



# **Site Screening Sampling Report**

**Tannery Sludge Farm Fields Site  
Union Star, Missouri  
Andrew County  
Order Id # 090819001**

**August 12, 2009**

Prepared For:

Missouri Department of Natural Resources  
Division of Environmental Quality  
Hazardous Waste Program

Prepared By:

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## **1.0 Introduction**

On April 22, 2009, the Missouri Department of Natural Resources (MDNR) learned of allegations that sludge generated from tanning operations at a facility in St. Joseph, MO and land applied to agricultural fields over a four county area as a fertilizer, may contain substances that are harmful to human health. The main contaminant of concern is hexavalent chromium (Cr VI). Previous MDNR investigations of the tanning facility and selected farm fields have already taken place, and further investigations by the MDNR are in the planning stage.

The scope of this investigation is to determine how well correlated the variability of total Cr (analyzed by X-Ray Fluorescence (XRF)), is to the variability of Cr VI (analyzed by lab) across different spatial scales in the agricultural field soils. The information from this variance study will be used to create a sampling design for assessing potential risk posed by the tannery sludge waste.

On August 12, 2009, ESP Environmental Specialists Sean Counihan and Brad Swank, along with HWP Environmental Specialist Shelly Jackson revisited an agricultural field, which had the sludge applied, to conduct additional sampling.

## **2.0 Site Description and History**

### **2.1 Location**

The site location is approximately 24 miles northeast of Saint Joseph, MO in the vicinity of State Highway 169 and State Route M near the town of Union Star. The exact location is not disclosed because confidentiality was maintained to protect the identity of the private landowner who allowed access to governmental agencies for this investigation.

### **2.2 Site History/Contaminants of Concern**

Based upon allegations that sludge generated from the National Beef, Leather Tannery Division, previously known as Prime Tanning, located at 205 Florence Road, St. Joseph, MO, may contain substances harmful to human health, the MDNR prepared a sampling plan to attempt to identify and assess any potential risks posed by human exposure to the sludge. Allegations have arisen that the sludge applied to agricultural fields as a fertilizer contains Cr VI at levels that have resulted in adverse health effects in humans.

Sludge generated from operations at this facility has been land-applied as fertilizer to agricultural fields over an approximate four county area (Buchanan, Clinton, DeKalb, and Andrew Counties). Land application of sludge has occurred since approximately 1983. MDNR file information indicates the applications were initially conducted under a letter of approval from the Department and, later, under Department-issued permits until the company began applying the material as a fertilizer in 2005, at which time, permits were no longer required. Prime Tanning had provided analytical data previously to the Department, which indicated the sludge contained no contaminants at levels of concern that would prevent land application as fertilizer.

Initial sampling took place over two mobilizations on April 29, and May 1, 2009. The scope of that investigation included the collection of soil, stockpiled material at the tanning facility, sludge and water samples to assess for the presence and levels of Cr VI, in addition to other constituents typically associated with tanning operations. Initial efforts focused upon process wastes at the facility, with limited sampling conducted at selected farm fields. Information and analytical data generated from the investigation has been shared with other environmental and health-based agencies.

The primary contaminant of concern for the initial investigation was Cr VI. The April/May sampling event also included analysis for other possible by-products from the tanning process that include; volatile organics (VOAs), semi-volatile organic compounds (BNAs), metals (arsenic, silver, barium, beryllium, cadmium, chromium, cobalt, lead, manganese, mercury, molybdenum, selenium, and zinc), and cyanides.

### **3.0 Methods**

#### **3.1 Field Procedures**

A health and safety briefing was conducted on-site and ESP personnel read and signed the site-specific health and safety plan.

All sample locations and descriptions were recorded in bound field notebooks maintained by ESP personnel while HWP personnel determined the geographic coordinates of all sample locations using a Trimble GPS unit. Locations where samples were collected were assigned a unique location.

ESP personnel collected grab samples of surface soil (0-2 inch) in areas that had received a uniform sludge application.

All aspects of sampling were performed using standard operating procedures (SOPs) established within ESP for the collection, preservation, and transport of various media sampled. ESP and HWP staff also adhered to the Quality Assurance Project Plan for Pre-Remedial/Pre-Removal and Targeted Brownfields Site Assessments, Revision 6, December 7, 2007.

##### **3.1.1 Soil Sampling**

An approximately 400-acre agricultural field was chosen for the variance study. This field had received sludge in the spring of 2009. A 12'x12' variogram plot design (Appendix C) was used to carry out the sampling. Three variogram plot locations were selected from within the field. An attempt was made to locate the 3 plots in areas with as different of field conditions as possible to try and capture the highest chromium variance. One area was selected from near the location where the sludge was trucked in and loaded onto the spreader (Plot A). One location was chosen from a grazed pasture (Plot B), and a third location (Plot C) was located in a hay field (not grazed). Each variogram plot contained 10 sampling points with each point marked with an orange flag. Refer to site map (Appendix A) for plot locations.

Where a dense vegetative layer was present, a square point garden shovel was used to expose the 0 - 1 inch layer of soil present just beneath the vegetation. Soil samples were collected from the 0 - 2 inch depth using clean single use stainless steel spoons. Each sample was immediately transferred to clean one gallon plastic resealable bags, labeled with unique identifiers (determined by HWP personnel), and returned to the ESP laboratory for drying.

The samples were placed in an aluminum roasting pan lined with wax paper and allowed to air dry. Once dry, the samples were disaggregated with a mortar and pestle, passed through a #60 (0.25mm) sieve, and then placed into a new clean resealable bag. Each sieved soil sample was analyzed (by HWP personnel) thru the bag with an InnovX X-ray tube XRF analyzer set in the LEAP mode for light element analysis, using a 180 second run time. Each sample was analyzed four times by the XRF and recorded on a log sheet.

Once the XRF analysis was completed, each sample was placed into a sample container and submitted for laboratory analysis of Cr VI, redox potential and pH.

### **3.2 Sample Order**

Samples were collected in a logical order so as to simplify the sampling process. Regardless of order, all samples were collected using clean equipment to minimize cross-contamination. Background samples were not collected for this event.

### **3.3 Sample Quantity**

A total of 30 surface soil samples were collected during the sampling event. Refer to Table 1 for the identity, location, date, and time of each sample collected and Appendix A (site map) for the sample locations relative to the site.

### **3.4 Chain-of-Custody**

All samples received a numbered label and the corresponding number was entered onto a chain-of-custody form indicating the location, date and time of collection, and analytes requested. Samples were stored and transported in coolers. ESP field personnel maintained custody of the soil samples during the drying, sieving, and XRF analysis. At which point ESP personnel relinquished them to a sample custodian at the State's environmental laboratory within the Environmental Services Program in Jefferson City for analysis.

### **3.5 Analyses Requested**

The samples were dried, disaggregated, sieved and analyzed for total Cr using the XRF analyzer. Following XRF analysis the samples were then shipped to a contract lab for Cr VI analysis by EPA SW-846 Method 3060A/7199, redox potential by SM 2580B, and pH by SW-846 Method 9045C.

## **4.0 Data Quality**

To help ensure precise, accurate, representative, complete, and comparable data is achieved, all field work and analyses were conducted in accordance with the Quality Assurance Project Plan

(QAPP) for Pre-Remedial/Pre-Removal and Targeted Brownfields Site Assessments, Revision 6, December 7, 2007. ESP field personnel utilized SOPs established within the ESP for all samples collected.

#### **4.1 Field Methods**

Clean disposable nitrile gloves were worn by sampling personnel and clean equipment was utilized for each separate sample collected to minimize the possibility of cross-contamination.

ESP field personnel noted all observations, sample locations, descriptions, and methods in a bound field logbook.

All samples were collected in certified-clean containers.

#### **4.2 Field Decontamination**

All sampling equipment used was single use. The sampling spoons were discarded after one use. However, the shovel used to remove the vegetation was cleaned with a wire brush between each use.

#### **4.3 Field Quality Assurance/Quality Control Samples**

Since the sample design involved the collection of 10 samples within a 12 x 12 foot area, no additional field quality control samples were collected. Background samples were not collected during this event. Three lab duplicates were requested from the lab conducting the Cr VI analysis.

### **5.0 Investigation Derived Wastes (IDW)**

Disposable personal protective equipment and disposable sampling equipment were handled as solid waste, containerized, and properly disposed.

### **6.0 Observations**

The sampling team arrived around 1100 hrs on August 12, 2009. The weather was mostly clear skies, the temperature warmed to 85 degrees Fahrenheit with winds 5-10 miles per hour out of south west.

The first plot (Plot A) sampled was within the area previously sampled on May 1, 2009. The vegetation was sparse, and it was not difficult to collect samples. Plot B had considerably more vegetation, but still sparse in some areas. The shovel was used to remove vegetation on a few of the sample points. Plot C had very thick vegetation throughout and the shovel was needed to scrape off the vegetation for every sample point.

It had recently rained prior to the sampling event. Plot A was located in a low lying spot resulting in high moisture content of the soil samples. Plot B was located at a little higher

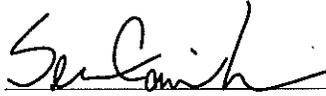
elevation and the samples were damp to the touch. Plot C was located on the top of a hill and those samples were relatively dry.

The sludge was applied in the spring and was not mixed into the soil. The sludge material was still visible on the soil's surface, but was not giving off any noticeable odors.

## **7.0 Data Reporting**

Please refer to Appendix B for analytical results of samples collected.

Submitted by:



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- Dorothy Franklin, Section Chief, KCRO
- Julieann Warren, Unit Chief, Superfund Site Assessment Unit, HWP

**TABLES**

Tannery Sludge Farm Fields Site  
Union Star, Andrew County, MO

**Table 1****Tannery Sludge Farm Fields Site, Union Star, Andrew County, MO**

<b>Soil Sample Collection Data</b>			
<b>Sample Number</b>	<b>Date Collected</b>	<b>Time Collected</b>	<b>Location Collected/Description</b>
0916260	08/12/09	1132	Parcel 1 Id 5180 Sample A01
0916261	08/12/09	1137	Parcel 1 Id 5180 Sample A02
0916262	08/12/09	1139	Parcel 1 Id 5180 Sample A03
0916263	08/12/09	1141	Parcel 1 Id 5180 Sample A04
0916264	08/12/09	1143	Parcel 1 Id 5180 Sample A05
0916265	08/12/09	1145	Parcel 1 Id 5180 Sample A06
0916266	08/12/09	1147	Parcel 1 Id 5180 Sample A07
0916267	08/12/09	1149	Parcel 1 Id 5180 Sample A08
0916268	08/12/09	1151	Parcel 1 Id 5180 Sample A09
0916269	08/12/09	1153	Parcel 1 Id 5180 Sample A10
0916270	08/12/09	1245	Parcel 1 Id 5180 Sample B01
0916271	08/12/09	1248	Parcel 1 Id 5180 Sample B02
0916272	08/12/09	1251	Parcel 1 Id 5180 Sample B03
0916273	08/12/09	1253	Parcel 1 Id 5180 Sample B04
0916274	08/12/09	1256	Parcel 1 Id 5180 Sample B05
0916275	08/12/09	1258	Parcel 1 Id 5180 Sample B06
0916276	08/12/09	1300	Parcel 1 Id 5180 Sample B07
0916277	08/12/09	1302	Parcel 1 Id 5180 Sample B08
0916278	08/12/09	1305	Parcel 1 Id 5180 Sample B09
0916279	08/12/09	1303	Parcel 1 Id 5180 Sample B10
0916280	08/12/09	1340	Parcel 2 Id 8940 Sample C01
0916281	08/12/09	1355	Parcel 2 Id 8940 Sample C02
0916282	08/12/09	1344	Parcel 2 Id 8940 Sample C03
0916283	08/12/09	1356	Parcel 2 Id 8940 Sample C04
0916284	08/12/09	1357	Parcel 2 Id 8940 Sample C09
0916285	08/12/09	1400	Parcel 2 Id 8940 Sample C05
0916286	08/12/09	1402	Parcel 2 Id 8940 Sample C10
0916287	08/12/09	1405	Parcel 2 Id 8940 Sample C06
0916288	08/12/09	1406	Parcel 2 Id 8940 Sample C08
0916289	08/12/09	1411	Parcel 2 Id 8940 Sample C07

**APPENDIX A**

**Site map**

Tannery Sludge Farm Fields Site  
Union Star, Andrew County, MO

**Chromium Variability Study  
Tannery Sludge Farm Fields Site  
Samples collected August 12, 2009  
Union Star, MO**

**Legend**

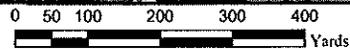
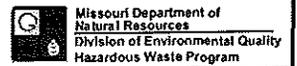
- Sample Location
- Imaginary line to connect sample locations for the purpose of determining the distance between samples



Created on: August 11, 2009 by Shelby Jackson. This map is located at McSupher and Tannery Sludge Farm Fields Maps Chromium Variability Study

Base Map: Missouri State Land-Use Imagery Program, Flight Date 2007

Although data were used to create this map have been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the department in the use of these data or related materials.



## **APPENDIX B**

### **Analytical results**

Tannery Sludge Farm Fields Site  
Union Star, Andrew County, MO



Sample: AB03924



Customer #: 0916263

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, A04

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 11:41:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	24.4		mg/Kg	881	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	524		mV	885	SM 2580B
Percent Moisture	Percent Moisture	13.6		%	921	Infrared Drying

Sample: AB03925



Customer #: 0916264

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, A05

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 11:43:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	25.8		mg/Kg	881	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	515		mV	885	SM 2580B
Percent Moisture	Percent Moisture	5.7		%	921	Infrared Drying

Sample: AB03926



Customer #: 0916265

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, A06

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 11:45:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	34.2		mg/Kg	881	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	504		mV	885	SM 2580B
Percent Moisture	Percent Moisture	8.7		%	921	Infrared Drying

Sample: AB03927



Customer #: 0916266

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, A07

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 11:47:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	25.1		mg/Kg	881	Contract Lab Dep

Sample: AB03927



Customer #: 0916266

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, A07

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 11:47:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	508		mV	885	SM 2580B
Percent Moisture	Percent Moisture	5.2		%	921	Infrared Drying

Sample: AB03928



Customer #: 0916267

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, A08

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 11:49:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	21.2		mg/Kg	881	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	505		mV	885	SM 2580B
Percent Moisture	Percent Moisture	5.1		%	921	Infrared Drying

Sample: AB03929



Customer #: 0916268

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, A09

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 11:51:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	20.7		mg/Kg	881	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	499		mV	885	SM 2580B
Percent Moisture	Percent Moisture	8.6		%	921	Infrared Drying

Sample: AB03930



Customer #: 0916269

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, A10

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 11:53:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	17.1		mg/Kg	881	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	496		mV	885	SM 2580B

Sample: AB03930



Customer #: 0916269

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, A10

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 11:53:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Percent Moisture	Percent Moisture	5.5		%	921	Infrared Drying

Sample: AB03931



Customer #: 0916270

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B01

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 12:45:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	45.4		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	524		mV	886	SM 2580B
Percent Moisture	Percent Moisture	7.2		%	922	Infrared Drying

Sample: AB03932



Customer #: 0916271

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B02

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 12:48:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	38.2		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	517		mV	886	SM 2580B
Percent Moisture	Percent Moisture	8.1		%	922	Infrared Drying

Sample: AB03933



Customer #: 0916272

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B03

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 12:51:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	24.6		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	518		mV	886	SM 2580B
Percent Moisture	Percent Moisture	7.0		%	922	Infrared Drying

Sample: AB03934



Customer #: 0916273

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B04

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 12:53:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	41.8		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	494		mV	886	SM 2580B
Percent Moisture	Percent Moisture	2.4		%	922	Infrared Drying

Sample: AB03935



Customer #: 0916274

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B05

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 12:56:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	51.3		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	604		mV	886	SM 2580B
Percent Moisture	Percent Moisture	9.0		%	922	Infrared Drying

Sample: AB03936



Customer #: 0916275

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B06

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 12:58:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	37.5		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	496		mV	886	SM 2580B
Percent Moisture	Percent Moisture	5.5		%	922	Infrared Drying

Sample: AB03937



Customer #: 0916276

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B07

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 1:00:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	20.2		mg/Kg	882	Contract Lab Dep

Sample: AB03937



Customer #: 0916276

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B07

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 1:00:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	527		mV	886	SM 2580B
Percent Moisture	Percent Moisture	1	ND	%	922	Infrared Drying

Sample: AB03938



Customer #: 0916277

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B08

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 1:02:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	55.6		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	503		mV	886	SM 2580B
Percent Moisture	Percent Moisture	5.9		%	922	Infrared Drying

Sample: AB03939



Customer #: 0916279

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B10

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 1:03:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	35.4		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	498		mV	886	SM 2580B
Percent Moisture	Percent Moisture	5.2		%	922	Infrared Drying

Sample: AB03940



Customer #: 0916278

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B09

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 1:05:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	54.3		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	572		mV	886	SM 2580B

Sample: AB03940



Customer #: 0916278

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN  
Sample Comment: Soil grab, B09

Site: Tannery Sludge Farm Fields  
Sample Reference ID: 5180

Affiliation: ESP Collect Date: 8/12/2009 1:05:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Percent Moisture	Percent Moisture	10.7		%	922	Infrared Drying

Sample: AB03941



Customer #: 0916280

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN  
Sample Comment: Soil grab, C01

Site: Tannery Sludge Farm Fields  
Sample Reference ID: 8940

Affiliation: ESP Collect Date: 8/12/2009 1:40:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	3.90		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	578		mV	887	SM 2580B
Percent Moisture	Percent Moisture	3.3		%	923	Infrared Drying

Sample: AB03942



Customer #: 0916281

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN  
Sample Comment: Soil grab, C02

Site: Tannery Sludge Farm Fields  
Sample Reference ID: 8940

Affiliation: ESP Collect Date: 8/12/2009 1:55:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	33.3		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	597		mV	887	SM 2580B
Percent Moisture	Percent Moisture	8.3		%	923	Infrared Drying

Sample: AB03943



Customer #: 0916282

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN  
Sample Comment: Soil grab, C03

Site: Tannery Sludge Farm Fields  
Sample Reference ID: 8940

Affiliation: ESP Collect Date: 8/12/2009 1:44:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	8.60		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	499		mV	887	SM 2580B
Percent Moisture	Percent Moisture	5.9		%	923	Infrared Drying

Sample: AB03944



Customer #: 0916283

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, C04

Site: Tannery Sludge Farm Fields

Sample Reference ID: 8940

Affiliation: ESP

Collect Date: 8/12/2009 1:56:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	26.7		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	508		mV	887	SM 2580B
Percent Moisture	Percent Moisture	3.3		%	923	Infrared Drying

Sample: AB03945



Customer #: 0916284

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, C09

Site: Tannery Sludge Farm Fields

Sample Reference ID: 8940

Affiliation: ESP

Collect Date: 8/12/2009 1:57:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	4.70		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	508		mV	887	SM 2580B
Percent Moisture	Percent Moisture	5.4		%	923	Infrared Drying

Sample: AB03946



Customer #: 0916285

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, C05

Site: Tannery Sludge Farm Fields

Sample Reference ID: 8940

Affiliation: ESP

Collect Date: 8/12/2009 2:00:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	18.0		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	546		mV	887	SM 2580B
Percent Moisture	Percent Moisture	3.3		%	923	Infrared Drying

Sample: AB03947



Customer #: 0916286

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, C10

Site: Tannery Sludge Farm Fields

Sample Reference ID: 8940

Affiliation: ESP

Collect Date: 8/12/2009 2:02:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	3.90		mg/Kg	883	Contract Lab Dep

Sample: AB03947



Customer #: 0916286

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, C10

Site: Tannery Sludge Farm Fields

Sample Reference ID: 8940

Affiliation: ESP

Collect Date: 8/12/2009 2:02:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	527		mV	887	SM 2580B
Percent Moisture	Percent Moisture	5.9		%	923	Infrared Drying

Sample: AB03948



Customer #: 0916287

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, C06

Site: Tannery Sludge Farm Fields

Sample Reference ID: 8940

Affiliation: ESP

Collect Date: 8/12/2009 2:05:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	7.90		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	505		mV	887	SM 2580B
Percent Moisture	Percent Moisture	4.1		%	923	Infrared Drying

Sample: AB03949



Customer #: 0916288

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, C08

Site: Tannery Sludge Farm Fields

Sample Reference ID: 8940

Affiliation: ESP

Collect Date: 8/12/2009 2:06:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	2.80		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	508		mV	887	SM 2580B
Percent Moisture	Percent Moisture	9.9		%	923	Infrared Drying

Sample: AB03950



Customer #: 0916289

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, C07

Site: Tannery Sludge Farm Fields

Sample Reference ID: 8940

Affiliation: ESP

Collect Date: 8/12/2009 2:11:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	4.50		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	527		mV	887	SM 2580B

Sample: AB03950



Customer #: 0916289

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, C07

Site: Tannery Sludge Farm Fields

Sample Reference ID: 8940

Affiliation: ESP

Collect Date: 8/12/2009 2:11:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Percent Moisture	Percent Moisture	4.4		%	923	Infrared Drying

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S Environmental Protection Agency.

Chris Boldt, Laboratory Manager  
Environmental Services Program  
Field Services Division

**Qualifier Descriptions**

- 01 Improper collection method
- 02 Improper preservation
- 03 Exceeded holding time
- 04 Analyzed by Contract Laboratory
- 05 Estimated value, detected below PQL
- 06 Estimated value, QC data outside limits
- 07 Estimated value, analyte outside calibration range
- 08 Analyte present in blank at > 1/2 reported value
- 09 Sample was diluted during analysis
- 10 Laboratory error
- 11 Estimated value, matrix interference
- 12 Insufficient quantity
- 13 Estimated value, true result is > reported value
- 14 Estimated value, non-homogeneous sample
- 15 No Result - Failed Quality Controls Requirements
- 16 Not analyzed - related analyte not detected
- 17 Results in dry weight
- 18 Sample PH is outside the acceptable range
- 19 Estimated value
- 20 Not analyzed - Instrument failure
- 21 No result - spectral interference
- ND Not detected at reported value



Sample: AB03924



Customer #: 0916263

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN  
Sample Comment: Soil grab, A04

Site: Tannery Sludge Farm Fields  
Sample Reference ID: 5180

Affiliation: ESP Collect Date: 8/12/2009 11:41:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	24.4		mg/Kg	881	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	524		mV	885	SM 2580B
Percent Moisture	Percent Moisture	13.6		%	921	Infrared Drying

Sample: AB03925



Customer #: 0916264

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN  
Sample Comment: Soil grab, A05

Site: Tannery Sludge Farm Fields  
Sample Reference ID: 5180

Affiliation: ESP Collect Date: 8/12/2009 11:43:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	25.8		mg/Kg	881	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	515		mV	885	SM 2580B
Percent Moisture	Percent Moisture	5.7		%	921	Infrared Drying

Sample: AB03926



Customer #: 0916265

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN  
Sample Comment: Soil grab, A06

Site: Tannery Sludge Farm Fields  
Sample Reference ID: 5180

Affiliation: ESP Collect Date: 8/12/2009 11:45:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	34.2		mg/Kg	881	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	504		mV	885	SM 2580B
Percent Moisture	Percent Moisture	8.7		%	921	Infrared Drying

Sample: AB03927



Customer #: 0916266

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN  
Sample Comment: Soil grab, A07

Site: Tannery Sludge Farm Fields  
Sample Reference ID: 5180

Affiliation: ESP Collect Date: 8/12/2009 11:47:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	25.1		mg/Kg	881	Contract Lab Dep

Sample: AB03927



Customer #: 0916266

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, A07

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 11:47:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	508		mV	885	SM 2580B
Percent Moisture	Percent Moisture	5.2		%	921	Infrared Drying

Sample: AB03928



Customer #: 0916267

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, A08

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 11:49:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	21.2		mg/Kg	881	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	505		mV	885	SM 2580B
Percent Moisture	Percent Moisture	5.1		%	921	Infrared Drying

Sample: AB03929



Customer #: 0916268

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, A09

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 11:51:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	20.7		mg/Kg	881	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	499		mV	885	SM 2580B
Percent Moisture	Percent Moisture	8.6		%	921	Infrared Drying

Sample: AB03930



Customer #: 0916269

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, A10

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 11:53:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	17.1		mg/Kg	881	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	496		mV	885	SM 2580B

Sample: AB03930



Customer #: 0916269

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, A10

Site: Tannery Sludge Farm Fields  
Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 11:53:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Percent Moisture	Percent Moisture	5.5		%	921	Infrared Drying

Sample: AB03931



Customer #: 0916270

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B01

Site: Tannery Sludge Farm Fields  
Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 12:45:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	45.4		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	524		mV	886	SM 2580B
Percent Moisture	Percent Moisture	7.2		%	922	Infrared Drying

Sample: AB03932



Customer #: 0916271

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B02

Site: Tannery Sludge Farm Fields  
Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 12:48:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	38.2		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	517		mV	886	SM 2580B
Percent Moisture	Percent Moisture	8.1		%	922	Infrared Drying

Sample: AB03933



Customer #: 0916272

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B03

Site: Tannery Sludge Farm Fields  
Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 12:51:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	24.6		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	518		mV	886	SM 2580B
Percent Moisture	Percent Moisture	7.0		%	922	Infrared Drying

Sample: AB03934



Customer #: 0916273

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B04

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 12:53:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	41.8		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	494		mV	886	SM 2580B
Percent Moisture	Percent Moisture	2.4		%	922	Infrared Drying

Sample: AB03935



Customer #: 0916274

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B05

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 12:56:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	51.3		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	604		mV	886	SM 2580B
Percent Moisture	Percent Moisture	9.0		%	922	Infrared Drying

Sample: AB03936



Customer #: 0916275

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B06

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 12:58:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	37.5		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	496		mV	886	SM 2580B
Percent Moisture	Percent Moisture	5.5		%	922	Infrared Drying

Sample: AB03937



Customer #: 0916276

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B07

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 1:00:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	20.2		mg/Kg	882	Contract Lab Dep

Sample: AB03937



Customer #: 0916276

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B07

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 1:00:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	527		mV	886	SM 2580B
Percent Moisture	Percent Moisture	1	ND	%	922	Infrared Drying

Sample: AB03938



Customer #: 0916277

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B08

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 1:02:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	55.6		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	503		mV	886	SM 2580B
Percent Moisture	Percent Moisture	5.9		%	922	Infrared Drying

Sample: AB03939



Customer #: 0916279

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B10

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 1:03:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	35.4		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	498		mV	886	SM 2580B
Percent Moisture	Percent Moisture	5.2		%	922	Infrared Drying

Sample: AB03940



Customer #: 0916278

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B09

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 1:05:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	54.3		mg/Kg	882	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	572		mV	886	SM 2580B

Sample: AB03940



Customer #: 0916278

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, B09

Site: Tannery Sludge Farm Fields

Sample Reference ID: 5180

Affiliation: ESP

Collect Date: 8/12/2009 1:05:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Percent Moisture	Percent Moisture	10.7		%	922	Infrared Drying

Sample: AB03941



Customer #: 0916280

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, C01

Site: Tannery Sludge Farm Fields

Sample Reference ID: 8940

Affiliation: ESP

Collect Date: 8/12/2009 1:40:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	3.90		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	578		mV	887	SM 2580B
Percent Moisture	Percent Moisture	3.3		%	923	Infrared Drying

Sample: AB03942



Customer #: 0916281

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, C02

Site: Tannery Sludge Farm Fields

Sample Reference ID: 8940

Affiliation: ESP

Collect Date: 8/12/2009 1:55:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	33.3		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	597		mV	887	SM 2580B
Percent Moisture	Percent Moisture	8.3		%	923	Infrared Drying

Sample: AB03943



Customer #: 0916282

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, C03

Site: Tannery Sludge Farm Fields

Sample Reference ID: 8940

Affiliation: ESP

Collect Date: 8/12/2009 1:44:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	8.60		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	499		mV	887	SM 2580B
Percent Moisture	Percent Moisture	5.9		%	923	Infrared Drying

Sample: AB03944



Customer #: 0916283

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN  
Sample Comment: Soil grab, C04

Site: Tannery Sludge Farm Fields  
Sample Reference ID: 8940

Affiliation: ESP Collect Date: 8/12/2009 1:56:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	26.7		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	508		mV	887	SM 2580B
Percent Moisture	Percent Moisture	3.3		%	923	Infrared Drying

Sample: AB03945



Customer #: 0916284

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN  
Sample Comment: Soil grab, C09

Site: Tannery Sludge Farm Fields  
Sample Reference ID: 8940

Affiliation: ESP Collect Date: 8/12/2009 1:57:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	4.70		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	508		mV	887	SM 2580B
Percent Moisture	Percent Moisture	5.4		%	923	Infrared Drying

Sample: AB03946



Customer #: 0916285

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN  
Sample Comment: Soil grab, C05

Site: Tannery Sludge Farm Fields  
Sample Reference ID: 8940

Affiliation: ESP Collect Date: 8/12/2009 2:00:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	18.0		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	546		mV	887	SM 2580B
Percent Moisture	Percent Moisture	3.3		%	923	Infrared Drying

Sample: AB03947



Customer #: 0916286

UTM-Easting Northing Precision

Facility ID:  
County: Andrew

Collector: SEAN COUNIHAN  
Sample Comment: Soil grab, C10

Site: Tannery Sludge Farm Fields  
Sample Reference ID: 8940

Affiliation: ESP Collect Date: 8/12/2009 2:02:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	3.90		mg/Kg	883	Contract Lab Dep

Sample: AB03947



Customer #: 0916286

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, C10

Site: Tannery Sludge Farm Fields

Sample Reference ID: 8940

Affiliation: ESP

Collect Date: 8/12/2009 2:02:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	527		mV	887	SM 2580B
Percent Moisture	Percent Moisture	5.9		%	923	Infrared Drying

Sample: AB03948



Customer #: 0916287

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, C06

Site: Tannery Sludge Farm Fields

Sample Reference ID: 8940

Affiliation: ESP

Collect Date: 8/12/2009 2:05:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	7.90		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	505		mV	887	SM 2580B
Percent Moisture	Percent Moisture	4.1		%	923	Infrared Drying

Sample: AB03949



Customer #: 0916288

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, C08

Site: Tannery Sludge Farm Fields

Sample Reference ID: 8940

Affiliation: ESP

Collect Date: 8/12/2009 2:06:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	2.80		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	508		mV	887	SM 2580B
Percent Moisture	Percent Moisture	9.9		%	923	Infrared Drying

Sample: AB03950



Customer #: 0916289

UTM-Easting Northing Precision

Facility ID:

County: Andrew

Collector: SEAN COUNIHAN

Sample Comment: Soil grab, C07

Site: Tannery Sludge Farm Fields

Sample Reference ID: 8940

Affiliation: ESP

Collect Date: 8/12/2009 2:11:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Hexavalent Chromium	Hexavalent Chromium	4.50		mg/Kg	883	Contract Lab Dep
Oxidation Reduction Potential-Dissolved	Oxidation Reduction Potential-Dissolved	527		mV	887	SM 2580B

Sample: AB03950

Facility ID:

Site: Tannery Sludge Farm Fields



County: Andrew

Sample Reference ID: 8940

Customer #: 0916289

Collector: SEAN COUNIHAN

Affiliation: ESP

Collect Date: 8/12/2009 2:11:00PM

UTM-Easting Northing Precision

Sample Comment: Soil grab, C07

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
Percent Moisture	Percent Moisture	4.4		%	923	Infrared Drying

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S Environmental Protection Agency.

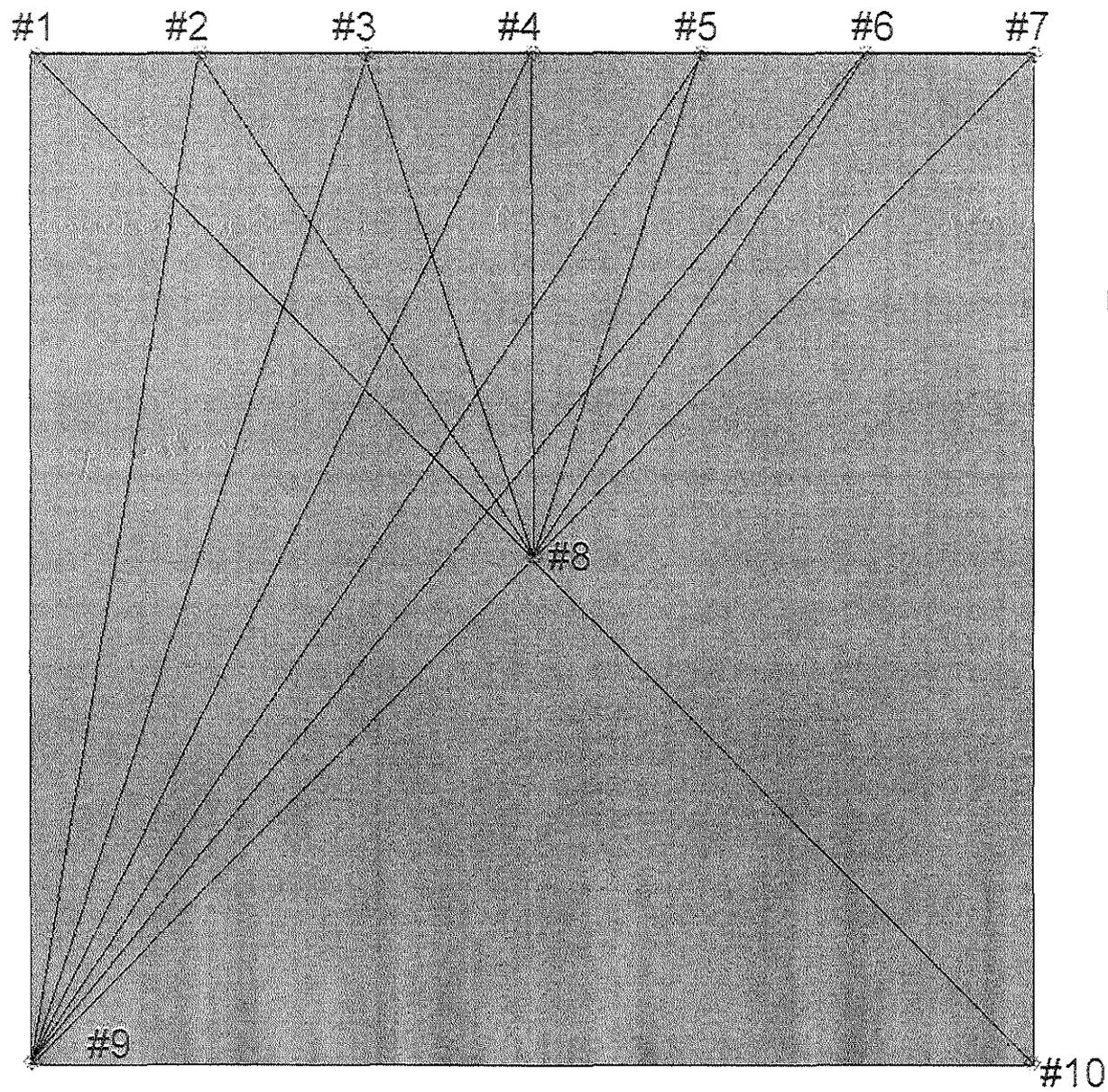
**Qualifier Descriptions**

- 01 Improper collection method
- 02 Improper preservation
- 03 Exceeded holding time
- 04 Analyzed by Contract Laboratory
- 05 Estimated value, detected below PQL
- 06 Estimated value, QC data outside limits
- 07 Estimated value, analyte outside calibration range
- 08 Analyte present in blank at > 1/2 reported value
- 09 Sample was diluted during analysis
- 10 Laboratory error
- 11 Estimated value, matrix interference
- 12 Insufficient quantity
- 13 Estimated value, true result is > reported value
- 14 Estimated value, non-homogeneous sample
- 15 No Result - Failed Quality Controls Requirements
- 16 Not analyzed - related analyte not detected
- 17 Results in dry weight
- 18 Sample PH is outside the acceptable range
- 19 Estimated value
- 20 Not analyzed - Instrument failure
- 21 No result - spectral interference
- ND Not detected at reported value

Chris Boldt, Laboratory Manager  
Environmental Services Program  
Field Services Division

## **APPENDIX C**

**Variogram Plot Design**  
Tannery Sludge Farm Fields Site  
Union Star, Andrew County, MO



## STEP 1

**Very-short-scale  
heterogeneity  
measurement plot  
(variogram trials)**

12 X 12 ft area

10 data points

**APPENDIX D**

**Chain of Custody Forms**  
Tannery Sludge Farm Fields Site  
Union Star, Andrew County, MO



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

LABORATORY ORDER ID: 090819001

<b>Collector's Name:</b> Sean Counihan <small>(Please Print)</small> <b>Affiliation:</b> <u>ESP</u> KCRO NERO SERO SLRO SWRO WPP <small>(circle one)</small> DGLS HWP Other:							<b>Description of Shipment</b> Shipped-Carrier: Tape sealed and initialed Hand Delivered						
							No. Of Containers: <u>4</u>						
Sample Number	Sample Collected	Analyses					Sample Type	For Lab Use Only					
	Date:	Hexavalent Cr						<b>Matrix</b>	<b>Container</b>		<b>Preserved</b>		
<u>0916260</u> <b>(Sample A)</b>	08/12/09						<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<u>1</u> 1L amber <u>1</u> Cubitainer <u>1</u> 2 oz glass Nalgene <u>1</u> 8 oz glass 1L	<u>120</u> mL <u>120</u> mL <u>1</u> 500mL <u>1</u> 250mL	<u>1</u> H <sub>2</sub> SO <sub>4</sub> <u>1</u> HNO <sub>3</sub> <u>1</u> NAOH <u>1</u> HCL <u>1</u> 4° C(None) <u>1</u> Disinfected <u>1</u> Other		
<i>For Lab Use Only</i>	Time: <u>1137</u>	D.O	Flow	pH	Spec. Cond.	Temp.	Other:						
<u>AB03921 01</u>													
<u>0916261</u> <b>(Sample B)</b>	08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<u>1</u> 1L amber <u>1</u> Cubitainer <u>1</u> 2 oz glass Nalgene <u>1</u> 8 oz glass 1L	<u>120</u> mL <u>120</u> mL <u>1</u> 500mL <u>1</u> 250mL	<u>1</u> H <sub>2</sub> SO <sub>4</sub> <u>1</u> HNO <sub>3</sub> <u>1</u> NAOH <u>1</u> HCL <u>1</u> 4° C(None) <u>1</u> Disinfected <u>1</u> Other		
<i>For Lab Use Only</i>	Time: <u>1137</u>	D.O	Flow	pH	Spec. Cond.	Temp.	Other:						
<u>AB03922 02</u>													
<u>0916262</u> <b>(Sample C)</b>	08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<u>1</u> 1L amber <u>1</u> Cubitainer <u>1</u> 2 oz glass Nalgene <u>1</u> 8 oz glass 1L	<u>120</u> mL <u>120</u> mL <u>1</u> 500mL <u>1</u> 250mL	<u>1</u> H <sub>2</sub> SO <sub>4</sub> <u>1</u> HNO <sub>3</sub> <u>1</u> NAOH <u>1</u> HCL <u>1</u> 4° C(None) <u>1</u> Disinfected <u>1</u> Other		
<i>For Lab Use Only</i>	Time: <u>1139</u>	D.O	Flow	pH	Spec. Cond.	Temp.	Other:						
<u>AB03923 03</u>													
<u>0916263</u> <b>(Sample D)</b>	08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified	<input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	<u>1</u> 1L amber <u>1</u> Cubitainer <u>1</u> 2 oz glass Nalgene <u>1</u> 8 oz glass 1L	<u>120</u> mL <u>120</u> mL <u>1</u> 500mL <u>1</u> 250mL	<u>1</u> H <sub>2</sub> SO <sub>4</sub> <u>1</u> HNO <sub>3</sub> <u>1</u> NAOH <u>1</u> HCL <u>1</u> 4° C(None) <u>1</u> Disinfected <u>1</u> Other		
<i>For Lab Use Only</i>	Time: <u>1141</u>	D.O	Flow	pH	Spec. Cond.	Temp.	Other:						
<u>AB03924 04</u>													
Relinquished By: <u>Sean Counihan</u>					Received By: <u>[Signature]</u>					Date: <u>8-18-09</u>		Time: <u>16:35</u>	
Relinquished By:					Received By:					Date:		Time:	
Relinquished By:					Received By:					Date:		Time:	

Sample I.D. Letter	Site Description					
0916260 <b>Sample A</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab A01</i>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	(check one) Sample Reference ID:		
	<input checked="" type="checkbox"/> Easting	<input type="checkbox"/> Northing		<input type="checkbox"/> EPE (meters)	5180	
			<input type="checkbox"/> PDOP			
0916261 <b>Sample B</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab A02</i>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	(check one) Sample Reference ID:		
	<input checked="" type="checkbox"/> Easting	<input type="checkbox"/> Northing		<input type="checkbox"/> EPE (meters)	5180	
			<input type="checkbox"/> PDOP			
0916262 <b>Sample C</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab A03</i>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	(check one) Sample Reference ID:		
	<input checked="" type="checkbox"/> Easting	<input type="checkbox"/> Northing		<input type="checkbox"/> EPE (meters)	5180	
			<input type="checkbox"/> PDOP			
0916263 <b>Sample D</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab A04</i>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	(check one) Sample Reference ID:		
	<input checked="" type="checkbox"/> Easting	<input type="checkbox"/> Northing		<input type="checkbox"/> EPE (meters)	5180	
			<input type="checkbox"/> PDOP			
REMARKS:						



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

LABORATORY ORDER ID: 090819001

<b>Collector's Name:</b> Sean Counihan <small>(Please Print)</small> <b>Affiliation:</b> <u>ESP</u> KCRO NERO SERO SLRO SWRO WPP <small>(circle one)</small> DGLS HWP Other:							<b>Description of Shipment</b> Shipped-Carrier: Tape sealed and initialed Hand Delivered				
							No. Of Containers: 4				
Sample Number	Sample Collected	Analyses					Sample Type	For Lab Use Only			
								<b>Matrix</b>	<b>Container</b>	<b>Preserved</b>	
0916264 <b>(Sample A)</b>	Date: 08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified Other:	<input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Organic <input type="checkbox"/> Sludge Other:	1L amber 120 mL Cubitainer 2 oz glass Nalgene 8 oz glass 1L VOA vial 500mL Encore 250mL Other:	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> NAOH HCL 4° C(None) Disinfected Other	
For Lab Use Only	Time: 1143	D.O	Flow	pH	Spec. Cond.	Temp.	Other:				
AB03925 05											
0916265 <b>(Sample B)</b>	Date: 08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified Other:	<input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Organic <input type="checkbox"/> Sludge Other:	1L amber 120 mL Cubitainer 2 oz glass Nalgene 8 oz glass 1L VOA vial 500mL Encore 250mL Other:	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> NAOH HCL 4° C(None) Disinfected Other	
For Lab Use Only	Time: 1145	D.O	Flow	pH	Spec. Cond.	Temp.	Other:				
AB03926 06											
0916266 <b>(Sample C)</b>	Date: 08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified Other:	<input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Organic <input type="checkbox"/> Sludge Other:	1L amber 120 mL Cubitainer 2 oz glass Nalgene 8 oz glass 1L VOA vial 500mL Encore 250mL Other:	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> NAOH HCL 4° C(None) Disinfected Other	
For Lab Use Only	Time: 1147	D.O	Flow	pH	Spec. Cond.	Temp.	Other:				
AB03927 07											
0916267 <b>(Sample D)</b>	Date: 08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified Other:	<input checked="" type="checkbox"/> Water <input type="checkbox"/> Soil <input type="checkbox"/> Organic <input type="checkbox"/> Sludge Other:	1L amber 120 mL Cubitainer 2 oz glass Nalgene 8 oz glass 1L VOA vial 500mL Encore 250mL Other:	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> NAOH HCL 4° C(None) Disinfected Other	
For Lab Use Only	Time: 1149	D.O	Flow	pH	Spec. Cond.	Temp.	Other:				
AB03928 08											
Relinquished By: <i>[Signature]</i>		Received By: <i>[Signature]</i>					Date: 8-18-09	Time: 16:35			
Relinquished By:		Received By:					Date:	Time:			
Relinquished By:		Received By:					Date:	Time:			

Sample I.D. Letter	Site Description				
0916264 <b>Sample A</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab A05</i>				A
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)	Sample Reference ID:	
	X Easting	Y Northing	<input type="checkbox"/> EPE (meters) <input type="checkbox"/> PDOP	5180	
0916265 <b>Sample B</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab A06</i>				A
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)	Sample Reference ID:	
	X Easting	Y Northing	<input type="checkbox"/> EPE (meters) <input type="checkbox"/> PDOP	5180	
0916266 <b>Sample C</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab A07</i>				A
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)	Sample Reference ID:	
	X Easting	Y Northing	<input type="checkbox"/> EPE (meters) <input type="checkbox"/> PDOP	5180	
0916267 <b>Sample D</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab A08</i>				A
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)	Sample Reference ID:	
	X Easting	Y Northing	<input type="checkbox"/> EPE (meters) <input type="checkbox"/> PDOP	5180	
REMARKS:					



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

LABORATORY ORDER ID: 090819001

<b>Collector's Name:</b> Sean Counihan <small>(Please Print)</small> <b>Affiliation:</b> <u>ESP</u> KCRO NERO SERO SLRO SWRO WPP <small>(circle one)</small> DGLS HWP Other:							<b>Description of Shipment</b> Shipped-Carrier: _____ Tape sealed and initialed _____ Hand Delivered _____ No. Of Containers: <u>4</u>				
Sample Number	Sample Collected	Analyses					Sample Type	For Lab Use Only			
								Matrix	Container	Preserved	
0916268 <b>(Sample A)</b>	Date: 08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified Other: _____	Water	1L amber	120 mL	H <sub>2</sub> SO <sub>4</sub>
								Soil	Cubitainer		HNO <sub>3</sub>
For Lab Use Only	Time: 1151	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Organic	2 oz glass Nalgene	NAOH	
AB03929 09								Sludge	8 oz glass 1L	HCL	
								Other:	VOA vial 500mL	4° C(None)	
									Encore 250mL	Disinfected	
									Other:	Other	
0916269 <b>(Sample B)</b>	Date: 08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified Other: _____	Water	1L amber	120 mL	H <sub>2</sub> SO <sub>4</sub>
								Soil	Cubitainer		HNO <sub>3</sub>
For Lab Use Only	Time: 1153	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Organic	2 oz glass Nalgene	NAOH	
AB03930 10								Sludge	8 oz glass 1L	HCL	
								Other:	VOA vial 500mL	4° C(None)	
									Encore 250mL	Disinfected	
									Other:	Other	
0916270 <b>(Sample C)</b>	Date: 08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified Other: _____	Water	1L amber	120 mL	H <sub>2</sub> SO <sub>4</sub>
								Soil	Cubitainer		HNO <sub>3</sub>
For Lab Use Only	Time: 1245	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Organic	2 oz glass Nalgene	NAOH	
AB03931 11								Sludge	8 oz glass 1L	HCL	
								Other:	VOA vial 500mL	4° C(None)	
									Encore 250mL	Disinfected	
									Other:	Other	
0916271 <b>(Sample D)</b>	Date: 08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified Other: _____	Water	1L amber	120 mL	H <sub>2</sub> SO <sub>4</sub>
								Soil	Cubitainer		HNO <sub>3</sub>
For Lab Use Only	Time: 1248	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Organic	2 oz glass Nalgene	NAOH	
AB03932 12								Sludge	8 oz glass 1L	HCL	
								Other:	VOA vial 500mL	4° C(None)	
									Encore 250mL	Disinfected	
									Other:	Other	
Relinquished By: <i>[Signature]</i>						Received By: <i>[Signature]</i>					
Relinquished By:						Received By:					
Relinquished By:						Received By:					
						Date: 8-18-09		Time: 16:35			
						Date:		Time:			
						Date:		Time:			

Sample I.D. Letter	Site Description				
0916268 <b>Sample A</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab A09</i>				A
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)	Sample Reference ID:	
	<input checked="" type="checkbox"/> Easting	<input type="checkbox"/> Northing	<input type="checkbox"/> EPE (meters) <input type="checkbox"/> PDOP	5180	
0916269 <b>Sample B</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab A10</i>				A
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)	Sample Reference ID:	
	<input checked="" type="checkbox"/> Easting	<input type="checkbox"/> Northing	<input type="checkbox"/> EPE (meters) <input type="checkbox"/> PDOP	5180	
0916270 <b>Sample C</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab SA B01</i>				A
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)	Sample Reference ID:	
	<input checked="" type="checkbox"/> Easting	<input type="checkbox"/> Northing	<input type="checkbox"/> EPE (meters) <input type="checkbox"/> PDOP	5180	
0916271 <b>Sample D</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab B02</i>				A
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy (check one)	Sample Reference ID:	
	<input checked="" type="checkbox"/> Easting	<input type="checkbox"/> Northing	<input type="checkbox"/> EPE (meters) <input type="checkbox"/> PDOP	5180	
REMARKS:					



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

LABORATORY ORDER ID: 090819001

<b>Collector's Name:</b> Sean Counihan <small>(Please Print)</small> <b>Affiliation:</b> <u>ESP</u> KCRO NERO SERO SLRO SWRO WPP <small>(circle one)</small> DGLS HWP Other:							<b>Description of Shipment</b> Shipped-Carrier: Tape sealed and initialed Hand Delivered			
							No. Of Containers: 4			
Sample Number	Sample Collected	Analyses					Sample Type	For Lab Use Only		
	Date:	Hexavalent Cr						<b>Matrix</b>	<b>Container</b>	<b>Preserved</b>
0916272 <b>(Sample A)</b>	08/12/09						<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified	Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	1L amber 120 mL Cubitainer 2 oz glass Nalgene 8 oz glass 1L VOA vial 500mL Encore 250mL Other:	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> NAOH HCL 4° C(None) Disinfected Other
<b>For Lab Use Only</b>	Time:	D.O	Flow	pH	Spec. Cond.	Temp.	Other:			
AB03933 13	1251									
0916273 <b>(Sample B)</b>	08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified	Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	1L amber 120 mL Cubitainer 2 oz glass Nalgene 8 oz glass 1L VOA vial 500mL Encore 250mL Other:	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> NAOH HCL 4° C(None) Disinfected Other
<b>For Lab Use Only</b>	Time:	D.O	Flow	pH	Spec. Cond.	Temp.	Other:			
AB03934 14	1253									
0916274 <b>(Sample C)</b>	08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified	Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	1L amber 120 mL Cubitainer 2 oz glass Nalgene 8 oz glass 1L VOA vial 500mL Encore 250mL Other:	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> NAOH HCL 4° C(None) Disinfected Other
<b>For Lab Use Only</b>	Time:	D.O	Flow	pH	Spec. Cond.	Temp.	Other:			
AB03935 15	1256									
0916275 <b>(Sample D)</b>	08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified	Water <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	1L amber 120 mL Cubitainer 2 oz glass Nalgene 8 oz glass 1L VOA vial 500mL Encore 250mL Other:	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> NAOH HCL 4° C(None) Disinfected Other
<b>For Lab Use Only</b>	Time:	D.O	Flow	pH	Spec. Cond.	Temp.	Other:			
AB03936 16	1258									
Relinquished By: <i>[Signature]</i>					Received By: <i>[Signature]</i>		Date: 8-18-09	Time: 16:35		
Relinquished By:					Received By:		Date:	Time:		
Relinquished By:					Received By:		Date:	Time:		

Sample I.D. Letter	Site Description					
09110272 <b>Sample A</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEPAS</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <b>Soil Grab B03</b>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	(check one)	Sample Reference ID:	
	<input checked="" type="checkbox"/> Easting	<input type="checkbox"/> Northing		<input type="checkbox"/> EPE (meters)	<b>5180</b>	
			<input type="checkbox"/> PDOP			
09110273 <b>Sample B</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEPAS</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <b>Soil Grab B04</b>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	(check one)	Sample Reference ID:	
	<input checked="" type="checkbox"/> Easting	<input type="checkbox"/> Northing		<input type="checkbox"/> EPE (meters)	<b>5180</b>	
			<input type="checkbox"/> PDOP			
09110274 <b>Sample C</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEPAS</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <b>Soil Grab B05</b>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	(check one)	Sample Reference ID:	
	<input checked="" type="checkbox"/> Easting	<input type="checkbox"/> Northing		<input type="checkbox"/> EPE (meters)	<b>5180</b>	
			<input type="checkbox"/> PDOP			
09110275 <b>Sample D</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEPAS</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <b>Soil Grab B06</b>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	(check one)	Sample Reference ID:	
	<input checked="" type="checkbox"/> Easting	<input type="checkbox"/> Northing		<input type="checkbox"/> EPE (meters)	<b>5180</b>	
			<input type="checkbox"/> PDOP			
REMARKS:						



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

LABORATORY ORDER ID: 090819001

<b>Collector's Name:</b> Sean Counihan <small>(Please Print)</small> <b>Affiliation:</b> <u>ESP</u> KCRO NERO SERO SLRO SWRO WPP <small>(circle one)</small> DGLS HWP Other:							<b>Description of Shipment</b> Shipped-Carrier: Tape sealed and initialed Hand Delivered				
							No. Of Containers: <b>4</b>				
Sample Number	Sample Collected	Analyses					Sample Type	For Lab Use Only			
								Matrix	Container	Preserved	
0916276 <b>(Sample A)</b>	Date: 08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified	Water <input type="checkbox"/> Soil <input type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	1L amber Cubitainer 2 oz glass Nalgene 8 oz glass 1L VOA vial 500mL Encore 250mL Other:	120 mL  1L 4° C(None) Disinfected Other	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> NAOH HCL
<b>For Lab Use Only</b> AB03937 17	Time: 1300	D.O	Flow	pH	Spec. Cond.	Temp.	Other:				
0916277 <b>(Sample B)</b>	Date: 08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified	Water <input type="checkbox"/> Soil <input type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	1L amber Cubitainer 2 oz glass Nalgene 8 oz glass 1L VOA vial 500mL Encore 250mL Other:	120 mL  1L 4° C(None) Disinfected Other	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> NAOH HCL
<b>For Lab Use Only</b> AB03938 18	Time: 1300	D.O	Flow	pH	Spec. Cond.	Temp.	Other:				
0916279 <b>(Sample C)</b>	Date: 08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified	Water <input type="checkbox"/> Soil <input type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	1L amber Cubitainer 2 oz glass Nalgene 8 oz glass 1L VOA vial 500mL Encore 250mL Other:	120 mL  1L 4° C(None) Disinfected Other	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> NAOH HCL
<b>For Lab Use Only</b> AB03939 19	Time: 1303	D.O	Flow	pH	Spec. Cond.	Temp.	Other:				
0916280 <b>(Sample D)</b>	Date: 08/12/09	Hexavalent Cr					<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified	Water <input type="checkbox"/> Soil <input type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	1L amber Cubitainer 2 oz glass Nalgene 8 oz glass 1L VOA vial 500mL Encore 250mL Other:	120 mL  1L 4° C(None) Disinfected Other	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> NAOH HCL
<b>For Lab Use Only</b> AB03940 20	Time: 1305	D.O	Flow	pH	Spec. Cond.	Temp.	Other:				
Relinquished By: <i>[Signature]</i>							Received By: <i>[Signature]</i>		Date: 8-18-09	Time: 16:35	
Relinquished By:							Received By:		Date:	Time:	
Relinquished By:							Received By:		Date:	Time:	

Sample I.D. Letter	Site Description					
0916276 <b>Sample A</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab B07</i>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	(check one)	Sample Reference ID:	
	<input checked="" type="checkbox"/> Easting	<input type="checkbox"/> Northing		<input type="checkbox"/> EPE (meters)	5180	
			<input type="checkbox"/> PDOP			
0916277 <b>Sample B</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab B08</i>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	(check one)	Sample Reference ID:	
	<input checked="" type="checkbox"/> Easting	<input type="checkbox"/> Northing		<input type="checkbox"/> EPE (meters)	5180	
			<input type="checkbox"/> PDOP			
0916279 <b>Sample C</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab B10</i>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	(check one)	Sample Reference ID:	
	<input checked="" type="checkbox"/> Easting	<input type="checkbox"/> Northing		<input type="checkbox"/> EPE (meters)	5180	
			<input type="checkbox"/> PDOP			
0916278 <b>Sample D</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab B09</i>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	(check one)	Sample Reference ID:	
	<input checked="" type="checkbox"/> Easting	<input type="checkbox"/> Northing		<input type="checkbox"/> EPE (meters)	5180	
			<input type="checkbox"/> PDOP			
REMARKS:						



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

LABORATORY ORDER ID:

090819001

Collector's Name: Sean Counihan								Description of Shipment				
(Please Print) Affiliation: <u>ESP</u> KCRO NERO SERO SLRO SWRO WPP								Shipped-Carrier: _____				
(circle one) DGLS HWP Other: _____								Tape sealed and initialed _____				
								Hand Delivered _____ No. Of Containers: 4				
Sample Number	Sample Collected	Analyses						Sample Type	For Lab Use Only			
									Matrix	Container		Preserved
0916280 (Sample A)	Date: 08/12/09	Hexavalent Cr						<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	1L amber Cubitainer	120 mL	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> NAOH HCL
For Lab Use Only	Time: 1340	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Other:	VOA vial	500mL	4° C(None)	
AB03941 21									Encore	250mL	Disinfected	
									Other:		Other	
0916281 (Sample B)	Date: 08/12/09	Hexavalent Cr						<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	1L amber Cubitainer	120 mL	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> NAOH HCL
For Lab Use Only	Time: 1355	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Other:	VOA vial	500mL	4° C(None)	
AB03942 22									Encore	250mL	Disinfected	
									Other:		Other	
0916282 (Sample C)	Date: 08/12/09	Hexavalent Cr						<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	1L amber Cubitainer	120 mL	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> NAOH HCL
For Lab Use Only	Time: 1344	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Other:	VOA vial	500mL	4° C(None)	
AB03943 23									Encore	250mL	Disinfected	
									Other:		Other	
0916283 (Sample D)	Date: 08/12/09	Hexavalent Cr						<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Modified	<input type="checkbox"/> Water <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Organic <input type="checkbox"/> Sludge <input type="checkbox"/> Other:	1L amber Cubitainer	120 mL	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> NAOH HCL
For Lab Use Only	Time: 1356	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Other:	VOA vial	500mL	4° C(None)	
AB03944 24									Encore	250mL	Disinfected	
									Other:		Other	
Relinquished By: <i>[Signature]</i>								Received By: <i>[Signature]</i>		Date: 8-18-09	Time: 16:35	
Relinquished By:								Received By:		Date:	Time:	
Relinquished By:								Received By:		Date:	Time:	

Sample I.D. Letter	Site Description					
0916280 <b>Sample A</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab C01</i>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	Sample Reference ID: <i>8940</i>	(check one)	
	<input checked="" type="checkbox"/> Easting	<input checked="" type="checkbox"/> Northing			EPE (meters)	
			PDOP			
0916281 <b>Sample B</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab C02</i>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	Sample Reference ID: <i>8940</i>	(check one)	
	<input checked="" type="checkbox"/> Easting	<input checked="" type="checkbox"/> Northing			EPE (meters)	
			PDOP			
0916282 <b>Sample C</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab C03</i>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	Sample Reference ID: <i>8940</i>	(check one)	
	<input checked="" type="checkbox"/> Easting	<input checked="" type="checkbox"/> Northing			EPE (meters)	
			PDOP			
0916283 <b>Sample D</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab C04</i>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	Sample Reference ID: <i>8940</i>	(check one)	
	<input checked="" type="checkbox"/> Easting	<input checked="" type="checkbox"/> Northing			EPE (meters)	
			PDOP			

REMARKS:



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

LABORATORY ORDER ID: 090819001

Collector's Name: Sean Counihan <i>(Please Print)</i>							Description of Shipment					
Affiliation: <u>ESP</u> KCRO NERO SERO SLRO SWRO WPP <i>(circle one)</i> DGLS HWP Other:							Shipped-Carrier: _____					
							Tape sealed and initialed _____					
							Hand Delivered _____ No. of Containers: <u>2</u>					
Sample Number	Sample Collected	Analyses					Sample Type	For Lab Use Only				
								Matrix	Container		Preserved	
0916288 <i>(Sample A)</i>	Date: 08/12/09	Hexavalent Cr					x Grab Composite Modified	Water	1L amber	120 mL	H <sub>2</sub> SO <sub>4</sub>	
								Soil	Cubitainer		HNO <sub>3</sub>	
For Lab Use Only	Time: 1406	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Organic	2 oz glass Nalgene	NAOH		
								Sludge	8 oz glass 1L	HCl		
								Other:	VOA vial 500mL	4° C(None)		
									Encore 250mL	Disinfected		
									Other:	Other		
0916389 <i>(Sample B)</i>	Date: 08/12/09	Hexavalent Cr					x Grab Composite Modified	Water	1L amber	120 mL	H <sub>2</sub> SO <sub>4</sub>	
									Soil	Cubitainer	HNO <sub>3</sub>	
For Lab Use Only	Time: 1411	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Organic	2 oz glass Nalgene	NAOH		
								Sludge	8 oz glass 1L	HCl		
								Other:	VOA vial 500mL	4° C(None)		
									Encore 250mL	Disinfected		
									Other:	Other		
<i>(Sample C)</i>	Date: 08/12/09	Hexavalent Cr					x Grab Composite Modified	Water	1L amber	120 mL	H <sub>2</sub> SO <sub>4</sub>	
									Soil	Cubitainer	HNO <sub>3</sub>	
For Lab Use Only	Time: 30	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Organic	2 oz glass Nalgene	NAOH		
								Sludge	8 oz glass 1L	HCl		
								Other:	VOA vial 500mL	4° C(None)		
									Encore 250mL	Disinfected		
									Other:	Other		
<i>(Sample D)</i>	Date: 08/12/09	Hexavalent Cr					x Grab Composite Modified	Water	1L amber	120 mL	H <sub>2</sub> SO <sub>4</sub>	
									Soil	Cubitainer	HNO <sub>3</sub>	
For Lab Use Only	Time: 31	D.O	Flow	pH	Spec. Cond.	Temp.	Other:	Organic	2 oz glass Nalgene	NAOH		
								Sludge	8 oz glass 1L	HCl		
								Other:	VOA vial 500mL	4° C(None)		
									Encore 250mL	Disinfected		
									Other:	Other		
Relinquished By: <i>[Signature]</i>							Received By: <i>[Signature]</i>		Date: 8-18-09	Time: 16:35		
Relinquished By:							Received By:		Date:	Time:		
Relinquished By:							Received By:		Date:	Time:		

Sample I.D. Letter	Site Description				
0916288 <b>Sample A</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): Soil Grab C08				
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):				
	X Easting	Y Northing	Accuracy	(check one) <input type="checkbox"/> EPE (meters) <input checked="" type="checkbox"/> PDOP	Sample Reference ID: 8940
0916289 <b>Sample B</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): Soil Grab C07				
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):				
	X Easting	Y Northing	Accuracy	(check one) <input type="checkbox"/> EPE (meters) <input checked="" type="checkbox"/> PDOP	Sample Reference ID: 8940
<b>Sample C</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.):				
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):				
	X Easting	Y Northing	Accuracy	(check one) <input type="checkbox"/> EPE (meters) <input checked="" type="checkbox"/> PDOP	Sample Reference ID:
<b>Sample D</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.):				
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):				
	X Easting	Y Northing	Accuracy	(check one) <input type="checkbox"/> EPE (meters) <input checked="" type="checkbox"/> PDOP	Sample Reference ID:
REMARKS:					



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD

LABORATORY ORDER ID: 080819001

Collector's Name: Sean Counihan							Description of Shipment					
(Please Print) Affiliation: <u>ESP</u> KCRO NERO SERO SLRO SWRO WPP							Shipped-Carrier:					
(circle one) DGLS HWP Other:							Tape sealed and initialed					
							Hand Delivered					
							No. Of Containers: 4					
Sample Number	Sample Collected	Analyses						Sample Type	For Lab Use Only			
		Matrix	Container	Preserved								
0916284 (Sample A)	Date: 08/12/09	Hexavalent Cr						x Grab Composite Modified	Water	1L amber	120 mL	H <sub>2</sub> SO <sub>4</sub>
							Soil		Cubitainer		HNO <sub>3</sub>	
For Lab Use Only	Time: 1357	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:	Organic	2 oz glass	Nalgene	NAOH	
AB03945 25								Sludge	8 oz glass	1L	HCL	
								Other:	VOA vial	500mL	4°C (None)	
									Encore	250mL	Disinfected	
									Other:		Other	
0916285 (Sample B)	Date: 08/12/09	Hexavalent Cr						x Grab Composite Modified	Water	1L amber	120 mL	H <sub>2</sub> SO <sub>4</sub>
									Soil	Cubitainer		HNO <sub>3</sub>
For Lab Use Only	Time: 1400	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:	Organic	2 oz glass	Nalgene	NAOH	
AB03946 26								Sludge	8 oz glass	1L	HCL	
								Other:	VOA vial	500mL	4°C (None)	
									Encore	250mL	Disinfected	
									Other:		Other	
0916286 (Sample C)	Date: 08/12/09	Hexavalent Cr						x Grab Composite Modified	Water	1L amber	120 mL	H <sub>2</sub> SO <sub>4</sub>
									Soil	Cubitainer		HNO <sub>3</sub>
For Lab Use Only	Time: 1402	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:	Organic	2 oz glass	Nalgene	NAOH	
AB03947 27								Sludge	8 oz glass	1L	HCL	
								Other:	VOA vial	500mL	4°C (None)	
									Encore	250mL	Disinfected	
									Other:		Other	
0916287 (Sample D)	Date: 08/12/09	Hexavalent Cr						x Grab Composite Modified	Water	1L amber	120 mL	H <sub>2</sub> SO <sub>4</sub>
									Soil	Cubitainer		HNO <sub>3</sub>
For Lab Use Only	Time: 1405	D.O.	Flow	pH	Spec. Cond.	Temp.	Other:	Organic	2 oz glass	Nalgene	NAOH	
AB03948 28								Sludge	8 oz glass	1L	HCL	
								Other:	VOA vial	500mL	4°C (None)	
									Encore	250mL	Disinfected	
									Other:		Other	
Relinquished By: <i>[Signature]</i>							Received By: <i>[Signature]</i>			Date: 8-18-09		Time: 16:35
Relinquished By:							Received By:			Date:		Time:
Relinquished By:							Received By:			Date:		Time:

Sample I.D. Letter	Site Description					
0916284 <b>Sample A</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab C09</i>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	(check one)	Sample Reference ID:	
	X Easting	Y Northing		EPE (meters)	8940	
				PDOP		
0916285 <b>Sample B</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab C05</i>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	(check one)	Sample Reference ID:	
	X Easting	Y Northing		EPE (meters)	8940	
				PDOP		
0916286 <b>Sample C</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab C10</i>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	(check one)	Sample Reference ID:	
	X Easting	Y Northing		EPE (meters)	8940	
				PDOP		
0916287 <b>Sample D</b>	Facility ID:	Site/Study Name: Tannery Sludge Farm Fields	County: Andrew County	LDPR Code: <b>FEP A8</b>	Job Code: <b>NJ09TSF</b>	
	Sample Comment (briefly describe where and how the sample was collected, station number, sample type, etc.): <i>Soil Grab C06</i>					
	GPS Coordinates (Record Coordinates in UTM Zone 15 NAD 83 Only):		Accuracy	(check one)	Sample Reference ID:	
	X Easting	Y Northing		EPE (meters)	8940	
				PDOP		
REMARKS:						