	DLW	10/06/14 11:10	10/06/14 11:10	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.406**	0.001	mg/L	1	4J06002	SCH	10/06/14 10:00	10/08/14 13:14	EPA 200.8	
Zinc	**3.52**	0.020	"	10	"	SCH	"	10/08/14 14:17	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/09/14 15:13

UF-C

1410071-08 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**2180**	1.0	mg/L	1	4J06017	DLW	10/06/14 11:10	10/06/14 11:10	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**1.18**	0.010	mg/L	10	4J06002	SCH	10/06/14 10:00	10/08/14 14:20	EPA 200.8	
Zinc	**9.49**	0.040	"	20	"	SCH	"	10/08/14 14:42	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/09/14 15:13

CH-U

1410071-09 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**1570**	1.0	mg/L	1	4J06017	DLW	10/06/14 11:10	10/06/14 11:10	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**0.744**	0.001	mg/L	1	4J06002	SCH	10/06/14 10:00	10/08/14 13:20	EPA 200.8	
Zinc	**5.18**	0.020	"	10	"	SCH	"	10/08/14 14:23	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/09/14 15:13

CH-C

1410071-10 (Water)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
Classical Chemistry Parameters										
Total Suspended Solids	**1270**	1.0	mg/L	1	4J06017	DLW	10/06/14 11:10	10/06/14 11:10	SM 2540 D	
Metals by EPA 200 Series Methods										
Copper	**1.16**	0.010	mg/L	10	4J06002	SCH	10/06/14 10:00	10/08/14 14:26	EPA 200.8	
Zinc	**7.98**	0.040	"	20	"	SCH	"	10/08/14 14:45	"	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/09/14 15:13

Classical Chemistry Parameters - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4J06017 - Default Prep GenChem										
Blank (4J06017-BLK1)							***Prepared & Analyzed: 10/06/14***			
Total Suspended Solids	ND	1.0	mg/L							
LCS (4J06017-BS1)							***Prepared & Analyzed: 10/06/14***			
Total Suspended Solids	85.0		mg/L	100		85.0	75-125			
LCS Dup (4J06017-BSD1)							***Prepared & Analyzed: 10/06/14***			
Total Suspended Solids	83.0		mg/L	100		83.0	75-125	2.38	25	
Duplicate (4J06017-DUP1)		**Source: 1410071-01**					***Prepared & Analyzed: 10/06/14***			
Total Suspended Solids	1310	1.0	mg/L		1300			0.919	5	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/09/14 15:13

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4J06002 - EPA 200.2										
Blank (4J06002-BLK1)						***Prepared: 10/06/14 Analyzed: 10/08/14***				
Copper	ND	0.001	mg/L							
Zinc	ND	0.002	"							
LCS (4J06002-BS1)						***Prepared: 10/06/14 Analyzed: 10/08/14***				
Copper	0.206	0.001	mg/L	0.200		103	85-115			
Zinc	0.186	0.002	"	0.200		92.9	85-115			
LCS Dup (4J06002-BSD1)						***Prepared: 10/06/14 Analyzed: 10/08/14***				
Copper	0.208	0.001	mg/L	0.200		104	85-115	1.03	20	
Zinc	0.190	0.002	"	0.200		94.8	85-115	1.98	20	
Duplicate (4J06002-DUP1)	**Source: 1410071-01**					***Prepared: 10/06/14 Analyzed: 10/08/14***				
Zinc	3.74	0.020	mg/L		3.45			8.11	20	QD-10
Matrix Spike (4J06002-MS1)	**Source: 1410071-01**					***Prepared: 10/06/14 Analyzed: 10/08/14***				
Copper	0.608	0.001	mg/L	0.200	0.414	96.8	70-130			
Matrix Spike Dup (4J06002-MSD1)	**Source: 1410071-01**					***Prepared: 10/06/14 Analyzed: 10/08/14***				
Copper	0.602	0.001	mg/L	0.200	0.414	94.0	70-130	0.922	20	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Multiple Controls Project Number: [none] Project Manager: Jake White	**Reported:** 10/09/14 15:13

Certified Analyses Included in this Report

Analyte	Certification Code
SM 2540 D in Water	
Total Suspended Solids	C01,C02

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc. P O Box 906 Ocean Springs MS, 39566	Project: Multiple Controls Project Number: [none] Project Manager: Jake White	**Reported:** 10/09/14 15:13

Laboratory Accreditations/Certifications

Code	Description	Number	Expires
C01	*La Environmental Lab Accreditation Program*	*01960*	*06/30/2015*
C02	*National Environmental Lab Accreditation Program*	*TNI01397*	*06/30/2015*
C03	*Ms Dept of Health (Coliform)*	*MS00021*	*12/31/2014*
C04	*Ms Dept of Health (Drinking Water Certificate)*	*MS00021*	*12/31/2014*
C05	*Ms DEQ Lead Firm Certification*	*PBF-00000028*	*10/15/2014*
C06	*MsDEQ Asbestos Inspector : C.D. Bingham*	*ABI-00001348*	*03/14/2015*
C07	*MsDEQ Air Monitor : C.D. Bingham*	*AM-011572*	*03/13/2015*
C08	*MsDEQ Asbestos Inspector: C. W. Meins*	*ABI-00001821*	*10/03/2014*
C09	*MsDEQ Air Monitor : C.W. Meins*	*AM-011189*	*03/13/2015*
C12	*MsDEQ Asbestos Inspector : H.P. Howell*	*ABI-00001345*	*03/14/2015*
C14	*MsDEQ Lead Paint Inspector : C.D. Bingham*	*PBI-00003690*	*04/20/2015*
C15	*MsDEQ Lead Paint Inspector : C.W. Meins*	*PBI-00001740*	*04/20/2015*

Report Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the minimum reporting limit
NR	Not Reported
RPD	Relative Percent Difference
ICV	Initial Calibration Verfiication
CCV	Continuing Calibration Verification Standard
SSV	Secondary Source Verfication Standard
LCS	Lab Control Spike - Lab matrix prepared with known concentration of analyte/s of interest analyzed by method.
MS	Matrix Spike - Sample prepared with known concentration of analyte/s of interest analyzed by method.
MSD	Matrix Spike Duplicate - Duplicate sample prepared with known concentration of anlayte/s of interest analyzed by method.
MRL	Minimum Reporting Limit
%REC	Percentage Recovery of known concentration added to matrix
Batch	Group of samples prepared for analysis not to exceed 20 samples.
Matrix	Material containing analyte/s of interest
Surrogate	Analyte added to sample to determine extraction efficiency of method.

MICRO-METHODS LABORATORY, INC.
6500 Sunplex Drive, Ocean Springs, MS 39564
(228) 875-6420 FAX (228) 875-6423
www.micromethodslab.com

Chain of Custody Record

M-M Lab WO # 1410071

Company Name: ECS, Inc.	Project Manager: Jake White
Address: P.O. Box 356	Purchase Order #:
City: Sherman State: MS Zip: 38869	Email Address: Jwhite@envirocorp.net
Phone: (228) 217-6254	Sampler Name Printed: Jake White
Fax:	Sampler Name Signed: Jake White

Turn Around Time & Reporting

Our normal turn around time is 7-10 working days

✓ Normal
__Next Day*
__2nd Day*
__Other*_____

*All rush order requests must be prior approved.

__Phone
__Mail
__Fax
__Email

Project Name: Multiple Controls
Project #:

List Analysis Requested

Sample Identification	Sampling Date/Time	# of Containers	Sample Code	TSS	Metals 7 (Zn + Cu)
FMU	10/3/14 8:17	2		X	X
FMC	10/3/14 8:24	2		X	X
FSU	10/3/14 8:36	2		X	X
FSC	10/3/14 8:41	2		X	X
CWU	10/3/14 8:55	2		X	X
CWC	10/3/14 8:59	2		X	X
UFU	10/3/14 9:08	2		X	X
UFC	10/3/14 9:14	2		X	X
CHU	10/3/14 9:27	2		X	X
CHC	10/3/14 9:33	2		X	X

Note Special Instructions/Comments

Field pH _____ Collect Time_____ ReadTime _____
Field D.O. _____Collect Time_____ Read Time _____
Field Temp._____Collect Time_____ Read Time _____
QC Level: Level 1 ☐ Level 2 ☐ Level 3 ☐

Matrix Code: W= Water, S= Soil, O= Oil, L= Liquid, SL= Sludge
Sample Code: G= Grab C= Composite

Lab Use Only
Notes

	Signature	Printed Name	Company	Date	Time
Relinquished by	Jake White	Jake White	ECS	10/3/14	1354
Received by	Sarah Tomek	Sarah Tomek	MM	10/3/14	1354
Relinquished by					
Received by					
Relinquished by					
Received by					

Sample Rcvd. on Ice Yes ☒ No ☐
Thermometer # 3 Cooler # 710
Receipt Temp (°C) 2.7 Sample ☐ Blank ☒
By: ST
Date & Time _____

	Issue Date: 7/18/11	Micro-Methods Laboratory Log-In Checklist	DCN: F207
	Implementation Date: 7/18/11		Date Revised: 7-18-11
			Revision: 4

Client ECS **WO** 1410071 **Shipped By** Client
Date/Time Received 10/3/14@1354 **Unpacked/Checked By** ST

Cooler ID	Ice Present Yes/No	Temperature	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
#700	Yes	0.7°c	T#3	No	n/a

If not iced, were samples received within one hour of collection? Yes ___ No___ N/A X
Temperature Blank Used Yes X No _____ If not, temperature taken from cooler ____or bottle____
Multi Cooler shipment: ID of samples in coolers that exceed 6°C_____

Custody Seals on Bottles Present Yes ___ No X
Containers Intact Yes X No___
Proper Containers for Requested Analysis Yes X No___

Correct Preservation Used for All Samples Yes X No___
Adequate Sample for Analysis Requested Yes X No___

Volatile Vials Headspace Greater than 6mm in Diameter Yes ___ No ___ N/A X

Chain of Custody Form Included Yes X No___
Chain of Custody Form Complete Yes X No___
Chain of Custody Form Properly Relinquished Yes X No___
Field Sheets/Special Instructions Included Yes ___No___ N/A X
Samples Missing on COC or From Cooler Yes ___No X
Sample Container Labels Match COC Yes X No___

Samples Received Within Holding Time Yes X No___
Dept. Manager Notified of Rush/Short Holding Times Yes ___No___N/A X

Does work order meet Micro Methods sample acceptance criteria Yes X No ___
Note: Samples that do not meet acceptance criteria must be documented in the Sample Rejection Log.

Client Contacted _____ **Contacted By** _____ **Date/Time**_____
Client Instructions: Cancel Work Order _____
Proceed with Work Order _____**(Data will be qualified)**
Comments: _____

APPENDIX B

TCLP ANALYSIS (SAND and CONTROL TECHNOLOGIES)

MICRO-METHODS
LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228.875.6420 Phone
228.875.6423 Fax

October 10, 2014

Jake White

Work Order # : 1410057

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs, MS 39566

Purchase Order #:

RE: Multiple Controls-Sand

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 10/02/14 15:59. If you have any questions concerning this report, please feel free to contact the office.

Sincerely,

Harry P. Howell

President
Micro-Methods Laboratory, Inc.

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.	Project: Multiple Controls-Sand	
P O Box 906	Project Number: [none]	**Reported:**
Ocean Springs MS, 39566	Project Manager: Jake White	10/10/14 10:55

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
SND-01	1410057-01	Solid	10/02/14 13:01	*Jake White*	10/02/14 15:59

Sample Receipt Conditions

Date/Time Received: 10/2/2014 3:59:00PM
Shipped by: Client Delivery
Received by: Sarah E. Tomek
Submitted by: Jake White
Date/Time Logged: 10/3/2014 8:12:00AM
Logged by: Sarah E. Tomek
Cooler ID: no cooler
Receipt Temperature: _____

Custody Seals	*No*	*Received on Ice*	*No*
Containers Intact	*Yes*	*No Ice, Short Trip*	*No*
COC/Labels Agree	*Yes*	*Obvious Contamination*	*No*
Labels Complete	*No*	*Rush to meet HT*	*No*
COC Complete	*Yes*		

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.	Project: Multiple Controls-Sand	
P O Box 906	Project Number: [none]	**Reported:**
Ocean Springs MS, 39566	Project Manager: Jake White	10/10/14 10:55

CASE NARRATIVE SUMMARY

All reported results are within Micro-Methods Laboratory, Inc.defined laboratory quality control objectives unless detailed in narrative summary or identified as qualifications. NOTE: All results listed on this report are calculated on a wet weight basis (as received by the laboratory) unless otherwise noted in the analysis qualification sections.

Summary Comments: *No Summary Comments*

Qualification: *No Data Qualification*

Analyte & Samples(s) Qualified:

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls-Sand
Project Number: [none]
Project Manager: Jake White

Reported:
10/10/14 10:55

SND-01

1410057-01 (Solid)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
TCLP Metals by 1311/6010B										
Arsenic	ND	0.250	mg/L	1	4J08022	SCH	10/08/14 08:45	10/08/14 14:34	SW 6010B	
Barium	ND	0.500	"	"	"	SCH	"	"	"	
Cadmium	ND	0.100	"	"	"	SCH	"	"	"	
Chromium	ND	0.100	"	"	"	SCH	"	"	"	
Lead	ND	0.250	"	"	"	SCH	"	"	"	
Selenium	ND	0.250	"	"	"	SCH	"	"	"	
Silver	ND	0.100	"	"	"	SCH	"	"	"	
TCLP Mercury by 1311/7470A										
Mercury	ND	0.015	mg/L	1	4J09005	SCH	10/09/14 09:15	10/09/14 13:37	SW 7470A	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls-Sand
Project Number: [none]
Project Manager: Jake White

Reported:
10/10/14 10:55

TCLP Metals by 1311/6010B - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4J08022 - EPA 3010A							*Prepared & Analyzed: 10/08/14*			
Blank (4J08022-BLK1)										
Arsenic	ND	0.100	mg/L							
Barium	ND	0.500	"							
Cadmium	ND	0.100	"							
Chromium	ND	0.100	"							
Lead	ND	0.100	"							
Selenium	ND	0.100	"							
Silver	ND	0.100	"							
LCS (4J08022-BS1)										
Arsenic	0.209	0.100	mg/L	0.200		105	85-115			
Barium	0.205	0.500	"	0.200		103	85-115			
Cadmium	0.216	0.100	"	0.200		108	85-115			
Chromium	0.197	0.100	"	0.200		98.3	85-115			
Lead	0.205	0.100	"	0.200		102	85-115			
Selenium	0.181	0.100	"	0.200		90.4	85-115			
Silver	0.100	0.100	"	0.100		99.9	85-115			
LCS Dup (4J08022-BSD1)										
Arsenic	0.206	0.100	mg/L	0.200		103	85-115	1.81	20	
Barium	0.207	0.500	"	0.200		104	85-115	0.976	20	
Cadmium	0.214	0.100	"	0.200		107	85-115	1.05	20	
Chromium	0.203	0.100	"	0.200		101	85-115	3.02	20	
Lead	0.217	0.100	"	0.200		109	85-115	6.06	20	
Selenium	0.188	0.100	"	0.200		94.0	85-115	3.90	20	
Silver	0.101	0.100	"	0.100		101	85-115	1.36	20	
Matrix Spike (4J08022-MS1)	**Source: 1410057-01**									
Arsenic	1.06	0.250	mg/L	1.00	ND	106	75-125			
Barium	1.05	0.500	"	1.00	0.053	99.4	75-125			
Cadmium	1.05	0.100	"	1.00	ND	105	75-125			
Chromium	0.942	0.100	"	1.00	ND	94.2	75-125			
Lead	1.01	0.250	"	1.00	0.072	94.2	75-125			
Selenium	0.941	0.250	"	1.00	ND	94.1	75-125			
Silver	0.465	0.100	"	0.500	ND	93.0	75-125			

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls-Sand
Project Number: [none]
Project Manager: Jake White

Reported:
10/10/14 10:55

TCLP Mercury by 1311/7470A - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4J09005 - SW 7470A						*Prepared & Analyzed: 10/09/14*				
Blank (4J09005-BLK1)										
Mercury	ND	0.015	mg/L							
LCS (4J09005-BS1)										
Mercury	0.022	0.015	mg/L	0.0200		108	85-115			
LCS Dup (4J09005-BSD1)										
Mercury	0.020	0.015	mg/L	0.0200		102	85-115	5.74	20	
Matrix Spike (4J09005-MS1)	**Source: 1410114-01**									
Mercury	0.021	0.015	mg/L	0.0200	ND	103	75-125			
Matrix Spike (4J09005-MS2)	**Source: 1410125-02**									
Mercury	0.020	0.015	mg/L	0.0200	ND	100	75-125			
Matrix Spike (4J09005-MS3)	**Source: 1410057-01**									
Mercury	0.021	0.015	mg/L	0.0200	ND	106	75-125			

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.	Project: Multiple Controls-Sand	
P O Box 906	Project Number: [none]	**Reported:**
Ocean Springs MS, 39566	Project Manager: Jake White	10/10/14 10:55

Certified Analyses Included in this Report

Analyte	Certification Code
TCLP Metals in Leachate	
Arsenic	C01,C02
Barium	C01,C02
Cadmium	C01,C02
Chromium	C01,C02
Lead	C01,C02
Selenium	C01,C02
Silver	C01,C02
TCLP Mercury in Leachate	
Mercury	C01,C02

MICRO-METHODS LABORATORY, INC.
6500 Sunplex Drive, Ocean Springs, MS 39564
(228) 875-6420 FAX (228) 875-6423
www.micromethodslab.com

Chain of Custody Record

M-M Lab WO # 1410057

Company Name: ECS, Inc.	Project Manager: JAKE WHITE
Address: P.O. Box 356	Purchase Order #:
City: SHERMAN State: MS Zip: 38869	Email Address: Jwhite@envirocorp.net
Phone: (228) 207-6254	Sampler Name Printed: JAKE WHITE
Fax:	Sampler Name Signed:

Turn Around Time & Reporting

Our normal turn around time is 7-10 working days

✓ Normal
__Next Day*
__2nd Day*
__Other*_____

*All rush order requests must be prior approved.

__Phone
__Mail
__Fax
__Email

Project Name: Multiple Controls - Sand
Project #:

Sample Identification	Sampling Date/Time	# of Containers	Sample Code	TCLP- RCRA 8 Metals
SND-01	10/2/14 1301	1		-

List Analyses Requested

Note Special Instructions/Comments

Field pH _____ Collect Time_____ ReadTime _____
Field D.O. _____Collect Time_____ Read Time _____
Field Temp._____Collect Time_____ Read Time _____
QC Level: Level 1 ☐ Level 2 ☐ Level 3 ☐

Matrix Code: W= Water, S= Soil, O= Oil, L= Liquid, SL= Sludge
Sample Code: G= Grab C= Composite

Lab Use Only
Notes

	Signature	Printed Name	Company	Date	Time
Relinquished by		JAKE WHITE	ECS	10/2/14	1539
Received by		Sarah Tomek	MM	10/3/14	1559
Relinquished by					
Received by					
Relinquished by					
Received by					

Sample Rcvd. on Ice Yes ☐ No ☐
Thermometer # Cooler #
Receipt Temp (°C)_____ Sample☐ Blank ☐
By: _____
Date & Time _____

DCN# F316 Rev.#1

	Issue Date: 7/18/11	Micro-Methods Laboratory Log-In Checklist	
	Implementation Date: 7/18/11		DCN: F207
			Date Revised: 7-18-11
			Revision: 4

Client ECS **WO** 1410057 **Shipped By** client SF
Date/Time Received 10/2/14@ 1552 **Unpacked/Checked By** SF

Cooler ID	Ice Present Yes/No	Temperature	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
none	NO	—	—	—	—

If not iced, were samples received within one hour of collection? Yes ___ No___ N/A___
Temperature Blank Used Yes _____No _____ If not, temperature taken from cooler ____or bottle____
Multi Cooler shipment: ID of samples in coolers that exceed 6°C_____

Custody Seals on Bottles Present Yes ___ No X
Containers Intact Yes X No___
Proper Containers for Requested Analysis Yes X No___

Correct Preservation Used for All Samples Yes X No___
Adequate Sample for Analysis Requested Yes X No___

Volatile Vials Headspace Greater than 6mm in Diameter Yes ___ No ___ N/A X

Chain of Custody Form Included Yes X No___
Chain of Custody Form Complete Yes X No___
Chain of Custody Form Properly Relinquished Yes X No___
Field Sheets/Special Instructions Included Yes ___No___ N/A X
Samples Missing on COC or From Cooler Yes ___No X
Sample Container Labels Match COC Yes X No___

Samples Received Within Holding Time Yes X No___
Dept. Manager Notified of Rush/Short Holding Times Yes ___No___N/A X

Does work order meet Micro Methods sample acceptance criteria Yes X No ___
Note: Samples that do not meet acceptance criteria must be documented in the Sample Rejection Log.

Client Contacted _____**Contacted By** _____**Date/Time**_____
Client Instructions: Cancel Work Order _____
Proceed with Work Order _____**(Data will be qualified)**
Comments: _____

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.	Project: Multiple Controls-Sand	
P O Box 906	Project Number: [none]	**Reported:**
Ocean Springs MS, 39566	Project Manager: Jake White	10/10/14 10:55

	Issue Date: 1-16-2012	**TCLP Regulatory Limit Sheet Metals, Volatiles, Semi Volatiles Pesticides, Herbicides**	DCN: F031
			Date Revised: 1-16-2012
			Revision: 5

Micro-Methods Laboratory, Inc.

TCLP REGULATORY LIMITS

TCLP Metals:	**mg/l**
Arsenic	5.0
Barium	100.0
Cadmium	1.0
Chromium	5.0
Lead	5.0
Mercury	0.2
Selenium	1.0
Silver	5.0
Volatile Target Compounds:	
Benzene	0.5
Carbon Tetrachloride	0.5
Chlorobenzene	100.0
Chloroform	6.0
1,2 dichloroethane	0.5
1,1 Dichloroethene	0.7
Methyl Ethyl Ketone (2-Butanone)	200.0
Tetrachloroethene	0.7
Trichloroethene	0.5
Vinyl Chloride	0.2
Semi Volatile Target Compounds:	
1,4 Dichlorobenzene	7.5
2,4 Dinitrotoluene	0.13
2,4,5 Trichlorophenol	400.0
2,4,6 Trichlorophenol	2.0
Hexachlorobenzene	0.13
Hexachlorobutadiene	0.5
Hexachloroethane	3.0
Nitrobenzene	2.0
Pentachlorophenol	100.0
Pyridine	5.0
m-Cresol	200.0
o-Cresol	200.0
p-Cresol	200.0
Pesticide Target Compounds:	
Chlordane	0.03
Endrin	0.02
Heptachlor	0.008
Heptachlor epoxide	0.008
Lindane	0.4
Methoxychlor	10.0
Toxaphene	0.5
Herbicide Target Compounds:	
2,4 D	10.0
2,4,5-TP Silvex	1.0
Inorganic	
Flash Point	>140°F
Cyanide	<250 mg/kg
Sulfide	500 mg/kg
pH	2.00 – 12.5 SU

TCLP – Toxicity Characteristics Leachate Procedure, SW 846, Sec. 1311

Page 1

MICRO-METHODS
LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228.875.6420 Phone
228.875.6423 Fax

DOCUMENT CHANGE NOTICE

Revised Report

November 04, 2014

Jake White

Work Order # : 1410057

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs, MS 39566

Purchase Order #

RE: Multiple Controls-Sand

Enclosed is the revised report for samples received by the laboratory on 10/02/14 15:59. This report supercedes any previous version of the above noted work order. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Harry P. Howell

Harry P. Howell

President

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls-Sand
Project Number: [none]
Project Manager: Jake White

Reported:
11/04/14 15:06

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
SND-01	1410057-01	Solid	10/02/14 13:01	*Jake White*	10/02/14 15:59

Sample Receipt Conditions

Date/Time Received: 10/2/2014 3:59:00PM
Received by: Sarah E. Tomek
Date/Time Logged: 10/3/2014 8:12:00AM
Cooler ID: no cooler

Shipped by: Client Delivery
Submitted by: Jake White
Logged by: Sarah E. Tomek
Receipt Temperature:

Custody Seals	*No*	*Received on Ice*	*No*
Containers Intact	*Yes*	*No Ice, Short Trip*	*No*
COC/Labels Agree	*Yes*	*Obvious Contamination*	*No*
Labels Complete	*No*	*Rush to meet HT*	*No*
COC Complete	*Yes*		

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.	Project: Multiple Controls-Sand	
P O Box 906	Project Number: [none]	**Reported:**
Ocean Springs MS, 39566	Project Manager: Jake White	11/04/14 15:06

CASE NARRATIVE SUMMARY

All reported results are within Micro-Methods Laboratory, Inc.defined laboratory quality control objectives unless detailed in narrative summary or identified as qualifications. NOTE: All results listed on this report are calculated on a wet weight basis (as received by the laboratory) unless otherwise noted in the analysis qualification sections.

Summary Comments:

Metals Analyst Comments-SCH:
CAR: M110314-01: Client requested copper and zinc analysis on TCLP leachate. Sample was redigested and reanalyzed and a revised report generated.

Qualification: *No Data Qualification*

Analyte & Samples(s) Qualified:

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls-Sand
Project Number: [none]
Project Manager: Jake White

Reported:
11/04/14 15:06

SND-01

1410057-01 (Solid)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
TCLP Metals by 1311/6010B										
Copper	ND	0.100	mg/L	1	4K04004	SCH	11/03/14 13:00	11/04/14 12:03	SW 6010B	
Arsenic	ND	0.250	"	"	4J08022	SCH	10/08/14 08:45	10/08/14 14:34	"	
Barium	ND	0.500	"	"	"	SCH	"	"	"	
Cadmium	ND	0.100	"	"	"	SCH	"	"	"	
Chromium	ND	0.100	"	"	"	SCH	"	"	"	
Lead	ND	0.250	"	"	"	SCH	"	"	"	
Selenium	ND	0.250	"	"	"	SCH	"	"	"	
Silver	ND	0.100	"	"	"	SCH	"	"	"	
Zinc	ND	0.100	"	"	4K04004	SCH	11/03/14 13:00	11/04/14 12:03	"	
TCLP Mercury by 1311/7470A										
Mercury	ND	0.015	mg/L	1	4J09005	SCH	10/09/14 09:15	10/09/14 13:37	SW 7470A	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls-Sand
Project Number: [none]
Project Manager: Jake White

Reported:
11/04/14 15:06

TCLP Metals by 1311/6010B - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4J08022 - EPA 3010A							*Prepared & Analyzed: 10/08/14*			
Blank (4J08022-BLK1)										
Arsenic	ND	0.100	mg/L							
Barium	ND	0.500	"							
Cadmium	ND	0.100	"							
Chromium	ND	0.100	"							
Lead	ND	0.100	"							
Selenium	ND	0.100	"							
Silver	ND	0.100	"							
LCS (4J08022-BS1)										
Arsenic	0.209	0.100	mg/L	0.200		105	85-115			
Barium	0.205	0.500	"	0.200		103	85-115			
Cadmium	0.216	0.100	"	0.200		108	85-115			
Chromium	0.197	0.100	"	0.200		98.3	85-115			
Lead	0.205	0.100	"	0.200		102	85-115			
Selenium	0.181	0.100	"	0.200		90.4	85-115			
Silver	0.100	0.100	"	0.100		99.9	85-115			
LCS Dup (4J08022-BSD1)										
Arsenic	0.206	0.100	mg/L	0.200		103	85-115	1.81	20	
Barium	0.207	0.500	"	0.200		104	85-115	0.976	20	
Cadmium	0.214	0.100	"	0.200		107	85-115	1.05	20	
Chromium	0.203	0.100	"	0.200		101	85-115	3.02	20	
Lead	0.217	0.100	"	0.200		109	85-115	6.06	20	
Selenium	0.188	0.100	"	0.200		94.0	85-115	3.90	20	
Silver	0.101	0.100	"	0.100		101	85-115	1.36	20	
Matrix Spike (4J08022-MS1)	**Source: 1410057-01**									
Arsenic	1.06	0.250	mg/L	1.00	ND	106	75-125			
Barium	1.05	0.500	"	1.00	0.053	99.4	75-125			
Cadmium	1.05	0.100	"	1.00	ND	105	75-125			
Chromium	0.942	0.100	"	1.00	ND	94.2	75-125			
Lead	1.01	0.250	"	1.00	0.072	94.2	75-125			
Selenium	0.941	0.250	"	1.00	ND	94.1	75-125			
Silver	0.465	0.100	"	0.500	ND	93.0	75-125			

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.	Project: Multiple Controls-Sand	
P O Box 906	Project Number: [none]	**Reported:**
Ocean Springs MS, 39566	Project Manager: Jake White	11/04/14 15:06

TCLP Metals by 1311/6010B - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4K04004 - EPA 3010A							*Prepared: 11/03/14 Analyzed: 11/04/14*			
Blank (4K04004-BLK1)										
Copper	ND	0.100	mg/L							
Zinc	ND	0.100	"							
LCS (4K04004-BS1)										
Copper	0.193	0.100	mg/L	0.200		96.7	85-115			
Zinc	0.171	0.100	"	0.200		85.7	85-115			
LCS Dup (4K04004-BSD1)										
Copper	0.197	0.100	mg/L	0.200		98.5	85-115	1.80	20	
Zinc	0.170	0.100	"	0.200		85.1	85-115	0.746	20	
Matrix Spike (4K04004-MS1)	**Source: 1410057-01**									
Copper	0.182	0.100	mg/L	0.200	0.013	84.5	75-125			
Zinc	0.224	0.100	"	0.200	0.057	83.5	75-125			

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls-Sand
Project Number: [none]
Project Manager: Jake White

Reported:
11/04/14 15:06

TCLP Mercury by 1311/7470A - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4J09005 - SW 7470A						*Prepared & Analyzed: 10/09/14*				
Blank (4J09005-BLK1)										
Mercury	ND	0.015	mg/L							
LCS (4J09005-BS1)										
Mercury	0.022	0.015	mg/L	0.0200		108	85-115			
LCS Dup (4J09005-BSD1)										
Mercury	0.020	0.015	mg/L	0.0200		102	85-115	5.74	20	
Matrix Spike (4J09005-MS1)	**Source: 1410114-01**									
Mercury	0.021	0.015	mg/L	0.0200	ND	103	75-125			
Matrix Spike (4J09005-MS2)	**Source: 1410125-02**									
Mercury	0.020	0.015	mg/L	0.0200	ND	100	75-125			
Matrix Spike (4J09005-MS3)	**Source: 1410057-01**									
Mercury	0.021	0.015	mg/L	0.0200	ND	106	75-125			

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.	Project: Multiple Controls-Sand	
P O Box 906	Project Number: [none]	**Reported:**
Ocean Springs MS, 39566	Project Manager: Jake White	11/04/14 15:06

Certified Analyses Included in this Report

Analyte	Certification Code
TCLP Metals in Leachate	
Arsenic	C01,C02
Barium	C01,C02
Cadmium	C01,C02
Chromium	C01,C02
Lead	C01,C02
Selenium	C01,C02
Silver	C01,C02
TCLP Mercury in Leachate	
Mercury	C01,C02

MICRO-METHODS LABORATORY, INC.
6500 Sunplex Drive, Ocean Springs, MS 39564
(228) 875-6420 FAX (228) 875-6423
www.micromethodslab.com

Chain of Custody Record

M-M Lab WO # 1410057

Company Name: ECS, Inc.	Project Manager: JAKE WHITE
Address: P.O. Box 356	Purchase Order #:
City: SHERMAN State: MS Zip: 38869	Email Address: Jwhite@envirocorp.net
Phone: (228) 207-6254	Sampler Name Printed: JAKE WHITE
Fax:	Sampler Name Signed:

Turn Around Time & Reporting

Our normal turn around time is 7-10 working days

✓ Normal
__Next Day*
__2nd Day*
__Other*_____

*All rush order requests must be prior approved.

__Phone
__Mail
__Fax
__Email

Project Name: Multiple Controls - Sand
Project #:

Sample Identification	Sampling Date/Time	# of Containers	Sample Code	TCLP- RCRA 8 Metals									
SND-01	10/2/14 1301	1		-									

List Analyses Requested

Note Special Instructions/Comments

Field pH _____ Collect Time_____ ReadTime _____
Field D.O. _____Collect Time_____ Read Time _____
Field Temp._____Collect Time_____ Read Time _____
QC Level: Level 1 ☐ Level 2 ☐ Level 3 ☐

Matrix Code: W= Water, S= Soil, O= Oil, L= Liquid, SL= Sludge
Sample Code: G= Grab C= Composite

Lab Use Only
Notes

	Signature	Printed Name	Company	Date	Time
Relinquished by		JAKE WHITE	ECS	10/2/14	1539
Received by		Sarah Tomek	MM	10/3/14	1559
Relinquished by					
Received by					
Relinquished by					
Received by					

Sample Rcvd. on Ice Yes ☐ No ☐
Thermometer # Cooler #
Receipt Temp (°C)_____ Sample☐ Blank ☐
By: _____
Date & Time _____

	Issue Date: 7/18/11	Micro-Methods Laboratory Log-In Checklist	
	Implementation Date: 7/18/11		DCN: F207
			Date Revised: 7-18-11
			Revision: 4

Client ECS **WO** 1410057 **Shipped By** client **SF**
Date/Time Received 10/2/14@ 1552 **Unpacked/Checked By** SF

Cooler ID	Ice Present Yes/No	Temperature	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
none	NO	—	—	—	—

If not iced, were samples received within one hour of collection? Yes ___ No___ N/A___
Temperature Blank Used Yes _____No _____ If not, temperature taken from cooler ____or bottle____
Multi Cooler shipment: ID of samples in coolers that exceed 6°C_____

Custody Seals on Bottles Present Yes ___ No X
Containers Intact Yes X No___
Proper Containers for Requested Analysis Yes X No___

Correct Preservation Used for All Samples Yes X No___
Adequate Sample for Analysis Requested Yes X No___

Volatile Vials Headspace Greater than 6mm in Diameter Yes ___ No ___ N/A X

Chain of Custody Form Included Yes X No___
Chain of Custody Form Complete Yes X No___
Chain of Custody Form Properly Relinquished Yes X No___
Field Sheets/Special Instructions Included Yes ___No___ N/A X
Samples Missing on COC or From Cooler Yes ___No X
Sample Container Labels Match COC Yes X No___

Samples Received Within Holding Time Yes X No___
Dept. Manager Notified of Rush/Short Holding Times Yes ___No___N/A X

Does work order meet Micro Methods sample acceptance criteria Yes X No ___
Note: Samples that do not meet acceptance criteria must be documented in the Sample Rejection Log.

Client Contacted _____**Contacted By** _____**Date/Time**_____
Client Instructions: Cancel Work Order _____
Proceed with Work Order _____**(Data will be qualified)**
Comments: _____

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.	Project: Multiple Controls-Sand	
P O Box 906	Project Number: [none]	**Reported:**
Ocean Springs MS, 39566	Project Manager: Jake White	11/04/14 15:06

	Issue Date: 1-16-2012	**TCLP Regulatory Limit Sheet Metals, Volatiles, Semi Volatiles Pesticides, Herbicides**	DCN: F031
			Date Revised: 1-16-2012
			Revision: 5

Micro-Methods Laboratory, Inc.

TCLP REGULATORY LIMITS

TCLP Metals:	**mg/l**
Arsenic	5.0
Barium	100.0
Cadmium	1.0
Chromium	5.0
Lead	5.0
Mercury	0.2
Selenium	1.0
Silver	5.0
Volatile Target Compounds:	
Benzene	0.5
Carbon Tetrachloride	0.5
Chlorobenzene	100.0
Chloroform	6.0
1,2 dichloroethane	0.5
1,1 Dichloroethene	0.7
Methyl Ethyl Ketone (2-Butanone)	200.0
Tetrachloroethene	0.7
Trichloroethene	0.5
Vinyl Chloride	0.2
Semi Volatile Target Compounds:	
1,4 Dichlorobenzene	7.5
2,4 Dinitrotoluene	0.13
2,4,5 Trichlorophenol	400.0
2,4,6 Trichlorophenol	2.0
Hexachlorobenzene	0.13
Hexachlorobutadiene	0.5
Hexachloroethane	3.0
Nitrobenzene	2.0
Pentachlorophenol	100.0
Pyridine	5.0
m-Cresol	200.0
o-Cresol	200.0
p-Cresol	200.0
Pesticide Target Compounds:	
Chlordane	0.03
Endrin	0.02
Heptachlor	0.008
Heptachlor epoxide	0.008
Lindane	0.4
Methoxychlor	10.0
Toxaphene	0.5
Herbicide Target Compounds:	
2,4 D	10.0
2,4,5-TP Silvex	1.0
Inorganic	
Flash Point	>140°F
Cyanide	<250 mg/kg
Sulfide	500 mg/kg
pH	2.00 – 12.5 SU

TCLP – Toxicity Characteristics Leachate Procedure, SW 846, Sec. 1311

Page 1

MICRO-METHODS
LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228.875.6420 Phone
228.875.6423 Fax

October 27, 2014

Jake White

Work Order # : 1410334

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs, MS 39566

Purchase Order #:

RE: Multiple Controls

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 10/17/14 12:33. If you have any questions concerning this report, please feel free to contact the office.

Sincerely,

Harry P. Howell

President
Micro-Methods Laboratory, Inc.

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/27/14 14:50

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
FM-ECS-01	1410334-01	Solid	10/17/14 11:59	*Jake White*	10/17/14 12:33
FS-ECS-02	1410334-02	Solid	10/17/14 12:01	*Jake White*	10/17/14 12:33
CW-ECS-03	1410334-03	Solid	10/17/14 12:04	*Jake White*	10/17/14 12:33
PB-ECS-04	1410334-04	Solid	10/17/14 12:06	*Jake White*	10/17/14 12:33
UF-ECS-05	1410334-05	Solid	10/17/14 12:10	*Jake White*	10/17/14 12:33
CH-ECS-06	1410334-06	Solid	10/17/14 12:15	*Jake White*	10/17/14 12:33

Sample Receipt Conditions

Date/Time Received: 10/17/2014 12:33:00PM
Received by: Sarah E. Tomek
Date/Time Logged: 10/17/2014 12:39:00PM
Cooler ID: **no cooler**

Shipped by: Client Delivery
Submitted by: Jake White
Logged by: Sarah E. Tomek
Receipt Temperature:

Custody Seals	*No*	*Received on Ice*	*No*
Containers Intact	*Yes*	*No Ice, Short Trip*	*No*
COC/Labels Agree	*Yes*	*Obvious Contamination*	*No*
Labels Complete	*No*	*Rush to meet HT*	*No*
COC Complete	*Yes*		

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.	Project: Multiple Controls	
P O Box 906	Project Number: [none]	**Reported:**
Ocean Springs MS, 39566	Project Manager: Jake White	10/27/14 14:50

CASE NARRATIVE SUMMARY

All reported results are within Micro-Methods Laboratory, Inc.defined laboratory quality control objectives unless detailed in narrative summary or identified as qualifications. NOTE: All results listed on this report are calculated on a wet weight basis (as received by the laboratory) unless otherwise noted in the analysis qualification sections.

Summary Comments: *No Summary Comments*

TCLP Metals-SW 6010B

Qualification:

CC-01 CCV above acceptance limits. Results reported from this calibration were below the reporting limits.

Analyte & Samples(s) Qualified:

Cadmium

1410334-01[FM-ECS-01], 1410334-02[FS-ECS-02], 1410334-03[CW-ECS-03], 1410334-04[PB-ECS-04], 1410334-05[UF-ECS-05], 1410334-06[CH-ECS-06]

CC-03 CCV above acceptance limits. QC Results reported from this calibration within acceptance limits.

Analyte & Samples(s) Qualified:

Cadmium

4J23004-BLK1, 4J23004-BSD1, 4J23004-MS1, 4J23004-MS2, 4J23004-MS3, 4J23004-MS4, 4J23004-MS5

CC-04 CCV above acceptance limits. Results reported are estimated values.

Analyte & Samples(s) Qualified:

Cadmium

4J23004-BS1

L1 LCS and/or LCSD Recovery Limit exceeded.

Analyte & Samples(s) Qualified:

Cadmium

4J23004-BS1

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/27/14 14:50

FM-ECS-01

1410334-01 (Solid)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
TCLP Metals by 1311/6010B										
Arsenic	ND	0.100	mg/L	1	4J23004	SCH	10/22/14 09:30	10/24/14 12:02	SW 6010B	
Barium	**0.680**	0.500	"	"	"	SCH	"	"	"	
Cadmium	ND	0.100	"	"	"	SCH	"	"	"	CC-01
Chromium	ND	0.100	"	"	"	SCH	"	"	"	
Lead	ND	0.100	"	"	"	SCH	"	"	"	
Selenium	ND	0.100	"	"	"	SCH	"	"	"	
Silver	ND	0.100	"	"	"	SCH	"	"	"	
TCLP Mercury by 1311/7470A										
Mercury	ND	0.015	mg/L	1	4J23007	SCH	10/23/14 09:15	10/23/14 15:18	SW 7470A	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/27/14 14:50

FS-ECS-02

1410334-02 (Solid)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
TCLP Metals by 1311/6010B										
Arsenic	ND	0.100	mg/L	1	4J23004	SCH	10/22/14 09:30	10/24/14 12:08	SW 6010B	
Barium	**1.00**	0.500	"	"	"	SCH	"	"	"	
Cadmium	ND	0.100	"	"	"	SCH	"	"	"	CC-01
Chromium	ND	0.100	"	"	"	SCH	"	"	"	
Lead	ND	0.100	"	"	"	SCH	"	"	"	
Selenium	ND	0.100	"	"	"	SCH	"	"	"	
Silver	ND	0.100	"	"	"	SCH	"	"	"	
TCLP Mercury by 1311/7470A										
Mercury	ND	0.015	mg/L	1	4J23007	SCH	10/23/14 09:15	10/23/14 15:18	SW 7470A	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/27/14 14:50

CW-ECS-03

1410334-03 (Solid)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
TCLP Metals by 1311/6010B										
Arsenic	ND	0.100	mg/L	1	4J23004	SCH	10/22/14 09:30	10/24/14 12:19	SW 6010B	
Barium	**1.12**	0.500	"	"	"	SCH	"	"	"	
Cadmium	ND	0.100	"	"	"	SCH	"	"	"	CC-01
Chromium	ND	0.100	"	"	"	SCH	"	"	"	
Lead	ND	0.100	"	"	"	SCH	"	"	"	
Selenium	ND	0.100	"	"	"	SCH	"	"	"	
Silver	ND	0.100	"	"	"	SCH	"	"	"	
TCLP Mercury by 1311/7470A										
Mercury	ND	0.015	mg/L	1	4J23007	SCH	10/23/14 09:15	10/23/14 15:18	SW 7470A	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/27/14 14:50

PB-ECS-04

1410334-04 (Solid)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
TCLP Metals by 1311/6010B										
Arsenic	ND	0.100	mg/L	1	4J23004	SCH	10/22/14 09:30	10/24/14 12:31	SW 6010B	
Barium	ND	0.500	"	"	"	SCH	"	"	"	
Cadmium	ND	0.100	"	"	"	SCH	"	"	"	CC-01
Chromium	ND	0.100	"	"	"	SCH	"	"	"	
Lead	ND	0.100	"	"	"	SCH	"	"	"	
Selenium	ND	0.100	"	"	"	SCH	"	"	"	
Silver	ND	0.100	"	"	"	SCH	"	"	"	
TCLP Mercury by 1311/7470A										
Mercury	ND	0.015	mg/L	1	4J23007	SCH	10/23/14 09:15	10/23/14 15:18	SW 7470A	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/27/14 14:50

UF-ECS-05

1410334-05 (Solid)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
TCLP Metals by 1311/6010B										
Arsenic	ND	0.100	mg/L	1	4J23004	SCH	10/22/14 09:30	10/24/14 12:42	SW 6010B	
Barium	ND	0.500	"	"	"	SCH	"	"	"	
Cadmium	ND	0.100	"	"	"	SCH	"	"	"	CC-01
Chromium	ND	0.100	"	"	"	SCH	"	"	"	
Lead	ND	0.100	"	"	"	SCH	"	"	"	
Selenium	ND	0.100	"	"	"	SCH	"	"	"	
Silver	ND	0.100	"	"	"	SCH	"	"	"	
TCLP Mercury by 1311/7470A										
Mercury	ND	0.015	mg/L	1	4J23007	SCH	10/23/14 09:15	10/23/14 15:18	SW 7470A	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/27/14 14:50

CH-ECS-06

1410334-06 (Solid)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Notes
TCLP Metals by 1311/6010B										
Arsenic	ND	0.100	mg/L	1	4J23004	SCH	10/22/14 09:30	10/24/14 12:53	SW 6010B	
Barium	**1.39**	0.500	"	"	"	SCH	"	"	"	
Cadmium	ND	0.100	"	"	"	SCH	"	"	"	CC-01
Chromium	ND	0.100	"	"	"	SCH	"	"	"	
Lead	ND	0.100	"	"	"	SCH	"	"	"	
Selenium	ND	0.100	"	"	"	SCH	"	"	"	
Silver	ND	0.100	"	"	"	SCH	"	"	"	
TCLP Mercury by 1311/7470A										
Mercury	ND	0.015	mg/L	1	4J23007	SCH	10/23/14 09:15	10/23/14 15:18	SW 7470A	

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/27/14 14:50

TCLP Metals by 1311/6010B - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4J23004 - EPA 3010A						*Prepared: 10/22/14 Analyzed: 10/24/14*				
Blank (4J23004-BLK1)										
Arsenic	ND	0.100	mg/L							
Barium	ND	0.500	"							
Cadmium	ND	0.100	"							CC-03
Chromium	ND	0.100	"							
Lead	ND	0.100	"							
Selenium	ND	0.100	"							
Silver	ND	0.100	"							
LCS (4J23004-BS1)										
Arsenic	0.210	0.100	mg/L	0.200		105	85-115			
Barium	0.207	0.500	"	0.200		104	85-115			
Cadmium	0.237	0.100	"	0.200		119	85-115			CC-04, L1
Chromium	0.200	0.100	"	0.200		99.9	85-115			
Lead	0.204	0.100	"	0.200		102	85-115			
Selenium	0.189	0.100	"	0.200		94.6	85-115			
Silver	0.102	0.100	"	0.100		102	85-115			
LCS Dup (4J23004-BSD1)										
Arsenic	0.204	0.100	mg/L	0.200		102	85-115	3.14	20	
Barium	0.208	0.500	"	0.200		104	85-115	0.496	20	
Cadmium	0.224	0.100	"	0.200		112	85-115	5.93	20	CC-03
Chromium	0.196	0.100	"	0.200		98.2	85-115	1.74	20	
Lead	0.202	0.100	"	0.200		101	85-115	1.15	20	
Selenium	0.192	0.100	"	0.200		96.0	85-115	1.46	20	
Silver	0.102	0.100	"	0.100		102	85-115	0.0646	20	
Matrix Spike (4J23004-MS1)	**Source: 1410334-02**									
Arsenic	0.200	0.100	mg/L	0.200	ND	99.9	75-125			
Barium	1.19	0.500	"	0.200	1.00	94.1	75-125			
Cadmium	0.178	0.100	"	0.200	0.0007	88.7	75-125			CC-03
Chromium	0.165	0.100	"	0.200	0.004	80.7	75-125			
Lead	0.187	0.100	"	0.200	0.018	84.8	75-125			
Selenium	0.198	0.100	"	0.200	ND	98.8	75-125			
Silver	0.089	0.100	"	0.100	0.003	86.1	75-125			

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/27/14 14:50

TCLP Metals by 1311/6010B - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4J23004 - EPA 3010A						*Prepared: 10/22/14 Analyzed: 10/24/14*				
Matrix Spike (4J23004-MS2)		**Source: 1410334-03**								
Arsenic	0.216	0.100	mg/L	0.200	0.004	106	75-125			
Barium	1.32	0.500	"	0.200	1.12	100	75-125			
Cadmium	0.209	0.100	"	0.200	ND	105	75-125			CC-03
Chromium	0.198	0.100	"	0.200	0.008	94.9	75-125			
Lead	0.221	0.100	"	0.200	0.021	100	75-125			
Selenium	0.215	0.100	"	0.200	ND	107	75-125			
Silver	0.095	0.100	"	0.100	0.002	93.4	75-125			
Matrix Spike (4J23004-MS3)		**Source: 1410334-04**								
Arsenic	0.174	0.100	mg/L	0.200	ND	87.0	75-125			
Barium	0.360	0.500	"	0.200	0.189	85.2	75-125			
Cadmium	0.168	0.100	"	0.200	ND	83.8	75-125			CC-03
Chromium	0.153	0.100	"	0.200	0.002	75.4	75-125			
Lead	0.164	0.100	"	0.200	0.007	78.6	75-125			
Selenium	0.173	0.100	"	0.200	ND	86.5	75-125			
Silver	0.081	0.100	"	0.100	0.002	79.3	75-125			
Matrix Spike (4J23004-MS4)		**Source: 1410334-05**								
Arsenic	0.189	0.100	mg/L	0.200	ND	94.4	75-125			
Barium	0.321	0.500	"	0.200	0.130	95.3	75-125			
Cadmium	0.189	0.100	"	0.200	ND	94.3	75-125			CC-03
Chromium	0.170	0.100	"	0.200	0.003	83.8	75-125			
Lead	0.173	0.100	"	0.200	ND	86.4	75-125			
Selenium	0.202	0.100	"	0.200	ND	101	75-125			
Silver	0.090	0.100	"	0.100	ND	89.5	75-125			
Matrix Spike (4J23004-MS5)		**Source: 1410334-06**								
Arsenic	0.184	0.100	mg/L	0.200	ND	91.8	75-125			
Barium	1.57	0.500	"	0.200	1.39	90.8	75-125			
Cadmium	0.175	0.100	"	0.200	0.002	86.9	75-125			CC-03
Chromium	0.164	0.100	"	0.200	0.002	81.2	75-125			
Lead	0.177	0.100	"	0.200	0.008	84.5	75-125			
Selenium	0.187	0.100	"	0.200	ND	93.3	75-125			
Silver	0.085	0.100	"	0.100	0.001	83.7	75-125			

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.
P O Box 906
Ocean Springs MS, 39566

Project: Multiple Controls
Project Number: [none]
Project Manager: Jake White

Reported:
10/27/14 14:50

TCLP Mercury by 1311/7470A - Quality Control

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4J23007 - SW 7470A						*Prepared & Analyzed: 10/23/14*				
Blank (4J23007-BLK1)										
Mercury	ND	0.015	mg/L							
LCS (4J23007-BS1)										
Mercury	0.021	0.015	mg/L	0.0200		104	85-115			
LCS Dup (4J23007-BSD1)										
Mercury	0.021	0.015	mg/L	0.0200		104	85-115	0.482	20	
Matrix Spike (4J23007-MS1)	**Source: 1410334-02**									
Mercury	0.022	0.015	mg/L	0.0200	ND	110	75-125			
Matrix Spike (4J23007-MS2)	**Source: 1410334-03**									
Mercury	0.021	0.015	mg/L	0.0200	ND	107	75-125			
Matrix Spike (4J23007-MS3)	**Source: 1410334-04**									
Mercury	0.021	0.015	mg/L	0.0200	ND	107	75-125			
Matrix Spike (4J23007-MS4)	**Source: 1410334-05**									
Mercury	0.022	0.015	mg/L	0.0200	ND	111	75-125			
Matrix Spike (4J23007-MS5)	**Source: 1410334-06**									
Mercury	0.023	0.015	mg/L	0.0200	ND	114	75-125			

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.	Project: Multiple Controls	
P O Box 906	Project Number: [none]	**Reported:**
Ocean Springs MS, 39566	Project Manager: Jake White	10/27/14 14:50

Certified Analyses Included in this Report

Analyte	Certification Code
TCLP Metals in Leachate	
Arsenic	C01,C02
Barium	C01,C02
Cadmium	C01,C02
Chromium	C01,C02
Lead	C01,C02
Selenium	C01,C02
Silver	C01,C02
TCLP Mercury in Leachate	
Mercury	C01,C02

MICRO-METHODS LABORATORY, INC.
6500 Sunplex Drive, Ocean Springs, MS 39564
(228) 875-6420 FAX (228) 875-6423
www.micromethodslab.com

Chain of Custody Record

M-M Lab WO # 1410334

Company Name: ECS, Inc.	Project Manager: JAKE WHITE
Address: P.O. Box 356	Purchase Order #:
City: SHERMAN State: MS Zip: 38869	Email Address: jwhite@envirocorp.net
Phone: 8(228) 217-6254	Sampler Name Printed: JAMES J. WHITE
Fax:	Sampler Name Signed:

Turn Around Time & Reporting

Our normal turn around time is 7-10 working days

✓ Normal
__Next Day*
__2nd Day*
__Other*_____

*All rush order requests must be prior approved.

__Phone
__Mail
__Fax
__Email

Project Name: Multiple Controls
Project #:

Sample Identification	Sampling Date/Time	# of Containers	Sample Code	TCLP Metals
FM-ECS-01	10/17/14 11:59	1		X
FS-ECS-02	10/17/14 12:01	1		X
CW-ECS-03	10/17/14 12:04	1		X
PB-ECS-04	10/17/14 12:06	1		X
UF-ECS-05	10/17/14 12:10	1		X
CH-ECS-06	10/17/14 12:15	1		X

Field pH _____ Collect Time_____ ReadTime _____
Field D.O. _____Collect Time_____ Read Time _____
Field Temp._____Collect Time_____ Read Time _____
QC Level: Level 1 ☐ Level 2 ☐ Level 3 ☐

Matrix Code: W= Water, S= Soil, O= Oil, L= Liquid, SL= Sludge
Sample Code: G= Grab C= Composite

Lab Use Only
Notes

	Signature	Printed Name	Company	Date	Time
Relinquished by		JAMES J. WHITE	ECS, Inc.	10/17/14	1233
Received by			MM	10/17/14	1233
Relinquished by					
Received by					
Relinquished by					
Received by					

Sample Rcvd. on Ice Yes ☐ No ☐
Thermometer # Cooler #
Receipt Temp (°C)_____ Sample☐ Blank ☐
By: _____
Date & Time _____

	Issue Date: 7/18/11	**Micro-Methods Laboratory Log-In Checklist**	
	Implementation Date: 7/18/11		DCN: F207
			Date Revised: 7-18-11
			Revision: 4

Client FCS **WO** 1410334 **Shipped By** Client ST
Date/Time Received 10/17/14 @ 1233 **Unpacked/Checked By** ST

Cooler ID	Ice Present Yes/No	Temperature	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
None	No	—	—	—	—

If not iced, were samples received within one hour of collection? Yes ___ No ___ N/A ___
Temperature Blank Used Yes _____ No _____ If not, temperature taken from cooler ____ or bottle ____
Multi Cooler shipment: ID of samples in coolers that exceed 6°C _____

Custody Seals on Bottles Present Yes ___ No X
Containers Intact Yes X No ___
Proper Containers for Requested Analysis Yes X No ___

Correct Preservation Used for All Samples Yes X No ___
Adequate Sample for Analysis Requested Yes X No ___

Volatile Vials Headspace Greater than 6mm in Diameter Yes ___ No ___ N/A X

Chain of Custody Form Included Yes X No ___
Chain of Custody Form Complete Yes X No ___
Chain of Custody Form Properly Relinquished Yes X No ___
Field Sheets/Special Instructions Included Yes ___ No ___ N/A X
Samples Missing on COC or From Cooler Yes ___ No X
Sample Container Labels Match COC Yes X No ___

Samples Received Within Holding Time Yes X No ___
Dept. Manager Notified of Rush/Short Holding Times Yes ___ No ___ N/A X

Does work order meet Micro Methods sample acceptance criteria Yes X No ___
Note: Samples that do not meet acceptance criteria must be documented in the Sample Rejection Log.

Client Contacted _____ **Contacted By** _____ **Date/Time** _____
Client Instructions: Cancel Work Order ____
Proceed with Work Order _____ **(Data will be qualified)**
Comments: _____

MICRO-METHODS LABORATORY, INC.

6500 Sunplex Drive
Ocean Springs, MS 39564
228-875-6420 Phone
228-875-6423 Fax

Environmental Compliance Services, Inc.	Project: Multiple Controls	
P O Box 906	Project Number: [none]	**Reported:**
Ocean Springs MS, 39566	Project Manager: Jake White	10/27/14 14:50

	Issue Date: 1-16-2012	**TCLP Regulatory Limit Sheet Metals, Volatiles, Semi Volatiles Pesticides, Herbicides**	DCN: F031
			Date Revised: 1-16-2012
			Revision: 5

Micro-Methods Laboratory, Inc.

TCLP REGULATORY LIMITS

TCLP Metals:	**mg/l**
Arsenic	5.0
Barium	100.0
Cadmium	1.0
Chromium	5.0
Lead	5.0
Mercury	0.2
Selenium	1.0
Silver	5.0
Volatile Target Compounds:	
Benzene	0.5
Carbon Tetrachloride	0.5
Chlorobenzene	100.0
Chloroform	6.0
1,2 dichloroethane	0.5
1,1 Dichloroethene	0.7
Methyl Ethyl Ketone (2-Butanone)	200.0
Tetrachloroethene	0.7
Trichloroethene	0.5
Vinyl Chloride	0.2
Semi Volatile Target Compounds:	
1,4 Dichlorobenzene	7.5
2,4 Dinitrotoluene	0.13
2,4,5 Trichlorophenol	400.0
2,4,6 Trichlorophenol	2.0
Hexachlorobenzene	0.13
Hexachlorobutadiene	0.5
Hexachloroethane	3.0
Nitrobenzene	2.0
Pentachlorophenol	100.0
Pyridine	5.0
m-Cresol	200.0
o-Cresol	200.0
p-Cresol	200.0
Pesticide Target Compounds:	
Chlordane	0.03
Endrin	0.02
Heptachlor	0.008
Heptachlor epoxide	0.008
Lindane	0.4
Methoxychlor	10.0
Toxaphene	0.5
Herbicide Target Compounds:	
2,4 D	10.0
2,4,5-TP Silvex	1.0
Inorganic	
Flash Point	>140°F
Cyanide	<250 mg/kg
Sulfide	500 mg/kg
pH	2.00 – 12.5 SU

TCLP – Toxicity Characteristics Leachate Procedure, SW 846, Sec. 1311

Page 1

APPENDIX C

INFORMATION ON CONTROL TECHNOLOGIES

Remove Metals with MetalZorb™

For highly effective removal of metals from stormwater, industrial and wastewater discharge, CleanWay® offers a proven product that efficiently removes heavy metals through ion absorption and filtration.

Features & Benefits

- Targets heavy metals including zinc, copper, lead and more
- Thoroughly tested media blends address site-specific pollutants to reduce effluent concentrations
- Highly absorptive sponge prevents release of pollutants once captured
- Improves water quality
- Effective ground water remediation

Applications

- Stormwater compliance
- Industrial and commercial facilities
- Metal, coating and plating facilities
- Buildings with metal roofs
- Groundwater remediation
- Potable water filtration plants
- Auto dismantling
- Port facilities, boatyards
- Waste handling and transport
- Municipal sewage
- Mining operations
- Bioreactor sediment
- Drilling muds
- Soil remediation

MetalZorb is a high capacity sponge product that effectively yet simply removes metals from various water treatment applications that include:

- stormwater filtration devices, by replacing or augmenting existing media
- industrial and wastewater effluent, by capturing and retaining dissolved metals

Targets metals

MetalZorb reduces and removes zinc, copper, lead and other heavy metals commonly found in stormwater and industrial process water discharge. With high ion absorption capabilities and quick, aggressive kinetics, dissolved metals are captured and held in the media so they won't leach out. Metal-saturated sponge may be easily disposed as solid waste or valuable metals recovered.

For retrofits and new sites

MetalZorb products work in catch basins, filter vaults and downspout filtration units, in both retrofits and new sites.

For commercial, industrial and residential sites, our customized media can be deployed in:

1. New installations with the media blend incorporated into CleanWay catch basin filtration systems
2. Retrofits for other manufacturers' structural BMPs—by safely and simply replacing the filtration system's current media
3. Custom fabricated pressure or gravity fed systems for addressing specific considerations at industrial sites
4. Absorption booms

To address site-specific water quality requirements, we work with you to determine the right media blend for each installation.

CleanWay Environmental Partners, Inc.
PO Box 30087
10620 NE Marx Street
Portland, Oregon 97294

Call **800-723-1373**
Direct 503-280-5102

The Gold Standard in Metals Removal

Get rid of metals

MetalZorb™ sponge provides the ideal technology for reducing and absorbing heavy metals and metallic ions from applications where rapid removal of metals is required, including industrial effluents, landfill leachates, stormwater runoff, and any type of non-point source pollution where unattended gravity flow occurs.

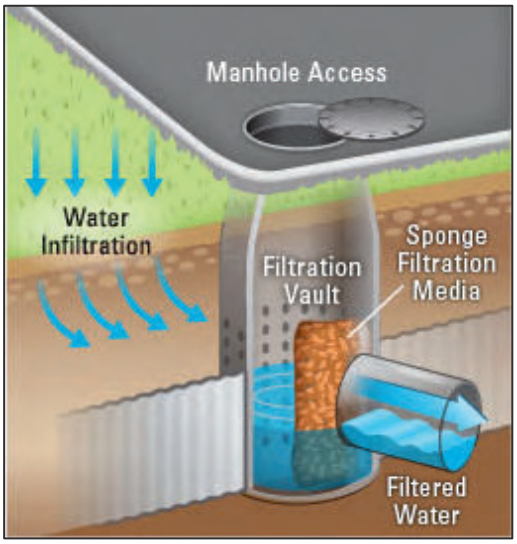
MetalZorb is also highly effective for treatment of sludge and slurries derived from industrial processes such as sewage treatment, mine tailings and harbor dredging.

Remote monitoring

This sponge product works well when installed in remote or unattended locations for effective absorption that can be monitored effectively by radio-transmitting sensors.

Easy to use

Sponge cubes can fill a conduit that's sized for the flow volume at each location or compacted into elongated fishnet bags as absorption units for use within a conduit. When confined in a conduit, they offer little impedance to water flowing through the unit and are not clogged by suspended solids.



Achieve effective ground water remediation by vertically positioning fishnet bags filled with MetalZorb at the gate of a barrier wall funnel system.

Units filled with sponge product can be periodically retrieved and replaced with fresh sponge.

Licensed exclusively to CleanWay® Environmental Partners, this product was originally developed under the name FORAGER® Sponge. The remediation of ground water using FORAGER® Sponge is described in EPA Superfund Innovative Technology Evaluation Report EPA/540/R-94/522.

How does it work?

Sponge product consists of multiple highly absorbent half inch cubes, combined in various configurations to address metals removal at any site.

Sponge pores are self-filtering to prevent total occlusion of the active polymer component.

In some applications, elevated temperatures shorten treatment time. Solvating agents may be added to the slurry to expedite metal transfer from the suspended particles to the sponge. For example, citric or acetic acids can be employed in specific metal-removing applications.

How long does it last?

The duration of treatment and operational lifetime depend upon several factors such as:

- unit size
- cumulative flow volume
- concentration of pollutants of concern
- absorption efficiency of the unit within a specific treatment system
- desired removal efficiency
- consistency of slurry
- average size of suspended particles

For example, a cubic foot of Type M sponge product holds about 190 grams of lead at saturation. If the water to be treated contains 1 ppm of lead, the unit is achieving 100% lead removal and not absorbing anything else, one cubic foot of sponge can treat 50,000 or more gallons of water. At an average flow rate of 1000 gal/week, one cubic foot will last almost a year.

Get the Gold Standard

Frequently Asked Questions and more information are available at www.cleanwayusa.com or call 800-723-1373 today and we'll help you get started with the gold standard in metals removal.

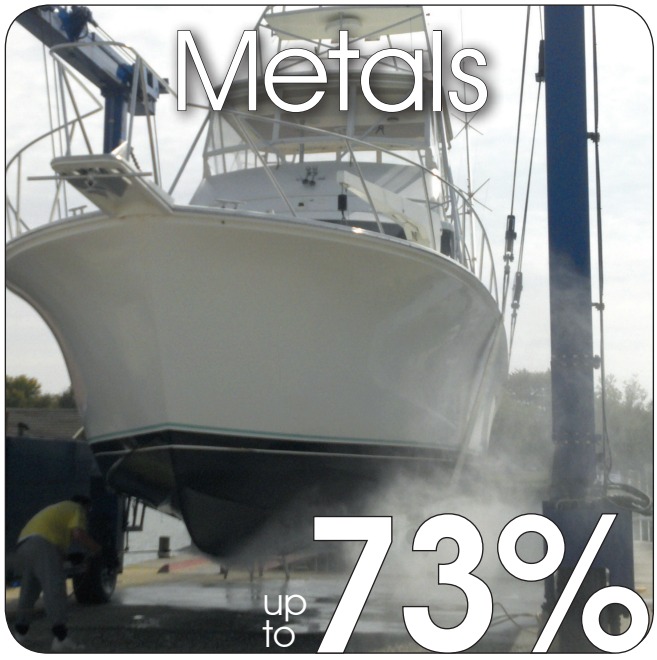
cleanwayusa.com

CleanWay Environmental Partners, Inc.
PO Box 30087
10620 NE Marx Street
Portland, Oregon 97294

Call **800-723-1373**
Direct 503-280-5102

EnviroSoxx®

TARGETED POLLUTANT REMOVAL



EnviroSoxx® consist of sediment control devices with one or more natural additives used to remove invisible pollutants. The EnviroSoxx® product line includes BactoLoxx® for bacteria removal, MetalLoxx® for heavy metals removal, NutriLoxx® for nutrient removal, and PetroLoxx® for hydrocarbon removal, such as diesel, gasoline, and motor oil.

Available prefilled on pallets for easy installation.

Call for Local Distributor Information: 440-926-2607

www.filtrexx.com

filtrexx®
LAND IMPROVEMENT SYSTEMS

Printed April 2013

SiltSoxx™

Simple. Proven. *Green...and on Pallets*

Filtrexx® SiltSoxx™ is the ***original*** mesh tube filled with FilterMedia™. Use it ***instead*** of silt fence.

It's the sediment control device that ***actually works.*** It stops silt and sediment leaving your jobsite, and helps ***keep you in compliance.***

SiltSoxx™ stops pollutants in two ways: by allowing water to temporarily pond outside the sock, and by cleansing water as it passes through the sock. Sediment is either filtered or settled out.

One more thing, ***Our Soxx Don't Fall Down!***

Look for the Green SiltSoxx™ on Pallets

USDA CERTIFIED BIOBASED PRODUCT
PRODUCT 100%

For more information go to www.biopreferred.gov

- ✓ Approved By:
  - EPA
  - USDA NRCS
  - AASHTO
  - USACE
- ✓ No Trenching
- ✓ Easy Installation
- ✓ Easy Removal
- ✓ Gas & Oil Proven

Product	Linear Feet	Use
SiltSoxx™, 8-inch	160 ft/pallet; continuous	House Wraps, Site Band Aids
SiltSoxx™, 12-inch	100 ft/pallet; continuous	Perimeter Control
SiltSoxx™, 18-inch	50 ft/pallet; continuous	Perimeter Control
InletSoxx™, 8-inch	120 ft/pallet; 12 - 10' pieces	Street & Area Inlets
DitchChexx™, 12-inch	80 ft/pallet; 8 - 10' pieces	Check Dams, Large Inlets

Filtrexx® Soxx™ Meet Specifications

Filtrexx® products meet all EPA, AASHTO, USACE and USDA-NCRS as well as the regulations of most state agencies throughout the U.S.

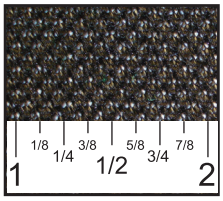
Using Filtrexx® products is your assurance that the product:

- Meets EPA and most state specifications for perimeter sediment control
- Avoids the risk of regulatory non-compliance
- Eliminates costly re-install and non-compliance costs for contractors
- Saves money for you and your customer over the life of the project

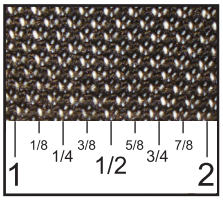
Nobody compares to Filtrexx® in quality, specification & experience.

Regulatory Criteria	Filtrexx® Mesh	E Tube	Silt Sock
Size of Hole	✓	No	No
Material	✓	No	No
Media	✓	No	No
Flow Rate	✓	No	No
Tensile Strength	✓	No	No
Longevity	✓	No	No
Diameter	✓	✓	✓

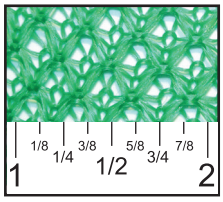
Compare the size of the hole in Filtrexx® mesh to the imitation mesh when filled.



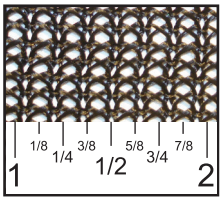
Silt Sock



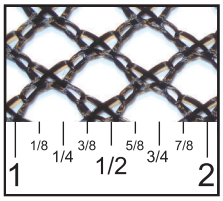
E Tube



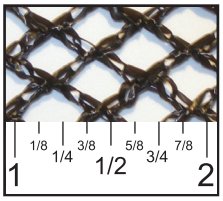
Filtrexx® DuraSoxx® MFPP



Filtrexx® SafetySoxx™ MFPP



Filtrexx® Multi-filament Polypropylene (MFPP)



Filtrexx® 5mil HDPE

Shown at Actual Size

Sediment Control BMP: More than Just Mesh

What makes Filtrexx® mesh different?
Unlike fence or inferior sock, Filtrexx® lets water through while keeping silt and clay inside the Soxx™. Only Filtrexx® has the independent test data to prove its performance.

What's so special about Filtrexx® FilterMedia™?
Meeting particle size specification. Two-thirds of the silt stopping capacity is IN the Soxx™. Only Filtrexx® FilterMedia™ is certified to meet the necessary flow-through rates specified by both the EPA and most state regulators.

Why use a Filtrexx® Certified™ Installer?
Either through a Filtrexx® Certified™ Installer or authorized palletized product dealer, you'll save time and money because our products meet spec. The Filtrexx® Certified™ Installer network is the largest and best in our industry.

SiltSoxx™ Material Type	Multi-Filament Polypropylene DuraSoxx® HD
Material Characteristic	Photodegradable
Design Diameters	8 in (200mm), 12 in (300mm), 18 in (400mm),
Mesh Opening	1/8 in (3mm)
Tensile Strength	242 psi
% Original Strength from Ultraviolet Exposure (AS™ G-155)	100% at 1000 hr
Functional Longevity/ Project Duration	2-5 yr

Look for the Filtrexx® Certified™ Logo & Scan Tag

filtrexx®
LAND IMPROVEMENT SYSTEMS
www.filtrexx.com | 440-926-2607

Local Distributor Information

ULTRA-FILTER SOCK SPECIFICATIONS

MATERIAL SPECIFICATIONS		
Properties	**ASTM Test**	**Value**
Material: High Density Polyethylene (HDPE), Woven Geotextile	----	----
Grab Tensile (MD/TD)	D 4632	326 / 216 lbs
Trapezoid Tear (MD/TD)	D 4533	141 / 70 lbs
Puncture	D 4833	109 lbs
Mullen Burst	D 3786	376 psi
UV Resistance (2000 hours)	D 4355	> 70%

MEDIA SPECIFICATIONS	
Media Type	**Capacity Information***
Activated Carbon	• Each Filter Sock is filled with granular activated carbon. This media is an excellent polishing filter, due to its immense surface area and the wide range of components it is capable of absorbing. Helps with removing odors. • Dry Filter Sock Weight of approximately 36 lbs
Heavy Metal Removal Media	• Each Filter Sock can remove up to 1145 grams of heavy metals • Removal rates up to 50% per Filter Sock • See Heavy Metal Removal Data Sheet for more information • Dry Filter Sock Weight is approximately 32.5 lbs
Sorb 44	• Each Filter Sock can absorb up to 5.33 gallons (20 liters) of hydrocarbon • Dry Filter Sock Weight is approximately 9 lbs
PhosFilter	• Each Filter Sock can remove up to 26 lbs of phosphorus with up to 95% efficiency • Dry Filter Sock Weight is approximately 50 lbs
Sediment Removal Media	• Recycled rubber material keeps unit in place and allows for maximum water flow • Dry Filter Sock Weight is approximately 40 lbs

* Note – All information is based on a standard 9-foot long Ultra-Filter Sock

07/12/2011

11542 Davis Creek Court • Jacksonville, FL 32256 • 904.292.1611 • 800.353.1611 • Fax 904.292.1325
E-mail: info@stormwaterproducts.com • www.stormwaterproducts.com