



KERR-McGEE CHEMICAL LLC

POST OFFICE BOX 55 - HENDERSON, NEVADA 89009

May 12, 2004

Val King
Nevada Division of Environmental Protection
123 Nye Lane
Carson City, Nevada

Subject: Process Incident – Permit # NV 0023060

Dear Ms. King:

As reported in my letter dated May 6, 2004, the Kerr-McGee Chemical LLC biological treatment plant designed and operated by Veolia Water North America experienced an incident April 27, 2004. This letter responds to your request for additional information regarding the incident including:

- More information on the cause of the incident and recovery
- Measures taken to ensure that the problem does not recur
- Support for the Kerr-McGee statement that there was no environmental impact as a consequence of the incident
- Mitigation efforts to control odor from the process discharge
- Mitigation of scum at the outfall which was formed during the incident
- Plans to improve the appearance of the discharge water, which even after recovery from the incident continues to be cloudy despite meeting the permit numerical requirements for TSS.

We appreciate your willingness to work with us as we continue start-up of the new and complex biological treatment system.

Incident Description and Process Recovery

As we reported previously, a Veolia operator training on the system inadvertently entered a wrong proportioning factor for ethanol on one of the four fluidized bed primary bio-reactors (0.98 rather than 0.098). Ethanol is supplied to the bacteria as “food” and reacts with oxygen stripped from nitrate, chlorate and perchlorate by the bacteria to form carbon dioxide and biomass solids. The regular process operator caught the problem within three hours, but an error with a supervisor who believed there was an instrumentation question delayed response for an additional several hours. The result was an increase in the BOD concentration and a degradation of performance by the Dissolved Air Flotation (DAF) system designed to remove bio-solids prior to discharge of the treated water. The higher organic loading also resulted in the bacteria destroying a small part of the sulfate in the water which produced a sulfide odor.

Once the error was identified, ethanol feed ratios were reduced to allow consumption of the excess by the process. By the following day, the process had largely returned to

normal operation. Odor was eliminated and solids recovery was restored to pre-incident levels. Discharge during the incident was reported as "milky white" and has improved to slightly cloudy. Total suspended solids levels in the discharge immediately after the incident remained within permit limits at 33 mg/L (limit 135 mg/L).

Measures Taken to Ensure the Problem Does not Recur

Veolia has implemented a review of ethanol feed rates twice per shift to compare projected ethanol requirements with actual use. Supervisors have been cautioned to correct any problems as soon as they are identified. The plant process control system is being programmed to question any operator input outside the normal range to enable rapid correction of any entry errors.

Environmental Impact and Mitigation of Scum and Odor

When my May 6th letter was issued, we did not have analytical data other than the plant process control lab information and believed that there was no environmental impact. We subsequently received analytical data from the certified Montgomery Watson lab (Attachment 1) indicating that the permit limitation for BOD (Inhibited) was exceeded for the sample taken on the morning of April 28, 2004. The BOD measured was 207 mg/L compared to the permit limits of 25 mg/L (30 day) and 40 mg/L (7 day). The high BOD in the discharge was short lived, and to the best of our knowledge has not had an adverse impact on the receiving water.

Suspended solids, despite being below permit limits, were observed to form a foam or scum layer at the outfall. The scum has been largely eliminated, though small patches can be observed at the outfall. Veolia is placing booms in the area of the outfall to collect any remaining scum before it enters Las Vegas Wash.

A sulfide odor was evident at the outfall during the incident, which has been eliminated as the process returned to normal. Maintaining appropriate process control on the biological system will prevent recurrence of the odor.

Plans to Improve the Appearance of the Discharge Water

While the discharge water meets the permit limits for total suspended solids, NDEP has indicated that the cloudy appearance is unacceptable. Kerr-McGee and Veolia have developed a plan (Attachment 2) to rapidly resolve the problem. Parallel activities are in progress to optimize operation of existing plant equipment, specifically the DAF units, along with work on filtration as a fallback alternative. Schedules are being prepared and will be provided to NDEP as soon as possible, but it appears we may be able to have temporary filtration operating in about 4 weeks.

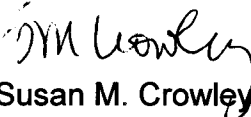
The water being fed to the biological process is unique to the Henderson site and the cloudy appearance is unexpected. Optimization of chemical coagulants and polymers

Val King
May 13, 2004
Page 3

has not yet eliminated the cloudy appearance. Jar test results producing clear water have not been reproducible in the full scale plant. We continue to move forward on the attached plan and will keep NDEP informed in weekly conference calls.

If you have additional questions or comments, please call me at (702) 651-2234 or Keith Bailey at (405) 270-3651.

Sincerely,



Susan M. Crowley
Staff Environmental Specialist

Certified Mail

cc: Keith Bailey, KM
Pat Corbett, KM
Todd Croft, NDEP
Jeff Lambeth, Veolia
Tamara Pelham, NDEP
Richard Waters, KM

Attachments

Attachment 1

Initial Analytical Data from April 28, 2004 Samples



MWH Laboratories
A Division of MWH Americas, Inc.

750 Royal Oaks Drive
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Monrovia, California 91016-3629
Tel: 626 568 6400
Fax: 626 568 6324
1 800 586 LABS (1 800 566 5227)

Laboratory Report

for

Kerr McGee Chemical Company - Henderson
PO Box 55

Henderson , NV 89009

Attention: Susan Crowley
Fax: 702-651-2310



ADE Andy Eaton
Project Manager

Report#: 126132
CL04

Laboratory certifies that the test results meet all **NELAC** requirements unless noted in the Comments section or the Case Narrative. Following the cover page are Comments, QC Report, QC Summary, Data Report, Hits Report, totaling 15 page[s].



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**Report
Comments
#126132**

(QC Ref#: 2404290066)

Test: Hexavalent chromium(Dissolved) (EPA 218.6)

H3- Sample was received and analyzed past holding time.

(QC Ref#: 2404290067)

Test: Hexavalent chromium(Dissolved) (EPA 218.6)

H3- Sample was received and analyzed past holding time.

(QC Ref#: 2404290068)

Test: Hexavalent chromium(Dissolved) (EPA 218.6)

H3- Sample was received and analyzed past holding time.



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Laboratory
 Hits Report
 #126132

Kerr McGee Chemical Company -
 Henderson
 Susan Crowley
 PO Box 55
 Henderson , NV 89009

Samples Received
 29-apr-2004 13:29:27

Analyzed	Sample#	Sample ID	Result	UNITS	MRL
2404290066 IX INFLUENT					
04/29/04		Apparent Color	5	ACU	3.000
05/07/04		Chlorate by IC	23000	ug/l	*****
04/29/04		Chloride	930	mg/l	20.000
05/06/04		Kjeldahl Nitrogen	0.39	mg/l	.200
04/29/04		Lab pH	7.4	Units	.001
04/29/04		Nitrate as Nitrogen by IC	6.6	mg/l	2.000
05/03/04		PercentUnionized Ammonia 25C	1.38	%	.001
05/09/04		Perchlorate	13000	ug/l	*****
05/05/04		Total Dissolved Solid (TDS)	3580	mg/l	10.000
05/05/04		Total Inorganic Nitrogen-Calc	6.60	mg/l	.200
05/05/04		Total phosphorus-P	0.02	mg/l	.010
2404290067 IX EFFLUENT					
04/30/04		Ammonia Nitrogen	2.84	mg/l	.250
04/29/04		Apparent Color	5	ACU	3.000
05/05/04		Boron, Total, ICAP	3.1	mg/l	.100
04/29/04		Carbonaceous BOD	207.2	mg/l	3.000
05/07/04		Chlorate by IC	4200	ug/l	*****
04/29/04		Chloride	1700	mg/l	20.000
05/05/04		Iron, Total, ICAP	0.13	mg/l	.020
05/06/04		Kjeldahl Nitrogen	7.6	mg/l	.200
04/29/04		Lab pH	6.6	Units	.001
05/03/04		PercentUnionized Ammonia 25C	0.221	%	.001
05/02/04		Sulfide, Total	5.14	mg/l	1.000
05/05/04		Total Dissolved Solid (TDS)	4960	mg/l	10.000
05/05/04		Total Inorganic Nitrogen-Calc	2.84	mg/l	.200
05/05/04		Total Suspended Solids (TSS)	33	mg/l	10.000
05/05/04		Total phosphorus-P	0.38	mg/l	.010

SUMMARY OF POSITIVE DATA ONLY.



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**Laboratory
Hits Report
#126132**

Kerr McGee Chemical Company -
Henderson
Susan Crowley
PO Box 55
Henderson , NV 89009

Samples Received
29-apr-2004 13:29:27

Analyzed	Sample#	Sample ID	Result	UNITS	MRL
	2404290068	INFLUENT			
	2404290068	INFLUENT			
04/29/04		Apparent Color	5	ACU	3.000
05/07/04		Chlorate by IC	310000	ug/l	*****
04/29/04		Chloride	1600	mg/l	20.000
05/03/04		Chromium, Total, ICAP/MS	11	ug/l	5.000
04/29/04		Hexavalent chromium(Dissolved)	9.9	ug/l	.100
04/29/04		Lab pH	7.2	Units	.001
04/29/04		Nitrate as Nitrogen by IC	8.6	mg/l	2.000
05/03/04		PercentUnionized Ammonia 25C	0.873	%	.001
05/09/04		Perchlorate	150000	ug/l	*****
05/05/04		Total Dissolved Solid (TDS)	5780	mg/l	10.000
05/05/04		Total Inorganic Nitrogen-Calc	8.60	mg/l	.200

SUMMARY OF POSITIVE DATA ONLY.



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**Laboratory
Data Report
#126132**

Kerr McGee Chemical Company -
Henderson
Susan Crowley
PO Box 55
Henderson , NV 89009

Samples Received
04/29/04

Prepared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
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IX INFLUENT (2404290066) Sampled on 04/28/04 06:30

	04/29/04 00:00	231158	(ML/SM 5210B)	Carbonaceous BOD	ND	mg/l	3.0	1
	04/29/04 20:28	230331	(ML/EPA 300)	Chloride	930	mg/l	20	20
	05/07/04 00:00	231065	(ML/EPA 300.1B)	Chlorate by IC	23000	ug/l	1000	100
	05/09/04 18:11	231306	(CADHS/EPA314)	Perchlorate	13000	ug/l	2000	500
	04/29/04 00:00	230288	(ML/S2120B)	Apparent Color	5	ACU	3.0	1
	05/03/04 16:01	230756	(EPA/ML 200.8)	Chromium, Total, ICAP/MS	ND	ug/l	5.0	5
	04/29/04 12:13	230275	(EPA 218.6)	Hexavalent chromium(Dissolved)	ND(H3)	ug/l	0.10	1
	05/05/04 10:51		(ML/EPA 300.0)	Total Inorganic Nitrogen-Calc	6.60	mg/l	0.20	1
	04/30/04 00:00	230614	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	05/03/04 13:31		()	PercentUnionized Ammonia 25C	1.38	%	0.0010	1
	04/29/04 20:28	230335	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	2.0	20
	04/29/04 20:28	230324	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	6.6	mg/l	2.0	20
			(EPA 413.1 (sub)	Oil and Grease (Grav) subbed		mg/l	5.0	1
	04/29/04 00:00	230175	(S4500HB/E150.1)	Lab pH	7.4	Units	0.0010	1
	05/02/04 12:30	230979	(ML/EPA 376.2)	Sulfide,Total	ND	mg/l	0.10	1
	05/05/04 14:46	231074	(S4500PE/E365.1)	Total phosphorus-P	0.02	mg/l	0.010	1
05/05/04	05/05/04 15:30	230970	(SM 2540C)	Total Dissolved Solid (TDS)	3580	mg/l	10	1
	05/06/04 15:11	231080	(ML/EPA 351.2)	Kjeldahl Nitrogen	0.39	mg/l	0.20	1

IX EFFLUENT (2404290067) Sampled on 04/28/04 07:00

	05/05/04 12:33	230776	(ML/EPA 200.7)	Boron, Total, ICAP	3.1	mg/l	0.10	2
	04/29/04 00:00	231158	(ML/SM 5210B)	Carbonaceous BOD	207.2	mg/l	3.0	1
	04/29/04 21:06	230331	(ML/EPA 300)	Chloride	1700	mg/l	20	20
	05/07/04 00:00	231065	(ML/EPA 300.1B)	Chlorate by IC	4200	ug/l	2000	200
			(CADHS/EPA314)	Perchlorate		ug/l	4.0	1
	04/29/04 00:00	230288	(ML/S2120B)	Apparent Color	5	ACU	3.0	1
			(EPA/ML 200.8)	Chromium, Total, ICAP/MS		ug/l	1.0	1
	04/29/04 12:21	230275	(EPA 218.6)	Hexavalent chromium(Dissolved)	ND(H3)	ug/l	0.10	1
	05/05/04 12:33	230766	(ML/EPA 200.7)	Iron, Total, ICAP	0.13	mg/l	0.020	2
			(EPA/ML 200.8)	Manganese, Total, ICAP/MS		ug/l	2.0	1
	05/05/04 10:51		(ML/EPA 300.0)	Total Inorganic Nitrogen-Calc	2.84	mg/l	0.20	1



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**Laboratory
Data Report
#126132**

Kerr McGee Chemical Company -
Henderson
(continued)

Prepared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
	04/30/04 00:00	230614	(ML/EPA 350.1)	Ammonia Nitrogen	2.84	mg/l	0.25	5
	05/03/04 13:31		()	PercentUnionized Ammonia 25C	0.221	%	0.0010	1
	04/29/04 21:06	230335	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	2.0	20
	04/29/04 21:06	230324	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	ND	mg/l	2.0	20
			(EPA 413.1 (sub)	Oil and Grease (Grav) subbed		mg/l	5.0	1
	04/29/04 00:00	230175	(S4500HB/E150.1)	Lab pH	6.6	Units	0.0010	1
	05/02/04 12:30	230979	(ML/EPA 376.2)	Sulfide, Total	5.14	mg/l	1.0	10
	05/05/04 14:46	231074	(S4500PE/E365.1)	Total phosphorus-P	0.38	mg/l	0.010	1
05/05/04	05/05/04 15:30	230970	(SM 2540C)	Total Dissolved Solid (TDS)	4960	mg/l	10	1
	05/06/04 15:11	231080	(ML/EPA 351.2)	Kjeldahl Nitrogen	7.6	mg/l	0.20	1
	05/05/04 22:46	230960	(ML/EPA 160.2)	Total Suspended Solids (TSS)	33	mg/l	10	1

Gross Alpha Radiation

(ML/EPA 900.0)	Alpha, Gross	pCi/l	3.0	1
(ML/EPA 900.0)	Alpha, Two Sigma Error	pCi/l	0.0000	1
(ML/EPA 900.0)	Alpha, Min Detectable Activity	pCi/l	0.0000	1

Radium 226 (Sub)

(ML/EPA 903.1)	Radium 226	pCi/l	1.0	1
(ML/EPA 903.1)	Radium 226, Two Sigma Error	pCi/l	0.0000	1
(ML/EPA 903.1)	Radium 226, Minimal Detectable	pCi/l	0.0000	1

Radium 228 (Sub)

(ML/EPA 904.0)	Radium 228	pCi/l	1.0	1
(ML/EPA 904.0)	Radium 228, Two Sigma Error	pCi/l	0.0000	1
(ML/EPA 904.0)	Radium 228, Minimum Detectable	pCi/l	0.0000	1

INFLUENT (2404290068) Sampled on 04/28/04 07:30

	04/29/04 00:00	231158	(ML/SM 5210B)	Carbonaceous BOD	ND	mg/l	3.0	1
	04/29/04 21:19	230331	(ML/EPA 300)	Chloride	1600	mg/l	20	20
	05/07/04 00:00	231065	(ML/EPA 300.1B)	Chlorate by IC	310000	ug/l	5000	500
	05/09/04 18:45	231306	(CADHS/EPA314)	Perchlorate	150000	ug/l	8000	2000
	04/29/04 00:00	230288	(ML/S2120B)	Apparent Color	5	ACU	3.0	1
	05/03/04 16:03	230756	(EPA/ML 200.8)	Chromium, Total, ICAP/MS	11	ug/l	5.0	5
	04/29/04 12:29	230275	(EPA 218.6)	Hexavalent chromium(Dissolved)	9.9(H3)	ug/l	0.10	1



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**Laboratory
Data Report
#126132**

Kerr McGee Chemical Company -
Henderson
(continued)

Prepared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
	05/05/04 10:51		(ML/EPA 300.0)	Total Inorganic Nitrogen-Calc	8.60	mg/l	0.20	1
	04/30/04 00:00	230614	(ML/EPA 350.1)	Ammonia Nitrogen	ND	mg/l	0.050	1
	05/03/04 13:31		()	PercentUnionized Ammonia 25C	0.873	%	0.0010	1
	04/29/04 21:19	230335	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	2.0	20
	04/29/04 21:19	230324	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	8.6	mg/l	2.0	20
			(EPA 413.1 (sub)	Oil and Grease (Grav) subbed		mg/l	5.0	1
	04/29/04 00:00	230175	(S4500HB/E150.1)	Lab pH	7.2	Units	0.0010	1
	05/02/04 12:30	230979	(ML/EPA 376.2)	Sulfide,Total	ND	mg/l	0.10	1
	05/05/04 14:46	231074	(S4500PE/E365.1)	Total phosphorus-P	ND	mg/l	0.010	1
05/05/04	05/05/04 15:30	230970	(SM 2540C)	Total Dissolved Solid (TDS)	5780	mg/l	10	1
	05/06/04 15:11	231080	(ML/EPA 351.2)	Kjeldahl Nitrogen	ND	mg/l	0.20	1
EFFLUENT (2404290069)				Sampled on 04/28/04 08:00				
			(CADHS/EPA314)	Perchlorate		ug/l	4.0	1



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Laboratory
QC Summary
#126132

Kerr McGee Chemical Company -
Henderson

QC Ref #230175 - Lab pH

Analysis Date: 04/29/2004

2404290066	IX INFLUENT
2404290067	IX EFFLUENT
2404290068	INFLUENT

QC Ref #230275 - Hexavalent chromium(Dissolved) Analysis Date: 04/29/2004

2404290066	IX INFLUENT
2404290067	IX EFFLUENT
2404290068	INFLUENT

QC Ref #230288 - Apparent Color

Analysis Date: 04/29/2004

2404290066	IX INFLUENT
2404290067	IX EFFLUENT
2404290068	INFLUENT

QC Ref #230324 - Nitrate as Nitrogen by IC

Analysis Date: 04/29/2004

2404290066	IX INFLUENT
2404290067	IX EFFLUENT
2404290068	INFLUENT

QC Ref #230331 - Chloride

Analysis Date: 04/29/2004

2404290066	IX INFLUENT
2404290067	IX EFFLUENT
2404290068	INFLUENT

QC Ref #230335 - Nitrite, Nitrogen by IC

Analysis Date: 04/29/2004

2404290066	IX INFLUENT
2404290067	IX EFFLUENT
2404290068	INFLUENT



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Laboratory
QC Summary
#126132

Kerr McGee Chemical Company -
Henderson
(continued)

QC Ref #230614 - Ammonia Nitrogen **Analysis Date: 04/30/2004**

2404290066 IX INFLUENT
2404290067 IX EFFLUENT
2404290068 INFLUENT

QC Ref #230756 - Chromium, Total, ICAP/MS **Analysis Date: 05/03/2004**

2404290066 IX INFLUENT
2404290068 INFLUENT

QC Ref #230766 - Iron, Total, ICAP **Analysis Date: 05/05/2004**

2404290067 IX EFFLUENT

QC Ref #230776 - Boron, Total, ICAP **Analysis Date: 05/05/2004**

2404290067 IX EFFLUENT

QC Ref #230960 - Total Suspended Solids (TSS) **Analysis Date: 05/05/2004**

2404290067 IX EFFLUENT

QC Ref #230970 - Total Dissolved Solid (TDS) **Analysis Date: 05/05/2004**

2404290066 IX INFLUENT
2404290067 IX EFFLUENT
2404290068 INFLUENT

QC Ref #230979 - Sulfide, Total **Analysis Date: 05/02/2004**

2404290066 IX INFLUENT
2404290067 IX EFFLUENT
2404290068 INFLUENT



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**Laboratory
QC Summary
#126132**

Kerr McGee Chemical Company -
Henderson
(continued)

QC Ref #231065 - Chlorate by IC

Analysis Date: 05/07/2004

2404290066	IX INFLUENT
2404290067	IX EFFLUENT
2404290068	INFLUENT

QC Ref #231074 - Total phosphorus-P

Analysis Date: 05/05/2004

2404290066	IX INFLUENT
2404290067	IX EFFLUENT
2404290068	INFLUENT

QC Ref #231080 - Kjeldahl Nitrogen

Analysis Date: 05/06/2004

2404290066	IX INFLUENT
2404290067	IX EFFLUENT
2404290068	INFLUENT

QC Ref #231158 - Carbonaceous BOD

Analysis Date: 04/29/2004

2404290066	IX INFLUENT
2404290067	IX EFFLUENT
2404290068	INFLUENT

QC Ref #231306 - Perchlorate

Analysis Date: 05/09/2004

2404290066	IX INFLUENT
2404290068	INFLUENT



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Kerr McGee Chemical Company -
Henderson

QC Ref #230175 Lab pH

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
DUP	Lab pH	5.9	5.9	UNIT		(0-20)	0.0

QC Ref #230275 Hexavalent chromium(Dissolved)

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	Hexavalent chromium(Dissolved)	2.0	2.06	UGL	103.0	(90-110)	
LCS2	Hexavalent chromium(Dissolved)	2.0	2.07	UGL	103.5	(90-110)	0.48
MBLK	Hexavalent chromium(Dissolved)	ND	<0.10	UGL			
MS	Hexavalent chromium(Dissolved)	2.0	2.05	UGL	102.5	(90-110)	
MSD	Hexavalent chromium(Dissolved)	2.0	1.85	UGL	92.5	(90-110)	10

QC Ref #230288 Apparent Color

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
DUP	Apparent Color	3	3	ACU		(0-20)	0.0

QC Ref #230324 Nitrate as Nitrogen by IC

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	Nitrate as Nitrogen by IC	2.5	2.67	MGL	106.8	(90-110)	
LCS2	Nitrate as Nitrogen by IC	2.5	2.61	MGL	104.4	(90-110)	2.3
MBLK	Nitrate as Nitrogen by IC	ND	<0.10	MGL			
MS	Nitrate as Nitrogen by IC	2.5	2.71	MGL	108.4	(80-120)	
MSD	Nitrate as Nitrogen by IC	2.5	2.72	MGL	108.8	(80-120)	0.37

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Laboratory
QC Report
#126132

Kerr McGee Chemical Company -
Henderson
(continued)

QC Ref #230331 Chloride

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	Chloride	25	26	MGL	104.0	(90-110)	
LCS2	Chloride	25	25.4	MGL	101.6	(90-110)	2.3
MBLK	Chloride	ND	<1.0	MGL			
MS	Chloride	25	25.8	MGL	103.2	(80-120)	
MSD	Chloride	25	25.6	MGL	102.4	(80-120)	0.78

QC Ref #230335 Nitrite, Nitrogen by IC

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	Nitrite, Nitrogen by IC	1.0	1.05	MGL	105.0	(90-110)	
LCS2	Nitrite, Nitrogen by IC	1.0	1.04	MGL	104.0	(90-110)	0.96
MBLK	Nitrite, Nitrogen by IC	ND	<0.10	MGL			
MS	Nitrite, Nitrogen by IC	1.0	0.907	MGL	90.7	(80-120)	
MSD	Nitrite, Nitrogen by IC	1.0	0.906	MGL	90.6	(80-120)	0.11

QC Ref #230614 Ammonia Nitrogen

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 24	04280341	MGL		(0-0)	
LCS1	Ammonia Nitrogen	1.00	1.03	MGL	103.0	(90-110)	
LCS2	Ammonia Nitrogen	1.00	1.03	MGL	103.0	(90-110)	0.00
MBLK	Ammonia Nitrogen	ND	<0.050	MGL			
MS	Ammonia Nitrogen	1.00	0.904	MGL	90.4	(90-110)	
MSD	Ammonia Nitrogen	1.00	0.906	MGL	90.6	(90-110)	0.22

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Kerr McGee Chemical Company -
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(continued)

QC Ref #230756 Chromium, Total, ICAP/MS

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
AASPKSMP	Spiked sample	Lab # 24	04150121	UGL		(0-0)	
LCS1	Chromium, Total, ICAP/MS	100	103	UGL	103.0	(85-115)	
LCS2	Chromium, Total, ICAP/MS	100	99.4	UGL	99.4	(85-115)	3.6
MBLK	Chromium, Total, ICAP/MS	ND	<1.0	UGL			
MS	Chromium, Total, ICAP/MS	100	95.3	UGL	95.3	(70-130)	
MSD	Chromium, Total, ICAP/MS	100	102	UGL	102.0	(70-130)	6.8

QC Ref #230766 Iron, Total, ICAP

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	Iron, Total, ICAP	5.0	5.07	MGL	101.4	(85-115)	
LCS2	Iron, Total, ICAP	5.0	5.3	MGL	106.0	(85-115)	4.4
MBLK	Iron, Total, ICAP	ND	<0.010	MGL			
MS	Iron, Total, ICAP	5.0	4.68	MGL	93.6	(70-130)	
MSD	Iron, Total, ICAP	5.0	5.15	MGL	103.0	(70-130)	9.6

QC Ref #230776 Boron, Total, ICAP

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	Boron, Total, ICAP	0.5	0.531	MGL	106.2	(85-115)	
LCS2	Boron, Total, ICAP	0.5	0.544	MGL	108.8	(85-115)	2.4
MBLK	Boron, Total, ICAP	ND	<0.050	MGL			
MS	Boron, Total, ICAP	0.5	0.525	MGL	105.0	(70-130)	
MSD	Boron, Total, ICAP	0.5	0.535	MGL	107.0	(70-130)	1.9

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Kerr McGee Chemical Company -
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(continued)

QC Ref #230960 Total Suspended Solids (TSS)

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
AASPKSMP	Spiked sample	Lab # 24	04280333	MGL		(0-0)	
LCS1	Total Suspended Solids (TSS)	175	162	MGL	92.6	(80-120)	
LCS2	Total Suspended Solids (TSS)	175	164	MGL	93.7	(80-120)	1.2
MBLK	Total Suspended Solids (TSS)	ND	<10	MGL			

QC Ref #230970 Total Dissolved Solid (TDS)

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
AASPKSMP	Spiked sample	Lab # 24	05040088	MGL		(0-0)	
DUP	Total Dissolved Solid (TDS)	54	56	MGL		(0-10)	3.6
LCS1	Total Dissolved Solid (TDS)	175	180	MGL	102.9	(85-115)	
LCS2	Total Dissolved Solid (TDS)	700	708	MGL	101.1	(85-115)	
MBLK	Total Dissolved Solid (TDS)	ND	<10	MGL			

QC Ref #230979 Sulfide, Total

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 24	04260008	MGL		(0-0)	
LCS1	Sulfide, Total	0.5	0.478	MGL	95.6	(90-110)	
LCS2	Sulfide, Total	0.5	0.457	MGL	91.4	(90-110)	4.5
MBLK	Sulfide, Total	ND	<0.10	MGL			
MS	Sulfide, Total	0.5	0.442	MGL	88.4	(80-120)	
MSD	Sulfide, Total	0.5	0.469	MGL	93.8	(80-120)	5.9

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(continued)

QC Ref #231065

Chlorate by IC

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	Chlorate by IC	200	194	UGL	97.0	(75-125)	
LCS2	Chlorate by IC	200	195	UGL	97.5	(75-125)	0.51
MBLK	Chlorate by IC	ND	<10	UGL			
MS	Chlorate by IC	100	85	UGL	85.0	(75-125)	
MSD	Chlorate by IC	100	84	UGL	84.0	(75-125)	1.2

QC Ref #231074

Total phosphorus-P

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 24	04280341	MGL		(0-0)	
LCS1	Total phosphorus-P	0.4	0.400	MGL	100.0	(90-110)	
LCS2	Total phosphorus-P	0.4	0.390	MGL	97.5	(90-110)	2.5
MBLK	Total phosphorus-P	ND	<0.010	MGL			
MS	Total phosphorus-P	0.4	0.400	MGL	100.0	(90-110)	
MSD	Total phosphorus-P	0.4	0.390	MGL	97.5	(90-110)	2.5
RPD_LCS	Total phosphorus-P	100.000	97.500	MGL	2.5	(0-10)	
RPD_MS	Total phosphorus-P	100.000	97.500	MGL	2.5	(0-10)	

QC Ref #231080

Kjeldahl Nitrogen

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 24	04280336	MGL		(0-0)	
LCS1	Kjeldahl Nitrogen	4	3.90	MGL	97.5	(90-110)	
LCS2	Kjeldahl Nitrogen	4	4.00	MGL	100.0	(90-110)	2.5
MBLK	Kjeldahl Nitrogen	ND	<0.20	MGL			
MS	Kjeldahl Nitrogen	4	3.81	MGL	95.2	(90-110)	
MSD	Kjeldahl Nitrogen	4	3.77	MGL	94.2	(90-110)	1.1
RPD_LCS	Kjeldahl Nitrogen	97.500	100.000	MGL	2.5	(0-20)	

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Kerr McGee Chemical Company -
Henderson
(continued)

RPD_MS Kjeldahl Nitrogen 95.250 94.250 MGL 1.1 (0-10)

QC Ref #231158 Carbonaceous BOD

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	Carbonaceous BOD	198	195	MGL	98.5	(85-115)	
MBLK	Carbonaceous BOD	ND	<3.0	MGL			

QC Ref #231306 Perchlorate

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	Perchlorate	25.0	22.3	UGL	89.2	(85-115)	
LCS2	Perchlorate	25.0	22.1	UGL	88.4	(85-115)	0.90
MBLK	Perchlorate	ND	<4.0	UGL			
MS	Perchlorate	25.0	25.1	UGL	100.4	(70-130)	
MSD	Perchlorate	25.0	25.4	UGL	101.6	(70-130)	1.2

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Attachment 2

Plan for Control of Discharge Solids from the Kerr-McGee Biological Treatment Plant

1. Optimize existing Dissolved Air Flotation (DAF) operation. Complete lab test results are expected by May 21st. Interim results will be applied to the plant operation as appropriate.
 - a) Samples have been submitted for rapid turn-around laboratory studies to determine organic and inorganic compositions of the suspended solids.
 - b) DAF treatability testing is underway to optimize chemical additions, process variables such as recycle water (control of flotation dissolved air) rates.
 - c) Biological analyses of the solids are being performed to determine the types of bacterial which may be responsible for the cloudy water.

2. Mitigation of Odor and Floating Solids – In progress.
 - a) Booms are being deployed to capture any floating solids at the discharge line outfall. Solids captured will be properly disposed of at appropriate facilities.
 - b) Odor control is being accomplished by limiting the extent of excess ethanol fed to the process. A small excess is needed to complete perchlorate destruction, and will be kept within permit limits.

3. Filtration of Discharge Water. A parallel path effort is under way to identify the most effective filtration options then install temporary portable rental filter units while a permanent filter system is installed.
 - a) Laboratory tests are being performed to identify the most effective filter options. Samples have been sent to the lab and results are expected early next week.
 - b) On-site pilot filter tests of the systems identified in lab tests are to begin during the week of May 17th.
 - c) Temporary installation of portable filtration equipment to treat the entire discharge of the biological treatment plant. The rental filter units would stay in place until a permanent system can be installed. Timing will depend on results of the tests in a) and b) above, but is expected in early June 2004.
 - d) Permanent filter installation will likely require 6-12 months, but temporary filters will treat the plant discharge until the permanent system is complete.