Henderson, Katie

From: Torrence, Rufus
Sent: Friday, September 30, 2011 9:08 AM
To: 'House James'
Subject: AFIN 27-00004 ARP000021 Kohler Site Visit for Compliance Assurance: Inspection
Attachments: KLR Insp 20110921.doc; Kohler Lab Results.xls

ADEQ
ARKANSAS
Department of Environmental Quality

September 30, 2011

James House
Kohler, Inc
415 South Oklahoma St
Sheridan, AR 72150

Re: September 21, 2011 Site Visit for Compliance Assurance: Inspection
(Tracking No. ARP000021 AFIN 27-00004)

Dear Mr. House:

Part of ADEQ responsibility to EPA is to ensure that inspections of industries regulated by categorical pretreatment standards (40 CFR Part 405 – 471) are performed on a periodic basis. These industries are referred to as Categorical Industrial Users (CIUs) if they discharge the regulated wastewater into the local Publicly Owned Treatment Works (POTW). Kohler has processes (Electroplating, Electroless Plating, etc) in the Sheridan facility that are regulated by 40 CFR Part 433 and discharges regulated wastewater to the City of Sheridan POTW. Therefore, Kohler is a CIU. In accordance to 40 CFR 403.12(e), Kohler must submit periodic reports to the Control Authority (ADEQ or Department) and in accordance with 40 CFR 403.8(f)(2)(v) be inspected by the Control Authority at least bi-annually. The Department appreciates Kohler taking the time on Wednesday (September 21, 2011) to show the ADEQ Engineer/Inspector (Rufus Torrence) the facility in Sheridan.

The inspection consisted of inspecting the plating operations and the treatment system. These operations (electroless plating and electroplating) are core operations. Core operations are the key processes in determining the applicability of the 40CFR433 category. The Sheridan plant makes brass and plastic faucets. The plastic parts are electroless plated with palladium/nickel and then electroplated with copper. The

copper plated plastic and brass parts are then electroplated with chrome. Kohler has no open floor drains in the plant which connect directly to the POTW. Wastewater enters open floor drains and flows to the pretreatment system. The pretreatment system has four primary feed streams (Hex Chrome, Nickel, Copper and Rinse wastewater). The Hex Chrome in the wastewater is reduced to Tri-valent Chrome and combined with the other three streams. The combined streams are treated, sampled, metered and discharged to the POTW.

According to 40CFR433.12(a) Kohler may submit a Toxic Organic Management Plan in lieu of sampling for TTOs; presently, Kohler is required to sample for the 110 toxic organic, seven metals and total cyanide for each semi-annual report. Kohler may review the EPA Guidance Manual for Implementing Total Toxic Organics Pretreatment Standards by accessing this web site:

http://www.epa.gov/npdes/pubs/owm0021.pdf

Kohler can find an example of a Toxic Organic Management Plan in Appendix D of this manual.

During the inspection, the inspector took a sample of the regulated wastewater that was entering the local POTW. The ADEQ lab analysis is attached. The wastewater complies with the limits in 40 CFR 433.

Kohler must continue sampling (at least semi-annually) all regulated wastewater for all 40 CFR 433 parameters before it enters the POTW.

The Department appreciates Kohler's continued efforts in periodic reporting.

If you have any questions or concerns, please contact the Department at (501) 682-0626 or torrence@adeq.state.ar.us .

Sincerely,

Rufus Torrence,
ADEQ Engineer/Inspector

Attachments: ADEQ Lab Analysis
ADEQ Inspection Report dated September 21, 2011

Pretreatment Industrial Inspection Facility Information	
Facility Name:	Site Address:
Kohler (formerly Sterling Plumbing Group)	**415 South Oklahoma St / Sheridan, AR 72150**
Signatory Authority (Name & Title): **Bill Royals, Director**	
Phone: **(870) 942-2111**	Mailing Address (if different):
Fax:	**P O Box 427 / Sheridan, AR 72150**
Address: **(Same)**	Corporate Owner Name and address (if applicable):
	Kohler Co
Phone:	**Kohler, WI**
Fax:	Phone:
Contact Person (Name & Title):	Fax:
James House, Safety Specialist	Corporate Contact: **James Bilgo, Supv EH&S Program Management**
e-mail: **james.house@kohler.com**	e-mail: **james.bilgo@kohlerco.com**
Facility Permit # **N/A** or **ARP000021**	Last Inspection Date: **9-16-09**
POTW (City) IU discharges to:	POTW's NPDES **#AR0034347**
Industrial Classification: **2** Categorical	☐ Significant **AFIN 27-00004**
If Categorical, list which CFR #(s) the facility is subject to: **40 CFR Part 433**	

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Comments :

Inspector's Name (Print): **Rufus Torrence**	Signature:
IU Rep's Name (Print) **James House**	Signature: **(Not Required)**
Date and Time Inspection Ended: **September 21, 2011 @ 11:30 am**	

I. Summary of Inspection

A. Inspection and Objective (Complete Before Inspection)

☐ Permit Renewal	2 Bi-Annual	☐ Spill/Slug	☐ Unscheduled
☐ New Construction	☐ Noncompliance	☐ Follow-up	☐ Complaint

Inspection Objective(s): **Compliance Assurance**

Checklist of items to be reviewed and/or visually inspected:

2 Pre-inspection Meeting	☐ Permit Conditions	☐ Safety Concerns
2 Process Inspection	2 Pretreatment Process	☐ TOMP
2 Chemical Storage	2 Discharge point(s)	2 Spills/Slug Control Plan
☐ Records Review	☐ RCRA information	☐ Process/Flow/Pretreatment Schematics
2 IU sampling procedures	☐ Flow/pH Meter(s)	2 Calibration Records
☐ MSDS Inventory List	☐ New MSDS	☐

Comments:

B. Inspection Analysis

Were there any deficiencies/violations identified and noted during the inspection? ☐ Yes 2 No

Provide a brief narrative of deficiencies/violations or other concerns in the following areas:

Records Review

Process Area(s)

Pretreatment System

Self Monitoring Procedures

Diversion/Sewer Meters

Spill/Slug Control Plan

Sampling Point

Chemical Storage: **Ascertain that sanitary manhole in this area is sealed**

II. Pre-Inspection Meeting		
A. General Information		
Date and Time Inspection Started: **September 21, 2011 @ 9:50 am**	SIC code(s): **3432**	
IU Reps/Titles	Control Authority Reps/Titles	
James House, Safety Specialist	**Rufus Torrence, Water Div Engineer**	
Jeremy Hill, Quality Technical Analyst		
End product(s): **Faucet Fittings & Assemblies**	Approx. # of units produced:	
Days of Operation: **Monday thru Friday**	Days of Production (if different): **N/A**	
Hours of Operation: **6:30 am thru 11:00 pm**	Hours of Production (if different):	
Shift 1, hrs.: **6:30** to **11:00 am**	Shift 2, hrs.: **2:30** to **11:00 pm**	Shift 3, hrs.: to
# of Employees: **580**	Peak Mos.:	"Off" Mos.:
Are there any scheduled plant shutdowns? Yes ☐ No **2** N/A ☐ If yes, when?		
Are there designated plant clean-up days? Yes ☐ No **2** N/A ☐ If yes, when?		
Is the facility currently in compliance with all pretreatment reporting requirements and limits? Yes 2 No ☐		
If No, explain:		
Are there any Special Entry Procedures for the Discharge/Sample point locations? Yes ☐ No **2**		
If Yes, explain:		
Are there any Safety Concerns or Identified Hazards that the inspector should be aware of: 2 Yes. ☐ No		
If Yes, explain: **Safety Glasses / Shoes / Hearing Protection**		
Has there been any changes since the last inspection regarding the following items:		
Processes? Yes ☐ No **2** If yes, obtain copy of updated schematic for facility file.		
Processes? Yes ☐ No **2** If yes, explain:		
Production Levels? Plant/flow/process layout Yes ☐ No **2** If yes, explain:		
Raw materials? Yes ☐ No **2** If yes, explain:		
Flow rates? Yes ☐ No **2** If yes, explain		
Are regulated and non-regulated wastestreams combined? yes ☐ no **2**		
Prior to Pretreatment System? yes ☐ no **2** N/A ☐		
If Yes, was the CWF used to calculate limits? yes ☐ no ☐		
Prior to connection to the POTW sanitary sewer? yes ☐ no ☐ N/A **2**		
At connection to sanitary sewer? yes ☐ no ☐ N/A **2**		
Production and flows verified for Production-Based Standards? yes ☐ no ☐ N/A **2**		
What is the current avg. production rate and process flow? **N/A**		
Is the prod. rate or flow substantially different (+/- 20%) from those used in calculating limits? yes ☐ no ☐ N/A **2**		

B. Facility Permits		
Permit Type	Permit No.	Expiration Date
Air	**0791 – AR - 7**	
RCRA	**ARD000388983**	
NPDES	**ARR00A297**	
Other		

C. Additional Comments
(Note which section or attachment comments are regarding)
Kohler expressed an interest in EPA "Performance Track Program"; however, the Administrator decided
to discontinue the program effective May 2009. Nonetheless, Kohler will apply for ADEQ Envy Award.
Kohler electroplates both plastic and brass parts. About 40 % of the parts are plastic and 60% are brass.
Kohler plates plastic parts with four layers in this order: Palladium, Nickel, Copper and Chrome
The Sheridan plant makes brass and plastic faucets. The plastic parts are electroless plated with palladium/nickel and then electroplated with copper. The copper plated plastic and brass parts are then electroplated with chrome. The electroless plating and electroplating processes are core operations of the 40CFR433 Metal Finishing Point Source Category. **Kohler has recently added a Physical Vapor Deposition (PVD) operation to the existing plating operations; since the actual PVD process is dry, the PVD operation does not quality as a 40CFR433 Core operation. However, the water cleaning step which precedes the PVD operation does fall within the 40 ancillary operations regulated by 40CFR433.** **Kohler pretreatment system has four primary feed streams (Hex Chrome, Nickel, Copper and Rinse wastewater streams). The Hex Chrome in the wastewater is reduced to Tri-valent Chrome, then this stream is combined with the other three streams. The combined streams are treated, metered and sampled before all the wastewater is discharged to the POTW.**

Attachment A: Industrial Process(es)			
List process(es) generating wastewater. Note if it's categorical (federally regulated w/pretreatment limits) or not			
1. **Electroplating**	Yes **2** No ☐	4.	Yes ☐ No ☐
2. **Electroless Plating**	Yes **2** No ☐	5.	Yes ☐ No ☐
3. **Brazen Contact CW**	Yes **2** No ☐	6.	Yes ☐ No ☐
Were processes visually inspected? Yes **2** No ☐ N/A ☐			
Brief description of process(es): **Kohler plates palladium, nickel, copper & chrome on molded plastic**			
and brass parts (faucets).			
General observations of facility's indoor housekeeping: **Fair**			
General observations of area outside facility's building: **Good**			
Check all sources of wastewater being discharged into the City's collection system. Indicate avg. gal/day, measured (M) or estimated (E). If batch (B) discharged, list frequency and volume (1000 gal/month, e.g.).			
2 Process Rinse Overflows	☐ Equip. Cleanup	☐ Floor Cleanup	☐ Spent Bath Solutions
2 Product Cleaning	☐ Forklifts Maint./Wash	☐ Tank Dragout	☐ Air Pollution Devices
2 Boiler Blowdown Bypasses WW Trtmt	☐ Spent Rinse Tanks	☐ Equipment Coolants	2 Non-Contact Cooling Water Bypasses WW Treatment
☐ Stormwater	☐	☐	☐
List Major Raw Materials and Chemicals used: **Unplated molded plastic parts, copper tubing, brass castings, brass tubing, etc.**			
Check Waste Stream Pollutants of Concern from Process(es)			
☐ BOD	2 CN^-	☐ Metals (List) **Cd, Cr, Cu, Pb, Ni, Ag & Zn**	☐ Solvents (List)
☐ TSS	☐ Cl_2		
☐ O&G	☐ S^-		
☐ pH	☐		
Are there floor drains in the Process area? **2** Yes ☐ No If yes list number and the location of all floor drains:			
Kohler has sealed all floor drains to the sewer.			

Attachment B: Pollution Prevention (P2) / Recycling Activities			
Does the facility have a written P2 Plan?	Yes ☐	No ☒	
Does this facility practice P2?	Yes ☒	No ☐	
Environmental Management System in place?	Yes ☐	No ☒	
ISO Certified?	Yes ☒	No ☐	**ISO 9001**
Written Standard Operating Procedures?	Yes ☒	No ☐	
Explain: **Energy Conservation & Water Minimization**			
Preventative Maintenance Program	Yes ☒	No ☐	(hydraulic systems, valves, pumps, etc)
Explain: **Overall Plant Procedure**			
Water Reuse:	Yes ☒	No ☐	
Explain: **Mainly Water Minimization**			
Cost Accounting to Track Savings:	Yes ☒	No ☐	
Explain: **Sheridan Plant uses KOS (Kohler Operation System) to track savings**			
Inventory Control / "Green Purchasing":	Yes ☒	No ☐	(lean manufacturing/"env. friendly purchasing", etc)
Explain:			
Employee Training:	Yes ☒	No ☐	
Explain:			
Spent Solvent Reclamation?	Yes ☐	No ☐	**Not Applicable to the Sheridan Plant**
Explain:			
Recycle Paper, Aluminum, Boxes, and Pallets?	Yes ☒	No ☐	
Explain:			
Recycle Waste Oil, Solvents, and Lubricants?	Yes ☒	No ☐	
Explain:			
Other Activities			

P2 Equipment/Practices in use:	
☐ Overflow Alarms	☒ Aqueous Cleaning Solutions
☒ Fog Spray Rinsing	☒ Countercurrent Rinsing
☒ Dragout Collection Trays	☐ Seal-Less Pumps
☒ Air Jets to Blow Parts Dry	☒ Secondary Containment of Process Solutions
☐ Aqueous Paint Stripping Solutions	☐ Bead Blasting to Remove Paint **(N/A)**
☒ Water Soluble Cutting Fluids	☐ Recycle Overspray
☒ In-Process Recycle (Ion Exchange, Reverse Osmosis)	☒ Conductivity Meters
☒ Dead Rinse Tanks	☒ Bath / Rinse Filtration

Attachment C: Pretreatment System

Are wastestreams segregated before pretreatment?	☐ Yes	2 No	☐ N/A
Are they pretreated prior to discharge to the sanitary sewer?	2 Yes	☐ No	☐ N/A
Was the pretreatment system visually inspected during this visit?	2 Yes	☐ No	☐ N/A

Check which of the following are utilized for pretreatment prior to discharge to sanitary sewer:

☐ Dissolved air floatation	☐ Membrane Tech.	☐ Ion Exchange	☐ Biological Treatment
☐ Centrifugation	☐ Flow Equalization	☐ Ozonation	☐ Chlorinating
2 Chemical Precipitation	☐ Oil/Water Separation	☐ Reverse Osmosis	☐ Grit Removal
☐ Sludge Filter Press	☐ Grease Trap	☐ Screen	☐ Solvent Separation
2 pH Adjustment	☐ Sand Trap	☐ Sedimentation	☐ Silver Recovery
☐ Belt/Disk Oil Skimmer	2 Chromium Reduction	☐	☐

Provide Brief Description of Pretreatment System (leaks, cleanliness, equipment not in working order):

Good Condition located in a pit below grade for spill containment

Does the description match the schematic currently on file? 2Yes ☐No ☐N/A

System Operator(s) Name: **Neal Hollinger**

Joe McElroy

Does discharge permit require licensed operator? ☐ Yes ☐ No 2N/A

Is the System Operator(s) licensed by the State of Arkansas (per Reg. # 3?) 2 Yes ☐ No ☐ N/A

List Name(s) and License classification:

Neal Holliger - Class I & Municipal **Anthony Butler Class I** **James House Class I**

Lynn Smith Class I **Tera Giles Class I & Municipal** **John Stone Class I**

Is training provided to the Pretreatment System Operator(s)? 2 Yes ☐ No ☐ N/A

If Yes, list type and frequency: **once per year**

Is the discharge from the Pretreatment System? ☐Batch 2 Continuous ☐ Combination

If any discharges are batch type or combination, describe the following:

Volume of each batch: gallons per

Describe process from which batch originated (spent bath, e.g.):

Approximate duration of batch discharge:

Meter Type	Calibration Procedure and Frequency	Comments (Totalizer Reading)
Totalizer		

Attachment D: Chemical Storage Area(s)		
Does the facility have a designated chemical storage area(s)?	2 Yes ☐No	
Was this area(s) visually inspected?	2 Yes ☐No ☐N/A	
Describe Chemical Storage Area(s)	Are there floor drains in this area?	If yes, where does this drain lead to?
1. **Cleaners**	☐Yes 2No	☐ Pretreatment ☐ Sanitary Sewer ☐ Storm Sewer
2.	☐Yes ☐No	☐ Pretreatment ☐ Sanitary Sewer ☐ Storm Sewer
3.	☐Yes ☐No	☐ Pretreatment ☐ Sanitary Sewer ☐ Storm Sewer
4.	☐Yes ☐No	☐ Pretreatment ☐ Sanitary Sewer ☐ Storm Sewer

Does the Chemical Storage Area(s) contain any of the following?	
☐ Dikes, Berms for Containment	☐ Plugs for Floor Drains
☐ Secondary Tanks for Holding	☐ Premix (low) Concentrations
☐ Alarms	☐ Chain restraints, limited access
☐ Spills Control Kits for Cleanup	☐ Notification Procedures
☐ Chemical desegregation within Storage Area	☐ Other

Chemical Inventory List (MSDS) on file?	☐Yes ☐No ☐N/A
Were any new MSDS reviewed during the Inspection?	☐Yes ☐No 2N/A

If yes, list below: **Kohler presently has elected to sample for the 110 toxic organics; if Kohler elects to submit a TOMP (Toxic Organic Management Plan shown in 40CFR433.12) than Kohler must review all MSDS to check for the 110 toxic organics listed in 40 CFR 433.11(e).**

Chemical storage comments: **Kohler has not installed "area" containment in the chemical storage area. Spills are capable of leaving the storage area and an old sanitary sewer manhole is located in this area. However, Kohler has plans to install a temporary berm.**

Kohler has install drum containment.

Chemical handling procedures (totes, dolly, buckets, hardline, etc):

Forklifts

Attachment E: Spill/Slug Control Plan	
Does the facility have a Spill/Slug control plan?	**2** yes ☐ no
If yes are the following: 403.8(f)(2)(v)(A-D) requirements in place?	
Is the spill/slug control plan <2 years old?	**2**yes ☐ no ☐ N/A
(A) Describes discharge practices including non routine batch (slug) discharges	**2** yes ☐ no ☐ N/A
(B) Describes storage and handling of chemicals	**2** yes ☐ no ☐ N/A
(C) Procedures for immediate notification to POTW of slug discharges	**2** yes ☐ no ☐ N/A
(D) 1. Describes measures for controlling toxic/hazardous pollutants	**2** yes ☐ no ☐ N/A
2. Describes procedures and equipment for emergency response	**2** yes ☐ no ☐ N/A
3. Describes follow-up to limit damage suffered by POTW or environment	☐ yes **2** no ☐ N/A
4. Does the facility have Spill/Slug Notification Procedures posted?	☐ yes **2** no ☐ N/A
5. Are worker personnel provided training in the event of a spill or slug discharge?	**2** yes ☐ no ☐ N/A
If no:	
Does the facility have Spill/Slug Notification Procedures posted?	☐ yes **2** no
Is it posted in areas where chemicals are used and stored?	☐ yes **2** no
If Yes how many?	
Are appropriate personnel provided training in the event of a spill or slug discharge?	**2** yes ☐ no
Have there been any non-routine, episodic discharges or chemical spills in the past year?	☐ yes **2** no
(Briefly Describe, Include Dates)	
Was the City notified of these occurrences? ☐ yes ☐ no 2 N/A	
Visual Inspection of Discharge Lines/Points	
Provide description of manhole condition and flow channel of the following where applicable:	
Sampling / Monitoring Point **Indoors at end of pretreatment system but the ADEQ inspector took**	
a grab sample from an exterior manhole.	
Total Flow Monitoring Point **Totalizer on discharge line to POTW; read-out is located in the lab.**	
Upstream Manhole	
Point of Connection:	

Attachment F: Self-Monitoring & if CFR 433, TTO/TOMP Requirements				
Have Operator (or person collecting the sample) to describe how composite and grab samples are collected and preserved. Record descriptions. Include name of individual and title.				
Where is the sample point located? **Indoors but the ADEQ inspector used an exterior manhole to take grab sample**				
☐ End of Process	2 Pretreatment Effluent	☐ Total Flow		
☐ Combined Flow	☐ Metered Flow	☐ Flow Actuator		
☐ Private Manhole	☐ Utility Manhole	☐ Advance Notice Required		
☐ Safety Hazards Identified	☐	☐		
Is the Sample Collection Site Adequate?		☐ Yes ☐ No ☐ N/A		
Does the facility rep. request a split sample on this sampling/inspection?		☐ Yes ☐ No		
Does the facility perform self-monitoring tests in-house?		**2** Yes ☐ No ☐ N/A		
If no, record the name and address of Contract Lab:				
Kohler uses "Arkansas Analytical" for official reports to ADEQ				
Automatic Sampler ☐ or Manual ☐				
IU Self-Monitoring Results reviewed:		**2** Yes ☐ No ☐ N/A		
Is the Contract Lab certified by ADEQ for test parameters?		**2** Yes ☐ No ☐ N/A		
Dates and Times of Sample Analysis Recorded?		**2** Yes ☐ No ☐ N/A		
Correct Methods Used for Test Analysis (Refer To 40CFR Part 136)		**2** Yes ☐ No ☐ N/A		
EPA recommended holding times being met (Refer to 40CFR Part 136)		**2** Yes ☐ No ☐ N/A		
Chain of Custody Records for Self-Monitoring Samples Reviewed		**2** Yes ☐ No ☐ N/A		
Were correct Sample Types Collected		**2** Yes ☐ No ☐ N/A		
Dates and times of Sample Collection Recorded?		**2** Yes ☐ No ☐ N/A		
Were Samples preserved correctly (refer to 40CFR Part 136)		**2** Yes ☐ No ☐ N/A		
Were Self Monitoring records on file for past 3 years?		☐ Yes ☐ No ☐ N/A		
List the parameters the facility monitors and the frequency:				
2 Cd(t) **2/yr required**	**2** Cu(t) **2/yr required**	**2** Cr(t) **2/yr required**	**2** Ni(t) **2/yr required**	☐ Pb(t) **2/yr required**
2 Ag(t) **2/yr required**	**2** Zn(t) **2/yr required**	☐ pH	**2** CN^-(t) **2/yr required**	☐ CN^-(a-c)
2 TTO-Vol **2/yr required**	**2** TTO-B/N **2/yr req'd**	**2** TTO-A.E. **2/yr req'd**	**2** TTO-Pest **2/yr req'd**	☐ Cr(hex)
☐	☐	☐	☐	☐
Toxic Organic Management Plan (TOMP) for Metal Finishers under CFR 433				
How does the IU report TTO? **2** Analysis ☐ Certification Statement				
Does the facility have a Toxic Organic Management Plan? ☐ Yes **2** No ☐ N/A				
If yes, Does the plan show how toxic organics are used, stored, and disposed? ☐ Yes ☐ No ☐ N/A				
List the date of the last revision to the TOMP:				
Is the TOMP being followed as written? ☐ Yes ☐ No 2 N/A (If no, provide explanation in comments.)				
If no, is there evidence that a TOMP is needed? ☐Yes ☐ No 2 N/A (If yes, provide description of evidence in comments.)				
Comments: **Kohler may elect to develop a TOMP in lieu of testing for the 110 toxic organics twice each year.**				

5301 Northshore Drive
North Little Rock, AR 72118
Telephone: 501-682-0744

Client Report For: Kohler 27-00004 2011 2948
Attention:
Client Address:
,

Report Date: September 28, 2011
LAB ID: AR11SEP21-10
Comment:

Approved By:_____ Date:September 28, 2011

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Liitle Rock, AR 72118

Laboratory Contact: Jeff Ruehr
Ruehr@adeq.state.ar.us
501-682-0955

Client:	CSI	**Client Sample ID:**	KLR
Lab ID:	2011-2948	**Collection Date:**	9/21/2011 10:49:00 AM
		Matrix:	Water

Analyses

Total Metals by EPA 200.8 ***EPA 200.8*** ***Batch: 11092803*** ***Run: 1***

	Result	Reporting	MDL	Qual	Unit
Aluminum	<200	200	20		ug/L
Antimony	<100	100	5		ug/L
Arsenic	<10.0	10.0	0.5		ug/L
Barium	<100	100	2.0		ug/L
Beryllium	<5.00	5.00	0.1		ug/L
Boron	1880	250	5.0		ug/L
Cadmium	<10.0	10.0	0.3		ug/L
Calcium	160	0.4	0.04		mg/L
Chromium	708	10.0	0.3		ug/L
Cobalt	<10.0	10.0	0.5		ug/L
Copper	942	10.0	0.5		ug/L
Iron	510	200	10.0		ug/L
Lead	<10.0	10.0	0.1		ug/L
Magnesium	1.29	1.00	0.1		mg/L
Manganese	11.8	10.0	0.2		ug/L
Nickel	536	25.0	0.5		ug/L
Potassium	<10.0	10.0	0.05		mg/L
Selenium	<20.0	20.0	0.5		ug/L
Silver	<50.0	50.0	1.0		ug/L
Sodium	122	0.4	0.02		mg/L
Thallium	<25.0	25.0	0.05		ug/L
Vanadium	<25.0	25.0	1.0		ug/L
Zinc	36.4	30.0	2.0		ug/L
Dilution Factor	1.00				
Analyzed By	Joe Semberski				
Analysis Date/Time	Sep 28 2011 9:35AM				
Prep By					
Prep Date/Time					

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118

Laboratory Contact: Jeff Ruehr
Ruehr@adeq.state.ar.us
501-682-0955

Analytical Quality Control Results Report

Batch: 11092803	ICP Metals - water (total)
KLR	LIMS ID: 2011-2948

ICP Metals - water (Total) DUP — Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Aluminum	<200 ug/L	200	200		
Aluminum (RPD)	3.3 %				0 - 20
Antimony (RPD)	2.5 %				0 - 20
Antimony	<100 ug/L	50	100		
Arsenic	<10.0 ug/L	5	10		
Arsenic (RPD)	71.4 %				0 - 20
Barium (RPD)	5.1 %				0 - 20
Barium	<100 ug/L	20	100		
Beryllium	<5.00 ug/L	1	5		
Beryllium (RPD)	0 %				0 - 20
Boron (RPD)	3.3 %				0 - 20
Boron	1950 ug/L	50	250		
Cadmium (RPD)	0 %				0 - 20
Cadmium	<10.0 ug/L	3	10		
Calcium	164 mg/L	0.4	0.4		
Calcium (RPD)	2.7 %				0 - 20
Chromium (RPD)	6.0 %				0 - 20
Chromium	752 ug/L	3	10		
Cobalt	<10.0 ug/L	5	10		
Cobalt (RPD)	29.3 %				0 - 20
Copper (RPD)	4.7 %				0 - 20
Copper	987 ug/L	5	10		
Iron	541 ug/L	100	200		
Iron (RPD)	5.9 %				0 - 20
Lead (RPD)	0 %				0 - 20
Lead	<10.0 ug/L	1	10		
Magnesium	1.3 mg/L	1	1		
Magnesium (RPD)	0.9 %				0 - 20
Manganese	12 ug/L	2	10		
Manganese (RPD)	1.8 %				0 - 20
Nickel (RPD)	5.4 %				0 - 20
Nickel	560 ug/L	5	25		
Potassium	<10.0 mg/L	0.5	10		
Potassium (RPD)	2.6 %				0 - 20
Selenium (RPD)	144 %				0 - 20
Selenium	<20.0 ug/L	5	20		
Silver	<50.0 ug/L	10	50		
Silver (RPD)	50.0 %				0 - 20
Sodium (RPD)	6.2 %				0 - 20
Sodium	130 mg/L	0.2	0.4		
Thallium	<25.0 ug/L	0.5	25		
Thallium (RPD)	200 %				0 - 20
Vanadium (RPD)	138 %				0 - 20
Vanadium	<25.0 ug/L	10	25		
Zinc	38.5 ug/L	20	30		
Zinc (RPD)	5.5 %				0 - 20
Dilution Factor	1.0				
Analyzed By	Joe Semberski				
Analysis Date/Time	Sep 28 2011				

KLR	LIMS ID: 2011-2948

ICP Metals - water (Total) MS — Run: 1

Parameter	Result	DL	RL	Accuracy Control	Precision Control
Aluminum (% Recovery)	102 %			70 - 130	

Antimony (% Recovery)	102 %	70 - 130	
Arsenic (% Recovery)	106 %	70 - 130	
Barium (% Recovery)	97.7 %	70 - 130	
Beryllium (% Recovery)	100 %	70 - 130	
Boron (% Recovery)	95.9 %	70 - 130	
Cadmium (% Recovery)	102 %	70 - 130	
Calcium (% Recovery)	90.9 %	70 - 130	
Chromium (% Recovery)	83.6 %	70 - 130	
Cobalt (% Recovery)	100 %	70 - 130	
Copper (% Recovery)	86.8 %	70 - 130	
Iron (% Recovery)	99.2 %	70 - 130	
Lead (% Recovery)	103 %	70 - 130	
Magnesium (% Recovery)	93.3 %	70 - 130	
Manganese (% Recovery)	100 %	70 - 130	
Nickel (% Recovery)	96 %	70 - 130	
Potassium (% Recovery)	106 %	70 - 130	
Selenium (% Recovery)	107 %	70 - 130	
Silver (% Recovery)	93.8 %	70 - 130	
Sodium (% Recovery)	98.4 %	70 - 130	
Thallium (% Recovery)	99.5 %	70 - 130	
Vanadium (% Recovery)	99.3 %	70 - 130	
Zinc (% Recovery)	110 %	70 - 130	
Dilution Factor	1.0		
Analyzed By	Joe Semberski		
Analysis Date/Time	Sep 28 2011		

KLR ***LIMS ID: 2011-2948***

ICP Metals - water (Total) MSD ***Run: 1***

Parameter	***Result***	***DL***	***RL***	***Accuracy Control***	***Precision Control***
Aluminum (% Recovery)	99.9 %			70 - 130	
Aluminum (RPD)	1.5 %				0 - 20
Antimony (% Recovery)	104 %			70 - 130	
Antimony (RPD)	1.8 %				0 - 20
Arsenic (% Recovery)	106 %			70 - 130	
Arsenic (RPD)	0.5 %				0 - 20
Barium (% Recovery)	99.8 %			70 - 130	
Barium (RPD)	2.1 %				0 - 20
Beryllium (% Recovery)	100 %			70 - 130	
Beryllium (RPD)	0.3 %				0 - 20
Boron (% Recovery)	97.6 %			70 - 130	
Boron (RPD)	0.9 %				0 - 20
Cadmium (% Recovery)	106 %			70 - 130	
Cadmium (RPD)	3.8 %				0 - 20
Calcium (% Recovery)	95.2 %			70 - 130	
Calcium (RPD)	1.7 %				0 - 20
Chromium (% Recovery)	88.5 %			70 - 130	
Chromium (RPD)	1.1 %				0 - 20
Cobalt (% Recovery)	102 %			70 - 130	
Cobalt (RPD)	1.8 %				0 - 20
Copper (% Recovery)	87.0 %			70 - 130	
Copper (RPD)	0.1 %				0 - 20
Iron (% Recovery)	101 %			70 - 130	
Iron (RPD)	1.1 %				0 - 20
Lead (% Recovery)	103 %			70 - 130	
Lead (RPD)	0 %				0 - 20
Magnesium (% Recovery)	93.0 %			70 - 130	
Magnesium (RPD)	0.3 %				0 - 20
Manganese (% Recovery)	100 %			70 - 130	
Manganese (RPD)	1.1 %				0 - 20
Nickel (% Recovery)	97 %			70 - 130	
Nickel (RPD)	0.8 %				0 - 20
Potassium (% Recovery)	108 %			70 - 130	
Potassium (RPD)	1.9 %				0 - 20
Selenium (% Recovery)	109 %			70 - 130	
Selenium (RPD)	2.1 %				0 - 20
Silver (% Recovery)	95.4 %			70 - 130	
Silver (RPD)	1.7 %				0 - 20
Sodium (% Recovery)	98.2 %			70 - 130	
Sodium (RPD)	0.1 %				0 - 20
Thallium (% Recovery)	100 %			70 - 130	
Thallium (RPD)	0.6 %				0 - 20
Vanadium (% Recovery)	101 %			70 - 130	
Vanadium (RPD)	1.3 %				0 - 20
Zinc (% Recovery)	111 %			70 - 130	
Zinc (RPD)	1.0 %				0 - 20
Dilution Factor	1.0				

Analysis Date/Time	Sep 28 2011
Analyzed By	Joe Semberski