Sewer Acct.#: **1003803000**

Company: **BRIDGETON LANDFILL LLC**

Address: **13570 St. Charles Rock Road**

City: **Bridgeton**

State and Zip: **MO 63044**

Industry ID	File Code	File Description
17931	31	INDUSTRY OVERFLOW

ACCOUNT NUMBER: **10038030-00**

COMPANY NAME: **BRIDGETON LANDFILL**

CORRESPONDENCE

MAY, JUNE & JULY 2014

X	CORRESPONDANCE LOCATED IN OVERFLOW INDUSTRY FILES

JULY 2014

Doug Mendoza

From: Doug Mendoza
Sent: Thursday, July 31, 2014 2:29 PM
To: 'Ed Galbraith'
Cc: Kamp, Kevin; Aaron Karlas (akarlas@feezorengineering.com); Bouchard, Derek (DBouchard@republicservices.com); Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com); John Lodderhose
Subject: RE: Cooling Water Discharge Applicaton for Bridgeton Landfill

Ed,

As we discussed, the "UV Absorbing Organic of 0.88/cm" value from the lab analysis was indeed absorbance, rather than transmittance. Unfortunately, this means that MSD cannot approve the special discharge request for on site discharge. However, the material could be hauled to MSD's Bissell Point hauled waste station. Please let us know if you wish to pursue this option.

Sincerely,
Doug Mendoza
MSD Industrial Pretreatment Manager

From: Doug Mendoza
Sent: Wednesday, July 30, 2014 11:27 AM
To: 'Ed Galbraith'
Cc: Kamp, Kevin; Aaron Karlas (akarlas@feezorengineering.com); Bouchard, Derek (DBouchard@republicservices.com); Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)
Subject: RE: Cooling Water Discharge Applicaton

No, it's no problem. But internally we make a distinction between just straight-through NCCW (non-contact cooling water), and cooling tower blowdown. The main difference for us is the anti-scale/corrosion inhibitors in the CTs.

Doug

From: Ed Galbraith [mailto:EGalbraith@barr.com]
Sent: Wednesday, July 30, 2014 11:10 AM
To: Doug Mendoza
Cc: Kamp, Kevin; Aaron Karlas (akarlas@feezorengineering.com); Bouchard, Derek (DBouchard@republicservices.com); Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)
Subject: RE: Cooling Water Discharge Applicaton

Doug,

Part of the cooling water does come from an evaporative system, so that water does come in contact with the atmosphere. However, none of the water comes into contact with leachate. I may have use the wrong term of art. Do we need to amend the application?

The water is metered from Missouri American.

I'm still waiting on a clarification from Pace on the UVT results.

Ed Galbraith

Doug Mendoza

From: Doug Mendoza
Sent: Thursday, July 31, 2014 1:34 PM
To: Ed Galbraith (EGalbraith@barr.com) (EGalbraith@barr.com)
Subject: FW: Questions regarding Bridgeton Landfill questionnaire/permit application

Ed,

A reminder that I still need these items clarified. From our earlier conversations, it sounded like these may be part of what you are planning to discuss with Bridgeton Landfill in your meetings early next week.

In addition, as we just discussed, I will be adding cooling tower blowdown (identified in the July 29 emailed special discharge request) as a wastewater component for the coming industrial wastewater discharge permit.

Doug

From: Doug Mendoza
Sent: Wednesday, July 16, 2014 11:11 AM
To: Ed Galbraith (EGalbraith@barr.com) (EGalbraith@barr.com); Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)
Subject: Questions regarding Bridgeton Landfill questionnaire/permit application

Brian & Ed,

As I was working on the Bridgeton Landfill permit, I noticed a couple of things in the questionnaire/permit application that need clarification:

- Section C.6.a lists 3085 GPD for sanitary water usage. Likewise, sections s.7.c & C.8.3 show this 3085 GPD sanitary usage being hauled off-site. It is also listed under section F.2 for Other/Sanitary waste that is disposed off-site.
    - Section F.2 actually lists 3084 as quantity disposed/**yr**, with Units of **gallons**.
        - Would you please verify that this should be 3084 gallons/day? Or correct the other sections.
- Assuming that the correct volume is 3084 GPD, it seems pretty high for the small number of employees. For only 11 employees, that's about 280 GPD. For 22 employees (including pretreatment personnel), that's 140 GPD. The general rule of thumb is about 25 GPD per employee.
        - Did this estimated volume come from actual records of hauling? Does it include more than just employee sanitary waste? Please explain the high volume.

- Neither section C.6.f nor section E.1.f include any plant & equipment washdown from the trash transfer station and/or from the vehicle/landfill equipment washdown on the pad next to the station.
    - Our understanding is that the outside washdown pad is plumbed to the sump inside the trash transfer station, and that this sump is pumped to discharge with the leachate.
    - We are unclear whether the station itself is only swept up or is washed down. We also thought that some wastewater was generated from rain and from water dripping off trucks and out of their trash loads.
        - Please clarify the wastewater generated at the station, and washpad, how the wastewater is discharged, and what the discharge volume should be.

While these are fairly minor issues, I will need this information before I can complete the permit.

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Wednesday, July 30, 2014 1:47 PM
To: 'Merrigan, Jessie (LG)'; Doug Mendoza; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; 'Theerman, Jeff (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie Freeman
Subject: RE: Bridgeton Landfill Weekly Report

Then final Flow Certifications and Volume Summary are now posted on the ftp site. We hope this delay did not cause any inconvenience.

Thank you.

Ed Galbraith

Senior Environmental Scientist
Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

resourceful. naturally. BARR

From: Ed Galbraith
Sent: Wednesday, July 30, 2014 11:56 AM
To: 'Merrigan, Jessie (LG)'; 'Doug Mendoza'; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; 'Bret A. Berthold'; 'Brian G. Gibson'; 'Brian Power'; 'Catherine Politte'; 'Chris Nagel'; 'Christopher J. Bulmahn'; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; 'John Lodderhose'; 'John Powell'; 'Jonathon Sprague'; 'Julie Croak'; 'Ken Gambaro'; 'Ken Goins'; 'Lance LeComb'; 'Leanne Tippett Mosby'; 'Mark Bright'; 'Martin Blecha'; 'Michael Grace'; 'Mike Townley'; 'Nora C. Estopare'; 'Patty Abernathy'; 'Paul Linscott'; 'Rob G Daly'; 'Ryan Sabourin'; 'Steve Grace'; 'Steve Smith'; 'Susan Myers'; 'Todd Heller'; 'Tom Boehm'; 'Theerman, Jeff (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie Freeman
Subject: RE: Bridgeton Landfill Weekly Report

The materials for the past week are now posted on Barr's ftp site. DRAFT Flow Certifications and Volume Summary are posted at this time. As soon as the signed versions are ready, we will update the site and notify you. All final data and reports are posted.

Notes on the data:

- As noted last week, Pace report 60173034 (316-349) reported a BOD value of 93,000 ppm and a COD value of 56,000 ppm, because of dissolved oxygen depletion of the dilution water blank. A revised report is included

Bridgeton Landfill, LLC
Metropolitan St. Louis Sewer District
Weekly Disposal Summary

MSD - Bissell Point Tracking Table					
Date	Operational Batch	Delivered (gal)		Truck Capacity (gal)	
		Per Batch	Daily Total	Per Batch	Daily Total
Sunday, July 20, 2014	Batch 316-364	37,500	*217,500*	37,500	*217,500*
	Batch 316-365	180,000		180,000	
Monday, July 21, 2014	Batch 316-365	37,500	*217,500*	37,500	*217,500*
	Batch 316-366	180,000		180,000	
Tuesday, July 22, 2014	Batch 316-366	37,500	*217,500*	37,500	*217,500*
	Batch 316-367	180,000		180,000	
Wednesday, July 23, 2014	Batch 316-367	37,500	*217,500*	37,500	*217,500*
	Batch 316-368	180,000		180,000	
Thursday, July 24, 2014	Batch 316-368	37,500	*217,500*	37,500	*217,500*
	Batch 316-369	180,000		180,000	
Friday, July 25, 2014	Batch 316-369	37,500	*217,500*	37,500	*217,500*
	Batch 316-370	180,000		180,000	
Saturday, July 26, 2014	Batch 316-370	37,500	*217,500*	37,500	*217,500*
	Batch 316-371	180,000		180,000	

Starting Date	***7/20/2014 6:00***
Ending Date	***7/27/2014 7:00***

MSD - Missouri River Tracking Table								
Date	Operational Batch Transferred into 97K AST	Gallons Delivered	Batch Start Date and Time	Batch End Date and Time	Interval Hours	Maximum Hourly Flow (gph)	Average Hourly Flow (gph)	97K AST pH Check
Sunday, July 20, 2014	NA	-	7/20/2014 6:00	7/21/2014 6:00	24.0	840	0.0	NA
Monday, July 21, 2014	NA	-	7/21/2014 6:00	7/22/2014 6:20	24.3	840	0.0	NA
Tuesday, July 22, 2014	NA	-	7/22/2014 6:20	7/23/2014 6:00	23.7	840	0.0	NA
Wednesday, July 23, 2014	NA	-	7/23/2014 6:00	7/24/2014 9:30	27.5	840	0.0	NA
Thursday, July 24, 2014	NA	-	7/24/2014 9:30	7/25/2014 9:15	23.8	840	0.0	NA
Friday, July 25, 2014	NA	-	7/25/2014 9:15	7/26/2014 15:15	30.0	840	0.0	NA
Saturday, July 26, 2014	NA	-	7/26/2014 15:15	7/27/2014 7:00	15.8	840	0.0	NA

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: [signature] Title: Env Specialist Date: 7/29/14

Weekly Volume Summary - Week 66 (7-20-14 through 7-26-14).xlsx

MSD 028909

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/21/2014 6:00:00 AM	7/20/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

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Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/29/14

MSD Daily Flow Reading, ending 7-21-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/22/2014 6:20:00 AM	7/21/2014 6:00:00 AM	24.3 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env Specialist *Date:* 7/29/14

MSD Daily Flow Reading, ending 7-22-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/23/2014 6:00:00 AM	7/22/2014 6:20:00 AM	23.7 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

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Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. specialist *Date:* 7/29/14

MSD Daily Flow Reading, ending 7-23-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/24/2014 9:30:00 AM	7/23/2014 6:00:00 AM	27.5 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

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Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/29/14

MSD Daily Flow Reading, ending 7-24-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/25/2014 9:15:00 AM	7/24/2014 9:30:00 AM	23.8 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment	
Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

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Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/29/14

MSD Daily Flow Reading, ending 7-25-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/26/2014 3:15:00 PM	7/25/2014 9:15:00 AM	30.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Boucher

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Boucher *Name:* Derek Boucher

Title: Env specialist *Date:* 7/29/14

MSD Daily Flow Reading, ending 7-26-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/27/2014 7:00:00 AM	7/26/2014 3:15:00 PM	15.8 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment	
Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Boucher

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Boucher *Name:* Derek Boucher

Title: Env. Specialist *Date:* 7/29/14

MSD Daily Flow Reading, ending 7-27-2014

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Wednesday, July 30, 2014 1:20 PM
To: Doug Mendoza; 'Merrigan, Jessie (LG)'; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; 'Theerman, Jeff (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie Freeman
Subject: RE: Bridgeton Landfill Weekly Report

Doug, we agree with you and we have communicated our concerns to Pace about this. The revised report for 60173039 includes the following case narrative on page 32:.

> "Pace Project 60173034001-316-349 and 60173039001-316-350, Bridgeton Landfill TSS batches 48870 and 48871 These batches were part of a data review performed due to a client request. It was noted during the review that the initial volumes used were not properly recorded in software that performs the final calculation. All of the initial volumes were at the default volume. The cause was a human error not caught by our peer review process. We have revised the initial volumes and revised the results accordingly. We have also addressed the process error.
>
> The results have been revised to the following for Total Suspended Solids: 60173034001-316-349 4,760 mg/L 60173039001-316-350 4,900 mg/L
>
> Please accept our earnest apologies for the situation. One of Pace's most fundamental values is to supply only the highest quality data possible to our clients and it is our sincere hope that this isolated incident has not diminished your faith in our abilities to do so.

By way of observation and not necessarily an excuse, the volume of data and the short turn-around times for the project do increase the opportunity for human error and oversight to occur, which was the case in this instance. That does not take away from the fact that data credibility is absolutely critical. We have and will continue to institute process and review changes and work with Pace to eliminate data errors.

Ed Galbraith

Senior Environmental Scientist
Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

resourceful. naturally. BARR

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Wednesday, July 30, 2014 1:01 PM

Doug Mendoza

From: Doug Mendoza
Sent: Wednesday, July 30, 2014 1:01 PM
To: 'Ed Galbraith'; 'Merrigan, Jessie (LG)'; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; 'Theerman, Jeff (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie Freeman
Subject: RE: Bridgeton Landfill Weekly Report

Thank you for the data, Ed.

Regarding the revised TSS values, it is disturbing that when reanalyzing the BOD for 316-349 the laboratory simply included a revised value for TSS without including an explanation to Bridgeton Landfill of the reason, or even noting it on the cover letter. Similarly for 316-350, it appears that no corrected TSS value would have been provided had I not requested that the original TSS value be investigated further. The accuracy of the lab results is quite important for decisions that have to be made, besides being important to proper billing for disposal of the leachate. We expect that Bridgeton Landfill will be holding appropriate conversations with the laboratory.

Doug Mendoza
MSD Industrial Pretreatment Manager

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Notes on the data:

- As noted last week, Pace report 60173034 (316-349) reported a BOD value of 93,000 ppm and a COD value of 56,000 ppm, because of dissolved oxygen depletion of the dilution water blank. A revised report is included with an amended value of 29,000 mg/l for BOD. Although outside of hold time, this value is more consistent with overall data.
- Pace report 60173034 (316-349) reported a revised TSS value of 4760. The original report posted an analysis that was missing the initial volume for the calculation.

Doug Mendoza

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Sent: Wednesday, July 30, 2014 11:56 AM
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- Pace report 60173034 (316-349) reported a revised TSS value of 4760. The original report posted an analysis that was missing the initial volume for the calculation.
- Pace report 60173039 (316-350) reported a revised TSS value of 4900. Similar to 316-349 the original report posted an analysis that was missing the initial volume for the calculation.
- As noted last week, Pace report 60172716 reported an Oil and Grease value of 15.8. Pace analyzed extra sample material and provided a revised value of 245 mg/l. The result is somewhat low, although Oil and Grease levels have been trending downward for the last three months.
- Monthly TCLP sample (July) reported Oil and Grease value at 123 mg/l which is significantly low, however as noted, Oil and Grease has been trending lower.
- Pace report 60173705 (316-359) indicated high outliers for dissolved aluminum and dissolved zinc.
- Pace report 60173705 (316-360) indicated high outliers for a number of parameters including TSS at 7,320 mg/l, and a number of dissolved metals, including aluminum, arsenic, iron lead, nickel and zinc. Some of the outliers are significant. We have no explanation for this; the sample as a whole appears to be an exception.
- Samples 316-361 and 316-362 had slightly high outliers for total arsenic.
- Sample 316-364 had a high outlier for total lead.
- High outliers for dissolved aluminum were seen in samples 316-362 through 316-365.
- There are a number of low outliers for MIBK and 1,2,4-Trichlorobenzene, however low J values are common for these and do not appear to be of concern.

Please let me know if you have any questions.

Table 1
General Parameters and Metals
May - July 2014
Bridgeton Landfill

					Biochemical Oxygen Demand (5-day)	Chemical Oxygen Demand	Nitrogen, ammonia as N	Oil and Grease	Oil and Grease - Silica gel cleanup	pH	pH, field	Solids, total suspended
					NA	NA	NA	NA	NA	NA	NA	NA
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-365	7/20/2014	Pace	Validated	60174041	27900	51900	590	843	9.6	5.4	5.61	3420
316-364	7/19/2014	Pace	Validated	60174039	27900	54900	593	825	13.0	5.4	5.67	3720
316-363	7/18/2014	Pace	Validated	60173965	31000	53400	552	804	10.4	5.4	5.66	4080
316-362	7/17/2014	Pace	Validated	60173886	31100	55700	575	824	10	5.3	5.69	3700
316-361	7/16/2014	Pace	Validated	60173798	31400	50100	577	826	7.9 *	5.2	5.66	5060
316-360	7/15/2014	Pace	Validated	60173705	29200	49900	573	759	12.4	5.4	5.75	7320
316-359	7/14/2014	Pace	Validated	60173693	32900	52900	602	501	8.8	5.3	5.69	3320
316-350	7/04/2014	Pace	Validated	60173039	34200	56600	590	731	15.7	5.2	5.59	4900
316-349	7/03/2014	Pace	Validated	60173034	93000 **	56000	539	624	11.6	5.3	5.59	4760
316-349	7/03/2014	Pace	Validated	60173034	29000 h	--	--	--	--	--	--	--

MSD 028920

Table 1
General Parameters and Metals
May - July 2014
Bridgeton Landfill

					Aluminum	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Cobalt	Copper
					Total	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-365	7/20/2014	Pace	Validated	60174041	11.5	ND	1.26	ND	ND	0.251	ND	0.0676
316-364	7/19/2014	Pace	Validated	60174039	13.2	ND	1.2	ND	ND	0.252	ND	0.0826
316-363	7/18/2014	Pace	Validated	60173965	8.98	ND	1.25	ND	ND	0.245	ND	0.0670
316-362	7/17/2014	Pace	Validated	60173886	6.71	ND	1.38	ND	ND	0.186	0.0401	ND
316-361	7/16/2014	Pace	Validated	60173798	7.58	ND	1.35	ND	ND	0.196	0.0419	ND
316-360	7/15/2014	Pace	Validated	60173705	5.6	ND	1.04	ND	ND	0.21	0.0305	ND
316-359	7/14/2014	Pace	Validated	60173693	7.62	0.0682	1.26	ND	ND	0.261	0.0449	ND
316-350	7/04/2014	Pace	Validated	60173039	2.92	ND	1.16	ND	ND	0.234	0.0335	ND
316-349	7/03/2014	Pace	Validated	60173034	2.68	ND	0.978	ND	ND	0.209	0.0284	ND
316-349	7/03/2014	Pace	Validated	60173034	--	--	--	--	--	--	--	--

MSD 028921

Table 1
General Parameters and Metals
May - July 2014
Bridgeton Landfill

					Iron	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
					Total	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-365	7/20/2014	Pace	Validated	60174041	875	0.153	ND	0.145	ND	ND	ND	6.37
316-364	7/19/2014	Pace	Validated	60174039	880	0.219	ND	0.136	ND	ND	ND	5.89
316-363	7/18/2014	Pace	Validated	60173965	863	0.138	0.0128	0.124	ND	ND	ND	5.52
316-362	7/17/2014	Pace	Validated	60173886	746	0.154	0.0160	0.107	ND	ND	ND	5.69
316-361	7/16/2014	Pace	Validated	60173798	805	0.166	0.0183	0.106	ND	ND	ND	6.54
316-360	7/15/2014	Pace	Validated	60173705	676	0.11	0.0095	0.11	ND	ND	ND	5.98
316-359	7/14/2014	Pace	Validated	60173693	890	0.13	ND	0.136	ND	ND	ND	7.49
316-350	7/04/2014	Pace	Validated	60173039	622	0.101	ND	0.108	ND	ND	ND	6.72
316-349	7/03/2014	Pace	Validated	60173034	518	0.0852	ND	0.0953	ND	ND	ND	6.08
316-349	7/03/2014	Pace	Validated	60173034	--	--	--	--	--	--	--	--

MSD 028922

Table 2
VOCs and SVOCs
May - July 2014
Bridgeton Landfill

					Benzene
Location	Date	Lab Name	Data Status	Lab Report	ug/l
316-365	7/20/2014	Pace	Validated	60174041	ND
316-364	7/19/2014	Pace	Validated	60174039	ND
316-363	7/18/2014	Pace	Validated	60173965	ND
316-362	7/17/2014	Pace	Validated	60173886	ND
316-361	7/16/2014	Pace	Validated	60173798	ND
316-360	7/15/2014	Pace	Validated	60173705	ND
316-359	7/14/2014	Pace	Validated	60173693	ND

MSD 028923

OB-316-364 — *Bridgeton Landfill*

Fill Data

Fill Start Date	7/18/2014
Fill Start Time	19:30
Fill Stop Date	7/19/2014
Fill Stop Time	00:23
Process Battery	316 AST

Processing Data

Process Start Date	7/18/2014
Process Start Time	19:51
Process Stop Date	7/19/2014
Process Stop Time	04:24

Approval Data

Approval Details	NAL13026-1583
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 22.10 ft.

Tuesday, July 29, 2014

OB-316-365 *Bridgeton Landfill*

Fill Data

Fill Start Date	7/19/2014
Fill Start Time	19:08
Fill Stop Date	7/20/2014
Fill Stop Time	00:50
Process Battery	316 AST

Processing Data

Process Start Date	7/19/2014
Process Start Time	20:15
Process Stop Date	7/20/2014
Process Stop Time	04:28

Approval Data

Approval Details	NAL13026-1584
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 22.08 ft.

Tuesday, July 29, 2014

OB-316-366 *Bridgeton Landfill*

Fill Data

Fill Start Date	7/20/2014
Fill Start Time	19:18
Fill Stop Date	7/21/2014
Fill Stop Time	00:45
Process Battery	316 AST

Processing Data

Process Start Date	7/20/2014
Process Start Time	20:14
Process Stop Date	7/21/2014
Process Stop Time	03:34

Approval Data

Approval Details	NAL13026-1585
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.99 ft.

Tuesday, July 29, 2014

OB-316-367 Bridgeton Landfill

Fill Data

Fill Start Date	7/21/2014
Fill Start Time	19:24
Fill Stop Date	7/22/2014
Fill Stop Time	01:25
Process Battery	316 AST

Processing Data

Process Start Date	7/21/2014
Process Start Time	21:20
Process Stop Date	7/22/2014
Process Stop Time	03:25

Approval Data

Approval Details	NAL13026-1588
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 22.54 ft.

Tuesday, July 29, 2014

OB-316-368 *Bridgeton Landfill*

Fill Data

Fill Start Date	7/22/2014
Fill Start Time	19:10
Fill Stop Date	7/23/2014
Fill Stop Time	01:00
Process Battery	316 AST

Processing Data

Process Start Date	7/22/2014
Process Start Time	20:30
Process Stop Date	7/23/2014
Process Stop Time	04:30

Approval Data

Approval Details	NAL13026-1589
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

fill height 21'

Tuesday, July 29, 2014

OB-316-369 Bridgeton Landfill

Fill Data

Fill Start Date	7/23/2014
Fill Start Time	19:05
Fill Stop Date	7/24/2014
Fill Stop Time	00:52
Process Battery	316 AST

Processing Data

Process Start Date	7/23/2014
Process Start Time	20:00
Process Stop Date	7/24/2014
Process Stop Time	04:30

Approval Data

Approval Details	NAL 13026-1591
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

fill height 22'

Tuesday, July 29, 2014

OB-316-370 *Bridgeton Landfill*

Fill Data

Fill Start Date	7/24/2014
Fill Start Time	19:32
Fill Stop Date	7/25/2014
Fill Stop Time	01:40
Process Battery	316 AST

Processing Data

Process Start Date	7/24/2014
Process Start Time	20:30
Process Stop Date	7/25/2014
Process Stop Time	04:30

Approval Data

Approval Details	NAL 13026-1593
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

fill height 22'

Tuesday, July 29, 2014

OB-316-371 — *Bridgeton Landfill*

Fill Data

Fill Start Date	7/25/2014
Fill Start Time	18:45
Fill Stop Date	7/25/2014
Fill Stop Time	23:45
Process Battery	316 AST

Processing Data

Process Start Date	7/25/2014
Process Start Time	19:45
Process Stop Date	7/26/2014
Process Stop Time	04:30

Approval Data

Approval Details	NAL 13026-1596
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

fill height 20'

Tuesday, July 29, 2014

Doug Mendoza MSD

From: Martin Blecha
Sent: Monday, July 28, 2014 9:53 AM
To: Catherine Politte; Mike Townley; Doug Mendoza; Steve Grace; Brian G. Gibson
Cc: John Lodderhose; Martin Blecha; Buffy Santel
Subject: Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 07/20/2014 to 07/26/2014.

Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 07/20/2014 to 07/26/2014.

7/20 –217,500 gallons
7/21 –217,500 gallons
7/22 –217,500 gallons
7/23 –217,500 gallons
7/24 –217,500 gallons
7/25 –217,500 gallons
7/26– 217,500 gallons
Total = 1,522,500 gallons

Martin J. Blecha
Metropolitan St. Louis Sewer District
Environmental Engineering Associate
10 E. Grand Ave.
St. Louis, MO. 63147-2913.
Office Phone (314)-436-8716

Doug Mendoza

From: Doug Mendoza
Sent: Monday, July 28, 2014 7:50 AM
To: 'Ed Galbraith'
Subject: RE: Bridgeton Landfill Weekly Report - TSS result for 316-350?

Thank you, Ed, for the revised data for batch 316-349.

The laboratory did not give any reason for the reanalysis and revised TSS result. The revised TSS result raises the question of the validity of the TSS result for the batch that immediately followed 316-349, which was 316-350.

316-349's original TSS was only 238 mg/L, and order of magnitude below typical values. The revised TSS is right at typical values. The original Bridgeton Landfill weekly report made a general reference to low outliers due to the transfer of biomass materials, which we assumed also included the low TSS values for 316-349 and 316-350. However, given that the laboratory changed 316-349's TSS result unsolicited, and simply added a note that it was a revised, result, one wonders if they caught a data transcription error and corrected it. Does a similar situation exist for the TSS result for 316-350?

- Please have the laboratory check the TSS result for 316-350, and either correct the result or verify that it correctly represents the analyst's data.

Doug Mendoza
MSD Industrial Pretreatment Manager

From: Ed Galbraith [mailto:EGalbraith@barr.com]
Sent: Friday, July 25, 2014 11:11 AM
To: Doug Mendoza; 'Merrigan, Jessie (LG)'; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; 'Theerman, Jeff (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie Freeman
Subject: RE: Bridgeton Landfill Weekly Report

Attached is the revised report for 316-349. Note that both the BOD and the TSS were revised and there is a note of explanation. We will revise the reporting spreadsheets next week. Let me know if you have any questions.

Ed Galbraith

Senior Environmental Scientist
Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

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CB 8.07

Mr. Chris Bulmahn
Associate Engineer
Metropolitan St. Louis Sewer District
Division of Environmental Compliance
10 East Grand Avenue
St. Louis, MO 63147-2913

July 25, 2014

Dear Mr. Bulmahn:

Second Quarter 2014 Self-Monitoring Report,
Bridgeton Landfill, LLC. Discharge Permit No. 1003803000 - Interim

Bridgeton Landfill, LLC. is submitting the Second Quarter 2014 leachate sampling and analysis report for the Bridgeton Landfill. Since January 6, 2014 Bridgeton landfill has had no leachate discharge on-site to MSD. Since January 6, 2014, leachate has been treated on-site and then hauled off-site.

On May 28 and 29, 2014 a composite sample of treated leachate was collected from Tank 2 for analysis of radioactive constituents, as required by the Bridgeton Landfill Metropolitan St. Louis Sewer District (MSD) Wastewater Discharge Permit No. 1003803000 - Interim. Per a March 21, 2014 phone conversation between Ed Galbraith of Barr Engineering and Missouri Department of Natural Resources, a composite sample of treated leachate was collected for Total Dissolved Solids (TDS) and Total Suspended Solids (TSS) concurrent with the composite sample for radioactive constituents. The samples collected for analysis of radioactive constituents, TDS, and TSS were analyzed by Eberline Services located in Oak Ridge, Tennessee.

The results indicate that the analyzed parameters are within permitted limits.

The MSD Self-Monitoring Report Forms are provided as Attachment 1. Attachment 2 provides analytical results for constituents analyzed by Eberline Services. Attachment 3 presents monthly leachate volume records for the Bridgeton Landfill for January, February, and March 2014.

Please contact Derek Bouchard,. Environmental Specialist at 314-302-3634 if you have any questions or comments.

Sincerely,

HERST & ASSOCIATES, INC.

Ward Herst

for Matt Stewart
Project Geologist

Ward Herst

Ward E. Herst
Managing Partner

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JUL 28 2014
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4631 North St. Peters Parkway
St. Charles, Missouri 63304

Telephone (636) 939-9111
Fax (636) 939-9757

METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL USER SELF MONITORING REPORT

PART I: IDENTIFYING INFORMATION

Company Name: BRIDGETON LANDFILL LLC

Permit No: 1003803000 - Interim Effective Date: 5/1/2014 Expiration Date: 12/31/2014

Premise Address: 13570 St. Charles Rock Road, Bridgeton, MO 63044

Monitoring Period: ☐ (JAN-MAR) ☑ (APR-JUNE) ☐ (JULY-SEPT) ☐ (OCT-DEC)

Samples Collected By: **Matt Stewart, Herst & Associates, Inc.**

Analyses Performed By: **Eberline Services**

PART II: ANALYTICAL RESULTS OF SELF MONITORING

MSD SAMPLE POINT REFERENCE NUMBERS ⇨		Tank 2					008	
DATES ON WHICH SAMPLES WERE COLLECTED ⇨		~~3/28 - 29/2014~~ 5/28 - 29/2014 per COC. CB					6-30-14	
TIMES AT WHICH SAMPLES WERE COLLECTED ⇨		1141, 1738, 0740, 1140					6:00 Am	
PARAMETER	LIMIT	RECORD SAMPLE TYPES (G, C, M OR E) AND RESULTS BELOW (G=grab, C=composite, M=measured flow, E=estimated flow)						UNITS
pH Acidic (<7)	5.5	G	5.70				∅	SU
pH Basic (≥7)	11.5	G						SU
Temperature	60	G	32.4				per attached report. CB	°C
Total Dissolved Solids	***	C	35,580					mg/L
Total Suspended Solids	***	C	4,860					mg/L
Gross Alpha	***	C	< MDA					pCi/L
Gross Beta	***	C	441 ± 169					pCi/L
Gross Gamma	***	C	509 ± 63.9					pCi/L
Radium – 226	***	C	< MDA					pCi/L
Radium – 228	***	C	< MDA					pCi/L
Uranium (Total)	***	C	< MDA					µg/L

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Notes:
PA = Previously analyzed. Per 3/5/2014 Correspondence from Doug Mendoza of MSD, all necessary pollutants except for radioactive constituents have been previously sampled and analyzed during the First Quarter 2014 Monitoring Period from batches discharged on-site. Analytical results for previous First Quarter 2014 samples have already been submitted to MSD.
< MDA = Result is less than the Minimum Detectable Activity
NR = Not required during this monitoring event

PART III: SPECIAL CERTIFICATION STATEMENTS

Based on the special conditions contained in your discharge permit you may be required to certify the following. Please review your permit and **PLACE YOUR INITIALS ON THE LINES NEXT TO THE CERTIFICATIONS.**

NONE

PART IV: GENERAL CERTIFICATION STATEMENTS

B	DISCHARGE MONITORING REPORT CERTIFICATION
	All permittees must sign and complete the information below: I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Print or type name of signing official: Derek Bouchard Title: Environmental Specialist Telephone: 314-302-3634 Signature: Derek Bouchard Date: 7/25/14

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2014

Bridgeton Landfill LLC
Monthly Leachate Outfall Report

8/7/2014 Filed in 15.4

Month	Net Meter Reading	Precipitation Inches	Date of Reading	Gallons	Average Daily Discharge (Gal)	Equivalent Cubic Feet	Equivalent 100 Cubic Feet
January	1,842,366*	1.67	2/1/2014	153,280	4,945	20,491.98	204.92
February	1,842,366	1.48	3/1/2014	0	0	0.00	0.00
March	1,910,653*	1.55	3/31/2014	0	0	0.00	0.00
April	2,025,839*	8.38	5/1/2014	0	0	0.00	0.00
May	2,026,978*	3.98	6/1/2014	0	0	0.00	0.00
June	2,026,994*	5.26	7/1/2014	0	0	0.00	0.00
July							
August							
September							
October							
November							
December							

Note:
*Due to Phantom Flow Readings at Flow Meter 184,628 gallons have been removed from flow total (see daily logs)
Discharge to MO River Plant ceased in February for UV disinfection period. Plan to resume on 11/1/14 if permitted.

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METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL USER RADIOACTIVE MATERIALS DISCHARGE REPORT

Part I: **Identifying Information**

Company Name: Bridgeton Landfill, LLC

Permit No.: 1003803000-Iterim

Premise Address: 13570 St. Charles Rock Road, Bridgeton, MO 63044

Monitoring Period: ☐ (Jan-Mar) ☒ (Apr-Jun) ☐ (July-Sept) ☐ (Oct-Dec)

Part II: **Record of Disposal of Radioactive Materials to the Sewer System**

Radionuclide	Activity Discharged (Picocuries)
Gross Alpha	< MDA
Gross Beta	2.88×10^{10}
Gross Gamma	3.33×10^{10}
Radium - 226	< MDA
Radium - 228	< MDA
Total Activity Discharged :	6.21×10^{10}

Notes:
< MDA: Less than minimum detectable activity.

Part III: **Certification Statements**

Place your initials in the box under item A.
Everyone must complete the information under items A & B and sign this report.

A. **Certification of Compliance with Federal regulations**

DKB I certify that to the best of my knowledge & belief, all requirements of 10 CFR Part 20, Appendix B, Table 3 governing disposal by release into sanitary sewage for material regulated by the Nuclear Regulatory Commission have been met for the period covered by this report.

B. **Radioactive Materials Discharge Report Certification**

I certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted is , to the best of my knowledge and belief, true c, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print or type name of signing official: Derek Bouchard

Title: Environmental Specialist Telephone: 314-302-3634

Signature: Derek Bouchard Date: 7/25/14

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Attachment 2

Calculation of Hauled Activity

In accordance with Special Condition II.D.2 of the Bridgeton Landfill MSD Permit (Permit 1003803000 - Interim), each quarterly discharge report shall specify the activity discharged to the sewer system by radionuclide during the reporting period. Since January 7, 2014 the Bridgeton Landfill has not discharged leachate to the sewer system. Since no leachate was discharged to the sewer system during the Second Quarter 2014, a calculation of activity hauled to MSD facilities by radionuclide during the reporting period. The following methodology was used to calculate the activity hauled from the Bridgeton Landfill during the Second Quarter 2014 monitoring period.

To determine the activity hauled for each radionuclide, the activity concentration for the reporting period is multiplied by the total volume hauled during the reporting period:

$$\begin{matrix} \textit{Hauled} \\ \textit{Activity} \end{matrix} = \begin{matrix} \textit{Activity} \\ \textit{Concentration} \end{matrix} \times \begin{matrix} \textit{Hauled} \\ \textit{Volume} \end{matrix}$$

As provided in Attachment 3, the following radionuclide activity concentrations were reported from samples collected from Tank 2 during the Second Quarter 2014 monitoring period.

Constituent	Result	Units
Gross Alpha	< MDA	pCi/L
Gross Beta	441 ± 169	pCi/L
Gross Gamma	509 ± 63.9	pCi/L
Radium – 226	< MDA	pCi/L
Radium – 228	< MDA	pCi/L

Notes:
1 pCi = 1×10^{-12} Ci
< MDA = Less than Minimum Detectable Activity

As provided in Attachment 4, the following monthly volumes were hauled from the Bridgeton Landfill to MSD facilities during the Second Quarter 2014 monitoring period:

- April 2014: 5,175,000 gallons
- May 2014: 6,090,000 gallons
- June 2014: 6,000,000 gallons

Summation of the monthly volumes provides the total volume hauled from the Bridgeton Landfill to MSD facilities during the Second Quarter 2014 period:

$$5{,}175{,}000\ gal + 6{,}090{,}000\ gal + 6{,}000{,}000\ gal = 17{,}265{,}000\ gal$$

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Telephone (636) 938-9111
Fax (636) 930-0456

Because activity concentration results are presented in pCi/L, the hauled volume is converted from units of gallons to liters prior to calculation of hauled activity:

$$17{,}265{,}000\ gal \times \frac{3.785\ L}{gal} = 65{,}348{,}025\ \text{L}$$

Therefore, to determine the hauled activity attributable to Gross Beta, multiply the activity concentration by the hauled volume:

$$\frac{441\ pCi}{L} \times 65{,}348{,}025\ L = 2.88 \times 10^{10}\ pCi$$

Similarly, for Gross Gamma:

$$\frac{509\ pCi}{L} \times 65{,}348{,}025\ L = 3.33 \times 10^{10}\ pCi$$

No calculation was performed for Gross Alpha, Radium-226, or Radium-228 since the reported values were less than the Minimum Detectable Activity.

Summation of the two (2) results yields the total hauled activity for the Second Quarter 2014 reporting period:

$$2.88 \times 10^{10}\ pCi + 3.33 \times 10^{10}\ pCi = 6.21 \times 10^{10}\ pCi$$

Notes:

1. On May 6, 2014, MSD issued Bridgeton Landfill's revised permit, which includes hauled waste loading as a new outfall subject to monitoring and reporting requirements. Prior to this, only leachate discharged to the lift station to the Missouri River Wastewater Treatment Plant (MO River) was subject to quarterly reporting. During 2013 and the First Quarter 2014, discharges to MO River were greatly reduced and hauled waste volumes were not included in the radionuclide activity between this quarter and the previous five quarters should take into account the difference in volume.

2. Gross Beta. The original and duplicate results are 441,+/-179 pCi/l and 700,+/-219 pCi/l, respectively. These results are consistent with the previous four quarterly samples. A previous Eberline Report, 13-06015, demonstrated a strong correlation between gross beta and potassium-40 (K40) through analysis of elemental potassium. Although no additional evaluation was conducted on this sample, the level is consistent with past findings that attributed gross beta activity largely to K40. K40 is a naturally occurring radionuclide with a very low dose coefficient for ingestion.

3. Gross Gamma. The original and duplicate results are 509,+/-96.4 pCi/l and 436,+/- 89.3 pCi/l, respectively. These results are identical to K40, which indicates that 100 percent of the gross gamma activity is attributable to K40, a naturally occurring radionuclide with a very low dose coefficient for ingestion.

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EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD
OAK RIDGE, TENNESSEE 37830
PHONE (865) 481-0683
FAX (865) 483-4621

EBS-OR-37461

June 27, 2014

Matt Stewart
Herst & Associates, Inc.
4631 N St. Peters Parkway
St. Charles, MO 63304

CASE NARRATIVE
Work Order # 14-05138-OR

SAMPLE RECEIPT

This work order contains one water sample received 05/30/2014. This sample was analyzed for Total Uranium by KPA, Radium-226/228, Gross Alpha/Beta, Total Dissolved Solids, Total Suspended Solids and by Gamma Spectroscopy.

CLIENT ID	LAB ID
TANK 2	14-05138-04

ANALYTICAL METHODS

Total Uranium was analyzed using Method ASTM D5174 Modified. Radium-226 was analyzed using EPA Method 903.0 Modified. Radium-228 was analyzed using EPA Method 904.0 Modified. Gross Alpha/Beta was performed using EPA Method 900.0 Modified. Total Dissolved Solids was analyzed by Standard Methods 2540C. Total Suspended Solids was analyzed by Standard Methods 2540D. Gamma Spectroscopy was performed using EPA Method 901.1 Modified.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

TOTAL URANIUM

A volumetric aliquot of the sample was removed and placed into a 20 ml glass vial. Sample was digested and oxidized several times. The digested sample was diluted to a known volume and an aliquot was removed from this dilution. This aliquot was complexed with Chem-Check, Ura-Plex and subsequently analyzed using a kinetic phosphorescent analyzer.

Sample demonstrated acceptable results for all Total Uranium analyses. Chemical recovery was acceptable for all samples. The Total Uranium method blank demonstrated acceptable results. Results for the Total Uranium duplicate demonstrated a high relative percent difference and normalized difference. Results for the low and high calibration range Total Uranium laboratory control sample demonstrated an acceptable percent recovery.

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ANALYTICAL RESULTS CONTINUED

RADIUM-226

Sample was prepared by removing a representative aliquot followed by mixed acid digestions as appropriate. This was followed by selective sulfate precipitations of the Radium. Sample was then mounted by semi-micro-precipitations onto micro-porous filters. Sample was counted by alpha spectroscopy using an energy specific region of interest for Radium-226. Chemical recovery was calculated by the use of a Barium-133 tracer, which was determined by HPGe gamma spectroscopy.

Sample demonstrated acceptable results for all Radium-226 analyses. Chemical recovery was acceptable for all samples. The Radium-226 method blank demonstrated acceptable results. Results for the Radium-226 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Radium-226 laboratory control sample demonstrated an acceptable percent recovery.

RADIUM-228

Following alpha spectroscopy analysis of Radium-226, Barium/Radium Sulfate precipitates were re-dissolved and time was allowed for sufficient ingrowth of the Actinium-228 daughter. After ingrowth, Actinium-228 was selectively precipitated. Precipitates were filtered and beta emissions for Actinium-228 were then counted on a gas proportional counter. Chemical recovery was determined by the use of a Barium-133 tracer, the activity of which was determined by HPGe gamma spectroscopy and an elemental Yttrium carrier by gravimetric measurements. The product of these two recoveries was used to calculate chemical yield.

Sample demonstrated acceptable results for all Radium-228 analyses. Chemical recovery was acceptable for all samples. The Radium-228 method blank demonstrated acceptable results. Results for the Radium-228 duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Radium-228 laboratory control sample demonstrated an acceptable percent recovery.

GROSS ALPHA & BETA

Samples were prepared by evaporation of representative volumetric aliquots acidified with HNO_3. Reduced samples were then transferred to steel planchets for final evaporation to dryness and flaming. Samples were then counted on a gas proportional counter. Results were corrected as required for inherent self-absorption based on residual mass present.

Sample demonstrated acceptable results for all Gross Alpha and Beta analyses. Due to high total solids, sample results demonstrated slightly high detection limits. The Gross Alpha and Beta method blank demonstrated acceptable results. Results for the Gross Alpha and Beta duplicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Gross Alpha and Beta laboratory control sample demonstrated an acceptable percent recovery.

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GAMMA SPECTROSCOPY

Sample for Gamma Spectroscopy analysis was prepared by transferring a known aliquot of the sample to a standard geometry container. Sample was counted on a High Purity Germanium (HPGe) gamma ray detector.

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ANALYTICAL RESULTS CONTINUED

GAMMA SPECTROSCOPY CONTINUED

Sample demonstrated acceptable results for all gamma-emitting radionuclides as reported. Gross Gamma results were reported from positive Gamma activity. The method blank demonstrated acceptable results for all radionuclides as reported. Results for the Actinium-228 and Bismuth-214 replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Potassium-40 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

TOTAL DISSOLVED SOLIDS (TDS)

A volumetric aliquot of the sample was taken and filtered through a tared 0.45µm filter media into a tared 250ml beaker. Sample was then dried on a hot plate and was allowed to cool. The TDS content was determined by reweighing the tared beaker.

Sample demonstrated 35,580.0 mg/L of Total Dissolved Solids.

TOTAL SUSPENDED SOLIDS (TSS)

A volumetric aliquot of the sample was taken and filtered through tared 0.45µm filter media. Filter media was then dried and reweighed for determination of TSS content.

Sample demonstrated 4,860.0 mg/L of Total Suspended Solids.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

M.R. McDougall
Laboratory Manager

Date: 6/27/2014

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Sy 08/28/14

MSD 028943

Eberline Analytical
Final Report of Analysis

Report To:
Matt Stewart
Herst & Associates, Inc.
4631 N St Peters Pkwy
St Charles, MO 63304

Work Order Details:
SDG: 14-05138
Purchase Order: PO4305670
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-05138-01	LCS	KNOWN	05/30/14 00:00	5/30/2014	6/16/2014	14-05138	Gross Alpha	EPA 900.0 Modified	2.68E+02	1.15E+01			pCi/l
14-05138-01	LCS	SPIKE	05/30/14 00:00	5/30/2014	6/16/2014	14-05138	Gross Alpha	EPA 900.0 Modified	2.81E+02	7.56E+00	3.16E+01	4.61E-01	pCi/l
14-05138-02	MBL	BLANK	05/30/14 00:00	5/30/2014	6/16/2014	14-05138	Gross Alpha	EPA 900.0 Modified	-5.28E-02	8.96E-02	8.98E-02	2.52E-01	pCi/l
14-05138-03	DUP	TANK 2	05/29/14 11:40	5/30/2014	6/16/2014	14-05138	Gross Alpha	EPA 900.0 Modified	-1.91E+01	5.92E+01	5.93E+01	1.62E+02	pCi/l
14-05138-04	DO	TANK 2	05/29/14 11:40	5/30/2014	6/16/2014	14-05138	Gross Alpha	EPA 900.0 Modified	1.01E+02	8.39E+01	8.46E+01	1.45E+02	pCi/l
14-05138-01	LCS	KNOWN	05/30/14 00:00	5/30/2014	6/16/2014	14-05138	Gross Beta	EPA 900.0 Modified	3.01E+02	9.02E+00			pCi/l
14-05138-01	LCS	SPIKE	05/30/14 00:00	5/30/2014	6/16/2014	14-05138	Gross Beta	EPA 900.0 Modified	2.86E+02	6.24E+00	4.00E+01	9.10E-01	pCi/l
14-05138-02	MBL	BLANK	05/30/14 00:00	5/30/2014	6/16/2014	14-05138	Gross Beta	EPA 900.0 Modified	7.08E-02	2.67E-01	2.67E-01	5.65E-01	pCi/l
14-05138-03	DUP	TANK 2	05/29/14 11:40	5/30/2014	6/16/2014	14-05138	Gross Beta	EPA 900.0 Modified	7.00E+02	1.96E+02	2.19E+02	3.52E+02	pCi/l
14-05138-04	DO	TANK 2	05/29/14 11:40	5/30/2014	6/16/2014	14-05138	Gross Beta	EPA 900.0 Modified	4.41E+02	1.69E+02	1.79E+02	3.12E+02	pCi/l
14-05138-01	LCS	KNOWN	05/30/14 00:00	5/30/2014	6/11/2014	14-05138	Radium-226	EPA 903.0 Modified	1.02E+01	4.68E-01			pCi/l
14-05138-01	LCS	SPIKE	05/30/14 00:00	5/30/2014	6/11/2014	14-05138	Radium-226	EPA 903.0 Modified	1.04E+01	1.34E+00	2.58E+00	2.50E-01	pCi/l
14-05138-02	MBL	BLANK	05/30/14 00:00	5/30/2014	6/11/2014	14-05138	Radium-226	EPA 903.0 Modified	5.80E-01	3.61E-01	3.81E-01	2.90E-01	pCi/l
14-05138-03	DUP	TANK 2	05/29/14 11:40	5/30/2014	6/11/2014	14-05138	Radium-226	EPA 903.0 Modified	3.30E-02	6.27E-02	6.30E-02	1.16E-01	pCi/l
14-05138-04	DO	TANK 2	05/29/14 11:40	5/30/2014	6/11/2014	14-05138	Radium-226	EPA 903.0 Modified	-9.71E-03	2.96E-02	2.96E-02	8.05E-02	pCi/l
14-05138-01	LCS	KNOWN	05/30/14 00:00	5/30/2014	6/19/2014	14-05138	Radium-228	EPA 904.0 Modified	7.88E+00	4.02E-01			pCi/l
14-05138-01	LCS	SPIKE	05/30/14 00:00	5/30/2014	6/19/2014	14-05138	Radium-228	EPA 904.0 Modified	6.63E+00	1.61E+00	2.20E+00	1.74E+00	pCi/l
14-05138-02	MBL	BLANK	05/30/14 00:00	5/30/2014	6/19/2014	14-05138	Radium-228	EPA 904.0 Modified	-8.43E-01	6.35E-01	6.63E-01	1.46E+00	pCi/l
14-05138-03	DUP	TANK 2	05/29/14 11:40	5/30/2014	6/19/2014	14-05138	Radium-228	EPA 904.0 Modified	4.62E-01	4.19E-01	4.32E-01	8.40E-01	pCi/l
14-05138-04	DO	TANK 2	05/29/14 11:40	5/30/2014	6/19/2014	14-05138	Radium-228	EPA 904.0 Modified	6.21E-01	4.75E-01	4.95E-01	9.39E-01	pCi/l
14-05138-01	LCS	KNOWN	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Total Uranium	ASTM D5174 Modified	8.00E+00	1.60E-01			ug/l
14-05138-01	LCSH	KNOWN-H	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Total Uranium	ASTM D5174 Modified	2.00E+02	4.00E+00			ug/l
14-05138-01	LCS	SPIKE	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Total Uranium	ASTM D5174 Modified	7.64E+00	1.56E-01	8.59E-01	1.00E+00	ug/l
14-05138-0H	LCSH	SPIKE-H	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Total Uranium	ASTM D5174 Modified	1.99E+02	6.46E+00	2.29E+01	1.00E+00	ug/l
14-05138-02	MBL	BLANK	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Total Uranium	ASTM D5174 Modified	-1.87E+00	7.73E-02	2.21E-01	1.00E+00	ug/l
14-05138-03	DUP	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Total Uranium	ASTM D5174 Modified	-8.52E-01	2.66E-02	7.68E-02	1.00E+00	ug/l
14-05138-04	DO	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Total Uranium	ASTM D5174 Modified	-2.16E-01	8.87E-03	2.55E-02	1.00E+00	ug/l
14-05138-04	TRG	TANK 2	05/29/14 11:40	5/30/2014	6/13/2014	14-05138	TDS	SM 2540 C	3.56E+04				mg/l
14-05138-04	TRG	TANK 2	05/29/14 11:40	5/30/2014	6/13/2014	14-05138	TSS	SM 2540 D	4.86E+03				mg/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

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EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

Eberline Analytical
Final Report of Analysis

Report To:
Matt Stewart
Herst & Associates, Inc.
4631 N St Peters Pkwy
St Charles, MO 63304

Work Order Details:
SDG: 14-05138
Purchase Order: PO4305670
Analysis Category: ENVIRONMENTAL
Sample Matrix: WA

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
14-05138-01	LCS	KNOWN	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Cobalt-60	EPA 901.1 Modified	1.95E+05	7.82E+03			pCi/l
14-05138-01	LCS	KNOWN	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Cesium-137	EPA 901.1 Modified	1.24E+05	4.97E+03			pCi/l
14-05138-01	LCS	SPIKE	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Cobalt-60	EPA 901.1 Modified	2.13E+05	1.26E+04	1.66E+04	1.03E+03	pCi/l
14-05138-01	LCS	SPIKE	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Cesium-137	EPA 901.1 Modified	1.35E+05	1.37E+04	1.54E+04	9.75E+02	pCi/l
14-05138-02	MBL	BLANK	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Actinium-228	EPA 901.1 Modified	5.00E+00	7.17E+00	7.17E+00	1.41E+01	pCi/l
14-05138-02	MBL	BLANK	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Bismuth-214	EPA 901.1 Modified	5.99E+00	4.51E+00	4.52E+00	8.99E+00	pCi/l
14-05138-02	MBL	BLANK	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Gross Gamma	EPA 901.1 Modified	2.25E+00	2.25E+00	2.25E+00	4.92E+00	pCi/l
14-05138-02	MBL	BLANK	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Lead-212	EPA 901.1 Modified	3.67E+00	2.77E+00	2.78E+00	5.61E+00	pCi/l
14-05138-02	MBL	BLANK	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Lead-214	EPA 901.1 Modified	5.08E+00	3.61E+00	3.61E+00	7.50E+00	pCi/l
14-05138-02	MBL	BLANK	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Radium-226	EPA 901.1 Modified	5.99E+00	4.51E+00	4.52E+00	8.99E+00	pCi/l
14-05138-02	MBL	BLANK	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Radium-228	EPA 901.1 Modified	5.00E+00	7.17E+00	7.17E+00	1.41E+01	pCi/l
14-05138-02	MBL	BLANK	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Thorium-234	EPA 901.1 Modified	4.79E+01	2.21E+01	2.23E+01	4.81E+01	pCi/l
14-05138-02	MBL	BLANK	05/30/14 00:00	5/30/2014	6/9/2014	14-05138	Thallium-208	EPA 901.1 Modified	1.03E+01	6.42E+00	6.44E+00	1.30E+01	pCi/l
14-05138-03	DUP	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Actinium-228	EPA 901.1 Modified	1.59E+01	1.06E+01	1.06E+01	2.26E+01	pCi/l
14-05138-03	DUP	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Bismuth-214	EPA 901.1 Modified	1.08E+01	7.54E+00	7.56E+00	1.30E+01	pCi/l
14-05138-03	DUP	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Gross Gamma	EPA 901.1 Modified	4.36E+02	8.65E+01	8.93E+01	7.65E+01	pCi/l
14-05138-03	DUP	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Potassium-40	EPA 901.1 Modified	4.36E+02	8.65E+01	8.93E+01	7.65E+01	pCi/l
14-05138-03	DUP	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Lead-212	EPA 901.1 Modified	6.08E+00	4.10E+00	4.12E+00	7.86E+00	pCi/l
14-05138-03	DUP	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Lead-214	EPA 901.1 Modified	1.34E+01	7.58E+00	7.61E+00	1.32E+01	pCi/l
14-05138-03	DUP	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Radium-226	EPA 901.1 Modified	1.08E+01	7.54E+00	7.56E+00	1.30E+01	pCi/l
14-05138-03	DUP	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Radium-228	EPA 901.1 Modified	1.59E+01	1.06E+01	1.06E+01	2.26E+01	pCi/l
14-05138-03	DUP	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Thorium-234	EPA 901.1 Modified	7.56E+01	3.80E+01	3.82E+01	7.59E+01	pCi/l
14-05138-03	DUP	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Thallium-208	EPA 901.1 Modified	5.45E+00	7.74E+00	7.75E+00	1.51E+01	pCi/l
14-05138-04	DO	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Actinium-228	EPA 901.1 Modified	9.39E+00	1.02E+01	1.02E+01	2.11E+01	pCi/l
14-05138-04	DO	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Bismuth-214	EPA 901.1 Modified	5.06E+00	5.57E+00	5.58E+00	1.10E+01	pCi/l
14-05138-04	DO	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Gross Gamma	EPA 901.1 Modified	5.09E+02	9.27E+01	9.64E+01	6.39E+01	pCi/l
14-05138-04	DO	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Potassium-40	EPA 901.1 Modified	5.09E+02	9.27E+01	9.64E+01	6.39E+01	pCi/l
14-05138-04	DO	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Lead-212	EPA 901.1 Modified	8.03E+00	4.13E+00	4.15E+00	8.02E+00	pCi/l
14-05138-04	DO	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Lead-214	EPA 901.1 Modified	6.69E+00	6.68E+00	6.69E+00	1.09E+01	pCi/l
14-05138-04	DO	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Radium-226	EPA 901.1 Modified	5.08E+00	5.57E+00	5.58E+00	1.10E+01	pCi/l
14-05138-04	DO	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Radium-228	EPA 901.1 Modified	9.39E+00	1.02E+01	1.02E+01	2.11E+01	pCi/l
14-05138-04	DO	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Thorium-234	EPA 901.1 Modified	7.65E+01	3.90E+01	3.92E+01	7.76E+01	pCi/l
14-05138-04	DO	TANK 2	05/29/14 11:40	5/30/2014	6/9/2014	14-05138	Thallium-208	EPA 901.1 Modified	5.33E+00	7.35E+00	7.35E+00	1.46E+01	pCi/l

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

RECEIVED JUN 28 2014 DIVISION OF ENVIRONMENTAL COMPLIANCE 0018

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD OAK RIDGE, TN 37830 865/481-0683 FAX 865/483-4621

Chain of Custody Record

№ 6254

Eberline Services
601 Scarboro Road
Oak Ridge, TN 37830
(865) 481-0683 Phone • (865) 483-4621 Fax

EBERLINE SERVICES

Page 1 of 1

14-05138

Purchase Order #:

Project Name: Bridgeton 2014 Leachate	Project Number:
Send Report To: Matt Stewart	Sampler (Print Name): Matt Stewart
Address: 4631 N. St. Peters Pkwy	Sampler (Print Name):
St. Charles, MO 63304	Shipment Method: FedEx
[illegible]labdata@herstassociates.com	Airbill Number: FedEx # 770134393860
Phone: (636) 939-9111	Laboratory Receiving:
Fax: (636) 939-9757	

Analysis Requested

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Gross Alpha, Gross Beta	Gross Gamma	Radium 226	Radium 228	Uranium - Total	TSS	TDS					Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
Tank 2 4	5/28-29/14	1141 0740 1738 1140	Aqueous	4	X	X	X	X	X	X	X					*All rads run as total	

REC'D MAY 30 2014

RECEIVED
JUL 28 2014
DIVISION OF
ENVIRONMENTAL COMPLIANCE

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Matt Stewart	Fed Ex # 770134393860	5/29/14	1800
Fed Ex	Kristen Coulston	5/30/14	1200

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level	Turnaround	Sample Receipt	
Level I ☐	Routine ☐	Total # Containers Received?	
Level II ☐	24 Hour ☐	COC Seals Present?	
Level III ☐	1 Week ☐	COC Seals Intact?	
Other ☐	Other _____	Received Containers Intact?	
		Temperature?	

MSD 028946

Actual Leachate Disposal, in Gallons

Disposal	Week of 3/31/14 - 4/6/14							Facility Totals
		4/1	4/2	4/3	4/4	4/5	4/6	
Hauled to MSD-Bissell		172,500	172,500	172,500	172,500	172,500	172,500	1,035,000
Daily Totals		172,500	172,500	172,500	172,500	172,500	172,500	1,035,000

Disposal	Week of 4/7/14 - 4/13/14							Facility Totals
	4/7	4/8	4/9	4/10	4/11	4/12	4/13	
Hauled to MSD-Bissell	172,500	172,500	172,500	172,500	172,500	172,500	172,500	1,207,500
Daily Totals	172,500	172,500	172,500	172,500	172,500	172,500	172,500	1,207,500

Disposal	Week of 4/14/14 - 4/20/14							Facility Totals
	4/14	4/15	4/16	4/17	4/18	4/19	4/20	
Hauled to MSD-Bissell	172,500	172,500	172,500	172,500	172,500	172,500	172,500	1,207,500
Daily Totals	172,500	172,500	172,500	172,500	172,500	172,500	172,500	1,207,500

Disposal	Week of 4/21/14 - 4/27/14							Facility Totals
	4/21	4/22	4/23	4/24	4/25	4/26	4/27	
Hauled to MSD-Bissell	172,500	172,500	172,500	172,500	172,500	172,500	172,500	1,207,500
Daily Totals	172,500	172,500	172,500	172,500	172,500	172,500	172,500	1,207,500

Disposal	Week of 4/28/14 - 5/4/14							Facility Totals
	4/28	4/29	4/30	5/1	5/2	5/3	5/4	
Hauled to MSD-Bissell	172,500	172,500	172,500	172,500	172,500	195,000	195,000	1,252,500
Daily Totals	172,500	172,500	172,500	172,500	172,500	195,000	195,000	1,252,500

Disposal	Week of 5/5/14 - 5/11/14							Facility Totals
	5/5	5/6	5/7	5/8	5/9	5/10	5/11	
Hauled to MSD-Bissell	195,000	195,000	195,000	195,000	195,000	195,000	195,000	1,365,000
Daily Totals	195,000	195,000	195,000	195,000	195,000	195,000	195,000	1,365,000

Disposal	Week of 5/12/14 - 5/18/14							Facility Totals
	5/12	5/13	5/14	5/15	5/16	5/17	5/18	
Hauled to MSD-Bissell	195,000	195,000	195,000	195,000	195,000	195,000	195,000	1,365,000
Daily Totals	195,000	195,000	195,000	195,000	195,000	195,000	195,000	1,365,000

Disposal	Week of 5/19/14 - 5/25/14							Facility Totals
	5/19	5/20	5/21	5/22	5/23	5/24	5/25	
Hauled to MSD-Bissell	195,000	202,500	202,500	202,500	202,500	202,500	202,500	1,410,000
Daily Totals	195,000	202,500	202,500	202,500	202,500	202,500	202,500	1,410,000

Disposal	Week of 5/26/14 - 6/1/14							Facility Totals
	5/26	5/27	5/28	5/29	5/30	5/31	6/1	
Hauled to MSD-Bissell	202,500	202,500	202,500	202,500	202,500	202,500	202,500	1,417,500
Daily Totals	202,500	202,500	202,500	202,500	202,500	202,500	202,500	1,417,500

Disposal	Week of 6/2/14 - 6/8/14							Facility Totals
	6/2	6/3	6/4	6/5	6/6	6/7	6/8	
Hauled to MSD-Bissell	202,500	150,000	90,000	180,000	210,000	210,000	210,000	1,252,500
Daily Totals	202,500	150,000	90,000	180,000	210,000	210,000	210,000	1,252,500

Disposal	Week of 6/9/14 - 6/15/14							Facility Totals
	6/9	6/10	6/11	6/12	6/13	6/14	6/15	
Hauled to MSD-Bissell	210,000	210,000	210,000	210,000	210,000	210,000	202,500	1,462,500
Daily Totals	210,000	210,000	210,000	210,000	210,000	210,000	202,500	1,462,500

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Disposal	Week of 6/16/14 - 6/22/14							Facility Totals
	6/16	6/17	6/18	6/19	6/20	6/21	6/22	
Hauled to MSD-Bissell	210,000	210,000	142,500	210,000	210,000	210,000	210,000	1,402,500
Daily Totals	210,000	210,000	142,500	210,000	210,000	210,000	210,000	1,402,500

Disposal	Week of 6/23/14 - 6/29/14							Facility Totals
	6/23	6/24	6/25	6/26	6/27	6/28	6/29	
Hauled to MSD-Bissell	210,000	210,000	210,000	210,000	210,000	210,000	210,000	1,470,000
Daily Totals	210,000	210,000	210,000	210,000	210,000	210,000	210,000	1,470,000

Disposal	Week of 6/30/14 - 7/6/14							Facility Totals
	6/30							
Hauled to MSD-Bissell	210,000							210,000
Daily Totals	210,000							210,000

Total Hauled to MSD-Bissell 2Q14	17,265,000
Total Hauled to MSD-Bissel April 2014	5,175,000
Total Hauled to MSD-Bissel May 2014	6,090,000
Total Hauled to MSD-Bissel June 2014	6,000,000

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ENVIRONMENTAL COMPLIANCE

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Friday, July 25, 2014 11:11 AM
To: Doug Mendoza; 'Merrigan, Jessie (LG)'; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; 'Theerman, Jeff (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie Freeman
Subject: RE: Bridgeton Landfill Weekly Report
Attachments: 60173034_rv2_frc.pdf

Attached is the revised report for 316-349. Note that both the BOD and the TSS were revised and there is a note of explanation. We will revise the reporting spreadsheets next week. Let me know if you have any questions.

Ed Galbraith

Senior Environmental Scientist
Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

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From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Thursday, July 24, 2014 7:55 AM
To: Ed Galbraith; 'Merrigan, Jessie (LG)'; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; 'Theerman, Jeff (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie Freeman
Subject: RE: Bridgeton Landfill Weekly Report

Ed,

Thank you for the data and the associated explanatory notes. Regarding the BOD for Pace report 60173034, as soon as the retest results are received, please forward them to us. If they are in line with historical values relative to the corresponding COD, we likely will be able to use the retest value. If the results are not in line, then we will need to discuss options for how to handle this particular sample's BOD results.

Doug

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

July 24, 2014

Ed Galbraith
Barr Engineering Company
1001 Diamond Ridge, Ste 1100
Jefferson City, MO 65101

RE: Project: BRIDGETON LF 316-349
Pace Project No.: 60173034

Dear Ed Galbraith:
Enclosed are the analytical results for sample(s) received by the laboratory on July 04, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Amended report, REV-1 on 7/24/15, to add BOD reanalysis.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mary Jane Walls
maryjane.walls@pacelabs.com
PM Lab Management

Enclosures

cc: Bill Abernathy, Feezor Engineering
Kelly Caddy, Barr Engineering
DAN FEEZOR, FEEZOR ENGINEERING
Dana B. Pasi, Barr Engineering Co.
Brian Power, Republic Services
Margaret Treanor, Barr Engineering Company

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: BRIDGETON LF 316-349
Pace Project No.: 60173034

Sample: 316-349 **Lab ID: 60173034001** Collected: 07/03/14 07:24 Received: 07/04/14 01:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1664 SGT-HEM, TPH	Analytical Method: EPA 1664A							
Total Petroleum Hydrocarbons	**11.6**	mg/L	5.0	1		07/08/14 15:17		
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	**4760**	mg/L	5.0	1		07/07/14 09:59		1e
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**5.3**	Std. Units	0.10	1		07/05/14 11:15		H6
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B							
BOD, 5 day	**93000**	mg/L	2.0	1	07/04/14 10:37	07/09/14 12:20		B3,L1
BOD, 5 day	**29000**	mg/L	2.0	1	07/16/14 16:40	07/21/14 12:22		H1
350.1 Ammonia	Analytical Method: EPA 350.1							
Nitrogen, Ammonia	**539**	mg/L	20.0	200		07/10/14 14:10	7664-41-7	
410.4 COD	Analytical Method: EPA 410.4							
Chemical Oxygen Demand	**56000**	mg/L	5000	500		07/09/14 09:35		

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QUALIFIERS

Project: BRIDGETON LF 316-349
Pace Project No.: 60173034

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.
ND - Not Detected at or above adjusted reporting limit.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit.
S - Surrogate
1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

WORKORDER QUALIFIERS

WO: 60173034

[2]	The TSS is revised from the original report. The original posted analysis was missing the initial volume for the calculation. This was added and included on the revised report.

ANALYTE QUALIFIERS

1e	Revised result
B3	The dissolved oxygen depletion of the dilution water blank exceeded 0.2 mg/L.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
D9	Dissolved result is greater than the total. Data is within laboratory control limits.
H1	Analysis conducted outside the EPA method holding time.
H6	Analysis initiated outside of the 15 minute EPA recommended holding time.
L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
N2	The lab does not hold TNI accreditation for this parameter.
R1	RPD value was outside control limits.

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Doug Mendoza

Bridgeton Landfill

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Tuesday, July 29, 2014 4:59 PM
To: Doug Mendoza; John Lodderhose
Cc: Kamp, Kevin; Aaron Karlas (akarlas@feezorengineering.com); Bill Abernathy (babernathy@feezorengineering.com); bpower@republicservices.com; Bouchard, Derek (DBouchard@republicservices.com)
Subject: Cooling Water Discharge Applicaton
Attachments: Cooling Water Request Attachments.pdf; Cooling Water Discharge App 2014_0729.pdf

Doug,

Please see the attached application for discharge of non-contact cooling water. Please let me know if you have any questions.

Ed Galbraith

Senior Environmental Scientist
Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

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Metropolitan St. Louis Sewer District
2350 Market Street
St. Louis, MO 63103

APPLICATION FOR SPECIAL DISCHARGE APPROVAL

I. WASTEWATER SOURCE IDENTIFICATION:

Site Name: Bridgeton Landfill, LLC
Premise Address: 12976 St. Charles Rock Road
City: Bridgeton State: MO Zip: 63044
Owner: Bridgeton Landfill, LLC
Contact Person: Brian Power
Title: Environmental Manager
Phone: 314-744-8195 Fax: 314-656-2107

II. APPLICANT (mailing information):

Applicant Name: Brian Power
Title: Environmental Manager
Company Name: Bridgeton Landfill, LLC
Mailing Address: 12976 St. Charles Rock Road
City: Bridgeton State: MO Zip: 63044
Phone: 314-744-8195 Fax: 314-656-2107

III. A. MATERIAL TO BE DISCHARGED (check all applicable boxes):

1. Wastewater description/location: Non-contact cooling water
2. Process/activity generating wastewater: See attached description/email correspondence
3. Physical and chemical composition: List all constituents, and known or potentially present regulated contaminants below.
   [X] See separate listing enclosed, and/or [X] See analytical results enclosed, and/or [X] Material Safety Data Sheet enclosed.

DESCRIPTION	RANGE	UNIT

DESCRIPTION *(continued)*	RANGE	UNIT

4. Is this wastewater from a process subject to EPA's categorical standards in 40 CFR Subchapter N? [ ] Yes [X] No
   a. If yes, the applicable standards are in: 40 CFR Part _____, Subpart _____ [ ] Existing source [ ] New source
5. Does this wastewater contain polychlorinated biphenyls, asbestos or radioactive material? [ ] Yes [X] No
   a. If yes, describe: _____
6. Representative sample: [X] Laboratory results attached, and/or [ ] Sample provided (1/2 gallon minimum, clear container)
   a. Sample collection point/location: 96K Tank Collection method: Grab
   b. Sampler's name/Co.: Arron Weber, Feezor Engineering Sample date/time: 07/24/2014 3:20 pm
   c. Attach chain of custody as available
7. Discharge will occur over the following time period: [ ] < 30 days [ ] ≥ Two years [ ] Other: 60-90days
   a. Expected total volume of wastewater to be discharged over the time period above: _____ Gallons
   b. Proposed discharge volume: 50,000 Gallons, at a frequency of: [ ] One time [X] Daily [ ] Weekly [ ] Monthly [ ] Once/three months [ ] Once/six months [ ] Other: 50,000 gpd for 2 days then 10,000 gpd max.
8. Pretreatment of wastewater prior to discharge: [X] None [ ] Yes, describe: _____
   a. If yes, attach site plan, pretreatment system schematic, and design specifications.
9. Wastewater from a remediation project under: [ ] Superfund/CERCLA [ ] RCRA [ ] Voluntary program [ ] UST [X] Not applicable
   a. If from a remediation project, briefly describe the past and present utilization of the property: _____

III.B. MATERIAL FROM UNDERGROUND STORAGE TANK SOURCE

☒ **Not applicable (go to Section IV)**

Please answer the following questions if you are requesting to discharge wastewater associated with an underground storage tank system.

1. a. Wastewater from: ☐ Inside UST(s) ☐ UST system pit ☐ Excavation outside UST system pit ☐ Monitoring well ☐ Groundwater remediation system

   b. UST project involves wastewater from: ☐ UST(s) closed in place ☐ UST(s) removed ☐ Remediation ☐ Upgrade ☐ Maintenance activities ☐ Well monitoring ☐ Other, explain: _____

   c. If wastewater is from a closure project, how long has UST(s) been out of service: _____ years

2. a. State assigned UST site identification number: _____ ☐ Not applicable

   b. Number of USTs affected: _____ ☐ Unknown

   c. For the UST(s) involved, their state identification number(s): _____ ☐ Not applicable

   d. Service Station Identification Number, as applicable: _____

3. Tank contents/former contents: ☐ Gasoline ☐ #2 diesel ☐ Used oil ☐ Unknown ☐ Other: _____

IV. DISCHARGE LOCATION

1. ☒ On-site. Describe proposed point of entry to sewer and the discharge rate (must be a sanitary or combined sewer): _____
Westlake Pump Station Outfall 007 Note: Range of discharge must not surcharge sewer line.

2. ☐ Haul to MSD Bissell Point Hauled Waste Receiving Station at 10 E. Grand, St. Louis, MO.

   a. Transporters Name: _____ and MSD Hauler ID Number: _____

   b. Hazardous Waste Certification:

   For wastewater which is hauled to MSD's Bissell Point Hauled Waste Receiving Station, I hereby certify that to the best of my knowledge and belief, the above hauled waste is not classified as a RCRA "hazardous waste" as defined by the MDNR in 10 CSR 25 or USEPA in 40 CFR Part 261.

   Applicant Name (print): Brian Power

   Signature: _____ **Date:** July 29, 2014

ADDITIONAL INFORMATION:

Would like to discharge up to 50,000 gpd for the first two days and then scale back to 5000 to 10,000 gpd. This approval will be needed until the force main and pump station construction is complete and operational.

V. APPLICANT SIGNATURE AND CERTIFICATION

This application must be signed by the applicant: either the source contact, or a contractor or agent directly responsible for site activities.

I hereby certify that I am directly responsible for activities at the site regarding the wastewater to be discharged, and to the best of my knowledge and belief, based on appropriate inquiry, the information in this application is true, complete, and accurate. The samples or analyses submitted are representative of the materials to be discharged. If granted approval to discharge, I agree to abide by the MSD Ordinances, and all applicable federal, state and local regulations. I agree to pay the costs of any pre-approval analyses performed by MSD and to pay any applicable disposal charges for the volume and strength of the wastes discharged.

Applicant Name (print): Brian J. Power

Signature: Brian J Power **Date:** 7/29/14

FOR MSD USE ONLY:

File Name: _____ ID No. _____ Sample Point No. _____

From: Doug Mendoza
To: Ed Galbraith; John Lodderhose
Cc: Aaron Karlas (akarlas@feezorengineering.com); Kamp, Kevin; bpower@republicservices.com
Subject: RE: Cooling tower water lines
Date: Thursday, July 24, 2014 11:23:03 AM
Attachments: image001.png

Ed,

MSD has a formal procedure in place for special discharge requests. There is an application form to be filled out, which you can download from here: http://www.stlmsd.com/sites/default/files/education/341072.PDF. Because the wastewater is cooling tower blowdown, MSD will require only an abbreviated analysis of pollutants. Since MSD's Missouri River treatment plant land applies its biosolids, and because the wastewater is cooling tower blowdown and cooling tower chemicals often contain molybdenum and MSD cannot ascertain the presence or absence of molybdenum from the materials you have already provided, we must include molybdenum (total) as a pollutant to be analyzed prior to any approval. In addition to molybdenum, you must also have the wastewater analyzed for chemical oxygen demand (COD), total suspended solids (TSS), pH, and UV transmittance. The UV transmittance is because the Missouri River treatment plant utilizes ultraviolet disinfection. Please submit the results of analyses with the completed application. Please also be specific as to the period of time desired for discharge. From other conversations, it seems that a discharge approval would be needed until Bridgeton Landfill's force main and pump station construction is complete and operational. However, your verification of this is needed.

Once we have the completed application and necessary analytical data, we can complete our review of your request.

Regarding the discharge costs, they will be assessed at the normal on site discharge rate, as provided in MSD ordinance no. 13758. If the wastewater strength is below surcharge levels, then only the volume charge would apply.

Sincerely,
Doug Mendoza
MSD Industrial Pretreatment Manager

From: Ed Galbraith [mailto:EGalbraith@barr.com]
Sent: Wednesday, July 23, 2014 1:46 PM
To: Doug Mendoza; John Lodderhose
Cc: Aaron Karlas (akarlas@feezorengineering.com); Kamp, Kevin; bpower@republicservices.com
Subject: FW: Cooling tower water lines

Doug, as we discussed today, here is a description of the non-contact cooling water. Fact sheets and MSDS for the two compounds are also attached.

> Bridgeton Landfill pretreatment system generates cooling water that can either be commingled and discharged with treated leachate or handled as a separate wastewater stream. Until the pretreatment system is approved by

the Metropolitan St. Louis Sewer District (MSD), Bridgeton Landfill would like to treat the cooling water as a separate wastewater stream.

The cooling water system generates about 3,000 to 10,000 gallons per day, which is collected in the 96K tank. Initially, the discharge from the 96K Tank will occur about every 10 to 30 days. The composition of the water is primarily "tap" water from Missouri American Water and two additional products to prevent scaling and corrosion and control bacteria. The two products are:

Nalco 3DT265. This product includes phosphonate to inhibit scaling and benzotriasole to reduce corrosion. Based on the product information, the expected water pollutants are BOD, COD and total organic carbon. The dosing rate into the cooling water will be 120 parts per million (ppm) of product. Based on environmental data in the fact sheet, the contribution to the cooling water from this product would be expected to be:

- BOD_5 – 8,700 ppm x 120 ppm = 1.044 ppm BOD_5
- COD – 493,000 ppm x 120 ppm = 52.7 ppm COD
- TOC – no data

Nalco ST70. This is a bactericide consisting of 9.23% sodium bromide (NaBr) and 6.36% sodium hypochlorite (NaClO) as available chlorine. Based on a dosage rate of 2.6 pounds of product per 3,100 gallons of water, the approximate concentration in cooling water for each of these compounds would be expected to be:

- 2.6 pounds product/3,100 gallons x 6.36% NaClO x 119,748 = 6.4 ppm NaClO
- 2.6 pounds product/3,100 gallons x 9.23% NaBr x 119,748 = 9.3 ppm NaClO

Dosage rates are expected to change slightly to adjust for specific conditions and system performance, and concentrations of active ingredients will change accordingly.

Bridgeton Landfill requests permission to discharge this material to the Mo River WWTP, preferably at "ordinance" cost since the material is relatively uncontaminated. I'll touch base with you tomorrow. Thanks.

Ed Galbraith

Senior Environmental Scientist
Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

July 29, 2014

Ed Galbraith
Barr Engineering Company
1001 Diamond Ridge, Ste 1100
Jefferson City, MO 65101

RE: Project: BRIDGETON COOLING WATER DISCH
Pace Project No.: 60174451

Dear Ed Galbraith:
Enclosed are the analytical results for sample(s) received by the laboratory on July 25, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Angie Brown
Angie.Brown@pacelabs.com
Project Manager

Enclosures

cc: Bill Abernathy, Feezor Engineering
Kelly Caddy, Barr Engineering
DAN FEEZOR, FEEZOR ENGINEERING
Dana B. Pasi, Barr Engineering Co.
Brian Power, Republic Services
Margaret Treanor, Barr Engineering Company

REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219
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CERTIFICATIONS

Project: BRIDGETON COOLING WATER DISCH
Pace Project No.: 60174451

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Washington Certification #: C955
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021

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Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: BRIDGETON COOLING WATER DISCH
Pace Project No.: 60174451

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60174451001	**COOLING WATER DISCHARGE**	Water	07/24/14 14:15	07/25/14 01:10

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: BRIDGETON COOLING WATER DISCH
Pace Project No.: 60174451

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60174451001	**COOLING WATER DISCHARGE**	EPA 200.7	TDS	1	PASI-K
		SM 2540D	NDL	1	PASI-K
		SM 4500-H+B	JML	1	PASI-K
		SM 5910	NMT	2	PASI-O
		EPA 410.4	JMC1	1	PASI-K

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ANALYTICAL RESULTS

Project: BRIDGETON COOLING WATER DISCH
Pace Project No.: 60174451

Sample: COOLING WATER DISCHARGE **Lab ID: 60174451001** Collected: 07/24/14 14:15 Received: 07/25/14 01:10 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7							
Molybdenum	ND	ug/L	20.0	1	07/25/14 15:30	07/28/14 09:38	7439-98-7	
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	**12.0**	mg/L	5.0	1		07/28/14 09:58		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**7.5**	Std. Units	0.10	1		07/28/14 11:00		H6
UV254	Analytical Method: SM 5910							
U254 UV Absorbing Organic	**0.88**	cm-1	0.0040	1		07/26/14 12:36		
U254 UV Absorbing Organic Dup	**0.88**	cm-1	0.0040	1		07/26/14 12:36		
410.4 COD	Analytical Method: EPA 410.4							
Chemical Oxygen Demand	**11.7**	mg/L	10.0	1		07/28/14 11:47		

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QUALITY CONTROL DATA

Project: BRIDGETON COOLING WATER DISCH
Pace Project No.: 60174451

QC Batch: MPRP/28225 — Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 — Analysis Description: 200.7 Metals, Total
Associated Lab Samples: 60174451001

METHOD BLANK: 1416452 — Matrix: Water
Associated Lab Samples: 60174451001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Molybdenum	ug/L	ND	20.0	07/28/14 09:33	

LABORATORY CONTROL SAMPLE: 1416453

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Molybdenum	ug/L	1000	970	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1416454 — 1416455

Parameter	Units	60174451001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Molybdenum	ug/L	ND	1000	1000	981	982	96	96	70-130	0	9	

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QUALITY CONTROL DATA

Project: BRIDGETON COOLING WATER DISCH
Pace Project No.: 60174451

QC Batch: WET/49273 | Analysis Method: SM 2540D
QC Batch Method: SM 2540D | Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 60174451001

METHOD BLANK: 1416919 | Matrix: Water
Associated Lab Samples: 60174451001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	07/28/14 09:57	

SAMPLE DUPLICATE: 1416920

Parameter	Units	60174482001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	410	417	2	10	

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QUALITY CONTROL DATA

Project: BRIDGETON COOLING WATER DISCH
Pace Project No.: 60174451

QC Batch: WET/49277
QC Batch Method: SM 4500-H+B
Analysis Method: SM 4500-H+B
Analysis Description: 4500H+B pH
Associated Lab Samples: 60174451001

SAMPLE DUPLICATE: 1416982

Parameter	Units	60174451001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.5	7.5	1	5	H6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: BRIDGETON COOLING WATER DISCH
Pace Project No.: 60174451

QC Batch: WET/26176 | Analysis Method: SM 5910
QC Batch Method: SM 5910 | Analysis Description: UV254 UV Absorbing Organics
Associated Lab Samples: 60174451001

METHOD BLANK: 964178 | Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
U254 UV Absorbing Organic	cm-1	ND	0.0040	07/26/14 12:36	
U254 UV Absorbing Organic Dup	cm-1	ND	0.0040	07/26/14 12:36	

LABORATORY CONTROL SAMPLE: 964179

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
U254 UV Absorbing Organic	cm-1	.009	0.0090	100	75-125	
U254 UV Absorbing Organic Dup	cm-1	.009	0.0090	100	75-125	

SAMPLE DUPLICATE: 964180

Parameter	Units	60174451001 Result	Dup Result	RPD	Max RPD	Qualifiers
U254 UV Absorbing Organic	cm-1	0.88	0.86	3	20	
U254 UV Absorbing Organic Dup	cm-1	0.88	0.86	3	20	

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QUALITY CONTROL DATA

Project: BRIDGETON COOLING WATER DISCH
Pace Project No.: 60174451

QC Batch: WETA/30396
QC Batch Method: EPA 410.4
Analysis Method: EPA 410.4
Analysis Description: 410.4 COD
Associated Lab Samples: 60174451001

METHOD BLANK: 1416814
Matrix: Water
Associated Lab Samples: 60174451001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	10.0	07/28/14 11:37	

LABORATORY CONTROL SAMPLE: 1416815

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	50	45.8	92	90-110	

MATRIX SPIKE SAMPLE: 1416816

Parameter	Units	60173208002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	6100	2500	8480	96	90-110	

SAMPLE DUPLICATE: 1416817

Parameter	Units	60173850001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chemical Oxygen Demand	mg/L	80.1	78.7	2	25	

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QUALIFIERS

Project: BRIDGETON COOLING WATER DISCH
Pace Project No.: 60174451

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-O	Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

H6	Analysis initiated outside of the 15 minute EPA recommended holding time.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BRIDGETON COOLING WATER DISCH
Pace Project No.: 60174451

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60174451001	**COOLING WATER DISCHARGE**	EPA 200.7	MPRP/28225	EPA 200.7	ICP/21321
60174451001	**COOLING WATER DISCHARGE**	SM 2540D	WET/49273		
60174451001	**COOLING WATER DISCHARGE**	SM 4500-H+B	WET/49277		
60174451001	**COOLING WATER DISCHARGE**	SM 5910	WET/26176		
60174451001	**COOLING WATER DISCHARGE**	EPA 410.4	WETA/30396		

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Sample Condition Upon Receipt

WO#: 60174451

60174451

Client Name: Barr

Optional
Proj Due Date:
Proj Name:

Courier: Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☑ Xroad

Tracking #: _____ Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☑ Foam ☐ None ☐ Other ☑ 2 PIC

Thermometer Used: T-239 / T-194 **Type of Ice:** Wet Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 2.6

Temperature should be above freezing to 6°C

Date and Initials of person examining contents: PV 7/25/14

Chain of Custody present:	☑Yes ☐No ☐N/A	1.	
Chain of Custody filled out:	☑Yes ☐No ☐N/A	2.	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	3.	
Sampler name & signature on COC:	☑Yes ☐No ☐N/A	4.	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	5.	
Short Hold Time analyses (<72hr):	☑Yes ☐No ☐N/A	6. pH	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	7.	
Sufficient volume:	☑Yes ☐No ☐N/A	8.	
Correct containers used:	☑Yes ☐No ☐N/A		
Pace containers used:	☑Yes ☐No ☐N/A	9.	
Containers intact:	☑Yes ☐No ☐N/A	10.	
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☑N/A	11.	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	12.	
Sample labels match COC: Includes date/time/ID/analyses Matrix: WT	☑Yes ☐No ☐N/A	13.	
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A		
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	14.	
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	☐Yes ☑No	Initial when completed	Lot # of added preservative
Trip Blank present: Pace Trip Blank lot # (if purchased): _____	☐Yes ☐No ☑N/A	15.	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	16.	
Project sampled in USDA Regulated Area:	☐Yes ☐No ☑N/A	17. List State:	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [illegible] for (AKH) Date: 7/25

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The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:

Company:	BARR ENGINEERING
Address:	
Email To:	
Phone:	Fax:
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	ED GALBRAITH/BARR
Copy To:	SCOTT FEDAK/FEEZOR DANA BAKER/MARGARET TREANOR-BARR
Purchase Order No.:	PO 3727110
Project Name:	MONTHLY UNTREATED COMMINGLED
Project Number:	

Section C Invoice Information:

Attention:	JANET ROLLEN
Company Name:	REPUBLIC SERVICES
Address:	BRIDGETON, MO 63044
Pace Quote Reference:	
Pace Project Manager:	Angie Brown 913-563-1402
Pace Profile #:	PROFILE 6787-LINE 6

Page: of

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: MO

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	~~TCLP-VOC-EPA-8260~~	~~TCLP-SVOC-EPA-8270~~	~~TCLP-RCRA-8-6010/7470~~	~~TCLP-PEST-EPA-8081~~	~~TCLP-HERB-EPA-8151~~	molybdenum (total)	COD	TSS	pH	ultraviolet transmittance	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Cooling water discharge	WT	G			7/24/14	1415	8	6	4	1	1							2	4	4	2	2	2	X	X	X	X	X		1BP3S 1.5 1BP3W 1.5 W1
2																															
3																															
4																															
5																															
6																															
7																															
8																															
9																															
10																															
11																															
12																															

60174451

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Aaron Weber	7-24-14	3:20	[illegible]						
				[illegible]	7/25/14	6:10	2-6	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Hunter King

SIGNATURE of SAMPLER: Hunter King

DATE Signed (MM/DD/YY): 07/24/14

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

MSD 028971

Chain of Custody

WO# : 35147733

35147733

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Workorder: 60174451 **Workorder Name:** MONTHLY UNTREATED COMMINGLED **Owner Received Date:** 7/25/2014 **Results Requested By:** 7/28/2014

Reports	Subcontract To	Requested Analysis
Angie Brown Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665 Fax (913)599-1759	Pace Analytical Ormond Beach 8 East Tower Circle Ormond Beach, FL 32174 Phone (386)672-5668	

Item	Sample ID	Type	Date/Time	Lab ID	Matrix	Preserved Containers: none	Ultra violet transmittance	LAB USE ONLY
1	COOLING WATER DISCHARGE	PS	7/24/2014 14:15	60174451001	Water	2	X	
2								
3								
4								
5								

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	[signature]	7/25/14 1700	SP	7/26/14 1125	Saturday Delivery
2					
3					

Cooler Temperature on Receipt 3.2 °C T168 **Custody Seal** Y or N **Received on Ice** Y or N **Samples Intact** Y or N

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: October 9, 2013
Page 16 of 16	Document No.: F-FL-C-007 rev. 05	Issuing Authorities: Pace Florida Quality Office

Sample Condition Upon Receipt Form (SCUR)

Table Number: _____

Client Name: PACE-KS Project # 35147733

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other _____

Tracking # 6113 5277 5967

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____

Thermometer Used T168 Type of Ice: (Wet) Blue None

Cooler Temperature °C 3.3 (Visual) -0.1 (Correction Factor) 3.2 (Actual)

Date and initials of person examining contents: 7/26/14 SB 1125

(Temp should be above freezing to 6°C). If below 0°C, then was sample frozen? ☐ Yes ☐ No

Receipt of samples satisfactory: ☑ Yes ☐ No

Rush TAT requested on COC: 7/28/14

If yes, then all conditions below were met:	If no, then mark box & describe issue (use comments area if necessary):
Chain of Custody Present	☐
Chain of Custody Filled Out	☐
Relinquished Signature & Sampler Name COC	☐
Samples Arrived within Hold Time	☐
~~Sufficient Volume~~	☐
Correct Containers Used	☐
Containers Intact	☐
Sample Labels match COC (sample IDs & date/time of collection)	☐ No Labels: ☐ No Time/Date on Labels: ☐
All containers needing preservation are found to be in compliance with EPA recommendation.	☐
No Headspace in VOA Vials (>6mm):	☐

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution (use back for additional comments): _____

Project Manager Review: _____ Date: _____

Finished Product Information Only

F.P. Sample ID: _____

Production Code: _____

Date/Time Opened: _____

Number of Unopened Bottles Remaining: _____

Extra Sample In Shed: Yes No

Size & Qty of Bottles Received

_____ x 5 Gal
_____ x 2.5 Gal
_____ x 1 Gal
_____ x 1 Liter
_____ x 500 mL
_____ x 250 mL
_____ x Other: _____

3D TRASAR®
3DT265

Cooling Water Scale and Corrosion Inhibitor

NALCO
An Ecolab Company

Product Bulletin

PRODUCT DESCRIPTION AND APPLICATION

***3D TRASAR** products are part of an innovative water treatment program that uses proven technology to prevent operational problems. **3D TRASAR** technology compensates for both routine and special causes of system variation. **3D TRASAR** programs provide a return on your investment through their unique control and diagnostic capabilities.*

3D TRASAR 3DT265 is designed for use in systems with recirculating water calcium concentrations greater than 300 ppm (as $CaCO_3$) at the targeted cycles when the pH is typically greater than 8.7. Because **3DT265** contains no molybdate or zinc, it should be considered as a more environmentally friendly chemistry to meet the regulatory needs of many customers.

3DT265 is a balanced blend of corrosion and scale inhibitors designed for use in open recirculating water systems.
3DT265 contains:

- Proprietary blend of phosphonate inhibitors for both threshold level scale and corrosion inhibitors. They are particularly applicable to systems where calcium carbonate and/or sulfate scales are likely.
- Proprietary High Stress Polymer (HSP) dispersant.
- Benzotriazole (BZT) for copper corrosion inhibition.

3DT265 is designed to operate at high alkalinities, minimizing or eliminating the need for acid feed. Corrosion protection is provided by specific organic phosphate derivatives binding to the ferrous corrosion sites and from the protection provided by operating at a higher alkalinity. Scale protection and general dispersancy are provided by a unique polymer designed for high stress systems.

PHYSICAL & CHEMICAL PROPERTIES

Refer to the Material Safety Data Sheet (MSDS), SECTION 9, for the most current data.

These properties are typical.

Form	Liquid
Color	Yellow
Odor	None
Specific Gravity @ 77 °F [25 °C]	1.13

Density	9.39 lb/gal
pH (neat)	3.2
Viscosity	6 cp
Flash Point (PMCC)	>200°F (93°C)
Freeze Point	28°F (-2.2°C)
Solubility in Water	Complete

ACTIVE CONSTITUENTS

Active	**Function**
Phosphonate (HEDP/PBTC)	$CaCO_3$ stabilization (scale inhibitor)
Benzotriazole	Yellow metal corrosion inhibitor
Tagged High Stress Polymer	Dispersant
TRASAR® #2	Product monitoring & control

REGULATORY APPROVALS

3DT265 is intended for industrial use only. It must not be fed to potable water systems.

Refer to the Material Safety Data Sheet (MSDS), SECTION 15 for the most recent information on approvals.

MATERIALS OF COMPATIBILITY

Compatible	Incompatible
Unwelded 304SS	Welded 304SS
Unwelded 316 SS	Welded 316 SS
CPVC	Brass
HDPE	Mild Steel
Porta-feed Liner	UHMWPE
Nylon (polyamide)	Neoprene
Polymethylmethacrylate	EHD0045 Liner (epoxy phenolic
Polypropylene	HXG0009 Liner (phenolic)
Fluoropolymer	Plasite 7122 (cross-linked epoxy phenolic)
PVC	
Kynar	
EPDM	
Kalrez® perfluoroelastomer 1050	
Viton® synthetic rubber A	
Buna-N	
Plasite 4300 (vinyl ester resin)	

DOSAGE AND FEEDING

For complete dosage and feeding recommendations, contact your Nalco sales engineer.

ENVIRONMENTAL AND TOXICITY DATA

Biological Oxygen Demand (5-day BOD_5)	8,700 ppm
Chemical Oxygen Demand (COD)	439,000 ppm
Total Organic Carbon (TOC)	Not Available

Refer to the Material Safety Data Sheet (MSDS), SECTIONS 11 and 12, for the most current data.

SAFETY AND HANDLING

Before using this product please refer to SECTIONS 8 of the MSDS for proper personal protective equipment (PPE) and SECTIONS 3 for health effects information.

3DT265 is an acidic product and can cause eye and skin irritation. Chemical-resistant gloves and safety goggles should be worn when handling **3DT265**. Avoid breathing the solution spray. Do not take internally.

STORAGE

3DT265 should be stored in a location where the product temperature can be kept in a range between 28°F (-7°C) and 120°F (49°C). Recommended in-plant storage limit is one year.

Refer to the Material Safety Data Sheet (MSDS), SECTION 7, for the most current data.

REMARKS

If you need assistance or more information on this product, please call your nearest Nalco Representative.
For more news about Nalco Company, visit our website www.nalco.com

For **Medical and Transportation Emergencies** involving Nalco products, please see the Material Safety Data Sheet for the phone number.

ADDITIONAL INFORMATION

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Nalco Company, 1601 West Diehl Road, Naperville, Illinois 60563-1198

Subsidiaries and Affiliates in Principal Locations Around the World

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NALCO

SAFETY DATA SHEET

PRODUCT

3D TRASAR® 3DT265

EMERGENCY TELEPHONE NUMBER(S)
(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **3D TRASAR® 3DT265**

APPLICATION : CORROSION/SCALE INHIBITOR

COMPANY IDENTIFICATION : Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER(S) : (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING
HEALTH : 1 / 1 FLAMMABILITY : 1 / 1 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

CAUTION
May cause irritation with prolonged contact.
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Keep container tightly closed. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water.
Wear suitable protective clothing.
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of sulfur (SOx) under fire conditions. May evolve oxides of phosphorus (POx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
May cause irritation with prolonged contact.

SKIN CONTACT :
May cause irritation with prolonged contact.

INGESTION :
Not a likely route of exposure. There may be irritation to the gastro-intestinal tract with nausea and vomiting.

INHALATION :
Not a likely route of exposure. Repeated or prolonged exposure may irritate the respiratory tract.

SYMPTOMS OF EXPOSURE :
Acute :
A review of available data does not identify any symptoms from exposure not previously mentioned.
Chronic :
A review of available data does not identify any symptoms from exposure not previously mentioned.

AGGRAVATION OF EXISTING CONDITIONS :
A review of available data does not identify any worsening of existing conditions.

HUMAN HEALTH HAZARDS - CHRONIC :
No adverse effects expected other than those mentioned above.

4. FIRST AID MEASURES

EYE CONTACT :
Immediately flush with plenty of water for at least 15 minutes. If symptoms develop, seek medical advice.

SKIN CONTACT :
Flush affected area with water. If symptoms develop, seek medical advice. Flush with large amounts of water. Use soap if available. If symptoms develop, seek medical advice.

INGESTION :
Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. Get medical attention.

INHALATION :
Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

NOTE TO PHYSICIAN :
Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT : > 200 °F / > 93.3 °C (PMCC)

EXTINGUISHING MEDIA :
This product would not be expected to burn unless all the water is boiled away. The remaining organics may be ignitable. Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD :
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of sulfur (SOx) under fire conditions. May evolve oxides of phosphorus (POx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :
In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Restrict access to area as appropriate until clean-up operations are complete. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Keep people away from and upwind of spill/leak. Ventilate spill area if possible.

METHODS FOR CLEANING UP :
SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. LARGE SPILLS: Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Clean contaminated surfaces with water or aqueous cleaning agents. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :
Prevent material from entering sewers or waterways.

7. HANDLING AND STORAGE

HANDLING :
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Do not breathe vapors/gases/dust. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled.

STORAGE CONDITIONS :
Protect product from freezing. Store the containers tightly closed. Store in suitable labeled containers. Store separately from bases.

SUITABLE CONSTRUCTION MATERIAL :
Buna-N, Polyurethane, Polypropylene, Polyethylene, PVC, EPDM, HDPE (high density polyethylene), Epoxy phenolic resin, Fluoroelastomer, Chlorosulfonated polyethylene rubber, Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.

UNSUITABLE CONSTRUCTION MATERIAL :
Brass, Neoprene, Stainless Steel 304

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :
General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne mist and vapor.

RESPIRATORY PROTECTION :
Where concentrations in air may exceed the limits given in this section or when significant mists, vapors, aerosols, or dusts are generated, an approved air purifying respirator equipped with suitable filter cartridges is recommended. Consult the respirator / cartridge manufacturer data to verify the suitability of specific devices. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

HAND PROTECTION :
When handling this product, the use of chemical gloves is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

SKIN PROTECTION :
Wear standard protective clothing.

EYE PROTECTION :
Wear safety glasses with side-shields.

HYGIENE RECOMMENDATIONS :
Use good work and personal hygiene practices to avoid exposure. Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

HUMAN EXPOSURE CHARACTERIZATION :
Based on our recommended product application and personal protective equipment, the potential human exposure is: Low

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Yellow
ODOR	None

SPECIFIC GRAVITY	1.13
DENSITY	9.39 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	3.2
VISCOSITY	6 cps
FREEZING POINT	28 °F / -2.2 °C
VAPOR PRESSURE	Same as water
VAPOR DENSITY	Same as water
VOC CONTENT	0 % EPA Method 24

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY

STABILITY :
Stable under normal conditions.

HAZARDOUS POLYMERIZATION :
Hazardous polymerization will not occur.

CONDITIONS TO AVOID :
Avoid extremes of temperature.

MATERIALS TO AVOID :
Contact with strong alkalies (e.g. ammonia and its solutions, carbonates, sodium hydroxide (caustic), potassium hydroxide, calcium hydroxide (lime), cyanide, sulfide, hypochlorites, chlorites) may generate heat, splattering or boiling and toxic vapors. Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors.

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of carbon, Oxides of nitrogen, Oxides of sulfur, Oxides of phosphorus

11. TOXICOLOGICAL INFORMATION

No toxicity studies have been conducted on this product.

SENSITIZATION :
This product is not expected to be a sensitizer.

CARCINOGENICITY :
None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :
Based on our hazard characterization, the potential human hazard is: Low

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product.

Acute Fish Results :

Species	Exposure	Test Type	Value	Test Descriptor
Rainbow Trout	96 hrs	LC50	1,868 mg/l	Product
Fathead Minnow	96 hrs	LC50	3,140 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	Test Type	Value	Test Descriptor
Daphnia magna	48 hrs	LC50	1,964 mg/l	Product

PERSISTENCY AND DEGRADATION :

Total Organic Carbon (TOC) : 63,000 mg/l

Chemical Oxygen Demand (COD) : 190,000 mg/l

Biological Oxygen Demand (BOD) :

Incubation Period	Value	Test Descriptor
5 d	< 200 mg/l	Product

The organic portion of this preparation is expected to be inherently biodegradable.

MOBILITY :
The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
<5%	30 - 50%	50 - 70%

The portion in water is expected to be soluble or dispersible.

BIOACCUMULATION POTENTIAL
This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Low
Based on our recommended product application and the product's characteristics, the potential environmental exposure is: Moderate

If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

LAND TRANSPORT :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this information.

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :
Based on our hazard evaluation, none of the substances in this product are hazardous.

CERCLA/SUPERFUND, 40 CFR 302 :
Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :
This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :
This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

NSF NON-FOOD COMPOUNDS REGISTRATION PROGRAM (former USDA List of Proprietary Substances & Non-Food Compounds) :
NSF Registration number for this product is : 138497
This product is acceptable for treatment of cooling and retort water (G5) in and around food processing areas.

This product has been certified as KOSHER/PAREVE for year-round use INCLUDING THE PASSOVER SEASON by the CHICAGO RABBINICAL COUNCIL.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
This product may contain trace levels (<0.1% for carcinogens, <1% all other substances) of the following substance(s) listed under the regulation. Additional components may be unintentionally present at trace levels.

Substance(s)	Citations
• Methanol	Sec. 112

CALIFORNIA PROPOSITION 65 :
Substances listed under California Proposition 65 are not intentionally added or expected to be present in this product.

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

INTERNATIONAL CHEMICAL CONTROL LAWS :

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

AUSTRALIA
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

EUROPE
The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

JAPAN
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

KOREA
All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should

be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH., (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version),
Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH,
(TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Ariel Insight™ (An integrated guide to industrial chemicals covered under major regulatory and advisory programs), North American Module, Western European Module, Chemical Inventories Module and the Generics Module (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By : Product Safety Department
Date issued : 01/17/2012
Version Number : 1.13

NALCO

SAFETY DATA SHEET

PRODUCT

STABREX® ST70

EMERGENCY TELEPHONE NUMBER(S)
(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **STABREX® ST70**

COMPANY IDENTIFICATION : Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER(S) : (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING
HEALTH : 3 / 3 FLAMMABILITY : 0 / 0 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has identified the following chemical substance(s) as hazardous. Consult Section 15 for the nature of the hazard(s).

Hazardous Substance(s)	CAS NO	% (w/w)
Bromine antimicrobial [based on the mixture of sodium hypochlorite and sodium bromide]		10 - 30
Sodium Hydroxide	1310-73-2	1 - 5

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

DANGER
CORROSIVE. CAUSES SEVERE EYE AND SKIN INJURY. HARMFUL IF INHALED. HARMFUL IF SWALLOWED. Do not get in eyes, on skin or on clothing. Wear goggles or face shield and rubber gloves when handling. Remove and wash contaminated clothing before reuse.. Wash thoroughly after handling.
May evolve hydrogen bromide and bromine under fire conditions. May evolve HCl under fire conditions. May evolve chlorine under fire conditions. May evolve oxides of nitrogen (NOx) and sulfur (SOx) under fire conditions. Contact with reactive metals (e.g. aluminum) may result in the generation of flammable hydrogen gas.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
Corrosive. Will cause eye burns and permanent tissue damage.

SKIN CONTACT :
Corrosive; causes permanent skin damage.

INGESTION :
Corrosive; causes chemical burns to the mouth, throat and stomach.

INHALATION :
Elevated temperatures or mechanical action may form vapors, mists or fumes which may cause burns or irritation (possibly severe) to the eyes, nose, throat and lungs.

AGGRAVATION OF EXISTING CONDITIONS :
A review of available data does not identify any worsening of existing conditions.

HUMAN HEALTH HAZARDS - CHRONIC :
No adverse effects expected other than those mentioned above.

4. FIRST AID MEASURES

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.

IF SWALLOWED: Call a poison control center or a doctor immediately for treatment advice. DO NOT INDUCE VOMITING. Do not give anything to drink.

NOTE TO PHYSICIAN :
Aspiration may cause lung damage. Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE FIGHTING MEASURES

FLASH POINT : None

EXTINGUISHING MEDIA :
Not expected to burn. Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD :
May evolve hydrogen bromide and bromine under fire conditions. May evolve HCl under fire conditions. May evolve chlorine under fire conditions. May evolve oxides of nitrogen (NOx) and sulfur (SOx) under fire conditions. Contact with reactive metals (e.g. aluminum) may result in the generation of flammable hydrogen gas.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :
In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Restrict access to area as appropriate until clean-up operations are complete. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Ensure clean-up is conducted by trained personnel only. Stop or reduce any leaks if it is safe to do so. Keep people away from and upwind of spill/leak. Ventilate spill area if possible. Notify appropriate government, occupational health and safety and environmental authorities.

METHODS FOR CLEANING UP :
SMALL SPILLS: Contain and absorb with sand or vermiculite and mix well. Collect up and remove to a safe place until disposal. Wash site of spillage thoroughly with water. Assistance can be obtained from waste disposal companies.
LARGE SPILLS: Dike to prevent further movement. Recover by pumping or by using a suitable absorbent. Reclaim into recovery or salvage drums. Wash site of spillage thoroughly with water. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :
This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters, unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA. Apply this pesticide only as specified on the label.

7. HANDLING AND STORAGE

HANDLING :
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Avoid generating aerosols and mists. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled.

STORAGE CONDITIONS :
Store the containers tightly closed. Store separately from acids. Store in a cool well ventilated area away from direct sunlight.

SUITABLE CONSTRUCTION MATERIAL :
Polyethylene, Polypropylene, Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use., HDPE (high density polyethylene), Neoprene, PVC, Polyurethane, Chlorosulfonated polyethylene rubber, Fluoroelastomer

UNSUITABLE CONSTRUCTION MATERIAL :
Brass, Buna-N, EPDM, Stainless Steel 316L, Stainless Steel 304, Mild steel, 100% phenolic resin liner, Epoxy phenolic resin

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
Exposure guidelines have not been established for this product. Available exposure limits for the substance(s) are shown below.

Substance(s)	Basis	ppm	mg/m3	Non-Standard Unit
Sodium Hydroxide	ACGIH/Ceiling		2	
	NIOSH REL/Ceiling		2	
	OSHA Z1/TWA		2	
Sodium Hypochlorite	WEEL/STEL		2	

* A skin notation refers to the potential significant contribution to overall exposure by the cutaneous route, including mucous membranes and the eyes.

ENGINEERING MEASURES :
General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne mist and vapor.

RESPIRATORY PROTECTION :
If significant mists, vapors or aerosols are generated an approved respirator is recommended. A suitable filter material depends on the amount and type of chemicals being handled. Consider the use of filter type: Multi-contaminant cartridge. with a Particulate pre-filter. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

HAND PROTECTION :
When handling this product, the use of chemical gauntlets is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

SKIN PROTECTION :
Wear chemical resistant apron, chemical splash goggles, impervious gloves and boots. A full slicker suit is recommended if gross exposure is possible.

EYE PROTECTION :
Wear a face shield with chemical splash goggles.

HYGIENE RECOMMENDATIONS :
Eye wash station and safety shower are necessary. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse.

HUMAN EXPOSURE CHARACTERIZATION :
Based on our recommended product application and personal protective equipment, the potential human exposure is: Low

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Light yellow Clear
ODOR	None

SPECIFIC GRAVITY	1.32 - 1.36 @ 77 °F / 25 °C
DENSITY	11.0 - 11.3 lb/gal
SOLUBILITY IN WATER	Complete
pH (100.0 %)	13.0
FREEZING POINT	17 °F / -8.3 °C
VAPOR PRESSURE	7.7 mm Hg @ 77 °F / 25 °C 27 mm Hg @ 115 °F / 46 °C
VOC CONTENT	0.00 %

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY

STABILITY :
Stable under normal conditions.

HAZARDOUS POLYMERIZATION :
Hazardous polymerization will not occur.

CONDITIONS TO AVOID :
High temperatures Direct sunlight

MATERIALS TO AVOID :
Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors. Contact with strong acids (e.g. sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) may generate heat, splattering or boiling and toxic vapors. Contact with organic materials (e.g. rags, sawdust, hydrocarbon oils or solvents) and avoid reducing agents (e.g. hydrazine, sulfites, sulfide, aluminum or magnesium dust) which can generate heat, fires, explosions and the release of toxic fumes. Do not mix with any sodium hypochlorite or bleach product. Resulting mixture will result in a violent exothermic reaction releasing large amounts of nitrogen gas and liquid sulfuric acid. Contact with reactive metals (e.g. aluminum) may result in the generation of flammable hydrogen gas. Ammonia

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of nitrogen

11. TOXICOLOGICAL INFORMATION

The following results are for the product and a similar product.

ACUTE ORAL TOXICITY :
Species: Rat
LD50: > 5,000 mg/kg
Test Descriptor: Similar Product

PRIMARY SKIN IRRITATION :
Species: Rabbit
Draize Score: 7.9 /8.0
Test Descriptor: Similar Product

PRIMARY EYE IRRITATION :
Species: Rabbit
Result: Corrosive
Test Descriptor: Similar Product

SENSITIZATION :
This product is not expected to be a sensitizer.

CARCINOGENICITY :
None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

MUTAGENICITY :
Not mutagenic in Ames Test. Only TA100 strain tested.

HUMAN HAZARD CHARACTERIZATION :
Based on our hazard characterization, the potential human hazard is: High

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product.

Acute Fish Results :

Species	Exposure	Test Type	Value	Test Descriptor
Rainbow Trout	96 hrs	LC50	4.5 mg/l	Product
Sheepshead Minnow	96 hrs	LC50	16 mg/l	Product
Fathead Minnow	96 hrs	LC50	8.3 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	Test Type	Value	Test Descriptor
Daphnia magna	48 hrs	LC50	4.3 mg/l	Product
Mysid Shrimp (Mysidopsis bahia)	96 hrs	LC50	27 mg/l	Product
Ceriodaphnia dubia	48 hrs	LC50	1.6 mg/l	Product
Daphnia magna	48 hrs	EC50	4.2 mg/l	Product

AQUATIC PLANT RESULTS :

Species	Exposure	Test Type	Value	Test Descriptor
Green Algae (Pseudokirchneriella subcapitata, previously Selenastrum capricornutum)	72 hrs	LC50	3.66 mg/l	Product
Green Algae (Pseudokirchneriella subcapitata, previously Selenastrum capricornutum)	72 hrs	NOEC	2.5 mg/l	Product

CHRONIC FISH RESULTS :

Species	Exposure	Test Type	Value	End Point	Test Descriptor
Fathead Minnow	7 Days	EC25 / IC25	3.34 mg/l	Growth	Product
Fathead Minnow	7 Days	NOEC	2.5 mg/l	Growth	Product

Chronic Invertebrate Results :

Species	Exposure	Test Type	Value	End Point	Test Descriptor
Ceriodaphnia dubia		EC25 / IC25	15.6 mg/l	Reproduction	Product
Ceriodaphnia dubia		LOEC	40.0 mg/l	Survival	Product
Ceriodaphnia dubia		NOEC	20.0 mg/l	Survival	Product
Ceriodaphnia dubia		LOEC	5.0 mg/l	Reproduction	Product
Ceriodaphnia dubia		NOEC	2.5 mg/l	Reproduction	Product

PERSISTENCY AND DEGRADATION :

Chemical Oxygen Demand (COD) : 89,000 mg/l

Biological Oxygen Demand (BOD) : This material is an oxidizing biocide and is not expected to persist in the environment.

MOBILITY :
The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
<5%	30 - 50%	30 - 50%

The portion in water is expected to be soluble or dispersible.

BIOACCUMULATION POTENTIAL
This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Moderate
Based on our recommended product application and the product's characteristics, the potential environmental exposure is: Moderate

If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it could meet the criteria of a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Before disposal, it should be determined if the waste meets the criteria of a hazardous waste.

Hazardous Waste: D002

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

METAL CONTAINERS: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. ^PLASTIC CONTAINERS: Do not reuse empty container. Triple rinse (or equivalent). Then puncture and dispose of in a sanitary landfill, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

LAND TRANSPORT :

Proper Shipping Name :	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
Technical Name(s) :	SODIUM HYDROXIDE, ALKALINE LIQUID BROMINE ANTIMICROBIAL
UN/ID No :	UN 3266

Hazard Class - Primary :	8
Packing Group :	II
Flash Point :	None
Reportable Quantity (per package) :	35,000 lbs
RQ Component :	SODIUM HYDROXIDE

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
Technical Name(s) :	SODIUM HYDROXIDE, ALKALINE LIQUID BROMINE ANTIMICROBIAL
UN/ID No :	UN 3266
Hazard Class - Primary :	8
Packing Group :	II
Reportable Quantity (per package) :	35,000 lbs
RQ Component :	SODIUM HYDROXIDE

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name :	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
Technical Name(s) :	SODIUM HYDROXIDE, ALKALINE LIQUID BROMINE ANTIMICROBIAL
UN/ID No :	UN 3266
Hazard Class - Primary :	8
Packing Group :	II

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this information.

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :
Based on our hazard evaluation, the following substance(s) in this product is/are hazardous and the reason(s) is/are shown below.

Bromine antimicrobial [based on the mixture of sodium hypochlorite and sodium bromide] : Corrosive, HARMFUL
Sodium Hydroxide : Corrosive

CERCLA/SUPERFUND, 40 CFR 302 :
This product contains the following Reportable Quantity (RQ) Substance. Also listed is the RQ for the product. If a reportable quantity of product is released, it requires notification to the NATIONAL RESPONSE CENTER, WASHINGTON, D.C. (1-800-424-8802).

RQ Substance	RQ

Sodium Hydroxide	35,000 lbs

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :
This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :
Our hazard evaluation has found this product to be hazardous. The product should be reported under the following indicated EPA hazard categories:

X	Immediate (Acute) Health Hazard
-	Delayed (Chronic) Health Hazard
-	Fire Hazard
-	Sudden Release of Pressure Hazard
-	Reactive Hazard

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :
This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
This product is exempted under TSCA and regulated under FIFRA. The inerts are on the Inventory List.

FOOD AND DRUG ADMINISTRATION (FDA) Federal Food, Drug and Cosmetic Act :
When use situations necessitate compliance with FDA regulations, this product is acceptable under : the following use conditions.

This product may be employed in the treatment of papermill influent water systems in plants where paper or paperboard destined for food contact purposes is manufactured as long as the bromide ion concentration in the water is no greater than 22 ppm.

FEDERAL INSTITUTE FOR RISK ASSESSMENT (BfR) RECOMMENDATION :
This product is In compliance with recommendation BfR XXXVI

Dosage Limit (%)	Dosage Limit (mg/dm2)	Limitation Qualifier
0.07 %		product based on dry fiber

NSF NON-FOOD COMPOUNDS REGISTRATION PROGRAM (former USDA List of Proprietary Substances & Non-Food Compounds) :
NSF Registration number for this product is : 140603

This product is acceptable for treatment of cooling and retort water (G5) in and around food processing areas. This product is acceptable for treating boilers, steam lines, and/or cooling systems (G7) where neither the treated water nor the steam produced may contact edible products in and around food processing areas.

FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA) :
EPA Reg. No. 1706-179

In all cases follow instructions on the product label.

This product has been certified as KOSHER/PAREVE for year-round use INCLUDING THE PASSOVER SEASON by the CHICAGO RABBINICAL COUNCIL.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
This product contains the following substances listed in the regulation. Additional components may be unintentionally present at trace levels.

Substance(s)	Citations
• Sodium Hydroxide • Sodium Hypochlorite	Sec. 311

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CALIFORNIA PROPOSITION 65 :
Substances listed under California Proposition 65 are not intentionally added or expected to be present in this product.

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :
This product is a registered biocide and is exempt from State Right to Know Labelling Laws.

INTERNATIONAL CHEMICAL CONTROL LAWS :

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
Substances regulated under the Pest Control Products Act are exempt from CEPA New Substance Notification requirements.

AUSTRALIA
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

EUROPE
The substance(s) in this preparation are included in or exempted from the EINECS or ELINCS inventories

JAPAN
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

KOREA
All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

16. OTHER INFORMATION

Nalco: EHS2818, F105047/104688

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Moderate

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should

be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version),
Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH,
(TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By : Product Safety Department
Date issued : 06/05/2013
Version Number : 1.23

STA·BR·EX® ST70

Microorganism Control Chemical

NALCO
An Ecolab Company

Product Bulletin

PRODUCT DESCRIPTION AND APPLICATION

General Description Nalco **STA·BR·EX ST70** is a liquid biocide best described as an aqueous, one-drum, all-bromine stabilized product that is already active and ready to feed. **STA·BR·EX ST70** is used to control bacteria and other organisms in recirculating cooling water, pasteurizers, air washers and other heat transfer systems. It should be considered for use wherever chlorine bleach, chlorine gas, bromine tablets and other chlorine-based products are used.
Program Benefits STA·BR·EX ST70 is a part of a BIO-MANAGE® service program that helps provide microorganism control and clean systems. BIO-MANAGE is an approach to controlling biological fouling in industrial water systems that emphasizes system surveys, understanding the root cause of microbial growth and biofilm formation, and using an Engineering Approach to develop comprehensive programs for biological control. When an antimicrobial product such as **STA·BR·EX ST70** is used as part of BIO-MANAGE, greater efficacy and efficiency can be gained and this should lead to greater satisfaction for our customers.

STA·BR·EX ST70 is stabilized, which provides the features of stable long-term storage, improved biological deposit penetration, improved compatibility with other treatment chemicals, lower production of disinfection by-product, and low volatility for improved usage. The stabilizer is sulfamate ($H_2NSO_3^-$).

Other Benefits:

- **STA·BR·EX ST70** is a stable liquid bromine biocide in one package for easy dosing and control. Unlike liquid chlorine bleach, it does not lose its activity in a matter of days (see Figure 1). It reduces operator time and makes dosing easy.

- **STA·BR·EX ST70** kills bacteria and helps prevent slime problems. Combined with Nalco services, it helps keep heat exchangers and tower fill clean for low maintenance and cost-efficient operation.

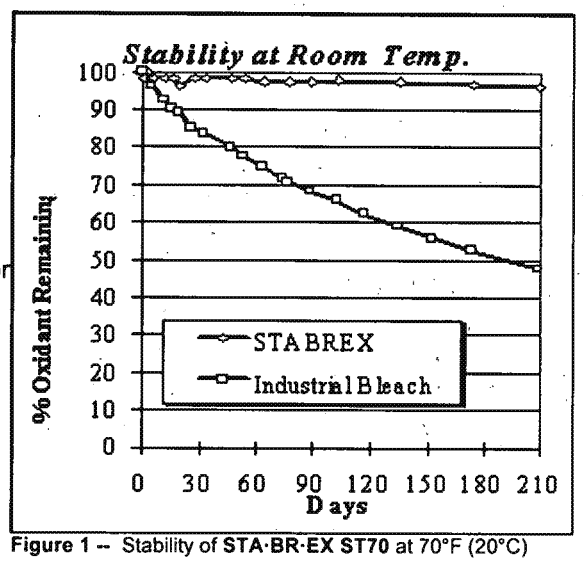

Figure 1 -- Stability of **STA·BR·EX ST70** at 70°F (20°C)

- Because **STA·BR·EX ST70** is bromine-based, it will work effectively in systems where chlorine is challenged by amine or ammonia contamination.

- **STA·BR·EX ST70** has low volatility that reduces product loss from the cooling tower. This results in more active product retained in the system to kill microorganisms. Equipment lasts longer because STA·BR·EX significantly reduces vapor-phase corrosion.

- **STA·BR·EX ST70** is packaged and delivered in PORTA-FEED® units. Nalco's delivery specialist does all of the chemical handling. Operators have less chance of exposure and a safer work environment.

- **STA·BR·EX ST70** generates less disinfection by-products as measured by the concentration of Adsorbable Organic Halide (AOX).

PHYSICAL & CHEMICAL PROPERTIES

Refer to the Material Safety Data Sheet (MSDS), SECTION 9, for the most current data. These properties are typical.

Form	Liquid
Color	Clear yellow to amber
Density	11.1 lb/gal [1.34 kg/l]
Specific Gravity @ 77°F [25°C]	1.34
pH (neat)	13.2
Freeze-Thaw Recovery	Complete
Freeze Point	16°F [-9°C]
Viscosity @ 20°F [-7°C]	21 cp
@ 75°F [24°C]	7 cp
Flash Point (PMCC)	> 200°F [93°C]
Odor	No odor, slight bromine odor when added to water

ACTIVE CONSTITUENTS

Sodium Hypochlorite	6.36 % as available chlorine
Sodium Bromide	9.23 % as NaBr

REGULATORY APPROVALS

STA·BR·EX ST70 is registered for use in Canada and must be applied according to appropriate national and local regulations. The federal legislative authority for the regulation of pesticides in Canada is the Pest Control Products Act. As with all biocides applied in Canada, the use of **STA·BR·EX ST70** is subject to Federal regulation and regulation under provincial/territorial authority. The Pest Management Regulatory Agency (PMRA) administers the *Pest Control Products Act* (PCPA) for the federal Minister of Health.

Refer to the Material Safety Data Sheet (MSDS), SECTION 15 for the most recent information on approvals.

Canadian PCPA Registration Number 25478 is approval for STA·BR·EX ST70 use in:

- Industrial pasteurizers (such as food, beverage and industrial process pasteurizers)
- Air washer systems equipped with mist eliminating components.
- Heat transfer systems (such as evaporative condensers, hydrostatic sterilizers and retorts)
- Pulp & paper mill influent water systems

STA·BR·EX ST70 is **not approved** for use in potable water, swimming pools or spas.

This control product is to be used only in accordance with the directions on the product label. It is an offense under the *Pest Control Products* Act to use a control product under unsafe conditions.

MATERIALS OF COMPATIBILITY

The following Materials of Compatibility information is available for the neat product exposed to containers, pumps, and feed lines:

Compatible	Not Compatible
Titanium	Brass
Vinyl	Carbon Steel
Polyethylene	Stainless Steel 304
Polypropylene	Stainless Steel 316
PVC	Buna-N
Hypalon® elastomer	Aluminum
Viton® synthetic rubber	EPDM
Fluoropolymer	Plasite 9570
Kynar	Silicone
Chlorobutyl Rubber	
Derakane 411-45	
Derakane 470-36	
Polyurethane	
Neoprene	

Note: Do not use any metals except titanium on any parts that come in direct contact with product in its neat form.

DOSAGE AND FEEDING

PRODUCT FEEDING AND PROGRAM COMPATIBILITY

Product Safety: **STA·BR·EX ST70** is corrosive to the eyes and skin with possible permanent damage depending on the length of exposure. Always wear the proper personal protective equipment (SECTION 8 of the MSDS) when working with **STA·BR·EX ST70**. This includes wearing chemical splash goggles, a face shield, gloves, boots and apron.

Product Feeding: **STA·BR·EX ST70** can be dosed continuously or intermittently. See section below called DOSAGE REQUIREMENTS for specific information on how to dose the product continuously or intermittently. Redox (oxidation reduction potential, ORP) is not a reliable method to monitor and control **STA·BR·EX ST70.**

Feeding Systems and Accessories: **STA·BR·EX ST70** in its neat form is corrosive to metals. **Always use compatible materials for all wettable parts in the feeding system.** A HAZOP-approved feed system has been designed by the Global Equipment Solutions Division (formerly called Applied Services).

At the heart of this system, is the ProMinent Gamma pump that can feed chemical from 10 to 150 gpd (gallons per day), at pressure ranges up to 145 psig (pounds per square inch, gauge). Each system, designed for hassle-free set-up and installation, includes the following: polypropylene (PP) stand assembly; polyvinyl chloride (PVC) ball valve/threaded piping assembly; 500-ml PVC calibration cylinder; PVC pressure relief valve; PVC back pressure valve; and a liquid-filled, two-inch stainless steel pressure gauge with PVC isolator.

Order the Nalco **STA·BR·EX ST70** feed systems and accessories by the part numbers listed in the chart below:

Nalco Part Number	Description	Pressure Discharge (psig*)
STB010	Feed system with 10 gpd pump	174
STB020	Feed system with 10 gpd pump	116
STB030	Feed system with 10 gpd pump	145
STB050	Feed system with 10 gpd pump	43
STB080	Feed system with 10 gpd pump	116
STB150	Feed system with 10 gpd pump	50

*psig = pounds per square inch, gauge. Using atmospheric pressure as zero reference, gauge pressure is a measure of the force per unit area exerted by fluid.

Refer to the Global Equipment Solutions Division specification document SPEC-438 for further information. Feed equipment is available through the Global Equipment Solutions Division.

Feedpoint Selection: **STA·BR·EX ST70** is compatible at use levels with scale and corrosion inhibitors in the cooling system. However, **STA·BR·EX ST70** should not be mixed in neat form with any other product. Do not feed neat **STA·BR·EX ST70** to a small recirculation line with scale and corrosion inhibitors, especially if there is very low or intermittent flow. You should feed **STA·BR·EX ST70** to the tower basin or as close as possible to the microbiological fouling location. For example, if the tower fill is fouled, feed product directly to the return header.

Note: As with all high pH products, if this product is fed into an area with very low flow, localized **high pH** will occur, creating localized **scale deposition**. The simplicity of locating and feeding this one-component product is an advantage over other oxidizing biocides.

Feed pump selection: **STA·BR·EX ST70** is an off-gassing liquid that, like bleach, can cause gassing problems in feed lines and pumps. Gassing can cause vapor lock and stop the product from feeding. Keep all lines, containers and pumps away from heat or direct sunlight. The preferred pumps for feeding **STA·BR·EX ST70** are ProMinent diaphragm pumps with degassing heads. You can order ProMinent beta and Gamma L metering pumps that meet your pressure and flow requirements through the Nalco Global Equipment Solutions Division. Refer to Nalco SPEC-452 for more details and individual pump models. Be sure to select the pumps that are compatible with STA·BR·EX (Acrylic/EPDM with degassing heads). If you have an intermittent feed application, select one of the programmable timer pumps from SPEC-452. No external timer is required. You can easily program the pump to feed on a periodic basis.

An electronic copy of SPEC-452 can be found on the Corporate Literature/Forms Directory database located in Lotus Notes.

As an alternative, peristaltic pumps may also be used in this type of service. **The main drawback** to the peristaltic pump is the flexible tube. You will have to monitor the condition of the flexible tube and replace it quarterly or it will crack and leak product, causing safety, corrosion and handling problems. Peristaltic pumps are typically limited to 100 psig (6.8 bar) head pressure.

Other brands of pumps were also tested in field trails. However, even with four-way multifunctional valves, some pumps lost prime. You should expect pumps without degassing capability to have the same reliability limitations as they have with bleach.

The following configuration recommendations will help minimize off-gassing problems and improve the chances of trouble-free performance:

a. Reduce the length of the suction line as much as possible.

b. Increase the diameter of the suction line.

c. Use a pump with a degassing head.

d. Keep the suction line as cool as possible.

e. Keep the stroke adjustment as high as possible.

STA·BR·EX ST70 should be fed via a closed feed system. A closed feed system is defined as a system in which fluid is moved from a closed storage vessel into a treated medium without exposure to the atmosphere except through normal venting or pressure relief devices. Please see the MINIMUM REQUIREMENTS FOR FEEDING **STA·BR·EX ST70** from the Global Equipment Solutions Division for the recommended closed feed system.

Compatibility: Do not mix **STA·BR·EX ST70** in neat form with other chemicals. It should never be mixed with any amount of bleach or stabilizer (NALCO® 2817/7344). The resulting reaction is highly exothermic. Avoid contact with all strong acids. They will react with neat **STA·BR·EX ST70** to generate heat, splattering or boiling and the release of halogen vapors and toxic fumes.

STA·BR·EX ST70 in its neat form should not be allowed contact with metals or organic materials (e.g., rags, sawdust, hydrocarbon oils or solvents). Avoid reducing agents like hydrazine, sulfites, sulfides, aluminum or magnesium that can generate heat, fires, explosions and the release of toxic fumes.

Many organic contaminants react with traditional oxidizing biocides like chlorine and chlorine/bromine mixtures. The reaction leaves less oxidant available as a biocide. With **STA·BR·EX ST70**, these reactions are slowed, making the apparent chlorine demand smaller. The stabilizer in **STA·BR·EX ST70** makes it more compatible with organic contamination at use concentrations. The product is compatible with the molecules Nalco uses for scale and corrosion inhibition, including phosphonates and triazoles. Nalco holds a patent for this unique compatibility feature.

DOSAGE REQUIREMENTS

Continuous Feed

To ensure consistent microbial control, when using low-level continuous halogenation, it is important to periodically increase the oxidizing biocide feed to achieve at least a one-hour-period of 1.0 ppm or greater halogen residual measured as three-minute FRO. For continuous feed, control **STA·BR·EX ST70** at 0.2 to 1.0 ppm residual oxidant as chlorine using the three-minute-FRO test. (See "Testing and Control" section.)

In the United Kingdom, the Approved Code of Practice (HSE L8), which is practical advice on how to comply with the UK Health and Safety Act, recommends an "applied dose to maintain a free reserve of 0.5 to 1.0 mg/L as chlorine in the return water". The free reserve value is based on DPD-1 (FRO) testing and immediate color change.

Start treatment with a residual 1.0 ppm (as chlorine). You may be able to slowly work your way to 0.5 ppm total halogen, or lower, depending on system demand, season and contamination. During the first month

of product use, you may experience significant product consumption and higher than expected feed requirements. As the system is cleaned, the product consumption usually will decrease.

For recirculating cooling towers, there are two methods to estimate the amount of product required at prospect accounts. Both methods can be very inaccurate if there is a unique system or a high halogen demand.

- Recirculation rate (US GPM) * 0.004 = lb of **STA·BR·EX ST70** /day

Recirculation rate (liters/min)*0.00048 = kg of **STA·BR·EX ST70** /day

- 1 lb/day of **STA·BR·EX ST70** per 5,000 US gallons treated/day 1 kg/day of **STA·BR·EX ST70** per 41.7 m^3 treated/day

Where:
(a) Volume treated per day is the sum of the system volume and the make-up rate per day.
(b) Following conversions factors are noted: 1 pound (lb) = 0.4536 kg; 1 US gal = 3.7854 liters.

Field tests have shown errors as great as 100%, so be careful when using these formulas. Large, clean utility cooling towers may use half as much. Contaminated process-cooling systems may use more than twice as much.

Another method for estimating the dosage requirement is from prior chlorine use data. If the account has used chlorine in the past, the replacement rate will be about 1.0-2.0 weights of **STA·BR·EX ST70** for every weight of chlorine gas or US gallon (3.8 liters) of chlorine bleach. Use a 1.5 weight ratio as a minimum for program startup. Adjust the feed rate to achieve a minimum of 0.2 to 1.0 ppm FRO (DPD-1) at three minutes. There is no correlation to ACTI-PLUS® 2818/NALCO® 7345 stabilized chlorine dose.

Keep in mind, these are estimates. Temperature, pH, sunlight, organic contamination and halogen demand will alter the dosage requirements seasonally. The level of fouling and halogen demand of the system will influence product consumption. To better estimate the amount of product required to treat the system, analyze the system for chlorine (halogen) demand. This procedure can be found in the CPP Presection (PAC-3D), and DPD test product bulletin.

There are three main contributors to halogen demand and high **STA·BR·EX ST70** feed rates:

1. Unclarified surface water used as tower make-up. The effect can be quantified by running a halogen demand test on the make-up water.

2. Process contamination, including ammonia, that creates biocidal but volatile bromamines when reacted with bromine.

3. Systems contaminated with biological sludge and biofilms. A significant source of biological demand is tower basins filled with sludge. Tower basins should be cleaned regularly. Biofilms in the system are a source of demand for the first month of **STA·BR·EX ST70** use or loss of control.

Do not feed **STA·BR·EX ST70** in excess of 4 ppm total chlorine in the discharge. Local discharge regulations may require lower levels of halogen. U.S. EPA registration limits the legal use of this product to 4.0 ppm as chlorine. Refer to local registration to learn about other limitations on discharge and use. As supplied, **STA·BR·EX ST70** is a caustic solution. If overfed, the system pH may increase in some systems, leading to scaling or white rust problems.

Intermittent Feed In the United Kingdom, the Approved Code of Practice (HSE L8), which is practical advice on how to comply with the UK Health and Safety Act, also allows for intermittent feeding (also commonly referred to as slug-dosing or shot-dosing) of oxidant "...but if they are applied as a shot dose, the effective concentration should be present for at least 4 out of every 24 hours" (page 28, paragraph 1).

Intermittent feeding may be a more economical method than continuous feeding for microbial control. For intermittent feeding of **STA·BR·EX ST70,** add enough product to achieve a minimum of 0.5 - 1.0 ppm (FRO three minutes) as Cl_2 for at least one hour and repeat or extend this treatment at least 4 hours per 24 hour period. Extended duration doses usually provide better performance than instantaneous slugs. A dose of 18 ppm **STA·BR·EX ST70**, based on system volume, delivers 1.0 ppm total applied halogen. However, due to system halogen demand, several times this dosage is usually required to achieve a residual. A typical dosage is 50 - 150 ppm. The actual amount will vary from system to system.

Repeat these doses as often as necessary to maintain microbiological control. This will vary from two to three doses per week for a clean HVAC system during the winter to six or more doses per day for a contaminated industrial system. As a general rule, a dipslide test showing fewer than 100,000 cfu/ml in the bulk recirculating water is the goal unless local regulations or experience indicate a different standard.

TESTING AND CONTROL

Standard chlorine measurement techniques can be used to measure **STA·BR·EX ST70**. Most oxidizing biocide test kits give values in terms of chlorine, which is the industry standard. Simply test and control dosage based on these values. There is typically no need to express the values as "bromine levels"; all measurements are made "as chlorine." If you need to convert to bromine equivalents, multiply the chlorine value by 2.25. **STA·BR·EX ST70** is an all-bromine biocide and does not contain NaOCl (bleach).

When using **STA·BR·EX ST70**, you can obtain both free and total halogen values. The preferred method is to use free residual oxidant at three minutes. Some previous communications have referenced a measurement of free residual oxidant at four minutes. The three-minute and four-minute FRO tests can be used interchangeably. The three-minute FRO is used throughout this document for consistency. United Kingdom guidelines require an instantaneous or "flash" FRO.

To accurately measure both free and total halogen levels, the DPD test (part # 420-C0050A.88) is used and interpreted according to the chart below. This shows how the DPD reagent may help you better understand a **STA·BR·EX ST70** or mixed halogen oxidant treatment. The DPD1 free chlorine test, read immediately, measures instantly available chlorine and bromine, but does not capture all of the **STA·BR·EX ST70**-stabilized oxidant. A reading at three minutes gives a good estimate of **STA·BR·EX ST70** oxidant. It will also measure free chlorine, if present from makeup water or supplemental bleach addition. The DPD1+3 tests or the DPD4 total residual test will measure both free and combined chlorine and bromine species. The DPD4 bromine test measures all halogen species and expresses the Br_2 value as 2.25 times the Cl_2 value.

DPD Test	HOCl	N-Cl	HOBr	N-Br	SBX	Halogen Result	Reagent
Free Cl_2 (20seconds)	+	-	+	~	~	Quick Halogen	DPD1
Free Cl_2 (3minutes)	+	-	+	+	+	Quick + STA·BR·EX	DPD1
Total Residual	+	+	+	+	+	Total Halogen	DPD1+3
Total Residual	+	+	+	+	+	Total Halogen	DPD4
Br_2 (as Cl_2)*	+	+	+	+	+	Total Halogen	DPD4 ~ partial reaction * multiply by 2.25 to express as ppm Br_2

where:
HOCl = hypochlorous acid, or free chlorine in water; N-Cl = chloramine or combined chlorine; HOBr = hypobromous acid or free bromine in water; N-Br = bromamine or combined bromine; SBX = an abbreviation for **STA·BR·EX ST70**.

The maximum reading of the DPD test kit is 3.5 ppm total halogen (as chlorine). If your water sample has a reading of 3.5 ppm or greater, dilute the sample 50/50 with chlorine-free water and multiply the result by 2 to obtain a proper reading. The maximum reading on the DR-2400 version is 2.2 ppm.

MONITORING OF STA·BR·EX ST70 PERFORMANCE

Traditionally, microbial control programs have been monitored using some type of planktonic culture testing such as dipslides. However, planktonic counts seldom correlate well with sessile (surface) population counts. This is unfortunate, since control of the sessile population should be the goal of a microbial control program. Therefore, when possible, sessile monitoring tools should be used to judge the performance of your microbial control program.

Examples of Nalco's sessile monitoring tools include the Microbiological Survey Form 905 (a copy can be found on the Literature/Forms Directory), Differential Microbiological Analysis (DMA), BioBox (part #440-P3060.88), the Surface Microbial Monitoring Kit (part #420-C0243.88), and the Biofouling Monitor (part #440-BFM100.88).

Corrosion coupon surfaces can also be used to monitor sessile population growth (use the DMA Analysis).

Algae control - Halogens are typically dosed at high concentration to control algae. **STA·BR·EX ST70** is no different. While low levels may be sufficient to control bacteria, it may take large and costly dosages to control algae. There may be more cost-effective means for controlling algae. **STA·BR·EX ST70** acts synergistically with algaecides octyl-isothiazolone (NALCO® 2894), terbuthylazine (NALCO® 2834) and isothiazolone (NALCO® 7330/2593).

OVER-STABILIZATION

As with any biocide application, the efficacy of **STA·BR·EX ST70** treatment depends on correct dosing. Underfeeding may result in poor control of microorganisms. Overfeeding **STA·BR·EX ST70** may likewise result in unsatisfactory control due to over-stabilization. Over-stabilization is a condition that can occur when the sulfamate stabilizer concentration becomes high enough to diminish the biocide's speed of kill. The antimicrobial properties of the product are not lost, but the time required to achieve a desired antimicrobial effect may become very long (e.g., hours). Over-stabilization is known to occur with other halogen stabilizers such as isocyanurate and hydantoin typically used in swimming pools. It is now confirmed that over-stabilization can occur with sulfamate.

As the ratio of stabilizer to oxidant becomes greater, less oxidant is available for biocidal reaction in a **STA·BR·EX ST70** application. When biocidal reactions consume the oxidant, the stabilizer remains. At ratios greater than 20:1 of stabilizer to oxidant, studies show speed of kill declines significantly and **STA·BR·EX ST70** needs longer contact times for control of microbes.

GUIDELINES TO ASSESS THE RISK FOR OVER-STABILIZATION:

The stabilizer will accumulate in continuously dosed systems to levels potentially affecting performance if one or more of the following conditions exist:

- Cycles of concentration greater than six;
- Holding time index greater than 24 hours;
- Halogen demand greater than 1 ppm.

In systems that are intermittently fed with **STA·BR·EX ST70**, over-stabilization due to excess stabilizer may or may not occur in these conditions, depending on site-specific factors.

The impact of this phenomenon is that there is a diminished speed of kill by the product, even at high oxidant residuals. You may think your treatment is doing an adequate job of protecting a system against

microbial growth, but in fact, the treatment may be inadequate. A very likely warning sign is consistently high bacterial counts in spite of maintaining a DPD1 (free residual oxidant at three minutes) **STA·BR·EX ST70** reading of 0.2 to 1.0 ppm FRO (as chlorine).

If any of the above conditions exist in your customer's cooling water system, you are expected to take appropriate action, which may include any of the actions shown in the next section.

WHAT TO DO IF OVER-STABILIZATION IS SUSPECTED TO OCCUR:

Please take the following steps if your system is at risk for over-stabilization:

For Continuously Fed Systems:

1. Reduce the overall **STA·BR·EX ST70** continuous dosage rate. This option requires you to periodically re-test the system to determine if such action represents adequate remedy, OR
2. Switch to intermittent feeding of **STA·BR·EX ST70**, as determined by local guidelines. This option also requires you to periodically re-test the system for over-stabilization. OR
3. Switch from **STA·BR·EX ST70** to ACTI-BROM® (ACTI-BROM® 1318, NALCO® 7334).

For Intermittently Fed Systems:

1. Decrease frequency of intermittent feeding. This option requires you to periodically re-test the system to determine if such action represents adequate remedy. OR
2. Should you find the system over-stabilized with intermittent feed, then switch to ACTI-BROM® 1318, NALCO® 7334, or another suitable treatment.

HOW TO TEST FOR OVER-STABILIZATION

To confirm if over-stabilization is occurring, please follow the steps outlined below:

1. Measure sulfamate and halogen residual concentrations in the system water. (a) To determine sulfamate levels, a new sulfamate test kit was developed for use at the cooling tower site(s). It is available through the Global Equipment Solutions Division (part # 420-C0025.88). The new sulfamate test kit is a reliable tool, but you may additionally submit a sample to the regional Nalco Company analytical services laboratory for IC-SULFAM testing if a more precise result is desired. (The **NOTE** below in Point 2 of this section provides more information about when you may wish to submit a sample for IC-SULFAM testing following a sulfamate test kit result.) (b) To determine the halogen level (chlorine ppm by DPD FRO(3)), follow the guidelines previously discussed in the "Testing and Control" section of this CPP. If intermittent feed is used, the halogen level should be measured after a slug dose and after sufficient time has elapsed to allow complete mixing to occur.
2. Calculate the ratio of the sulfamate residual to the halogen residual. For either continuously fed or intermittently fed systems, if the sulfamate residual (ppm sulfamate) to halogen residual (FRO3 or DPD1 as ppm Cl_2) is greater than 20 to 1, the system is over-stabilized and further action is required, as defined in the next section. This chart shows examples of how a ratio of 20 can be observed.

Halogen FRO3 as Cl2	Sulfamate ppm	Ratio
0.25	> 5	>20
0.50	>10	>20
1.0	>20	>20

NOTE: The sulfamate field test is a reliable tool, but the IC-SULFAM test is the "gold standard" for sulfamate analysis. Use this test when you need a more precise result. For example, if the field test result, combined with the DPD test results, shows a low ratio (5 or less) or a high ratio (20 or higher), then you would not need to obtain further data. However, if you obtain a ratio that is in the range between 10 and 20:1, then you may wish to submit a water sample for an IC-SULFAM analysis before making any significant program changes.

ENVIRONMENTAL AND TOXICITY DATA

Biological Oxygen Demand (5-day BOD_5)	Not Applicable
Chemical Oxygen Demand (COD)	Not Applicable
Total Organic Carbon (TOC)	Not Applicable

Refer to the Material Safety Data Sheet (MSDS), SECTIONS 11 and 12, for the most current data.

If fed beyond the product label recommendations, this product may be toxic to fish. Do not discharge into lakes, streams, waterways, ponds or public waters unless in accordance with an NPDES permit. For guidance, contact your Nalco sales engineer, your regional office of the EPA, or your local Environmental authority.

SAFETY AND HANDLING

Refer to the Material Safety Data Sheet (MSDS), SECTIONS 3 and 8, for the most current data.

STORAGE

STA·BR·EX ST70 has a freeze point of 16°F (-9°C) and should be stored appropriately. Recommended in-plant storage is six months. Refer to the Material Safety Data Sheet (MSDS), SECTION 7, for the most current data.

REMARKS

If you need assistance or more information on this product, please call your nearest Nalco Representative.
For more news about Nalco Company, visit our website www.nalco.com

For **Medical and Transportation Emergencies** involving Nalco products, please see the Material Safety Data Sheet for the phone number.

ADDITIONAL INFORMATION

STA·BR·EX, BIO-MANAGE, PORTA-FEED, ACTI-BROM, NALCO and the Logo are trademarks of Nalco Company (10-16-2009)

ProMinent is a registered trademark of ProMinent Dosiertechnik GmbH Corporation.
Ecolab is a trademark of Ecolab USA, Inc.
All other trademarks are the property of their respective owners.

Doug Mendoza Bridgeton Landfill

From: Doug Mendoza
Sent: Thursday, July 24, 2014 11:23 AM
To: 'Ed Galbraith'; John Lodderhose
Cc: Aaron Karlas (akarlas@feezorengineering.com); Kamp, Kevin; bpower@republicservices.com
Subject: RE: Cooling tower water lines

Ed,

MSD has a formal procedure in place for special discharge requests. There is an application form to be filled out, which you can download from here: http://www.stlmsd.com/sites/default/files/education/341072.PDF. Because the wastewater is cooling tower blowdown, MSD will require only an abbreviated analysis of pollutants. Since MSD's Missouri River treatment plant land applies its biosolids, and because the wastewater is cooling tower blowdown and cooling tower chemicals often contain molybdenum and MSD cannot ascertain the presence or absence of molybdenum from the materials you have already provided, we must include molybdenum (total) as a pollutant to be analyzed prior to any approval. In addition to molybdenum, you must also have the wastewater analyzed for chemical oxygen demand (COD), total suspended solids (TSS), pH, and UV transmittance. The UV transmittance is because the Missouri River treatment plant utilizes ultraviolet disinfection. Please submit the results of analyses with the completed application. Please also be specific as to the period of time desired for discharge. From other conversations, it seems that a discharge approval would be needed until Bridgeton Landfill's force main and pump station construction is complete and operational. However, your verification of this is needed.

Once we have the completed application and necessary analytical data, we can complete our review of your request.

Regarding the discharge costs, they will be assessed at the normal on site discharge rate, as provided in MSD ordinance no. 13758. If the wastewater strength is below surcharge levels, then only the volume charge would apply.

Sincerely,
Doug Mendoza
MSD Industrial Pretreatment Manager

From: Ed Galbraith [mailto:EGalbraith@barr.com]
Sent: Wednesday, July 23, 2014 1:46 PM
To: Doug Mendoza; John Lodderhose
Cc: Aaron Karlas (akarlas@feezorengineering.com); Kamp, Kevin; bpower@republicservices.com
Subject: FW: Cooling tower water lines

Doug, as we discussed today, here is a description of the non-contact cooling water. Fact sheets and MSDS for the two compounds are also attached.

> Bridgeton Landfill pretreatment system generates cooling water that can either be commingled and discharged with treated leachate or handled as a separate wastewater stream. Until the pretreatment system is approved by the Metropolitan St. Louis Sewer District (MSD), Bridgeton Landfill would like to treat the cooling water as a separate wastewater stream.
> The cooling water system generates about 3,000 to 10,000 gallons per day, which is collected in the 96K tank. Initially, the discharge from the 96K Tank will occur about every 10 to 30 days. The composition of the water is primarily "tap" water from Missouri American Water and two additional products to prevent scaling and corrosion and control bacteria. The two products are:

Nalco 3DT265. This product includes phosphonate to inhibit scaling and benzotriasole to reduce corrosion. Based on the product information, the expected water pollutants are BOD, COD and total organic carbon. The dosing rate into the cooling water will be 120 parts per million (ppm) of product. Based on environmental data in the fact sheet, the contribution to the cooling water from this product would be expected to be:

- BOD_5 – 8,700 ppm x 120 ppm = 1.044 ppm BOD_5
- COD – 493,000 ppm x 120 ppm = 52.7 ppm COD
- TOC – no data

Nalco ST70. This is a bactericide consisting of 9.23% sodium bromide (NaBr) and 6.36% sodium hypochlorite (NaClO) as available chlorine. Based on a dosage rate of 2.6 pounds of product per 3,100 gallons of water, the approximate concentration in cooling water for each of these compounds would be expected to be:

- 2.6 pounds product/3,100 gallons x 6.36% NaClO x 119,748 = 6.4 ppm NaClO
- 2.6 pounds product/3,100 gallons x 9.23% NaBr x 119,748 = 9.3 ppm NaClO

Dosage rates are expected to change slightly to adjust for specific conditions and system performance, and concentrations of active ingredients will change accordingly.

Bridgeton Landfill requests permission to discharge this material to the Mo River WWTP, preferably at "ordinance" cost since the material is relatively uncontaminated. I'll touch base with you tomorrow. Thanks.

Ed Galbraith

Senior Environmental Scientist
Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

resourceful. naturally. BARR

To: BRIDGETON LANDFILL LLC [1003803000]

From: Doug Mendoza

Date: July 24, 2014

Re: Summary of Technical Issues Meeting on 7/23/14

On 7/23/14, MSD and Bridgeton Landfill representatives held a meeting for updates and to discuss issues related to Bridgeton Landfill's leachate. Personnel with the landfill included representatives from Feezor Engineering, the hauling company; CES, the force main and pretreatment system consultant; and Stover Group, the contracted operators of the pretreatment system. The following were among the items discussed:

Status of pretreatment plant start up:

On June 30, the landfill started introducing leachate into the beginning of the pretreatment plant, the physical/chemical treatment part. This part now is all up and running, and they are feeding the effluent into the biological system. Today (July 23) they are starting up the Dynatec ultrafilters on the back end of the pretreatment plant. They also are about to start the solids handling part. All treated leachate effluent is being used to fill the 1M gallon biological treatment tanks. They are about to start filling the 3rd tank (of 4), currently generating about 30-40K of treated leachate. When the pretreatment system is completely ready, they probably will generate about 100K GPD to start.

Status of force main:

Piping for phase 1 (of 3) of the force main is all in place, and they are moving on to phase 2. They are still hoping for completion in late October. Some of the pump station pumps have a lead time of November 22, but they have temporary pumps approved for use by MSD. Piping from the 97K final tank to the first pump station, including the sampling manhole, will be installed closer to the final construction time.

Update on Bissell Point/Mo River plant operations:

MSD plant management indicated that both plants are operating well. Bissell is handling the current hauled leachate loading well. Mo River worked through normal new plant & new disinfection start up issues back in March/April, and is doing fine now other than dealing with struvite mineral build up in the lines. To prevent future problems when the landfill may discharge to the Mo River plant during non-disinfection season, magnesium and ammonia levels will need to be checked on the treated leachate.

Final permit issues:

Effective date – MSD can set this for any time, so long as the special conditions adequately address the transition to fully pretreated leachate. The landfill would like it soon, due to lower hauled waste rates, but this can be addressed separately from the final permit.

Timing of plant acceptance by MSD – With the pretreatment plant essentially being two systems, one for chemical/physical treatment and one for biological treatment, MSD may give

two separate approvals. This is because they will come online at different times. Much also depends on the BOD levels generated by the biological treatment, and if it initially achieves desired reductions, or has to work down to it.

Sampling and reporting – The sampling and reporting requirements will be stepped down, following a daily/monthly/quarterly progression that reduces based on compliance.

BOD-only surcharge – Pilot plant data showed COD levels about 5,000 mg/L, with BOD levels only about 250 mg/L. The landfill believes the COD is recalcitrant to further treatment. In order to be surcharged based instead on BOD, they will need to run CBOD and BOD tests on the treated leachate, and for both 5 day and ultimate values. They plan to acclimate the biological seed to pretreatment plant conditions, then use it to run the necessary tests.

Storm water protocol – Bridgeton Landfill reps expressed interest in continuing the current approval protocol for contaminated storm water. It was previously conveyed that contaminated storm water would be run through the pretreatment process. However, the landfill now is interested in discharging it without pretreatment, if it already meets all necessary discharge limitations. Rather than including a complete protocol as part of the permit, MSD may instead add a special condition stating that such discharges must be granted via a separate special discharge approval. The special condition would be necessary because the discharges otherwise would be considered a prohibited bypass of the pretreatment system.

Cooling water protocol – Cooling tower blowdown is currently being generated at a rate of 5-10K GPD. It currently is being collected and stored in the 97K gallon tank. Bridgeton Landfill will be submitting a request for special discharge approval of this "non-process" wastewater.

MSD – Bridgeton Landfill Technical Meeting

July 23, 2014

AGENDA

1. Introductions

2. Status of pretreatment plant start up

3. Status of force main

4. Update on Bissell Point/Mo River plant operations

5. Final Permit issues

    a. Effective date

    b. Timing of plant acceptance by MSD

    c. Sampling and reporting

    d. BOD-only surcharge

    e. Storm water protocol

    f. Cooling water protocol

Doug Mendoza

From: Doug Mendoza
Sent: Thursday, July 24, 2014 7:55 AM
To: 'Ed Galbraith'; 'Merrigan, Jessie (LG)'; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; 'Theerman, Jeff (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie Freeman
Subject: RE: Bridgeton Landfill Weekly Report

Ed,

Thank you for the data and the associated explanatory notes. Regarding the BOD for Pace report 60173034, as soon as the retest results are received, please forward them to us. If they are in line with historical values relative to the corresponding COD, we likely will be able to use the retest value. If the results are not in line, then we will need to discuss options for how to handle this particular sample's BOD results.

Doug

From: Ed Galbraith [mailto:EGalbraith@barr.com]
Sent: Wednesday, July 23, 2014 1:35 PM
To: 'Merrigan, Jessie (LG)'; Doug Mendoza; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; 'Theerman, Jeff (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie Freeman; Ed Galbraith
Subject: Bridgeton Landfill Weekly Report

The materials for the previous week are now on Barr's ftp site.

Notes on the data:

- Samples 316-357 and 316-353 were out of hold time for BOD. Sampling personnel have been instructed to collect Saturday samples in the afternoon to insure that the 48 hour hold time is met in the future.

- As noted last week, Pace report 60173034 reported a BOD value of 93,000 ppm and a COD value of 56,000 ppm. According to Pace, they experienced over depletion of the Laboratory Control Sample and Method Blank for the BOD analysis and as a result the BOD value is biased high. We have footnoted the data as unusable and have asked Pace to rerun the BOD sample, although the sample will be out of hold time. We will forward the results as soon as it is received and verified.

- As noted last week, Pace report 60172716 reported an Oil and Grease value of 15.8. Pace is analyzing extra sample material and we will forward that result as soon as it is received and verified.

Doug Mendoza Bridgeton Landfill

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Wednesday, July 23, 2014 1:46 PM
To: Doug Mendoza; John Lodderhose
Cc: Aaron Karlas (akarlas@feezorengineering.com); Kamp, Kevin; bpower@republicservices.com
Subject: FW: Cooling tower water lines
Attachments: 3DT265 MSDS.PDF; 3D TRASAR 3DT265 Cooling Water Scale and Corrosion Inhibitor-001.pdf; ST70 MSDS.PDF; STA·BR·EXTM ST70 Microorganism Control Chemical.pdf

Doug, as we discussed today, here is a description of the non-contact cooling water. Fact sheets and MSDS for the two compounds are also attached.

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Bridgeton Landfill requests permission to discharge this material to the Mo River WWTP, preferably at "ordinance" cost since the material is relatively uncontaminated. I'll touch base with you tomorrow. Thanks.

Ed Galbraith

3D TRASAR®
3DT265

Cooling Water Scale and Corrosion Inhibitor

NALCO
An Ecolab Company

Product Bulletin

PRODUCT DESCRIPTION AND APPLICATION

***3D TRASAR** products are part of an innovative water treatment program that uses proven technology to prevent operational problems. **3D TRASAR** technology compensates for both routine and special causes of system variation. **3D TRASAR** programs provide a return on your investment through their unique control and diagnostic capabilities.*

3D TRASAR 3DT265 is designed for use in systems with recirculating water calcium concentrations greater than 300 ppm (as $CaCO_3$) at the targeted cycles when the pH is typically greater than 8.7. Because **3DT265** contains no molybdate or zinc, it should be considered as a more environmentally friendly chemistry to meet the regulatory needs of many customers.

3DT265 is a balanced blend of corrosion and scale inhibitors designed for use in open recirculating water systems.
3DT265 contains:

- Proprietary blend of phosphonate inhibitors for both threshold level scale and corrosion inhibitors. They are particularly applicable to systems where calcium carbonate and/or sulfate scales are likely.
- Proprietary High Stress Polymer (HSP) dispersant.
- Benzotriazole (BZT) for copper corrosion inhibition.

3DT265 is designed to operate at high alkalinities, minimizing or eliminating the need for acid feed. Corrosion protection is provided by specific organic phosphate derivatives binding to the ferrous corrosion sites and from the protection provided by operating at a higher alkalinity. Scale protection and general dispersancy are provided by a unique polymer designed for high stress systems.

PHYSICAL & CHEMICAL PROPERTIES

Refer to the Material Safety Data Sheet (MSDS), SECTION 9, for the most current data.

These properties are typical.

Form	Liquid
Color	Yellow
Odor	None
Specific Gravity @ 77 °F [25 °C]	1.13

Density	9.39 lb/gal
pH (neat)	3.2
Viscosity	6 cp
Flash Point (PMCC)	>200°F (93°C)
Freeze Point	28°F (-2.2°C)
Solubility in Water	Complete

ACTIVE CONSTITUENTS

Active	**Function**
Phosphonate (HEDP/PBTC)	$CaCO_3$ stabilization (scale inhibitor)
Benzotriazole	Yellow metal corrosion inhibitor
Tagged High Stress Polymer	Dispersant
TRASAR® #2	Product monitoring & control

REGULATORY APPROVALS

3DT265 is intended for industrial use only. It must not be fed to potable water systems.

Refer to the Material Safety Data Sheet (MSDS), SECTION 15 for the most recent information on approvals.

MATERIALS OF COMPATIBILITY

Compatible	Incompatible
Unwelded 304SS	Welded 304SS
Unwelded 316 SS	Welded 316 SS
CPVC	Brass
HDPE	Mild Steel
Porta-feed Liner	UHMWPE
Nylon (polyamide)	Neoprene
Polymethylmethacrylate	EHD0045 Liner (epoxy phenolic
Polypropylene	HXG0009 Liner (phenolic)
Fluoropolymer	Plasite 7122 (cross-linked epoxy phenolic)
PVC	
Kynar	
EPDM	
Kalrez® perfluoroelastomer 1050	
Viton® synthetic rubber A	
Buna-N	
Plasite 4300 (vinyl ester resin)	

DOSAGE AND FEEDING

For complete dosage and feeding recommendations, contact your Nalco sales engineer.

ENVIRONMENTAL AND TOXICITY DATA

Biological Oxygen Demand (5-day BOD_5)	8,700 ppm
Chemical Oxygen Demand (COD)	439,000 ppm
Total Organic Carbon (TOC)	Not Available

Refer to the Material Safety Data Sheet (MSDS), SECTIONS 11 and 12, for the most current data.

SAFETY AND HANDLING

Before using this product please refer to SECTIONS 8 of the MSDS for proper personal protective equipment (PPE) and SECTIONS 3 for health effects information.

3DT265 is an acidic product and can cause eye and skin irritation. Chemical-resistant gloves and safety goggles should be worn when handling **3DT265**. Avoid breathing the solution spray. Do not take internally.

STORAGE

3DT265 should be stored in a location where the product temperature can be kept in a range between 28°F (-7°C) and 120°F (49°C). Recommended in-plant storage limit is one year.

Refer to the Material Safety Data Sheet (MSDS), SECTION 7, for the most current data.

REMARKS

If you need assistance or more information on this product, please call your nearest Nalco Representative.
For more news about Nalco Company, visit our website www.nalco.com

For **Medical and Transportation Emergencies** involving Nalco products, please see the Material Safety Data Sheet for the phone number.

ADDITIONAL INFORMATION

TRASAR, 3D TRASAR, NALCO and the Logo are trademarks of Nalco Company (11-3-2010)
All other trademarks are the property of their respective owners.

Nalco Company, 1601 West Diehl Road, Naperville, Illinois 60563-1198

Subsidiaries and Affiliates in Principal Locations Around the World

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NALCO

SAFETY DATA SHEET

PRODUCT

3D TRASAR® 3DT265

EMERGENCY TELEPHONE NUMBER(S)
(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **3D TRASAR® 3DT265**

APPLICATION : CORROSION/SCALE INHIBITOR

COMPANY IDENTIFICATION : Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER(S) : (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING
HEALTH : 1 / 1 FLAMMABILITY : 1 / 1 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

CAUTION
May cause irritation with prolonged contact.
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Keep container tightly closed. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water.
Wear suitable protective clothing.
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of sulfur (SOx) under fire conditions. May evolve oxides of phosphorus (POx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
May cause irritation with prolonged contact.

SKIN CONTACT :
May cause irritation with prolonged contact.

INGESTION :
Not a likely route of exposure. There may be irritation to the gastro-intestinal tract with nausea and vomiting.

STA·BR·EX® ST70

Microorganism Control Chemical

NALCO
An Ecolab Company

Product Bulletin

PRODUCT DESCRIPTION AND APPLICATION

General Description Nalco **STA·BR·EX ST70** is a liquid biocide best described as an aqueous, one-drum, all-bromine stabilized product that is already active and ready to feed. **STA·BR·EX ST70** is used to control bacteria and other organisms in recirculating cooling water, pasteurizers, air washers and other heat transfer systems. It should be considered for use wherever chlorine bleach, chlorine gas, bromine tablets and other chlorine-based products are used.
Program Benefits STA·BR·EX ST70 is a part of a BIO-MANAGE® service program that helps provide microorganism control and clean systems. BIO-MANAGE is an approach to controlling biological fouling in industrial water systems that emphasizes system surveys, understanding the root cause of microbial growth and biofilm formation, and using an Engineering Approach to develop comprehensive programs for biological control. When an antimicrobial product such as **STA·BR·EX ST70** is used as part of BIO-MANAGE, greater efficacy and efficiency can be gained and this should lead to greater satisfaction for our customers.

STA·BR·EX ST70 is stabilized, which provides the features of stable long-term storage, improved biological deposit penetration, improved compatibility with other treatment chemicals, lower production of disinfection by-product, and low volatility for improved usage. The stabilizer is sulfamate ($H_2NSO_3^-$).

Other Benefits:

- **STA·BR·EX ST70** is a stable liquid bromine biocide in one package for easy dosing and control. Unlike liquid chlorine bleach, it does not lose its activity in a matter of days (see Figure 1). It reduces operator time and makes dosing easy.

- **STA·BR·EX ST70** kills bacteria and helps prevent slime problems. Combined with Nalco services, it helps keep heat exchangers and tower fill clean for low maintenance and cost-efficient operation.

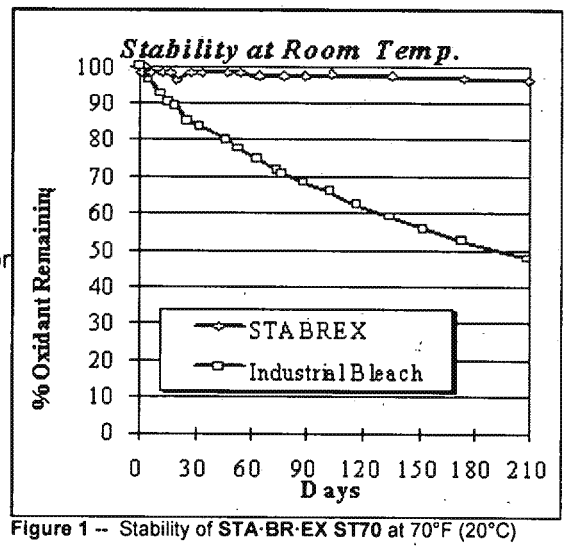

Figure 1 -- Stability of **STA·BR·EX ST70** at 70°F (20°C)

- Because **STA·BR·EX ST70** is bromine-based, it will work effectively in systems where chlorine is challenged by amine or ammonia contamination.

- **STA·BR·EX ST70** has low volatility that reduces product loss from the cooling tower. This results in more active product retained in the system to kill microorganisms. Equipment lasts longer because STA·BR·EX significantly reduces vapor-phase corrosion.

- **STA·BR·EX ST70** is packaged and delivered in PORTA-FEED® units. Nalco's delivery specialist does all of the chemical handling. Operators have less chance of exposure and a safer work environment.

- **STA·BR·EX ST70** generates less disinfection by-products as measured by the concentration of Adsorbable Organic Halide (AOX).

PHYSICAL & CHEMICAL PROPERTIES

Refer to the Material Safety Data Sheet (MSDS), SECTION 9, for the most current data.
These properties are typical.

Form	Liquid
Color	Clear yellow to amber
Density	11.1 lb/gal [1.34 kg/l]
Specific Gravity @ 77°F [25°C]	1.34
pH (neat)	13.2
Freeze-Thaw Recovery	Complete
Freeze Point	16°F [-9°C]
Viscosity @ 20°F [-7°C]	21 cp
@ 75°F [24°C]	7 cp
Flash Point (PMCC)	> 200°F [93°C]
Odor	No odor, slight bromine odor when added to water

ACTIVE CONSTITUENTS

Sodium Hypochlorite	6.36 % as available chlorine
Sodium Bromide	9.23 % as NaBr

REGULATORY APPROVALS

STA·BR·EX ST70 is registered for use in Canada and must be applied according to appropriate national and local regulations. The federal legislative authority for the regulation of pesticides in Canada is the Pest Control Products Act. As with all biocides applied in Canada, the use of **STA·BR·EX ST70** is subject to Federal regulation and regulation under provincial/territorial authority. The Pest Management Regulatory Agency (PMRA) administers the *Pest Control Products Act* (PCPA) for the federal Minister of Health.

Refer to the Material Safety Data Sheet (MSDS), SECTION 15 for the most recent information on approvals.

Canadian PCPA Registration Number 25478 is approval for STA·BR·EX ST70 use in:

- Industrial pasteurizers (such as food, beverage and industrial process pasteurizers)
- Air washer systems equipped with mist eliminating components.
- Heat transfer systems (such as evaporative condensers, hydrostatic sterilizers and retorts)
- Pulp & paper mill influent water systems

STA·BR·EX ST70 is **not approved** for use in potable water, swimming pools or spas.

This control product is to be used only in accordance with the directions on the product label. It is an offense under the *Pest Control Products* Act to use a control product under unsafe conditions.

NALCO

SAFETY DATA SHEET

PRODUCT

STABREX® ST70

EMERGENCY TELEPHONE NUMBER(S)
(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **STABREX® ST70**

COMPANY IDENTIFICATION : Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER(S) : (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING
HEALTH : 3 / 3 FLAMMABILITY : 0 / 0 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has identified the following chemical substance(s) as hazardous. Consult Section 15 for the nature of the hazard(s).

Hazardous Substance(s)	CAS NO	% (w/w)
Bromine antimicrobial [based on the mixture of sodium hypochlorite and sodium bromide]		10 - 30
Sodium Hydroxide	1310-73-2	1 - 5

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

DANGER
CORROSIVE. CAUSES SEVERE EYE AND SKIN INJURY. HARMFUL IF INHALED. HARMFUL IF SWALLOWED. Do not get in eyes, on skin or on clothing. Wear goggles or face shield and rubber gloves when handling. Remove and wash contaminated clothing before reuse. Wash thoroughly after handling.
May evolve hydrogen bromide and bromine under fire conditions. May evolve HCl under fire conditions. May evolve chlorine under fire conditions. May evolve oxides of nitrogen (NOx) and sulfur (SOx) under fire conditions. Contact with reactive metals (e.g. aluminum) may result in the generation of flammable hydrogen gas.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
Corrosive. Will cause eye burns and permanent tissue damage.

SKIN CONTACT :
Corrosive; causes permanent skin damage.

INGESTION :
Corrosive; causes chemical burns to the mouth, throat and stomach.

INHALATION :
Elevated temperatures or mechanical action may form vapors, mists or fumes which may cause burns or irritation (possibly severe) to the eyes, nose, throat and lungs.

AGGRAVATION OF EXISTING CONDITIONS :
A review of available data does not identify any worsening of existing conditions.

HUMAN HEALTH HAZARDS - CHRONIC :
No adverse effects expected other than those mentioned above.

4. FIRST AID MEASURES

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.

IF SWALLOWED: Call a poison control center or a doctor immediately for treatment advice. DO NOT INDUCE VOMITING. Do not give anything to drink.

NOTE TO PHYSICIAN :
Aspiration may cause lung damage. Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE FIGHTING MEASURES

FLASH POINT : None

EXTINGUISHING MEDIA :
Not expected to burn. Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD :
May evolve hydrogen bromide and bromine under fire conditions. May evolve HCl under fire conditions. May evolve chlorine under fire conditions. May evolve oxides of nitrogen (NOx) and sulfur (SOx) under fire conditions. Contact with reactive metals (e.g. aluminum) may result in the generation of flammable hydrogen gas.

Dm

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Wednesday, July 23, 2014 1:35 PM
To: 'Merrigan, Jessie (LG)'; Doug Mendoza; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; 'Theerman, Jeff (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie Freeman; Ed Galbraith
Subject: Bridgeton Landfill Weekly Report

The materials for the previous week are now on Barr's ftp site.

Notes on the data:

- Samples 316-357 and 316-353 were out of hold time for BOD. Sampling personnel have been instructed to collect Saturday samples in the afternoon to insure that the 48 hour hold time is met in the future.

- As noted last week, Pace report 60173034 reported a BOD value of 93,000 ppm and a COD value of 56,000 ppm. According to Pace, they experienced over depletion of the Laboratory Control Sample and Method Blank for the BOD analysis and as a result the BOD value is biased high. We have footnoted the data as unusable and have asked Pace to rerun the BOD sample, although the sample will be out of hold time. We will forward the results as soon as it is received and verified.

- As noted last week, Pace report 60172716 reported an Oil and Grease value of 15.8. Pace is analyzing extra sample material and we will forward that result as soon as it is received and verified.

- High outliers
  - Dissolved aluminum (316-356)
  - Oil and Grease SGT (316-355, 316-356) These results were significantly higher than average. The cause is not known. Total O&G results were not proportionally higher and two subsequent samples yielded normal results.

- Low outliers
  - Iron and Lead (316-355, 316-356, 316-358)
  - Cobalt (316-356)
  - 1,2,4-Trichlorobenzene (316-355)
  - Methyl isobutyl ketone (316-360)

Please let me know if you have any questions.

Ed Galbraith

Senior Environmental Scientist
Jefferson City office: 573.638.5024

Bridgeton Landfill, LLC
Metropolitan St. Louis Sewer District
Weekly Disposal Summary

MSD - Bissell Point Tracking Table					
Date	Operational Batch	Delivered (gal)		Truck Capacity (gal)	
		Per Batch	Daily Total	Per Batch	Daily Total
Sunday, July 13, 2014	Batch 316-357	30,000	*210,000*	30,000	*210,000*
	Batch 316-358	120,000		120,000	
	CB 07-01-14	60,000		60,000	
Monday, July 14, 2014	Batch 316-358	30,000	*210,000*	30,000	*210,000*
	Batch 316-359	120,000		120,000	
	CB 07-01-14	60,000		60,000	
Tuesday, July 15, 2014	CB 07-01-14	60,000	*217,500*	60,000	*217,500*
	Batch 316-360	157,500		157,500	
Wednesday, July 16, 2014	CB 07-01-14	60,000	*217,500*	60,000	*217,500*
	Batch 316-361	157,500		157,500	
Thursday, July 17, 2014	CB 07-01-14	60,000	*217,500*	60,000	*217,500*
	Batch 316-362	157,500		157,500	
Friday, July 18, 2014	CB 07-01-14	60,000	*217,500*	60,000	*217,500*
	Batch 316-363	157,500		157,500	
Saturday, July 19, 2014	Batch 316-363	37,500	*217,500*	37,500	*217,500*
	Batch 316-364	180,000		180,000	

Starting Date	***7/13/2014 6:00***
Ending Date	***7/20/2014 6:00***

MSD - Missouri River Tracking Table								
Date	Operational Batch Transferred Into 97K AST	Gallons Delivered	Batch Start Date and Time	Batch End Date and Time	Interval Hours	Maximum Hourly Flow (gph)	Average Hourly Flow (gph)	97K AST pH Check
Sunday, July 13, 2014	NA	-	7/13/2014 6:00	7/14/2014 6:00	24.0	840	0.0	NA
Monday, July 14, 2014	NA	-	7/14/2014 6:00	7/15/2014 6:00	24.0	840	0.0	NA
Tuesday, July 15, 2014	NA	-	7/15/2014 6:00	7/16/2014 6:00	24.0	840	0.0	NA
Wednesday, July 16, 2014	NA	-	7/16/2014 6:00	7/17/2014 6:01	24.0	840	0.0	NA
Thursday, July 17, 2014	NA	-	7/17/2014 6:01	7/18/2014 6:00	24.0	840	0.0	NA
Friday, July 18, 2014	NA	-	7/18/2014 6:00	7/19/2014 6:00	24.0	840	0.0	NA
Saturday, July 19, 2014	NA	-	7/19/2014 6:00	7/20/2014 6:00	24.0	840	0.0	NA

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Neil Bondere Title: Env. Specialist Date: 7/22/14

Weekly Volume Summary - Week 65 (7-13-14 through 7-19-14).xlsx

MSD 029030

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/14/2014 6:00:00 AM	7/13/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/22/14

MSD Daily Flow Reading, ending 7-14-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/15/2014 6:00:00 AM	7/14/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/22/14

MSD Daily Flow Reading, ending 7-15-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/16/2014 6:00:00 AM	7/15/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/22/14

MSD Daily Flow Reading, ending 7-16-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/17/2014 6:01:00 AM	7/16/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/22/14

MSD Daily Flow Reading, ending 7-17-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/18/2014 6:00:00 AM	7/17/2014 6:01:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/22/14

MSD Daily Flow Reading, ending 7-18-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/19/2014 6:00:00 AM	7/18/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/22/14

MSD Daily Flow Reading, ending 7-19-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/20/2014 6:00:00 AM	7/19/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/22/14

MSD Daily Flow Reading, ending 7-20-2014

OB-316-357

Bridgeton Landfill

Fill Data

Fill Start Date	7/11/2014
Fill Start Time	18:30
Fill Stop Date	7/11/2014
Fill Stop Time	23:25
Process Battery	316 AST

Processing Data

Process Start Date	7/11/2014
Process Start Time	23:15
Process Stop Date	7/12/2014
Process Stop Time	03:50

Approval Data

Approval Details	NAL13026-1570
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK - 16,000, Fill Height - 18ft

Monday, July 21, 2014

OB-316-358 *Bridgeton Landfill*

Fill Data

Fill Start Date	7/12/2014
Fill Start Time	19:08
Fill Stop Date	7/13/2014
Fill Stop Time	00:15
Process Battery	316 AST

Processing Data

Process Start Date	7/12/2014
Process Start Time	20:44
Process Stop Date	7/13/2014
Process Stop Time	03:55

Approval Data

Approval Details	NAL13026-1571
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 18.49 ft.

Monday, July 21, 2014

OB-316-359 *Bridgeton Landfill*

Fill Data

Fill Start Date	7/13/2014
Fill Start Time	18:53
Fill Stop Date	7/13/2014
Fill Stop Time	23:15
Process Battery	316 AST

Processing Data

Process Start Date	7/13/2014
Process Start Time	19:05
Process Stop Date	7/14/2014
Process Stop Time	03:32

Approval Data

Approval Details	NAL13026-1572
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 20.02 ft.

Monday, July 21, 2014

OB-316-360 *Bridgeton Landfill*

Fill Data

Fill Start Date	7/14/2014
Fill Start Time	16:55
Fill Stop Date	7/14/2014
Fill Stop Time	19:34
Process Battery	316 AST

Processing Data

Process Start Date	7/14/2014
Process Start Time	16:55
Process Stop Date	7/15/2014
Process Stop Time	05:55

Approval Data

Approval Details	NAL13026-1575
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 18 ft, plus 0.25 ft (3,300 gal) of rainwater put into tank from the sumps.

Monday, July 21, 2014

OB-316-361 Bridgeton Landfill

Fill Data

Fill Start Date	7/15/2014
Fill Start Time	19:11
Fill Stop Date	7/15/2014
Fill Stop Time	23:18
Process Battery	316 AST

Processing Data

Process Start Date	7/15/2014
Process Start Time	19:58
Process Stop Date	7/16/2014
Process Stop Time	05:45

Approval Data

Approval Details	NAL13026-1576
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 18.30 ft.

Monday, July 21, 2014

OB-316-362 Bridgeton Landfill

Fill Data

Fill Start Date	7/16/2014
Fill Start Time	20:32
Fill Stop Date	7/16/2014
Fill Stop Time	23:57
Process Battery	316 AST

Processing Data

Process Start Date	7/16/2014
Process Start Time	20:41
Process Stop Date	7/17/2014
Process Stop Time	05:37

Approval Data

Approval Details	NAL13026-1579
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 18.06 ft.

Monday, July 21, 2014

OB-316-363 Bridgeton Landfill

Fill Data

Fill Start Date	7/17/2014
Fill Start Time	18:57
Fill Stop Date	7/18/2014
Fill Stop Time	00:11
Process Battery	316 AST

Processing Data

Process Start Date	7/17/2014
Process Start Time	19:44
Process Stop Date	7/18/2014
Process Stop Time	04:28

Approval Data

Approval Details	NAL13026-1580
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 22.14 ft.

Monday, July 21, 2014

OB-316-364 Bridgeton Landfill

Fill Data

Fill Start Date	7/18/2014
Fill Start Time	19:30
Fill Stop Date	7/19/2014
Fill Stop Time	00:23
Process Battery	316 AST

Processing Data

Process Start Date	7/18/2014
Process Start Time	19:51
Process Stop Date	7/19/2014
Process Stop Time	04:24

Approval Data

Approval Details	NAL13026-1583
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 22.10 ft.

Monday, July 21, 2014

Combined Batch 07-01-14

Bridgeton Landfill

Fill Data

Fill Start Date	
Fill Start Time	
Fill Stop Date	
Fill Stop Time	
Process Battery	T2M

Processing Data

Process Start Date	
Process Start Time	
Process Stop Date	
Process Stop Time	

Approval Data

Approval Details	NAL13026-1550
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

pH = 6.02

Monday, July 21, 2014

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Table 1
General Parameters and Metals
April - July 2014
Bridgeton Landfill

					Biochemical Oxygen Demand (5-day)	Chemical Oxygen Demand	Nitrogen, ammonia as N	Oil and Grease	Oil and Grease - Silica gel cleanup	pH, lab	pH, field
					NA	NA	NA	NA	NA	NA	NA
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	pH units	pH units
316-358	7/13/2014	Pace	Validated	60173565	30500	54700	629	754	10.8	5.3	5.73
316-357	7/12/2014	Pace	Validated	60173566	30700 h	58300 *	633	767	10.8	5.3	5.81
316-356	7/11/2014	Pace	Validated	60173516	31300	56500	617	980	69.6	5.3	5.59
316-355	7/10/2014	Pace	Validated	60173405	31600	52200	644	886	76.2	5.3	5.68
316-354	7/08/2014	Pace	Validated	60173195	34900	54900	578	1120	12.5	5.3	5.65
316-353	7/07/2014	Pace	Validated	60173194	37900 h	55200	576	845	9.6	5.2	5.64

Table 1
General Parameters and Metals
April - July 2014
Bridgeton Landfill

					Solids, total suspended	Aluminum	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Cobalt
					NA	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-358	7/13/2014	Pace	Validated	60173565	2160	3.47	0.0626	1.01	ND	ND	0.208	0.0306
316-357	7/12/2014	Pace	Validated	60173566	3120	9.86	0.0552	1.29	ND	ND	0.281	0.0439
316-356	7/11/2014	Pace	Validated	60173516	3820	3.31	ND	1.01	ND	ND	0.201	0.0286
316-355	7/10/2014	Pace	Validated	60173405	3920	2.88	0.0568	1.09	ND	ND	0.189	0.0325
316-354	7/08/2014	Pace	Validated	60173195	4500	4.86	0.0752	1.24	ND	ND	0.22	0.0367
316-353	7/07/2014	Pace	Validated	60173194	4080	4.48 *	0.0599	1.14 *	ND	ND	0.211	0.0342

Table 1
General Parameters and Metals
April - July 2014
Bridgeton Landfill

					Copper	Iron	Lead	Mercury	Nickel	Selenium	Silver	Thallium
					Total	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-358	7/13/2014	Pace	Validated	60173565	ND	458	0.0494	ND	0.101	ND	ND	ND
316-357	7/12/2014	Pace	Validated	60173566	ND	940	0.154	ND	0.125	ND	ND	ND
316-356	7/11/2014	Pace	Validated	60173516	ND	455	0.0514	ND	0.0962	ND	ND	ND
316-355	7/10/2014	Pace	Validated	60173405	ND	438	0.0435	ND	0.105	ND	ND	ND
316-354	7/08/2014	Pace	Validated	60173195	ND	645	0.104	ND	0.118	ND	ND	ND
316-353	7/07/2014	Pace	Validated	60173194	ND	712	0.111	ND	0.113	ND	ND	ND

Table 1
General Parameters and Metals
April - July 2014
Bridgeton Landfill

					Zinc
					Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l
316-358	7/13/2014	Pace	Validated	60173565	7.08
316-357	7/12/2014	Pace	Validated	60173566	8.25
316-356	7/11/2014	Pace	Validated	60173516	7.5
316-355	7/10/2014	Pace	Validated	60173405	6.67
316-354	7/08/2014	Pace	Validated	60173195	5.48
316-353	7/07/2014	Pace	Validated	60173194	5.02

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Table 2
VOCs and SVOCs
April - July 2014
Bridgeton Landfill

					Benzene
Location	Date	Lab Name	Data Status	Lab Report	ug/l
316-358	7/13/2014	Pace	Validated	60173565	ND
316-357	7/12/2014	Pace	Validated	60173566	ND
316-356	7/11/2014	Pace	Validated	60173516	ND
316-355	7/10/2014	Pace	Validated	60173405	ND
316-354	7/08/2014	Pace	Validated	60173195	ND
316-353	7/07/2014	Pace	Validated	60173194	ND

Doug Mendoza

From: Joe Pavlich
Sent: Monday, July 21, 2014 7:20 AM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: Bridgeton Landfill reading

Doug, on 7/18/14 @ 0950 the reading at Bridgeton Landfill was 2026994 with 0 gals. of discharge.

Doug Mendoza

From: Martin Blecha
Sent: Sunday, July 20, 2014 6:10 PM
To: Catherine Politte; Mike Townley; Doug Mendoza; Steve Grace; Brian G. Gibson
Cc: John Lodderhose; Martin Blecha; Buffy Santel
Subject: Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 07/13/2014 to 07/19/2014.

Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 07/13/2014 to 07/19/2014.

7/13 –210,000 gallons
7/14 –210,000 gallons
7/15 –217,500 gallons
7/16 –217,500 gallons
7/17 –217,500 gallons
7/18 –217,500 gallons
7/19– 217,500 gallons
Total = 1,507,500 gallons

Martin J. Blecha
Metropolitan St. Louis Sewer District
Environmental Engineering Associate
10 E. Grand Ave.
St. Louis, MO. 63147-2913.
Office Phone (314)-436-8716

SPILL AND SLUG CONTROL PLAN
FOR

BRIDGETON LEACHATE PRETREATMENT PLANT
13570 ST. CHARLES ROCK RD.
BRIDGETON, MO 63044

Prepared For:

BRIDGETON LANDFILL, LLC

Prepared by:

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
CHARLOTTE, NORTH CAROLINA

CEC Project 130-484

July 16, 2014

STATE OF MISSOURI
IVAN COOPER
7/16/14
NUMBER PE-2003009211
PROFESSIONAL ENGINEER

RECEIVED
JUL 16 2014
DIVISION OF ENVIRONMENTAL COMPLIANCE

Civil & Environmental Consultants, Inc.

St. Louis | 4848 Park 370 Boulevard, Suite F | Hazelwood, MO 63042 | p: 314-656-4566 f: 314-656-4595 | www.cecinc.com

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Site Plan (Drawing C-200)

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Appendix B – Sample Spill Response Evaluation Form
Appendix C – Initial Notification Form
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Appendix G – Hazard Communication Plan

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MSD 029058

1.0 INTRODUCTION

1.1 PURPOSE

This Slug and Spill Plan has been developed for the Bridgeton Landfill, LLC (Bridgeton) facility. Bridgeton Landfill, LLC owns and manages the Bridgeton Sanitary Landfill facility located at 13570 St. Charles Rock Road in Bridgeton, Missouri (see Figure 1). The Bridgeton Sanitary Landfill (Landfill) previously discharged leachate from the Landfill to the Metropolitan St. Louis Sewer District (MSD). This plan will contain information to confirm that non-routine, un-permitted, and accidental spills and releases are properly contained and disposed and that the correct regulatory agencies and public treatment works are notified. The plan is based upon the requirements of 40 CFR 403.8.

1.2 RESPONSIBILITIES

The Pretreatment Plant Manager is responsible for implementation of the plan and its components, including employee training, record keeping, and inspections. The role of the other members of the management team is to provide assistance to the Plant Manager regarding inspections, good housekeeping practices, and preventive maintenance. Signatory responsibilities are delegated to the Plant Manager, as required.

Plant Manager: James Morris, PE, Ph.D.
Stover Group, Inc.

1.3 SLUG/SPILL PLAN REQUIREMENTS

The following requirements, as stated Bridgeton's Wastewater Discharge Industrial User Permit issued by the MSD, are addressed in this plan:

- Discharge practices, including non-routine batch discharges: *Section 3.0*
- Description of stored chemicals: *Section 4.0*
- Procedures for immediately notifying the POTW of slug discharges that would cause a violation of 40 CFR 403.5(b), with procedures for following up notification within five (5) days: *Section 6.0 and Section 7.0*
- Procedures to prevent adverse impact from accidental spills, including inspection and maintenance of storage areas: *Section 8.0*

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- Handling and transfer of materials; loading and unloading operations: *Section 5.0 and Appendix G*
- Control of plant site run-off: *Section 4.0 and Section 6.0*
- Worker training: *Section 8.0*
- Containment structures or equipment: *Section 4.0*
- Measures for containing Toxic organic pollutants: *Section 4.0*
- Measures and equipment for emergency response: *Section 6.0*

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2.0 GENERAL FACILITY DESCRIPTION

The leachate is generated from leachate collection wells and condensate from gas well pumping wells at various places around the facility (collectively termed "leachate" in this document). This leachate is collected at various points and discharged to a perimeter collection line that flows to a central collection point.

The leachate pretreatment plant incorporates an equalization tank, physical/chemical precipitation to remove zinc, iron, and other metals that may inhibit biological pretreatment, aerobic biological treatment, leachate cooling, membrane separation for solids removal, return and waste sludge pumping, solids storage and dewatering, solids disposal, and effluent monitoring and discharge. Chemical addition at various stages is required, and odor control at the various units is included. The leachate generation volume ranges from 150,000 to 300,000 gallons per day (gpd) of combined leachate flows. The design flow is based on 300,000 gpd. Peak flow is anticipated at 450,000 gpd. During power outages, standby power will be supplied to pump leachate into the equalization and process tanks, and storage will be provided for a minimum of 1.5 days at ADF. If power outages exceed this time, the excess leachate will be hauled directly to MSD's Bissell Point plant. Power will be supplied sequentially to the blowers in the four 1 MG tanks to maintain a viable microbial population.

Spill and slug prevention will be addressed in this plan by secondary containment storage around treatment and chemical storage tanks, and spill pallets will be provided for drums and totes. Treatment area drains will be routed to the equalization tank or to internal processes to prevent slug discharges to the MSD systems. Specific details are contained in the following sections of this plan.

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3.0 DISCHARGE PRACTICES

A 316,000 gallon tank receives leachate from the landfill and provides aeration from two dedicated blowers and a pumped aeration mixing system delivered through a jet aeration mixer. The unit operates at hold volume, providing 12 hours detention. The upper volume of the tank provides for equal 12 hours storage at the maximum design flow. Discharge from this tank will flow to the treatment building for clarification, or can be selectively hauled off for disposal at the dedicated sludge loadout area that is provided with secondary containment.

The clarification process requires chemical feeds and includes a coagulant and a polymer. Physical/chemical precipitation to remove zinc, iron, and other metals that may inhibit biological pretreatment occurs at this stage. A rapid sludge withdrawal mechanism to pump the clarifier sludge to a clarifier sludge holding tank is also included in the process.

The leachate will flow by gravity to an inclined plate clarifier for solids separation. The liquid will then enter a pH adjustment tank where sulfuric acid will be added to lower the pH to 8 S.U. before being pumped to four aeration tanks sized at one million gallons each.

The four (4) tanks at 1,000,000 gallons (1 MG) each tank provide processing in parallel. The tanks have dual mixing flow and air supply headers in each tank. The jet aeration system in each of the four 1 MG tanks and the membrane ultrafilter system located in the treatment building together comprise a Membrane Bioreactor system (MBR). Process flow is arranged such that the Treatment Building discharge flow can be equally distributed to each 1 MG tank, or two tanks will operate as a first stage with the second two tanks operating as a second stage. There is a hydraulic detention time of 12 days.

Discharge from the 1 MG tanks flows to a Membrane Feed Pump. This pump sends mixed liquor into the UF Unit (the discharge of the Feed Pump is piped into the suction of the Circulation Pump). Membrane Circulation Pump feeds mixed liquor into the UF membranes. The pump continuously circulates mixed liquor (delivered into its suction piping by the Feed Pump) through the membrane modules. The membranes are a tubular style consisting of many small tubes contained in 10" diameter fiberglass housings. Mixed liquor flows inside of all of the small tubes and clean water (permeate) permeates through the walls of the tubing into the outer shell. A common header collects permeate and directs it to either First Pass RO Feed Tank or UF Cleaning Tank (operator selectable).

That effluent will be pumped to the 97,000 gallon storage tank before discharge to MSD.

A portion of the solids separated in the ultrafilter is returned to the aeration tanks as return activated sludge. The excess sludge to be wasted is pumped from the ultrafilter return sludge line to a waste activated sludge tank in the treatment building. The waste activated sludge solids in the treatment building is thickened and mixed with the primary sludge and then mixed with polymers and other chemicals prior to dewatering in a screw dewatering press. The dewatered solids from the screw press are placed in 40 cubic yard containers for transport to the Roxana Landfill.

Exhaust air from the 316,000 gallon tank is treated by a regenerative thermal oxidizer odor control unit, designed to destroy the organic and inorganic odor causing compounds in the air exhaust. The air exhaust from the four – 1 MG jet aeration tanks also will be treated by the regenerative thermal oxidizer for a period of time until the sludge mass becomes acclimated to the leachate. When acclimatization occurs, the odors from the exhaust air are anticipated to be minimal with an earthy odor. The exhaust air from the treatment building is captured and treated in the regenerative thermal oxidizer before being emitted.

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4.0 MATERIAL INVENTORY & DRAIN LOCATIONS

CAS and other identifying characteristics are contained in the MSDS sheets to be developed. Annual updates of this section and MSDS sheet inventory are recommended.

The materials to be stored, volumes, and locations are listed below:

Chemical	Concentration	Volume (gals)	Storage Location	Containment	Use Areas
Caustic Soda	25%	6,000	Treatment Building Exterior; 316 Equalization Tank; Aeration Tank area	Secondary Containment	Clarifier pH Adjust Tank; Rapid Mix Tank; Membrane Cleaning
Sulfuric Acid	93% - 98%	6,000	Treatment Building Exterior	Secondary Containment	Clarifier pH Adjust Tank, Sludge Dewatering Feed, Membrane Cleaning
Aluminum Chlorhydrate	100%	6,000	Treatment Building Exterior	Secondary Containment	Feed ahead of Rapid Mix tank in Treatment Building
Magnesium Hydroxide	61%+/-	6,000	Treatment Building Exterior	Secondary Containment	Feed ahead of Rapid Mix tank in Treatment Building
Phosphoric Acid	85%	265 – gal tote	Treatment Building	Secondary Containment	Transfer Tank
Polymers, anionic and cationic;	100%	265- gal totes	Treatment Building	None	Clarifier pH Adjust Tank; Sludge thickening and sludge dewatering

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Maintenance Chemicals	Varies	Varies	Treatment Building Maintenance Area	Flammables in Fireproof Cabinet, otherwise, none	Maintenance Shop; Treatment Equipment
Defoamer	100%	250-gal totes	Equalization tank, Ultrafilter	Equalization Tank Containment Area	Equalization tank, Membranes
Chemical Totes: Defoamers Phosphoric Acid; Nutrients; UF Cleaning; Water Softener chemicals (common salt)	Varies	265-gal totes; dry chemical bags	Treatment Building	Spill Pallets under totes and drums	Treatment Building, Various Use Areas
Anti-scalants; biocides; and corrosion inhibitors	Varies	Drums and totes	Cooling Tower area	Spill Pallets under totes and drums	Cooling Tower area

The floor of the treatment building is sloped to drains that flow back to the leachate influent pump station that is pumped to the 316,000 gal Equalization Tank.

4.1 EQUALIZATION TANK

The 316,000-gallon Equalization Tank sits in the center of a concrete containment area. Leachate is pumped into this tank and is aerated with two dedicated 420 scfm blowers and a dedicated mixer pump. The leachate after aeration is pumped to the treatment building through secondary containment HDPE piping. The Equalization Tank is operated at ½ volume to provide additional site storage of 12 hours at Average design flow of 300,000 gallons per day. An 8-hour detention time is planned for the maximum daily flow. There is a loadout structure adjacent to the containment wall for loading hauling trucks. This containment area provides for containing spills and can be pumped back to the Equalization tank. There is no drain valve for stormwater. Stormwater flows will be pumped back to the Equalization Tank.

The Secondary Containment pad at the Equalization Tank is approximately 112 foot square. The volume of the containment area is:

*(112*112* sf) * 4 ft = 50,176 cf = 376,316 gallons.*

The 24-hour storm at a 25-year recurrence interval is 5.59 inches.

The precipitation equals 5,843 cf, or 43,709 gallons. The sum of the tank volume plus precipitation is 359,709 gallons, which is less than the available volume of 376,316 gallons.

Odor Control at Equalization Tank

The odor control at the 316 Equalization Tank was relocated to the centralized odor control RTO at the aeration Tanks in the final design. No odor control chemicals will be located at the Equalization Tank. Caustic soda will be located at this tank for initial pH adjustment.

4.2 LEACHATE PRETREATMENT BUILDING

The Leachate Pretreatment Building contains several use areas consisting of:

- Clarifier Flow Train;
- Sludge Storage and Thickening;
- Sludge Dewatering;
- Ultra Filter Membrane Area;
- Chemical Storage Area;
- Maintenance and Vehicle Storage Area; and
- Controls and Operations Room.

The chemicals used in the Pretreatment Building are stored in secondary containment in an area adjacent to and outside the structure, including sodium hydroxide (caustic soda); sulfuric acid, and aluminum chlorhydrate, and magnesium hydroxide. Each tank has sufficient secondary containment to store the 6,000 gallons in each tank, including storm volume for a 24 hour storm of any duration. The drain in this area flows back to the grit chamber ahead of the Equalization Tank, and the storage volumes are described in the section below.

These tank areas provide storage that protects the chemicals from forklift traffic. Other chemicals storage in the Treatment Building includes polymers and maintenance chemicals in IBC totes, 55-gallon drums or containers less than 55 gallons. The drum and tote chemicals include phosphoric acid, defoamer, anionic polymer, cationic polymer, Memclean caustic and

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acid based cleaners containing sodium hypochlorite, citric acid, and similar substances, as well as a salt regenerant and treatment chemicals for the water softener. These chemicals will be stored on spill control pallets. A flammable storage cabinet is also located in Maintenance Shop for maintenance chemicals that will be either flammable or combustible. There is no direct connection from the floor drains to the effluent line

PROCESS FLOW: The 316,000 gallon equalization tank, pH adjustment tank (caustic), clarifier, pH adjustment tank (acid), and transfer tank are hydraulically controlled by VFD driven pumps from the Equalization Tank. Upon high level, a signal is sent to the feed pump for these units to stop flow and an alarm signal is sent. Overflows or spills are washed down to the central sump for pumping back to the grit chamber ahead of the Equalization Tank.

SLUDGE TANK: Solids or Sludge from the Clarifier and Waste Activated Sludge from the Ultrafilter membrane reject flow are sent to Sludge Tanks where agitation occurs to keep the solids suspended in a thick slurry. This slurry is pumped to a sludge thickener and the thickened sludge is pumped from the sludge thickener discharge tank into a screw press.

ROTARY DRUM THICKENERS and SCREW PRESSES: The rotary drum thickeners and the screw presses mechanically dewater the slurry making a thick fairly dry solid waste. This solid waste travels up a conveyor and auger and is deposited into an open top dumpster located below the Screw Press. The water from the rotary drum thickeners and the screw presses run through the floor drain to the sump. The sump is pumped back to the Equalization Tank to be processed again. The entire plant flow must pass through the ultrafilter before discharge to MSD. Washdown water will be collected in the central trench drain and will flow back to the sump in the Sludge Dewatering area. None of these flows will directly enter to discharge to MSD. A floor drain system in the treatment building collects to a sump in the sludge dewatering room, and those contents are pumped back to the 316,000 gallon equalization tank.

ULTRAFILTERS: The membrane ultrafilter system (UF) is designed with three modules of 150,000 gpd each module. The units are designed with two units on one skid and one unit on a second skid, with room for a future unit on the second skid if flows increase. This design allows for the average daily flow to be treated with one unit out of service. Should a maximum day flow occur with a unit out of service, excess flow will be stored in the aeration tank volume. Additionally, the landfill has the ability to reduce flows, and will coordinate with the pretreatment plant during ultrafilter unit outages to reduce flows. The units are design on the basis of 0.56 gfd flux rate. The units include recirculation pumps, sludge wasting, and local and remote controls. Should one of the membranes in the UF unit fail, the turbidity monitor will

alarm. There is a simple process to determine if a module has a breached element and the process of isolating and fixing the breach is contained in the Operation and Maintenance Manual.

4.3 CHEMICAL DELIVERY AND STORAGE AREA

A secondary contained delivery area is located outside of the Pretreatment Building. This area is not covered, and will allow precipitation to enter the chemical loading area. Quick disconnects to the larger storage tanks are provided for tight connection to fill ports on these tanks. Spills are contained with a valve in the sump. When the valve is closed during chemical delivery, spill can be contained and hauled off. With the valve open during non-delivery times, this area will drain to the sump at the Treatment Building that flows to a grit chamber ahead of the Equalization Tank. There is no drain connection to a stormwater discharge. The secondary containment volume calculations for the spill containment area are shown below:

The concrete loading area plus the tank pad size = 2213 sf

The 25 year-24 hour storm = 1021 cf = 7,712 gallons.

If a single 6,000 gallon tank fails, the secondary containment volume:

= 6,000 gal + 7,712 gal = 13,712 gals

The total actual containment volume is 13,936 gals, so the volume is sufficient.

4.3.1 MAINTENANCE SHOP

The Maintenance Shop is located in the vehicle storage area of the Treatment Building. This area will contain a number of miscellaneous cleaners and lubricants and a self-contained parts washer, which is secured to the wall with a chain. The Maintenance Shop also has a Flammable Storage Cabinet. Interior floor drains will be tied into the process sump that flows to the 316,000 gallon tank.

4.4 AERATION TANKS

There are four (4) aeration tanks at the site, contained in single containment area. The Stormwater collected in each individual sub-containment area (separated by 1-foot high walls) will be pumped back to the each dedicated 1 MG Aeration Tank. There are no drain valves in

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the aeration tank containment areas. No stormwater will be discharge and there are no drain valves in this area.

The secondary containment area is 52,977.5 sf with a 4-foot high containment wall. This area will contain:

52,977.5 sf * 4ft*7.48 gal/cf = 1,585,086 gallons.

The volume of precipitation is: 52,977.5 sf * 5.59 inches/12 inches/ft =24,679 cf = 184,597 gals

If one tank fails, but three tanks retain integrity, the reduced volume is:

73 ft diameter = 1,332.25 sf each * 4 ft high = 16,741 cf = 125,225 gals each tank (at the 4ft depth)

If 3 tanks fail = 125,225 gals*3 = 375,676 gals for 3 tanks (at the 4ft depth)

Required spill containment = 1,585,086 gals – 184,597 gals precipitation – 375,676 gals for tank volume = 1,024,813 gals, which is greater than the volume of a single 1,000,000-gal tank.

4.5 OTHER STORAGE

There are chemical feed totes at the cooling tower with spill pallets. These chemcials include stabilizers and corrosion inhibitors. There are no other observable chemicals stored at the site in addition to those noted above. There are separate buildings and areas that hold the transfer switches, starters, electric feeds, and transformers for the facility. None of these buildings or areas will have chemicals or drains.

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5.0 SPILL AND LEAK PREVENTION EQUIPMENT AND PROCEDURES

5.1 COUNTERMEASURES FOR DISCHARGE DISCOVERY

Should visible leaks from tanks, totes, and drums be identified during inspection and deficiencies; those releases will be noted on the daily "Effluent & Utilities Inspection Log" inspection forms located in **Appendix D**. Utility Operators and other workers are to notify the Plant Manager if conditions are observed that warrant countermeasures. This process is depicted in Figure 2. Those repairs will occur immediately or requests for repair will be entered into the Work Maintenance Work Order System. The Plant Manager is responsible for authorizing response measures and will initiate appropriate actions including mobilization of outside response contactors, if required.

5.2 CHEMICAL HANDLING

Bridgeton standard Personal Protection Equipment (PPE), safety glasses and steel toes shoes, is required at all times. When working with caustic materials, chemical resistant gloves, face shields, aprons, and arm guards must also be utilized. If a site personnel's skin or eyes come in contact with any of the chemicals, he/she will utilize the safety showers and eyewash stations. MSDS sheets will also be referred to for proper treatment and the Plant Manager will be notified.

6.0 EMERGENCY RESPONSE EQUIPMENT AND PROCEDURES

6.1 NOTIFICATION TREE

When a person is injured or an emergency occurs, the following will occur:

ASSESS THE SCENE:
Take appropriate action to prevent additional injuries and/or accidents related to the situation.
EVALUATE THE SEVERITY OF THE INJURY AND TAKE APPROPRIATE ACTION:
1. Provide First Aid using the office or field vehicle First Aid kit.
If an injury does not require attention beyond first aid at the site, then the plant manager will be notified and an accident report and investigation to determine the cause and future prevention will be initiated.
2. Non-life threatening injuries requiring treatment beyond First Aid – Go to the nearest Urgent Care-type facility or local hospital emergency room.
3. For life threatening injuries – Call local Emergency Medical Team (EMT) or 911.
When an injured employee requires medical treatment, uninjured employees are responsible for assuring that prompt medical treatment is sought and provided. The welfare of the injured employee is primary. One uninjured employee should accompany the injured employee to the medical facility.
FOR MOTOR VEHICLE ACCIDENTS
1. If possible, move vehicles off road; remain out of any adjacent traffic.
2. Call the Plant Manager or Stover Group headquarters
3. Call the Police if any injury has occurred and call the EMS and fire department as needed.
4. Be courteous, answer police questions, and give identifying information to other parties involved.
Do not assume responsibility.
5. For vehicle accidents, compile the information located on the back of the vehicle insurance Identification card and complete and file an Accident/ Injury Report (AIR) form in accordance with firm policy.
REQUIRED NOTIFICATIONS
1. Employees are immediately required to make a verbal report of any vehicle accident or employee injury to the Plant Manager.
2. Within 16 hours of an injury requiring medical attention or vehicle accident, the Plant Manager is responsible for completing and filing an Initial Accident/Incident Report (AIR) form.

6.2 SPILL PREVENTION EQUIPMENT

Spill kits will be located in the Maintenance Area of the Treatment Building. The spill kits consist of kitty litter, or "dry soil", and absorbent pads. It is recommended that additional spill kits are purchased and that one kit be located in each area where chemicals are stored.

6.3 SPILL RESPONSE PROCEDURES

Each employee is to be trained on spill response procedures and copies of the document are available wherever chemicals are stored in the facility. A version of the procedures is included below.

Spills of any substance or quantity are reported to the Plant Manager as soon as possible. A general procedure during an occurrence includes:

- Put on protective clothing and equipment, including rubber gloves, apron, and/or breathing apparatus, based upon the type of material spilled;
- Stop the flow of the spill material. This includes, but is not limited to turning off pumps and closing valves;
- Eliminate all ignition sources, open flames, or smoking in the immediate vicinity;
- Shut off electrical power supply;
- Apply absorbent material from the spill response kits (see Best Engineering Practices Section - BEPS);
- Prevent contact between incompatible materials;
- Notification of the Plant Manager and other appropriate management personnel. The Plan Manager will use the appropriate chain-of-command so that all proper personnel are notified;
- Begin evacuation procedures, if necessary; and
- Notification of appropriate agencies.

After the spill has been contained, appropriate clean-up, treatment, or disposal procedures should commence. Immediate action eliminates the Safety and Risk hazards and prevents the potential further dispersion of the material. The MSDS of the spilled material, located in **Appendix E**, should be consulted for proper clean-up procedures.

6.4 EVACUATION PLAN

MSD 029072

An evacuation plan is posted in the Treatment Building office. The plan contains a map of the evacuation routes, a map of alternative routes, and signals that are used to convey the initiation of an evacuation. A copy of the evacuation plan has been submitted to the local police department, the fire department, and an area hospital for their records. A copy of the evacuation plan is included in **Appendix F**.

6.5 COMMUNICATION EQUIPMENT AND ALARMS

An alarm system is used to notify employees of evacuation procedures in the event of a spill. Telephones and radios are utilized to contact management upon the onset of a spill.

6.6 FIRST AID KITS AND FIRE EXTINGUISHERS

First aid kits and fire extinguishers are readily available throughout the facility. The evacuation plan, a copy of which is included in **Appendix F**, also shows the location of first aid kits and fire extinguishers.

MSD 029073

7.0 REPORTING PROCEDURES

When a discharge occurs that would cause a violation of 40 CFR 403.8 or problems to the MSD, the Plant manager shall immediately notify the MSD Emergency Line by phone, of the discharge at the MSD 24 hour emergency line (314-768-6260). This number will allow the MSD Dispatcher to notify workers who may be in the sewer system, as well as either the Bissell Point Plant, the Missouri River Plant, or other affected facilities. Within 24 hours of the discharge, the Plant Manager will notify the Republic Area Environmental Manager of the discharge. This notification will include:

- The name of the chemicals(s) or substance(s) involved;
- An estimate of the quantity of substance released;
- The location, time, and duration of the release;
- Known or anticipated acute or chronic risks associated with the release and, where appropriate, advice regarding medical attention necessary from MSDS sheets;
- The impact of the spill on the POTW and the environment;
- Extent of injury to personnel or damage to property;
- Precautions to take as a result of the spill; and
- The name, telephone number, and availability of person to be contacted for further information.

An Initial Notification Form is provided in **Appendix C** of this document. The notification form is included so that sufficient and accurate information about the release can be determined. Use of the form confirms that the information will be relayed correctly. The completed form will also serve as a written record of the notifications.

Within five (5) days of the occurrence, the Plant Manager will investigate the spill and **submit** a formal notification to MSD. The formal notification will include:

- Name, address, and telephone number of the owner or operator;
- Name, address, and telephone number of the facility;
- Date, time of the occurrence;
- Name and quantity of material(s) involved;
- Corrective actions taken during the occurrence;
- Name of employee(s) harmed during the incident and their current condition, including medical attention obtained;

- The PPE readily available for use during the incident, including fire extinguishers and spill response equipment;
- If secondary containment structures maintained integrity and were of adequate volume for the spill;
- Name and contact information for the outside officials, i.e. POTW, fire department, or others, called during the occurrence. Include date and time called, and records of communication, if available; and
- Modifications and projects undertaken to prevent similar, future occurrences, with their expected implementation/completion dates.

MSD 029075

8.0 ADVERSE IMPACT PROCEDURES

8.1 INSPECTIONS

Consistent inspections of the equipment used at the facility are an integral part of a good spill/slug prevention plan. The Utility Operators, during the course of their daily routines, shall inspect storage areas and outside tanks. Vessel foundations and supports are also inspected for integrity. Any items requiring maintenance will be brought to the attention of the Plant Manager. Weekly inspections are documented using the forms located in **Appendix D**; forms are to be kept on file for a minimum of five years.

8.2 TRAINING

Utility Operators involved with the operation, maintenance, or oversight of chemicals or equipment that use chemicals are to be trained on spill prevention, awareness, and response. The Hazard Communication Plan, located in **Appendix G**, is used to aid in this training. Immediate training sessions are conducted for appropriate personnel when a process or procedure changes, and for new employees upon hire. Training is reviewed as required and will be conducted at least once per year.

Training includes:

- The proper operation and maintenance of equipment to prevent spillages;
- Drainage routes;
- Emergency response procedures;
- Spill equipment location and proper use of the equipment;
- Reporting requirements;
- Evacuation procedures; and
- Prohibition of chemical drum discharge into drains or into the WWTP that may adversely impact the POTW.

Refer to the Hazard Communication Plan in **Appendix G** for additional training topics.

Training records are maintained in the employee's file as long as they are employed by Bridgeton, plus three years beyond their termination. The records are readily available for review in the event of a regulatory inspection.

9.0 BEST ENGINEERING PRACTICES (BEPS)

Based on US EPA Guidelines, the following BEPs should be implemented to minimize the potential for discharge:

- Currently there are spill kits and emergency response equipment located in the Treatment Building It is recommended that additional spill kits are purchased and that one kit be located in each area where chemicals are stored. Other spill response equipment that should be on site include: booms, barriers, sweeps, fenders, surface collecting agents, and drain plugs.
- All unnecessary floor drains should be plugged.
- All drums should be moved while on pallets; the drums should not be "scooped" up with the arms of a forklift truck.
- Store open drums in secondary containment.
- Keep compatible material together. Use storage cabinets labeled as "Fire Hazard Storage" only for those materials that are a fire hazard. If storage is not used as labeled, re-label.

MSD 029077

10.0 MANAGEMENT APPROVAL

I certify that this Slug and Spill Plan is approved and supported by the management of Bridgeton Landfill, LLC.

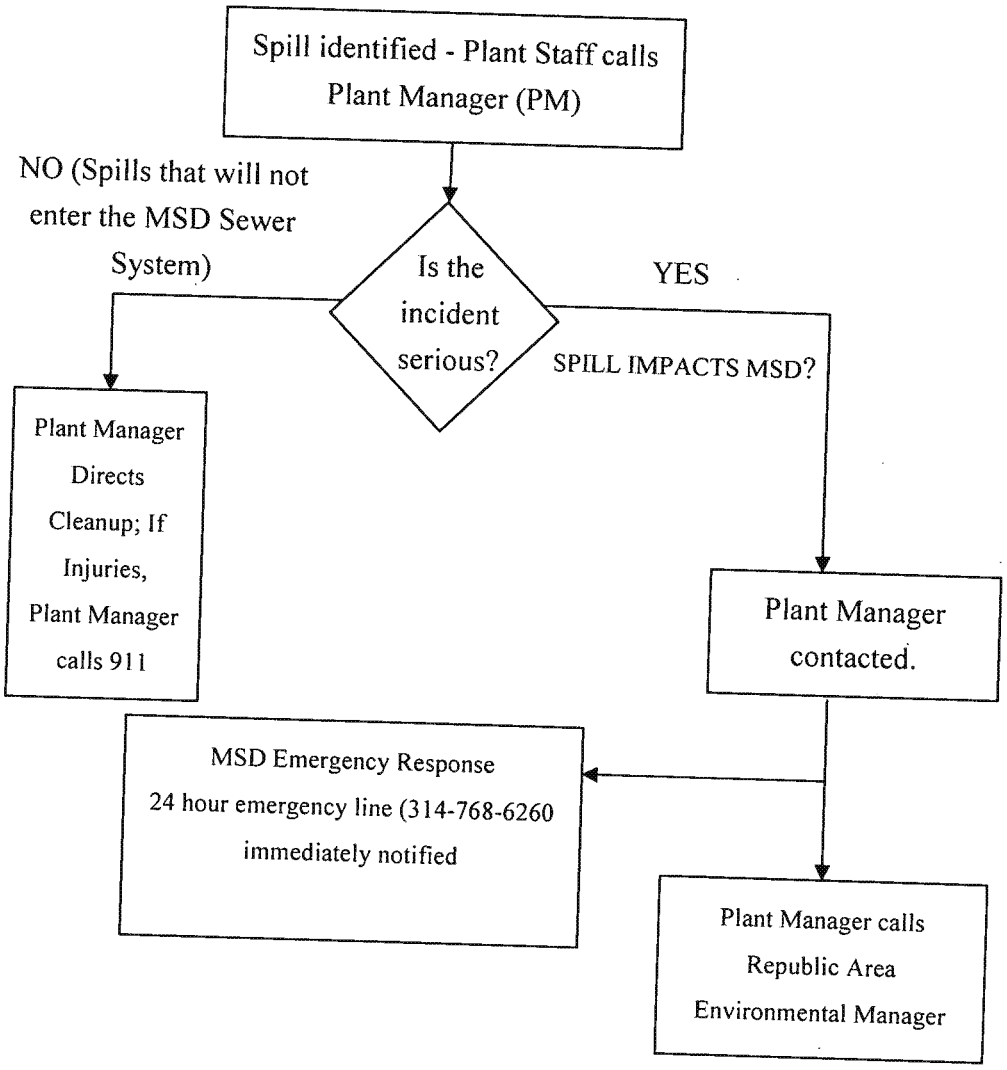
_____

Plant Manager Date

MSD 029078

FIGURES

Figure 2 – Counter Measures Process



APPENDIX A

EMERGENCY CONTACTS

Bridgeton Landfill Emergency Contacts:
Brian Power, Republic Services: (618) 410-0157

Plant Manager: James Morris, PE, Ph.D. Stover Group.
jwmorris@stovergroup.com
405-624-0018

Bridgeton Fire / Police / Ambulance 9-911

Hospital: Mercy Hospital St Louis
615 S New Ballas Rd, St Louis
9-(314) 251-6000

Poison Control: 9-911

Gas Leaks and Emergencies; 9-(314) 342-0800

MSD 24 hour Emergency Number: 314-768-6260

APPENDIX B

SAMPLE SPILL RESPONSE EVALUATION FORM

Spill Response Evaluation

Facility: _____ Permit No.: _____

Incident Start: (Date/Time) _____ / _____

Incident End: (Date/Time) _____ / _____

Estimated Volume of spill/bypass:

___ 0-500 gal ___ 501-1,000 gal ___ 1,001-2,000 gal

___ >2,000 gal: Estimate volume in nearest 1,000-gallon increments _____

Please provide the following information:

1. Location of spill/bypass: _____

_____

_____

2. Cause of spill/bypass: _____

_____

_____

3. Did you have personnel available to perform initial assessment 24 hrs/day (including weekends and holidays: ___ yes ___ no

4. How long did it take to make an initial assessment of the spill/bypass after first knowledge:

___ hours ___ minutes

How long did it take to get a repair crew onsite: ___ hours ___ minutes

5. Action taken to contain spill, clean up waste, and/or remediate the site: _____

_____

_____

_____

_____

6. Was the equipment and/or parts needed to make repairs readily available?

___ yes ___ no

If no, explain why: _____

_____

_____

7. Repairs made are: ___ temporary ___ permanent

Describe repairs made. If temporary, indicate date that a permanent repair will be completed and notify Regional Office within 7 days of the permanent repair: _____

_____

_____

9. Comments: _____

_____

_____

_____

_____

Other agencies notified: _____

Person reporting spill/bypass: _____

Phone Number: _____

APPENDIX C

INITIAL NOTIFICATION FORM

INITIAL NOTIFICATION FORM

NOTE: THIS FORM MUST BE SUBMITTED TO MSD WITH 5 DAYS OF A RELEASE!

Record all information pertaining to significant spills and leaks of hazardous substances:

Date: _____ Time of Release: _____ Duration of Release: _____

Location of Release:

_____

_____

_____

Description:

Chemical(s)/Substance(s) Involved: _____

Quantity of Material: _____

Substance on Extremely Hazardous Substance List? _____

Reason for Discharge: _____

_____

_____

Known/Anticipated Acute or Chronic Risks Associated with Release: _____

_____

_____

Medical Attention Necessary for Exposed Individuals: _____

_____

_____

Precautions to be taken: _____

_____

_____

Contact Information:

Name of person reporting: _____

Position: _____

Telephone: _____

Contact Availability: _____

Other Observations/Notes: _____

_____

_____

_____

APPENDIX D

EFFLUENT AND UTILITIES INSPECTION LOG

1.0 TITLE: EFFLUENT AND UTILITIES INSPECTION

2.0 PURPOSE:

2.1 To confirm that all systems of the effluent treatment and the site utilities are functioning properly, and to confirm adequate supply of all required chemicals to Confirm that the Bridgeton Leachate Pretreatment Plant site meets environmental compliance.

3.0 RESPONSIBILITIES:

3.1 **Operations Staff:** Confirm that daily inspections are completed accurately every weekday between the hours of 7:00am to 3:30pm. Confirms all outages are entered into plant log, completes work requests and purchase requests, and appropriate/timely corrective actions.

3.2 **Operations TDM:** Conduct routine audits of Inspection Log comparing Log entries to actual. Confirms details of outages are recorded in Elog and appropriate follow up has occurred. Responsible for ensuring records are kept in an orderly state for twelve (12) months. Responsible for providing back up position for relief during vacation, or unplanned absences.

4.0 PROCEDURE:

4.1 Utilities Technician is to conduct an inspection as early in the Shift as possible. The inspection is to be conducted at least every weekday and in the event of an upset condition.

4.2 A copy of the inspection Log is located in the Operations/Effluent System. Print this inspection log and take it with you.

4.3 The inspection Log is designed to flow naturally starting from the Equalization Tank

4.4 Record all data requested on the Log

4.5 When inspecting the system, note leaks from pipes or tanks. Inform Plant Manager immediately and enter a work request for the repair. Maintenance will determine next steps.

4.6 Log any outages on a maintenance form including who was contacted, the specific problem, reason for the problem, corrective action, and completion status.

4.7 Complete a work request for any broken parts, or items showing wear.

4.8 Staple and three (3) hole punch the Inspection log and insert into the three ring binder (under the appropriate month). The library of records are to be maintained in the Treatment Plant office.

Monthly Facility Effluent and Utilities Inspection Form
Bridgeton Leachate Pretreatment Plant

Date: _____ Time: _____

Name of Inspector: _____

Effluent

1. Effluent pH
2. Effluent Color
3. Effluent foam
4. Effluent testing complete for the month?
5. Chemical Tanks physical observation and leak free?
6. Drums and Totes on spill pallets?
7. Sludge Area clean
8. Cooling Towers maintained?
9. Rotating assemblies lubricated as required?

Utilities

Yes No

1. Piping Changes to direct stormwater to outfalls?
2. Grounds are free of garbage or debris.
3. No leaks present around equipment.
4. Equipment is functioning properly.
5. Stormwater outfalls are free of garbage or debris.
6. No signs of soil erosion around stormwater outfalls.
7. Truck unloading area is free of garbage or debris.
8. Stormwater control system working properly.
9. Building is clean and neat.

Other _____

_____

Specific Comments

Item # Observation

#____ _____

#____ _____

Inspector Signature: _____

APPENDIX E

MSDS

3D TRASAR®
3DT265

Cooling Water Scale and Corrosion Inhibitor

NALCO
An Ecolab Company

Product Bulletin

PRODUCT DESCRIPTION AND APPLICATION

3D TRASAR products are part of an innovative water treatment program that uses proven technology to prevent operational problems. 3D TRASAR technology compensates for both routine and special causes of system variation. 3D TRASAR programs provide a return on your investment through their unique control and diagnostic capabilities.

3D TRASAR 3DT265 is designed for use in systems with recirculating water calcium concentrations greater than 300 ppm (as $CaCO_3$) at the targeted cycles when the pH is typically greater than 8.7. Because **3DT265** contains no molybdate or zinc, it should be considered as a more environmentally friendly chemistry to meet the regulatory needs of many customers.

3DT265 is a balanced blend of corrosion and scale inhibitors designed for use in open recirculating water systems.
3DT265 contains:

- Proprietary blend of phosphonate inhibitors for both threshold level scale and corrosion inhibitors. They are particularly applicable to systems where calcium carbonate and/or sulfate scales are likely.
- Proprietary High Stress Polymer (HSP) dispersant.
- Benzotriazole (BZT) for copper corrosion inhibition.

3DT265 is designed to operate at high alkalinities, minimizing or eliminating the need for acid feed. Corrosion protection is provided by specific organic phosphate derivatives binding to the ferrous corrosion sites and from the protection provided by operating at a higher alkalinity. Scale protection and general dispersancy are provided by a unique polymer designed for high stress systems.

PHYSICAL & CHEMICAL PROPERTIES

Refer to the Material Safety Data Sheet (MSDS), SECTION 9, for the most current data.

These properties are typical.

Form	Liquid
Color	Yellow
Odor	None
Specific Gravity @ 77 °F [25 °C]	1.13

Density	9.39 lb/gal
pH (neat)	3.2
Viscosity	6 cp
Flash Point (PMCC)	>200°F (93°C)
Freeze Point	28°F (-2.2°C)
Solubility in Water	Complete

ACTIVE CONSTITUENTS

Active	Function
Phosphonate (HEDP/PBTC)	$CaCO_3$ stabilization (scale inhibitor)
Benzotriazole	Yellow metal corrosion inhibitor
Tagged High Stress Polymer	Dispersant
TRASAR® #2	Product monitoring & control

REGULATORY APPROVALS

3DT265 is intended for industrial use only. It must not be fed to potable water systems.

Refer to the Material Safety Data Sheet (MSDS), SECTION 15 for the most recent information on approvals.

MATERIALS OF COMPATIBILITY

Compatible	Incompatible
Unwelded 304SS	Welded 304SS
Unwelded 316 SS	Welded 316 SS
CPVC	Brass
HDPE	Mild Steel
Porta-feed Liner	UHMWPE
Nylon (polyamide)	Neoprene
Polymethylmethacrylate	EHD0045 Liner (epoxy phenolic
Polypropylene	HXG0009 Liner (phenolic)
Fluoropolymer	Plasite 7122 (cross-linked epoxy phenolic)
PVC	
Kynar	
EPDM	
Kalrez® perfluoroelastomer 1050	
Viton® synthetic rubber A	
Buna-N	
Plasite 4300 (vinyl ester resin)	

DOSAGE AND FEEDING

For complete dosage and feeding recommendations, contact your Nalco sales engineer.

ENVIRONMENTAL AND TOXICITY DATA

Biological Oxygen Demand (5-day BOD_5)	8,700 ppm
Chemical Oxygen Demand (COD)	439,000 ppm
Total Organic Carbon (TOC)	Not Available

Refer to the Material Safety Data Sheet (MSDS), SECTIONS 11 and 12, for the most current data.

SAFETY AND HANDLING

Before using this product please refer to SECTIONS 8 of the MSDS for proper personal protective equipment (PPE) and SECTIONS 3 for health effects information.

3DT265 is an acidic product and can cause eye and skin irritation. Chemical-resistant gloves and safety goggles should be worn when handling **3DT265**. Avoid breathing the solution spray. Do not take internally.

STORAGE

3DT265 should be stored in a location where the product temperature can be kept in a range between 28°F (-7°C) and 120°F (49°C). Recommended in-plant storage limit is one year.

Refer to the Material Safety Data Sheet (MSDS), SECTION 7, for the most current data.

REMARKS

If you need assistance or more information on this product, please call your nearest Nalco Representative.
For more news about Nalco Company, visit our website www.nalco.com

For **Medical and Transportation Emergencies** involving Nalco products, please see the Material Safety Data Sheet for the phone number.

ADDITIONAL INFORMATION

TRASAR, 3D TRASAR, NALCO and the Logo are trademarks of Nalco Company (11-3-2010)
All other trademarks are the property of their respective owners.

Nalco Company, 1601 West Diehl Road, Naperville, Illinois 60563-1198

Subsidiaries and Affiliates in Principal Locations Around the World

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NALCO

SAFETY DATA SHEET

PRODUCT

3D TRASAR® 3DT265

EMERGENCY TELEPHONE NUMBER(S)
(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **3D TRASAR® 3DT265**

APPLICATION : CORROSION/SCALE INHIBITOR

COMPANY IDENTIFICATION : Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER(S) : (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING
HEALTH : 1 / 1 FLAMMABILITY : 1 / 1 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

CAUTION
May cause irritation with prolonged contact.
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Keep container tightly closed. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water.
Wear suitable protective clothing.
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of sulfur (SOx) under fire conditions. May evolve oxides of phosphorus (POx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
May cause irritation with prolonged contact.

SKIN CONTACT :
May cause irritation with prolonged contact.

INGESTION :
Not a likely route of exposure. There may be irritation to the gastro-intestinal tract with nausea and vomiting.

INHALATION :
Not a likely route of exposure. Repeated or prolonged exposure may irritate the respiratory tract.

SYMPTOMS OF EXPOSURE :
Acute :
A review of available data does not identify any symptoms from exposure not previously mentioned.
Chronic :
A review of available data does not identify any symptoms from exposure not previously mentioned.

AGGRAVATION OF EXISTING CONDITIONS :
A review of available data does not identify any worsening of existing conditions.

HUMAN HEALTH HAZARDS - CHRONIC :
No adverse effects expected other than those mentioned above.

4. FIRST AID MEASURES

EYE CONTACT :
Immediately flush with plenty of water for at least 15 minutes. If symptoms develop, seek medical advice.

SKIN CONTACT :
Flush affected area with water. If symptoms develop, seek medical advice. Flush with large amounts of water. Use soap if available. If symptoms develop, seek medical advice.

INGESTION :
Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. Get medical attention.

INHALATION :
Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

NOTE TO PHYSICIAN :
Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT : > 200 °F / > 93.3 °C (PMCC)

EXTINGUISHING MEDIA :
This product would not be expected to burn unless all the water is boiled away. The remaining organics may be ignitable. Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD :
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of sulfur (SOx) under fire conditions. May evolve oxides of phosphorus (POx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :
In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Restrict access to area as appropriate until clean-up operations are complete. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Keep people away from and upwind of spill/leak. Ventilate spill area if possible.

METHODS FOR CLEANING UP :
SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. LARGE SPILLS: Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Clean contaminated surfaces with water or aqueous cleaning agents. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :
Prevent material from entering sewers or waterways.

7. HANDLING AND STORAGE

HANDLING :
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Do not breathe vapors/gases/dust. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled.

STORAGE CONDITIONS :
Protect product from freezing. Store the containers tightly closed. Store in suitable labeled containers. Store separately from bases.

SUITABLE CONSTRUCTION MATERIAL :
Buna-N, Polyurethane, Polypropylene, Polyethylene, PVC, EPDM, HDPE (high density polyethylene), Epoxy phenolic resin, Fluoroelastomer, Chlorosulfonated polyethylene rubber, Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.

UNSUITABLE CONSTRUCTION MATERIAL :
Brass, Neoprene, Stainless Steel 304

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :
General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne mist and vapor.

RESPIRATORY PROTECTION :
Where concentrations in air may exceed the limits given in this section or when significant mists, vapors, aerosols, or dusts are generated, an approved air purifying respirator equipped with suitable filter cartridges is recommended. Consult the respirator / cartridge manufacturer data to verify the suitability of specific devices. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

HAND PROTECTION :
When handling this product, the use of chemical gloves is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

SKIN PROTECTION :
Wear standard protective clothing.

EYE PROTECTION :
Wear safety glasses with side-shields.

HYGIENE RECOMMENDATIONS :
Use good work and personal hygiene practices to avoid exposure. Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

HUMAN EXPOSURE CHARACTERIZATION :
Based on our recommended product application and personal protective equipment, the potential human exposure is: Low

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Yellow
ODOR	None
SPECIFIC GRAVITY	1.13
DENSITY	9.39 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	3.2
VISCOSITY	6 cps
FREEZING POINT	28 °F / -2.2 °C
VAPOR PRESSURE	Same as water
VAPOR DENSITY	Same as water
VOC CONTENT	0 % EPA Method 24

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY

STABILITY :
Stable under normal conditions.

HAZARDOUS POLYMERIZATION :
Hazardous polymerization will not occur.

CONDITIONS TO AVOID :
Avoid extremes of temperature.

MATERIALS TO AVOID :
Contact with strong alkalies (e.g. ammonia and its solutions, carbonates, sodium hydroxide (caustic), potassium hydroxide, calcium hydroxide (lime), cyanide, sulfide, hypochlorites, chlorites) may generate heat, splattering or boiling and toxic vapors. Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors.

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of carbon, Oxides of nitrogen, Oxides of sulfur, Oxides of phosphorus

11. TOXICOLOGICAL INFORMATION

No toxicity studies have been conducted on this product.

SENSITIZATION :
This product is not expected to be a sensitizer.

CARCINOGENICITY :
None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :
Based on our hazard characterization, the potential human hazard is: Low

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product.

Acute Fish Results :

Species	Exposure	Test Type	Value	Test Descriptor
Rainbow Trout	96 hrs	LC50	1,868 mg/l	Product
Fathead Minnow	96 hrs	LC50	3,140 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	Test Type	Value	Test Descriptor
Daphnia magna	48 hrs	LC50	1,964 mg/l	Product

PERSISTENCY AND DEGRADATION :

Total Organic Carbon (TOC) : 63,000 mg/l

Chemical Oxygen Demand (COD) : 190,000 mg/l

Biological Oxygen Demand (BOD) :

Incubation Period	Value	Test Descriptor
5 d	< 200 mg/l	Product

The organic portion of this preparation is expected to be inherently biodegradable.

MOBILITY :
The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
<5%	30 - 50%	50 - 70%

The portion in water is expected to be soluble or dispersible.

BIOACCUMULATION POTENTIAL
This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Low
Based on our recommended product application and the product's characteristics, the potential environmental exposure is: Moderate

If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

LAND TRANSPORT :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this information.

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :
Based on our hazard evaluation, none of the substances in this product are hazardous.

CERCLA/SUPERFUND, 40 CFR 302 :
Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :
This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :
This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

NSF NON-FOOD COMPOUNDS REGISTRATION PROGRAM (former USDA List of Proprietary Substances & Non-Food Compounds) :
NSF Registration number for this product is : 138497
This product is acceptable for treatment of cooling and retort water (G5) in and around food processing areas.

This product has been certified as KOSHER/PAREVE for year-round use INCLUDING THE PASSOVER SEASON by the CHICAGO RABBINICAL COUNCIL.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
This product may contain trace levels (<0.1% for carcinogens, <1% all other substances) of the following substance(s) listed under the regulation. Additional components may be unintentionally present at trace levels.

Substance(s)	Citations
• Methanol	Sec. 112

CALIFORNIA PROPOSITION 65 :
Substances listed under California Proposition 65 are not intentionally added or expected to be present in this product.

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

INTERNATIONAL CHEMICAL CONTROL LAWS :

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

AUSTRALIA
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

EUROPE
The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

JAPAN
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

KOREA
All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should

be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH., (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version),
Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH,
(TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Ariel Insight™ (An integrated guide to industrial chemicals covered under major regulatory and advisory programs), North American Module, Western European Module, Chemical Inventories Module and the Generics Module (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By : Product Safety Department
Date issued : 01/17/2012
Version Number : 1.13

NALCO

SAFETY DATA SHEET

PRODUCT

NALCO® 7396

EMERGENCY TELEPHONE NUMBER(S)
(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCO® 7396**

APPLICATION : WATER STABILIZATION

COMPANY IDENTIFICATION : Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER(S) : (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING
HEALTH : 1 / 1 FLAMMABILITY : 0 / 0 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

CAUTION
May cause irritation with prolonged contact.
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water.
Wear suitable protective clothing.
Not flammable or combustible. May evolve oxides of phosphorus (POx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
May cause irritation with prolonged contact.

SKIN CONTACT :
May cause irritation with prolonged contact.

INGESTION :
Not a likely route of exposure. There may be irritation to the gastro-intestinal tract with nausea and vomiting.

INHALATION :
Not a likely route of exposure. Repeated or prolonged exposure may irritate the respiratory tract.

AGGRAVATION OF EXISTING CONDITIONS :
A review of available data does not identify any worsening of existing conditions.

4. FIRST AID MEASURES

EYE CONTACT :
Immediately flush with plenty of water for at least 15 minutes. If symptoms develop, seek medical advice.

SKIN CONTACT :
Flush with large amounts of water. Use soap if available. If symptoms develop, seek medical advice.

INGESTION :
Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. Get medical attention.

INHALATION :
Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

NOTE TO PHYSICIAN :
Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT : None

EXTINGUISHING MEDIA :
Not expected to burn. Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD :
Not flammable or combustible. May evolve oxides of phosphorus (POx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :
In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Restrict access to area as appropriate until clean-up operations are complete. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Keep people away from and upwind of spill/leak. Ventilate spill area if possible.

METHODS FOR CLEANING UP :
SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. LARGE SPILLS: Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Clean contaminated surfaces with water or aqueous cleaning agents. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :
Do not contaminate surface water.

7. HANDLING AND STORAGE

HANDLING :
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Do not breathe vapors/gases/dust. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled.

STORAGE CONDITIONS :
Store in suitable labeled containers. Store the containers tightly closed.

SUITABLE CONSTRUCTION MATERIAL :
Buna-N, Neoprene, Viton, Hypalon, Polyurethane, EPDM, PVC, Polypropylene, Polyethylene

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :
General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne mist and vapor.

RESPIRATORY PROTECTION :
Where concentrations in air may exceed the limits given in this section or when significant mists, vapors, aerosols, or dusts are generated, an approved air purifying respirator equipped with suitable filter cartridges is recommended. Consult the respirator / cartridge manufacturer data to verify the suitability of specific devices. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory

protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

HAND PROTECTION :
When handling this product, the use of chemical gloves is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

SKIN PROTECTION :
Wear standard protective clothing.

EYE PROTECTION :
Wear chemical splash goggles. Wear safety glasses with side-shields.

HYGIENE RECOMMENDATIONS :
Use good work and personal hygiene practices to avoid exposure. Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

HUMAN EXPOSURE CHARACTERIZATION :
Based on our recommended product application and personal protective equipment, the potential human exposure is: Moderate

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Colorless
ODOR	None

SPECIFIC GRAVITY	1.74 @ 59 °F / 15 °C
DENSITY	14.5 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	10.0 - 11.5
FREEZING POINT	-20 °F / -28.9 °C
VAPOR PRESSURE	similar to water
VOC CONTENT	0 % Calculated

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY

STABILITY :
Stable under normal conditions.

HAZARDOUS POLYMERIZATION :
Hazardous polymerization will not occur.

CONDITIONS TO AVOID :
Extremes of temperature

MATERIALS TO AVOID :
None known

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of phosphorus

11. TOXICOLOGICAL INFORMATION

The following results are for the product.

ACUTE ORAL TOXICITY :
Species: Rat
LD50: 2,444 mg/kg
Test Descriptor: Product

ACUTE DERMAL TOXICITY :
Species: Rabbit
LD50: > 5,000 mg/kg
Test Descriptor: Product

PRIMARY SKIN IRRITATION :
Species: Rabbit
Draize Score: 0.8 /8.0
Test Descriptor: Product

PRIMARY EYE IRRITATION :
Species: Rabbit
Draize Score: 17.3 /110.0
Test Descriptor: Product

SENSITIZATION :
This product is not expected to be a sensitizer.

CARCINOGENICITY :
None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :
Based on our hazard characterization, the potential human hazard is: Low

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product.

Acute Fish Results :

Species	Exposure	Test Type	Value	Test Descriptor
Bluegill Sunfish	96 hrs	LC50	420 mg/l	Product
Rainbow Trout	96 hrs	LC50	450 mg/l	Product
Fathead Minnow	96 hrs	LC50	425 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	Test Type	Value	Test Descriptor
Daphnia magna	48 hrs	LC50	> 100 mg/l	Product
Ceriodaphnia dubia	48 hrs	LC50	406 mg/l	Product

PERSISTENCY AND DEGRADATION :

Chemical Oxygen Demand (COD) : < 100 mg/l

Biological Oxygen Demand (BOD) :

Incubation Period	Value	Test Descriptor
	0 mg/l	

Greater than 95% of this product consists of inorganic substances for which a biodegradation value is not applicable.

MOBILITY :
The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
<5%	30 - 50%	50 - 70%

The portion in water is expected to be soluble or dispersible.

BIOACCUMULATION POTENTIAL
This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Low
Based on our recommended product application and the product's characteristics, the potential environmental exposure is: High

If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

LAND TRANSPORT :

Proper Shipping Name :	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
Technical Name(s) :	TETRAPOTASSIUM PYROPHOSPHATE
UN/ID No :	UN 3266
Hazard Class - Primary :	8
Packing Group :	III
Flash Point :	None

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
Technical Name(s) :	TETRAPOTASSIUM PYROPHOSPHATE
UN/ID No :	UN 3266
Hazard Class - Primary :	8
Packing Group :	III

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name :	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
Technical Name(s) :	TETRAPOTASSIUM PYROPHOSPHATE
UN/ID No :	UN 3266
Hazard Class - Primary :	8
Packing Group :	III

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this information.

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

CERCLA/SUPERFUND, 40 CFR 302 :
Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :
This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :
This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

FOOD AND DRUG ADMINISTRATION (FDA) Federal Food, Drug and Cosmetic Act :
When use situations necessitate compliance with FDA regulations, this product is acceptable under : 21 CFR 176.170 Components of paper and paperboard in contact with aqueous and fatty foods and 21 CFR 176.180 Components of paper and paperboard in contact with dry foods.

Limitations: no more than required to produce intended technical effect.

FEDERAL INSTITUTE FOR RISK ASSESSMENT (BfR) RECOMMENDATION :
This product is In compliance with recommendation BfR XXXVI

Dosage Limit (%)	Dosage Limit (mg/dm2)	Limitation Qualifier
1 %		product based on dry fiber

NSF NON-FOOD COMPOUNDS REGISTRATION PROGRAM (former USDA List of Proprietary Substances & Non-Food Compounds) :
NSF Registration number for this product is : 062428
This product is acceptable as a water conditioner (G2) for the treatment of entire potable water systems at concentrations not to exceed 10 ppm calculated as phosphate ion in and around food processing areas. This product is acceptable for treatment of cooling and retort water (G5) in and around food processing areas. This product is acceptable for treating boilers, steam lines, and/or cooling systems (G7) where neither the treated water nor the steam produced may contact edible products in and around food processing areas.

This product has been certified as KOSHER/PAREVE for year-round use INCLUDING THE PASSOVER SEASON by the CHICAGO RABBINICAL COUNCIL.

NSF INTERNATIONAL :
This product has received NSF/International certification under NSF/ANSI Standard 60 in the corrosion and scale control and sequestering categories. The official name is "Tetrapotassium Pyrophosphate." Maximum product application dosage is : 29 mg/l.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CALIFORNIA PROPOSITION 65 :
Substances listed under California Proposition 65 are not intentionally added or expected to be present in this product.

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

INTERNATIONAL CHEMICAL CONTROL LAWS :

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

AUSTRALIA
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

EUROPE
The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

JAPAN
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

KOREA
All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should

be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version),
Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH,
(TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By : Product Safety Department
Date issued : 07/10/2013
Version Number : 1.18

MATERIAL SAFETY DATA SHEET

DYNATEC SYSTEMS, INC
909 JACKSONVILLE ROAD
BURLINGTON, NJ 08016

TELEPHONE: (609) 387 - 0330
BUSINESS HOURS: (609) 387-0330

SECTION 01 - IDENTIFICATION

Product Name:	MEMCLEEN-A
Product Type:	Cleaning Compound
DOT Hazard Class:	Corrosive Liquid, Acidic, Organic, N.O.S. (Citric Acid Solution), Class 8, UN 3265, PGIII

SECTION 02 - HAZARDOUS INGREDIENTS

Chemical Name	CAS #	%	PEL/TLV
2-Hydroxy-1,2,3-Propane Tricarboxylic Acid	77-92-9	<50	Not Established

SECTION 03 - PHYSICAL DATA

Appearance and Odor :	Clear, light colored liquid with a mild odor.
pH:	1.5-2.0
Specific Gravity :	1.2
Solubility in Water :	100%

SECTION 04 - FIRE AND EXPLOSION HAZARD DATA

Flash Point:	>212 Degrees F
Extinguishing Media:	Carbon dioxide or foam
Special Fire Fighting Procedures:	Wear NIOSH approved self-contained breathing apparatus with a full-face piece.
Unusual Fire and Explosion Hazards:	None

SECTION 05 - HEALTH AND FIRST AID

HMIS Hazard Rating:

Health 2 Fire 0 Reactivity 0

Hazard Type: Corrosive

Carcinogenicity: NTP: Not listed Iarc: Not listed OSHA: Not listed

Effects of Overexposure: May cause irritation or burns to the skin, eyes and respiratory tract. Prolonged or repeated skin contact may result in dermatitis. Prolonged or repeated eye contact may result in conjunctivitis.

EMERGENCY AND FIRST AID PROCEDURES

Skin:	Wash area with copious water. If irritation persists, obtain medical attention.
Eyes:	Flush eyes with copious water for 15 minutes. If irritation persists, seek medical attention.
Inhalation:	Remove to fresh air. Obtain medical attention if symptoms persist.
Ingestion:	If conscious, give 1-3 glasses of water to dilute stomach contents. Never give anything by mouth to an unconscious person. Do not induce vomiting. Seek immediate medical attention.

SECTION 06 - CORROSIVITY AND REACTIVITY DATA

Stability:	Stable
Incompatibility:	Incompatible with strong bases and oxidizing agents.
Hazardous Decomposition:	Combustion will produce oxides of carbon.
Hazardous Polymerization:	Will not occur

SECTION 07 - STORAGE, HANDLING, AND USE PROCEDURES

Normal Storage and Handling:	Normal warehouse procedures. Store above freezing
Normal Use:	Normally used as 1% solution in water for cleaning membrane systems.
Steps to be taken in case of leaks or spills:	Surfaces will be slippery. Flush with water or soak up with inert material and shovel into a container.
Waste Disposal Method:	Dispose of in accordance with Federal, State and Local laws. Material is biodegradable.

SECTION 08 - PERSONAL PROTECTION INFORMATION

Respiratory Protection:	Not required for normal use.
Ventilation:	No special requirement.
Protective Gloves:	Rubber, impervious type.
Eye Protection :	Chemical splash goggles.
Personal Hygiene:	Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing and wash thoroughly before reuse.

Measures To Be Taken During Repair and Maintenance of Contaminated Equipment That Has Been In Contact With This Material: See Sections 07 and 08.

SECTION 09 - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage:	Keep from freezing.
Other Precautions:	None

SECTION 10 - REGULATORY INFORMATION

TSCA Status: All chemicals contained in this product are on the TSCA inventory.

FOR COMPANY USE

The information and recommendations set forth herein are taken from sources believed to be accurate as of the date hereof; however, Dynatec Systems Inc., makes no warranty with respect to the accuracy of the information or the suitability of the recommendations, and assumes no liability to any user thereof.

G. William Fisher

Prepared by: G. William Fisher	Created:	17 February, 1998
	Revision B:	1 June, 2009

NALCO

SAFETY DATA SHEET

PRODUCT

NALCLEAR® 7768

EMERGENCY TELEPHONE NUMBER(S)
(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCLEAR® 7768**

APPLICATION : FLOCCULANT

COMPANY IDENTIFICATION : Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER(S) : (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING
HEALTH : 0 / 1 FLAMMABILITY : 1 / 1 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

CAUTION
May cause irritation with prolonged contact.
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Keep container tightly closed. Water in contact with the product will cause slippery floor conditions. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Use a mild soap if available. Protect product from freezing.
Wear suitable protective clothing.
Phase separation of the product may occur after prolonged storage. The top phase will be combustible hydrocarbon solvent. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
May cause irritation with prolonged contact.

SKIN CONTACT :
Frequent or prolonged contact with product may defat and dry the skin, leading to discomfort and dermatitis.

INGESTION :
Not a likely route of exposure. If swallowed a jelly mass may form which in digestion may cause blockage.

INHALATION :
Not a likely route of exposure. Repeated or prolonged exposure may irritate the respiratory tract.

SYMPTOMS OF EXPOSURE :
Acute :
A review of available data does not identify any symptoms from exposure not previously mentioned.
Chronic :
Frequent or prolonged contact with product may defat and dry the skin, leading to discomfort and dermatitis.

AGGRAVATION OF EXISTING CONDITIONS :
A review of available data does not identify any worsening of existing conditions.

4. FIRST AID MEASURES

EYE CONTACT :
Wipe or blot away excess material with clean cloth or paper towel. Wash affected areas thoroughly with water. If symptoms develop, seek medical advice.

SKIN CONTACT :
Wipe or blot away excess material with clean cloth or paper towel. Wash affected areas thoroughly with water. Use a mild soap if available. If symptoms develop, seek medical advice.

INGESTION :
Do not induce vomiting without medical advice. Get medical attention.

INHALATION :
Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

NOTE TO PHYSICIAN :
Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT : > 200 °F / > 93.3 °C (PMCC)

EXTINGUISHING MEDIA :
Foam, Dry powder, Carbon dioxide, Other extinguishing agent suitable for Class B fires

UNSUITABLE EXTINGUISHING MEDIA :
Do not use water unless flooding amounts are available.

FIRE AND EXPLOSION HAZARD :
Phase separation of the product may occur after prolonged storage. The top phase will be combustible hydrocarbon solvent. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :
In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Restrict access to area as appropriate until clean-up operations are complete. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Keep people away from and upwind of spill/leak. Ventilate spill area if possible. Spill may be slippery.

METHODS FOR CLEANING UP :
SMALL SPILLS: Water in contact with the product will create a voluminous, slippery gel. Soak up as thoroughly as possible with inert absorbent material or sawdust. Do NOT hose down area until all possible traces of polymer are removed. LARGE SPILLS: Water in contact with the product will cause slippery floor conditions. Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Clean contaminated surfaces with water or aqueous cleaning agents. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :
Prevent material from entering sewers or waterways.

7. HANDLING AND STORAGE

HANDLING :
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Do not breathe vapors/gases/dust. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled. Stir well prior to use.

STORAGE CONDITIONS :
Store separately from oxidizers. Store the containers tightly closed. Store in suitable labeled containers. Protect product from freezing.

SUITABLE CONSTRUCTION MATERIAL :
Hastelloy C-276, Stainless Steel 316L, Stainless Steel 304, Plasite 7122, Inconel 625, Plasite 4300, CPVC (rigid), Polypropylene (rigid), Polyethylene (rigid), PTFE, Fluoroelastomer

UNSUITABLE CONSTRUCTION MATERIAL :
Brass, Neoprene, Buna-N, Natural rubber, Polyurethane, EPDM, Mild steel, Galvanized metals, Polyethylene tubing, Chlorosulfonated polyethylene rubber

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :
General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne mist and vapor.

RESPIRATORY PROTECTION :
Where concentrations in air may exceed the limits given in this section or when significant mists, vapors, aerosols, or dusts are generated, an approved air purifying respirator equipped with suitable filter cartridges is recommended. Consult the respirator / cartridge manufacturer data to verify the suitability of specific devices. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

HAND PROTECTION :
When handling this product, the use of chemical gloves is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

SKIN PROTECTION :
Wear standard protective clothing.

EYE PROTECTION :
Wear safety glasses with side-shields.

HYGIENE RECOMMENDATIONS :
Use good work and personal hygiene practices to avoid exposure. Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

HUMAN EXPOSURE CHARACTERIZATION :
Based on our recommended product application and personal protective equipment, the potential human exposure is: Moderate

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Emulsion
APPEARANCE	Off-white
ODOR	Slight, Hydrocarbon
SPECIFIC GRAVITY	1.04 @ 77 °F / 25 °C

DENSITY	8.55 - 9.05 lb/gal
SOLUBILITY IN WATER	Emulsifiable
pH (1 %)	6.8
VISCOSITY	200 - 1,700 cps @ 77 °F / 25 °C
FREEZING POINT	26 °F / -3 °C
BOILING POINT	215 °F / 102 °C
VOC CONTENT	26.2 % EPA Method 24

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY

STABILITY :
Stable under normal conditions.

HAZARDOUS POLYMERIZATION :
Hazardous polymerization will not occur.

CONDITIONS TO AVOID :
Freezing temperatures.

MATERIALS TO AVOID :
Addition of water results in gelling. Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors.

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of carbon, Oxides of nitrogen

11. TOXICOLOGICAL INFORMATION

No toxicity studies have been conducted on this product.

SENSITIZATION :
This product is not expected to be a sensitizer.

CARCINOGENICITY :
None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :
Based on our hazard characterization, the potential human hazard is: Low

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product, unless otherwise indicated.

Acute Fish Results :

Species	Exposure	Test Type	Value	Test Descriptor
Sheepshead Minnow	96 hrs	LC50	> 1,000 mg/l	1% Aqueous Solution of a Similar Product
Rainbow Trout	96 hrs	LC50	8,500 mg/l	1% Aqueous Solution of Product
Inland Silverside	96 hrs	LC50	90.7 mg/l	Product
Rainbow Trout	96 hrs	LC50	157.5 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	Test Type	Value	Test Descriptor
Mysid Shrimp (M. litoralis)	96 hrs	LC50	188.9 mg/l	Product
Mysid Shrimp (Mysidopsis bahia)	96 hrs	LC50	67.4 mg/l	Product
Daphnia magna	48 hrs	LC50	0.694 mg/l	Product
Daphnia magna	48 h	EC50	2.0 mg/l	Tested with 20 mg/L Humic Acid

AQUATIC PLANT RESULTS :

Species	Exposure	Test Type	Value	Test Descriptor
Marine Algae (Skeletonema costatum)	72 hrs	EC50	23 mg/l	Product

PERSISTENCY AND DEGRADATION :

Chemical Oxygen Demand (COD) : 429,000 mg/l

Biological Oxygen Demand (BOD) :

Incubation Period	Value	Test Descriptor
5 d	200,000 mg/l	Product

The organic portion of this preparation is expected to be inherently biodegradable.

MOBILITY :
The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
5 - 10%	30 - 50%	50 - 70%

The portion in water is expected to be soluble or dispersible.

BIOACCUMULATION POTENTIAL
This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Low
Based on our recommended product application and the product's characteristics, the potential environmental exposure is: Moderate

If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

LAND TRANSPORT :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this information.

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

CERCLA/SUPERFUND, 40 CFR 302 :
Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :
This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :
This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

FOOD AND DRUG ADMINISTRATION (FDA) Federal Food, Drug and Cosmetic Act :
When use situations necessitate compliance with FDA regulations, this product is acceptable under : 21 CFR 176.170 Components of paper and paperboard in contact with aqueous and fatty foods and 21 CFR 176.180 Components of paper and paperboard in contact with dry foods., 21 CFR 173.315 chemicals used in washing or to assist in the lye peeling of fruits and vegetables

Maximum product dosage is 0.345% of finished paper or paperboard. 21 CFR 173.315 Limitation: For use only in the washing of sugar beets as a flume mud dewatering aid applied to the underflow of the final flume water clarifier just prior to the flume mud belt press at maximum concentration of 500 ppm as product.

NSF INTERNATIONAL :
This product has received NSF/International certification under NSF/ANSI Standard 60 in the coagulation and flocculation category. The official name is "Polyacrylamide." Maximum product application dosage is : 1 mg/l.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
This product may contain trace levels (<0.1% for carcinogens, <1% all other substances) of the following substance(s) listed under the regulation. Additional components may be unintentionally present at trace levels.

Substance(s)	Citations
• Cupric Sulphate	Sec. 307, Sec. 311

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
This product may contain trace levels (<0.1% for carcinogens, <1% all other substances) of the following substance(s) listed under the regulation. Additional components may be unintentionally present at trace levels.

Substance(s)	Citations
• Acrylamide	Sec. 112

CALIFORNIA PROPOSITION 65 :
This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels, which would require a warning under the statute.

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

INTERNATIONAL CHEMICAL CONTROL LAWS :

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

AUSTRALIA
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

EUROPE
The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

JAPAN
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

KOREA
All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH., (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version),
Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH,
(TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Ariel Insight™ (An integrated guide to industrial chemicals covered under major regulatory and advisory programs), North American Module, Western European Module, Chemical Inventories Module and the Generics Module (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By : Product Safety Department
Date issued : 01/27/2012
Version Number : 1.30

APPENDIX F

EVACUATION PLAN

1. TITLE: **EMERGENCY EVACUATION PROCEDURES**

2. All personnel shall become familiar, and comply with the following emergency evacuation procedures:

3. When an emergency alarm sounds, all personnel shall leave the Treatment Building in the safest means possible using primary or secondary escape routes. Posted through the Treatment Building is a map, also known as site plans, depicting primary and secondary escape routes.

4. After evacuating the Facility, all personnel shall immediately assemble in the Primary Evacuation Area, which is located at the Landfill Office at entrance to St Charles Rock Road

5. If access to the Primary Evacuation Area is blocked, the Plant Manager shall direct personnel to the Alternate Evacuation Area located at the Westlake Pump Station.

6. ACCCOUNTING FOR EMPLOYEES AND OTHERS: The Plant Manager shall verify that all personnel, including visitors, contractors, etc., that are in their area evacuate the building with special attention to the needs of handicapped personnel. There may be designated personnel – The Chief Operator or a similar position for example – to verify that all persons are evacuated from the affected area, if there is no peril to those personnel.

APPENDIX G

HAZARD COMMUNICATION PLAN

1.0 TITLE: HAZARD COMMUNICATION PLAN

2.0 PURPOSE:

2.1 This document serves as the Bridgeton Leachate Pretreatment Plant Hazard Communication Program. It provides detailed safety guidelines and instructions for receipt, use and storage of chemicals at our facility by staff and contractors. Reference: OSHA Standard 1910.1200.

3.0 RESPONSIBILITIES:

3.1 Management

- Confirm compliance with this program
- Conduct immediate corrective action for deficiencies found in the program
- Maintain an effective Hazard Communication training program
- Make this plan available to Operators, staff, and other staff

3.2 Shipping & Receiving

- Confirm received containers are properly labeled and that labels are not removed or defaced
- Confirm all shipped containers and sludge trailers are properly labeled
- Confirm staff are properly trained in spill response
- Confirm received Material Safety Data Sheets (MSDS) are properly distributed

3.3 Purchasing

- Obtain, from the manufacturer, MSDS for chemicals purchased from retail sources

3.4 Plant Manager

- Maintain a list of hazardous chemicals using the identity that is referenced on the MSDS
- Monitor the effectiveness of the program
- Conduct annual audit of the program
- Monitor staff training to confirm effectiveness
- Keep management informed of necessary changes
- Confirm MSDSs are available as required
- Monitor facility for proper use, storage and labeling of chemicals

- Confirm MSDS are available for emergency medical personnel when treating exposed staff
- Provide information, as requested, concerning health effects and exposure symptoms listed on MSDSs

3.5 Team Coordinators

- Comply with all specific requirements of the program
- Provide specific chemical safety training for assigned staff
- Confirm chemicals are properly used stored & labeled
- Confirm only the minimum amount necessary is kept at work stations
- Confirm up to date MSDS are readily accessible to all staff on all shifts

3.6 Operating Staff

- Comply with chemical safety requirements of this program
- Report any problems with storage or use of chemicals
- Immediately report spills of suspected spills of chemicals
- Use only those chemicals for which they have been trained
- Use chemicals only for specific assigned tasks in the proper manner

3.7 Contractors

- Comply will all aspects of this program
- Coordinate information with the Plant Manager
- Confirm Contractor employees are properly trained
- Notify the Plant Manager before bringing any chemicals into Bridgeton Leachate Pretreatment Plant property
- Monitor and confirm proper storage and use of chemicals by Contractor employees

4.0 DEFINITIONS:

Chemical: any element, chemical compound or mixture of elements and/or compounds.

Combustible liquid: means any liquid having a flash point at or above 100 deg. F (37.8 deg. C), but below 200 deg. F (93.3 deg. C), except any mixture having components with flash points of 200 deg. F (93.3 deg. C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

Compressed gas: any compound that exhibits:

(i) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70 deg. F.

(ii) A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 deg.

F. regardless of the pressure at 70 deg. F.

(iii) A liquid having a vapor pressure exceeding 40 psi at 100 deg. F.

Container: any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

Designated representative: any individual or organization to whom a technician gives written authorization to exercise such technician's rights under this section. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written technician authorization.

Technician: a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. (Staff)

Explosive: a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

Exposure or exposed: a technician is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. Subjected in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, skin contact or absorption.)

Flammable: a chemical that falls into one of the following categories:

(i) "Aerosol, flammable" means an aerosol that yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening;

(ii) "Gas, flammable" means: (A) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of thirteen (13) percent by volume or less; or (B) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than twelve (12) percent by volume, regardless of the lower limit;

(iii) "Liquid, flammable" means any liquid having a flash point below 100 deg. F., except any mixture having components with flash points of 100 deg. F. or higher, the total of which make up 99 percent or more of the total volume of the mixture.

(iv) "Solid, flammable" means a solid, other than a blasting agent or explosive as defined in 1910.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

Flash point: the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite.

Hazardous chemical: any chemical that is a physical hazard or a health hazard.

Hazard warning: any words, pictures, symbols, or combination appearing on a label or other appropriate form of warning which convey the specific physical and health hazard(s), including target organ effects, of the chemical(s) in the container(s). (See the definitions for "physical hazard" and "health hazard" to determine the hazards which must be covered.)

Health hazard: a chemical for which there is evidence that acute or chronic health effects may occur in exposed staff. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, and neurotoxins, agents which act on the hematopoietic system and agents which damage the lungs, skin, eyes, or mucous membranes.

Identity: any chemical or common name which is indicated on the material safety data sheet (MSDS) for the chemical. The identity used shall permit cross-references to be made among the required list of hazardous chemicals, the label and the MSDS.

Immediate use: the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Label: any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

Material safety data sheet (MSDS): written or printed material concerning a hazardous chemical which is prepared in accordance with OSHA Standard 1910.1200 requirements.

Mixture: any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

Oxidizer: means a chemical other than a blasting agent or explosive as defined in 1910.109(a), which initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

Physical hazard: a chemical that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

Pyrophoric: a chemical that will ignite spontaneously in air at a temperature of 130 deg. F. or below.

Specific chemical identity: the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

Unstable (reactive): a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

Use: to package, handle, react, emit, extract, generate as a byproduct, or transfer.

Water-reactive: a chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

Work area: a room or defined space in a workplace where hazardous chemicals are produced or used, and where staff are present.

Workplace: an establishment, job site, or project, at one geographical location containing one or more work areas.

5.0 PROCEDURE:

5.1 General Program Information

This written Hazard Communication Plan (HAZCOM) has been developed based on OSHA Hazard Communication Standard and consists of the following elements:

- Identification of Hazardous Materials
- Product Warning Labels
- Material Safety Data Sheets (MSDS)
- Written Hazard Communication Program
- Effective Technician Training

  Some chemicals are explosive, corrosive, flammable, or toxic. Other chemicals are relatively safe to use and store but may become dangerous when they interact with other substances. To avoid injury and/or property damage, persons who handle chemicals in any area of the Bridgeton Leachate Pretreatment Plant must understand the hazardous properties of the chemicals. Before using a specific chemical, safe handling methods and health hazards must always be reviewed. Supervisors are responsible for confirming that the equipment needed to work safely with chemicals is accessible and maintained for all staff on all shifts.

5.2 Staff Training

5.2.1 Initial Orientation Training - All New staff shall receive safety orientation training covering the elements of the HAZCOM and Right to Know Program. This training will consist of general training covering:

- Location and availability of the written Hazard Communication Program

- Location and availability of the List of Chemicals (MSDS Sheets) used in the workplace
- Methods and observation used to detect the presence or release of a hazardous chemical in the workplace.
- The specific physical and health hazard of all chemicals in the workplace
- Specific control measures for protection from physical or health hazards
- Explanation of the chemical labeling system
- Location and use of MSDS

5.2.2 Job Specific Training

Staff will receive on the job training from their supervisor. This training will cover the proper use, inspection and storage of necessary personal protective equipment and chemical safety training for the specific chemicals they will be using or will be working around.

5.2.3 Annual Refresher Training

Annual Hazard Communication refresher training will be conducted as part of Bridgeton Leachate Pretreatment Plant's continuing safety training program.

5.2.4 Immediate On-the-Spot Training

This training will be conducted by supervisors for any technician that requests additional information or exhibits a lack of understanding of the safety requirements.

5.2.5 Non-Routine Tasks

Non-routine tasks are defined as working on, near, or with unlabeled piping, unlabeled containers of an unknown substance, confined space entry where a hazardous substance may be present and/or a one-time task using a hazardous substance differently than intended (example: using a solvent to remove stains from floors).

5.3 Steps for Non-Routine Tasks

Step 1: Hazard Determination

Step 2: Determine Precautions

Step 3: Specific Training & Documentation

Step 4: Perform Task

Non-routine tasks will be evaluated by the Plant Manager before the task commences, to determine all hazards present. This determination will be conducted with quantitative/qualitative analysis (air sampling, substance identification/analysis, etc., as applicable).

Once the hazard determination is made, the Plant Manager will determine the necessary precautions needed to either remove the hazard, change to a non-hazard, or protect from the hazard (use of personal protective equipment) to safeguard the personnel present.

5.4 Off-site use or transportation of chemicals

An MSDS will be provided to staff for each chemical and each occurrence of use or transport away from the Bridgeton Leachate Pretreatment Plant facility. State and Federal DOT Regulations will be followed including use of certified containers, labeling & marking, securing of containers and technician training.

5.5 General Chemical Safety

5.5.1 Assume all chemicals are hazardous. The number of hazardous chemicals and the number of reactions between them is so large that prior knowledge of all potential hazards cannot be assumed. Use chemicals in as small quantities as possible to minimize exposure and reduce possible harmful effects.

5.5.2 The following general safety rules shall be observed when working with chemicals:

- Read and understand the Material Safety Data Sheets.
- Keep the work area clean and orderly.
- Use the necessary safety equipment.
- Carefully label every container with the identity of its contents and appropriate hazard warnings.
- Store incompatible chemicals in separate areas.
- Substitute less toxic materials whenever possible.
- Limit the volume of volatile or flammable material to the minimum needed for short operation periods.
- Provide means of containing the material if equipment or containers should break or spill their contents.

5.5.3 Task Evaluation

Each task that requires the use of chemicals should be evaluated to determine the potential hazards associated with the work. This hazard evaluation must include the chemical or combination of chemicals that will be used in the work, as well as other materials that will be used near the work. If a malfunction during the operation has the potential to cause serious injury or property damage, a Safe Operational Procedure (SOP) should be prepared and followed. Operations must be planned to minimize the generation of hazardous wastes.

5.5.4 Chemical Storage

The separation of chemicals (solids or liquids) during storage is necessary to reduce the possibility of unwanted chemical reactions caused by accidental mixing. Explosives should be stored separately outdoors. Use either distance or barriers (e.g., trays) to isolate chemicals into the following groups:

- Flammable Liquids: store in approved flammable storage lockers.
- Acids: treat as flammable liquids
- Bases: do not store bases with acids or any other material
- Other liquids: confirm other liquids are not incompatible with any other chemical in the same storage location.

Lips, strips, or bars are to be installed across the width of storage shelves to restrain the chemicals in case of earthquake.

Chemicals will not be stored in the same refrigerator used for food storage. Refrigerators used for storing chemicals must be appropriately identified by a label on the door.

5.6 Container Labels

It is extremely important that all containers of chemicals are properly labeled. This includes every type of container from a 6,000 gallon storage tank to a spray bottle of degreaser. The following requirements apply:

- All containers will have the appropriate label, tag or marking prominently displayed that indicates the identity, safety and health hazards .
- Portable containers which contain a small amount of chemical need not be labeled if they are used immediately that shift, but must be under the strict control of the technician using the product.

- All warning labels, tags, etc., must be maintained in a legible condition and not be defaced. Facility weekly supervisor inspections will check for compliance of this rule.
- Incoming chemicals are to be checked for proper labeling.

5.7 Emergencies and Spills

- In case of an emergency, implement the proper Emergency Action Plan
- Evacuate people from the area.
- Isolate the area.
- If the material is flammable, turn off ignition and heat sources.
- Only personnel specifically trained in emergency response are permitted to participate in chemical emergency procedures beyond those required to evacuate the area.
- Call for Emergency Response Team assistance if required.

5.8 Housekeeping

- Maintain the smallest possible inventory of chemicals to meet immediate needs.
- Periodically review stock of chemicals on hand.
- Confirm that storage areas, or equipment containing large quantities of chemicals, are secure from accidental spills.
- Rinse emptied bottles that contain acids or inflammable solvents before disposal.
- Recycle unused laboratory chemicals wherever possible.
- ***DO NOT*** Place hazardous chemicals in salvage or garbage receptacles.
- ***DO NOT*** Pour chemicals onto the ground.
- ***DO NOT*** Dispose of chemicals through the storm drain system.
- ***DO NOT*** Dispose of highly toxic, malodorous chemicals down sinks or sewer drains.

5.9 Contractors

All outside contractors working inside Bridgeton Leachate Pretreatment Plant Facilities are required to follow the requirements of this program. The Bridgeton Leachate Pretreatment Plant will provide Contractors information on:

- Location of MSDS
- Precautions to be taken to protect contractor staff
- Potential exposure to hazardous substances
- Chemicals used in or stored in areas where they will be working

- Location and availability of Material Safety Data Sheets
- Recommended Personal Protective Equipment
- Labeling system for chemicals

5.10 Material Safety Data Sheets are provided by the chemical manufacturer to provide additional information concerning safe use of the product. This section will be updated upon implementation of the SDS universal system. Each MSDS provides:

- Common Name and Chemical Name of the material
- Name, address and phone number of the manufacturer
- Emergency phone numbers for immediate hazard information
- Date the MSDS was last updated
- Listing of hazardous ingredients
- Chemical hazards of the material
- Information for identification of chemical and physical properties

5.10.1 Information Chemical Users must know

5.10.1.1 Fire and/or Explosion Information

- Material Flash Point, auto-ignition temperature and upper/lower flammability limits
- Proper fire extinguishing agents to be used
- Fire fighting techniques
- Any unusual fire or explosive hazards

5.10.1.2 Chemical Reaction Information

- Stability of Chemical
- Conditions and other materials which can cause reactions with the chemical
- Dangerous substances that can be produced when the chemical reacts

5.10.1.3 Control Measures

- Engineering Controls required for safe product use
- Personal protective equipment required for use of product
- Safe storage requirements and guidelines
- Safe handling procedures

5.10.1.4 Health Hazards

- Permissible Exposure Limit (PEL) and Threshold Limit Value (TLV)
- Acute or Chronic symptoms of exposure
- Main routes of entry into the body
- Medical conditions that can be made worse by exposure
- Cancer causing properties if any
- Emergency and First Aid treatments

5.10.1.5 Spill & Leak Procedures

- Clean up techniques
- Personal Protective Equipment to be used during cleanup
- Disposal of waste & cleanup material

5.10.1.6 Employee Use of MSDS - For MSDS use to be effective, employees must:

- Know the location of the MSDS
- Understand the major points for each chemical
- Check MSDS when more information is needed or questions arise
- Be able to quickly locate the emergency information on the MSDS
- Follow the safety practices provided on the MSDS

Doug Mendoza

From: Doug Mendoza
Sent: Thursday, July 17, 2014 11:04 AM
To: 'icooper@cecinc.com'
Cc: John Lodderhose; 'Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)'; 'Ed Galbraith (EGalbraith@barr.com) (EGalbraith@barr.com)'; 'Jessie Merrigan (JMerrigan@LATHROPGAGE.COM)'
Subject: RE: Bridgeton Landfill - Preliminary Spill and Slug Control Plan

Ivan – Thank you for provided the revised "Spill and Slug Control Plan for Bridgeton Landfill Pretreatment Plant." This July 16, 2014 version addresses the items we brought up on July 14. Therefore, MSD can accept the plan as complete for use by Bridgeton Landfill.

Brian et al – As you know, MSD has previously approved the pretreatment system, in principle, for use at Bridgeton Landfill. With submittal of an acceptable, final spill & slug control plan, Bridgeton Landfill moves closer to approval of its wastewater for onsite discharge. However, please note that approval to begin actual onsite discharge to the MSD sewer system is not yet granted. That approval is subject to successful operation of the pretreatment system, resulting in a wastewater effluent that will not violate MSD ordinance 12559 or otherwise endanger environmental or public health & safety.

In addition, and I neglected to include this in the July 14, 2014 approval correspondence for the pretreatment system, approval to begin actual onsite discharge is also contingent on completion of the discharge lines to the two pump stations, which must a suitable sampling manhole prior to the line splitting to the different stations.

Thank you for your assistance in helping us to comply with state and federal regulations. If you have any questions, please contact me at 314.436.8717.

Sincerely,
METROPOLITAN ST. LOUIS SEWER DISTRICT
Douglas M. Mendoza, P.E.
Industrial Pretreatment Manager

From: Doug Mendoza
Sent: Monday, July 14, 2014 8:45 AM
To: icooper@cecinc.com
Cc: John Lodderhose; Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com); Ed Galbraith (EGalbraith@barr.com) (EGalbraith@barr.com); Jessie Merrigan (JMerrigan@LATHROPGAGE.COM)
Subject: Bridgeton Landfill - Preliminary Spill and Slug Control Plan

Ivan,

To follow up on the telephone discussion we just had, the plan looks good other than two minor items.

1. Section 6.1 Notification Tree (under Emergency Response Equipment and Procedures) says, "When a person is injured or an emergency occurs, the following will occur: To Be Determined."

While this section is unlikely to have much impact on MSD, please finish it so that this will be a complete plan.

Doug Mendoza

From: Doug Mendoza
Sent: Wednesday, July 16, 2014 3:23 PM
To: 'Ed Galbraith'; 'Merrigan, Jessie (LG)'; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; 'Bryan Sehie'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; 'Theerman, Jeff (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie Freeman
Subject: RE: Bridgeton Landfill Weekly Report

Regarding the 60173034 report and the reanalysis for BOD, please forward those results as soon as they are received.

Regarding the retest for oil & grease, it is not surprising that the results were so different, as you also stated. I'm not sure that the second result can be considered valid, since normal procedure is to use the entire sample (collected in its own container) when analyzing for oil & grease. I don't know where they would have obtained the material for the retest, unless they happened to have collected a second (or retain) container for oil & grease at the original time of sample collection.

From: Ed Galbraith [mailto:EGalbraith@barr.com]
Sent: Wednesday, July 16, 2014 11:22 AM
To: 'Merrigan, Jessie (LG)'; Doug Mendoza; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; 'Bryan Sehie'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; 'Theerman, Jeff (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie Freeman
Subject: Bridgeton Landfill Weekly Report

The materials for the previous week are now on Barr's ftp site.

The site continues to operate under both Alternatives 1 and 2 of the Leachate Management SOP, approved by MSD April 18, 2014. 29 Combined Batch loads and 167 316-loads were delivered during the time period.

Notes on the data:

- Pace report 60173034 reported a BOD value of 93,000 ppm and a COD value of 56,000 ppm. According to Pace, they experienced over depletion of the Laboratory Control Sample and Method Blank for the BOD analysis and as a result the BOD value is biased high. We have footnoted the data as unusable and have asked Pace to rerun the BOD sample. Although the test will be out of hold time, we believe that the result will be less biased than the value currently reported.

- Pace report 60172911 reported a BOD value of 24,500 ppm and a COD value of 23,000 ppm. According to Pace, they re-analyzed for COD, which yielded the same result and the data for both COD and BOD are within

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Wednesday, July 16, 2014 11:22 AM
To: 'Merrigan, Jessie (LG)'; Doug Mendoza; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; 'Bryan Sehie'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; 'Theerman, Jeff (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie Freeman
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- Pace report 60172911 reported a BOD value of 24,500 ppm and a COD value of 23,000 ppm. According to Pace, they re-analyzed for COD, which yielded the same result and the data for both COD and BOD are within laboratory control limits. The BOD is obviously biased slightly high, however we believe it is within precision limits and therefore is a valid result.

- Also on Pace report 60172911, several other low outliers were noted, including ammonia, metals, phenol, acetone and MEK. This is likely the result of dilution from transference of biomass material between tanks T2, T3 and T4 as part of the preparation for startup of the pretreatment plant.

- As previously reported, sample 316-338, Oil and Grease was reported at 121 mg/L. Pace has re-analyzed and reported a result of 979 mg/l, which is closer to a normal expected value. From Pace's point of view, both results appear to be valid, although the first result is clearly not consistent with historic values, whereas the second is. Variability in the sample material may have been compromised the representativeness of the extraction on the first analysis.

- Pace report 60172716 is not for MSD confirmation sampling, however it reported an Oil and Grease value of 15.8. We are looking further into this.

- A high outlier for arsenic was seen in 316-349.

- Low outliers were seen for iron and lead in some 316 samples.

Please let me know if you have any questions.

Ed Galbraith

Senior Environmental Scientist
Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

resourceful. naturally. BARR

Bridgeton Landfill, LLC
Metropolitan St. Louis Sewer District
Weekly Disposal Summary

MSD - Bissell Point Tracking Table					
Date	Operational Batch	Delivered (gal) Per Batch	Delivered (gal) Daily Total	Truck Capacity (gal) Per Batch	Truck Capacity (gal) Daily Total
Sunday, July 6, 2014	Batch 316-351	37,500	*210,000*	37,500	*210,000*
	Batch 316-352	172,500		172,500	
Monday, July 7, 2014	Batch 316-352	37,500	*210,000*	37,500	*210,000*
	Batch 316-353	172,500		172,500	
Tuesday, July 8, 2014	Batch 316-353	37,500	*210,000*	37,500	*210,000*
	Batch 316-354	82,500		82,500	
	CB 07-01-14	90,000		90,000	
Wednesday, July 9, 2014	Batch 316-354	120,000	*210,000*	120,000	*210,000*
	CB 07-01-14	90,000		90,000	
Thursday, July 10, 2014	Batch 316-354	30,000	*210,000*	30,000	*210,000*
	Batch 316-355	142,500		142,500	
	CB 07-01-14	37,500		37,500	
Friday, July 11, 2014	Batch 316-355	30,000	*210,000*	30,000	*210,000*
	Batch 316-356	180,000		180,000	
Saturday, July 12, 2014	Batch 316-356	30,000	*210,000*	30,000	*210,000*
	Batch 316-357	180,000		180,000	

Starting Date	***7/6/2014 6:00***
Ending Date	***7/13/2014 6:00***

MSD - Missouri River Tracking Table								
Date	Operational Batch Transferred into 97K AST	Gallons Delivered	Batch Start Date and Time	Batch End Date and Time	Interval Hours	Maximum Hourly Flow (gph)	Average Hourly Flow (gph)	97K AST pH Check
Sunday, July 6, 2014	NA	-	7/6/2014 6:00	7/7/2014 6:00	24.0	840	0.0	NA
Monday, July 7, 2014	NA	-	7/7/2014 6:00	7/8/2014 6:00	24.0	840	0.0	NA
Tuesday, July 8, 2014	NA	-	7/8/2014 6:00	7/9/2014 6:00	24.0	840	0.0	NA
Wednesday, July 9, 2014	NA	-	7/9/2014 6:00	7/10/2014 6:00	24.0	840	0.0	NA
Thursday, July 10, 2014	NA	-	7/10/2014 6:00	7/11/2014 6:00	24.0	840	0.0	NA
Friday, July 11, 2014	NA	-	7/11/2014 6:00	7/12/2014 6:00	24.0	840	0.0	NA
Saturday, July 12, 2014	NA	-	7/12/2014 6:00	7/13/2014 6:00	24.0	840	0.0	NA

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bonahan Title: Env. Specialist Date: 7/16/14

Weekly Volume Summary - Week 64 (7-06-14 through 7-12-14).xlsx

MSD 029149

Daily Flow Reading

Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/7/2014 6:00:00 AM	7/6/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/16/14

MSD Daily Flow Reading, ending 7-07-2014

Daily Flow Reading

Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/8/2014 6:00:00 AM	7/7/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

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I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/16/14

MSD Daily Flow Reading, ending 7-08-2014

Daily Flow Reading

Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/9/2014 6:00:00 AM	7/8/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. specialist *Date:* 7/16/14

MSD Daily Flow Reading, ending 7-09-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/10/2014 6:00:00 AM	7/9/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/16/14

MSD Daily Flow Reading, ending 7-10-2014

Daily Flow Reading

Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/11/2014 6:00:00 AM	7/10/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/16/14

MSD Daily Flow Reading, ending 7-11-2014

Daily Flow Reading — *Bridgeton Landfill*

	Current	Previous	Difference
Date / Time:	7/12/2014 6:00:00 AM	7/11/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/16/14

MSD Daily Flow Reading, ending 7-12-2014

Daily Flow Reading

Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/13/2014 6:00:00 AM	7/12/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/16/14

MSD Daily Flow Reading, ending 7-13-2014

OB-316-351

Bridgeton Landfill

Fill Data

Fill Start Date	7/4/2014
Fill Start Time	18:30
Fill Stop Date	7/4/2014
Fill Stop Time	23:45
Process Battery	316 AST

Processing Data

Process Start Date	7/4/2014
Process Start Time	20:15
Process Stop Date	7/5/2014
Process Stop Time	03:45

Approval Data

Approval Details	NAL13026-1556
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill Height = 18.1'

Monday, July 14, 2014

OB-316-352 *Bridgeton Landfill*

Fill Data

Fill Start Date	7/5/2014
Fill Start Time	18:39
Fill Stop Date	7/5/2014
Fill Stop Time	22:09
Process Battery	316 AST

Processing Data

Process Start Date	7/5/2014
Process Start Time	18:45
Process Stop Date	7/6/2014
Process Stop Time	04:25

Approval Data

Approval Details	NAL13026-1559
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 18.09 ft.

Monday, July 14, 2014

OB-316-353 Bridgeton Landfill

Fill Data

Fill Start Date	7/6/2014
Fill Start Time	18:42
Fill Stop Date	7/6/2014
Fill Stop Time	23:19
Process Battery	316 AST

Processing Data

Process Start Date	7/6/2014
Process Start Time	20:00
Process Stop Date	7/7/2014
Process Stop Time	03:45

Approval Data

Approval Details	NAL13026-1560
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 18.11 ft.

Monday, July 14, 2014

OB-316-354 *Bridgeton Landfill*

Fill Data

Fill Start Date	7/7/2014
Fill Start Time	18:56
Fill Stop Date	7/8/2014
Fill Stop Time	01:00
Process Battery	316 AST

Processing Data

Process Start Date	7/7/2014
Process Start Time	20:09
Process Stop Date	7/8/2014
Process Stop Time	03:52

Approval Data

Approval Details	NAL13026-1563
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 22.14 ft. Rainwater from the previous night was still being pumped into the tank from the sump as of 12:30p.

Monday, July 14, 2014

OB-316-355 *Bridgeton Landfill*

Fill Data

Fill Start Date	7/9/2014
Fill Start Time	18:45
Fill Stop Date	7/9/2014
Fill Stop Time	22:45
Process Battery	316 AST

Processing Data

Process Start Date	7/9/2014
Process Start Time	22:45
Process Stop Date	7/10/2014
Process Stop Time	03:50

Approval Data

Approval Details	NAL13026-1566
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

pH - 5.68, MEK - 15,000, Fill Height - 18ft.

Monday, July 14, 2014

OB-316-356 *Bridgeton Landfill*

Fill Data

Fill Start Date	7/10/2014
Fill Start Time	18:45
Fill Stop Date	7/10/2014
Fill Stop Time	22:45
Process Battery	316 AST

Processing Data

Process Start Date	7/10/2014
Process Start Time	22:50
Process Stop Date	7/11/2014
Process Stop Time	03:35

Approval Data

Approval Details	NAL13026-1567
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK - 15,000 ppb, Fill height - 18ft

Monday, July 14, 2014

OB-316-357 Bridgeton Landfill

Fill Data

Fill Start Date	7/11/2014
Fill Start Time	18:30
Fill Stop Date	7/11/2014
Fill Stop Time	23:25
Process Battery	316 AST

Processing Data

Process Start Date	7/11/2014
Process Start Time	23:15
Process Stop Date	7/12/2014
Process Stop Time	03:50

Approval Data

Approval Details	NAL13026-1570
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK - 16,000, Fill Height - 18ft

Monday, July 14, 2014

Combined Batch 07-01-14 — *Bridgeton Landfill*

Fill Data

Fill Start Date	
Fill Start Time	
Fill Stop Date	
Fill Stop Time	
Process Battery	T2M

Processing Data

Process Start Date	
Process Start Time	
Process Stop Date	
Process Stop Time	

Approval Data

Approval Details	NAL13026-1550
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

pH = 6.02

Monday, July 14, 2014

Table 1
General Parameters and Metals
April - July 2014
Bridgeton Landfill

					Biochemical Oxygen Demand (5-day)	Chemical Oxygen Demand	Nitrogen, ammonia as N	Oil and Grease	Oil and Grease - Silica gel cleanup	pH	pH, field	Solids, total suspended
					NA	NA	NA	NA	NA	NA	NA	NA
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	pH units	pH units	mg/l
316-352	7/06/2014	Pace	Validated	60173081	30500	54800	582	532	15.0	5.4	5.66	4560
316-351	7/05/2014	Pace	Validated	60173080	28200	56100	586	871	15.8	5.4	5.65	4860
316-350	7/04/2014	Pace	Validated	60173039	34200	56600	590	731	15.7	5.2	5.59	245
316-349	7/03/2014	Pace	Validated	60173034	93000 **	56000	539	624	11.6	5.3	5.59	238
CB 07/01/14	7/02/2014	Pace	Validated	60172911	24500	23000	283	688 *	18.0 *	5.8	--	3200
316-348	7/02/2014	Pace	Validated	60172910	30600	51900	572	684	11.7 *	5.4	5.67	4200
316-347	7/01/2014	Pace	Validated	60172794	29900	51100	553	671	8.8	5.4	5.70	4060

MSD 029165

Table 1
General Parameters and Metals
April - July 2014
Bridgeton Landfill

					Aluminum	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Cobalt	Copper
					Total	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-352	7/06/2014	Pace	Validated	60173081	5.57	0.11	1.23	ND	ND	0.262	0.0371	0.0514
316-351	7/05/2014	Pace	Validated	60173080	2.71	0.0911	1.06	ND	ND	0.209	0.0288	ND
316-350	7/04/2014	Pace	Validated	60173039	2.92	ND	1.16	ND	ND	0.234	0.0335	ND
316-349	7/03/2014	Pace	Validated	60173034	2.68	ND	0.978	ND	ND	0.209	0.0284	ND
CB 07/01/14	7/02/2014	Pace	Validated	60172911	3.29	ND	0.519	ND	ND	0.12	ND	ND
316-348	7/02/2014	Pace	Validated	60172910	5.27	ND	1.29	ND	ND	0.28	0.0419	ND
316-347	7/01/2014	Pace	Validated	60172794	1.88	0.143	1.16	ND	ND	0.216	0.0293	ND

Table 1
General Parameters and Metals
April - July 2014
Bridgeton Landfill

					Iron	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
					Total	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-352	7/06/2014	Pace	Validated	60173081	**804**	**0.0889**	ND	**0.126**	ND	ND	ND	**6.11**
316-351	7/05/2014	Pace	Validated	60173080	**420**	**0.0453**	ND	**0.102**	ND	ND	ND	**6.04**
316-350	7/04/2014	Pace	Validated	60173039	**622**	**0.101**	ND	**0.108**	ND	ND	ND	**6.72**
316-349	7/03/2014	Pace	Validated	60173034	**518**	**0.0852**	ND	**0.0953**	ND	ND	ND	**6.08**
CB 07/01/14	7/02/2014	Pace	Validated	60172911	**383**	**0.0648**	ND	**0.0568**	ND	ND	ND	**3.84**
316-348	7/02/2014	Pace	Validated	60172910	**835**	**0.15**	ND	**0.124**	ND	ND	ND	**6.91**
316-347	7/01/2014	Pace	Validated	60172794	**413**	**0.0518**	ND	**0.108**	ND	ND	ND	**6.39**

Table 2
VOCs and SVOCs
April - July 2014
Bridgeton Landfill

					Benzene
Location	Date	Lab Name	Data Status	Lab Report	ug/l
316-352	7/06/2014	Pace	Validated	60173081	ND
316-351	7/05/2014	Pace	Validated	60173080	ND
316-350	7/04/2014	Pace	Validated	60173039	ND
316-349	7/03/2014	Pace	Validated	60173034	ND
CB 07/01/14	7/02/2014	Pace	Validated	60172911	ND
316-348	7/02/2014	Pace	Validated	60172910	ND
316-347	7/01/2014	Pace	Validated	60172794	ND

TO: **Chris Verplancke, Finance Department**
Cynthia Chalk, Finance Department

FROM: **Brian Gibson**

DATE: **July 15, 2014**

SUBJECT: **BRIDGETON LANDFILL LLC**
WASTEWATER USER CHARGE BILLING
ACCOUNT NUMBER 0039145-8

Pursuant to the MSD Industrial Wastewater Discharge Permit for the above referenced facility, please bill this facility for the following charges for the indicated billing period:

VOLUME
On-Site Discharge

---

0 gallons discharged on-site

VOLUME
Hauled Waste Discharge

6,000,000 gallons X $0.08/Gal = $480,000.00

Department of Environmental Compliance (REG) labor fee is $1,630.80 for 41.5 extra hours.
Use Revenue Code "INFO" and utility type Q.
Budget code is 1101-08050-51011 so revenue will be credited back to Department of Environmental Compliance budget.

Department of Environmental Compliance (OT) labor fee is $13,509.73 for 233.5 extra hours.
Use Revenue Code "INFO" and utility type Q.
Budget code is 1101-08050-51020 so revenue will be credited back to Department of Environmental Compliance budget.

Total Bill = $495,140.53

The volume was obtained from the customer's on-site discharge self-monitoring report and hauled waste total truck capacities.
SOURCE OF WASTE: SP 801 Commingled landfill leachate and landfill gas collection system condensate
BILLING PERIOD: June 1, 2014 through June 30, 2014.
Other applicable wastewater user charges, as per Ordinance 13402, should be included in this bill.
Please call me at 436-8784 if you have any questions.

bv

ec: Doug Mendoza
Martin Blecha
Laura Joiner
Cathy Politte
Keidra King
Bryan Sehie

FILE: IU, Bridgeton Landfill LLC, 1003803000

Doug Mendoza

From: Doug Mendoza
Sent: Wednesday, July 16, 2014 11:11 AM
To: Ed Galbraith (EGalbraith@barr.com) (EGalbraith@barr.com); Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)
Subject: Questions regarding Bridgeton Landfill questionnaire/permit application

Brian & Ed,

As I was working on the Bridgeton Landfill permit, I noticed a couple of things in the questionnaire/permit application that need clarification:

- Section C.6.a lists 3085 GPD for sanitary water usage. Likewise, sections s.7.c & C.8.3 show this 3085 GPD sanitary usage being hauled off-site. It is also listed under section F.2 for Other/Sanitary waste that is disposed off-site.
    - Section F.2 actually lists 3084 as quantity disposed/**yr**, with Units of **gallons**.
        - Would you please verify that this should be 3084 gallons/day? Or correct the other sections.
- Assuming that the correct volume is 3084 GPD, it seems pretty high for the small number of employees. For only 11 employees, that's about 280 GPD. For 22 employees (including pretreatment personnel), that's 140 GPD. The general rule of thumb is about 25 GPD per employee.
        - Did this estimated volume come from actual records of hauling? Does it include more than just employee sanitary waste? Please explain the high volume.

- Neither section C.6.f nor section E.1.f include any plant & equipment washdown from the trash transfer station and/or from the vehicle/landfill equipment washdown on the pad next to the station.
    - Our understanding is that the outside washdown pad is plumbed to the sump inside the trash transfer station, and that this sump is pumped to discharge with the leachate.
    - We are unclear whether the station itself is only swept up or is washed down. We also thought that some wastewater was generated from rain and from water dripping off trucks and out of their trash loads.
        - Please clarify the wastewater generated at the station, and washpad, how the wastewater is discharged, and what the discharge volume should be.

While these are fairly minor issues, I will need this information before I can complete the permit.

Doug

Doug Mendoza

Bridgeton Landfill

From: Doug Mendoza
Sent: Monday, July 14, 2014 10:34 AM
To: Scott D Kappelmann
Subject: Bridgeton-Bissell force main plans

Scott,

I see from Engineering Receipts that you received plans (P-0030098-00) on May 27, which I assume showed the latest revisions, and gave a conditional approval for them on June 27. Could you please send me a copy of sheets C-300 and C-400 for our records?

Thanks,
Doug

From: Doug Mendoza
Sent: Wednesday, May 07, 2014 8:36 AM
To: Scott D Kappelmann
Cc: John Lodderhose; Jason Peterein; John Grimm; Christopher J. Bulmahn; Tom Boehm
Subject: Bridgeton Landfill leachate forcemain comments (P-30040) - revised submittal - DEC comments

Scott,

It appears that the consultant has addressed my concerns contained in my 4/7/14 email to you. Regarding their revised submittal, I just had a couple of further comments:

1. Sheet C-400 shows the details of the gravity sewer for the sanitary flows from Corporate Exchange. The first new manhole, to reroute the flows from Westlake PS to the new PS, is identified as [101] 60" valve junction box. The current line from Corporate Exchange into Westlake PS is still in place, too. I have a question about this, although it ultimately would be a decision for MSD Operations/Pump Stations to decide. Would this valve junction box be controlled in the same time/manner as the valve junction box for the Bridgeton Landfill discharge? Per our meeting with Bridgeton Landfill on 5/2/14, these will be owned and controlled by MSD. I may have overlooked it, but I didn't see any notes or specs on their operation and control in the plans. Please let me know if I missed them. I also am not certain that we would want a situation where only the Corporate Exchange flow is entering the Westlake PS. It would be quite low, sitting in the wet well for extended periods of time. So unless there is a problem with the new gravity line that reroutes the Corporate Exchange flow, we would want to be sure that the Corporate Exchange flow only goes to the Westlake PS when Bridgeton Landfill also is going there.

2. Sheet C-300 shows a bypass pipe on the discharge force main from the new PS. At first, I thought this was a constructed bypass! However, after talking with Kevin Kamp from CEC, I realized it is a line to allow the force main to be pumped empty (into a tanker trunk) in the event that the forcemain was shut down.
    a. The sheet notes say, "See MSD pumping connection detail." However, I did not find that detail. I don't look at plans that often, so I could easily have missed it. Please let me know if I did.
    b. This bypass pipe is located right at the entrance of a storm culvert. There doesn't appear to be any spill containment, either. Any spills or leaks would flow directly to the storm system.
    c. This pipe needs to be moved away from the storm culvert entrance, and needs to have spill containment in place (both for leaks at the pump and spills/leaks when loading a truck). If we keep the bypass pipe at

Doug Mendoza

From: Doug Mendoza
Sent: Monday, July 14, 2014 10:30 AM
To: Christopher J. Bulmahn; Margie Irvin; Scott Rehmer; Brian G. Gibson; Martin Blecha; Rebecca Vitelli; Steve Grace; Dave Schepers; Jason T. Edwards; Joe Pavlich; Keith Holderle; Dave Kupke; Jason Gill; Michael S. Kynion; Tom Boehm
Subject: Increase in Bridgeton Landfill hauled waste loads to the Bissell HWRS

FYI. Volume will be increasing up to 29 trucks per day (217,500 GPD). Exact start to be determined.

From: Ed Galbraith [mailto:EGalbraith@barr.com]
Sent: Monday, July 14, 2014 10:28 AM
To: John Lodderhose
Cc: Doug Mendoza; Catherine Politte; Mike Townley
Subject: Re: MSD/Bridgeton Landfill Technical Meeting

John thanks for the increase. We will be in touch regarding timing

Ed Galbraith
Barr Engineering
Egalbraith@barr.com
573-418-5562

Sent from my iPhone

On Jul 14, 2014, at 8:22 AM, "John Lodderhose" <JRLODD@stlmsd.com> wrote:

> Ed, the plant has notified us that they are operating well and you can increase the hauled waste loads by one truck per day.
>
> John R. Lodderhose, P.E.
> Metropolitan St. Louis Sewer District
> Assistant Director of Engineering
> Environmental Compliance
> 314-436-8714
>
> ---
>
> **From:** Ed Galbraith [mailto:EGalbraith@barr.com]
> **Sent:** Friday, July 11, 2014 8:08 AM
> **To:** John Lodderhose
> **Subject:** RE: MSD/Bridgeton Landfill Technical Meeting
>
> OK I'll let you know.
>
> Ed Galbraith
>
> Senior Environmental Scientist
> Jefferson City office: 573.638.5024
> cell: 573.418.5562
> egalbraith@barr.com
> www.barr.com

DM

Doug Mendoza

From: Doug Mendoza
Sent: Monday, July 14, 2014 8:58 AM
To: Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)
Cc: Ed Galbraith (EGalbraith@barr.com) (EGalbraith@barr.com); Jessie Merrigan (JMerrigan@LATHROPGAGE.COM); John Lodderhose
Subject: Pretreatment system plans dated June 6, 2014 for Bridgeton Landfill

Brian et al,

We have completed our review of the pretreatment system plans dated June 6, 2014 for Bridgeton Landfill. Based on this information, MSD grants approval of this system, in principle, for use at your facility. This approval is made under MSD ordinance 12559, Article VII, Section Two.

There are a number of factors that can affect discharge compliance with federal and MSD standards. The user has responsibility to maintain the facility in compliance with those limits. This letter does not allow discharge of any material that would cause a violation of federal standards or the ordinance.

Please note that approval to begin actual onsite discharge to the MSD sewer system is <u>not</u> yet granted. That approval is subject to successful operation of the pretreatment system, resulting in a wastewater effluent that will not violate MSD ordinance 12559 or otherwise endanger environmental or public health & safety.

Thank you for your assistance in helping us to comply with state and federal regulations. If you have any questions, please contact me at 314.436.8717.

Sincerely,
METROPOLITAN ST. LOUIS SEWER DISTRICT
Douglas M. Mendoza, P.E.
Industrial Pretreatment Manager

Doug Mendoza

From: Doug Mendoza
Sent: Monday, July 14, 2014 8:45 AM
To: icooper@cecinc.com
Cc: John Lodderhose; Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com); Ed Galbraith (EGalbraith@barr.com) (EGalbraith@barr.com); Jessie Merrigan (JMerrigan@LATHROPGAGE.COM)
Subject: Bridgeton Landfill - Preliminary Spill and Slug Control Plan

Ivan,

To follow up on the telephone discussion we just had, the plan looks good other than two minor items.

1. Section 6.1 Notification Tree (under Emergency Response Equipment and Procedures) says, "When a person is injured or an emergency occurs, the following will occur: To Be Determined."

While this section is unlikely to have much impact on MSD, please finish it so that this will be a complete plan.

2. The plan title still states "Preliminary Spill and Slug Control Plan for Bridgeton Leachate Pretreatment Plant."

Once item 6.1 is finished, please also revise the title to remove the word "Preliminary," showing that this is the completed plan.

Once these changes have been made and the revised plan submitted to MSD, that should satisfy what is necessary for the spill and slug control plan required by MSD. This assumes, of course, that future conditions do not require modifications to the plan.

Sincerely,
Doug Mendoza
MSD Industrial Pretreatment Manager

CB

Christopher J. Bulmahn

From:	Dave Kupke
Sent:	Monday, July 14, 2014 7:21 AM
To:	Christopher J. Bulmahn
Cc:	Doug Mendoza
Subject:	Records Review Brigeton landfill plan-pdf copy
Attachments:	BridgetonForcemainp1.pdf; BridgetonForcemainp2.pdf; BrdgetonPrelimplan.pdf

1003 803000

Chris, I was reviewing the paperwork showing submitted plans and I found the Bridgeton Landfill plan for its Force main. On the upper right corner of the plan it state that this is a conditional approval. No construction can begin until there is approval on P-30098 and P-30099.

I am sending pdf copies for what we have received so far.

Metropolitan
St. Louis Sewer
District

2350 Market Street
St. Louis, MO 63103-2555
(314) 768-6200

APPROVAL DATE: June 27, 2014
MSD Reference No.: P-0030040-00
County PAC No.:

CONDITIONAL APPROVAL
No construction approval on this job until there's construction approval on P-30098 & P-30099.

PROJECT TITLE: BRIDGETON BISSELL FORCE MAIN PHASE 1 (BOENKER - BRIDGETON LANDFILL TO PENNRIDGE)

Site Address: 13020 Boenker Ln., 63044

Plan Status: New

On this date the above referenced plans have been approved for construction work relating to these items:

( ) Storm Sewers ( ) Combined Sewers (×) Sanitary Sewers ( ) Miscellaneous MSD Inspection
( ) Detention Basin (×) Pump Station and Force Main ( ) House Connection Only ( ) BMP

The following Permit will be required from MSD for this work:
(×) Construction ( ) House Connection ( ) Misc. MSD Inspection ( ) No MSD Permit

****
( ) **NO OCCUPANCY PERMITS** ARE TO BE ISSUED UNTIL MSD CONSTRUCTION APPROVAL OF THIS WORK
****

Prior to the issuance of the required Permit the following fees must be paid and documents executed by the Project Owner:

(×) As-Built Deposit in the amount of $2,200.00.
(Deposit may be paid by cash or personal check made payable to the Metropolitan St. Louis Sewer District).

(×) Construction Escrow Deposit in the amount of $11,500.00.
(Deposit must be in a form of *cash or a cashier's check* payable to the Metropolitan St. Louis Sewer District).

(×) Pump Station Construction Escrow Deposit in the amount of $690,000.00.
(Deposit must be in a form of *cash or a cashier's check* payable to the Metropolitan St. Louis Sewer District).

( ) Cash Deposit Agreement (two copies enclosed, execute and return both).

( ) BMP Escrow Deposit in the amount of N/A.
(Deposit must be in a form of cash or a **cashier's check** payable to the Metropolitan St. Louis Sewer District).

( ) BMP Escrow Cash Deposit Agreement (two copies enclosed, execute and return both).

Please refer to Chapter 8 of the District's "Rules and Regulation and Engineering Design Requirements for Sanitary Sewage and Stormwater Drainage Facilities" for and explanation of these requirements. Questions regarding the deposits or agreement should be directed to Keith Milson, Escrow Group (768-6206).

Construction Permitting Information

1. Permits will only be issued to licensed and bonded drainlayers for all work related to sewer construction.
2. The Construction Permit fee is $195.00 and must be paid at the time of the issuance of permits. The Construction Inspection fee is $3.39 per lineal foot of sanitary sewer and $2.50 per lineal foot of storm/combined sewer.
3. The House Connection Permit and Misc. MSD Inspection fees are $50.00 for each connection or point of inspection. Where a Machine Tap is required, an additional fee of $300.00 will be required.
4. All fees must be paid by the drainlayer, prior to issuance of the permits. Please refer to Chapter 10 of the District's "Rules and Regulations and Engineering Design Requirements for Sanitary Sewage and Stormwater Drainage Facilities" for additional information regarding the Construction Permits.
5. Questions regarding Permits should be directed to the Permit Section at 314-768-6286.
6. The approved plans will remain active for one year. If permits have not been applied for within the year a new set of plans will have to be submitted for approval.

NOTE: THIS APPROVAL IS SUBJECT TO STATE HIGHWAY REGULATIONS AND U.S. ARMY CORPS OF ENGINEERS REQUIREMENTS WHERE APPLICABLE.

John C. Grimm, P.E.
Manager of Plan Review

Consulting Engineer
Owner
St. Louis County Department of Highways and Traffic
Municipality (Bridgeton)

Jim Sieberg/St. Louis County Public Works
Jim Showmaker/Office of Plumbing and Inspection
Environmental Compliance
Permit

Metropolitan
St. Louis Sewer
District

2350 Market Street
St. Louis, MO 63103-2555
(314) 768-6200

PUBLIC SANITARY SEWER

DESCRIPTION	UNITS/ FOOTAGE	COST
8 PVC PIPE	238 LF	$3,332.00
STRUCT Manhole Sanitary	3 EA	$2,850.00
STRUCT Pump Station	2 EA	$0.00
STRUCT VALVE - JUNCTION BOX	3 EA	$6,000.00
STRUCT VALVE -AIR/VACUUM RELEASE	3 EA	$18,510.00
STRUCT Node Point	1 EA	$0.00
LIFT STATION	2 EA	$690,000.00
8" HDPE FORCED MAIN	4145 LF	$82,900.00

PRIVATE UNDER MSD INSPECTION

SANITARY SEWER

DESCRIPTION	UNITS/ FOOTAGE	COST
8 PVC PIPE	35 LF	$490.00
STRUCT VALVE - JUNCTION BOX	1 EA	$2,000.00
SAMPLING MANHOLE	1 EA	$0.00

TOTAL W/0 LS/FM	$33,182.00
LIFT STATION / FORCED MAIN	$772,900.00
GRAND TOTAL	$806,082.00

METROPOLITAN ST. LOUIS SEWER DISTRICT
2350 MARKET STREET, ST. LOUIS, MO 63103, 314-768-6272

ENGINEERING DEPARTMENT RECEIPT FOR PLANS

DATE: 05/27/2014 M.S.D. REFERENCE NO.: P-0030098-00

THE ENGINEERING DEPARTMENT OF THE METROPOLITAN ST. LOUIS SEWER DISTRICT HAS ON THIS DATE RECEIVED 3 COPIES OF THE PRELIMINARY SEWER PLANS.
New

TITLE: BRIDGETON BISSELL FORCE MAIN PHASE 2 (BOENKER TO US 67)

LOCATION
St. Charles Rock Rd. Boenker to Hwy 67

MUNICIPALITY
Bridgeton

WATERSHED
Missouri River Tributary Areas/Missouri River

TREATMENT FACILITY
Bissell

SANITARY DISPOSAL: STR 14K3-0895

STORM DISPOSAL: n/a

COMBINED DISPOSAL: n/a

ENGINEER: Civil & Environmental Consultants
4848 Park 370 Blvd Ste. F
Hazelwood, MO 63042

CONTACT: Dan Koziatek, P.E.
TELEPHONE: 656-4566
FAX: 656-4595
Email: dkoziatek@cecinc.com

OWNER: Bridgeton Landfill, LLC
13570 St. Charles Rock Rd.
Bridgeton, MO 63044

CONTACT: Brian J. Power
TELEPHONE: (618)410-0157
FAX:
Email: bpower@republicservices.com

DEDICATION AGREEMENT: Y ACREAGE 0 USAGE: IND

* REVIEW FEES AND CONNECTION FEES MUST BE TWO (2) SEPARATE CHECKS.

WHEN EASEMENTS ARE REQUIRED, PLANS WILL NOT BE APPROVED UNTIL:

1. NEEDED RIGHT-OF-WAY HAS BEEN ACQUIRED.

2. A SIGNED SUBDIVISION PLAT, SHOWING EASEMENTS READY FOR RECORDING, HAS BEEN SUBMITTED.

3. THE RECORDED BOOK AND PAGE NUMBERS OF ANY EXISTING EASEMENT TO BE USED SHALL BE NOTED ON THE PLAN. ANY RESTRICTIVE CONDITIONS AS TO THE USE OF EASEMENTS SHALL BE NOTED.

PRELIMINARY EXAMINATION OF THE PLANS INDICATES THAT THE FOLLOWING WILL BE REQUIRED:
1. Submittal Charge $450.00 - RCVD.
2. Agreemt to Dedicate & Use
3. Easements
4. Recording Fee $30.00
5. Hydraulic Calculations
6. Review Fee $1,860.48
7. MoDot Approval
8. Missouri American Water Approval

ABSENCE OF ANY OF THE ABOVE REQUIREMENTS WILL DELAY APPROVAL OF THIS PLAN.

(ALL FURTHER CORRESPONDENCE MUST HAVE THE M.S.D. REFERENCE NUMBER NOTED)

BASE MAP NO: 10N4 12M1

cc:
Engineering Dept. MSD
Permit Dept. MSD
Consulting Engineer
Owner
Environmental Comp. MSD
Central Files MSD

Wunnenberg's Page: 7
Grid: V10

REVIEWING ENGINEER
Scott D. Kappelmann, P.E. 768-6371

MSD Form 5.2 (Rev. 8/87)

Doug Mendoza

From: Martin Blecha
Sent: Sunday, July 13, 2014 5:28 PM
To: Catherine Politte; Mike Townley; Doug Mendoza; Steve Grace; Brian G. Gibson
Cc: John Lodderhose; Martin Blecha; Buffy Santel
Subject: Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 07/06/2014 to 07/12/2014.

Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 07/06/2014 to 07/12/2014.

7/06 –210,000 gallons
7/07 –210,000 gallons
7/08 –210,000 gallons
7/09 –210,000 gallons
7/10 –210,000 gallons
7/11 –210,000 gallons
7/12– 210,000 gallons
Total = 1,470,000 gallons

Martin J. Blecha
Metropolitan St. Louis Sewer District
Environmental Engineering Associate
10 E. Grand Ave.
St. Louis, MO. 63147-2913.
Office Phone (314)-436-8718

2014

Bridgeton Landfill LLC
Monthly Leachate Outfall Report

7/11/2014 Filed in 15.4

CB 7-16

1003 8030 00

Month	Net Meter Reading	Precipitation Inches	Date of Reading	Gallons	Average Daily Discharge (Gal)	Equivalent Cubic Feet	Equivalent 100 Cubic Feet
January	1,842,366*	1.67	2/1/2014	153,280	4,945	20,491.98	204.92
February	1,842,366	1.48	3/1/2014	0	0	0.00	0.00
March	1,910,653*	1.55	3/31/2014	0	0	0.00	0.00
April	2,025,839*	8.38	5/1/2014	0	0	0.00	0.00
May	2,026,978*	3.98	6/1/2014	0	0	0.00	0.00
June	2,026,994*	5.26	7/1/2014	0	0	0.00	0.00
July							
August							
September							
October							
November							
December							

Note:

*Due to Phantom Flow Readings at Flow Meter 184,628 gallons have been removed from flow total (see daily logs)

Discharge to MO River Plant ceased in February for UV disinfection period. Plan to resume on 11/1/14 if permitted.

RECEIVED
JUL 11 2014
DIVISION OF
ENVIRONMENTAL COMPLIANCE

Doug Mendoza

From: Joe Pavlich
Sent: Friday, July 11, 2014 2:28 PM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: Bridgeton Landfill reading

Doug, the Bridgeton Landfill reading on 7/11/14 @ 1100 hrs. was 2026994 with 0 gals. of discharge.

Doug Mendoza

Bridgeton Landfill

From: Doug Mendoza
Sent: Thursday, July 10, 2014 8:55 AM
To: 'Bill Abernathy'
Cc: John Lodderhose; Ed Galbraith (EGalbraith@barr.com) (EGalbraith@barr.com); Jessie Merrigan (JMerrigan@LATHROPGAGE.COM); Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)
Subject: RE: Bridgeton leachate analyses & in-house GC

Bill,

If running operational tests in-house, there would be no specific requirements so long as the results were not being used to demonstrate compliance. For example, New Age/Landmark is not actually using wastewater methods, but is using solid waste/82xx methods. This is acceptable for the operational testing, but would not be acceptable for compliance sampling. However, should testing be performed using non-wastewater methods on leachate that is being discharged – in an apparent attempt to avoid having to report the results to MSD – then we would not allow that to continue and would require that the tests be performed using acceptable wastewater methods.

Then following up on the use of acceptable wastewater methods for submittal of results to MSD, the facility would need to demonstrate that it is using the appropriate analytical methods (generally under 40 CFR 136), and that it is capable of properly running the test methods. This would most likely be through submittal of the qualification testing that is required for each new method.

MSD Ordinance 12559 has two sections that address our ability to require this:

Article X - General Provisions
Section Two - Sampling and Analytical Procedures.
A. All sampling and analyses performed to satisfy the monitoring and reporting requirements of this Ordinance shall be performed in accordance with the techniques prescribed in 40 CFR 136 and amendments thereto unless other techniques are prescribed for specific parameters or specific circumstances.

Article VIII - User Reports and Monitoring
Section Twelve - Other Reports
Users shall submit any other reports required by the Director to ensure compliance with the provisions of this Ordinance and with applicable State and Federal regulations.

Please let me know if you have further questions.
Doug Mendoza
MSD Industrial Pretreatment Manager

From: Bill Abernathy [mailto:babernathy@feezorengineering.com]
Sent: Wednesday, July 02, 2014 12:49 PM
To: Doug Mendoza
Subject: RE: Bridgeton leachate analyses

Instead of having New Age/Landmark perform the 8260 analyses, the facility is looking into purchasing/leasing a GC and running operational tests in-house. The lab would be setup inside the pre-treatment plant.

Bill Abernathy
Residuals Management Team Member
Feezor Engineering, Inc.
314-502-1299

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Wednesday, July 2, 2014 12:45 PM
To: Bill Abernathy
Subject: RE: Bridgeton leachate analyses

Well there are several certifications to which you may be referring. However, we do not have a particular certification requirement. I would suggest that you let us know who you plan to use before you start, so that we don't have any surprises or rejections of the lab results.

From: Bill Abernathy [mailto:babernathy@feezorengineering.com]
Sent: Wednesday, July 02, 2014 12:43 PM
To: Doug Mendoza
Subject: Bridgeton leachate analyses

Doug, does MSD require a certified lab be used to analyze Bridgeton leachate?

Thanks,

Bill Abernathy
Residuals Management Team Member
Feezor Engineering, Inc.
314-502-1299

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Wednesday, July 09, 2014 9:11 AM
To: 'Merrigan, Jessie (LG)'; Doug Mendoza; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; 'Bryan Sehie'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; 'Theerman, Jeff (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie Freeman
Subject: Bridgeton Landfill Weekly Report

The materials for the previous week are now on Barr's ftp site.

For most of the week, the site operated under Alternative 1 of the Leachate Management SOP, approved by MSD April 18, 2014. However repairs have been made to pumping equipment at Tank 2 that will enable more efficient load out of Combined Batch (CB) material, per Alternative 2 of the SOP. On July 5, seven loads of CB material were delivered. We anticipate more frequent but not exclusive operation under Alternative 2 for the next several weeks.

Data outliers:

- Last week, sample 316-338 - Oil and Grease was reported at 121 mg/L. We asked Pace to re-run that sample and the result was closer to a normal expected value. However, we have not fully resolved the reason for the first result. That result will be qualified as requiring further explanation until we can validate a final result.
- Low outliers for Oil and Grease were noted in 316 samples (342-346). Although low, we believe that they are valid results.
- High outliers for arsenic were seen in two 316 samples (340, 342).
- Low outliers were seen for iron and lead in some 316 samples.

Please let me know if you have any questions.

Ed Galbraith

Senior Environmental Scientist
Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

resourceful. naturally. BARR

Bridgeton Landfill, LLC
Metropolitan St. Louis Sewer District
Weekly Disposal Summary

MSD - Bissell Point Tracking Table					
Date	Operational Batch	Delivered (gal) Per Batch	Delivered (gal) Daily Total	Truck Capacity (gal) Per Batch	Truck Capacity (gal) Daily Total
Sunday, June 29, 2014	Batch 316-344	37,500	*210,000*	37,500	*210,000*
	Batch 316-345	172,500		172,500	
Monday, June 30, 2014	Batch 316-345	37,500	*210,000*	37,500	*210,000*
	Batch 316-346	172,500		172,500	
Tuesday, July 1, 2014	Batch 316-346	37,500	*202,500*	37,500	*202,500*
	Batch 316-347	157,500		157,500	
	CB 07-01-14	7,500		7,500	
Wednesday, July 2, 2014	Batch 316-347	37,500	*210,000*	37,500	*210,000*
	Batch 316-348	172,500		172,500	
Thursday, July 3, 2014	Batch 316-348	37,500	*210,000*	37,500	*210,000*
	Batch 316-349	172,500		172,500	
Friday, July 4, 2014	Batch 316-349	30,000	*210,000*	30,000	*210,000*
	Batch 316-350	180,000		180,000	
Saturday, July 5, 2014	Batch 316-350	37,500	*210,000*	37,500	*210,000*
	Batch 316-351	120,000		120,000	
	CB 07-01-14	52,500		52,500	

Starting Date	***6/29/2014 6:00***
Ending Date	***7/6/2014 6:00***

MSD - Missouri River Tracking Table								
Date	Operational Batch Transferred into 97K AST	Gallons Delivered	Batch Start Date and Time	Batch End Date and Time	Interval Hours	Maximum Hourly Flow (gph)	Average Hourly Flow (gph)	97K AST pH Check
Sunday, June 29, 2014	NA	-	6/29/2014 6:00	6/30/2014 6:00	24.0	840	0.0	NA
Monday, June 30, 2014	NA	-	6/30/2014 6:00	7/1/2014 6:00	24.0	840	0.0	NA
Tuesday, July 1, 2014	NA	-	7/1/2014 6:00	7/2/2014 6:00	24.0	840	0.0	NA
Wednesday, July 2, 2014	NA	-	7/2/2014 6:00	7/3/2014 6:00	24.0	840	0.0	NA
Thursday, July 3, 2014	NA	-	7/3/2014 6:00	7/4/2014 6:00	24.0	840	0.0	NA
Friday, July 4, 2014	NA	-	7/4/2014 6:00	7/5/2014 6:00	24.0	840	0.0	NA
Saturday, July 5, 2014	NA	-	7/5/2014 6:00	7/6/2014 6:00	24.0	840	0.0	NA

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Daniel Bom Title: Env. Specialist Date: 7/8/14

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/30/2014 6:00:00 AM	6/29/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: [signature] *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/8/14

MSD Daily Flow Reading, ending 6-30-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/1/2014 6:00:00 AM	6/30/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/8/14

MSD Daily Flow Reading, ending 7-01-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/2/2014 6:00:00 AM	7/1/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: [signature] *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/8/14

MSD Daily Flow Reading, ending 7-02-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/3/2014 6:00:00 AM	7/2/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: [signature] *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/8/14

MSD Daily Flow Reading, ending 7-03-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/4/2014 6:00:00 AM	7/3/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: [signature] *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/8/14

MSD Daily Flow Reading, ending 7-04-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/5/2014 6:00:00 AM	7/4/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: [signature] *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/8/14

MSD Daily Flow Reading, ending 7-05-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	7/6/2014 6:00:00 AM	7/5/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: [signature] *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/8/14

MSD Daily Flow Reading, ending 7-06-2014

OB-316-344

Bridgeton Landfill

Fill Data

Fill Start Date	6/27/2014
Fill Start Time	18:49
Fill Stop Date	6/27/2014
Fill Stop Time	23:20
Process Battery	316 AST

Processing Data

Process Start Date	6/27/2014
Process Start Time	20:00
Process Stop Date	6/28/2014
Process Stop Time	04:30

Approval Data

Approval Details	NAL13026-1542
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

fill height 18'

Monday, July 7, 2014

OB-316-345 Bridgeton Landfill

Fill Data

Fill Start Date	6/28/2014
Fill Start Time	18:55
Fill Stop Date	6/28/2014
Fill Stop Time	23:32
Process Battery	316 AST

Processing Data

Process Start Date	6/28/2014
Process Start Time	20:15
Process Stop Date	6/29/2014
Process Stop Time	03:30

Approval Data

Approval Details	NAL13026-1544
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

fill height 18'

Monday, July 7, 2014

OB-316-346 Bridgeton Landfill

Fill Data

Fill Start Date	6/29/2014
Fill Start Time	18:22
Fill Stop Date	6/29/2014
Fill Stop Time	22:53
Process Battery	316 AST

Processing Data

Process Start Date	6/29/2014
Process Start Time	19:32
Process Stop Date	6/30/2014
Process Stop Time	04:30

Approval Data

Approval Details	NAL13026-1546
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 17.90 ft.

Monday, July 7, 2014

OB-316-347 Bridgeton Landfill

Fill Data

Fill Start Date	6/30/2014
Fill Start Time	18:35
Fill Stop Date	6/30/2014
Fill Stop Time	23:54
Process Battery	316 AST

Processing Data

Process Start Date	6/30/2014
Process Start Time	20:10
Process Stop Date	7/1/2014
Process Stop Time	04:25

Approval Data

Approval Details	NAL13026-1549
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 19.09 ft.

Monday, July 7, 2014

OB-316-348

Bridgeton Landfill

Fill Data

Fill Start Date	7/1/2014
Fill Start Time	19:25
Fill Stop Date	7/2/2014
Fill Stop Time	00:10
Process Battery	316 AST

Processing Data

Process Start Date	7/1/2014
Process Start Time	20:16
Process Stop Date	7/2/2014
Process Stop Time	04:33

Approval Data

Approval Details	NAL13026-1551
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 19.04 ft.

Monday, July 7, 2014

OB-316-349 Bridgeton Landfill

Fill Data

Fill Start Date	7/2/2014
Fill Start Time	18:40
Fill Stop Date	7/3/2014
Fill Stop Time	00:00
Process Battery	316 AST

Processing Data

Process Start Date	7/2/2014
Process Start Time	20:45
Process Stop Date	7/3/2014
Process Stop Time	04:44

Approval Data

Approval Details	NAL13026-1552
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 19.16 ft.

Monday, July 7, 2014

OB-316-350 Bridgeton Landfill

Fill Data

Fill Start Date	7/3/2014
Fill Start Time	18:15
Fill Stop Date	7/3/2014
Fill Stop Time	23:40
Process Battery	316 AST

Processing Data

Process Start Date	7/3/2014
Process Start Time	19:50
Process Stop Date	7/4/2014
Process Stop Time	04:00

Approval Data

Approval Details	NAL13026-1555
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill Ht=18.09'

Monday, July 7, 2014

OB-316-351 Bridgeton Landfill

Fill Data

Fill Start Date	7/4/2014
Fill Start Time	18:30
Fill Stop Date	7/4/2014
Fill Stop Time	23:45
Process Battery	316 AST

Processing Data

Process Start Date	7/4/2014
Process Start Time	20:15
Process Stop Date	7/5/2014
Process Stop Time	03:45

Approval Data

Approval Details	NAL13026-1556
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill Height = 18.1'

Monday, July 7, 2014

Combined Batch 07-01-14

Bridgeton Landfill

Fill Data

Fill Start Date	
Fill Start Time	
Fill Stop Date	
Fill Stop Time	
Process Battery	T2M

Processing Data

Process Start Date	
Process Start Time	
Process Stop Date	
Process Stop Time	

Approval Data

Approval Details	NAL13026-1550
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

pH = 6.02

Monday, July 7, 2014

Table 1
General Parameters and Metals
April - June 2014
Bridgeton Landfill

					Biochemical Oxygen Demand (5 day)	Chemical Oxygen Demand	Nitrogen, ammonia as N	Oil and Grease	Oil and Grease - Silica gel cleanup	pH	pH, field	Solids, total suspended
					NA	NA	NA	NA	NA	NA	NA	NA
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	pH units	pH units	mg/l
316-346	6/30/2014	Pace	Validated	60172694	28300	50500	643	380	9.2	5.4	5.65	4380
316-345	6/29/2014	Pace	Validated	60172695	31000	51200	626	416	12.2	5.4	5.68	5120
316-344	6/28/2014	Pace	Validated	60172688	25100	49900	613	404	13.2	5.4	5.68	4540
316-343	6/27/2014	Pace	Validated	60172589	26900	48900	634	690	16.5	5.4 h	5.83	4200
316-342	6/26/2014	Pace	Validated	60172477	27300	47600	600	555	22.5	5.4	5.74	4100
316-341	6/25/2014	Pace	Validated	60172403	26300	50500	620	1080	9.6	5.5	5.68	4160
316-340	6/24/2014	Pace	Validated	60172276	32700	50300	576	926	10.8	5.5	5.69	4120

MSD 029202

Table 1
General Parameters and Metals
April - June 2014
Bridgeton Landfill

					Aluminum	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Cobalt	Copper
					Total	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-346	6/30/2014	Pace	Validated	60172694	2.54	0.0616	1.28	ND	ND	0.208	0.0327	ND
316-345	6/29/2014	Pace	Validated	60172695	4.21	0.0635	1.17	ND	ND	0.21	0.0354	ND
316-344	6/28/2014	Pace	Validated	60172688	3	0.0550	1.18	ND	ND	0.206	0.0362	ND
316-343	6/27/2014	Pace	Validated	60172589	2.02	ND	1.08	ND	ND	0.187	0.0306	ND
316-342	6/26/2014	Pace	Validated	60172477	5.9	0.0636	1.34	ND	ND	0.247	0.0391	ND
316-341	6/25/2014	Pace	Validated	60172403	6.28	0.0624	1.25	ND	ND	0.238	0.0340	ND
316-340	6/24/2014	Pace	Validated	60172276	1.94	ND	0.905	ND	ND	0.176	ND	ND

Table 1
General Parameters and Metals
April - June 2014
Bridgeton Landfill

					Iron	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
					Total	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-346	6/30/2014	Pace	Validated	60172694	448	0.0363	ND	0.113	ND	ND	ND	6.28
316-345	6/29/2014	Pace	Validated	60172695	579	0.0653	ND	0.116	ND	ND	ND	5.41
316-344	6/28/2014	Pace	Validated	60172688	419	0.0368	0.0333	0.114	ND	ND	ND	5.44
316-343	6/27/2014	Pace	Validated	60172589	317	0.0259	0.0219	0.107	ND	ND	ND	4.58
316-342	6/26/2014	Pace	Validated	60172477	642	0.0678	0.0199	0.132	ND	ND	ND	4.98
316-341	6/25/2014	Pace	Validated	60172403	668	0.0699	0.0175	0.122	ND	ND	ND	4.43
316-340	6/24/2014	Pace	Validated	60172276	343	0.0510	ND	0.0932	ND	ND	ND	3.71

MSD 029204

Table 2
VOCs and SVOCs
April - June 2014
Bridgeton Landfill

					Benzene
Location	Date	Lab Name	Data Status	Lab Report	ug/l
316-346	6/30/2014	Pace	Validated	60172694	ND
316-345	6/29/2014	Pace	Validated	60172695	ND
316-344	6/28/2014	Pace	Validated	60172688	ND
316-343	6/27/2014	Pace	Validated	60172589	ND
316-342	6/26/2014	Pace	Validated	60172477	ND
316-341	6/25/2014	Pace	Validated	60172403	ND
316-340	6/24/2014	Pace	Validated	60172276	ND

MSD 029205

Pm

Doug Mendoza

From: Martin Blecha
Sent: Monday, July 07, 2014 7:48 AM
To: Catherine Politte; Mike Townley; Doug Mendoza; Steve Grace; Brian G. Gibson
Cc: John Lodderhose; Martin Blecha; Buffy Santel
Subject: Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 06/29/2014 to 07/05/2014.

Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 06/29/2014 to 07/05/2014.

6/29 –210,000 gallons
6/30 –210,000 gallons
7/01 –202,500 gallons
7/02 –210,000 gallons
7/03 –210,000 gallons
7/04 –210,000 gallons
7/05– 210,000 gallons
Total = 1,462,500 gallons

Martin J. Blecha
Metropolitan St. Louis Sewer District
Environmental Engineering Associate
10 E. Grand Ave.
St. Louis, MO. 63147-2913.
Office Phone (314)-436-8718

Doug Mendoza

From: Joe Pavlich
Sent: Thursday, July 03, 2014 2:48 PM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: Bridgeton Landfill reading

Doug, the reading for 7/3/14 @8:32 at Bridgeton Landfill was 2026994 with 0 gals. per hr. discharge.

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Wednesday, July 02, 2014 9:18 AM
To: 'Merrigan, Jessie (LG)'; Doug Mendoza; Aaron Karlas; Andy Roberts; Bill Abernathy; Bret A. Berthold; Brian G. Gibson; Brian Power; Bryan Sehie; Catherine Politte; Chris Nagel; Christopher J. Bulmahn; Cunningham, Ally (LG); Dan Feezor; David Eastvold; John Lodderhose; John Powell; Jonathon Sprague; Julie Croak; Ken Gambaro; Ken Goins; Lance LeComb; Leanne Tippett Mosby; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; Patty Abernathy; Paul Linscott; Rob G Daly; Ryan Sabourin; Steve Grace; Steve Smith; Susan Myers; Todd Heller; Tom Boehm; Theerman, Jeff (JTheerman@BrwnCald.com)
Cc: Kelly Caddy; Dana B. Pasi; Carrie Freeman
Subject: FW: Bridgeton Landfill Weekly Report

The materials for the previous week are now on Barr's ftp site. An updated table of radiological chemistry with the most recent quarterly sample data is included.

Outliers in this week's data include:

- Sample 316-338 - Oil and Grease was reported at 121 mg/L. We have asked Pace to re-run that sample as it appears to be unusually low and there is no apparent explanation. There is no corresponding drop in other parameters for the sample.
- Sample CB 06-17-14 had several low outliers for BOD, COD and metals. The likely cause is transference of biomass material between tanks T2, T3 and T4 as part of the preparation for startup of the pretreatment plant. That material has significant dilution because of tap water used in the process.
- High outliers for arsenic were seen in some 316 samples (333, 336, 337, 338, 339) over the period.
- Low outliers were seen for iron and lead in some 316 samples.
- VOCs continue to be low in Combined Batch samples because of dilution in T2 as noted above.

Please let me know if you have any questions.

Ed Galbraith

Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

resourceful. naturally. BARR

Bridgeton Landfill, LLC
Metropolitan St. Louis Sewer District
Weekly Disposal Summary

MSD - Bissell Point Tracking Table

Date	Operational Batch	Delivered (gal) Per Batch	Delivered (gal) Daily Total	Truck Capacity (gal) Per Batch	Truck Capacity (gal) Daily Total
Sunday, June 22, 2014	Batch 316-337	37,500	210,000	37,500	210,000
	Batch 316-338	172,500		172,500	
Monday, June 23, 2014	Batch 316-338	37,500	210,000	37,500	210,000
	Batch 316-339	172,500		172,500	
Tuesday, June 24, 2014	Batch 316-339	37,500	210,000	37,500	210,000
	Batch 316-340	172,500		172,500	
Wednesday, June 25, 2014	Batch 316-340	37,500	210,000	37,500	210,000
	Batch 316-341	172,500		172,500	
Thursday, June 26, 2014	Batch 316-341	37,500	210,000	37,500	210,000
	Batch 316-342	172,500		172,500	
Friday, June 27, 2014	Batch 316-342	37,500	210,000	37,500	210,000
	Batch 316-343	172,500		172,500	
Saturday, June 28, 2014	Batch 316-343	37,500	210,000	37,500	210,000
	Batch 316-344	172,500		172,500	

Date	*6/22/2014 6:00*
Date	*6/29/2014 6:00*

MSD - Missouri River Tracking Table

Date	Operational Batch Transferred into 97K AST	Gallons Delivered	Batch Start Date and Time	Batch End Date and Time	Interval Hours	Maximum Hourly Flow (gph)	Average Hourly Flow (gph)	97K AST pH Check
Sunday, June 22, 2014	NA	-	6/22/2014 6:00	6/23/2014 6:00	24.0	840	0.0	NA
Monday, June 23, 2014	NA	-	6/23/2014 6:00	6/24/2014 6:00	24.0	840	0.0	NA
Tuesday, June 24, 2014	NA	-	6/24/2014 6:00	6/25/2014 6:00	24.0	840	0.0	NA
Wednesday, June 25, 2014	NA	-	6/25/2014 6:00	6/26/2014 6:00	24.0	840	0.0	NA
Thursday, June 26, 2014	NA	-	6/26/2014 6:00	6/27/2014 6:00	24.0	840	0.0	NA
Friday, June 27, 2014	NA	-	6/27/2014 6:00	6/28/2014 6:00	24.0	840	0.0	NA
Saturday, June 28, 2014	NA	-	6/28/2014 6:00	6/29/2014 6:00	24.0	840	0.0	NA

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Boudreau Title: Env. Specialist Date: 7/1/14

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/23/2014 6:00:00 AM	6/22/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment

Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/1/14

MSD Daily Flow Reading, ending 6-23-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/24/2014 6:00:00 AM	6/23/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/1/14

MSD Daily Flow Reading, ending 6-24-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/25/2014 6:00:00 AM	6/24/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Envi. Specialist *Date:* 7/1/14

MSD Daily Flow Reading, ending 6-25-2014

Daily Flow Reading — *Bridgeton Landfill*

	Current	Previous	Difference
Date / Time:	6/26/2014 6:00:00 AM	6/25/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/1/14

MSD Daily Flow Reading, ending 6-26-2014

Daily Flow Reading — *Bridgeton Landfill*

	Current	Previous	Difference
Date / Time:	6/27/2014 6:00:00 AM	6/26/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Envi Specialist *Date:* 7/1/14

MSD Daily Flow Reading, ending 6-27-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/28/2014 6:00:00 AM	6/27/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/1/14

MSD Daily Flow Reading, ending 6-28-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/29/2014 6:00:00 AM	6/28/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: [signature] *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 7/1/14

MSD Daily Flow Reading, ending 6-29-2014

OB-316-337

Bridgeton Landfill

Fill Data

Fill Start Date	6/20/2014
Fill Start Time	18:33
Fill Stop Date	6/20/2014
Fill Stop Time	22:46
Process Battery	316 AST

Processing Data

Process Start Date	6/20/2014
Process Start Time	19:27
Process Stop Date	6/21/2014
Process Stop Time	04:25

Approval Data

Approval Details	NAL13026-1523
Test Results	Benzene - ND <100 ppb
Reprocessed Batch	

Notes

MEK - 19,000, Fill Height - 18ft.

Monday, June 30, 2014

OB-316-338 Bridgeton Landfill

Fill Data

Fill Start Date	6/21/2014
Fill Start Time	18:34
Fill Stop Date	6/21/2014
Fill Stop Time	23:09
Process Battery	316 AST

Processing Data

Process Start Date	6/21/2014
Process Start Time	19:49
Process Stop Date	6/22/2014
Process Stop Time	04:33

Approval Data

Approval Details	NAL13026-1525
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 18.08 ft initially, 18.19 ft immediately prior to 1st loading due to rainfall.

Monday, June 30, 2014

OB-316-339 — *Bridgeton Landfill*

Fill Data

Fill Start Date	6/22/2014
Fill Start Time	18:24
Fill Stop Date	6/22/2014
Fill Stop Time	22:55
Process Battery	316 AST

Processing Data

Process Start Date	6/22/2014
Process Start Time	19:37
Process Stop Date	6/23/2014
Process Stop Time	05:17

Approval Data

Approval Details	NAL13026-1527
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 18.11 ft.

Monday, June 30, 2014

OB-316-340 Bridgeton Landfill

Fill Data

Fill Start Date	6/23/2014
Fill Start Time	18:39
Fill Stop Date	6/23/2014
Fill Stop Time	23:11
Process Battery	316 AST

Approval Data

Approval Details	NAL13026-1531
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Processing Data

Process Start Date	6/23/2014
Process Start Time	19:51
Process Stop Date	6/24/2014
Process Stop Time	04:24

Notes

Fill height = 18.10 ft originally, + 3,800 gal of rainwater (18.39 ft at start of loading).

Monday, June 30, 2014

OB-316-341 — *Bridgeton Landfill*

Fill Data

Fill Start Date	6/24/2014
Fill Start Time	18:46
Fill Stop Date	6/24/2014
Fill Stop Time	23:08
Process Battery	316 AST

Processing Data

Process Start Date	6/24/2014
Process Start Time	20:30
Process Stop Date	6/25/2014
Process Stop Time	04:21

Approval Data

Approval Details	NAL13026-1532
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 19.07 ft.

Monday, June 30, 2014

OB-316-342 Bridgeton Landfill

Fill Data

Fill Start Date	6/25/2014
Fill Start Time	18:45
Fill Stop Date	6/25/2014
Fill Stop Time	23:15
Process Battery	316 AST

Processing Data

Process Start Date	6/25/2014
Process Start Time	20:35
Process Stop Date	6/26/2014
Process Stop Time	04:35

Approval Data

Approval Details	NAL13026-1536
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

fill height 19'

Monday, June 30, 2014

OB-316-343

Bridgeton Landfill

Fill Data

Fill Start Date	6/26/2014
Fill Start Time	18:47
Fill Stop Date	6/26/2014
Fill Stop Time	22:56
Process Battery	316 AST

Processing Data

Process Start Date	6/26/2014
Process Start Time	20:30
Process Stop Date	6/27/2014
Process Stop Time	04:30

Approval Data

Approval Details	NAL13026-1538
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

fill height 18'

Monday, June 30, 2014

OB-316-344

Bridgeton Landfill

Fill Data

Fill Start Date	6/27/2014
Fill Start Time	18:49
Fill Stop Date	6/27/2014
Fill Stop Time	23:20
Process Battery	316 AST

Processing Data

Process Start Date	6/27/2014
Process Start Time	20:00
Process Stop Date	6/28/2014
Process Stop Time	04:30

Approval Data

Approval Details	NAL13026-1542
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

fill height 18'

Monday, June 30, 2014

Table 1
General Parameters and Metals
April - June 2014
Bridgeton Landfill

					Biochemical Oxygen Demand (5-day)	Chemical Oxygen Demand	Nitrogen, ammonia as N	Oil and Grease	Oil and Grease - Silica gel cleanup	pH, lab	pH, field
					NA	NA	NA	NA	NA	NA	NA
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	pH units	pH units
316-339	6/23/2014	Pace	Validated	60172160	26800	50900	565	974	14.4	5.5	5.60
316-338	6/22/2014	Pace	Validated	60172159	25800	51300	579	121	11.2	5.4	5.72
316-337	6/21/2014	Pace	Validated	60172158	29700 h	51100	578	896	16.4	5.5	5.58
316-336	6/20/2014	Pace	Validated	60172040	31600	49400	598	907	12.0	5.5	5.69
316-335	6/19/2014	Pace	Validated	60171928	30500	47200	587	1010	18.8	5.4	5.68
CB 06-17-14	6/18/2014	Pace	Validated	60171810	11900	24000	276	530	ND	6.3	6.40
316-334	6/18/2014	Pace	Validated	60171807	30800	50500	564	1410	5.6	5.3	5.62
316-333	6/17/2014	Pace	Validated	60171645	25900	45100	547	1450	15.4	5.4	5.57

MSD 029225

Table 1
General Parameters and Metals
April - June 2014
Bridgeton Landfill

					Solids, total suspended	Aluminum	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Cobalt
					NA	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-339	6/23/2014	Pace	Validated	60172160	4240	9.84	0.0694	1.4	ND	ND	0.278	0.0449
316-338	6/22/2014	Pace	Validated	60172159	4300	10.7	0.0727	1.4	ND	ND	0.28	0.0486
316-337	6/21/2014	Pace	Validated	60172158	4000	10.2	0.0852	1.32	ND	ND	0.262	0.0420
316-336	6/20/2014	Pace	Validated	60172040	3920	3.86	0.0836	1.34	ND	ND	0.218	0.0318
316-335	6/19/2014	Pace	Validated	60171928	5020	14.8	0.0832	1.28	ND	ND	0.259	0.0432
CB 06-17-14	6/18/2014	Pace	Validated	60171810	3000	1.26	ND	0.568	ND	ND	0.0968	ND
316-334	6/18/2014	Pace	Validated	60171807	4200	3.57	0.0888	1.17	ND	ND	0.174	0.0261
316-333	6/17/2014	Pace	Validated	60171645	4020	7.78	0.0936	1.58	ND	ND	0.251	0.0405

MSD 029226

Table 1
General Parameters and Metals
April - June 2014
Bridgeton Landfill

					Copper	Iron	Lead	Mercury	Nickel	Selenium	Silver	Thallium
					Total	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-339	6/23/2014	Pace	Validated	60172160	ND	842	0.122	0.0216	0.162	ND	ND	ND
316-338	6/22/2014	Pace	Validated	60172159	ND	856	0.144	0.0162	0.164	ND	ND	ND
316-337	6/21/2014	Pace	Validated	60172158	ND	793	0.12	0.0215	0.15	ND	ND	ND
316-336	6/20/2014	Pace	Validated	60172040	ND	486	0.0590	ND	0.124	ND	ND	ND
316-335	6/19/2014	Pace	Validated	60171928	ND	793	0.116	ND	0.145	ND	ND	ND
CB 06-17-14	6/18/2014	Pace	Validated	60171810	ND	321	ND	ND	0.0626	ND	ND	ND
316-334	6/18/2014	Pace	Validated	60171807	ND	372	0.0367	ND	0.103	ND	ND	ND
316-333	6/17/2014	Pace	Validated	60171645	ND	744	0.0912	ND	0.126	ND	ND	ND

MSD 029227

Table 1
General Parameters and Metals
April - June 2014
Bridgeton Landfill

					Zinc
					Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l
316-339	6/23/2014	Pace	Validated	60172160	5.45
316-338	6/22/2014	Pace	Validated	60172159	5.55
316-337	6/21/2014	Pace	Validated	60172158	5.29
316-336	6/20/2014	Pace	Validated	60172040	4.78
316-335	6/19/2014	Pace	Validated	60171928	4.56
CB 06-17-14	6/18/2014	Pace	Validated	60171810	3.08
316-334	6/18/2014	Pace	Validated	60171807	3.42
316-333	6/17/2014	Pace	Validated	60171645	4.04

MSD 029228

Table 2
VOCs and SVOCs
April - June 2014
Bridgeton Landfill

					Benzene
Location	Date	Lab Name	Data Status	Lab Report	ug/l
316-339	6/23/2014	Pace	Validated	60172160	ND
316-338	6/22/2014	Pace	Validated	60172159	ND
316-337	6/21/2014	Pace	Validated	60172158	ND
316-336	6/20/2014	Pace	Validated	60172040	ND
316-335	6/19/2014	Pace	Validated	60171928	ND
CB 06-17-14	6/18/2014	Pace	Validated	60171810	ND
316-334	6/18/2014	Pace	Validated	60171807	ND
316-333	6/17/2014	Pace	Validated	60171645	ND

JUNE 2014

B✓
OB

Doug Mendoza

From: Martin Blecha
Sent: Monday, June 30, 2014 7:50 AM
To: Catherine Politte; Mike Townley; Doug Mendoza; Steve Grace; Brian G. Gibson
Cc: John Lodderhose; Martin Blecha; Buffy Santel
Subject: Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 06/22/2014 to 06/28/2014.

1003 803000

Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 06/22/2014 to 06/28/2014.

6/22 –210,000 gallons
6/23 –210,000 gallons
6/24 –210,000 gallons
6/25 –210,000 gallons
6/26 –210,000 gallons
6/27 –210,000 gallons
6/28– 210,000 gallons
Total = 1,470,000 gallons

Martin J. Blecha
Metropolitan St. Louis Sewer District
Environmental Engineering Associate
10 E. Grand Ave.
St. Louis, MO. 63147-2913.
Office Phone (314)-436-8718

Doug Mendoza

From:	Ken Goins
Sent:	Friday, June 27, 2014 9:43 AM
To:	Rich Unverferth; Jonathon Sprague; John Lodderhose; Doug Mendoza; John Grimm; Scott D Kappelmann; Michael Grace
Cc:	Susan Myers; Jennifer Carter
Subject:	Bridgeton Landfill Infrastructure Agreement - Fully executed
Attachments:	MSD-Bridgeton Landfill Agreement (fully executed) 6-25-14.pdf

Please find attached the fully executed **INFRASTRUCTURE DEVELOPMENT AND LEACHATE TREATMENT AND DISPOSAL AGREEMENT** dated 6-25-14 with the Bridgeton Landfill.

Engineering needs to add the plans as Exhibit A when they are approved. I am going to deliver MSD's executed copy to Engineering where the contract will be kept.

Ken Goins, Esq
General Counsel's Office
Metropolitan St. Louis Sewer District
2350 Market
St. Louis, MO 63103
(314) 768-6365 Phone
(314) 768-6279 Fax

This e-mail and any attachments may contain confidential and privileged information. If you are not the intended recipient, please notify the sender immediately by return e-mail, delete this e-mail and destroy any copies. Any dissemination or use of this information by a person other than the intended recipient is unauthorized and may be illegal. Be advised that MSD is a public agency and emails may be disclosed pursuant to a request under the Sunshine Law (Chapter 610 RSMO) or the Freedom of Information Act. Finally, unless otherwise stated, opinions expressed in this e-mail are those of the author and are not endorsed by the author's employer.

INFRASTRUCTURE DEVELOPMENT AND
LEACHATE TREATMENT AND DISPOSAL AGREEMENT

This Infrastructure Development and Leachate Treatment and Disposal Agreement ("Agreement") is entered into as of June 25, 2014 between The Metropolitan St. Louis Sewer District, a municipal corporation and political subdivision of the State of Missouri established under the Constitution of Missouri ("MSD"), with a mailing address of 2350 Market Street, St. Louis, MO 63103, and Bridgeton Landfill, LLC, a Delaware limited liability company (the "Company"), with a mailing address of 13570 St. Charles Rock Road, Bridgeton, MO 63044.

WITNESSETH:

WHEREAS, MSD is responsible for wastewater collection and treatment, and storm water management, throughout all of St. Louis City and 90 percent of St. Louis County; and

WHEREAS, MSD Ordinance No. 12559 (as the same may be amended, modified, or replaced from time to time, "Ordinance 12559") permits MSD to require pretreatment standards consistent with those provided in § 307(b) of the Clean Water Act, and permits MSD to enter into special agreements authorized by Section Four of Ordinance 12559 to protect the public health and safety; and

WHEREAS, the Company owns and operates the Bridgeton Sanitary Landfill (the "Landfill"), an inactive municipal solid waste landfill located within the service area of MSD; and

WHEREAS, the Landfill generates wastewater known as "leachate" which requires proper treatment and disposal to protect the public health and safety, and such leachate, without pretreatment by the Company, is incompatible with MSD's sanitary sewer system (the "MSD System"; the MSD System includes the Bissell Point WWTP, the Missouri River WWTP, and the Coldwater Creek WWTP as such terms are defined herein); and

WHEREAS, the Company is currently pretreating leachate through an interim system before discharge into the MSD System, within certain loading and capacity limitations, which pretreatment and said limitations are necessary to allow for proper treatment of the leachate by MSD; and

WHEREAS, the Company is currently constructing a pretreatment plant at the Landfill to meet the pretreatment specifications of MSD (the "Pretreatment Plant") and is developing plans for a Sewer Extension Line (as used herein, "Sewer Extension Line" means the Sewer Extension Line described in Section III of this Agreement) for the delivery of the pretreated leachate to MSD's Bissell Point WWTP (defined herein) and other MSD treatment plants; and

WHEREAS, MSD and the Company (collectively, "the Parties") wish to enter into this Agreement to govern the current, interim and long term treatment and disposal of the leachate, as well as the Company's development of the Pretreatment Plant and construction of the Sewer Extension Line;

NOW THEREFORE, in consideration of the mutual covenants, promises, conditions and terms contained herein, MSD and the Company agree as follows:

Section I. Current Operation and Discharge

1. Interim Pretreatment Unit

Pursuant to that certain letter dated April 24, 2013 from MSD to the Company (the "Conditional Approval"), the Company is currently operating an interim pretreatment operation which utilizes aeration in order to prepare the leachate for acceptance into the MSD System. The interim pretreatment system has been developed to meet MSD's minimum requirements regarding the limits of certain substances in the leachate and the frequency and amount of the leachate before discharge of the leachate into the MSD System. Company shall apply for an Interim Industrial Wastewater Discharge Permit (the "Interim Permit") from MSD to govern the treatment and discharge of leachate. Provided the Company's application for the Interim Permit otherwise complies with applicable Laws, MSD will issue the Interim Permit in the ordinary course of business, with such Interim Permit to contain such requirements, limitations, and conditions as MSD deems appropriate in its sole judgment ("Interim Permit Requirements"), including requirements, limitations, and conditions governing loading, variances and volumetric limitations. Presently, the Parties contemplate that the Interim Permit Requirements will be similar to those in place under the Conditional Approval, however, Company acknowledges and agrees that MSD may change the Interim Permit Requirements from time to time in its sole judgment and Company agrees to be bound by such changed Interim Permit Requirements. The Interim Permit shall set forth the pretreatment requirements, limitations, and conditions in order to ensure adequate pretreatment for the protection of the MSD System, MSD employees, the public, and the environment. When issued, the Interim Permit shall replace the Conditional Approval as the enforceable mechanism setting forth the applicable requirements, limitations, and conditions for pretreatment and continued discharge, and the Conditional Approval shall no longer be in force or effect.

2. Interim Discharge

Subject to the requirements, limitations, and conditions of the Interim Permit, the Company shall be permitted to discharge pretreated leachate to the MSD System though delivery via trucks to the MSD hauled waste facility at the MSD Bissell Point Waste Water Treatment Plant ("Bissell Point WWTP") or to other facilities and through other means as permitted by MSD in MSD's sole discretion. Company understands and acknowledges that, depending on conditions, the Interim Permit may not permit discharge of pretreated leachate by the Company into the MSD System at a given time.

Section II. Short-Term Operation and Discharge

1. Pretreatment Plant

a. The Company is currently developing and constructing, at its own cost, a Pretreatment Plant at the Landfill. It is the intent of the Parties that this Pretreatment Plant be an approved pretreatment facility pursuant to Ordinance 12559 permitting discharge to the MSD System. The Pretreatment Plant is being developed in accordance with requirements developed with MSD in order to pretreat the leachate to levels satisfactory for acceptance into the MSD System and subsequent treatment and disposal by MSD. Upon approval by MSD, the Pretreatment Plant, which is being developed for the protection of the MSD System, MSD employees, the public, and the environment, shall be considered an approved wastewater treatment unit consistent with the requirements of Clean Water Act § 307(b).

b. Company shall apply for an Industrial Wastewater Discharge Permit (the "Permit") from MSD to govern the Company's operation of the Pretreatment Plant and discharge of pretreated leachate from the Pretreatment Plant. Provided the Company's application for the Permit otherwise complies with applicable Laws, MSD will issue the Permit in the ordinary course of business, with such Permit to

contain such requirements, limitations, and conditions as MSD deems appropriate in its sole judgment ("Permit Requirements"), including requirements, limitations, and conditions governing loading, variances and volumetric limitations. Company acknowledges and agrees that MSD may change the Permit Requirements from time to time in its sole judgment and Company agrees to be bound by such changed Permit Requirements. The Permit shall set forth the pretreatment requirements, limitations, and conditions in order to ensure adequate pretreatment for the protection of the MSD System, MSD employees, the public, and the environment. When issued, the Permit shall replace the Interim Permit, and the Interim Permit shall no longer be in force and effect. Company acknowledges and agrees that it shall be an express condition to the issuance of the Permit that the Pretreatment Plant has been completed by the Company and approved by MSD.

2. Discharge Options After Completion of Pretreatment Plant But Prior to Completion of Sewer Extension Line

The Pretreatment Plant is being developed in cooperation with MSD to ensure that pretreated leachate meets the standards necessary to ensure compliant treatment of the leachate by MSD. Subject to the requirements, limitations, and conditions of the Permit, the Permit shall allow disposal of leachate via discharge through the Landfill's existing private lateral connection to the West Lake Pump Station which pumps to MSD's Missouri River Waste Water Treatment Plant (the "Missouri River WWTP"), or through delivery via trucks to the MSD hauled waste facility at the Bissell Point WWTP, or to other facilities and through other means as permitted by MSD in MSD's sole discretion. Company understands and acknowledges that, depending on conditions, the Permit may not permit discharge of pretreated leachate by the Company into the MSD System at a given time. Discharge through the Landfill's existing private lateral connection to the West Lake Pump Station which pumps to the Missouri River WWTP is available to the Company only during the following periods: (i) from the first day of November of a calendar year through the last day of February of the following calendar year (i.e., the periods when MSD is not required to operate its UV disinfection system at the Missouri River WWTP); and (ii) during operational periods in which the Missouri River WWTP is subject to a bacteria limitation, provided that the leachate meets specific volume and ultraviolet light transmittance limitations established by MSD.

Section III. Long Term Operation and Discharge

1. Sewer Extension Line

The Company is currently designing, and plans to construct, at its own cost, a Sewer Extension Line. The proposed Sewer Extension Line will connect the Landfill with the MSD System via connectors; the Sewer Extension Line is more particularly described and depicted on the plans incorporated into MSD Permits P-30040-00, P-30098-00, and P-30099-00, such plans also being attached here as Appendix A (as such plans are modified or supplemented from time to time, with MSD's approval, the "Sewer Extension Line Plans"). As used in this Agreement, the term "Sewer Extension Line" includes any pump stations required for its operations, whether such pump stations are located at the Landfill or elsewhere.

a. Where possible, the Sewer Extension Line will be constructed in the Missouri Department of Transportation ("MODOT") Right of Way along Route 180 (St. Charles Rock Road) ("MODOT Corridor"). MSD will cooperate with the Company in obtaining required permits from MODOT for the Company to construct the Sewer Extension Line in the MODOT Corridor, provided all costs incurred by MSD in connection with obtaining such permits shall be reimbursed to MSD by the Company within 30 days of MSD's presentation of a written invoice for the same. Except as provided in the preceding sentence, Company shall be solely responsible for obtaining all other permits or easements necessary, at Company's sole cost and expense, to construct the Sewer Extension Line. In the event that MODOT, or another entity having authority to do so, directs that the Sewer Extension Line must be relocated from the

MODOT Corridor, or another right of way, to another location within the MODOT Corridor, another right of way, or otherwise, the Company shall be solely responsible for all costs of relocation, whether incurred by MSD or the Company or otherwise. The obligations of the Company in the preceding sentence shall survive the expiration or earlier termination of this Agreement and MSD may require such obligation to be in the Agreement to Dedicate and Use to be executed by Company in connection with the Sewer Extension Line. Should it not be possible to utilize the MODOT utility corridor, the Company shall take all reasonable efforts to acquire easements from private property owners to facilitate development and maintenance of the Sewer Extension Line (the "Line Easements"). The Line Easements shall be in a form acceptable to MSD. Company shall submit the Sewer Extension Line Plans to MSD, along with any required application fees, for MSD's review, approval, and permitting per MSD's normal plan review and permitting process. Construction of the Sewer Extension Line shall be in accordance with MSD's requirements, including execution of a Construction Deposit Agreement and Agreement to Dedicate and Use on MSD's standard forms (subject, however, to modifications to such standard forms required by MSD in MSD's sole discretion to document the Company's relocation obligations with respect to the Sewer Extension Line under this paragraph, including an Agreement to Dedicate and Use substantially in the form attached to this Agreement as Appendix B) required by MSD. After MSD has approved construction of the completed Sewer Extension Line, the Sewer Extension Line shall be dedicated to MSD in accordance with MSD's requirements therefor.

b. Operation of the Sewer Extension Line will require new and modified pump stations. It is anticipated that at least two of those pump stations must be located on property not owned or controlled by the Company. The Company shall take all reasonable efforts to acquire easements from private property owners (the "Pump Station Easements") to facilitate development and maintenance of the pump stations. The Pump Station Easements shall be in a form acceptable to MSD. Additionally, Company shall grant to MSD (or cause its affiliate to grant to MSD) easements for any pump stations located on the Landfill property in a form acceptable to MSD. Construction of all pump stations by the Company shall be in accordance with MSD's requirements, including execution of a Construction Deposit Agreement and Agreement to Dedicate and Use on MSD's standard forms if required by MSD. After MSD has approved the completed all pump stations, the pump stations shall be dedicated to MSD in accordance with MSD's requirements therefor.

c. If the Company cannot acquire the Line Easements or the Pump Station Easements voluntarily before July 1, 2014, the Company shall notify MSD of such failure to do so. At such time, MSD shall, in good faith, determine whether MSD may obtain the Line Easements or Pump Station Easements by use of MSD's condemnation authority. If MSD determines that MSD may obtain the Line Easements or Pump Station Easements by use of MSD's condemnation authority, and MSD is otherwise agreeable to doing so, then MSD and the Company shall negotiate in good faith for a new agreement determining the process for such condemnation actions, such agreement to provide, among other things, that MSD shall control any such condemnation actions but that the Company is ultimately responsible for all costs incurred in filing and pursuing the condemnation actions and obtaining the Line Easements or Pump Station Easements via condemnation (including all attorneys' fees, costs and expenses, all commissioners' and jury awards, all commissioners' fees, and all expert fees). In no event shall any determination by MSD that MSD may use its condemnation authority to condemn the Line Easements or the Pump Station Easements be construed as a guaranty, warranty, or representation by MSD that MSD may actually do so, and MSD shall have no liability to the Company in the event that a court determines that MSD may not use its condemnation authority to condemn the Line Easements or Pump Station Easements.

d. It is the intent of the Parties that, upon completion by the company and approval by MSD, the Sewer Extension Line, including all pump stations and infrastructure, will be dedicated to MSD by the Company and accepted by MSD as part of the MSD System, and MSD will take ownership of such

components in accordance with approved Sewer Extension Line Plans. In order to facilitate MSD's acceptance of the Sewer Extension Line, the Sewer Extension Line shall be constructed in compliance with the specifications set forth in construction permits to be issued by MSD, which, upon issuance, shall be incorporated by reference into this Agreement. The dedication of the Sewer Extension Line to MSD shall be without any cost or charge to MSD.

e. It is the intent of the Parties that the Sewer Extension Line will service the Landfill and necessary facilities associated with the current West Lake Pump Station. Although the Sewer Extension Line will be part of the MSD System, and MSD shall operate and maintain the same, the Company shall remain responsible for the costs of operation and maintenance for the Sewer Extension Line. The amount owed by the Company for operation and maintenance of the Sewer Extension Line by MSD will be invoiced to the Company by MSD on a monthly basis, payment being due within 30 days of such invoice.

f. Provided that there is available capacity in the Sewer Extension Line beyond that required for the Company's current and projected future use, the Company agrees that MSD may permit other users to connect to the Sewer Extension Line (each, a "User"). If MSD permits a User to connect to the Sewer Extension Line, then the costs for operation and maintenance for the Sewer Extension Line paid by Company under this Agreement shall be reduced on a proportional basis based upon the amount of capacity allocated to such User in relation to the total capacity of the Sewer Extension Line.

2. Discharge Options After Completion of Pretreatment Plant and Completion and Acceptance of Sewer Extension Line

The Parties recognize that in order for MSD to maintain compliant operation of the MSD System and its treatment facilities it may be necessary to have several options for accepting the pretreated leachate so that sufficient capacity exists to accept the full volume of leachate on a consistent basis. For that reason, the Parties wish to establish flexibility to allow for consistent and compliant discharge and disposal of leachate after completion of the Pretreatment Plant and the completion and acceptance of the Sewer Extension line, as follows.

a. Discharge by Sewer to the Bissell Point WWTP. Subject to the terms of Ordinance 12559, the Permit, and any variances granted by MSD based upon calculation of permissible loading or other factors, the Company may discharge, and MSD will accept, leachate into the MSD System by discharge of the Company of its leachate (up to 500,000 gallons per day) for treatment at the Bissell Point WWTP.

b. Discharge by Sewer to the Missouri River WWTP. Subject to the terms of Ordinance 12559, the Permit, and any variances granted by MSD based upon calculation of permissible loading or other factors, the Company may discharge, and MSD will accept, leachate into the MSD System by discharge of the Company of its leachate through MSD's existing West Lake Pump Station which pumps to the Missouri River WWTP for treatment at the Missouri River WWTP during the following periods:

i. From the first day of November of a calendar year through the last day of February of the following calendar year (i.e., the periods when MSD is not required to operate its UV disinfection system at the Missouri River WWTP); and

ii. During operational periods in which the Missouri River WWTP is subject to a bacteria limitation, provided that the leachate meets specific volume and ultraviolet light transmittance limitations established by MSD.

c. Discharge by Sewer to the Coldwater Creek WWTP. Subject to the terms of this Agreement, it is the intent of the parties to permit connection of the Sewer Extension Line to MSD's Coldwater Creek

Waste Water Treatment Plant ("Coldwater Creek WWTP"), if conditions at the Coldwater Creek WWTP allow for such connection. Provided that MSD has allowed connection of the Sewer Extension Line to the Coldwater Creek WWTP, which is expected to precede connection of the Sewer Extension Line to the Bissell Point WWTP, subject to the terms of Ordinance 12559, the Permit, and any variances granted by MSD based upon calculation of permissible loading or other factors, the Company may discharge, and MSD may accept, leachate into the MSD System by discharge of the Company of leachate for treatment at the Coldwater Creek WWTP.

d. Leachate Disposal via Hauled Waste: Subject to the terms of Ordinance 12559, MSD Ordinance No. 13701 (as the same may be amended, modified, or replaced from time to time, "Ordinance 13701"), the Permit, and any variances granted by MSD based upon calculation of permissible loading or other factors, the Company may discharge, and MSD will accept, leachate into the MSD System by hauling of such leachate by the Company to the Bissell Point WWTP or other disposal locations as necessary and permitted by MSD.

3. Leachate

Company covenants and agrees that Company will only discharge leachate into the MSD System that has been properly pretreated in accordance with the Conditional Approval, the Interim Permit, or the Permit, as applicable including variances granted thereunder as approved by MSD, and regardless of whether such leachate is discharged into the MSD System pursuant to Section I, Section II, or Section III of this Agreement, or otherwise. In no event shall the Company discharge any leachate into the MSD System that has not been properly pretreated, and MSD will have no obligation to allow into the MSD System any leachate that has not been properly treated.

4. Alternative Discharge Options

In the event that Company's ability to discharge leachate into the MSD System is limited or discontinued hereunder, MSD and the Company agree to work cooperatively to establish alternative options for discharge of leachate, however, neither Party shall be compelled to agree to any method or option that such Party finds unacceptable in such Party's reasonable judgment. In the event that a discharge alternative provided for under this Agreement is unavailable, and such unavailability is due to causes within the control of MSD (including maintenance or repair), MSD shall use its reasonable efforts to provide alternative discharge options to the Company which comply with the Conditional Approval, the Interim Permit or the Permit. The preceding sentence shall not obligate MSD to provide alternative discharge options to the Company if a discharge alternative is unavailable because MSD has directed the Company to limit or discontinue discharge of leachate pursuant to conditions of MSD's ordinances, the Conditional Approval, Interim Permit or Permit as applicable.

5. Notifications

All notifications required under this Agreement relating to the discharge of leachate by the Company, including any notices by MSD to Company to limit or discontinue such discharge, may be given by e-mail to the addresses set forth below. The Company and MSD shall notify one another promptly of the change of any person to receive notices hereunder.

If to MSD:	dmendoza@stlmsd.com (Doug Mendoza) and jrlodd@stlmsd.com (John Lodderhose)
If to Company:	bpower@republicservices.com (Brian Power)

and
dfeezor@feezorengineering.com (Dan Feezor)

If the Company cannot contact the MSD personnel listed above for any reason, the Company shall give notice to MSD by providing written notice to MSD at the following address with a follow up call promptly made to: MSD's Division of Environmental Compliance (314-436-8710), during normal business hours, or MSD's dispatcher (314-768-6260), after normal business hours.

The Metropolitan St. Louis Sewer District
Division of Environmental Compliance
10 East Grand Ave.
St. Louis, Missouri 63147-2913

Section IV. General Conditions

1. Other Agreements

Nothing in this Agreement shall prevent the Company and MSD from implementing alternative methods of conveying the leachate to the MSD System, provided that such alternatives are agreeable to both Parties. Nothing in this agreement shall preclude the Parties from reaching any agreement under Ordinance 12559.

2. Payment

a. Discharge Pursuant to Conditional Approval or Interim Permit and Prior to Completion and Approval of Pretreatment Plant. For discharge of leachate in compliance with the Conditional Approval or the Interim Permit and prior to the completion of the Pretreatment Plant by the Company, and approval of the same by MSD, the Company will be charged and invoiced as provided for in Ordinance 13701, presently, $.08 per gallon discharged to MSD through delivery via trucks to the MSD hauled waste facility at the Bissell Point WWTP, or to other facilities and through other means as permitted by MSD in MSD's sole discretion. Company shall provide volume reports to MSD on a monthly basis documenting the volume discharged. MSD shall provide monthly billing statements to the Company.

b. Discharge Pursuant to Permit and After Completion and Approval of Pretreatment Plant. For discharge of leachate in compliance with the Permit and after the completion of the Pretreatment Plant by Company, and approval of the same by MSD, the Company will be charged and invoiced (i) for discharge of leachate to MSD through delivery via trucks to the MSD hauled waste facility at the Bissell Point WWTP, $.02 per gallon, or (ii) for discharge of leachate to the MSD System through the Landfill's existing private lateral connection to the West Lake Pump Station which pumps to the Missouri River WWTP or to other facilities and through other means as permitted by MSD in MSD's sole discretion, the charge per gallon currently then in effect under MSD Ordinance No. 13758 (as the same may be amended, modified, or replaced from time to time, "Ordinance 13758"). Company shall provide volume reports to MSD on a monthly basis documenting the volume discharged. MSD shall provide monthly billing statements to the Company.

c. Discharge Pursuant to Permit and After Completion and Approval of Pretreatment Plant and Sewer Extension Line. For discharge of leachate in compliance with the Permit and after the completion of the Pretreatment Plant and Sewer Extension Line by Company, and approval of the same by MSD, the Company will be charged and invoiced MSD's costs for the operation and maintenance of the Sewer Extension Line (such operation and maintenance costs to include components which will vary with flow or use of the Sewer Extension Line and costs which will be incurred regardless of use of the Sewer

Extension Line) plus (i) for discharge of leachate to MSD through delivery via trucks to the MSD hauled waste facility at the Bissell Point WWTP, $.02 per gallon, or (ii) for discharge of leachate to the MSD System through the Landfill's existing private lateral connection to the West Lake Pump Station which pumps to the Missouri River WWTP or to other facilities and through other means as permitted by MSD in MSD's sole discretion, the charge per gallon currently then in effect under Ordinance 13758. Company shall provide volume reports to MSD on a monthly basis documenting the volume discharged. MSD shall provide monthly billing statements to the Company.

d. Special Charges for Hauled Waste. In addition to any charges provided for above in this Section 2, the Company shall also pay all additional fees and charges assessed by MSD reflecting all amounts incurred by MSD (including, wages, salaries, benefits, and operational costs) in operating the Bissell Point WWTP or any other part of the MSD System receiving leachate from the Company as hauled waste at times other than during normal business hours as defined in Ordinance 13701.

3. Operation of Sewer Extension Line

It is the intent of the Parties that in order to provide MSD maximum flexibility in the compliant management of the leachate, MSD shall have authority to direct the discharge within the existing forcemain discharging leachate to the Missouri River WWTP or Sewer Extension Line to the MSD treatment facility of MSD's selection. MSD shall notify Company of changes in the receiving treatment facility, and Company shall comply with MSD's instructions within a reasonable period of time consistent with Company's obligations under Ordinance 12559, the Interim Permit or the Permit.

4. Amendments

Any amendments or modifications to this Agreement and the matters set forth herein shall be in writing and signed by both Parties.

5. Term

The term of this Agreement is for five years, commencing on July 1, 2014, and ending on June 29, 2019, unless terminated earlier as provided herein, or extended by mutual agreement of the Parties. The Parties agree to negotiate in good faith for any extension of this Agreement.

6. Termination

This Agreement shall terminate at the end of the term set forth in Section IV, subsection 5 above. Additionally, this Agreement shall terminate if MSD (i) elects to terminate the Agreement pursuant to the provisions of Section IV, subsection 7 below, or (ii) revokes the Conditional Approval, the Interim Permit or the Permit. No termination of this Agreement shall relieve the Company from making any payments to MSD which are due or may become due arising out of the terms of this Agreement, the Conditional Approval, the Interim Permit, or the Permit.

7. Default; Remedies

If either Party breaches its obligations under this Agreement, the non-defaulting Party shall give written notice to the defaulting Party of such breach. If such breach remains uncured more than 30 days after the giving of such notice by the non-defaulting Party, then the non-defaulting Party may (i) terminate this Agreement, (ii) bring an action against the defaulting Party seeking the specific performance of this Agreement, or (iii) pursue any other remedy available to such non-defaulting Party at

law, by statute or in equity. The Parties expressly waive any right to seek consequential, indirect or punitive damages from one another.

8. Assignment

This Agreement is binding on the Parties and their successors and assigns. Neither Party may assign this Agreement or delegate any rights or duties hereunder without the consent of the other Party, which consent shall not be unreasonably withheld. Nothing herein shall be construed as creating any personal liability on the part of any officer of any Party.

9. Compliance with Laws

The Company shall comply with all Laws applicable to its actions under this Agreement, the Conditional Approval, the Interim Permit and the Permit. As used in this Agreement, "Laws" means (i) all federal, state and local laws, statutes, and ordinances, (ii) rules and regulations implemented pursuant to any law, ordinance or statute, (iii) MSD's ordinances and rules (as such ordinances and rules may be modified, amended, or replaced from time to time), and (iv) all permits, licenses and approvals applicable to the treatment and delivery of leachate to MSD issued by MSD or a third party. MSD shall comply with all Laws applicable to its processing and treatment of the Company's leachate delivered hereunder.

10. Notices

Except for notices to be sent by e-mail pursuant to Section III, subsection 5 of this Agreement and for notices to be sent by e-mail as specified in the Conditional Approval, the Interim Permit, or the Permit, all notices authorized or required to be given herein shall be in writing and delivered by personal delivery, certified or nationally recognized overnight courier service addressed as follows:

If to MSD:

The Metropolitan St. Louis Sewer District
2350 Market Street
St. Louis, MO 63103
Attn: Office of General Counsel

with a copy to:

The Metropolitan St. Louis Sewer District
10 E. Grand Avenue
St. Louis, Missouri 63147
Attn: Division of Environmental Compliance

If to Company:

Bridgeton Landfill, LLC
13570 St. Charles Rock Road
Bridgeton, MO 63044
Attn: Brian Power, Environmental Manager

Either party may designate by notice in writing a new address to which said notices of demands must be sent. Notices hereunder will be effective upon delivery if delivered by courier or overnight delivery service; and three business days after they are deposited with the U.S. Postal Service, postage prepaid if delivered by certified mail. Refusal to accept delivery shall constitute delivery.

11. Indemnification by Company

In addition to any other indemnification provision applicable under Laws, the Conditional Approval, the Interim Permit, or the Permit, Company shall indemnify and hold MSD harmless from and against any and all claims against MSD, including from and against all costs, fines, judgments, reasonable counsel fees, expenses and liabilities incurred in any such claim or in any action or proceeding brought thereon, arising from (a) claims by third parties against MSD regarding Company's discharge of any matter, including leachate, into the MSD System, (b) any negligence or willful misconduct on the part of the Company or its contractors or agents, (c) the breach of any agreement on the part of the Company hereunder, (d) the breach of the Conditional Approval, Interim Permit, or the Permit by the Company, (e) the violation of any applicable Laws by the Company, (f) any damages to persons or property arising in connection with the construction of the Sewer Extension Line, or (g) the defective construction of the Sewer Extension Line. In case any action or proceeding is brought against MSD by reason of any such claim, Company, upon written notice from MSD, covenants to resist and defend at Company's expense such action or proceeding by counsel reasonably satisfactory to MSD. The Company, however, shall not be obligated to indemnify MSD against the willful misconduct or negligence of MSD or any breach of this Agreement by MSD. The provisions of this paragraph shall survive the termination of this Agreement with respect to any claims or liabilities accruing prior to such termination.

12. Insurance of Company

In connection with this Agreement, the Company covenants and agrees to maintain the insurance required below in this subsection 12 (the "Insurance Policies"). All Insurance Policies must be written by insurers licensed to do business in the State of Missouri with a financial strength rating of "A-" or better and a financial size category of Class VI or higher per AM Best Company. MSD shall be named as an additional insured on the Insurance Policies with the exception of claims made against the Company's pollution liability and workers compensation coverage. Within 10 days of the complete execution of this Agreement and upon renewal of the Insurance Policies thereafter, the Company shall provide a certificate or certificates of insurance to MSD showing the required Insurance Policies are in force, naming MSD as an additional insured (where required), and providing that the insurer shall provide MSD with 30 days' notice prior to any cancellation (10 days for non-payment of the premium).

Required Insurance:

a. Commercial General Liability-Company must carry commercial general liability insurance against damages and injuries to persons and property and as more particularly set forth below, such policy must include primary and non-contributory endorsement as to comply with CG 458 002 0611 Primary and noncontributory other insurance condition. A copy of this endorsement must be provided to MSD prior to MSD's execution of this Agreement. The Commercial General Liability (CGL) policy shall include the following:

1. Premises – Operations Liability
2. Blanket Contractual Liability
3. Completed Operations Liability
4. Personal Injury Liability
5. Broad Form Property Damage Liability Endorsement

6. Coverage for explosion, collapse and underground hazards (XCU)

A specific endorsement may be needed if non-standard coverage is provided.

Required Limits of Liability

$1,000,000	per occurrence
$1,000,000	Products and Completed Operations Aggregate
$1,000,000	Personal and Advertising Injury
$1,000,000	General Aggregate
-and-	
$5,000,000	Excess (Umbrella)

b. Pollution Liability-pollution liability insurance coverage for losses caused by sudden and non-sudden pollution conditions that arise from the operations of the Company; such insurance shall apply to bodily injury and property damage, including loss of use of the damaged property or property that has not been physically injured, and shall cover cleanup, and defense costs, including all expenses incurred in the investigation, defense, payment or settlement of claims.

Pollution Liability Limits:
$10,000,000 per claim or per occurrence, coverage limits shall be specific to this Agreement.

c. Business Automobile Liability-Insurance shall apply to all owned, non-owned and hired vehicles.

$1,000,000	Liability Coverage each occurrence
-and-	
$5,000,000	Excess (Umbrella)

d. Workers Compensation Insurance-Company shall provide proof of Workers Compensation Insurance with Statutory Limits, to include Federal Acts and US Longshore & Harbor Workers Act (USL&H) coverage as applicable.

Coverage shall also include Employers Liability with the following limits:

$500,000	each accident
$500,000	Coverage Limit
$500,000	Disease Each Employee

Excess Liability of $5,000,000 to include Employers Liability.

13. Miscellaneous

a. The use of the word "including" in this Agreement shall be interpreted as meaning "including without limitation". The singular shall include the plural hereunder and vice versa. The words "hereof", "hereunder", and similar terms shall not be deemed to refer to any specific section or article of this Agreement, but instead to the Agreement as a whole, unless otherwise expressly stated or clearly implied.

b. Except for the Conditional Approval, the Interim Permit, and the Permit, this Agreement is the sole, exclusive, and entire agreement between the Parties hereto with respect to the matters provided herein, and all prior agreements respecting the same, oral or written, are merged into this Agreement.

c. The law of the State of Missouri, excluding choice of law provisions, shall govern the construction, performance and enforcement of this Agreement. The Parties agree that venue for any lawsuit involving this Agreement shall be the Circuit Court for the City of St. Louis, Missouri, and no party shall object to such venue as an inconvenient forum.

d. Company represents and warrants to MSD that this Agreement is the valid and binding agreement of the Company, that this Agreement has been duly authorized by all organization authority or requirements on the part of the Company, and that the person signing this Agreement on behalf of the Company is authorized to do so.

IN WITNESS HEREOF, the parties have caused this Agreement to be executed as of the day and year first written above.

THE METROPOLITAN ST. LOUIS SEWER DISTRICT

By: Brian Hoelscher

Print Name: BRIAN HOELSCHER

Title: EXECUTIVE DIRECTOR

APPROVED AS TO FORM
Office of General Counsel
By: [illegible]

BRIDGETON LANDFILL, LLC

By: _____

Print Name: _____

Title: _____

IN WITNESS HEREOF, the parties have caused this Agreement to be executed as of the day and year first written above.

THE METROPOLITAN ST. LOUIS SEWER DISTRICT

By: _____

Print Name: _____

Title: _____

BRIDGETON LANDFILL, LLC

By: _____

Print Name: Joseph J. Benco

Title: Authorized Agent

Appendix A
Sewer Extension Line

Appendix B
Agreement to Dedicate and Use

AGREEMENT TO DEDICATE AND USE

This Agreement to Dedicate and Use entered into this ____ day of _____, 20____ by and between **Bridgeton Landfill, LLC**, Party of the First Part, and **The Metropolitan St. Louis Sewer District**, a municipal corporation and a political subdivision of the State of Missouri, Party of the Second Part.

WHEREAS, Party of the First Part is desirous of securing sewage disposal for a tract or parcel of land known as [DESCRIBE PROJECT, FOR EXAMPLE, **BRIDGETON BISSELL FORCE MAIN PHASE 2 (BOENKER TO US 67)** (MSD REF # **P-0030098-00**)],

WHEREAS, Party of the Second Part is desirous of providing such sewage disposal to Party of the First Part.

NOW, THEREFORE, in consideration of the premises, and of the performance of the covenants hereinafter set out, it is mutually agreed that, upon completion of the sewer or sewers and treatment plants, if any (the "Improvements"), and after final inspection of the Improvements has been completed by Party of the Second Part, Party of the First Part shall executed and file with the Party of the Second Part a Deed of Dedication conveying and transferring to The Metropolitan St. Louis Sewer District all rights, titles and interests in the aforesaid Improvements, together with the appropriate sewer easements for the same, and Party of the Second Part shall accept for public use said Deed of Dedication and said sewer easements, and shall thereafter undertake the operation and maintenance of the aforesaid Improvements.

As a condition of the Party of the Second Part's acceptance of the Improvements, sewer easements, and the Deed of Dedication, it is agreed that the Party of the First Part and its successors and assigns shall covenant and agree to pay for the costs of relocating said Improvements and obtaining new sewer easements in the event that the Missouri Department of Transportation or any other entity having authority to do so directs that the Improvements be relocated from the location where the Improvements are initially constructed. Party of the First Part shall pay (or reimburse Party of the Second Part upon written demand therefor if Party of the Second Part initially pays such relocation costs) for all such relocation costs for the Improvements, including the demolition and removal of the Improvements in their then current location, the acquisition of new sewer easements, and reconstruction and relocation of the Improvements in and to their new location. The requirements of this paragraph shall also be inserted into

the Deed of Dedication to be executed by Party of the First Part and Party of the Second Part as a covenant and agreement on the part of Party of the First Part binding upon Party of the First Part and its successors and assigns and future owners and operators of the Bridgeton Landfill, and Party of the First Part agrees to execute such other covenants and documents reasonably requested by the Party of the Second Part evidencing the obligations of Party of the First Part in this paragraph.

In addition, the Party of the First Part agrees that the Party of the Second Part, or any permittee thereof, may connect and use any such sewer or sewers and appurtenances to the Improvements at any time prior to or after such dedication.

IN WITNESS WHEREOF, the Party of the First Part and the Party of the Second Part have hereunto set their hands and seals the day and year first above written.

_____ _____ (Corporate Seal)

Attest _____

THE METROPOLITAN ST. LOUIS SEWER DISTRICT

By _____

Richard Unverferth

Director of Engineering

MSD 3.11 Corporate (Revised 10-01-94)

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Wednesday, June 25, 2014 9:38 AM
To: 'Merrigan, Jessie (LG)'; Doug Mendoza; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; 'Bryan Sehie'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; "Theerman, Jeff' (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie E. Linscheid
Subject: Bridgeton Landfill Weekly Report

The materials for the previous week are now on Barr's ftp site.

As noted previously, the facility continues to operate under Alternative 1 of the leachate management SOP, approved by MSD April 18, 2014. However because of a brief power outage last week, there was 1 load (7,500 gallons) hauled from T2, which is included with the other MSD batches as Combined Batch 06-17-2014.

There has been a change in the TCLP characterization for the raw, untreated leachate. The new sampling frequency will be once per month for TCLP VOAs and once per six months for the full TCLP list. The frequency of characterization is set by the generator and is not prescribed by regulation or agreement. Because of the amount of TCLP data that has been collected to date, the type and range of TCLP detections is well established and we believe that a reduced frequency is justified. This will not change the operational or confirmation sampling required by the current permit. All safeguards will remain in place to insure that all material sent off site is not hazardous waste. This is for notification purposes only.

Discussion of Outliers - as noted in the June 4, 2014 update, we are reviewing all outlier data, defined as plus or minus one standard deviation from the average. While not a complete list of outliers, the following are noteworthy:

- VOCs, specifically Acetone, Hexachlorobutadiene, MEK and MIBK have low outliers in Combined Batch Samples. As noted last week, the material was diluted by the pump back of material from Tank 3, which was 83% tap water.
- Low outliers for iron in 316-331 and 316-332.
- Low outlier for lead in 316-332.

Please let me know if you have any questions. Thank you.

Ed Galbraith

Senior Environmental Scientist
Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com

- VOCs, specifically 2-Hexanone, Acetone, MEK and MIBK have low outliers in CB samples from 6/7 to 6/12. This is because the material was diluted by the pump back of material from Tank 3, which was 83% tap water.
- Mercury – samples 316-324 and 316-325 show upward spikes. We do not have any newer sample results at this time to determine if this the beginning of a trend.
- Arsenic – sample 316-319 at 1.4 mg/l appears to be single high event.
- Antimony had a number of high outliers and is generally trending up although the highest recent spike of .150 mg/l is well below the district limit.
- Cadmium – we are beginning to see detections on a more regular basis now than in the past, however they are still well below district limits.
- TSS - sample 316-318 had a high outlier at 5500 mg/l
- There were a number of low outliers for Cobalt, Iron, Lead, and Selenium

Please let me know if you have any questions. Thank you.

Ed Galbraith

Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

resourceful. naturally. BARR

Bridgeton Landfill, LLC
Metropolitan St. Louis Sewer District
Weekly Disposal Summary

MSD - Bissell Point Tracking Table					
Date	Operational Batch	Delivered (gal) Per Batch	Delivered (gal) Daily Total	Truck Capacity (gal) Per Batch	Truck Capacity (gal) Daily Total
Sunday, June 15, 2014	Batch 316-330	37,500	202,500	37,500	202,500
	Batch 316-331	165,000		165,000	
Monday, June 16, 2014	Batch 316-331	37,500	210,000	37,500	210,000
	Batch 316-332	172,500		172,500	
Tuesday, June 17, 2014	Batch 316-332	37,500	210,000	37,500	210,000
	Batch 316-333	172,500		172,500	
Wednesday, June 18, 2014	Batch 316-333	37,500	142,500	37,500	142,500
	CB 06-17-14	7,500		7,500	
	Batch 316-334	97,500		97,500	
Thursday, June 19, 2014	Batch 316-334	37,500	210,000	37,500	210,000
	Batch 316-335	172,500		172,500	
Friday, June 20, 2014	Batch 316-335	37,500	210,000	37,500	210,000
	Batch 316-336	172,500		172,500	
Saturday, June 21, 2014	Batch 316-336	37,500	210,000	37,500	210,000
	Batch 316-337	172,500		172,500	

Date	*6/15/2014 8:24*
Date	*6/22/2014 6:00*

MSD - Missouri River Tracking Table								
Date	Operational Batch Transferred into 97K AST	Gallons Delivered	Batch Start Date and Time	Batch End Date and Time	Interval Hours	Maximum Hourly Flow (gph)	Average Hourly Flow (gph)	97K AST pH Check
Sunday, June 15, 2014	NA	-	6/15/2014 8:24	6/16/2014 7:32	23.1	840	0.0	NA
Monday, June 16, 2014	NA	-	6/16/2014 7:32	6/17/2014 6:00	22.5	840	0.0	NA
Tuesday, June 17, 2014	NA	-	6/17/2014 6:00	6/18/2014 6:00	24.0	840	0.0	NA
Wednesday, June 18, 2014	NA	-	6/18/2014 6:00	6/19/2014 6:00	24.0	840	0.0	NA
Thursday, June 19, 2014	NA	-	6/19/2014 6:00	6/20/2014 6:00	24.0	840	0.0	NA
Friday, June 20, 2014	NA	-	6/20/2014 6:00	6/21/2014 6:00	24.0	840	0.0	NA
Saturday, June 21, 2014	NA	-	6/21/2014 6:00	6/22/2014 6:00	24.0	840	0.0	NA

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: [illegible] Title: Environmental Specialist Date: 6/24/14

Weekly Volume Summary Week 61 (6-15-14 through 6-21-14).xlsx

MSD 029253

Daily Flow Reading — *Bridgeton Landfill*

	Current	Previous	Difference
Date / Time:	6/16/2014 7:32:00 AM	6/15/2014 8:24:00 AM	23.1 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Schie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Schie *Name:* Bryan Schie

Title: Environmental Specialist *Date:* 6/16/14

MSD Daily Flow Reading, ending 6-16-2014

Daily Flow Reading — *Bridgeton Landfill*

	Current	Previous	Difference
Date / Time:	6/17/2014 6:00:00 AM	6/16/2014 7:32:00 AM	22.5 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 6/24/14

MSD Daily Flow Reading, ending 6-17-2014

Daily Flow Reading — *Bridgeton Landfill*

	Current	Previous	Difference
Date / Time:	6/18/2014 6:00:00 AM	6/17/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 6/18/14

MSD Daily Flow Reading, ending 6-18-2014

Daily Flow Reading — *Bridgeton Landfill*

	Current	Previous	Difference
Date / Time:	6/19/2014 6:00:00 AM	6/18/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Schie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan K Schie *Name:* Bryan Schie

Title: Environmental Specialist *Date:* 6/19/14

MSD Daily Flow Reading, ending 6-19-2014

Daily Flow Reading — *Bridgeton Landfill*

	Current	Previous	Difference
Date / Time:	6/20/2014 6:00:00 AM	6/19/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 6/20/14

MSD Daily Flow Reading, ending 6-20-2014

Daily Flow Reading — *Bridgeton Landfill*

	Current	Previous	Difference
Date / Time:	6/21/2014 6:00:00 AM	6/20/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 6/21/14

MSD Daily Flow Reading, ending 6-21-2014

Daily Flow Reading — *Bridgeton Landfill*

	Current	Previous	Difference
Date / Time:	6/22/2014 6:00:00 AM	6/21/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Schie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: [signature] *Name:* Bryan Schie

Title: Environmental Specialist *Date:* 6/22/14

MSD Daily Flow Reading, ending 6-22-2014

OB-316-330

Bridgeton Landfill

Fill Data

Fill Start Date	6/13/2014
Fill Start Time	19:05
Fill Stop Date	6/13/2014
Fill Stop Time	23:48
Process Battery	316 AST

Processing Data

Process Start Date	6/13/2014
Process Start Time	19:40
Process Stop Date	6/14/2014
Process Stop Time	03:50

Approval Data

Approval Details	NAL13026-1506
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 21,000 ppb. Fill height = 20.99 ft.

Monday, June 23, 2014

OB-316-331 *Bridgeton Landfill*

Fill Data

Fill Start Date	6/14/2014
Fill Start Time	18:18
Fill Stop Date	6/14/2014
Fill Stop Time	23:04
Process Battery	316 AST

Processing Data

Process Start Date	6/14/2014
Process Start Time	18:57
Process Stop Date	6/15/2014
Process Stop Time	04:15

Approval Data

Approval Details	NAL13026-1507
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 22,000 ppb. Fill height = 21.09 ft.

Monday, June 23, 2014

OB-316-332 Bridgeton Landfill

Fill Data

Fill Start Date	6/15/2014
Fill Start Time	18:19
Fill Stop Date	6/15/2014
Fill Stop Time	23:15
Process Battery	316 AST

Processing Data

Process Start Date	6/15/2014
Process Start Time	18:56
Process Stop Date	6/16/2014
Process Stop Time	04:30

Approval Data

Approval Details	NAL13026-1509
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 23,000 ppb. Fill height = 21.13 ft.

Monday, June 23, 2014

OB-316-333 *Bridgeton Landfill*

Fill Data

Fill Start Date	6/16/2014
Fill Start Time	18:35
Fill Stop Date	6/16/2014
Fill Stop Time	23:53
Process Battery	316 AST

Processing Data

Process Start Date	6/16/2014
Process Start Time	19:16
Process Stop Date	6/17/2014
Process Stop Time	04:26

Approval Data

Approval Details	NAL13026-1512
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 21,000 ppb. Fill height = 22.02 ft.

Monday, June 23, 2014

OB-316-334 — *Bridgeton Landfill*

Fill Data

Fill Start Date	6/17/2014
Fill Start Time	18:24
Fill Stop Date	6/17/2014
Fill Stop Time	22:35
Process Battery	316 AST

Processing Data

Process Start Date	6/17/2014
Process Start Time	18:55
Process Stop Date	6/18/2014
Process Stop Time	04:22

Approval Data

Approval Details	NAL13026-1514
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 13,000 ppb. Fill height = 19.06 ft. Power surge caused lab delay; 1st load off-site @ 11:00a.

Monday, June 23, 2014

OB-316-335 Bridgeton Landfill

Fill Data

Fill Start Date	6/18/2014
Fill Start Time	20:31
Fill Stop Date	6/19/2014
Fill Stop Time	01:20
Process Battery	316 AST

Processing Data

Process Start Date	6/18/2014
Process Start Time	21:20
Process Stop Date	6/19/2014
Process Stop Time	04:45

Approval Data

Approval Details	NAL13026-1517
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK=23,000 ppb, fill height=21ft.

Monday, June 23, 2014

OB-316-336 Bridgeton Landfill

Fill Data

Fill Start Date	6/19/2014
Fill Start Time	19:21
Fill Stop Date	6/20/2014
Fill Stop Time	00:14
Process Battery	316 AST

Processing Data

Process Start Date	6/20/2014
Process Start Time	03:50
Process Stop Date	6/20/2014
Process Stop Time	05:30

Approval Data

Approval Details	NAL13026-1519
Test Results	Benzene - 21 ppb
Reprocessed Batch	

Notes

MEK = 22,000, fill height = 19 ft. Both blowers were running during processing, for a total of over 3 blower-hours.

Monday, June 23, 2014

OB-316-337 — *Bridgeton Landfill*

Fill Data

Fill Start Date	6/20/2014
Fill Start Time	18:33
Fill Stop Date	6/20/2014
Fill Stop Time	22:46
Process Battery	316 AST

Processing Data

Process Start Date	6/20/2014
Process Start Time	19:27
Process Stop Date	6/21/2014
Process Stop Time	04:25

Approval Data

Approval Details	NAL13026-1523
Test Results	Benzene - ND <100 ppb
Reprocessed Batch	

Notes

MEK - 19,000, Fill Height - 18ft.

Monday, June 23, 2014

Combined Batch 06-17-14

Bridgeton Landfill

Fill Data

Fill Start Date	
Fill Start Time	
Fill Stop Date	
Fill Stop Time	
Process Battery	T2M

Processing Data

Process Start Date	
Process Start Time	
Process Stop Date	
Process Stop Time	

Approval Data

Approval Details	NAL13026-1513
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 8,400 ppb.

Monday, June 23, 2014

Table 1
General Parameters and Metals
March - June 2014
Bridgeton Landfill

					Biochemical Oxygen Demand (5-day)	Chemical Oxygen Demand	Nitrogen, ammonia as N	Oil and Grease	Oil and Grease - Silica gel cleanup	pH	pH
					NA	NA	NA	NA	NA	NA	NA
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	pH units	pH units
316-332	6/16/2014	Pace	Validated	60171556	31000	48200 *	545	592	8.3 *	5.4	5.64
316-331	6/15/2014	Pace	Validated	60171550	28900	49700	554	816	9.6	5.5	5.58
316-330	6/14/2014	Pace	Validated	60171549	30300	56000	545	887	14.4	5.4	5.49
316-329	6/13/2014	Pace	Validated	60171443	34100	54900	528 *	1070	15.6	5.5	5.54
316-328	6/12/2014	Pace	Validated	60171310	32000	47600	558	752	9.6	5.5	5.62
316-327	6/11/2014	Pace	Validated	60171209	29000	40700	627	606	10	5.4	5.75
316-326	6/10/2014	Pace	Validated	60171084	32800	41200 *	572	672	5.4	5.4	5.71

MSD 029270

Table 1
General Parameters and Metals
March - June 2014
Bridgeton Landfill

					Solids, total suspended	Aluminum	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Cobalt
					NA	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-332	6/16/2014	Pace	Validated	60171556	4220	2.41	0.0512	1.1	ND	ND	0.154	ND
316-331	6/15/2014	Pace	Validated	60171550	4820	4.75	0.0562	1.2	ND	ND	0.183	0.0283
316-330	6/14/2014	Pace	Validated	60171549	5200	9.34	0.0581	1.14	ND	ND	0.207	0.0314
316-329	6/13/2014	Pace	Validated	60171443	4380	9.02	0.0532	0.889	ND	ND	0.178	0.0272
316-328	6/12/2014	Pace	Validated	60171310	4340	2.5	ND	1.04	ND	ND	0.166	ND
316-327	6/11/2014	Pace	Validated	60171209	4040	6.09	ND	1.06	ND	ND	0.236	0.0326
316-326	6/10/2014	Pace	Validated	60171084	3820	7.95	ND	1.02	ND	ND	0.244	0.0333

MSD 029271

Table 1
General Parameters and Metals
March - June 2014
Bridgeton Landfill

					Copper	Iron	Lead	Mercury	Nickel	Selenium	Silver	Thallium
					Total	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-332	6/16/2014	Pace	Validated	60171556	ND	311	0.0322	ND	0.0933	ND	ND	ND
316-331	6/15/2014	Pace	Validated	60171550	ND	426	0.0632	ND	0.109	ND	ND	ND
316-330	6/14/2014	Pace	Validated	60171549	ND	600	0.0941	ND	0.132	ND	ND	ND
316-329	6/13/2014	Pace	Validated	60171443	ND	520	0.0760	ND	0.116	ND	ND	ND
316-328	6/12/2014	Pace	Validated	60171310	ND	328	0.0403	0.0402	0.107	ND	ND	ND
316-327	6/11/2014	Pace	Validated	60171209	ND	672	0.0989	0.0192	0.112	ND	ND	ND
316-326	6/10/2014	Pace	Validated	60171084	ND	719	0.11	0.0276	0.115	ND	ND	ND

Table 1
General Parameters and Metals
March - June 2014
Bridgeton Landfill

					Zinc
					Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l
316-332	6/16/2014	Pace	Validated	60171556	3.13
316-331	6/15/2014	Pace	Validated	60171550	3.28
316-330	6/14/2014	Pace	Validated	60171549	3.29
316-329	6/13/2014	Pace	Validated	60171443	2.83
316-328	6/12/2014	Pace	Validated	60171310	3.51
316-327	6/11/2014	Pace	Validated	60171209	4.41
316-326	6/10/2014	Pace	Validated	60171084	4.84

Table 2
VOCs and SVOCs
March - June 2014
Bridgeton Landfill

					Benzene
Location	Date	Lab Name	Data Status	Lab Report	ug/l
316-332	6/16/2014	Pace	Validated	60171556	ND
316-331	6/15/2014	Pace	Validated	60171550	ND
316-330	6/14/2014	Pace	Validated	60171549	ND
316-329	6/13/2014	Pace	Validated	60171443	ND
316-328	6/12/2014	Pace	Validated	60171310	ND
316-327	6/11/2014	Pace	Validated	60171209	ND
316-326	6/10/2014	Pace	Validated	60171084	ND

03

METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL FACILITY INSPECTION REPORT

Company: Bridgeton Landfill LLC Account #: 1003803000
Premise Address: 13570 St Charles Rk Rd Zip Code: 63044
MSD Classes: SIU ☒ Non-Significant CIU ☐ CIU ☐ Surcharge ☐ Non-Toxic Process Water/Wastes ☐
Toxics-Bearing Waste ☒ No Process Discharge ☐ Multi-User ☐ Special Handling/Billing ☒
Company Representative: Bryan Sehie
Title: EHS Specialist Phone#: 314.744.8190
Inspector: Tom Boehm
Others Present: Brian Power, Env Mngr - BrLF; Doug Mendoza-MSD;
Inspection Date: **6/24/13** Time: From 01:30 pm To 03:00 pm (Last Insp. 3/28/13)

NOTE: ALL ITEMS ARE TO BE COMPLETED BASED ON EVENTS SINCE LAST INSPECTION. ANSWERS ARE BASED ON INFORMATION OBTAINED OR PROVIDED BY COMPANY DURING INSPECTION, AS WELL AS INFORMATION IN FILE.

***** DATABASE ALSO UPDATED WITH APPROPRIATE CHANGES - see attached database reports *****

1. A. ARE THERE ADDITIONAL NON-STORMWATER ACCOUNT NUMBERS? Yes☐ No☒
   List them, note any changes: _____
   B. Did all acct no's have water usage on PIMS? Yes☒ No☐
   C. If no to B, explain: _____

2. PROCESSES & CLEANUP/WASHDOWN:

	Cont/ Batch?	Water/Liquids Used?	DISCHARGE Frequency (or how else disposed?)	Sample pt.
Closed sanitary landfill leachate and methane condensate collection (*volume is being captured/treated/hauled to BPSTP)	Batch	Yes	(* No discharge into Westlake PS since 11/10/13)	008,007> san sewer
Trash transfer station washdown	Batch	Yes	(* No discharge into Westlake PS since 11/10/13)	008,007> san sewer
Outdoor truck wash (directed to sump in transfer station)	Batch	Yes	(* No discharge into Westlake PS since 11/10/13)	008,007> san sewer
	(None)	N/A		
	(None)	N/A		
	(None)	N/A		

3. PRETREATMENT (other than grease traps) - describe:

	Sample pt.
Aeration	007,008
See comments - for new PT system	

4. DOES COMPANY HAVE ANY GREASE TRAPS? Yes☐ No☒
If yes: A. List sample points: _____
B. What is the frequency for cleaning & maintenance? _____
C. Are any additives used in traps? Yes☐ No☐
D. If yes to C, was company warned MSD will bill them for blockages they cause? Yes☐ No☐
E. Was company informed that MSD performs separate grease trap inspections? Yes☐ No☐

5. HAS COMPANY CONSTRUCTED NEW BLDGS/ADDITIONS WITH SEWERS SINCE LAST INSPECTION? Yes☐ No☒
If yes: A. Ask company: Did they notify MSD's Plan Review group? Unknown☐ Yes☐ No☐
B. If no or unknown, has inspector notified Plan Review group? Yes☐ No☐
C. Comments: _____

6. HAS COMPANY BEGUN DISCHARGING ANY NEW POLLUTANTS SINCE THE LAST INSPECTION? Yes☐ No☒

If yes: A. List pollutants & process: Excess oxygen demand is still an issue until PT system is up and running; benzene in leachate caused by underground pyrolysis reaction has been under control as proven by submitted analysis with their hauled loads;

B. Will MSD STP exceed existing NPDES discharge limit(s)? Yes☐ No☐

C. Will MSD STP's discharge exceed 0.1 mg/l for any new pollutant? Yes☐ No☐
(MSD must notify MDNR if B or C is yes and discharge will continue [40CFR122.42(b)].)

D. Comments: _____

7. ARE THERE ANY FEDERALLY REGULATED (40 CFR 405-471) OPERATIONS THAT ARE "NOT APPLICABLE"? Yes☐ No☒
(including those that are 'No PSES' and 'General Stds Only')

If yes: A. List regulation & describe operations (including any discharge):
_____

B. Explain why it is N/A: _____ Yes☐ No☐

8. ARE THERE ANY FEDERALLY REGULATED (40 CFR 405-471) OPERATIONS SUBJECT TO DISCHARGE LIMITS? Yes☐ No☒

If yes: A. List regulation & describe operations (including any discharge):
_____

B. Is maximum daily categorical discharge ≤ 100 GPD? (includes batch discharges) Yes☐ No☐

If yes to B: C. Batch ☐ or Continuous ☐? Volume verified how? _____

D. Does company ever discharge untreated, concentrated categorical wastewater? Yes☐ No☐

E. Was company in SNC during any part of the previous **24** months? Yes☐ No☐

F. Date of last NSCIU Certification Statement: _____ or not currently NSCIU ☐
(If no to B, yes to D or E, or Cert. Statement not submitted as required, company is not eligible to be an NSCIU)

9. HAS COMPANY CERTIFIED TO THE ABSENCE OF SPECIFIC CATEGORICAL POLLUTANTS? Yes☐ No☒

If yes: A. Certification date: _____

B. List absent pollutants: _____

C. Were all these pollutants non-detect in all monitoring since certification was approved? Yes☐ No☐
(If compared to intake water levels, explain details below)

If no to C: D. Explain: _____

E. Does Wastewater Discharge Permit need to be updated to remove detected pollutants? Yes☐ No☐

F. Comments: _____

10. DOES CATEGORICAL WASTEWATER COMBINE WITH NON-CATEGORICAL WW PRIOR TO SAMPLING? Yes☐ No☒

If yes: A. At which points? _____

B. Current applied factor: _____ Is it correct? Yes☐ No☐

C. If no, list correct factor/explain? _____

11. IS ANY WASTEWATER SUBJECT TO PRODUCTION ☐ OR MASS ☐ BASED STANDARDS? Yes☐ No☒

If yes: A. At which points? _____

B. Since calculation of the current limits, has the long term avg production rate or discharge volume changed by 20% or more? Yes☐ No☐

C. If yes to B, explain: _____

12. ARE ANY RADIOACTIVE MATERIALS HANDLED? Yes☒ No☐

If yes: A. Describe operations & disposal: 2 radiation waste cells are present in the Westlak Landfill area that is not served by leachate collection sumps/pumps;

B. If non-exempt & disposed to sewer, does company submit quarterly reports to MSD? NA☐ Yes☒ No☐
(If No to B, write company & require quarterly reports of discharge to sewer – or have permit revised as needed)

C. Amount discharged in most recent four complete calendar quarters: Previous 4 quarters = 16.82 mCi;

D. Is company in compliance with requirements of sewer use ordinance prohibition? Yes☒ No☐

13. DOES COMPANY GENERATE WASTES/WASTEWATER BY GENETIC ENGINEERING RESEARCH? Yes☐ No☒

If yes: A. Does company render wastes/wastewater innocuous? Yes☐ No☐

B. If yes, describe how: _____

C. Does company have MSD authorization for disposal to sewer? NA☐ Yes☐ No☐

D. Most recent authorization date: _____

14. DOES PROCESS or P&E WASHDOWN WATER USE APPEAR EXCESSIVE? Yes☐ No☒
(IS COMPANY USING DILUTION TO MEET DISCHARGE LIMITATIONS?)

A. Explain how use was verified & any needed changes:
The only P+E wash done on site is from washdown of the transfer station and yard equipment; no excess usage noted during inspection;

15. BASED ON OBSERVATIONS DURING INSPECTION, DOES COMPANY APPEAR TO HAVE SOME WATER THAT IS NOT DISCHARGED TO SEWER? Yes☒ No☐

If yes: A. Describe: Dust control for the dirt roads;

B. Was "Return Factor Program" brochure given to company? Yes☒ No☐
(regardless of whether some water is not discharged to sewer)

16. HAS COMPANY BEEN GRANTED A VARIANCE FROM DISCHARGE LIMITATIONS CONTAINED IN THE SEWER USE ORDINANCE? Yes☒ No☐

If yes: A. Pollutant(s) and variance limit: Phenolics (12.6#/day), Oil/grease (total 800 mg/L, HC 100 mg/L); Arsenic (0.722#/day), iron (270#/day), mercury (0.018 #/day), zinc (5.414 mg/L); all mass based limits based upon 216K gpd flow;

B. Latest approval date: Phenolics (06/18/13); Oil/grease (07/09/13); Arsenic, iron, mercury + zinc (05/29/13)

C. Is the approved variance more than 5 years old? Yes☐ No☒
(If yes to C, a new variance must be requested – write company)

17. HAVE ANY NUMERICAL LIMITATIONS BEEN APPLIED TO COMPANY, IN ADDITION TO THOSE ALREADY CONTAINED IN THE SEWER USE ORDINANCE? Yes☐ No☒

If yes: A. Pollutant(s) and discharge limit: _____

B. Date originally applied: _____, or as part of variance above? ☐

18. HAS COMPANY EXCEEDED ORDINANCE DISCHARGE LIMITS SINCE LAST INSPECTION OR WITHIN THE LAST 12 MONTHS (if last insp <12 months ago)? Yes☒ No☒

If yes: A.

Pollutant	When	Sample Points	Is problem resolved? Y/N	Describe
Oil/grease	05/07/13, 05/08/13, 05/10/13, 05/12/13;	See next	Yes	SP007 and various batches hauled to BPSTP; See Q. 16
pH	05/10/13, 05/08/13, 09/25/13	See next	Yes	SP007 and various batches hauled to BPSTP;
Lead	01/04/14	007	Yes	See Q.16
Iron	08/16/13	007	Yes	See Q.16
Benzene (fume tox)	11/08/13	007	Yes	Aeration has proven effective to remove this pollutant

B. Comments: _____

19. HAS COMPANY EXCEEDED CATEGORICAL PRETREATMENT LIMITS SINCE THE LAST INSPECTION OR WITHIN LAST 12 MONTHS (if last insp <12 months ago)? NA☒ Yes☐ No☐

If yes: A.

Pollutant	When	Sample Points	Is problem resolved? Y/N	Describe
			N/A	
			N/A	
			N/A	
			N/A	
			N/A	

B. Comments: _____

20. HAVE THERE BEEN ANY PROBLEM DISCHARGES SINCE LAST INSPECTION? Yes☒ No☐

If yes: A. Upsets? ☐ Bypasses of pretreatment facilities? ☐
Spills? ☒ Slug discharges? ☐ Other? _____

B. Explain any marked: 12/12/13 and 02/07/14 leachate spillage due to broken hose/valves; all contained and cleaned up to MoDNR specs;

21. COULD SPILLS OR LEAKS OF ANY PROCESS TANKS, OR STORAGE TANKS, OR STORED WASTES, OR STORED CHEMICALS EASILY REACH SANITARY SEWERS OR STORM DRAINS? Yes☐ No☒

If yes: A. What needs to be done?

_____

If no: B. How are they controlled?
New leachate collection and treatment system is built in containment; Diesel AST is contained;

22. BASED ON OBSERVATIONS DURING INSPECTION, ARE THERE ANY AREAS WHERE COMPANY ACTIVITIES APPEAR TO IMPAIR STORMWATER RUNOFF? Yes☐ No☒

If yes: A. Describe: Storm runoff is regulated via NPDES Permit at multiple outfalls around the property;

B. What needs to be done? _____

C. Was "Illicit Stormwater Discharges" brochure given to company? Yes☒ No☐
(regardless of whether there are any problem areas)

23. DOES COMPANY HAVE ANY WRITTEN SLUG DISCHARGE CONTROL (INCLUDES SPILLS) PLANS [40CFR403.8(f)(2)(vi)]? Yes☒ No☐

If yes: A.

	Title (actual title, NOT "SPCCP")	Last Update
1.	Spill and Slug Control Plan for Bridgeton Leachate Pretreatment Plant	7/1/14
2.		

B. Were Plans reviewed for completeness, especially regarding batch discharges/slugs and Q.19/20/21? Yes☒ No☐
(must be done)

C. Are updates needed to existing Plans? (If yes, write company & require) Yes☐ No☒

D. Are any Plans needed (either in addition to those listed in Part A, or if there currently are no written control plans)? (If yes, write company & require) Yes☐ No☒

E. Explain why/why not for C or D: Treatment system and storage tanks are contained; heavy equipment and dirt will allow them to contain any volume discharged on site;

24. DOES COMPANY HAVE ANY MAINTENANCE SHOP PARTS WASHERS? Yes☒ No☐

If yes: A. Parts washer solvent name: Mineral spirits

B. Priority pollutants (or "none"): Typically BTEX

C. How is spent solvent disposed? Hauled

(These solvents are not included in database's priority pollutants list, nor monitored for unless conditions show potential discharges)

25. ARE ANY ORGANICS OR SOLVENTS USED (OTHER THAN IN PARTS WASHERS)? Yes☒ No☐

If yes: A. Solvent name/ components

Solvent name/ components	Used for?	413/433/469 Process?	How disposed?	Priority Pollutant?
Diesel (500 gallon double wall AST) (BTEX and naphthalene);	Fuel	Yes☐ No☒	Burned as fuel	Yes☒ No☐
		Yes☐ No☐		Yes☐ No☐
		Yes☐ No☐		Yes☐ No☐
		Yes☐ No☐		Yes☐ No☐
		Yes☐ No☐		Yes☐ No☐
		Yes☐ No☐		Yes☐ No☐

26. DOES COMPANY HAVE A 413/433/469-REGULATORY "SOLVENT MANAGEMENT PLAN"? Yes☐ No☒
(Applies if co. has 413/433/469 processes, whether or not solvents used)

If yes:
- A. Is it part of a Spill/Slug Control Plan listed above? Yes[1.☐ 2.☐] No☐
- B. If no to A, date of last update for SMP: _____
- C. Is there a copy of the Spill/Slug Plan or SMP in the files? Yes☐ No☐
- D. Does SMP address all 413/433/469 solvents? (or verify "none" ☐) Yes☐ No☐
  (If no to C or D, write company and require submittal and/or update)

27. ARE EMERGENCY NOTIFICATION PROCEDURES POSTED THAT INCLUDE MSD CONTACTS? Yes☒ No☐
- A. Was company provided notification cards & told to post where emergency response personnel can locate them? Yes☒ No☐
  (Must post if company generates process wastewater or stores chemicals of concern)

28. IS COMPANY REQUIRED TO SELF-MONITOR ANY OF THEIR DISCHARGES? Yes☒ No☐

If yes:
- A. Is requirement contained in permit ☒ or other document ☐.
- B. If other document, date & description: _____
- C. How frequently is sampling required? Quarterly
- D. How frequently are reports required? Quarterly
- E. Have reports been on-time, complete & signed by proper person? Yes☒ No☐
- F. If no, explain: _____

29. DOES COMPANY SELF-MONITOR ITS WASTEWATER DISCHARGE? Yes☒ No☐

If yes:
- A. Does sample collection time period match co's production shifts? Yes☒ No☐
- B. Are representative grab/comp samples collected? Yes☒ No☐
- C. Are EPA-approved 40 CFR 136 wastewater test methods used? Yes☒ No☐
- D. Does company measure pH and/or temperature itself? Yes☐ No☒

If yes: E. Have the company show equipment and procedure (meters, calibration stds, etc.). Is measurement performed properly? Yes☐ No☐

F. If no to A,B,C, or E, explain needed changes: On site analytical work is done in a mobile lab and conducted by an outside lab contractor;

30. DOES COMPANY CONTINUOUSLY MONITOR AT SAMPLE POINT AND KEEP A PERMANENT RECORD FOR: pH ☐, TEMP ☐, LEL ☐? Yes☐ No☒

If yes:
- A. At which SPs? _____
- B. Does company submit quarterly summaries? Yes☐ No☐
- C. If no, explain: _____

31. DOES MSD SPLIT SAMPLES WITH THE COMPANY? Yes☐ No☒

If yes: A. Is company having the samples analyzed Yes☐ No☐

B. How does company insure proper preservation, holding times & analytical methods?

_____

C. Has company submitted results of all split sample analyses since the last insp? Yes☐ No☐

D. Have results been submitted within 28 days of the collection's calendar quarter? Yes☐ No☐

E. If no to C, or D, explain: _____

F. Does company still want to split samples? Yes☐ No☐

G. Comments: _____

32. IS COMPANY REQUIRED TO REGULARLY SUBMIT ANY REPORTS OTHER THAN SELF-MONITORING REPORTS? Yes☒ No☐

If yes: A. Is requirement contained in permit ☐ or other document ☒.

B. If other document, date & description: 'MSD Terms for Special Discharge Approval of Hauled Waste Discharge to our Bissell Point Wastewater Treatment Plant' 04/24/13;

C. What is required to be reported? Weekly submission of daily flow reports and analytical results; Schedule for installation of PT system and forcemain construction;

D. How frequently are reports required? Various time frames

E. Have reports been on-time, complete & signed by proper person? Yes☒ No☐

F. If no, explain: MSD Admin Order of 10/29/12 considered completed per email of 02/20/14

33. IS COMPANY UNDER ANY ENVIRONMENTAL ENFORCEMENT ORDERS OR REQUIREMENTS TO SUBMIT COMPLIANCE SCHEDULE REPORTS? Yes☐ No☒

If yes: A. Type and date: _____

B. Have the reports & actions been on-time & complete? Yes☐ No☐

C. If no, explain: _____

34. ASK COMPANY: IS COMPANY IN COMPLIANCE W/APPLICABLE NESHAP REGULATIONS FOR WW DISCHARGES? Yes☒ No☐

[To see if 40CFR63 applies to MSD plant, per §§63.1580(b) & 63.1582(a). Some MDNR-issued Title V air permits for specific processes allow pre-approved WW discharge. City/County-issued air permits are not NESHAP permits.]

If no: A. Describe: Not subject to NESHAP regs but they do have a Title V air permit because of the generation of methane and their thermal oxidation flares on site;

B. Was MDNR Air Pollution Control informed? (must be done) Yes☐ No☐

35. DOES COMPANY RETAIN ALL WASTEWATER RECORDS FOR AT LEAST 5 YEARS? Yes☒ No☐

If no: A. How long does company retain records? _____

B. Was company told to retain for at least 5 years, per ordinance? Yes☐ No☐

C. Where are they kept? In contact's office files;

36. IS COMPANY CLASSIFIED AS A SIGNIFICANT INDUSTRIAL USER (SIU)? Yes☒ No☐

If yes: A. Check & explain applicable criteria:

☐ Process subject to categorical stds under 40 CFR 403.6. Which cat. stds? _____

☒ Process discharge => 25,000 GPD Total process volume: Currently, 28 tankers for a total of 210K gpd;

☐ Process discharge => 5% of TP ADW hydraulic capacity TP ADW hydraulic capacity: _____. Percent: _____

☐ Process discharge => 5% of TP ADW organic capacity Which organic pollutant? _____

TP ADW organic capacity: _____. Percent: _____

☒ Reasonable potential for adverse effect on operations Why? Older/closed landfills received various types of undocumented wastes and have unpredictable pollutants in leachate;

☐ Reasonable potential for violating PT std or req't Which ones & why? _____

B. Does company own its bldg (is it listed as the owner in E-CIS)? Yes☒ No☐

If no: C. What is Bldg owner name (use DBA if avail.)? _____
(check E-CIS CAPS Customer Info)

D: What is Bldg owner mailing address? _____
(check E-CIS CAPS Customer Info)

37. DO MSD CLASSIFICATIONS NEED TO BE REVISED? Yes☐ No☒

If yes: A. Indicate correct classifications:

SIU ☐ Non-Significant CIU ☐ CIU ☐ Surcharge ☐ Non-Toxic Process Water/Wastes ☐

Toxics-Bearing Waste ☐ No Process Discharge ☐ Multi-User ☐ Special Handling/Billing ☐

B. Explain changes: _____

38. IS COMPANY CLASSIFIED AS "Multi-User"? Yes☐ No☒

If yes: A. Is company's discharge segregated from other tenants' discharge? Yes☐ No☐

B. If no to A, does the company own the bldg/receive the MSD bills? Yes☐ No☐

C. If yes to B, was company informed it is responsible for total discharge, or else must provide segregated sample points? Yes☐ No☐

D. If no to B, are any Process/P&E Wash-type wastes discharged? Yes☐ No☐

E. If yes to D, are the wastes completely innocuous? Yes☐ No☐

(And explain why/why not: _____)

F. If yes to D, and no to E, company must accept responsibility or provide segregated SP.

Acceptance letter date: _____ Or write company with requirement ☐

G. If no to D or yes to E, are limits "alert only" on PIMS? Yes☐ No☐

H. Comments: _____

39. IS COMPANY CLASSIFIED AS "Special Handling/Billing"? Yes☒ No☐

If yes: A. Why? Billing is based upon the amount of leachate discharged/hauled from the landfill;

B. Are any changes needed to reasons/details? Yes☐ No☒

C. If yes, explain: _____

D. Were company records reviewed & verified for special handling/billing reports? NA☐ Yes☐ No☒

40. SAMPLE POINTS

						DJ(y/n)
SP #	008	Fed.Reg.		Components:	Leachate, P+E washdown from transfer station and yard equipment * No discharge since 011/10/13	No
SP #	007	Fed.Reg.		Components:	Same as 008 * No discharge since 11/10/13	No
SP #		Fed.Reg.		Components:		N/A
SP #		Fed.Reg.		Components:		N/A
SP #		Fed.Reg.		Components:		N/A

41. ARE ANY SAMPLE POINTS TRAPPED VENTS? Yes☐ No☒

If yes: A. List SPs: _____

B. Was co. informed that T-vents are preferred, and told why? Yes☐ No☐

42. ARE DISCHARGES AT ANY SPs SMALL/IRREGULAR ENOUGH TO ALLOW GRAB SAMPLES? Yes☐ No☒

If yes: A. List SPs and reasons: _____

43. ARE THERE ANY UNSAMPLED DISCHARGES? (list each lateral separately) Yes☒ No☐

Dummy SP #		Components:	Sanitary from the remaining tenant is collected for hauling;
Dummy SP #		Components:	

If yes: A. Was company informed that SPs may be required in the future if the discharges change? Yes☐ No☐

B. Are all unsampled discharges very low flow and/or innocuous? Yes☐ No☐

C. If No to B, explain:_____

(Must also write company and require installation of SP)

44. DO ANY SAMPLE POINTS (including Unsampled/Dummy SPs) RECEIVE STORMWATER? Yes☒ No☐

If yes: A. List Sample Points: Yes, indirectly through leachate collection; new membrane cover is designed to preclude precipitation from entering the landfill, but a percentage does percolate into the landfill and becomes leachate;

45. WERE ALL SAMPLE POINTS (except Dummy SPs) OPENED & INSPECTED? No SPs☐ Yes☐ No☒

A. If any SPs cannot be located or opened, explain: SPs are not being used because no discharge is occurring from landfill to local sewers; new SP will have to be added once PT and forcemain begin to tranfer leachate; see comments;

B. If any SP descript's need to be changed, explain: _____

C. Was ANY grease or other problem/debris observed in any SP? Yes☐ No☐

D. If yes to C, list SPs & describe: _____

E. If yes to C, was company directed to take corrective actions? Yes☐ No☐

46. REVIEW THE SAMPLE POINT MAP! Last map revision date: 6/28/12

A. Is the map correct and accurate in all its details? Yes☒ No☐

B If no, what changes are needed: New SP will need to be designated; see comments;

47. DO INSTRUCTIONS FOR "Contact Prior to Sampling" or FIELD VISIT "Special Instructions" NEED REVISION? Yes☐ No☒

If yes: A. List needed changes: _____

USE THIS SPACE FOR ANY OTHER COMMENTS/OBSERVATIONS PERTINENT TO YOUR INSPECTION OF THIS SITE.

- Most of the fuel for the various activities on site is supplied by fuel truck;
- All of the businesses that leased space at the base of the landfill have vacated except for Simpson Asphalt - sanitary collected for hauling;
- Once the PT system, new pump station and forcemain are finished, we will have to set a new SP, which will be called 013; PT for that point will be : Equalization, aeration, pH adjustment, flocculation, clarification, activated sludge biological treatment, ultrafiltration, filter press; The system will have 4-1 million gallon tanks and the 316K gallon tank; Sludge from clarification will be 'thickened' with polymer and will be pressed to remove excess liquid that will be directed back to the head of the PT system;
- Most of the 'frac' tanks have been removed from the site, because 3 of the 4 - 1million gallon tanks are present;
- On the day of inspection, the PT system had been substantially completed, and they were planning on beginning the process of growing their bacteria 'biomass' for use in the activated sludge biological treatment step of the PT system; they estimated that the start up of the plant would take a month to work out; the system could be operable by mid-August and will hopefully yield a better quality leachate that will not have discharge limitations on timing of loads as we currently have; They will still have to haul the leachate until the forcemain is completed in November or December of this year, but the treatment plant will not need 1/2 hour between discharges to be able to treat the high oxygen demand;
- The forcemain will have options to direct flow to 3 plants; Mo River, Coldwater Creek and Bissell Point;
- As stated on the last inspection, a 'blank' is installed to disallow any discharge to the Westlake Pump Station from the original 97K AST;

METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL DATA SHEET - FACILITY INFORMATION

INDUSTRY NAME **BRIDGETON LANDFILL LLC**
PRIMARY MSD ACCOUNT NO. **1003803000**

Premise Address 13570 St. Charles Rock Road
Bridgeton MO. 63044

INDUSTRIAL USER CLASSIFICATIONS

03/06/1997	SIU
03/06/1997	TOX
01/19/2006	SPEC

WUNNENBERG INFO.

Base Map 10O3
Wun: St. Louis City & Co.
Grid: W 09 Page 7

SIU CRITERIA

PR25 Process Disch => 25,000 GPD
POTM Reasonable potential for adverse effect on

GENERAL INFORMATION

Office Mailing Address
13570 St. Charles Rock Road
Bridgeton, MO. 63044

Billing Address
13570 St. Charles Rock Road
Bridgeton, MO. 63044

INSPECTION INFORMATION

Next Due 06/30/2014
Insp Rslt
06/24/2014 RIN Tom Boehm

PERMIT INFORMATION

Issue Date: 12/01/2010
Expire Date: 11/30/2015
Extended Date: 04/30/2014
Writer Mark Montague
Issue Date: 05/31/2014
Expire Date: 12/31/2014
Extended Date:
Writer Doug Mendoza

IUQ INFORMATION

IUQ Recvd Date: 06/12/2000
Reviewer: Fabian Grabski
IUQ Recvd Date: 06/06/2005
Reviewer: Martin Blecha
IUQ Recvd Date: 05/30/2014
Reviewer: Douglas Mendoza
IUQ Recvd Date: 04/27/2010
Reviewer: Tom Boehm

CONTACTS

BILL	Brian Power	Environmental Manager	CELL	(615) 238-5813 Ext.
	Brian Power	Environmental Manager	OFF	(314) 744-8165 Ext.
FLD1	Brian Power	Environmental Manager	OFF	(314) 744-8190 Ext.
	Brian Power	Environmental Manager	CELL	(314) 443-0179 Ext.
FLD2	Derek Bouchard	Environmental Specialist	OFF	(314) 744-8190 Ext.
FLD3	Russell Anderson	Area Environmental Manager	CELL	(314) 922-3949 Ext.
	Russell Anderson	Area Environmental Manager	OFF	(314) 744-8195 Ext.
OFF1	Brian Power	Environmental Manager	OFF	(314) 744-8165 Ext.
	Brian Power	Environmental Manager	CELL	(615) 238-5813 Ext.
OFF2	Derek Bouchard	Environmental Specialist	OFF	(314) 744-8190 Ext.
OFF3	Russell Anderson	Area Environmental Manager	CELL	(314) 922-3949 Ext.
	Russell Anderson	Area Environmental Manager	OFF	(314) 744-8195 Ext.

OPERATIONAL INFORMATION

Work Days: 7

				S	M	T	W	T	F	S
1	9	06:00AM	10.0	N	Y	Y	Y	Y	Y	N
2	2	06:00PM	10.0	N	Y	Y	Y	Y	Y	N
3	0	00:00AM		N	N	N	N	N	N	N

Total Emp: 11 **Hrs:** 20.0

OTHER AGENCIES INFORMATION

11/28/1996	MDNR - Hazardous Waste Program	00925
06/29/1997	MDNR - Water Pollution Control Program	MO-0112771
06/30/1997	EPA - Hazardous Waste Program	MO-D980741805
09/28/2005	MSD - Billing Account Number	00039145

NON-SEWERED WASTE

On-Site Storage **On-Site Disposal** **Off-Site Disposal**

COMMENTS

RAW MATERIALS

EFF DATE	MATERIAL_DESCRIPTION	QUANTITY	UNIT

SIC INFORMATION

SIC	DESCRIPTION
4953	Refuse Systems

PRODUCTS

EFF DATE	DESCRIPTION	UNIT	AVG_PROD	MAX_PROD
05/07/2004	Closed lanfill			

Report No. PIMS012A 07/07/2014 3:27:04 pm
Data Date & Time: 07/07/2014 3:27:04 pm

METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL DATA SHEET - FACILITY INFORMATION

INDUSTRY NAME **BRIDGETON LANDFILL LLC**
PRIMARY MSD ACCOUNT NO. **1003803000**

Premise Address 13570 St. Charles Rock Road
Bridgeton MO. 63044

SEWER ACCOUNTS

Sewer Accounts
1003803000

WATER CONSUMPTION AND WASTEWATER DISCHARGE

Start Date = 07/01/2012 12:00:00AM **End Date =** 12/31/2014 12:59:59PM **Wdays** **Cdays**

Acct. No.			Consumption					Discharge	
1003803000			**CCF's**	**Gallons**				**Gal/ Wday**	**Gal/ Cday**
1003803000	06/14/2012	07/12/2012	2,012	2,012	A	29	29	29	
1003803000	07/13/2012	08/13/2012	2,837	4,849		32	32	61	
1003803000	08/14/2012	09/13/2012	2,653	7,502		31	31	92	
1003803000	09/14/2012	10/11/2012	2,163	9,665		28	28	120	
1003803000	10/12/2012	11/09/2012	955	10,620		29	29	149	
1003803000	11/10/2012	12/11/2012	450	11,070		32	32	181	
1003803000	12/12/2012	01/10/2013	308	11,378		30	30	211	
1003803000	01/11/2013	02/11/2013	408	11,786		32	32	243	
1003803000	02/12/2013	03/11/2013	397	12,183		28	28	271	
1003803000	03/12/2013	04/09/2013	708	12,891		29	29	300	
1003803000	04/10/2013	05/14/2013	99	12,990		35	35	335	
1003803000	05/15/2013	09/18/2013	139	13,129		127	127	462	
1003803000	09/19/2013	10/10/2013	124	13,253		22	22	484	
1003803000	10/11/2013	11/20/2013	131	13,384		41	41	525	
1003803000	11/21/2013	12/20/2013	114	13,498		30	30	555	
1003803000	12/21/2013	01/21/2014	668	14,166		32	32	587	
1003803000	01/22/2014	02/13/2014	124	14,290		23	23	610	
1003803000	02/14/2014	03/10/2014	114	14,404		25	25	635	
1003803000	03/11/2014	04/10/2014	126	14,530		31	31	666	
1003803000	04/11/2014	05/09/2014	117	14,647		29	29	695	
RF	1.00	**Acct. Total**	14,647	10,956,718		695	695	15,765	15,765
		Facility Total	14,647						

CONNECTION and SAMPLE POINT INFORMATION

LATERAL NO.	**Lateral Type**	**DSMH**	**Treatment Area**	Missouri River
01	Sanitary Or Combined	10O3 014S	**Trunk Sewer**	20 - Bonfils Pump Station

Description Leachate Pump Vault SW to MSD Westlink Pump Station

Sewer Route S to Westlink Pump Station # 811, S to Bonfils Trunk to FM East to POTW

SAMPLE POINT NO. 007 Ordinance **NPDES Outfall No.**

Description 14" pipe into Westake Pump Station Wetwell, on S side

Discharge Components	**Process Description**	**Avg Flow**	**Unit**	**Max Flow**	**Unit**	**RUD**	**Effective Date**
Plant & Equipment Washdown	Transfer station	2,000	Gal/Wk	2,000	Gal/Wk	D	4/28/10
Landfill Leachate	Same waste that flows through SP008	215,696	GPD		GPD	D	4/28/10
	Total Flow Avg =	**217,696**		**Max =**	**2,000**		

SAMPLE POINT NO. 008 Ordinance **NPDES Outfall No.**

Description 1/2" flexible sampling hose 5' above grade off of an 8" discharge pipe on N side of AST

Discharge Components	**Process Description**	**Avg Flow**	**Unit**	**Max Flow**	**Unit**	**RUD**	**Effective Date**
Plant & Equipment Washdown	Transfer Station	2,000	Gal/Wk	2,000	Gal/Wk	D	4/28/10
Landfill Leachate		215,696	GPD		GPD	D	4/28/10
	Total Flow Avg =	**217,696**		**Max =**	**2,000**		

PRETREATMENT TYPES

SP	EFF DATE	TYPE	DESCRIPTION
007	05/18/2009	DC1	Aeration
008	05/18/2009	DC1	Aeration

Report No. PIMS012A 07/07/2014 3:27:04 pm
Data Date & Time: 07/07/2014 3:27:04 pm

METROPOLITAN ST. LOUIS SEWER DISTRICT
INDUSTRIAL DATA SHEET - FACILITY INFORMATION

INDUSTRY NAME **BRIDGETON LANDFILL LLC**
PRIMARY MSD ACCOUNT NO. **1003803000**

Premise Address 13570 St. Charles Rock Road
Bridgeton MO. 63044

PRIORITY POLLUTANTS

Pollutant Description	Status	Pollutant Description	Status	Pollutant Description	Status
Cyanide (Total)	SP	Asbestos (Fibrous)	SP	Antimony (Total)	SP
Silver (Total)	SP	Selenium (Total)	SP	Copper (Total)	KP
Cadmium (Total)	SP	Beryllium (Total)	SP	Zinc (Total)	KP
Thallium (Total)	SP	Nickel (Total)	KP	Mercury (Total)	SP
Lead (Total)	KP	Chromium (Total)	KP	Arsenic (Total)	KP
Toluene	SP	Chlorobenzene	KP	Benzene	SP
Naphthalene	KP	Ethylbenzene	KP		

EXTRA STRENGTH SURCHARGE INFORMATION

Report No. PIMS012A 07/07/2014 3:27:04 pm
Data Date & Time: 07/07/2014 3:27:04 pm

PIMS FACILITY CONTACTS

For Account Number Selected **1003803000** **BRIDGETON LANDFILL LLC**
Located at 13570 St. Charles Rock Road
Bridgeton MO 63044

Address Type / Contact Type	Contact Name	Contact Title	Email	Signatory	Phone Type	Number	Ext.
Billing Address							
Billing Contact	Brian Power	Environmental Manager		Y	CELL	(615)238-5813	
Billing Contact	Brian Power	Environmental Manager		Y	OFF	(314)744-8165	
Office Mailing Address							
Office Contact - Primary	Brian Power	Environmental Manager		Y	CELL	(615)238-5813	
Office Contact - Primary	Brian Power	Environmental Manager		Y	OFF	(314)744-8165	
Office Contact 1st Alt	Derek Bouchard	Environmental Specialist		Y	OFF	(314)744-8190	
Office Contact 2nd Alt	Russell Anderson	Area Environmental Manager		Y	CELL	(314)922-3949	
Office Contact 2nd Alt	Russell Anderson	Area Environmental Manager		Y	OFF	(314)744-8195	
Premise Address							
Field Contact - Primary	Brian Power	Environmental Manager		Y	CELL	(314)443-0179	
Field Contact - Primary	Brian Power	Environmental Manager		Y	OFF	(314)744-8190	
Field Contact 1st Alt	Derek Bouchard	Environmental Specialist		Y	OFF	(314)744-8190	
Field Contact 2nd Alt	Russell Anderson	Area Environmental Manager		Y	CELL	(314)922-3949	
Field Contact 2nd Alt	Russell Anderson	Area Environmental Manager		Y	OFF	(314)744-8195	

PIMS
REPORT OF FIELD SAMPLING REQUIREMENTS
BRIDGETON LANDFILL LLC

Account No Entered **1003803000**

SPN	PREMISE ADDRESS	CITY	ST	ZIP
	13570 St. Charles Rock Road	Bridgeton	MO	63044

007 Project Code: IM = IPD - Company - MSD

Pollutant Group	Poll Code	Pollutant Description	Frequency	Sample Type	End Date
	T205000	Ammonia (as N)	Once/3 mo	Grab	09/30/2014
	T208000	Biochemical Oxygen Demand (5 Day)	Once/3 mo	Comp-Time 04 Hrs	09/30/2014
	T213000	Chemical Oxygen Demand	Once/3 mo	Comp-Time 04 Hrs	09/30/2014
	T234000	Oil and Grease (Total)	Once/3 mo	Grab	09/30/2014
	T237000	pH	Once/3 mo	Grab	09/30/2014
	T247000	Temperature	Once/3 mo	Grab	09/30/2014
	T256000	Total Suspended Solids	Once/3 mo	Comp-Time 04 Hrs	09/30/2014
	T257000	Total Phenols	Once/3 mo	Grab	09/30/2014
	T304000	Antimony (Total)	Once/3 mo	Comp-Time 04 Hrs	09/30/2014
	T306000	Arsenic (Total)	Once/3 mo	Comp-Time 04 Hrs	09/30/2014
	T317000	Beryllium (Total)	Once/3 mo	Comp-Time 04 Hrs	09/30/2014
	T327000	Cadmium (Total)	Once/3 mo	Comp-Time 04 Hrs	09/30/2014
	T335000	Chromium (Total)	Once/3 mo	Comp-Time 04 Hrs	09/30/2014
	T339000	Copper (Total)	Once/3 mo	Comp-Time 04 Hrs	09/30/2014
	T340000	Cyanide Amenable to Chlorination	Once/3 mo	Grab	09/30/2014
	T368000	Lead (Total)	Once/3 mo	Comp-Time 04 Hrs	09/30/2014
	T370000	Mercury (Total)	Once/3 mo	Comp-Time 04 Hrs	09/30/2014
	T377000	Nickel (Total)	Once/3 mo	Comp-Time 04 Hrs	09/30/2014
	T391000	Selenium (Total)	Once/3 mo	Comp-Time 04 Hrs	09/30/2014
	T393000	Silver (Total)	Once/3 mo	Comp-Time 04 Hrs	09/30/2014
	T396000	Thallium (Total)	Once/3 mo	Comp-Time 04 Hrs	09/30/2014
	T403000	Zinc (Total)	Once/3 mo	Comp-Time 04 Hrs	09/30/2014
Phenolic Organics - Acids	T991000	Phenolic Organics - Acids	Once/3 mo	Grab	09/30/2014
PCBs	T992000	PCBs	Once/year	Comp-Time 04 Hrs	03/31/2015
Semi-Volatile Organics - Base/Neutrals	T994000	Semi-Volatile Organics - Base/Neutrals	Once/year	Comp-Time 04 Hrs	03/31/2015
Volatile Organics	T996000	Volatile Orgs-not incl Acro/Acryl & 2-chloroethyl	Once/year	Grab	03/31/2015

Doug Mendoza

From: Cynthia Chalk
Sent: Tuesday, June 24, 2014 12:39 PM
To: Doug Mendoza
Cc: Brian G. Gibson; Theresa Bellville; Laura Weber; Laura Joiner
Subject: Bridgeton Landfill - Acct. #0039145-8
Attachments: SKMBT_C45414062411460.pdf

Doug,

Attached is a copy of the Bridgeton Landfill check #7113786 for $1,354,449.96. Once the check post the account will have a $0 balance.

Thanks for your help.

Cynthia Chalk
Senior Account Associate
Accounts Receivable Division
Metropolitan St. Louis Sewer District
Ph 314-768-2759
Fx 314-768-2761
cchalk@stlmsd.com

REPUBLIC SERVICES, INC.

No. 7113786
Check Date: 6/23/14
Vendor Number: 548912

METROPOLITAN ST. LOUIS SEWER D, 2350 MARKET ST, ATTN CASHIER, SAINT LOUIS MO 63103-2555

INVOICE	DATE	DESCRIPTION	GROSS AMOUNT	DISCOUNT	NET AMOUNT
0039145-8 040414	04/04/2014	2250494 PO4152765	$468,567.04	$0.00	$468,567.04
0039145-8 042414	04/24/2014	2250517 PO4152765	$449,007.09	$0.00	$449,007.09
0039145-8 052714	05/27/2014	2250579 PO4152765	$436,875.83	$0.00	$436,875.83
OTV METROPOLITAN ST. LOUIS SEWER DISTRICT ATTN: CYNTHIA CHALK 2350 MARKET ST. ST LOUIS, MO 63103 USE FEDEX ACCT# 314118707					
		TOTALS:	$1,354,449.96	$0.00	$1,354,449.96

Detach at Perforation Before Depositing Check

Page 1 of 1

THIS IS A WATERMARKED PAPER - DO NOT ACCEPT WITHOUT NOTING WATERMARK - HOLD TO LIGHT TO VERIFY WATERMARK

REPUBLIC SERVICES, INC.
C/O AWIN MGMT INC
C/O ALLIED WASTE SERVICES
18500 N. ALLIED WAY
PHOENIX, AZ 85054

BANK OF AMERICA
52-153-112

Check Date	Number
06/23/2014	7113786

PAY *One Million Three Hundred Fifty Four Thousand Four Hundred Forty Nine and 96/100 Dollars*

Amount
$ *1,354,449.96

Void After 180 Days

PAY TO THE ORDER OF
METROPOLITAN ST. LOUIS SEWER D
2350 MARKET ST
ATTN CASHIER
SAINT LOUIS MO 63103-2555

Security Features Included. Details on back.

⑈0007113786⑈ ⑆011201539⑆ 8023100 0⑈

Pw

Doug Mendoza

From: Martin Blecha
Sent: Sunday, June 22, 2014 11:10 AM
To: Catherine Politte; Mike Townley; Doug Mendoza; Steve Grace; Brian G. Gibson
Cc: John Lodderhose; Martin Blecha; Buffy Santel
Subject: Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 06/15/2014 to 06/21/2014.

Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 06/15/2014 to 06/21/2014.

6/15 –202,500 gallons
6/16 –210,000 gallons
6/17 –210,000 gallons
6/18 –142,500 gallons
6/19 –210,000 gallons
6/20 –210,000 gallons
6/21– 210,000 gallons
Total = 1,395,000 gallons

Martin J. Blecha
Metropolitan St. Louis Sewer District
Environmental Engineering Associate
10 E. Grand Ave.
St. Louis, MO. 63147-2913.
Office Phone (314)-436-8718

Doug Mendoza

From: Sehie, Bryan <BSehie@republicservices.com>
Sent: Friday, June 20, 2014 6:00 PM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

Doug,
I'm sorry, I told you the check was coming Monday. It looks like Tuesday now. There was a delay between requesting the check here in St. Louis to getting it approved and entered into the checking system in Phoenix and we missed the window for cutting the check today. It should cut Monday at the latest and FedEx overnight to Cynthia Chalk by Tuesday morning. Have a great weekend!

Thanks,
Bryan

Bryan Sehie | Environmental Specialist | Republic Services, Inc.

13570 St. Charles Rock Rd. | Bridgeton, MO 63044

☎ 314.744.8190 314.443.0179

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Friday, June 20, 2014 1:55 PM
To: Sehie, Bryan
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

Bryan,

Please send it to:

Cynthia Chalk
Account Associate Senior
METROPOLITAN ST. LOUIS SEWER DISTRICT
2350 Market St.
St. Louis, MO 63103

---Doug

From: Sehie, Bryan [mailto:BSehie@republicservices.com]
Sent: Friday, June 20, 2014 1:51 PM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

Doug,
We are going to FedEx the check for the three invoices that we have received today so that they will arrive on Monday. Should we send to the regular address on the statment or is there someone else that they should go to in order to expedite receiving?

Doug Mendoza

From: Joe Pavlich
Sent: Friday, June 20, 2014 2:40 PM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: Bridgeton Landfill reading

Doug, the reading for Bridgeton Landfill on 6/20/14 @ 13:40 was 2026994 with 0 gals. per hr. discharge.

Dm

Doug Mendoza

From: Sehie, Bryan <BSehie@republicservices.com>
Sent: Friday, June 20, 2014 2:03 PM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

Thank you. You will have full payment Monday.

Thanks,
Bryan

Bryan Sehie | Environmental Specialist | Republic Services, Inc.

13570 St. Charles Rock Rd. | Bridgeton, MO 63044

☎ 314.744.8190 314.443.0179

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Friday, June 20, 2014 1:55 PM
To: Sehie, Bryan
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

Bryan,

Please send it to:

Cynthia Chalk
Account Associate Senior
METROPOLITAN ST. LOUIS SEWER DISTRICT
2350 Market St.
St. Louis, MO 63103

---Doug

From: Sehie, Bryan [mailto:BSehie@republicservices.com]
Sent: Friday, June 20, 2014 1:51 PM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

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Thanks,
Bryan

Doug Mendoza

From: Doug Mendoza
Sent: Friday, June 20, 2014 1:55 PM
To: 'Sehie, Bryan'
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

Bryan,

Please send it to:

Cynthia Chalk
Account Associate Senior
METROPOLITAN ST. LOUIS SEWER DISTRICT
2350 Market St.
St. Louis, MO 63103

---Doug

From: Sehie, Bryan [mailto:BSehie@republicservices.com]
Sent: Friday, June 20, 2014 1:51 PM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

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Thanks,
Bryan

Bryan Sehie | Environmental Specialist | Republic Services, Inc.

13570 St. Charles Rock Rd. | Bridgeton, MO 63044

☎ 314.744.8190 314.443.0179

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Friday, June 20, 2014 12:59 PM
To: Sehie, Bryan
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

Okay, it took a bit, but I changed the calculations so that they would include the total hours as well as the total dollars.

From: Sehie, Bryan [mailto:BSehie@republicservices.com]
Sent: Friday, June 20, 2014 9:52 AM
To: Doug Mendoza

D2

Doug Mendoza

From: Sehie, Bryan <BSehie@republicservices.com>
Sent: Friday, June 20, 2014 1:51 PM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

Doug,
We are going to FedEx the check for the three invoices that we have received today so that they will arrive on Monday. Should we send to the regular address on the statment or is there someone else that they should go to in order to expedite receiving?
Thanks,
Bryan

Bryan Sehie | Environmental Specialist | Republic Services, Inc.

13570 St. Charles Rock Rd. | Bridgeton, MO 63044

☎ 314.744.8190 314.443.0179

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Friday, June 20, 2014 12:59 PM
To: Sehie, Bryan
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

Okay, it took a bit, but I changed the calculations so that they would include the total hours as well as the total dollars.

From: Sehie, Bryan [mailto:BSehie@republicservices.com]
Sent: Friday, June 20, 2014 9:52 AM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

Thanks Doug, I understand that it is complicated with all the variations in personnel hours/rates. I do not need that much detail for backup. Would it be difficult to provide as you said below "47 hours regular pay, and 193 hours overtime pay?" That would be perfect, along with the wastewater user charge billing document below for each month. Please let me know if that is possible.
Thanks,
Bryan

Bryan Sehie | Environmental Specialist | Republic Services, Inc.

13570 St. Charles Rock Rd. | Bridgeton, MO 63044

☎ 314.744.8190 314.443.0179

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Friday, June 20, 2014 7:23 AM
To: Sehie, Bryan

Doug Mendoza

From: Merrigan, Jessie (LG) <JMerrigan@LATHROPGAGE.COM>
Sent: Friday, June 20, 2014 1:29 PM
To: Doug Mendoza
Cc: John Lodderhose
Subject: RE: Past due bill for Bridgeton Landfill & possible loss of hauling privileges

Hi Doug,

Following back up on this, both Brian and Bryan have updated me on their conversations with you, the updates they provided and next steps. It sounded to me like they provided you with the information you need and this is progressing, but if there is any further follow up I am happy to help.

Just didn't want you to think I had forgotten about all those extra emails I promised you in my first email below ☺

Thanks for your continued assistance,
Jessie

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Thursday, June 19, 2014 3:05 PM
To: Merrigan, Jessie; Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)
Cc: John Lodderhose; Brian G. Gibson; Cynthia Chalk; Sehie, Bryan
Subject: RE: Past due bill for Bridgeton Landfill & possible loss of hauling privileges

Thanks for the update, Jessie. I happened to be on the telephone with Bryan Sehie when the email came. He had called to explain how Bridgeton Landfill's side worked re. the payments. He also asked how to streamline the process, since the mailed bill from MSD does not provide much details on the breakdown of billing charges. We will begin sending Bryan a copy of the information that my group provides to MSD's Accounts Receivable Division, at the same time we send it to MSD's Accounts Receivable Division. This will help Bryan in his efforts to better explain to Bridgeton Landfill/Republic Services corporate offices what the payment request is for.

Sincerely,
Doug Mendoza
MSD Industrial Pretreatment Manager

From: Merrigan, Jessie (LG) [mailto:JMerrigan@LATHROPGAGE.COM]
Sent: Thursday, June 19, 2014 2:46 PM
To: Doug Mendoza; Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)
Cc: John Lodderhose; Brian G. Gibson; Cynthia Chalk; Sehie, Bryan
Subject: RE: Past due bill for Bridgeton Landfill & possible loss of hauling privileges

Good afternoon Doug,

I wanted to follow up on your email to confirm that we are actively working on this. Unfortunately Republic's payment systems have been down since yesterday, so I cannot yet get you full confirmation of when payment will be received. But our team is doing everything possible to ensure that payments can issue as soon as the system comes back up.

Doug Mendoza

From: Doug Mendoza
Sent: Friday, June 20, 2014 12:59 PM
To: 'Sehie, Bryan'
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

Okay, it took a bit, but I changed the calculations so that they would include the total hours as well as the total dollars.

From: Sehie, Bryan [mailto:BSehie@republicservices.com]
Sent: Friday, June 20, 2014 9:52 AM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

Thanks Doug, I understand that it is complicated with all the variations in personnel hours/rates. I do not need that much detail for backup. Would it be difficult to provide as you said below "47 hours regular pay, and 193 hours overtime pay?" That would be perfect, along with the wastewater user charge billing document below for each month. Please let me know if that is possible.
Thanks,
Bryan

Bryan Sehie | Environmental Specialist | Republic Services, Inc.

13570 St. Charles Rock Rd. | Bridgeton, MO 63044

☎ 314.744.8190 314.443.0179

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Friday, June 20, 2014 7:23 AM
To: Sehie, Bryan
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

The calculations for costs are set up so that dollar amounts are summed to give a monthly total, rather than hours. This is because we have several different levels of employees that have to be utilized to provide the coverage, all with different pay scales. In addition, the calculation of regular pay vs. overtime pay is complicated because some employees are on flex schedules vs. regular schedules (which affects how many hours must be worked before OT kicks in), and some employees work OT for other reasons (which means that OT may kick in immediately for the hauled waste coverage). Finally, MSD is obligated to pay the employees for the total hours scheduled, as long as the employee mans the station. Some employees choose to stay for the entire schedule time, after your trucks have finished hauling for the day, while others will leave immediately. Please remember also that the labor fee is only for hours covered outside of regular hauled waste station operating hours. Regular operating hours are M-F, 7 am – 3 pm.

Having said all that, I was able to go back to the source data and determine the hours for April. They are 47 hours regular pay, and 193 hours overtime pay. However, it is not something that I can do on a regular basis.

Doug

Doug Mendoza Bridgeton Landfill

From: Power, Brian <BPower@republicservices.com>
Sent: Friday, June 20, 2014 11:25 AM
To: Doug Mendoza
Subject: FW: Work Begins on Underground Sewer Line Extension to the Metropolitan St. Louis Sewer District

Doug,

Please see the below press release.

Call me with any questions.

Sincerely,

Brian J. Power
Environmental Manager
Bridgeton Landfill, LLC.
13570 Saint Charles Rock Road
Bridgeton, MO 63044

Phone: (618) 410-0157
Email: bpower@republicservices.com

From: Communications Bridgeton Landfill
Sent: Friday, June 20, 2014 11:23 AM
To: Power, Brian
Subject: Work Begins on Underground Sewer Line Extension to the Metropolitan St. Louis Sewer District

REPUBLIC SERVICES | *Your information source for the Bridgeton Landfill*

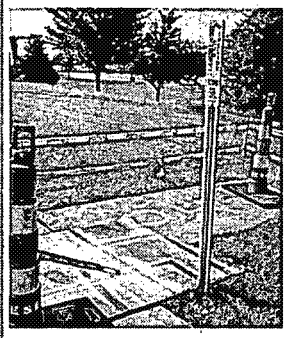
Work Begins on Underground Sewer Line Extension to the Metropolitan St. Louis Sewer District

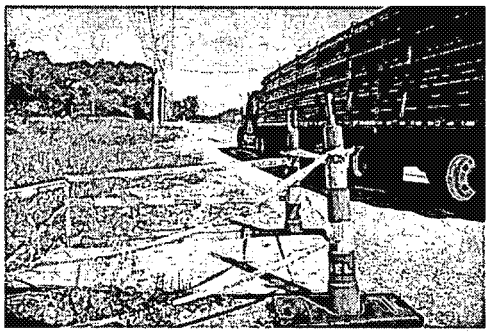
BRIDGETON, MO (June 20, 2014): The Bridgeton Landfill team announced today that work has begun to extend an existing underground sewer line from the Landfill to the Metropolitan St. Louis Sewer District, the latest in site improvements that have vastly reduced odors to date. The underground sewer line extension will connect with an existing line leading to the Bissell Point Wastewater Treatment Plant, and will benefit District capabilities by creating more options when deciding where to route pretreated Landfill waste water for final treatment. Construction will be funded entirely by the Landfill, and will be led by a local contractor and involve local labor.

The new infrastructure is expected to eliminate a possible odor source created when leachate is loaded from pretreatment tanks into transport trucks for delivery to off-site treatment facilities. The Landfill team currently deploys more than 30 fully loaded transport trucks per day carrying leachate from the site to area treatment facilities. Once complete, the underground sewer line extension will have the added safety benefit of eliminating the need for more than 200 trips on local roads by transport trucks each week.

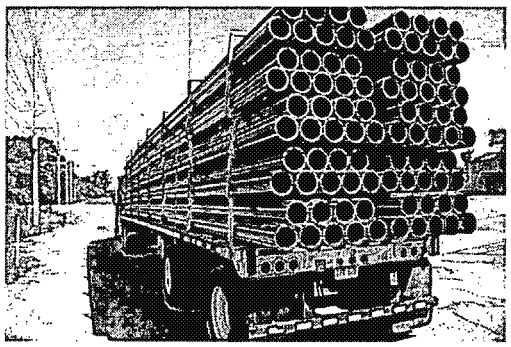
The underground sewer line extension will connect with and support the highly advanced leachate pretreatment plant currently under construction, which will run leachate through a sophisticated pretreatment process prior to approved discharge to the District force main. Construction of the pretreatment plant has been fast-tracked, and is expected to be complete later this summer. Work on the sewer line extension is expected to be complete by the winter.

The following images capture the early stages of work on the project:

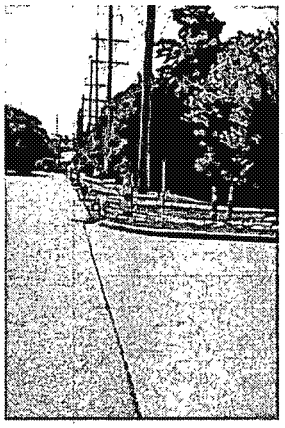




Work to access the utility corridor along Old St. Charles Rock Road / Boenker Lane.
Photo by Jim Human, June 17, 2014.



Piping that will be used to construct the sewer extension line.
Photo by Jim Human, June 17, 2014.



Markings of the planned route along Old St. Charles Rock Road / Boenker Lane.
Photo by Jim Human, June 17, 2014.

Construction Progress This Week

The Landfill team also provided an update today on ongoing construction at the leachate pretreatment plant. Work this week included pouring concrete around the pretreatment building, setting heat exchangers to be used in the pretreatment process, testing components of the plant, adding openings to the top of pretreatment tanks, and installing odor-control ductwork. The team also collected, processed and arranged for the approved disposal of 1,522,500 gallons of leachate. Next week, construction plans include continued work on the final stages of the pretreatment plant, removal of infrastructure associated with the temporary pretreatment system, and continued growth of plant-based "biomass" to be used in a series of new 1-million-gallon pretreatment tanks to consume various constituents in leachate.

###

Republic Services | Bridgeton Landfill | 855-807-2387 | www.BridgetonLandfill.com |
13570 St. Charles Rock Road | Bridgeton | Missouri | 63044

Click here to unsubscribe.

Doug Mendoza

From: Sehie, Bryan <BSehie@republicservices.com>
Sent: Friday, June 20, 2014 9:52 AM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

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Thanks,
Bryan

Bryan Sehie | Environmental Specialist | Republic Services, Inc.

13570 St. Charles Rock Rd. | Bridgeton, MO 63044

☎ 314.744.8190 314.443.0179

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Friday, June 20, 2014 7:23 AM
To: Sehie, Bryan
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

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Doug

From: Sehie, Bryan [mailto:BSehie@republicservices.com]
Sent: Thursday, June 19, 2014 4:31 PM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

Thank you Doug, this will be helpful. Is there any more detail on the DEC fee (amount of hours reg/ot?)
Thanks,
Bryan

Doug Mendoza

From: Doug Mendoza
Sent: Friday, June 20, 2014 9:19 AM
To: Cynthia Chalk
Cc: Brian G. Gibson; John Lodderhose
Subject: Bridgeton Landfill promise to pay bill

FYI. Please let me or Brian Gibson know if you do not receive payment.

---Doug

From: Power, Brian [mailto:BPower@republicservices.com]
Sent: Friday, June 20, 2014 9:14 AM
To: Doug Mendoza
Subject: FW: Planned Email Newsletter on Sewer Line

Doug,

As I discussed with you this morning, you should expect payment for the two invoices this coming Monday.

[Note – remainder of original email removed, since it did not deal with payment issue – Doug]

Doug Mendoza Bridgeton Landfill

From: Power, Brian <BPower@republicservices.com>
Sent: Friday, June 20, 2014 9:14 AM
To: Doug Mendoza
Subject: FW: Planned Email Newsletter on Sewer Line

Doug,

As I discussed with you this morning, you should expect payment for the two invoices this coming Monday. Also, below is a DRAFT copy of the press release that will be released today.

Please feel free to contact me with any questions you may have.

Sincerely,

Brian Power
618-410-0157

Work Begins on Next Odor Reduction Project

Landfill Team to Extend Existing Underground Sewer Line to the Metropolitan St. Louis Sewer District

BRIDGETON, MO (June 20, 2014): The Bridgeton Landfill team announced today that work has begun to extend an existing underground sewer line from the Landfill to the Metropolitan St. Louis Sewer District. The underground sewer line extension will connect with an existing line leading to the Bissell Point Wastewater Treatment Plant, and will update District capabilities by creating more options when deciding where to route Landfill waste water for treatment. Construction will be funded entirely by the Landfill, and will be led by a local contractor and involve local labor.

The new infrastructure is expected to eliminate a possible odor source created when leachate is loaded from pretreatment tanks into transport trucks for delivery to off-site treatment facilities. The Landfill team currently deploys more than 30 fully loaded transport trucks per day carrying leachate from the site to area treatment facilities. Once complete, the underground sewer line extension will have the added safety benefit of eliminating the need for more than 200 trips on local roads by transport trucks each week.

The underground sewer line extension is the latest odor reduction project at the site. It will connect with and support the highly advanced leachate pretreatment plant, which is using microorganisms known as biomass to consume certain constituents in leachate. Construction of the pretreatment plant has been fast-tracked, and is expected to be complete later this summer. Work on the sewer line extension is expected to be complete by the winter.

The following images capture the early stages of work on the project:

- ? Images 1 & 2: Work to access the utility corridor along Old St. Charles Rock Road / Boenker Lane. *Photo by Jim Human, June 17, 2014.*
- ? Image 3: Piping that will be used to construct the sewer extension line. *Photo by Jim Human, June 17, 2014.*
- ? Image 4: Markings of the planned route along Old St. Charles Rock Road / Boenker Lane. *Photo by Jim Human, June 17, 2014.*

Construction Progress This Week

The Landfill team also provided an update today on ongoing construction at the leachate pretreatment plant. Work this week included A, B & C. The team also collected, processed and arranged for the approved disposal of X gallons of leachate.

Next week, construction plans include A, B & C.

Doug Mendoza

From: Doug Mendoza
Sent: Friday, June 20, 2014 7:23 AM
To: 'Sehie, Bryan'
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

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Doug

From: Sehie, Bryan [mailto:BSehie@republicservices.com]
Sent: Thursday, June 19, 2014 4:31 PM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

Thank you Doug, this will be helpful. Is there any more detail on the DEC fee (amount of hours reg/ot?)
Thanks,
Bryan

Bryan Sehie | Environmental Specialist | Republic Services, Inc.

13570 St. Charles Rock Rd. | Bridgeton, MO 63044

☎ 314.744.8190 314.443.0179

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Thursday, June 19, 2014 3:07 PM
To: Sehie, Bryan
Cc: Brian G. Gibson
Subject: FW: Bridgeton Landfill LLC April 2014.doc

Bryan,

Here is the memo for April that we sent to our Finance Department. I have asked Brian to send this to you each month at the same time we send it to Finance.

DM

Doug Mendoza

From: Power, Brian <BPower@republicservices.com>
Sent: Thursday, June 19, 2014 5:31 PM
To: Doug Mendoza; Greco, Patty; Hargrove, Amy
Cc: John Lodderhose; Brian G. Gibson; Cynthia Chalk; Sehie, Bryan
Subject: RE: Past due bill for Bridgeton Landfill & possible loss of hauling privileges

Hi Doug,

Sorry for the confusion with payment, It seems that Bryan called to discuss with you the issues we have been dealing with here. He also explained to me the process to streamline the billing approach to ensure that we get the information we need for payment and that we can get you paid in a very timely manner. Right now we are experiencing accounting software issues and will get you paid as soon as possible. I will follow up with you in the morning when I find out the date on when you can expect payment.

Sorry for the confusion and please feel free to call me if you have any questions or issues.

Sincerely,

Brian Power
618-410-0157

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Thursday, June 19, 2014 3:05 PM
To: 'Merrigan, Jessie (LG)'; Power, Brian
Cc: John Lodderhose; Brian G. Gibson; Cynthia Chalk; Sehie, Bryan
Subject: RE: Past due bill for Bridgeton Landfill & possible loss of hauling privileges

Thanks for the update, Jessie. I happened to be on the telephone with Bryan Sehie when the email came. He had called to explain how Bridgeton Landfill's side worked re. the payments. He also asked how to streamline the process, since the mailed bill from MSD does not provide much details on the breakdown of billing charges. We will begin sending Bryan a copy of the information that my group provides to MSD's Accounts Receivable Division, at the same time we send it to MSD's Accounts Receivable Division. This will help Bryan in his efforts to better explain to Bridgeton Landfill/Republic Services corporate offices what the payment request is for.

Sincerely,
Doug Mendoza
MSD Industrial Pretreatment Manager

From: Merrigan, Jessie (LG) [mailto:JMerrigan@LATHROPGAGE.COM]
Sent: Thursday, June 19, 2014 2:46 PM
To: Doug Mendoza; Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)
Cc: John Lodderhose; Brian G. Gibson; Cynthia Chalk; Sehie, Bryan
Subject: RE: Past due bill for Bridgeton Landfill & possible loss of hauling privileges

Good afternoon Doug,

I wanted to follow up on your email to confirm that we are actively working on this. Unfortunately Republic's payment systems have been down since yesterday, so I cannot yet get you full confirmation of when payment will be

Doug Mendoza

From: Sehie, Bryan <BSehie@republicservices.com>
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To: Doug Mendoza
Cc: Brian G. Gibson
Subject: RE: Bridgeton Landfill LLC April 2014.doc

Thank you Doug, this will be helpful. Is there any more detail on the DEC fee (amount of hours reg/ot?)
Thanks,
Bryan

Bryan Sehie | Environmental Specialist | Republic Services, Inc.

13570 St. Charles Rock Rd. | Bridgeton, MO 63044

☎ 314.744.8190 314.443.0179

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Thursday, June 19, 2014 3:07 PM
To: Sehie, Bryan
Cc: Brian G. Gibson
Subject: FW: Bridgeton Landfill LLC April 2014.doc

Bryan,

Here is the memo for April that we sent to our Finance Department. I have asked Brian to send this to you each month at the same time we send it to Finance.

From: Rebecca Vitelli
Sent: Wednesday, May 21, 2014 10:48 AM
To: Chris VerPlancke; Cynthia Chalk
Cc: Brian G. Gibson; Doug Mendoza; Laura Joiner; Catherine Politte; Keidra King; Margie Irvin
Subject: Bridgeton Landfill LLC April 2014.doc

TO: **Chris Verplancke, Finance Department**
Cynthia Chalk, Finance Department

FROM: **Brian Gibson**

DATE: **May 21, 2014**

SUBJECT: **BRIDGETON LANDFILL LLC**
WASTEWATER USER CHARGE BILLING
ACCOUNT NUMBER 0039145-8

Pursuant to the MSD Industrial Wastewater Discharge Permit for the above referenced facility, please bill this facility for the following charges for the indicated billing period:

VOLUME
On-Site Discharge

Doug Mendoza

From: Merrigan, Jessie (LG) <JMerrigan@LATHROPGAGE.COM>
Sent: Thursday, June 19, 2014 3:06 PM
To: Doug Mendoza; Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)
Cc: John Lodderhose; Brian G. Gibson; Cynthia Chalk; Sehie, Bryan
Subject: RE: Past due bill for Bridgeton Landfill & possible loss of hauling privileges

Thank you, Doug. That will be really helpful. We will continue to work to move these payments forward and keep you updated.

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Thursday, June 19, 2014 3:05 PM
To: Merrigan, Jessie; Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)
Cc: John Lodderhose; Brian G. Gibson; Cynthia Chalk; Sehie, Bryan
Subject: RE: Past due bill for Bridgeton Landfill & possible loss of hauling privileges

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Sincerely,
Doug Mendoza
MSD Industrial Pretreatment Manager

From: Merrigan, Jessie (LG) [mailto:JMerrigan@LATHROPGAGE.COM]
Sent: Thursday, June 19, 2014 2:46 PM
To: Doug Mendoza; Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)
Cc: John Lodderhose; Brian G. Gibson; Cynthia Chalk; Sehie, Bryan
Subject: RE: Past due bill for Bridgeton Landfill & possible loss of hauling privileges

Good afternoon Doug,

I wanted to follow up on your email to confirm that we are actively working on this. Unfortunately Republic's payment systems have been down since yesterday, so I cannot yet get you full confirmation of when payment will be received. But our team is doing everything possible to ensure that payments can issue as soon as the system comes back up.

Please know that we value MSD's partnership and want to ensure we are promptly processing and submitting payments. Obviously the scope of services is more than for a typical commercial customer and the companies systems require a specific accounting of the types of charges – volume, surcharges, manpower reimbursement associated with the lift station, etc. If there is any way we can work with your invoicing team to try to get a billing system set up that helps facilitate all that information being compiled for the invoice more quickly, that would help speed up the payment time by reducing the processing time that is spent following up for information after an invoice is issued. Please let me

Doug Mendoza

From: Doug Mendoza
Sent: Thursday, June 19, 2014 3:07 PM
To: Sehie, Bryan
Cc: Brian G. Gibson
Subject: FW: Bridgeton Landfill LLC April 2014.doc

Bryan,

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Cc: Brian G. Gibson; Doug Mendoza; Laura Joiner; Catherine Politte; Keidra King; Margie Irvin
Subject: Bridgeton Landfill LLC April 2014.doc

TO: **Chris Verplancke, Finance Department**
Cynthia Chalk, Finance Department

FROM: **Brian Gibson**

DATE: **May 21, 2014**

SUBJECT: **BRIDGETON LANDFILL LLC**
WASTEWATER USER CHARGE BILLING
ACCOUNT NUMBER 0039145-8

Pursuant to the MSD Industrial Wastewater Discharge Permit for the above referenced facility, please bill this facility for the following charges for the indicated billing period:

VOLUME
On-Site Discharge

0 gallons discharged on-site

VOLUME
Hauled Waste Discharge

5,174,000 gallons X $0.08/Gal = $413,920.000

Department of Environmental Compliance (REG) labor fee is $1,919.75. Use Revenue Code "INFO" and utility type Q.
Budget code is 1101-08050-51011 so revenue will be credited back to Department of Environmental Compliance budget.

Department of Environmental Compliance (OT) labor fee is $11,315.87. Use Revenue Code "INFO" and utility type Q. Budget code is 1101-08050-51020 so revenue will be credited back to Department of Environmental Compliance budget.

Total Bill = $427,155.62

The volume was obtained from the customer's on-site discharge self-monitoring report and hauled waste total truck capacities.
SOURCE OF WASTE: SP 801 Commingled landfill leachate and landfill gas collection system condensate
BILLING PERIOD: April 1, 2014 through April 30, 2014.
Other applicable wastewater user charges, as per Ordinance 13402, should be included in this bill.
Please call me at 436-8784 if you have any questions.

bv

ec: Doug Mendoza
Laura Joiner
Cathy Politte
Keidra King
Margie Irvin

FILE: IU, Bridgeton Landfill LLC, 1003803000

Doug Mendoza

From: Doug Mendoza
Sent: Thursday, June 19, 2014 3:05 PM
To: 'Merrigan, Jessie (LG)'; Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)
Cc: John Lodderhose; Brian G. Gibson; Cynthia Chalk; Sehie, Bryan
Subject: RE: Past due bill for Bridgeton Landfill & possible loss of hauling privileges

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Subject: RE: Past due bill for Bridgeton Landfill & possible loss of hauling privileges

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I wanted to follow up on your email to confirm that we are actively working on this. Unfortunately Republic's payment systems have been down since yesterday, so I cannot yet get you full confirmation of when payment will be received. But our team is doing everything possible to ensure that payments can issue as soon as the system comes back up.

Please know that we value MSD's partnership and want to ensure we are promptly processing and submitting payments. Obviously the scope of services is more than for a typical commercial customer and the companies systems require a specific accounting of the types of charges – volume, surcharges, manpower reimbursement associated with the lift station, etc. If there is any way we can work with your invoicing team to try to get a billing system set up that helps facilitate all that information being compiled for the invoice more quickly, that would help speed up the payment time by reducing the processing time that is spent following up for information after an invoice is issued. Please let me know if there is anything we can do to help facilitate that. We understand that it is of critical importance to MSD to be able to promptly recoup costs of this magnitude.

I will update you at the end of today and I will update you tomorrow morning and will continue providing updates as we work through the billing system issues until we have a check number and delivery expectation to provide to you.

Thank you for bringing this to our attention,
Jessie

Jessica E. Merrigan

Dl

Doug Mendoza

From: Merrigan, Jessie (LG) <JMerrigan@LATHROPGAGE.COM>
Sent: Thursday, June 19, 2014 2:46 PM
To: Doug Mendoza; Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)
Cc: John Lodderhose; Brian G. Gibson; Cynthia Chalk; Sehie, Bryan
Subject: RE: Past due bill for Bridgeton Landfill & possible loss of hauling privileges

Good afternoon Doug,

I wanted to follow up on your email to confirm that we are actively working on this. Unfortunately Republic's payment systems have been down since yesterday, so I cannot yet get you full confirmation of when payment will be received. But our team is doing everything possible to ensure that payments can issue as soon as the system comes back up.

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Thank you for bringing this to our attention,
Jessie

LATHROP & GAGE LLP
Jessica E. Merrigan
2345 Grand Boulevard; Suite 2200 | Kansas City, MO 64108
P: 816-460-5706 | F: 816-292-2001 | jmerrigan@lathropgage.com
www.lathropgage.com

Any U.S. federal tax advice contained in this communication (including any attachments or enclosures) was not intended or written by the author to be used, and cannot be used, for the purpose of (1) avoiding penalties that may be imposed on a taxpayer or (2) promoting, marketing, or recommending to another party any transaction or other matter addressed herein.

This e-mail (including any attachments) may contain material that (1) is confidential and for the sole use of the intended recipient, and (2) may be protected by the attorney-client privilege, attorney work product doctrine or

CB

Tom Boehm

From: Sehie, Bryan <BSehie@republicservices.com>
Sent: Thursday, June 19, 2014 2:10 PM
To: Tom Boehm; Power, Brian
Subject: RE: Facility Inspection

Bridgeton Landfill
1003 803000

Tom,
Brian will remain the Primary contact and site manager. Derek will be replacing my spot as the secondary contact and will be signing the majority of the documentation submitted to MSD going forward. Russell will be the third contact.
Thanks,
Bryan

Bryan Sehie | Environmental Specialist | Republic Services, Inc.

13570 St. Charles Rock Rd. | Bridgeton, MO 63044

☎ 314.744.8190 314.443.0179

From: Tom Boehm [mailto:TCBOEH@stlmsd.com]
Sent: Thursday, June 19, 2014 2:04 PM
To: Sehie, Bryan; Power, Brian
Subject: RE: Facility Inspection

Thanks Bryan. I also need to get following squared up. I sent this to Brian Power yesterday, and I realize you guys are getting squeezed from all sides, so a simple answer will suffice.

Question from yesterday's email.....

1) We rec'd a letter from Tim Trost authorizing Derek Bouchard as authorized signatory for documents. Where should he fall in the in the contact hierarchy?
   Currently, we have you (Brian Power), Bryan Sehie, and Russell Anderson as our contacts for the landfill.
   Could you clarify who should be 1st, 2nd, and 3rd contacts for us.

Thanks

Please call or write with any questions or comments.

Tom Boehm | Metropolitan St. Louis Sewer District | Engineering/Environmental Compliance | p. 314.436.8719 | f. 314.436.8753

From: Sehie, Bryan [mailto:BSehie@republicservices.com]
Sent: Thursday, June 19, 2014 10:19 AM

To: Tom Boehm; Power, Brian
Subject: RE: Facility Inspection

Hi Tom,

Sorry if I never got back to you about this. Looks like per Brian's conversation with Doug this morning that we ar set up for next Tuesday at 1:30pm. The plant will not be up and running at that time, but it is nearing completion. Sorry for the delay, look forward to seeing you again.

Thanks,

Bryan

Bryan Sehie | Environmental Specialist | Republic Services, Inc.

13570 St. Charles Rock Rd. | Bridgeton, MO 63044

☎ 314.744.8190 314.443.0179

From: Tom Boehm [mailto:TCBOEH@stlmsd.com]
Sent: Thursday, May 01, 2014 2:26 PM
To: Sehie, Bryan; Power, Brian
Subject: Facility Inspection

Bryan and Brian:

Doug Mendoza and I have to get out to see you guys for our Annual Pretreatment Inspection (last time we were out for this type of visit was 03/28/13). Doug had your landfill scheduled for March, but wanted me to hold off until you guys get the pretreatment system up and running.

He asked that I email you guys to give you some notice. Please notify us when you have the PT system together and we can come out and see you for a couple of hours.

If we get toward the end of June and the system is not up, we still need to get out to see you by the end of our fiscal year, June 30.

If you have suggestions about the day/time that fits better w/ your schedules, fire off some options and I can coordinate with Doug to get out there.

Thanks

Please call or write with any questions or comments.

Tom Boehm | Metropolitan St. Louis Sewer District | Engineering/Environmental Compliance | p. 314.436.8719 | f. 314.436.8753

PL

Doug Mendoza

From: Merrigan, Jessie (LG) <JMerrigan@LATHROPGAGE.COM>
Sent: Thursday, June 19, 2014 9:58 AM
To: Doug Mendoza
Subject: Re: Past due bill for Bridgeton Landfill & possible loss of hauling privileges

I am looking into this right now.

On Jun 19, 2014, at 9:53 AM, "Doug Mendoza" <DMENDOZA@stlmsd.com> wrote:

> Jessie and Brian,
>
> I have been informed by MSD's Accounts Receivable Division that Bridgeton Landfill is in arrears on its account for the past two payments of $917,574.13, with a new bill being forwarded for a total of $1,354,449.96 – current charges of $429,646.41, past due total of $917,574.13, and late fees of $7,229.42. The last payment received from Bridgeton Landfill was April 10, 2014, and the oldest unpaid bill was due on April 24, 2014.
>
> MSD's representative said that she had spoken to Amy every week for the past few weeks and Amy had promised to pay on the account on Friday, June 6th for the past two payments ($917,574.13). For the last 1-1/2 weeks Amy was supposed to send an email with an exact total of promise to pay, which has not been received.
>
> As you have been previously informed during one of our regular technical issues meetings, when Bridgeton Landfill was also previously in arrears, MSD Ordinance No. 13701 (the Hauled Waste Ordinance) contains the following provision: When any bill rendered to a source of hauled waste...has not been paid and has been delinquent for more than fifteen (15) calendar days after the due date, then the District may refuse to accept any further waste discharges from that source.
>
> Please inform us, immediately, when payment (in full) will be made. Failure to make your account current on its charges in a timely fashion will result in loss of hauling privileges to MSD by Bridgeton Landfill.
>
> Sincerely,
> Doug Mendoza
> MSD Industrial Pretreatment Manager

Any U.S. federal tax advice contained in this communication (including any attachments or enclosures) was not intended or written by the author to be used, and cannot be used, for the purpose of (1) avoiding penalties that may be imposed on a taxpayer or (2) promoting, marketing, or recommending to another party any transaction or other matter addressed herein.

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DW

Doug Mendoza

From: Doug Mendoza
Sent: Thursday, June 19, 2014 9:54 AM
To: Jessie Merrigan (JMerrigan@LATHROPGAGE.COM); Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com)
Cc: John Lodderhose; Brian G. Gibson; Cynthia Chalk
Subject: Past due bill for Bridgeton Landfill & possible loss of hauling privileges

Importance: High

Jessie and Brian,

I have been informed by MSD's Accounts Receivable Division that Bridgeton Landfill is in arrears on its account for the past two payments of $917,574.13, with a new bill being forwarded for a total of $1,354,449.96 – current charges of $429,646.41, past due total of $917,574.13, and late fees of $7,229.42. The last payment received from Bridgeton Landfill was April 10, 2014, and the oldest unpaid bill was due on April 24, 2014.

MSD's representative said that she had spoken to Amy every week for the past few weeks and Amy had promised to pay on the account on Friday, June 6th for the past two payments ($917,574.13). For the last 1-1/2 weeks Amy was supposed to send an email with an exact total of promise to pay, which has not been received.

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Please inform us, immediately, when payment (in full) will be made. Failure to make your account current on its charges in a timely fashion will result in loss of hauling privileges to MSD by Bridgeton Landfill.

Sincerely,
Doug Mendoza
MSD Industrial Pretreatment Manager

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Wednesday, June 18, 2014 10:48 AM
To: 'Merrigan, Jessie (LG)'; Doug Mendoza; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; 'Bryan Sehie'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; "Theerman, Jeff' (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie E. Linscheid
Subject: Bridgeton Landfill Weekly Report

The materials for the previous week are now on Barr's ftp site.

As noted previously, we have been operating under Alternative 1 of the leachate management SOP, approved by MSD April 18, 2014. However, the site experienced a power surge early this morning that has effected a significant delay in the mobile lab's ability to analyze/report the benzene concentration in the material originally planned to be loaded from the 316 tank (Batch 316-334). Therefore, the facility we will be loading material from the T2 tank which already has an operational sample result (Batch CB 06-17-14 (non-detect benzene, MEK = 8,400 ppb)). This material was approved by MSD on Thursday 6/12 and the regular confirmatory sample will be taken prior to loading. Because the flow problems with Tank 2 still persist, the facility will go back to loading from the 316 Tank as soon as the lab recovers from the power surge and samples can be analyzed. They may happen today or tomorrow.

There was an adjustment on the daily flow reading at the lift station on 06/11/2014 of 16 gallons. The precautions previously described are taken to ensure that there was no actual flow to the lift station, including permanent lock-out of the manual valve on the 96K tank.

Discussion of Outliers - as noted in the June 4, 2014 update, we are reviewing all outlier data, defined as plus or minus one standard deviation from the average. While not a complete list of outliers, the following are noteworthy:

- VOCs, specifically 2-Hexanone, Acetone, MEK and MIBK have low outliers in CB samples from 6/7 to 6/12. This is because the material was diluted by the pump back of material from Tank 3, which was 83% tap water.
- Mercury – samples 316-324 and 316-325 show upward spikes. We do not have any newer sample results at this time to determine if this the beginning of a trend.
- Arsenic – sample 316-319 at 1.4 mg/l appears to be single high event.
- Antimony had a number of high outliers and is generally trending up although the highest recent spike of .150 mg/l is well below the district limit.
- Cadmium – we are beginning to see detections on a more regular basis now than in the past, however they are still well below district limits.
- TSS - sample 316-318 had a high outlier at 5500 mg/l
- There were a number of low outliers for Cobalt, Iron, Lead, and Selenium

Please let me know if you have any questions. Thank you.

Ed Galbraith

Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

resourceful. naturally. BARR

Bridgeton Landfill, LLC
Metropolitan St. Louis Sewer District
Weekly Disposal Summary

MSD - Bissell Point Tracking Table					
Date	Operational Batch	Delivered (gal) Per Batch	Delivered (gal) Daily Total	Truck Capacity (gal) Per Batch	Truck Capacity (gal) Daily Total
Sunday, June 8, 2014	Batch 316-323	45,000	210,000	45,000	210,000
	Batch 316-324	165,000		165,000	
Monday, June 9, 2014	Batch 316-324	45,000	210,000	45,000	210,000
	Batch 316-325	165,000		165,000	
Tuesday, June 10, 2014	Batch 316-325	45,000	210,000	45,000	210,000
	Batch 316-326	165,000		165,000	
Wednesday, June 11, 2014	Batch 316-326	45,000	210,000	45,000	210,000
	Batch 316-327	165,000		165,000	
Thursday, June 12, 2014	Batch 316-327	45,000	210,000	45,000	210,000
	Batch 316-328	165,000		165,000	
Friday, June 13, 2014	Batch 316-328	45,000	210,000	45,000	210,000
	Batch 316-329	165,000		165,000	
Saturday, June 14, 2014	Batch 316-329	45,000	210,000	45,000	210,000
	Batch 316-330	165,000		165,000	

Date	*6/8/2014 6:00*
Date	*6/15/2014 8:24*

MSD - Missouri River Tracking Table								
Date	Operational Batch Transferred into 97K AST	Gallons Delivered	Batch Start Date and Time	Batch End Date and Time	Interval Hours	Maximum Hourly Flow (gph)	Average Hourly Flow (gph)	97K AST pH Check
Sunday, June 8, 2014	NA	-	6/8/2014 6:00	6/9/2014 10:30	28.5	840	0.0	NA
Monday, June 9, 2014	NA	-	6/9/2014 10:30	6/10/2014 8:00	21.5	840	0.0	NA
Tuesday, June 10, 2014	NA	-	6/10/2014 8:00	6/11/2014 9:31	25.5	840	0.0	NA
Wednesday, June 11, 2014	NA	-	6/11/2014 9:31	6/12/2014 9:46	24.3	840	0.0	NA
Thursday, June 12, 2014	NA	-	6/12/2014 9:46	6/13/2014 10:03	24.3	840	0.0	NA
Friday, June 13, 2014	NA	-	6/13/2014 10:03	6/14/2014 8:39	22.6	840	0.0	NA
Saturday, June 14, 2014	NA	-	6/14/2014 8:39	6/15/2014 8:24	23.8	840	0.0	NA

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bowden Title: Env. Specialist Date: 6/17/14

Weekly Volume Summary - Week 60 (6-08-14 through 6-14-14).xlsx

MSD 029319

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/9/2014 10:30:00 AM	6/8/2014 6:00:00 AM	28.5 hours
Reading (Gallons):	2,026,978	2,026,978	0

Flow Meter Adjustment	
Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

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Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 6/17/14

MSD Daily Flow Reading, ending 6-09-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/10/2014 8:00:00 AM	6/9/2014 10:30:00 AM	21.5 hours
Reading (Gallons):	2,026,978	2,026,978	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

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Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env Specialist *Date:* 6/17/14

MSD Daily Flow Reading, ending 6-10-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/11/2014 9:31:00 AM	6/10/2014 8:00:00 AM	25.5 hours
Reading (Gallons):	2,026,994	2,026,978	16

Flow Meter Adjustment	
Reading Adjustment:	16
Flow During Adjustment:	0

Comments

Adjusted for phantom flow readings while valve was off.

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

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Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 6/17/14

MSD Daily Flow Reading, ending 6-11-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/12/2014 9:46:00 AM	6/11/2014 9:31:00 AM	24.3 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

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Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 6/17/14

MSD Daily Flow Reading, ending 6-12-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/13/2014 10:03:00 AM	6/12/2014 9:46:00 AM	24.3 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment	
Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

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Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 6/17/14

MSD Daily Flow Reading, ending 6-13-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/14/2014 8:39:00 AM	6/13/2014 10:03:00 AM	22.6 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

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Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 6/17/14

MSD Daily Flow Reading, ending 6-14-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/15/2014 8:24:00 AM	6/14/2014 8:39:00 AM	23.8 hours
Reading (Gallons):	2,026,994	2,026,994	0

Flow Meter Adjustment	
Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

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Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 6/17/14

MSD Daily Flow Reading, ending 6-15-2014

OB-316-323

Bridgeton Landfill

Fill Data

Fill Start Date	6/6/2014
Fill Start Time	18:40
Fill Stop Date	6/6/2014
Fill Stop Time	23:53
Process Battery	316 AST

Processing Data

Process Start Date	6/6/2014
Process Start Time	18:40
Process Stop Date	6/7/2014
Process Stop Time	05:00

Approval Data

Approval Details	NAL 13026-1487
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

fill height=21.1'

Monday, June 16, 2014

OB-316-324 Bridgeton Landfill

Fill Data

Fill Start Date	6/7/2014
Fill Start Time	19:40
Fill Stop Date	6/8/2014
Fill Stop Time	00:38
Process Battery	316 AST

Processing Data

Process Start Date	6/7/2014
Process Start Time	20:25
Process Stop Date	6/8/2014
Process Stop Time	05:00

Approval Data

Approval Details	NAL 13026-1489
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

fill height 20.9'

Monday, June 16, 2014

OB-316-325 Bridgeton Landfill

Fill Data

Fill Start Date	6/8/2014
Fill Start Time	18:40
Fill Stop Date	6/8/2014
Fill Stop Time	22:25
Process Battery	316 AST

Processing Data

Process Start Date	6/8/2014
Process Start Time	20:20
Process Stop Date	6/9/2014
Process Stop Time	05:00

Approval Data

Approval Details	NAL 13026-1491
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

fill height 18.2'

Monday, June 16, 2014

OB-316-326 Bridgeton Landfill

Fill Data

Fill Start Date	6/9/2014
Fill Start Time	18:39
Fill Stop Date	6/9/2014
Fill Stop Time	23:08
Process Battery	316 AST

Processing Data

Process Start Date	6/9/2014
Process Start Time	19:55
Process Stop Date	6/10/2014
Process Stop Time	05:00

Approval Data

Approval Details	NAL13026-1495
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK - 19,000, Filling Height - 18ft

Monday, June 16, 2014

OB-316-327 Bridgeton Landfill

Fill Data

Fill Start Date	6/10/2014
Fill Start Time	18:31
Fill Stop Date	6/10/2014
Fill Stop Time	22:51
Process Battery	316 AST

Processing Data

Process Start Date	6/10/2014
Process Start Time	19:16
Process Stop Date	6/11/2014
Process Stop Time	05:00

Approval Data

Approval Details	NAL13026-1497
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 20,000 ppb. Fill height = 19.06 ft, plus an additional 0.17 ft (2,200 gal) of rainwater added overnight.

Monday, June 16, 2014

OB-316-328 *Bridgeton Landfill*

Fill Data

Fill Start Date	6/11/2014
Fill Start Time	18:40
Fill Stop Date	6/11/2014
Fill Stop Time	22:40
Process Battery	316 AST

Processing Data

Process Start Date	6/11/2014
Process Start Time	19:21
Process Stop Date	6/12/2014
Process Stop Time	04:58

Approval Data

Approval Details	NAL13026-1500
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 20,000 ppb. Fill height = 18.22 ft.

Monday, June 16, 2014

OB-316-329 *Bridgeton Landfill*

Fill Data

Fill Start Date	6/12/2014
Fill Start Time	19:00
Fill Stop Date	6/13/2014
Fill Stop Time	00:03
Process Battery	316 AST

Processing Data

Process Start Date	6/12/2014
Process Start Time	19:58
Process Stop Date	6/13/2014
Process Stop Time	04:05

Approval Data

Approval Details	NAL13026-1502
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 27,000 ppb. Fill height = 21.10 ft.

Monday, June 16, 2014

OB-316-330 *Bridgeton Landfill*

Fill Data

Fill Start Date	6/13/2014
Fill Start Time	19:05
Fill Stop Date	6/13/2014
Fill Stop Time	23:48
Process Battery	316 AST

Processing Data

Process Start Date	6/13/2014
Process Start Time	19:40
Process Stop Date	6/14/2014
Process Stop Time	03:50

Approval Data

Approval Details	NAL13026-1506
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 21,000 ppb. Fill height = 20.99 ft.

Monday, June 16, 2014

Table 1
General Parameters and Metals
March - June 2014
Bridgeton Landfill

					Biochemical Oxygen Demand (5-day)	Chemical Oxygen Demand	Nitrogen, ammonia as N	Oil and Grease	Oil and Grease - Silica gel cleanup	pH, lab	pH, field
					NA	NA	NA	NA	NA	NA	NA
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	pH units	pH units
316-325	6/09/2014	Pace	Validated	60170944	33600	57600	615	969	9.1	5.4	5.65
316-324	6/08/2014	Pace	Validated	60170943	33500	58800	602	673	10.4	5.3	5.44
316-323	6/07/2014	Pace	Validated	60170941	36300 h	59700	627	939	9.6	5.4	5.48
316-322	6/06/2014	Pace	Validated	60170883	31700	48500	632	785	9.6	5.3	5.39
316-321	6/05/2014	Pace	Validated	60170803	32000	57300 *	657	1230	11.2	5.4	5.43
316-320	6/04/2014	Pace	Validated	60170631	33200	55900	660	1240	13.2 *	5.4	5.48
316-319	6/03/2014	Pace	Validated	60170509	32300	55300 *	674	890	15.7	5.4	5.46
316-318	6/02/2014	Pace	Validated	60170356	29200	55000	658	1430	7.0 *	5.4	5.50
316-317	6/01/2014	Pace	Validated	60170357	29300	52300	639	758	9.2 *	5.5	5.61
316-316	5/31/2014	Pace	Validated	60170355	37600	56100	607	1880	10.9	5.4	5.47
316-315	5/30/2014	Pace	Validated	60170311	31200	54200	651	1140	8.4	5.4	5.48

MSD 029335

Table 1
General Parameters and Metals
March - June 2014
Bridgeton Landfill

					Solids, total suspended	Aluminum	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Cobalt
					NA	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-325	6/09/2014	Pace	Validated	60170944	4760	8.38	0.128	1.12	ND	0.0273	0.26	0.0403
316-324	6/08/2014	Pace	Validated	60170943	4600	8.9	0.125	1.16	ND	0.0317	0.277	0.0413
316-323	6/07/2014	Pace	Validated	60170941	5460	6.12	0.12	1.11	ND	0.0295	0.25	0.0360
316-322	6/06/2014	Pace	Validated	60170883	5440	6.03	0.11	1.16	ND	0.0305	0.259	0.0392
316-321	6/05/2014	Pace	Validated	60170803	4720	7.82	0.119	1.2	ND	0.0288	0.267	0.0413
316-320	6/04/2014	Pace	Validated	60170631	5120	3.12	0.0988	1.13	ND	ND	0.21	0.0266
316-319	6/03/2014	Pace	Validated	60170509	4800	6.92	0.15	1.4	ND	0.0324	0.31	0.0390
316-318	6/02/2014	Pace	Validated	60170356	5500	6.9	ND	1.15	ND	ND	0.233	0.0351
316-317	6/01/2014	Pace	Validated	60170357	5320	4.77	ND	1.23	ND	ND	0.221	0.0345
316-316	5/31/2014	Pace	Validated	60170355	5420	7.79	ND	1.23	ND	ND	0.235	0.0386
316-315	5/30/2014	Pace	Validated	60170311	4860	4.32	ND	1.21	ND	ND	0.216	0.0341

MSD 029336

Table 1
General Parameters and Metals
March - June 2014
Bridgeton Landfill

					Copper	Iron	Lead	Mercury	Nickel	Selenium	Silver	Thallium
					Total	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-325	6/09/2014	Pace	Validated	60170944	ND	795	0.106	0.0960	0.126	ND	ND	ND
316-324	6/08/2014	Pace	Validated	60170943	ND	803	0.115	0.0588	0.132	ND	ND	ND
316-323	6/07/2014	Pace	Validated	60170941	ND	709	0.0882	0.0360	0.117	ND	ND	ND
316-322	6/06/2014	Pace	Validated	60170883	ND	688	0.0858	0.0215	0.131	ND	ND	ND
316-321	6/05/2014	Pace	Validated	60170803	ND	747	0.0949	ND	0.135	ND	ND	ND
316-320	6/04/2014	Pace	Validated	60170631	ND	417	0.0370	0.0168	0.111	ND	ND	ND
316-319	6/03/2014	Pace	Validated	60170509	ND	742	0.0770	0.0105	0.15	0.0780	ND	ND
316-318	6/02/2014	Pace	Validated	60170356	ND	580	0.0861	ND	0.131	ND	ND	ND
316-317	6/01/2014	Pace	Validated	60170357	0.0656	447	0.0570	ND	0.134	ND	ND	ND
316-316	5/31/2014	Pace	Validated	60170355	ND	647	0.0924	ND	0.138	ND	ND	ND
316-315	5/30/2014	Pace	Validated	60170311	ND	471	0.0592	ND	0.126	ND	ND	ND

MSD 029337

Table 1
General Parameters and Metals
March - June 2014
Bridgeton Landfill

					Zinc
					Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l
316-325	6/09/2014	Pace	Validated	60170944	5.42
316-324	6/08/2014	Pace	Validated	60170943	5.9
316-323	6/07/2014	Pace	Validated	60170941	5.87
316-322	6/06/2014	Pace	Validated	60170883	5.95
316-321	6/05/2014	Pace	Validated	60170803	5.29
316-320	6/04/2014	Pace	Validated	60170631	4.4
316-319	6/03/2014	Pace	Validated	60170509	5.43
316-318	6/02/2014	Pace	Validated	60170356	4.55
316-317	6/01/2014	Pace	Validated	60170357	4.87
316-316	5/31/2014	Pace	Validated	60170355	4.52
316-315	5/30/2014	Pace	Validated	60170311	4.97

Table 2
VOCs and SVOCs
March - June 2014
Bridgeton Landfill

					Benzene
Location	Date	Lab Name	Data Status	Lab Report	ug/l
316-325	6/09/2014	Pace	Validated	60170944	ND
316-324	6/08/2014	Pace	Validated	60170943	ND
316-323	6/07/2014	Pace	Validated	60170941	ND
316-322	6/06/2014	Pace	Validated	60170883	ND
316-321	6/05/2014	Pace	Validated	60170803	ND
316-320	6/04/2014	Pace	Validated	60170631	ND
316-319	6/03/2014	Pace	Validated	60170509	ND
316-318	6/02/2014	Pace	Validated	60170356	ND
316-317	6/01/2014	Pace	Validated	60170357	ND
316-316	5/31/2014	Pace	Validated	60170355	ND
316-315	5/30/2014	Pace	Validated	60170311	ND

2014

Bridgeton Landfill LLC
Monthly Leachate Outfall Report

6/16/2014 Filed in 15.4

10038030 00

JB 6-18

Month	Net Meter Reading	Precipitation Inches	Date of Reading	Gallons	Average Daily Discharge (Gal)	Equivalent Cubic Feet	Equivalent 100 Cubic Feet
January	1,842,366*	1.67	2/1/2014	153,280	4,945	20,491.98	204.92
February	1,842,366	1.48	3/1/2014	0	0	0.00	0.00
March	1,910,653*	1.55	3/31/2014	0	0	0.00	0.00
April	2,025,839*	8.38	5/1/2014	0	0	0.00	0.00
May	2,026,978*	3.98	6/1/2014	0	0	0.00	0.00
June							
July							
August							
September							
October							
November							
December							

Note:

*Due to Phantom Flow Readings at Flow Meter 184,612 gallons have been removed from flow total (see daily logs)

Discharge to MO River Plant ceased in February for UV disinfection period. Plan to resume on 11/1/14 if permitted.

RECEIVED
JUN 16 2014
DIVISION OF
ENVIRONMENTAL COMPLIANCE

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Thursday, June 12, 2014 8:46 AM
To: John Lodderhose; Doug Mendoza; Catherine Politte; Mike Townley
Cc: bpower@republicservices.com; bsehie@republicservices.com; Bouchard, Derek (DBouchard@republicservices.com); Aaron Karlas (akarlas@feezorengineering.com); Bill Abernathy (babernathy@feezorengineering.com); Ruocco, Ron (rruocco@cecinc.com); Kamp, Kevin; Dan Feezor (dfeezor@feezorengineering.com); Hunter King <hking@lbgkcmo.com> (hking@lbgkcmo.com); Martin Blecha
Subject: RE: Bridgeton Landfill Tank 3 Material

John, as always, thanks for your help. All of the other sampling and acceptance criteria in the SOP will be followed.

Ed Galbraith

Senior Environmental Scientist
Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

resourceful. naturally. BARR

From: John Lodderhose [mailto:JRLODD@stlmsd.com]
Sent: Thursday, June 12, 2014 8:40 AM
To: Ed Galbraith; Doug Mendoza; Catherine Politte; Mike Townley
Cc: bpower@republicservices.com; bsehie@republicservices.com; Bouchard, Derek (DBouchard@republicservices.com); Aaron Karlas (akarlas@feezorengineering.com); Bill Abernathy (babernathy@feezorengineering.com); Ruocco, Ron (rruocco@cecinc.com); Kamp, Kevin; Dan Feezor (dfeezor@feezorengineering.com); Hunter King <hking@lbgkcmo.com> (hking@lbgkcmo.com); Martin Blecha
Subject: RE: Bridgeton Landfill Tank 3 Material

Ed, we have reviewed the information that you provided below and we feel that it is acceptable to haul this wastewater to our Bissell Point Hauled Waste Receiving Station either directly from Tank 2 or blended in the 316 tank. The wastewater must meet all the other sampling and acceptance criteria prior to discharge (eg: benzene limit) and must not be considered to be a hazardous waste.

John R. Lodderhose, P.E.
Metropolitan St. Louis Sewer District
Assistant Director of Engineering
Environmental Compliance
314-436-8714

From: Ed Galbraith [mailto:EGalbraith@barr.com]
Sent: Wednesday, June 11, 2014 12:45 PM
To: John Lodderhose; Doug Mendoza; Catherine Politte; Mike Townley
Cc: bpower@republicservices.com; bsehie@republicservices.com; Bouchard, Derek (DBouchard@republicservices.com); Aaron Karlas (akarlas@feezorengineering.com); Bill Abernathy (babernathy@feezorengineering.com); Ruocco, Ron (rruocco@cecinc.com); Kamp, Kevin; Dan Feezor (dfeezor@feezorengineering.com); Hunter King <hking@lbgkcmo.com>

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Subject: Bridgeton Landfill Tank 3 Material

John, as we discussed on the phone, we need to alert you to a situation that may result in a minor deviation from the approved SOP. Under the current SOP (attached), Tank 2 and the 316 Tank are dedicated solely to air sparging and loading leachate to Bissell Point . Tank 3 is currently being used to culture bugs for the new pretreatment plant. Due to a heat condition created by the metabolic processes during culturing in Tank 3, 317,750 gallons were transferred from Tank 3 to Tank 2 on 6/6/2014. Since that time nothing from Tank 2 has been discharged to any MSD facility.

The contents of Tank 3, prior to transfer to Tank 2, were:

1. 132,000 gallons of treated leachate (air sparged);
2. 475 gallons of MicroC biological food supplement;
3. 500 lbs of B1650 bio-mass from Dynatec;
4. 250 gallons of phosphoric acid;
5. 200 gallons of 25% sodium hydroxide;
6. 100 gallons of defoamer; and
7. 642,000 gallons of tap water from Tank 4, rain water and wash down water.

So what we now have in Tank 2 is ~459,000 gallons of normal treated leachate plus the material from Tank 3 for a total of ~777,000 gallons in Tank 2. Test results from Tank 2 after the transfer show 35,000 ppm COD and 3600 ppm TSS (lab results attached).

While the material now in Tank 2 would appear to be more dilute than normal leachate, the current approved SOP does not address this particular condition. We are requesting consent from MSD to either bleed the current contents of Tank

Doug Mendoza

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Sent: Wednesday, June 11, 2014 12:45 PM
To: John Lodderhose; Doug Mendoza; Catherine Politte; Mike Townley
Cc: bpower@republicservices.com; bsehie@republicservices.com; Bouchard, Derek (DBouchard@republicservices.com); Aaron Karlas (akarlas@feezorengineering.com); Bill Abernathy (babernathy@feezorengineering.com); Ruocco, Ron (rruocco@cecinc.com); Kamp, Kevin; Dan Feezor (dfeezor@feezorengineering.com); Hunter King <hking@lbgkcmo.com> (hking@lbgkcmo.com)
Subject: Bridgeton Landfill Tank 3 Material
Attachments: Revised Leachate SOP 4-18-14 -Final.pdf; 4061092_10 PDC_1cert 06 06 14 1544.pdf

John, as we discussed on the phone, we need to alert you to a situation that may result in a minor deviation from the approved SOP. Under the current SOP (attached), Tank 2 and the 316 Tank are dedicated solely to air sparging and loading leachate to Bissell Point . Tank 3 is currently being used to culture bugs for the new pretreatment plant. Due to a heat condition created by the metabolic processes during culturing in Tank 3, 317,750 gallons were transferred from Tank 3 to Tank 2 on 6/6/2014. Since that time nothing from Tank 2 has been discharged to any MSD facility.

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While the material now in Tank 2 would appear to be more dilute than normal leachate, the current approved SOP does not address this particular condition. We are requesting consent from MSD to either bleed the current contents of Tank 2 into the 316 tank and/or load material directly from Tank 2 into trucks for Bissell Point. We will follow the normal benzene and confirmation sampling requirements of the SOP for this material.

Please let me know if you have any questions. Thanks again for your assistance.

Ed Galbraith

Senior Environmental Scientist
Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

resourceful. naturally. BARR

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Wednesday, June 11, 2014 8:26 AM
To: 'Merrigan, Jessie (LG)'; Doug Mendoza; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; 'Bryan Sehie'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; "Theerman, Jeff' (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie E. Linscheid; Ed Galbraith
Subject: RE: Bridgeton Landfill Weekly Report

The materials for the previous week are now on Barr's ftp site.

As noted previously, we are continuing to operate under Alternative 1 of the leachate management SOP, approved by MSD April 18, 2014.

Thank you.

Ed Galbraith

Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

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Bridgeton Landfill, LLC
Metropolitan St. Louis Sewer District
Weekly Disposal Summary

MSD - Bissell Point Tracking Table

Date	Operational Batch	Delivered (gal) Per Batch	Delivered (gal) Daily Total	Truck Capacity (gal) Per Batch	Truck Capacity (gal) Daily Total
Sunday, June 1, 2014	Batch 316-316	37,500	202,500	37,500	202,500
	Batch 316-317	165,000		165,000	
Monday, June 2, 2014	Batch 316-317	37,500	202,500	37,500	202,500
	Batch 316-318	165,000		165,000	
Tuesday, June 3, 2014	Batch 316-318	45,000	150,000	45,000	150,000
	Batch 316-319	105,000		105,000	
Wednesday, June 4, 2014	Batch 316-319	45,000	90,000	45,000	90,000
	Batch 316-320	45,000		45,000	
Thursday, June 5, 2014	Batch 316-320	45,000	180,000	45,000	180,000
	Batch 316-321	135,000		135,000	
Friday, June 6, 2014	Batch 316-321	45,000	210,000	45,000	210,000
	Batch 316-322	165,000		165,000	
Saturday, June 7, 2014	Batch 316-322	45,000	210,000	45,000	210,000
	Batch 316-323	165,000		165,000	

Date	*6/1/2014 6:00*
Date	*6/8/2014 6:00*

MSD - Missouri River Tracking Table

Date	Operational Batch Transferred Into 97K AST	Gallons Delivered	Batch Start Date and Time	Batch End Date and Time	Interval Hours	Maximum Hourly Flow (gph)	Average Hourly Flow (gph)	97K AST pH Check
Sunday, June 1, 2014	NA	-	6/1/2014 6:00	6/2/2014 6:00	24.0	840	0.0	NA
Monday, June 2, 2014	NA	-	6/2/2014 6:00	6/3/2014 6:00	24.0	840	0.0	NA
Tuesday, June 3, 2014	NA	-	6/3/2014 6:00	6/4/2014 6:00	24.0	840	0.0	NA
Wednesday, June 4, 2014	NA	-	6/4/2014 6:00	6/5/2014 6:00	24.0	840	0.0	NA
Thursday, June 5, 2014	NA	-	6/5/2014 6:00	6/6/2014 6:00	24.0	840	0.0	NA
Friday, June 6, 2014	NA	-	6/6/2014 6:00	6/7/2014 6:00	24.0	840	0.0	NA
Saturday, June 7, 2014	NA	-	6/7/2014 6:00	6/8/2014 6:00	24.0	840	0.0	NA

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard Title: Env. Specialist Date: 6/10/14

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/2/2014 6:00:00 AM	6/1/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,978	2,026,978	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

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Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 06/10/14

MSD Daily Flow Reading, ending 6-02-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/3/2014 6:00:00 AM	6/2/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,978	2,026,978	0

Flow Meter Adjustment	
Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

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Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 6/10/14

MSD Daily Flow Reading, ending 6-03-2014

Daily Flow Reading — *Bridgeton Landfill*

	Current	Previous	Difference
Date / Time:	6/4/2014 6:00:00 AM	6/3/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,978	2,026,978	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 6/10/14

MSD Daily Flow Reading, ending 6-04-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/5/2014 6:00:00 AM	6/4/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,978	2,026,978	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 6/10/14

MSD Daily Flow Reading, ending 6-05-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/6/2014 6:00:00 AM	6/5/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,978	2,026,978	0

Flow Meter Adjustment	
Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 6/10/14

MSD Daily Flow Reading, ending 6-06-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/7/2014 6:00:00 AM	6/6/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,978	2,026,978	0

Flow Meter Adjustment	
Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 6/10/14

MSD Daily Flow Reading, ending 6-07-2014

Daily Flow Reading

Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/8/2014 6:00:00 AM	6/7/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,978	2,026,978	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 6/10/14

MSD Daily Flow Reading, ending 6-08-2014

OB-316-316

Bridgeton Landfill

Fill Data

Fill Start Date	5/30/2014
Fill Start Time	18:18
Fill Stop Date	5/30/2014
Fill Stop Time	23:02
Process Battery	316 AST

Processing Data

Process Start Date	5/30/2014
Process Start Time	19:13
Process Stop Date	5/31/2014
Process Stop Time	03:00

Approval Data

Approval Details	NAL13026-1467
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 27,000 ppb. Fill height = 18.56 ft.

Monday, June 9, 2014

OB-316-317 Bridgeton Landfill

Fill Data

Fill Start Date	5/31/2014
Fill Start Time	18:20
Fill Stop Date	5/31/2014
Fill Stop Time	23:51
Process Battery	316 AST

Processing Data

Process Start Date	5/31/2014
Process Start Time	20:00
Process Stop Date	6/1/2014
Process Stop Time	04:18

Approval Data

Approval Details	NAL13026-1469
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 22,000 ppb. Fill height = 18.58 ft.

Monday, June 9, 2014

OB-316-318 Bridgeton Landfill

Fill Data

Fill Start Date	6/1/2014
Fill Start Time	17:47
Fill Stop Date	6/1/2014
Fill Stop Time	23:15
Process Battery	316 AST

Processing Data

Process Start Date	6/1/2014
Process Start Time	21:19
Process Stop Date	6/2/2014
Process Stop Time	04:05

Approval Data

Approval Details	NAL13026-1471
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 24,000 ppb. Fill height = 18.52 ft.

Monday, June 9, 2014

OB-316-319 Bridgeton Landfill

Fill Data

Fill Start Date	6/2/2014
Fill Start Time	18:33
Fill Stop Date	6/2/2014
Fill Stop Time	22:32
Process Battery	316 AST

Processing Data

Process Start Date	6/2/2014
Process Start Time	20:17
Process Stop Date	6/3/2014
Process Stop Time	04:39

Approval Data

Approval Details	NAL13026-1475
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 20,000 ppb. Fill height = 13.59 ft.

Monday, June 9, 2014

OB-316-320 Bridgeton Landfill

Fill Data

Fill Start Date	6/3/2014
Fill Start Time	18:11
Fill Stop Date	6/3/2014
Fill Stop Time	22:52
Process Battery	316 AST

Processing Data

Process Start Date	6/3/2014
Process Start Time	19:55
Process Stop Date	6/4/2014
Process Stop Time	04:53

Approval Data

Approval Details	NAL13026-1477
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 22,000 ppb. Fill height = 16.05 ft originally, plus about 10,000 gallons (0.75 ft) of rainwater from secondary containment.

Monday, June 9, 2014

OB-316-321 — *Bridgeton Landfill*

Fill Data

Fill Start Date	6/4/2014
Fill Start Time	20:05
Fill Stop Date	6/4/2014
Fill Stop Time	23:05
Process Battery	316 AST

Processing Data

Process Start Date	6/4/2014
Process Start Time	20:40
Process Stop Date	6/5/2014
Process Stop Time	05:01

Approval Data

Approval Details	NAL13026-1480
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 16,000 ppb. Fill height = 16. ft

Monday, June 9, 2014

OB-316-322 Bridgeton Landfill

Fill Data

Fill Start Date	6/5/2014
Fill Start Time	18:20
Fill Stop Date	6/5/2014
Fill Stop Time	23:36
Process Battery	316 AST

Processing Data

Process Start Date	6/5/2014
Process Start Time	19:23
Process Stop Date	6/6/2014
Process Stop Time	04:45

Approval Data

Approval Details	NAL13026-1482
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

mek = 18,000

Monday, June 9, 2014

OB-316-323

Bridgeton Landfill

Fill Data

Fill Start Date	6/6/2014
Fill Start Time	18:40
Fill Stop Date	6/6/2014
Fill Stop Time	23:53
Process Battery	316 AST

Processing Data

Process Start Date	6/6/2014
Process Start Time	18:40
Process Stop Date	6/7/2014
Process Stop Time	05:00

Approval Data

Approval Details	NAL 13026-1487
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

fill height=21.1'

Monday, June 9, 2014

Table 1
General Parameters and Metals
March - June 2014
Bridgeton Landfill

					Biochemical Oxygen Demand (5-day)	Chemical Oxygen Demand	Nitrogen, ammonia as N	Oil and Grease	Oil and Grease - Silica gel cleanup	pH	pH, field
					NA	NA	NA	NA	NA	NA	NA
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	pH units	pH units
316-314	5/29/2014	Pace	Validated	60170239	31600 *	49600	647	1200	12.1	5.4	5.43
316-313	5/28/2014	Pace	Validated	60170130	27500	50000	675	1670 *	11.4 *	5.4	5.46
316-312	5/27/2014	Pace	Validated	60170037	29400	51100	596	1010	10.4	5.4	5.42
316-311	5/26/2014	Pace	Validated	60170032	33100	57900 *	658	1150	8.6	5.4	5.49
316-308	5/23/2014	Pace	Validated	60169950	28000	50400	616	883	14.2	5.4	5.48

MSD 029361

Table 1
General Parameters and Metals
March - June 2014
Bridgeton Landfill

					Solids, total suspended	Aluminum	Antimony	Arsenic	Beryllium	Cadmium	Chromium
					NA	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-314	5/29/2014	Pace	Validated	60170239	**4560**	**11.8**	ND	**1.53**	ND	ND	**0.31**
316-313	5/28/2014	Pace	Validated	60170130	**4740**	**5.86**	ND	**1.19**	ND	ND	**0.239**
316-312	5/27/2014	Pace	Validated	60170037	**3920**	**6.18**	ND	**1.22**	ND	ND	**0.258**
316-311	5/26/2014	Pace	Validated	60170032	**5700**	**11.4**	ND	**1.13**	ND	ND	**0.276**
316-308	5/23/2014	Pace	Validated	60169950	**4780**	**5.41**	ND	**1.19**	ND	ND	**0.253**

MSD 029362

Table 1
General Parameters and Metals
March - June 2014
Bridgeton Landfill

					Cobalt	Copper	Iron	Lead	Mercury	Nickel	Selenium
					Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-314	5/29/2014	Pace	Validated	60170239	0.0551	ND	912	0.149	0.0186	0.179	ND
316-313	5/28/2014	Pace	Validated	60170130	0.0375	ND	592	0.0798	0.0372	0.134	0.0768
316-312	5/27/2014	Pace	Validated	60170037	0.0404	ND	711	0.0906	ND	0.14	0.0778
316-311	5/26/2014	Pace	Validated	60170032	0.0437	ND	804	0.133	0.0348	0.15	ND
316-308	5/23/2014	Pace	Validated	60169950	0.0440	ND	679	0.0914	0.0091	0.134	0.0900

MSD 029363

Table 1
General Parameters and Metals
March - June 2014
Bridgeton Landfill

					Silver	Thallium	Zinc
					Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l
316-314	5/29/2014	Pace	Validated	60170239	ND	ND	**6.69**
316-313	5/28/2014	Pace	Validated	60170130	ND	ND	**5.44**
316-312	5/27/2014	Pace	Validated	60170037	ND	ND	**5.55**
316-311	5/26/2014	Pace	Validated	60170032	ND	ND	**5.64**
316-308	5/23/2014	Pace	Validated	60169950	ND	ND	**4.92**

Table 2
VOCs and SVOCs
March - June 2014
Bridgeton Landfill

					Benzene
Location	Date	Lab Name	Data Status	Lab Report	ug/l
316-314	5/29/2014	Pace	Validated	60170239	ND
316-313	5/28/2014	Pace	Validated	60170130	ND
316-312	5/27/2014	Pace	Validated	60170037	ND
316-311	5/26/2014	Pace	Validated	60170032	ND
316-308	5/23/2014	Pace	Validated	60169950	ND

MSD 029365

Doug Mendoza

From: Joe Pavlich
Sent: Tuesday, June 10, 2014 3:07 PM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: Bridgeton Landfill reading

Doug , the reading for Bridgeton Landfill on 6/10/14 @ 1415 was 2026994 with 0 gals./hr. discharge.

Doug Mendoza

From: Martin Blecha
Sent: Tuesday, June 10, 2014 10:50 AM
To: Catherine Politte; Mike Townley; Doug Mendoza; Steve Grace; Brian G. Gibson
Cc: John Lodderhose; Martin Blecha; Buffy Santel
Subject: Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 06/01/2014 to 06/07/2014.

Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 06/01/2014 to 06/07/2014.

6/01 –202,500 gallons
6/02 –202,500 gallons
6/03 –150,000 gallons
6/04 – 90,000 gallons
6/05 –180,000 gallons
6/06 –210,000 gallons
6/07– 210,000 gallons
Total = 1,245,000 gallons

Martin J. Blecha
Metropolitan St. Louis Sewer District
Environmental Engineering Associate
10 E. Grand Ave.
St. Louis, MO. 63147-2913.
Office Phone (314)-436-8716.

PRELIMINARY SPILL AND SLUG CONTROL PLAN
FOR

BRIDGETON LEACHATE PRETREATMENT PLANT
13570 ST. CHARLES ROCK RD.
BRIDGETON, MO 63044

Prepared For:

BRIDGETON LANDFILL, LLC

Prepared by:

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
CHARLOTTE, NORTH CAROLINA

CEC Project 130-484

June 6, 2014

STATE OF MISSOURI
IVAN COOPER
NUMBER PE-2003009211
PROFESSIONAL ENGINEER

June 6, 2014

Civil & Environmental Consultants, Inc.

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Treatment Building Plan (Drawing A-100)
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Appendix A – Emergency Contacts
Appendix B – Sample Spill Response Evaluation Form
Appendix C – Initial Notification Form
Appendix D – Effluent and Utilities Inspection Log
Appendix E – MSDS
Appendix F – Evacuation Plan
Appendix G – Hazard Communication Plan

MSD 029370

1.0 INTRODUCTION

1.1 PURPOSE

This Slug and Spill Plan has been developed for the Bridgeton Landfill, LLC (Bridgeton) facility. Bridgeton Landfill, LLC owns and manages the Bridgeton Sanitary Landfill facility located at 13570 St. Charles Rock Road in Bridgeton, Missouri (see Figure 1). The Bridgeton Sanitary Landfill (Landfill) previously discharged leachate from the Landfill to the Metropolitan St. Louis Sewer District (MSD). This plan will contain information to confirm that non-routine, un-permitted, and accidental spills and releases are properly contained and disposed and that the correct regulatory agencies and public treatment works are notified. The plan is based upon the requirements of 40 CFR 403.8.

1.2 RESPONSIBILITIES

The Pretreatment Plant Manager is responsible for implementation of the plan and its components, including employee training, record keeping, and inspections. The role of the other members of the management team is to provide assistance to the Plant Manager regarding inspections, good housekeeping practices, and preventive maintenance. Signatory responsibilities are delegated to the Plant Manager, as required.

Plant Manager: Mike Reed, Senior Wastewater Operator,
ALLIANCE WATER RESOURCES, INC.

1.3 SLUG/SPILL PLAN REQUIREMENTS

The following requirements, as stated Bridgeton's Wastewater Discharge Industrial User Permit issued by the MSD, are addressed in this plan:

- Discharge practices, including non-routine batch discharges: *Section 3.0*
- Description of stored chemicals: *Section 4.0*
- Procedures for immediately notifying the POTW of slug discharges that would cause a violation of 40 CFR 403.5(b), with procedures for following up notification within five (5) days: *Section 6.0 and Section 7.0*
- Procedures to prevent adverse impact from accidental spills, including inspection and maintenance of storage areas: *Section 8.0*

- Handling and transfer of materials; loading and unloading operations: *Section 5.0 and Appendix G*
- Control of plant site run-off: *Section 4.0 and Section 6.0*
- Worker training: *Section 8.0*
- Containment structures or equipment: *Section 4.0*
- Measures for containing Toxic organic pollutants: *Section 4.0*
- Measures and equipment for emergency response: *Section 6.0*

2.0 GENERAL FACILITY DESCRIPTION

The leachate is generated from leachate collection wells and condensate from gas well pumping wells at various places around the facility (collectively termed "leachate" in this document). This leachate is collected at various points and discharged to a perimeter collection line that flows to a central collection point.

The leachate pretreatment plant incorporates an equalization tank, physical/chemical precipitation to remove zinc, iron, and other metals that may inhibit biological pretreatment, aerobic biological treatment, leachate cooling, membrane separation for solids removal, return and waste sludge pumping, solids storage and dewatering, solids disposal, and effluent monitoring and discharge. Chemical addition at various stages is required, and odor control at the various units is included. The leachate generation volume ranges from 150,000 to 300,000 gallons per day (gpd) of combined leachate flows. The design flow is based on 300,000 gpd. Peak flow is anticipated at 450,000 gpd. During power outages, standby power will be supplied to pump leachate into the equalization and process tanks, and storage will be provided for a minimum of 1.5 days at ADF. If power outages exceed this time, the excess leachate will be hauled directly to MSD's Bissell Point plant. Power will be supplied sequentially to the blowers in the four 1 MG tanks to maintain a viable microbial population.

Spill and slug prevention will be addressed in this plan by secondary containment storage around treatment and chemical storage tanks, and spill pallets will be provided for drums and totes. Treatment area drains will be routed to the equalization tank or to internal processes to prevent slug discharges to the MSD systems. Specific details are contained in the following sections of this plan.

3.0 DISCHARGE PRACTICES

A 316,000 gallon tank receives leachate from the landfill and provides aeration from two dedicated blowers and a pumped aeration mixing system delivered through a jet aeration mixer. The unit operates at hold volume, providing 12 hours detention. The upper volume of the tank provides for equal 12 hours storage at the maximum design flow. Discharge from this tank will flow to the treatment building for clarification, or can be selectively hauled off for disposal at the dedicated sludge loadout area that is provided with secondary containment.

The clarification process requires chemical feeds and includes a coagulant and a polymer. Physical/chemical precipitation to remove zinc, iron, and other metals that may inhibit biological pretreatment occurs at this stage. A rapid sludge withdrawal mechanism to pump the clarifier sludge to a clarifier sludge holding tank is also included in the process.

The leachate will flow by gravity to an inclined plate clarifier for solids separation. The liquid will then enter a pH adjustment tank where sulfuric acid will be added to lower the pH to 8 S.U. before being pumped to four aeration tanks sized at one million gallons each.

The four (4) tanks at 1,000,000 gallons (1 MG) each tank provide processing in parallel. The tanks have dual mixing flow and air supply headers in each tank. The jet aeration system in each of the four 1 MG tanks and the membrane ultrafilter system located in the treatment building together comprise a Membrane Bioreactor system (MBR). Process flow is arranged such that the Treatment Building discharge flow can be equally distributed to each 1 MG tank, or two tanks will operate as a first stage with the second two tanks operating as a second stage. There is a hydraulic detention time of 12 days.

Discharge from the 1 MG tanks flows to a Membrane Feed Pump. This pump sends mixed liquor into the UF Unit (the discharge of the Feed Pump is piped into the suction of the Circulation Pump). Membrane Circulation Pump feeds mixed liquor into the UF membranes. The pump continuously circulates mixed liquor (delivered into its suction piping by the Feed Pump) through the membrane modules. The membranes are a tubular style consisting of many small tubes contained in 10" diameter fiberglass housings. Mixed liquor flows inside of all of the small tubes and clean water (permeate) permeates through the walls of the tubing into the outer shell. A common header collects permeate and directs it to either First Pass RO Feed Tank or UF Cleaning Tank (operator selectable).

That effluent will be pumped to the 97,000 gallon storage tank before discharge to MSD.

A portion of the solids separated in the ultrafilter is returned to the aeration tanks as return activated sludge. The excess sludge to be wasted is pumped from the ultrafilter return sludge line to a waste activated sludge tank in the treatment building. The waste activated sludge solids in the treatment building is thickened and mixed with the primary sludge and then mixed with polymers and other chemicals prior to dewatering in a screw dewatering press. The dewatered solids from the screw press are placed in 20 cubic yard roll-off containers for transport to the Roxana Landfill.

Exhaust air from the 316,000 gallon tank is treated by the existing thermal oxidizer odor control unit, designed to destroy the organic and inorganic odor causing compounds in the air exhaust. Initially, air exhaust from the four – 1 MG jet aeration tanks will be treated by a rented thermal oxidizer for a period of time until the sludge mass becomes acclimated to the leachate. When acclimatization occurs, the odors from the exhaust air are anticipated to be minimal with an earthy odor. The exhaust air from the treatment building is captured and treated in a regenerative thermal oxidizer before being emitted, or by other suitable alternative means.

4.0 MATERIAL INVENTORY & DRAIN LOCATIONS

CAS and other identifying characteristics are contained in the MSDS sheets to be developed. Annual updates of this section and MSDS sheet inventory are recommended.

The materials to be stored, volumes, and locations are listed below:

Chemical	Concentration	Volume (gals)	Storage Location	Containment	Use Areas
Caustic Soda	25%	6,000	Treatment Building Exterior; 316 Equalization Tank; Aeration Tank area	Secondary Containment	Clarifier pH Adjust Tank; Rapid Mix Tank; Membrane Cleaning
Sulfuric Acid	93% - 98%	6,000	Treatment Building Exterior	Secondary Containment	Clarifier pH Adjust Tank, Sludge Dewatering Feed, Membrane Cleaning
Aluminum Chlorhydrate	100%	6,000	Treatment Building Exterior	Secondary Containment	Feed ahead of Rapid Mix tank in Treatment Building
Magnesium Hydroxide	61%+/-	6,000	Treatment Building Exterior	Secondary Containment	Feed ahead of Rapid Mix tank in Treatment Building
Phosphoric Acid	85%	265 – gal tote	Treatment Building	Secondary Containment	Transfer Tank
Polymers, anionic and cationic;	100%	265- gal totes	Treatment Building	None	Clarifier pH Adjust Tank; Sludge thickening and sludge dewatering

Maintenance Chemicals	Varies	Varies	Treatment Building Maintenance Area	Flammables in Fireproof Cabinet, otherwise, none	Maintenance Shop; Treatment Equipment
Defoamer	100%	250-gal totes	Equalization tank, Ultrafilter	Equalization Tank Containment Area	Equalization tank, Membranes
Chemical Totes: Defoamers Phosphoric Acid; Nutrients; UF Cleaning; Water Softener chemicals (common salt)	Varies	265-gal totes; dry chemical bags	Treatment Building	Spill Pallets under totes and drums	Treatment Building, Various Use Areas
Anti-scalants; biocides; and corrosion inhibitors	Varies	Drums and totes	Cooling Tower area	Spill Pallets under totes and drums	Cooling Tower area

The floor of the treatment building is sloped to drains that flow back to the leachate influent pump station that is pumped to the 316,000 gal Equalization Tank.

4.1 EQUALIZATION TANK

The 316,000-gallon Equalization Tank sits in the center of a concrete containment area. Leachate is pumped into this tank and is aerated with two dedicated 420 scfm blowers and a dedicated mixer pump. The leachate after aeration is pumped to the treatment building through secondary containment HDPE piping. The Equalization Tank is operated at ½ volume to provide additional site storage of 12 hours at Average design flow of 300,000 gallons per day. An 8-hour detention time is planned for the maximum daily flow. There is a loadout structure adjacent to the containment wall for loading hauling trucks. This containment area provides for containing spills and can be pumped back to the Equalization tank. There is no drain valve for stormwater. Stormwater flows will be pumped back to the Equalization Tank.

The Secondary Containment pad at the Equalization Tank is approximately 112 foot square. The volume of the containment area is:

*(112*112* sf) * 4 ft = 50,176 cf = 376,316 gallons.*

The 24-hour storm at a 25-year recurrence interval is 5.59 inches.

The precipitation equals 5,843 cf, or 43,709 gallons. The sum of the tank volume plus precipitation is 359,709 gallons, which is less than the available volume of 376,316 gallons.

Odor Control at Equalization Tank

The odor control at the 316 Equalization Tank was relocated to the centralized odor control RTO at the aeration Tanks in the final design. No odor control chemicals will be located at the Equalization Tank. Caustic soda will be located at this tank for initial pH adjustment.

4.2 LEACHATE PRETREATMENT BUILDING

The Leachate Pretreatment Building contains several use areas consisting of:

- Clarifier Flow Train;
- Sludge Storage and Thickening;
- Sludge Dewatering;
- Ultra Filter Membrane Area;
- Chemical Storage Area;
- Maintenance and Vehicle Storage Area; and
- Controls and Operations Room.

The chemicals used in the Pretreatment Building are stored in secondary containment in an area adjacent to and outside the structure, including sodium hydroxide (caustic soda); sulfuric acid, and aluminum chlorhydrate, and magnesium hydroxide. Each tank has sufficient secondary containment to store the 6,000 gallons in each tank, including storm volume for a 24 hour storm of any duration. The drain in this area flows back to the grit chamber ahead of the Equalization Tank, and the storage volumes are described in the section below.

These tank areas provide storage that protects the chemicals from forklift traffic. Other chemicals storage in the Treatment Building includes polymers and maintenance chemicals in IBC totes, 55-gallon drums or containers less than 55 gallons. The drum and tote chemicals include phosphoric acid, defoamer, anionic polymer, cationic polymer, Memclean solution

containing sodium hypochlorite, and salt regenerant and treatment chemicals for the water softener. These chemicals will be stored on spill control pallets. A flammable storage cabinet is also located in Maintenance Shop for maintenance chemicals that will be either flammable or combustible. There is no direct connection from the floor drains to the effluent line

PROCESS FLOW: The 316,000 gallon equalization tank, pH adjustment tank (caustic), clarifier, pH adjustment tank (acid), and transfer tank are hydraulically controlled by VFD driven pumps from the Equalization Tank. Upon high level, a signal is sent to the feed pump for these units to stop flow and an alarm signal is sent. Overflows or spills are washed down to the central sump for pumping back to the grit chamber ahead of the Equalization Tank.

SLUDGE TANK: Solids or Sludge from the Clarifier and Waste Activated Sludge from the Ultrafilter membrane reject flow are sent to Sludge Tanks where agitation occurs to keep the solids suspended in a thick slurry. This slurry is pumped to a sludge thickener and the thickened sludge is pumped from the sludge thickener discharge tank into a screw press.

SCREW PRESS: The screw press mechanically dewaters the slurry making a thick fairly dry solid waste. This solid waste travels up a conveyor and auger and is deposited into an open top dumpster located below the Screw Press. The water from the screw press runs through the floor drain to the sump. The sump is pumped back to the Equalization Tank to be processed again. The entire plant flow must pass through the ultrafilter before discharge to MSD. Washdown water will be collected in the central trench drain and will flow back to the sump in the Sludge Dewatering area. None of these flows will directly enter to discharge to MSD. A floor drain system in the treatment building collects to a sump in the sludge dewatering room, and those contents are pumped back to the 316,000 gallon equalization tank.

ULTRAFILTERS: The membrane ultrafilter system (UF) is designed with three modules of 150,000 gpd each module. The units are designed with two units on one skid and one unit on a second skid, with room for a future unit on the second skid if flows increase. This design allows for the average daily flow to be treated with one unit out of service. Should a maximum day flow occur with a unit out of service, excess flow will be stored in the aeration tank volume. Additionally, the landfill has the ability to reduce flows, and will coordinate with the pretreatment plant during ultrafilter unit outages to reduce flows. The units are design on the basis of 0.56 gfd flux rate. The units include recirculation pumps, sludge wasting, and local and remote controls. Should one of the membranes in the UF unit fail, the turbidity monitor will alarm. There is a simple process to determine if a module has a breached element and the process of isolating and fixing the breach is contained in the Operation and Maintenance Manual.

4.3 CHEMICAL DELIVERY AND STORAGE AREA

A secondary contained delivery area is located outside of the Pretreatment Building. This area is not covered, and will allow precipitation to enter the chemical loading area. Quick disconnects to the larger storage tanks are provided for tight connection to fill ports on these tanks. Spills are contained with a valve in the sump. When the valve is closed during chemical delivery, spill can be contained and hauled off. With the valve open during non-delivery times, this area will drain to the sump at the Treatment Building that flows to a grit chamber ahead of the Equalization Tank. There is no drain connection to a stormwater discharge. The secondary containment volume calculations for the spill containment area are shown below:

The concrete loading area plus the tank pad size = 2213 sf

The 25 year-24 hour storm = 1021 cf = 7,712 gallons.

If a single 6,000 gallon tank fails, the secondary containment volume:

= 6,000 gal + 7,712 gal = 13,712 gals

The total actual containment volume is 13,936 gals, so the volume is sufficient.

4.3.1 MAINTENANCE SHOP

The Maintenance Shop is located in the vehicle storage area of the Treatment Building. This area will contain a number of miscellaneous cleaners and lubricants and a self-contained parts washer, which is secured to the wall with a chain. The Maintenance Shop also has a Flammable Storage Cabinet. Interior floor drains will be tied into the process sump that flows to the 316,000 gallon tank.

4.4 AERATION TANKS

There are four (4) aeration tanks at the site, contained in single containment area. The Stormwater collected in each individual sub-containment area (separated by 1-foot high walls) will be pumped back to the each dedicated 1 MG Aeration Tank. There are no drain valves in the aeration tank containment areas. No stormwater will be discharge and there are no drain valves in this area.

The secondary containment area is 52,977.5 sf with a 4-foot high containment wall. This area will contain:

52,977.5 sf * 4ft*7.48 gal/cf = 1,585,086 gallons.

The volume of precipitation is: 52,977.5 sf * 5.59 inches/12 inches/ft =24,679 cf = 184,597 gals

If one tank fails, but three tanks retain integrity, the reduced volume is:

73 ft diameter = 1,332.25 sf each * 4 ft high = 16,741 cf = 125,225 gals each tank (at the 4ft depth)

If 3 tanks fail = 125,225 gals*3 = 375,676 gals for 3 tanks (at the 4ft depth)

Required spill containment = 1,585,086 gals – 184,597 gals precipitation – 375,676 gals for tank volume = 1,024,813 gals, which is greater than the volume of a single 1,000,000-gal tank.

4.5 OTHER STORAGE

There are no other observable chemicals stored at the site in addition to those noted above. There are separate buildings and areas that hold the transfer switches, starters, electric feeds, and transformers for the facility. None of these buildings or areas will have chemicals or drains.

MSD 029381

5.0 SPILL AND LEAK PREVENTION EQUIPMENT AND PROCEDURES

5.1 COUNTERMEASURES FOR DISCHARGE DISCOVERY

Should visible leaks from tanks, totes, and drums be identified during inspection and deficiencies; those releases will be noted on the daily "Effluent & Utilities Inspection Log" inspection forms located in **Appendix D**. Utility Operators and other workers are to notify the Plant Manager if conditions are observed that warrant countermeasures. This process is depicted in Figure 2. Those repairs will occur immediately or requests for repair will be entered into the Work Maintenance Work Order System. The Plant Manager is responsible for authorizing response measures and will initiate appropriate actions including mobilization of outside response contactors, if required.

5.2 CHEMICAL HANDLING

Bridgeton standard Personal Protection Equipment (PPE), safety glasses and steel toes shoes, is required at all times. When working with caustic materials, chemical resistant gloves, face shields, aprons, and arm guards must also be utilized. If a site personnel's skin or eyes come in contact with any of the chemicals, he/she will utilize the safety showers and eyewash stations. MSDS sheets will also be referred to for proper treatment and the Plant Manager will be notified.

6.0 EMERGENCY RESPONSE EQUIPMENT AND PROCEDURES

6.1 NOTIFICATION TREE

When a person is injured or an emergency occurs, the following will occur:

To Be Determined

6.2 SPILL PREVENTION EQUIPMENT

Spill kits will be located in the Maintenance Area of the Treatment Building. The spill kits consist of kitty litter, or "dry soil", and absorbent pads. It is recommended that additional spill kits are purchased and that one kit be located in each area where chemicals are stored.

6.3 SPILL RESPONSE PROCEDURES

Each employee is to be trained on spill response procedures and copies of the document are available wherever chemicals are stored in the facility. A version of the procedures is included below.

Spills of any substance or quantity are reported to the Plant Manager as soon as possible. A general procedure during an occurrence includes:

- Put on protective clothing and equipment, including rubber gloves, apron, and/or breathing apparatus, based upon the type of material spilled;
- Stop the flow of the spill material. This includes, but is not limited to turning off pumps and closing valves;
- Eliminate all ignition sources, open flames, or smoking in the immediate vicinity;
- Shut off electrical power supply;
- Apply absorbent material from the spill response kits (see Best Engineering Practices Section - BEPS);
- Prevent contact between incompatible materials;
- Notification of the Plant Manager and other appropriate management personnel. The Plan Manager will use the appropriate chain-of-command so that all proper personnel are notified;
- Begin evacuation procedures, if necessary; and
- Notification of appropriate agencies.

After the spill has been contained, appropriate clean-up, treatment, or disposal procedures should commence. Immediate action eliminates the Safety and Risk hazards and prevents the potential further dispersion of the material. The MSDS of the spilled material, located in **Appendix E**, should be consulted for proper clean-up procedures.

6.4 EVACUATION PLAN

An evacuation plan is posted in the Treatment Building office. The plan contains a map of the evacuation routes, a map of alternative routes, and signals that are used to convey the initiation of an evacuation. A copy of the evacuation plan has been submitted to the local police department, the fire department, and an area hospital for their records. A copy of the evacuation plan is included in **Appendix F**.

6.5 COMMUNICATION EQUIPMENT AND ALARMS

An alarm system is used to notify employees of evacuation procedures in the event of a spill. Telephones and radios are utilized to contact management upon the onset of a spill.

6.6 FIRST AID KITS AND FIRE EXTINGUISHERS

First aid kits and fire extinguishers are readily available throughout the facility. The evacuation plan, a copy of which is included in **Appendix F**, also shows the location of first aid kits and fire extinguishers.

7.0 REPORTING PROCEDURES

When a discharge occurs that would cause a violation of 40 CFR 403.8 or problems to the MSD, the Plant manager shall immediately notify the MSD Emergency Line by phone, of the discharge at the MSD 24 hour emergency line (314-768-6260). This number will allow the MSD Dispatcher to notify workers who may be in the sewer system, as well as either the Bissell Point Plant, the Missouri River Plant, or other affected facilities. Within 24 hours of the discharge, the Plant Manager will notify the Republic Area Environmental Manager of the discharge. This notification will include:

- The name of the chemicals(s) or substance(s) involved;
- An estimate of the quantity of substance released;
- The location, time, and duration of the release;
- Known or anticipated acute or chronic risks associated with the release and, where appropriate, advice regarding medical attention necessary from MSDS sheets;
- The impact of the spill on the POTW and the environment;
- Extent of injury to personnel or damage to property;
- Precautions to take as a result of the spill; and
- The name, telephone number, and availability of person to be contacted for further information.

An Initial Notification Form is provided in **Appendix C** of this document. The notification form is included so that sufficient and accurate information about the release can be determined. Use of the form confirms that the information will be relayed correctly. The completed form will also serve as a written record of the notifications.

Within five (5) days of the occurrence, the Plant Manager will investigate the spill and **submit** a formal notification to MSD. The formal notification will include:

- Name, address, and telephone number of the owner or operator;
- Name, address, and telephone number of the facility;
- Date, time of the occurrence;
- Name and quantity of material(s) involved;
- Corrective actions taken during the occurrence;
- Name of employee(s) harmed during the incident and their current condition, including medical attention obtained;

- The PPE readily available for use during the incident, including fire extinguishers and spill response equipment;
- If secondary containment structures maintained integrity and were of adequate volume for the spill;
- Name and contact information for the outside officials, i.e. POTW, fire department, or others, called during the occurrence. Include date and time called, and records of communication, if available; and
- Modifications and projects undertaken to prevent similar, future occurrences, with their expected implementation/completion dates.

8.0 ADVERSE IMPACT PROCEDURES

8.1 INSPECTIONS

Consistent inspections of the equipment used at the facility are an integral part of a good spill/slug prevention plan. The Utility Operators, during the course of their daily routines, shall inspect storage areas and outside tanks. Vessel foundations and supports are also inspected for integrity. Any items requiring maintenance will be brought to the attention of the Plant Manager. Weekly inspections are documented using the forms located in **Appendix D**; forms are to be kept on file for a minimum of five years.

8.2 TRAINING

Utility Operators involved with the operation, maintenance, or oversight of chemicals or equipment that use chemicals are to be trained on spill prevention, awareness, and response. The Hazard Communication Plan, located in **Appendix G**, is used to aid in this training. Immediate training sessions are conducted for appropriate personnel when a process or procedure changes, and for new employees upon hire. Training is reviewed as required and will be conducted at least once per year.

Training includes:

- The proper operation and maintenance of equipment to prevent spillages;
- Drainage routes;
- Emergency response procedures;
- Spill equipment location and proper use of the equipment;
- Reporting requirements;
- Evacuation procedures; and
- Prohibition of chemical drum discharge into drains or into the WWTP that may adversely impact the POTW.

Refer to the Hazard Communication Plan in **Appendix G** for additional training topics.

Training records are maintained in the employee's file as long as they are employed by Bridgeton, plus three years beyond their termination. The records are readily available for review in the event of a regulatory inspection.

9.0 BEST ENGINEERING PRACTICES (BEPS)

Based on US EPA Guidelines, the following BEPs should be implemented to minimize the potential for discharge:

- Currently there are spill kits and emergency response equipment located in the Treatment Building It is recommended that additional spill kits are purchased and that one kit be located in each area where chemicals are stored. Other spill response equipment that should be on site include: booms, barriers, sweeps, fenders, surface collecting agents, and drain plugs.
- All unnecessary floor drains should be plugged.
- All drums should be moved while on pallets; the drums should not be "scooped" up with the arms of a forklift truck.
- Store open drums in secondary containment.
- Keep compatible material together. Use storage cabinets labeled as "Fire Hazard Storage" only for those materials that are a fire hazard. If storage is not used as labeled, re-label.

10.0 MANAGEMENT APPROVAL

I certify that this Slug and Spill Plan is approved and supported by the management of Bridgeton Landfill, LLC.

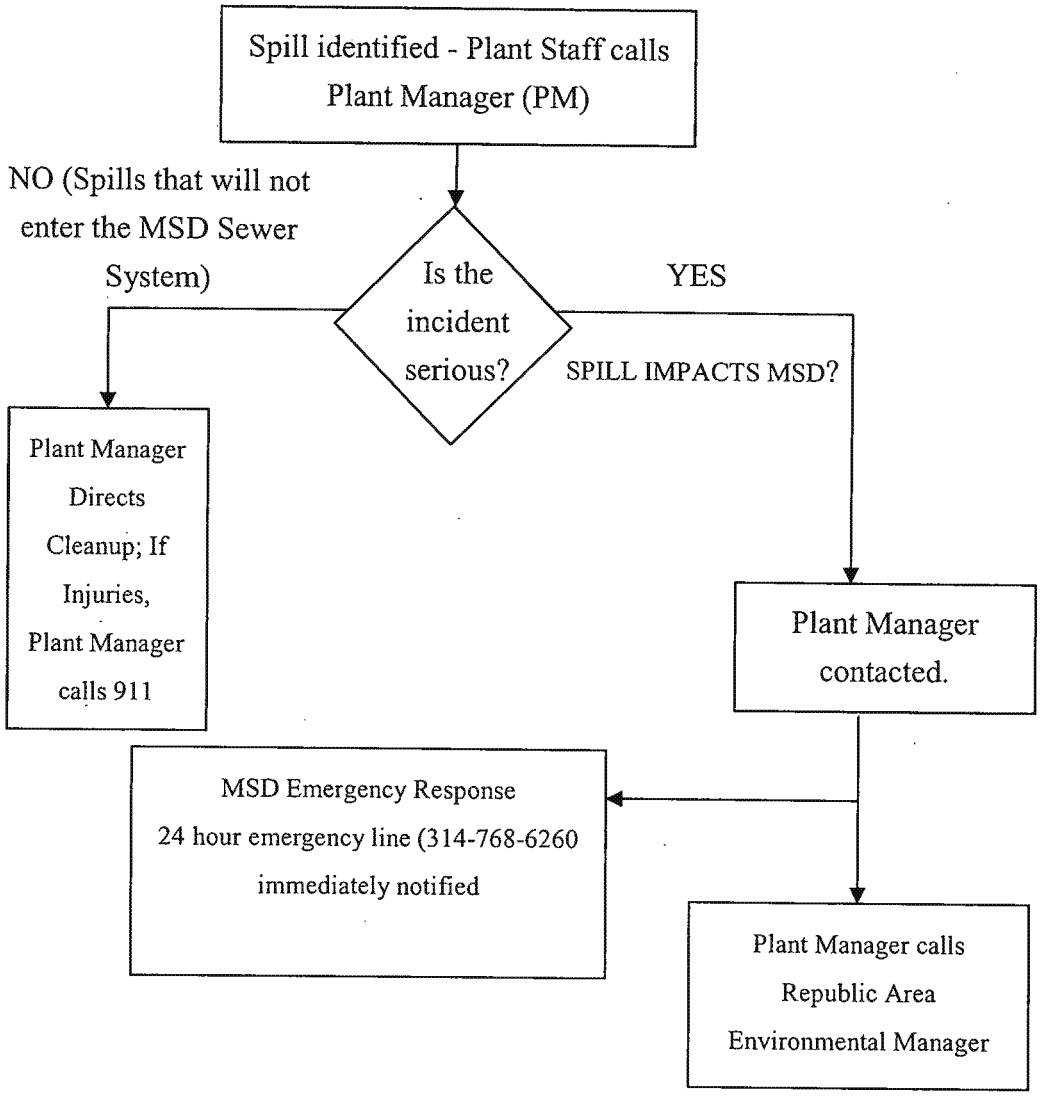
_____

Plant Manager Date

MSD 029389

FIGURES

Figure 2 – Counter Measures Process



APPENDIX A

EMERGENCY CONTACTS

Bridgeton Landfill Emergency Contacts:
Brian Power, Republic Services: (618) 410-0157

Plant Manager: Mike Reed, Senior Wastewater Operator (573)-874-8080

Bridgeton Fire / Police / Ambulance 9-911

Hospital: Mercy Hospital St Louis
615 S New Ballas Rd, St Louis
9-(314) 251-6000

Poison Control: 9-911

Gas Leaks and Emergencies; 9-(314) 342-0800

MSD 24 hour Emergency Number: 314-768-6260

APPENDIX B

SAMPLE SPILL RESPONSE EVALUATION FORM

Spill Response Evaluation

Facility: _____ Permit No.: _____

Incident Start: (Date/Time) _____ / _____

Incident End: (Date/Time) _____ / _____

Estimated Volume of spill/bypass:

___ 0-500 gal ___ 501-1,000 gal ___ 1,001-2,000 gal

___ >2,000 gal: Estimate volume in nearest 1,000-gallon increments _____

Please provide the following information:

1. Location of spill/bypass: _____

_____

_____

2. Cause of spill/bypass: _____

_____

_____

3. Did you have personnel available to perform initial assessment 24 hrs/day (including weekends and holidays: ___ yes ___ no

4. How long did it take to make an initial assessment of the spill/bypass after first knowledge:

___ hours ___ minutes

How long did it take to get a repair crew onsite: ___ hours ___ minutes

5. Action taken to contain spill, clean up waste, and/or remediate the site: _____

_____

_____

_____

_____

6. Was the equipment and/or parts needed to make repairs readily available?

___ yes ___ no

If no, explain why: _____

_____

_____

7. Repairs made are: ___ temporary ___ permanent

Describe repairs made. If temporary, indicate date that a permanent repair will be completed and notify Regional Office within 7 days of the permanent repair: _____

_____

_____

9. Comments: _____

_____

_____

_____

_____

Other agencies notified: _____

Person reporting spill/bypass: _____

Phone Number: _____

APPENDIX C

INITIAL NOTIFICATION FORM

INITIAL NOTIFICATION FORM

NOTE: THIS FORM MUST BE SUBMITTED TO MSD WITH 5 DAYS OF A RELEASE!

Record all information pertaining to significant spills and leaks of hazardous substances:

Date: _____ Time of Release: _____ Duration of Release: _____

Location of Release:

_____

_____

_____

Description:

Chemical(s)/Substance(s) Involved: _____

Quantity of Material: _____

Substance on Extremely Hazardous Substance List? _____

Reason for Discharge: _____

_____

_____

Known/Anticipated Acute or Chronic Risks Associated with Release: _____

_____

_____

Medical Attention Necessary for Exposed Individuals: _____

_____

_____

Precautions to be taken: _____

_____

_____

Contact Information:

Name of person reporting: _____

Position: _____

Telephone: _____

Contact Availability: _____

Other Observations/Notes: _____

_____

_____

_____

APPENDIX D

EFFLUENT AND UTILITIES INSPECTION LOG

1.0 TITLE: EFFLUENT AND UTILITIES INSPECTION

2.0 PURPOSE:

2.1 To confirm that all systems of the effluent treatment and the site utilities are functioning properly, and to confirm adequate supply of all required chemicals to Confirm that the Bridgeton Leachate Pretreatment Plant site meets environmental compliance.

3.0 RESPONSIBILITIES:

3.1 **Operations Staff:** Confirm that daily inspections are completed accurately every weekday between the hours of 7:00am to 3:30pm. Confirms all outages are entered into plant log, completes work requests and purchase requests, and appropriate/timely corrective actions.

3.2 **Operations TDM:** Conduct routine audits of Inspection Log comparing Log entries to actual. Confirms details of outages are recorded in Elog and appropriate follow up has occurred. Responsible for ensuring records are kept in an orderly state for twelve (12) months. Responsible for providing back up position for relief during vacation, or unplanned absences.

4.0 PROCEDURE:

4.1 Utilities Technician is to conduct an inspection as early in the Shift as possible. The inspection is to be conducted at least every weekday and in the event of an upset condition.

4.2 A copy of the inspection Log is located in the Operations/Effluent System. Print this inspection log and take it with you.

4.3 The inspection Log is designed to flow naturally starting from the Equalization Tank

4.4 Record all data requested on the Log

4.5 When inspecting the system, note leaks from pipes or tanks. Inform Plant Manager immediately and enter a work request for the repair. Maintenance will determine next steps.

4.6 Log any outages on a maintenance form including who was contacted, the specific problem, reason for the problem, corrective action, and completion status.

4.7 Complete a work request for any broken parts, or items showing wear.

4.8 Staple and three (3) hole punch the Inspection log and insert into the three ring binder (under the appropriate month). The library of records are to be maintained in the Treatment Plant office.

Monthly Facility Effluent and Utilities Inspection Form
Bridgeton Leachate Pretreatment Plant

Date: _____ Time: _____

Name of Inspector: _____

Effluent

1. Effluent pH
2. Effluent Color
3. Effluent foam
4. Effluent testing complete for the month?
5. Chemical Tanks physical observation and leak free?
6. Drums and Totes on spill pallets?
7. Sludge Area clean
8. Cooling Towers maintained?
9. Rotating assemblies lubricated as required?

Utilities

Yes No

1. Piping Changes to direct stormwater to outfalls?
2. Grounds are free of garbage or debris.
3. No leaks present around equipment.
4. Equipment is functioning properly.
5. Stormwater outfalls are free of garbage or debris.
6. No signs of soil erosion around stormwater outfalls.
7. Truck unloading area is free of garbage or debris.
8. Stormwater control system working properly.
9. Building is clean and neat.

Other _____

_____

Specific Comments

Item # Observation

_____ _____

_____ _____

Inspector Signature: _____

APPENDIX E

MSDS

3D TRASAR®
3DT265

Cooling Water Scale and Corrosion Inhibitor

NALCO
An Ecolab Company

Product Bulletin

PRODUCT DESCRIPTION AND APPLICATION

*3D TRASAR products are part of an innovative water treatment program that uses proven technology to prevent operational problems. **3D TRASAR** technology compensates for both routine and special causes of system variation. **3D TRASAR** programs provide a return on your investment through their unique control and diagnostic capabilities.*

3D TRASAR 3DT265 is designed for use in systems with recirculating water calcium concentrations greater than 300 ppm (as $CaCO_3$) at the targeted cycles when the pH is typically greater than 8.7. Because **3DT265** contains no molybdate or zinc, it should be considered as a more environmentally friendly chemistry to meet the regulatory needs of many customers.

3DT265 is a balanced blend of corrosion and scale inhibitors designed for use in open recirculating water systems.
3DT265 contains:

- Proprietary blend of phosphonate inhibitors for both threshold level scale and corrosion inhibitors. They are particularly applicable to systems where calcium carbonate and/or sulfate scales are likely.
- Proprietary High Stress Polymer (HSP) dispersant.
- Benzotriazole (BZT) for copper corrosion inhibition.

3DT265 is designed to operate at high alkalinities, minimizing or eliminating the need for acid feed. Corrosion protection is provided by specific organic phosphate derivatives binding to the ferrous corrosion sites and from the protection provided by operating at a higher alkalinity. Scale protection and general dispersancy are provided by a unique polymer designed for high stress systems.

PHYSICAL & CHEMICAL PROPERTIES

Refer to the Material Safety Data Sheet (MSDS), SECTION 9, for the most current data.

These properties are typical.

Form	Liquid
Color	Yellow
Odor	None
Specific Gravity @ 77 °F [25 °C]	1.13

Density	9.39 lb/gal
pH (neat)	3.2
Viscosity	6 cp
Flash Point (PMCC)	>200°F (93°C)
Freeze Point	28°F (-2.2°C)
Solubility in Water	Complete

ACTIVE CONSTITUENTS

Active	**Function**
Phosphonate (HEDP/PBTC)	$CaCO_3$ stabilization (scale inhibitor)
Benzotriazole	Yellow metal corrosion inhibitor
Tagged High Stress Polymer	Dispersant
TRASAR® #2	Product monitoring & control

REGULATORY APPROVALS

3DT265 is intended for industrial use only. It must not be fed to potable water systems.

Refer to the Material Safety Data Sheet (MSDS), SECTION 15 for the most recent information on approvals.

MATERIALS OF COMPATIBILITY

Compatible	Incompatible
Unwelded 304SS	Welded 304SS
Unwelded 316 SS	Welded 316 SS
CPVC	Brass
HDPE	Mild Steel
Porta-feed Liner	UHMWPE
Nylon (polyamide)	Neoprene
Polymethylmethacrylate	EHD0045 Liner (epoxy phenolic
Polypropylene	HXG0009 Liner (phenolic)
Fluoropolymer	Plasite 7122 (cross-linked epoxy phenolic)
PVC	
Kynar	
EPDM	
Kalrez® perfluoroelastomer 1050	
Viton® synthetic rubber A	
Buna-N	
Plasite 4300 (vinyl ester resin)	

DOSAGE AND FEEDING

For complete dosage and feeding recommendations, contact your Nalco sales engineer.

ENVIRONMENTAL AND TOXICITY DATA

Biological Oxygen Demand (5-day BOD_5)	8,700 ppm
Chemical Oxygen Demand (COD)	439,000 ppm
Total Organic Carbon (TOC)	Not Available

Refer to the Material Safety Data Sheet (MSDS), SECTIONS 11 and 12, for the most current data.

SAFETY AND HANDLING

Before using this product please refer to SECTIONS 8 of the MSDS for proper personal protective equipment (PPE) and SECTIONS 3 for health effects information.

3DT265 is an acidic product and can cause eye and skin irritation. Chemical-resistant gloves and safety goggles should be worn when handling **3DT265**. Avoid breathing the solution spray. Do not take internally.

STORAGE

3DT265 should be stored in a location where the product temperature can be kept in a range between 28°F (-7°C) and 120°F (49°C). Recommended in-plant storage limit is one year.

Refer to the Material Safety Data Sheet (MSDS), SECTION 7, for the most current data.

REMARKS

If you need assistance or more information on this product, please call your nearest Nalco Representative.
For more news about Nalco Company, visit our website www.nalco.com

For **Medical and Transportation Emergencies** involving Nalco products, please see the Material Safety Data Sheet for the phone number.

ADDITIONAL INFORMATION

TRASAR, 3D TRASAR, NALCO and the Logo are trademarks of Nalco Company (11-3-2010)
All other trademarks are the property of their respective owners.

Nalco Company, 1601 West Diehl Road, Naperville, Illinois 60563-1198

Subsidiaries and Affiliates in Principal Locations Around the World

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NALCO

SAFETY DATA SHEET

PRODUCT

3D TRASAR® 3DT265

EMERGENCY TELEPHONE NUMBER(S)
(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **3D TRASAR® 3DT265**

APPLICATION : CORROSION/SCALE INHIBITOR

COMPANY IDENTIFICATION : Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER(S) : (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING
HEALTH : 1 / 1 FLAMMABILITY : 1 / 1 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

CAUTION
May cause irritation with prolonged contact.
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Keep container tightly closed. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water.
Wear suitable protective clothing.
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of sulfur (SOx) under fire conditions. May evolve oxides of phosphorus (POx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
May cause irritation with prolonged contact.

SKIN CONTACT :
May cause irritation with prolonged contact.

INGESTION :
Not a likely route of exposure. There may be irritation to the gastro-intestinal tract with nausea and vomiting.

INHALATION :
Not a likely route of exposure. Repeated or prolonged exposure may irritate the respiratory tract.

SYMPTOMS OF EXPOSURE :
Acute :
A review of available data does not identify any symptoms from exposure not previously mentioned.
Chronic :
A review of available data does not identify any symptoms from exposure not previously mentioned.

AGGRAVATION OF EXISTING CONDITIONS :
A review of available data does not identify any worsening of existing conditions.

HUMAN HEALTH HAZARDS - CHRONIC :
No adverse effects expected other than those mentioned above.

4. FIRST AID MEASURES

EYE CONTACT :
Immediately flush with plenty of water for at least 15 minutes. If symptoms develop, seek medical advice.

SKIN CONTACT :
Flush affected area with water. If symptoms develop, seek medical advice. Flush with large amounts of water. Use soap if available. If symptoms develop, seek medical advice.

INGESTION :
Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. Get medical attention.

INHALATION :
Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

NOTE TO PHYSICIAN :
Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT : > 200 °F / > 93.3 °C (PMCC)

EXTINGUISHING MEDIA :
This product would not be expected to burn unless all the water is boiled away. The remaining organics may be ignitable. Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD :
Not flammable or combustible. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of sulfur (SOx) under fire conditions. May evolve oxides of phosphorus (POx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :
In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Restrict access to area as appropriate until clean-up operations are complete. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Keep people away from and upwind of spill/leak. Ventilate spill area if possible.

METHODS FOR CLEANING UP :
SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. LARGE SPILLS: Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Clean contaminated surfaces with water or aqueous cleaning agents. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :
Prevent material from entering sewers or waterways.

7. HANDLING AND STORAGE

HANDLING :
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Do not breathe vapors/gases/dust. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled.

STORAGE CONDITIONS :
Protect product from freezing. Store the containers tightly closed. Store in suitable labeled containers. Store separately from bases.

SUITABLE CONSTRUCTION MATERIAL :
Buna-N, Polyurethane, Polypropylene, Polyethylene, PVC, EPDM, HDPE (high density polyethylene), Epoxy phenolic resin, Fluoroelastomer, Chlorosulfonated polyethylene rubber, Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.

UNSUITABLE CONSTRUCTION MATERIAL :
Brass, Neoprene, Stainless Steel 304

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :
General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne mist and vapor.

RESPIRATORY PROTECTION :
Where concentrations in air may exceed the limits given in this section or when significant mists, vapors, aerosols, or dusts are generated, an approved air purifying respirator equipped with suitable filter cartridges is recommended. Consult the respirator / cartridge manufacturer data to verify the suitability of specific devices. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

HAND PROTECTION :
When handling this product, the use of chemical gloves is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

SKIN PROTECTION :
Wear standard protective clothing.

EYE PROTECTION :
Wear safety glasses with side-shields.

HYGIENE RECOMMENDATIONS :
Use good work and personal hygiene practices to avoid exposure. Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

HUMAN EXPOSURE CHARACTERIZATION :
Based on our recommended product application and personal protective equipment, the potential human exposure is: Low

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Yellow
ODOR	None

SPECIFIC GRAVITY	1.13
DENSITY	9.39 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	3.2
VISCOSITY	6 cps
FREEZING POINT	28 °F / -2.2 °C
VAPOR PRESSURE	Same as water
VAPOR DENSITY	Same as water
VOC CONTENT	0 % EPA Method 24

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY

STABILITY :
Stable under normal conditions.

HAZARDOUS POLYMERIZATION :
Hazardous polymerization will not occur.

CONDITIONS TO AVOID :
Avoid extremes of temperature.

MATERIALS TO AVOID :
Contact with strong alkalies (e.g. ammonia and its solutions, carbonates, sodium hydroxide (caustic), potassium hydroxide, calcium hydroxide (lime), cyanide, sulfide, hypochlorites, chlorites) may generate heat, splattering or boiling and toxic vapors. Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors.

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of carbon, Oxides of nitrogen, Oxides of sulfur, Oxides of phosphorus

11. TOXICOLOGICAL INFORMATION

No toxicity studies have been conducted on this product.

SENSITIZATION :
This product is not expected to be a sensitizer.

CARCINOGENICITY :
None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :
Based on our hazard characterization, the potential human hazard is: Low

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product.

Acute Fish Results :

Species	Exposure	Test Type	Value	Test Descriptor
Rainbow Trout	96 hrs	LC50	1,868 mg/l	Product
Fathead Minnow	96 hrs	LC50	3,140 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	Test Type	Value	Test Descriptor
Daphnia magna	48 hrs	LC50	1,964 mg/l	Product

PERSISTENCY AND DEGRADATION :

Total Organic Carbon (TOC) : 63,000 mg/l

Chemical Oxygen Demand (COD) : 190,000 mg/l

Biological Oxygen Demand (BOD) :

Incubation Period	Value	Test Descriptor
5 d	< 200 mg/l	Product

The organic portion of this preparation is expected to be inherently biodegradable.

MOBILITY :
The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
<5%	30 - 50%	50 - 70%

The portion in water is expected to be soluble or dispersible.

BIOACCUMULATION POTENTIAL
This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Low
Based on our recommended product application and the product's characteristics, the potential environmental exposure is: Moderate

If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

LAND TRANSPORT :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this information.

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :
Based on our hazard evaluation, none of the substances in this product are hazardous.

CERCLA/SUPERFUND, 40 CFR 302 :
Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :
This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :
This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

NSF NON-FOOD COMPOUNDS REGISTRATION PROGRAM (former USDA List of Proprietary Substances & Non-Food Compounds) :
NSF Registration number for this product is : 138497
This product is acceptable for treatment of cooling and retort water (G5) in and around food processing areas.

This product has been certified as KOSHER/PAREVE for year-round use INCLUDING THE PASSOVER SEASON by the CHICAGO RABBINICAL COUNCIL.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
This product may contain trace levels (<0.1% for carcinogens, <1% all other substances) of the following substance(s) listed under the regulation. Additional components may be unintentionally present at trace levels.

Substance(s)	Citations
• Methanol	Sec. 112

CALIFORNIA PROPOSITION 65 :
Substances listed under California Proposition 65 are not intentionally added or expected to be present in this product.

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

INTERNATIONAL CHEMICAL CONTROL LAWS :

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

AUSTRALIA
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

EUROPE
The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

JAPAN
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

KOREA
All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should

be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH., (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version),
Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH,
(TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Ariel Insight™ (An integrated guide to industrial chemicals covered under major regulatory and advisory programs), North American Module, Western European Module, Chemical Inventories Module and the Generics Module (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By : Product Safety Department
Date issued : 01/17/2012
Version Number : 1.13

NALCO

SAFETY DATA SHEET

PRODUCT

NALCO® 7396

EMERGENCY TELEPHONE NUMBER(S)
(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME :	**NALCO® 7396**
APPLICATION :	WATER STABILIZATION
COMPANY IDENTIFICATION :	Nalco Company 1601 W. Diehl Road Naperville, Illinois 60563-1198
EMERGENCY TELEPHONE NUMBER(S) :	(800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING
HEALTH : 1 / 1 FLAMMABILITY : 0 / 0 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

CAUTION
May cause irritation with prolonged contact.
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water.
Wear suitable protective clothing.
Not flammable or combustible. May evolve oxides of phosphorus (POx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
May cause irritation with prolonged contact.

SKIN CONTACT :
May cause irritation with prolonged contact.

INGESTION :
Not a likely route of exposure. There may be irritation to the gastro-intestinal tract with nausea and vomiting.

INHALATION :
Not a likely route of exposure. Repeated or prolonged exposure may irritate the respiratory tract.

AGGRAVATION OF EXISTING CONDITIONS :
A review of available data does not identify any worsening of existing conditions.

4. FIRST AID MEASURES

EYE CONTACT :
Immediately flush with plenty of water for at least 15 minutes. If symptoms develop, seek medical advice.

SKIN CONTACT :
Flush with large amounts of water. Use soap if available. If symptoms develop, seek medical advice.

INGESTION :
Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. Get medical attention.

INHALATION :
Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

NOTE TO PHYSICIAN :
Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT : None

EXTINGUISHING MEDIA :
Not expected to burn. Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD :
Not flammable or combustible. May evolve oxides of phosphorus (POx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :
In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Restrict access to area as appropriate until clean-up operations are complete. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Keep people away from and upwind of spill/leak. Ventilate spill area if possible.

METHODS FOR CLEANING UP :
SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. LARGE SPILLS: Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Clean contaminated surfaces with water or aqueous cleaning agents. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :
Do not contaminate surface water.

7. HANDLING AND STORAGE

HANDLING :
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Do not breathe vapors/gases/dust. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled.

STORAGE CONDITIONS :
Store in suitable labeled containers. Store the containers tightly closed.

SUITABLE CONSTRUCTION MATERIAL :
Buna-N, Neoprene, Viton, Hypalon, Polyurethane, EPDM, PVC, Polypropylene, Polyethylene

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :
General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne mist and vapor.

RESPIRATORY PROTECTION :
Where concentrations in air may exceed the limits given in this section or when significant mists, vapors, aerosols, or dusts are generated, an approved air purifying respirator equipped with suitable filter cartridges is recommended. Consult the respirator / cartridge manufacturer data to verify the suitability of specific devices. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory

protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

HAND PROTECTION :
When handling this product, the use of chemical gloves is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

SKIN PROTECTION :
Wear standard protective clothing.

EYE PROTECTION :
Wear chemical splash goggles. Wear safety glasses with side-shields.

HYGIENE RECOMMENDATIONS :
Use good work and personal hygiene practices to avoid exposure. Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

HUMAN EXPOSURE CHARACTERIZATION :
Based on our recommended product application and personal protective equipment, the potential human exposure is: Moderate

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Colorless
ODOR	None

SPECIFIC GRAVITY	1.74 @ 59 °F / 15 °C
DENSITY	14.5 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	10.0 - 11.5
FREEZING POINT	-20 °F / -28.9 °C
VAPOR PRESSURE	similar to water
VOC CONTENT	0 % Calculated

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY

STABILITY :
Stable under normal conditions.

HAZARDOUS POLYMERIZATION :
Hazardous polymerization will not occur.

CONDITIONS TO AVOID :
Extremes of temperature

MATERIALS TO AVOID :
None known

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of phosphorus

11. TOXICOLOGICAL INFORMATION

The following results are for the product.

ACUTE ORAL TOXICITY :
Species: Rat
LD50: 2,444 mg/kg
Test Descriptor: Product

ACUTE DERMAL TOXICITY :
Species: Rabbit
LD50: > 5,000 mg/kg
Test Descriptor: Product

PRIMARY SKIN IRRITATION :
Species: Rabbit
Draize Score: 0.8 /8.0
Test Descriptor: Product

PRIMARY EYE IRRITATION :
Species: Rabbit
Draize Score: 17.3 /110.0
Test Descriptor: Product

SENSITIZATION :
This product is not expected to be a sensitizer.

CARCINOGENICITY :
None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :
Based on our hazard characterization, the potential human hazard is: Low

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product.

Acute Fish Results :

Species	Exposure	Test Type	Value	Test Descriptor
Bluegill Sunfish	96 hrs	LC50	420 mg/l	Product
Rainbow Trout	96 hrs	LC50	450 mg/l	Product
Fathead Minnow	96 hrs	LC50	425 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	Test Type	Value	Test Descriptor
Daphnia magna	48 hrs	LC50	> 100 mg/l	Product
Ceriodaphnia dubia	48 hrs	LC50	406 mg/l	Product

PERSISTENCY AND DEGRADATION :

Chemical Oxygen Demand (COD) : < 100 mg/l

Biological Oxygen Demand (BOD) :

Incubation Period	Value	Test Descriptor
	0 mg/l	

Greater than 95% of this product consists of inorganic substances for which a biodegradation value is not applicable.

MOBILITY :
The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
<5%	30 - 50%	50 - 70%

The portion in water is expected to be soluble or dispersible.

BIOACCUMULATION POTENTIAL
This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Low
Based on our recommended product application and the product's characteristics, the potential environmental exposure is: High

If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

LAND TRANSPORT :

Proper Shipping Name :	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
Technical Name(s) :	TETRAPOTASSIUM PYROPHOSPHATE
UN/ID No :	UN 3266
Hazard Class - Primary :	8
Packing Group :	III
Flash Point :	None

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
Technical Name(s) :	TETRAPOTASSIUM PYROPHOSPHATE
UN/ID No :	UN 3266
Hazard Class - Primary :	8
Packing Group :	III

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name :	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
Technical Name(s) :	TETRAPOTASSIUM PYROPHOSPHATE
UN/ID No :	UN 3266
Hazard Class - Primary :	8
Packing Group :	III

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this information.

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

CERCLA/SUPERFUND, 40 CFR 302 :
Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :
This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :
This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

FOOD AND DRUG ADMINISTRATION (FDA) Federal Food, Drug and Cosmetic Act :
When use situations necessitate compliance with FDA regulations, this product is acceptable under : 21 CFR 176.170 Components of paper and paperboard in contact with aqueous and fatty foods and 21 CFR 176.180 Components of paper and paperboard in contact with dry foods.

Limitations: no more than required to produce intended technical effect.

FEDERAL INSTITUTE FOR RISK ASSESSMENT (BfR) RECOMMENDATION :
This product is In compliance with recommendation BfR XXXVI

Dosage Limit (%)	Dosage Limit (mg/dm2)	Limitation Qualifier
1 %		product based on dry fiber

NSF NON-FOOD COMPOUNDS REGISTRATION PROGRAM (former USDA List of Proprietary Substances & Non-Food Compounds) :
NSF Registration number for this product is : 062428
This product is acceptable as a water conditioner (G2) for the treatment of entire potable water systems at concentrations not to exceed 10 ppm calculated as phosphate ion in and around food processing areas. This product is acceptable for treatment of cooling and retort water (G5) in and around food processing areas. This product is acceptable for treating boilers, steam lines, and/or cooling systems (G7) where neither the treated water nor the steam produced may contact edible products in and around food processing areas.

This product has been certified as KOSHER/PAREVE for year-round use INCLUDING THE PASSOVER SEASON by the CHICAGO RABBINICAL COUNCIL.

NSF INTERNATIONAL :
This product has received NSF/International certification under NSF/ANSI Standard 60 in the corrosion and scale control and sequestering categories. The official name is "Tetrapotassium Pyrophosphate." Maximum product application dosage is : 29 mg/l.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

CALIFORNIA PROPOSITION 65 :
Substances listed under California Proposition 65 are not intentionally added or expected to be present in this product.

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

INTERNATIONAL CHEMICAL CONTROL LAWS :

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

AUSTRALIA
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

EUROPE
The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

JAPAN
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

KOREA
All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should

be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version),
Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH,
(TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By : Product Safety Department
Date issued : 07/10/2013
Version Number : 1.18

MATERIAL SAFETY DATA SHEET

DYNATEC SYSTEMS, INC
909 JACKSONVILLE ROAD
BURLINGTON, NJ 08016

TELEPHONE: (609) 387 - 0330
BUSINESS HOURS: (609) 387-0330

SECTION 01 - IDENTIFICATION

Product Name:	MEMCLEEN-A
Product Type:	Cleaning Compound
DOT Hazard Class:	Corrosive Liquid, Acidic, Organic, N.O.S. (Citric Acid Solution), Class 8, UN 3265, PGIII

SECTION 02 - HAZARDOUS INGREDIENTS

Chemical Name	CAS #	%	PEL/TLV
2-Hydroxy-1,2,3-Propane Tricarboxylic Acid	77-92-9	<50	Not Established

SECTION 03 - PHYSICAL DATA

Appearance and Odor :	Clear, light colored liquid with a mild odor.
pH:	1.5-2.0
Specific Gravity :	1.2
Solubility in Water :	100%

SECTION 04 - FIRE AND EXPLOSION HAZARD DATA

Flash Point:	>212 Degrees F
Extinguishing Media:	Carbon dioxide or foam
Special Fire Fighting Procedures:	Wear NIOSH approved self-contained breathing apparatus with a full-face piece.
Unusual Fire and Explosion Hazards:	None

SECTION 05 - HEALTH AND FIRST AID

HMIS Hazard Rating:

Health 2 Fire 0 Reactivity 0

Hazard Type: Corrosive

Carcinogenicity: NTP: Not listed Iarc: Not listed OSHA: Not listed

Effects of Overexposure: May cause irritation or burns to the skin, eyes and respiratory tract. Prolonged or repeated skin contact may result in dermatitis. Prolonged or repeated eye contact may result in conjunctivitis.

EMERGENCY AND FIRST AID PROCEDURES

Skin:	Wash area with copious water. If irritation persists, obtain medical attention.
Eyes:	Flush eyes with copious water for 15 minutes. If irritation persists, seek medical attention.
Inhalation:	Remove to fresh air. Obtain medical attention if symptoms persist.
Ingestion:	If conscious, give 1-3 glasses of water to dilute stomach contents. Never give anything by mouth to an unconscious person. Do not induce vomiting. Seek immediate medical attention.

SECTION 06 - CORROSIVITY AND REACTIVITY DATA

Stability:	Stable
Incompatibility:	Incompatible with strong bases and oxidizing agents.
Hazardous Decomposition:	Combustion will produce oxides of carbon.
Hazardous Polymerization:	Will not occur

SECTION 07 - STORAGE, HANDLING, AND USE PROCEDURES

Normal Storage and Handling:	Normal warehouse procedures. Store above freezing
Normal Use:	Normally used as 1% solution in water for cleaning membrane systems.
Steps to be taken in case of leaks or spills:	Surfaces will be slippery. Flush with water or soak up with inert material and shovel into a container.
Waste Disposal Method:	Dispose of in accordance with Federal, State and Local laws. Material is biodegradable.

SECTION 08 - PERSONAL PROTECTION INFORMATION

Respiratory Protection:	Not required for normal use.
Ventilation:	No special requirement.
Protective Gloves:	Rubber, impervious type.
Eye Protection :	Chemical splash goggles.
Personal Hygiene:	Use good personal hygiene practices. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove soiled clothing and wash thoroughly before reuse.

Measures To Be Taken During Repair and Maintenance of Contaminated Equipment That Has Been In Contact With This Material: See Sections 07 and 08.

SECTION 09 - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage:	Keep from freezing.
Other Precautions:	None

SECTION 10 - REGULATORY INFORMATION

TSCA Status: All chemicals contained in this product are on the TSCA inventory.

FOR COMPANY USE

The information and recommendations set forth herein are taken from sources believed to be accurate as of the date hereof; however, Dynatec Systems Inc., makes no warranty with respect to the accuracy of the information or the suitability of the recommendations, and assumes no liability to any user thereof.

G. William Fisher

Prepared by: G. William Fisher	Created:	17 February, 1998
	Revision B:	1 June, 2009

NALCO

SAFETY DATA SHEET

PRODUCT

NALCLEAR® 7768

EMERGENCY TELEPHONE NUMBER(S)
(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCLEAR® 7768**

APPLICATION : FLOCCULANT

COMPANY IDENTIFICATION : Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER(S) : (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING
HEALTH : 0 / 1 FLAMMABILITY : 1 / 1 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

CAUTION
May cause irritation with prolonged contact.
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Keep container tightly closed. Water in contact with the product will cause slippery floor conditions. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Use a mild soap if available. Protect product from freezing.
Wear suitable protective clothing.
Phase separation of the product may occur after prolonged storage. The top phase will be combustible hydrocarbon solvent. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
May cause irritation with prolonged contact.

SKIN CONTACT :
Frequent or prolonged contact with product may defat and dry the skin, leading to discomfort and dermatitis.

INGESTION :
Not a likely route of exposure. If swallowed a jelly mass may form which in digestion may cause blockage.

INHALATION :
Not a likely route of exposure. Repeated or prolonged exposure may irritate the respiratory tract.

SYMPTOMS OF EXPOSURE :
Acute :
A review of available data does not identify any symptoms from exposure not previously mentioned.
Chronic :
Frequent or prolonged contact with product may defat and dry the skin, leading to discomfort and dermatitis.

AGGRAVATION OF EXISTING CONDITIONS :
A review of available data does not identify any worsening of existing conditions.

4. FIRST AID MEASURES

EYE CONTACT :
Wipe or blot away excess material with clean cloth or paper towel. Wash affected areas thoroughly with water. If symptoms develop, seek medical advice.

SKIN CONTACT :
Wipe or blot away excess material with clean cloth or paper towel. Wash affected areas thoroughly with water. Use a mild soap if available. If symptoms develop, seek medical advice.

INGESTION :
Do not induce vomiting without medical advice. Get medical attention.

INHALATION :
Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

NOTE TO PHYSICIAN :
Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT : > 200 °F / > 93.3 °C (PMCC)

EXTINGUISHING MEDIA :
Foam, Dry powder, Carbon dioxide, Other extinguishing agent suitable for Class B fires

UNSUITABLE EXTINGUISHING MEDIA :
Do not use water unless flooding amounts are available.

FIRE AND EXPLOSION HAZARD :
Phase separation of the product may occur after prolonged storage. The top phase will be combustible hydrocarbon solvent. May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :
In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Restrict access to area as appropriate until clean-up operations are complete. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Keep people away from and upwind of spill/leak. Ventilate spill area if possible. Spill may be slippery.

METHODS FOR CLEANING UP :
SMALL SPILLS: Water in contact with the product will create a voluminous, slippery gel. Soak up as thoroughly as possible with inert absorbent material or sawdust. Do NOT hose down area until all possible traces of polymer are removed. LARGE SPILLS: Water in contact with the product will cause slippery floor conditions. Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Clean contaminated surfaces with water or aqueous cleaning agents. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :
Prevent material from entering sewers or waterways.

7. HANDLING AND STORAGE

HANDLING :
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Do not breathe vapors/gases/dust. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled. Stir well prior to use.

STORAGE CONDITIONS :
Store separately from oxidizers. Store the containers tightly closed. Store in suitable labeled containers. Protect product from freezing.

SUITABLE CONSTRUCTION MATERIAL :
Hastelloy C-276, Stainless Steel 316L, Stainless Steel 304, Plasite 7122, Inconel 625, Plasite 4300, CPVC (rigid), Polypropylene (rigid), Polyethylene (rigid), PTFE, Fluoroelastomer

UNSUITABLE CONSTRUCTION MATERIAL :
Brass, Neoprene, Buna-N, Natural rubber, Polyurethane, EPDM, Mild steel, Galvanized metals, Polyethylene tubing, Chlorosulfonated polyethylene rubber

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :
General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne mist and vapor.

RESPIRATORY PROTECTION :
Where concentrations in air may exceed the limits given in this section or when significant mists, vapors, aerosols, or dusts are generated, an approved air purifying respirator equipped with suitable filter cartridges is recommended. Consult the respirator / cartridge manufacturer data to verify the suitability of specific devices. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

HAND PROTECTION :
When handling this product, the use of chemical gloves is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

SKIN PROTECTION :
Wear standard protective clothing.

EYE PROTECTION :
Wear safety glasses with side-shields.

HYGIENE RECOMMENDATIONS :
Use good work and personal hygiene practices to avoid exposure. Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

HUMAN EXPOSURE CHARACTERIZATION :
Based on our recommended product application and personal protective equipment, the potential human exposure is: Moderate

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Emulsion
APPEARANCE	Off-white
ODOR	Slight, Hydrocarbon
SPECIFIC GRAVITY	1.04 @ 77 °F / 25 °C

DENSITY	8.55 - 9.05 lb/gal
SOLUBILITY IN WATER	Emulsifiable
pH (1 %)	6.8
VISCOSITY	200 - 1,700 cps @ 77 °F / 25 °C
FREEZING POINT	26 °F / -3 °C
BOILING POINT	215 °F / 102 °C
VOC CONTENT	26.2 % EPA Method 24

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY

STABILITY :
Stable under normal conditions.

HAZARDOUS POLYMERIZATION :
Hazardous polymerization will not occur.

CONDITIONS TO AVOID :
Freezing temperatures.

MATERIALS TO AVOID :
Addition of water results in gelling. Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors.

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of carbon, Oxides of nitrogen

11. TOXICOLOGICAL INFORMATION

No toxicity studies have been conducted on this product.

SENSITIZATION :
This product is not expected to be a sensitizer.

CARCINOGENICITY :
None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :
Based on our hazard characterization, the potential human hazard is: Low

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product, unless otherwise indicated.

Acute Fish Results :

Species	Exposure	Test Type	Value	Test Descriptor
Sheepshead Minnow	96 hrs	LC50	> 1,000 mg/l	1% Aqueous Solution of a Similar Product
Rainbow Trout	96 hrs	LC50	8,500 mg/l	1% Aqueous Solution of Product
Inland Silverside	96 hrs	LC50	90.7 mg/l	Product
Rainbow Trout	96 hrs	LC50	157.5 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	Test Type	Value	Test Descriptor
Mysid Shrimp (M. litoralis)	96 hrs	LC50	188.9 mg/l	Product
Mysid Shrimp (Mysidopsis bahia)	96 hrs	LC50	67.4 mg/l	Product
Daphnia magna	48 hrs	LC50	0.694 mg/l	Product
Daphnia magna	48 h	EC50	2.0 mg/l	Tested with 20 mg/L Humic Acid

AQUATIC PLANT RESULTS :

Species	Exposure	Test Type	Value	Test Descriptor
Marine Algae (Skeletonema costatum)	72 hrs	EC50	23 mg/l	Product

PERSISTENCY AND DEGRADATION :

Chemical Oxygen Demand (COD) : 429,000 mg/l

Biological Oxygen Demand (BOD) :

Incubation Period	Value	Test Descriptor
5 d	200,000 mg/l	Product

The organic portion of this preparation is expected to be inherently biodegradable.

MOBILITY :
The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
5 - 10%	30 - 50%	50 - 70%

The portion in water is expected to be soluble or dispersible.

BIOACCUMULATION POTENTIAL
This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Low
Based on our recommended product application and the product's characteristics, the potential environmental exposure is: Moderate

If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

LAND TRANSPORT :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this information.

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

CERCLA/SUPERFUND, 40 CFR 302 :
Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :
This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :
This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

FOOD AND DRUG ADMINISTRATION (FDA) Federal Food, Drug and Cosmetic Act :
When use situations necessitate compliance with FDA regulations, this product is acceptable under : 21 CFR 176.170 Components of paper and paperboard in contact with aqueous and fatty foods and 21 CFR 176.180 Components of paper and paperboard in contact with dry foods., 21 CFR 173.315 chemicals used in washing or to assist in the lye peeling of fruits and vegetables

Maximum product dosage is 0.345% of finished paper or paperboard. 21 CFR 173.315 Limitation: For use only in the washing of sugar beets as a flume mud dewatering aid applied to the underflow of the final flume water clarifier just prior to the flume mud belt press at maximum concentration of 500 ppm as product.

NSF INTERNATIONAL :
This product has received NSF/International certification under NSF/ANSI Standard 60 in the coagulation and flocculation category. The official name is "Polyacrylamide." Maximum product application dosage is : 1 mg/l.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
This product may contain trace levels (<0.1% for carcinogens, <1% all other substances) of the following substance(s) listed under the regulation. Additional components may be unintentionally present at trace levels.

Substance(s)	Citations
• Cupric Sulphate	Sec. 307, Sec. 311

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
This product may contain trace levels (<0.1% for carcinogens, <1% all other substances) of the following substance(s) listed under the regulation. Additional components may be unintentionally present at trace levels.

Substance(s)	Citations
• Acrylamide	Sec. 112

CALIFORNIA PROPOSITION 65 :
This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels, which would require a warning under the statute.

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

INTERNATIONAL CHEMICAL CONTROL LAWS :

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

AUSTRALIA
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

EUROPE
The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

JAPAN
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

KOREA
All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH., (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version),
Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH,
(TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

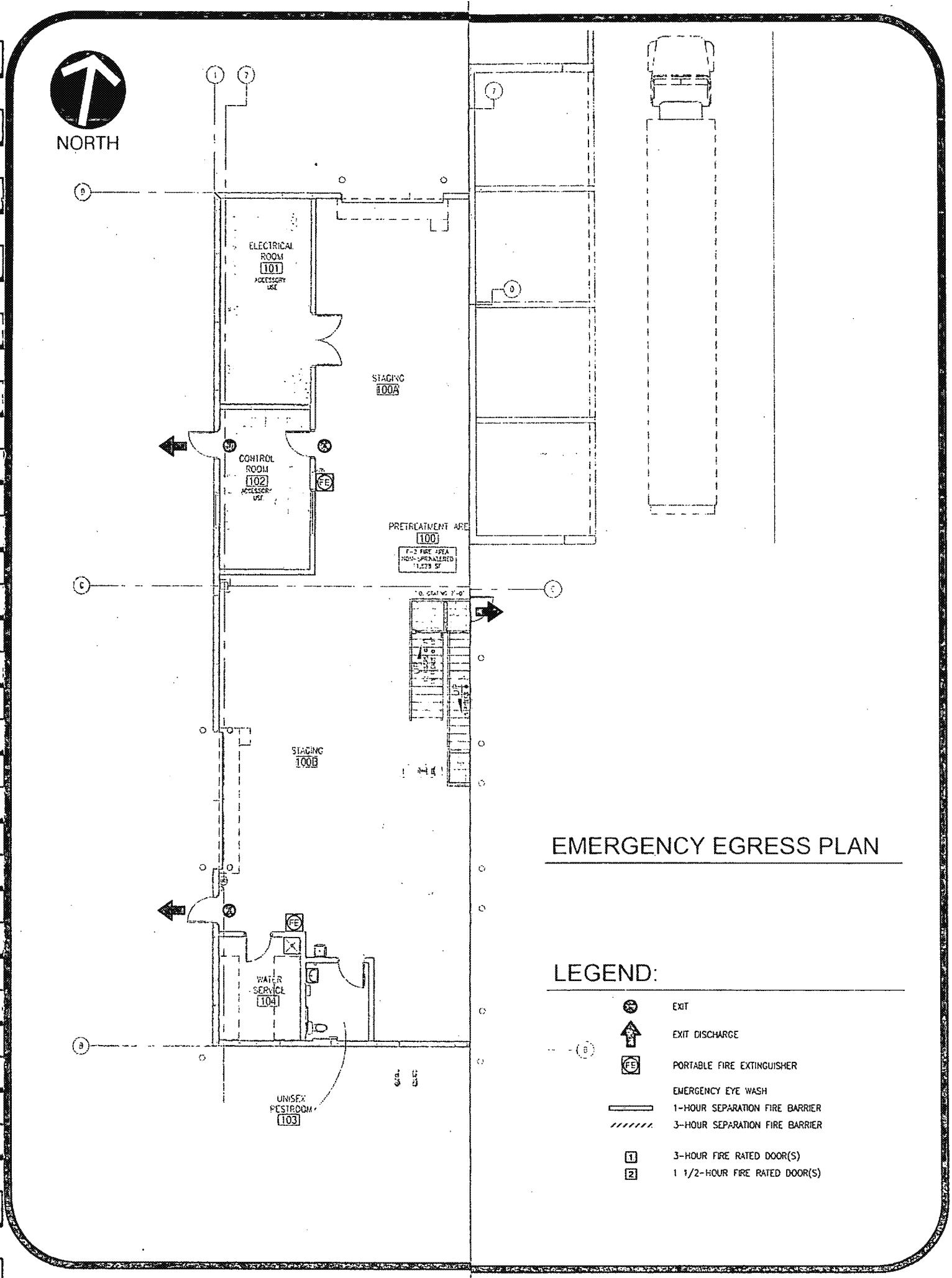
Ariel Insight™ (An integrated guide to industrial chemicals covered under major regulatory and advisory programs), North American Module, Western European Module, Chemical Inventories Module and the Generics Module (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By : Product Safety Department
Date issued : 01/27/2012
Version Number : 1.30

APPENDIX F

EVACUATION PLAN


NORTH
ELECTRICAL ROOM 101
ACCESSORY USE
STAGING 100A
CONTROL ROOM 102
ACCESSORY USE
PRETREATMENT AREA 100
F-2 FIRE AREA
NON-SPRINKLERED
1,529 SF
STAGING 100B
WATER SERVICE 104
UNISEX RESTROOM 103
EMERGENCY EGRESS PLAN
LEGEND:
EXIT
EXIT DISCHARGE
PORTABLE FIRE EXTINGUISHER
EMERGENCY EYE WASH
1-HOUR SEPARATION FIRE BARRIER
3-HOUR SEPARATION FIRE BARRIER
3-HOUR FIRE RATED DOOR(S)
1 1/2-HOUR FIRE RATED DOOR(S)

APPENDIX G

HAZARD COMMUNICATION PLAN

1.0 TITLE: HAZARD COMMUNICATION PLAN

2.0 PURPOSE:

2.1 This document serves as the Bridgeton Leachate Pretreatment Plant Hazard Communication Program. It provides detailed safety guidelines and instructions for receipt, use and storage of chemicals at our facility by staff and contractors. Reference: OSHA Standard 1910.1200.

3.0 RESPONSIBILITIES:

3.1 Management

- Confirm compliance with this program
- Conduct immediate corrective action for deficiencies found in the program
- Maintain an effective Hazard Communication training program
- Make this plan available to Operators, staff, and other staff

3.2 Shipping & Receiving

- Confirm received containers are properly labeled and that labels are not removed or defaced
- Confirm all shipped containers and sludge trailers are properly labeled
- Confirm staff are properly trained in spill response
- Confirm received Material Safety Data Sheets (MSDS) are properly distributed

3.3 Purchasing

- Obtain, from the manufacturer, MSDS for chemicals purchased from retail sources

3.4 Plant Manager

- Maintain a list of hazardous chemicals using the identity that is referenced on the MSDS
- Monitor the effectiveness of the program
- Conduct annual audit of the program
- Monitor staff training to confirm effectiveness
- Keep management informed of necessary changes
- Confirm MSDSs are available as required
- Monitor facility for proper use, storage and labeling of chemicals

- Confirm MSDS are available for emergency medical personnel when treating exposed staff
- Provide information, as requested, concerning health effects and exposure symptoms listed on MSDSs

3.5 Team Coordinators

- Comply with all specific requirements of the program
- Provide specific chemical safety training for assigned staff
- Confirm chemicals are properly used stored & labeled
- Confirm only the minimum amount necessary is kept at work stations
- Confirm up to date MSDS are readily accessible to all staff on all shifts

3.6 Operating Staff

- Comply with chemical safety requirements of this program
- Report any problems with storage or use of chemicals
- Immediately report spills of suspected spills of chemicals
- Use only those chemicals for which they have been trained
- Use chemicals only for specific assigned tasks in the proper manner

3.7 Contractors

- Comply will all aspects of this program
- Coordinate information with the Plant Manager
- Confirm Contractor employees are properly trained
- Notify the Plant Manager before bringing any chemicals into Bridgeton Leachate Pretreatment Plant property
- Monitor and confirm proper storage and use of chemicals by Contractor employees

4.0 DEFINITIONS:

Chemical: any element, chemical compound or mixture of elements and/or compounds.

Combustible liquid: means any liquid having a flash point at or above 100 deg. F (37.8 deg. C), but below 200 deg. F (93.3 deg. C), except any mixture having components with flash points of 200 deg. F (93.3 deg. C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

Compressed gas: any compound that exhibits:

(i) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70 deg. F.

(ii) A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 deg.

F. regardless of the pressure at 70 deg. F.

(iii) A liquid having a vapor pressure exceeding 40 psi at 100 deg. F.

Container: any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

Designated representative: any individual or organization to whom a technician gives written authorization to exercise such technician's rights under this section. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written technician authorization.

Technician: a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. (Staff)

Explosive: a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

Exposure or exposed: a technician is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. Subjected in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, skin contact or absorption.)

Flammable: a chemical that falls into one of the following categories:

(i) "Aerosol, flammable" means an aerosol that yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening;

(ii) "Gas, flammable" means: (A) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of thirteen (13) percent by volume or less; or (B) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than twelve (12) percent by volume, regardless of the lower limit;

(iii) "Liquid, flammable" means any liquid having a flash point below 100 deg. F., except any mixture having components with flash points of 100 deg. F. or higher, the total of which make up 99 percent or more of the total volume of the mixture.

(iv) "Solid, flammable" means a solid, other than a blasting agent or explosive as defined in 1910.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

Flash point: the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite.

Hazardous chemical: any chemical that is a physical hazard or a health hazard.

Hazard warning: any words, pictures, symbols, or combination appearing on a label or other appropriate form of warning which convey the specific physical and health hazard(s), including target organ effects, of the chemical(s) in the container(s). (See the definitions for "physical hazard" and "health hazard" to determine the hazards which must be covered.)

Health hazard: a chemical for which there is evidence that acute or chronic health effects may occur in exposed staff. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, senstizers, hepatotoxins, nephrotoxins, and neurotoxins, agents which act on the hematopoietic system and agents which damage the lungs, skin, eyes, or mucous membranes.

Identity: any chemical or common name which is indicated on the material safety data sheet (MSDS) for the chemical. The identity used shall permit cross-references to be made among the required list of hazardous chemicals, the label and the MSDS.

Immediate use: the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Label: any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

Material safety data sheet (MSDS): written or printed material concerning a hazardous chemical which is prepared in accordance with OSHA Standard 1910.1200 requirements.

Mixture: any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

Oxidizer: means a chemical other than a blasting agent or explosive as defined in 1910.109(a), which initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

Physical hazard: a chemical that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

Pyrophoric: a chemical that will ignite spontaneously in air at a temperature of 130 deg. F. or below.

Specific chemical identity: the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

Unstable (reactive): a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

Use: to package, handle, react, emit, extract, generate as a byproduct, or transfer.

Water-reactive: a chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

Work area: a room or defined space in a workplace where hazardous chemicals are produced or used, and where staff are present.

Workplace: an establishment, job site, or project, at one geographical location containing one or more work areas.

5.0 PROCEDURE:

5.1 General Program Information

This written Hazard Communication Plan (HAZCOM) has been developed based on OSHA Hazard Communication Standard and consists of the following elements:

- Identification of Hazardous Materials
- Product Warning Labels
- Material Safety Data Sheets (MSDS)
- Written Hazard Communication Program
- Effective Technician Training

  Some chemicals are explosive, corrosive, flammable, or toxic. Other chemicals are relatively safe to use and store but may become dangerous when they interact with other substances. To avoid injury and/or property damage, persons who handle chemicals in any area of the Bridgeton Leachate Pretreatment Plant must understand the hazardous properties of the chemicals. Before using a specific chemical, safe handling methods and health hazards must always be reviewed. Supervisors are responsible for confirming that the equipment needed to work safely with chemicals is accessible and maintained for all staff on all shifts.

5.2 Staff Training

5.2.1 Initial Orientation Training - All New staff shall receive safety orientation training covering the elements of the HAZCOM and Right to Know Program. This training will consist of general training covering:

- Location and availability of the written Hazard Communication Program

- Location and availability of the List of Chemicals (MSDS Sheets) used in the workplace
- Methods and observation used to detect the presence or release of a hazardous chemical in the workplace.
- The specific physical and health hazard of all chemicals in the workplace
- Specific control measures for protection from physical or health hazards
- Explanation of the chemical labeling system
- Location and use of MSDS

5.2.2 Job Specific Training

Staff will receive on the job training from their supervisor. This training will cover the proper use, inspection and storage of necessary personal protective equipment and chemical safety training for the specific chemicals they will be using or will be working around.

5.2.3 Annual Refresher Training

Annual Hazard Communication refresher training will be conducted as part of Bridgeton Leachate Pretreatment Plant's continuing safety training program.

5.2.4 Immediate On-the-Spot Training

This training will be conducted by supervisors for any technician that requests additional information or exhibits a lack of understanding of the safety requirements.

5.2.5 Non-Routine Tasks

Non-routine tasks are defined as working on, near, or with unlabeled piping, unlabeled containers of an unknown substance, confined space entry where a hazardous substance may be present and/or a one-time task using a hazardous substance differently than intended (example: using a solvent to remove stains from floors).

5.3 Steps for Non-Routine Tasks

Step 1: Hazard Determination

Step 2: Determine Precautions

Step 3: Specific Training & Documentation

Step 4: Perform Task

Non-routine tasks will be evaluated by the Plant Manager before the task commences, to determine all hazards present. This determination will be conducted with quantitative/qualitative analysis (air sampling, substance identification/analysis, etc., as applicable).

Once the hazard determination is made, the Plant Manager will determine the necessary precautions needed to either remove the hazard, change to a non-hazard, or protect from the hazard (use of personal protective equipment) to safeguard the personnel present.

5.4 Off-site use or transportation of chemicals

An MSDS will be provided to staff for each chemical and each occurrence of use or transport away from the Bridgeton Leachate Pretreatment Plant facility. State and Federal DOT Regulations will be followed including use of certified containers, labeling & marking, securing of containers and technician training.

5.5 General Chemical Safety

5.5.1 Assume all chemicals are hazardous. The number of hazardous chemicals and the number of reactions between them is so large that prior knowledge of all potential hazards cannot be assumed. Use chemicals in as small quantities as possible to minimize exposure and reduce possible harmful effects.

5.5.2 The following general safety rules shall be observed when working with chemicals:

- Read and understand the Material Safety Data Sheets.
- Keep the work area clean and orderly.
- Use the necessary safety equipment.
- Carefully label every container with the identity of its contents and appropriate hazard warnings.
- Store incompatible chemicals in separate areas.
- Substitute less toxic materials whenever possible.
- Limit the volume of volatile or flammable material to the minimum needed for short operation periods.
- Provide means of containing the material if equipment or containers should break or spill their contents.

5.5.3 Task Evaluation

Each task that requires the use of chemicals should be evaluated to determine the potential hazards associated with the work. This hazard evaluation must include the chemical or combination of chemicals that will be used in the work, as well as other materials that will be used near the work. If a malfunction during the operation has the potential to cause serious injury or property damage, a Safe Operational Procedure (SOP) should be prepared and followed. Operations must be planned to minimize the generation of hazardous wastes.

5.5.4 Chemical Storage

The separation of chemicals (solids or liquids) during storage is necessary to reduce the possibility of unwanted chemical reactions caused by accidental mixing. Explosives should be stored separately outdoors. Use either distance or barriers (e.g., trays) to isolate chemicals into the following groups:

- Flammable Liquids: store in approved flammable storage lockers.
- Acids: treat as flammable liquids
- Bases: do not store bases with acids or any other material
- Other liquids: confirm other liquids are not incompatible with any other chemical in the same storage location.

Lips, strips, or bars are to be installed across the width of storage shelves to restrain the chemicals in case of earthquake.

Chemicals will not be stored in the same refrigerator used for food storage. Refrigerators used for storing chemicals must be appropriately identified by a label on the door.

5.6 Container Labels

It is extremely important that all containers of chemicals are properly labeled. This includes every type of container from a 6,000 gallon storage tank to a spray bottle of degreaser. The following requirements apply:

- All containers will have the appropriate label, tag or marking prominently displayed that indicates the identity, safety and health hazards .
- Portable containers which contain a small amount of chemical need not be labeled if they are used immediately that shift, but must be under the strict control of the technician using the product.

- All warning labels, tags, etc., must be maintained in a legible condition and not be defaced. Facility weekly supervisor inspections will check for compliance of this rule.
- Incoming chemicals are to be checked for proper labeling.

5.7 Emergencies and Spills

- In case of an emergency, implement the proper Emergency Action Plan
- Evacuate people from the area.
- Isolate the area.
- If the material is flammable, turn off ignition and heat sources.
- Only personnel specifically trained in emergency response are permitted to participate in chemical emergency procedures beyond those required to evacuate the area.
- Call for Emergency Response Team assistance if required.

5.8 Housekeeping

- Maintain the smallest possible inventory of chemicals to meet immediate needs.
- Periodically review stock of chemicals on hand.
- Confirm that storage areas, or equipment containing large quantities of chemicals, are secure from accidental spills.
- Rinse emptied bottles that contain acids or inflammable solvents before disposal.
- Recycle unused laboratory chemicals wherever possible.
- ***DO NOT*** Place hazardous chemicals in salvage or garbage receptacles.
- ***DO NOT*** Pour chemicals onto the ground.
- ***DO NOT*** Dispose of chemicals through the storm drain system.
- ***DO NOT*** Dispose of highly toxic, malodorous chemicals down sinks or sewer drains.

5.9 Contractors

All outside contractors working inside Bridgeton Leachate Pretreatment Plant Facilities are required to follow the requirements of this program. The Bridgeton Leachate Pretreatment Plant will provide Contractors information on:

- Location of MSDS
- Precautions to be taken to protect contractor staff
- Potential exposure to hazardous substances
- Chemicals used in or stored in areas where they will be working

- Location and availability of Material Safety Data Sheets
- Recommended Personal Protective Equipment
- Labeling system for chemicals

5.10 Material Safety Data Sheets are provided by the chemical manufacturer to provide additional information concerning safe use of the product. This section will be updated upon implementation of the SDS universal system. Each MSDS provides:

- Common Name and Chemical Name of the material
- Name, address and phone number of the manufacturer
- Emergency phone numbers for immediate hazard information
- Date the MSDS was last updated
- Listing of hazardous ingredients
- Chemical hazards of the material
- Information for identification of chemical and physical properties

5.10.1 Information Chemical Users must know

5.10.1.1 Fire and/or Explosion Information

- Material Flash Point, auto-ignition temperature and upper/lower flammability limits
- Proper fire extinguishing agents to be used
- Fire fighting techniques
- Any unusual fire or explosive hazards

5.10.1.2 Chemical Reaction Information

- Stability of Chemical
- Conditions and other materials which can cause reactions with the chemical
- Dangerous substances that can be produced when the chemical reacts

5.10.1.3 Control Measures

- Engineering Controls required for safe product use
- Personal protective equipment required for use of product
- Safe storage requirements and guidelines
- Safe handling procedures

5.10.1.4 Health Hazards

- Permissible Exposure Limit (PEL) and Threshold Limit Value (TLV)
- Acute or Chronic symptoms of exposure
- Main routes of entry into the body
- Medical conditions that can be made worse by exposure
- Cancer causing properties if any
- Emergency and First Aid treatments

5.10.1.5 Spill & Leak Procedures

- Clean up techniques
- Personal Protective Equipment to be used during cleanup
- Disposal of waste & cleanup material

5.10.1.6 Employee Use of MSDS - For MSDS use to be effective, employees must:

- Know the location of the MSDS
- Understand the major points for each chemical
- Check MSDS when more information is needed or questions arise
- Be able to quickly locate the emergency information on the MSDS
- Follow the safety practices provided on the MSDS

LEACHATE PRE-TREATMENT PLANT PLAN (LPTP)

SUBMITTED IN COMPLIANCE WITH AGREED ORDER SECTION 17.D.

Prepared for:

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FIGURES

Treatment Building Plan (Drawing A-100)
Site Plan (Drawing C-200)
Process Flow Diagrams (Drawings P-200 and P-400 through P-411)

APPENDICES

Appendix A Pilot Test Data (on CD) (Previously Submitted)

1.0 GENERAL INFORMATION

Bridgeton Landfill, LLC owns and manages the Bridgeton Sanitary Landfill site located at 13570 St. Charles Rock Road in Bridgeton, Missouri. The Bridgeton Sanitary Landfill ("Landfill") previously discharged leachate from the Landfill to the Metropolitan St. Louis Sewer District (MSD) Missouri River Treatment Facility ("MRTF") through an on-site discharge point connecting to what is referred to as MSD's West Lake pump station. Due to the change in concentrations of various constituents in the leachate, direct discharge had been curtailed.

In order to resume direct discharge of leachate to the MSD system, Bridgeton Landfill ("BLF") has been working with MSD on development of a Bridgeton Leachate Pretreatment Plant ("LPTP"). The major components and treatment technologies are in the final stages of design as of this version of the Plan that presents the treatment description and the use of an effluent pump station system to discharge to the MSD Bissell Point Plant, or other MSDS facilities. The force main and pump stations are described in a separate report.

Consistent with the Section 17.D of the Agreed Order, entered May 13, 2013, Bridgeton Landfill is submitting this Leachate Pretreatment Plan to the Missouri Department of Natural Resources (MDNR). Bridgeton Landfill intends to continue its ongoing work with MSD on development of this plan and construction of the pretreatment system. In addition to meeting the condition of Agreed Order Section 17.D, this Plan version submitted January 9, 2014 was approved by MSD.

Bridgeton Landfill continues to work diligently in a cooperative effort with MSD on finalization of the ultimate pretreatment system in order to confirm that the system is developed to meet MSD's needs and allow for long term discharge.

1.1 REGULATORY BACKGROUND

The Landfill leachate discharge to MSD must comply with all applicable ordinances regulating the discharge to the facilities of The Metropolitan St. Louis Sewer District. Ordinance 12559 requires pretreatment limits of 312 mg/l BOD; 953 mg/l COD; and 65 mg/l TSS as well as the previously certified levels, as follows:

"At the point of discharge from the user's property to the District's wastewater system, all users shall comply with the following limitations. Separate limitations apply for discharges to the District's plants with outfalls to the Mississippi and Missouri Rivers (Large Rivers) and for plants with outfalls to all other streams (Small Rivers)."

Table 1 – District Limitations from MSD ORDINANCE NO. 12559 (pages 31 and 32)

Parameter	Daily Average Limit**		Instantaneous Limit**	
	Large Riv.	Small Riv.	Large Riv.	Small Riv.
Antimony	0.5	0.5	1.5	1.5
Arsenic	0.4	0.3	1.2	0.9
Barium	10.0	30.0	30.0	30.0
Beryllium	0.4	0.1	1.2	0.3
Cadmium	0.7	0.07	1.2	0.21
Chromium	5.0	5.0	15.0	15.0
Copper	2.7	0.7	4.5	2.1
Cyanide, Amenable	0.4	0.1	1.2	0.3
Iron	150.0	25.0	450.0	75.0
Lead	0.4	0.2	0.6	0.6
Mercury	0.01	0.01	0.03	0.03
Nickel	2.3	1.0	4.1	3.0
Total Oil & Grease	200	200	200	200
Phenolic Compounds	7.0	7.0	21.0	21.0
Selenium	0.2	0.2	0.6	0.6
Silver	0.5	0.5	1.5	1.5
Zinc	3.0	3.0	9.0	9.0

Total Toxic Organics: Shall not exceed 5.844 mg/l at any time
Temperature: Shall not exceed 140°F (60°C) at any time***
pH: Shall be in the range of 5.5 to 11.5 s.u. at all times***

Additionally, MSD reported on September 9, 2013 in their review of the September 1, 2013 submittal of this report, that the MRTF will install UV disinfection which is anticipated to be operational in the January to February 2014 timeframe. The UV disinfection at the MRTF will

MSD 029459

be required during a disinfection season of the warmer months of the year (May through October). MSD stated that Bridgeton Landfill will be required to meet adequate ultraviolet transmittance (UVT) during that time period. In subsequent discussions in October 2013 and documented in an MSD letter on October 7, 2013, MSD reported that a combined UVT of the MRTF effluent with the LPTP pretreatment effluent, reach a 65% transmittance level. The MSD tests reported that without further treatment, an estimated LPTP effluent of no more than 50,000 gpd could be processed at the MRTF without further UV interference removal. In studies of various technologies to remove UV interference, the LPTP effluent mixed with a surrogate effluent was not capable of achieving 65 % UV-T. Therefore, the Bridgeton Landfill Treatment plant designed a force main from the MSD West Lake Pump Station to the Bissell Point Treatment Facility that does not have a disinfection requirement to eliminate this UV-T requirement. The LPTP will have the ability to discharge to the Missouri River Treatment Facility (MRTF) during periods when disinfection is not required, and discharge to the new force main constructed under this program to the Bissell Point Treatment Facility at other times, or possibly on a continuous basis throughout the year.

1.2 BASIS OF DESIGN

The design parameters and units of treatment for the permanent pretreatment system are proposed in this document. The basis of design relies on bench scale treatability tests conducted at Civil & Environmental Consultants, Inc. (CEC) treatability laboratory in Charlotte, NC, as well as performance of a pilot scale treatability program previously performed at the Landfill and at various suppliers to address the UV-T issue. These activities are described in following sections.

1.3 SOURCE, VOLUME AND NATURE OF LEACHATE

The leachate is generated from leachate collection wells and condensate from gas well pumping wells at various places around the facility (collectively termed "leachate" in this document). This leachate is collected at various points and discharged to a perimeter collection line that flows to a central collection point. Prior to LPTP completion, the leachate is pumped into the buffer tank farm consisting of a number of interconnected frac tanks. Following equalization in the buffer tank farm, the leachate is pumped in batches into the 316,000 gallon treatment tank. Treated leachate is loaded into trucks for off-site discharge, or pumped to the 97,000 gallon tank for limited volume discharge to the MSD MRTF.

MSD 029460

Upon completion of the first of four planned 1,000,000 gallon storage/treatment tanks, an intermediate approach for leachate treatment and discharge will allow the leachate to be pumped to one of these tanks for equalization and aeration, and the buffer tank farm will be disassembled and removed from the site. The leachate will then flow to the existing 316,000 gallon tank for further aeration and discharge

The leachate generation volume ranges from 150,000 to as much as 450,000 gallons per day (gpd) of combined leachate flows. The design flow is based on 300,000 gpd. The peak hydraulic flow through the plant is planned for 450,000 gpd. Equalization and redundant units will provide for a firm capacity of 300,000 gpd with one of the three UF module units out of service. Additionally, sufficient storage will be available for approximately one and one half days on-site storage in the event of a power outage, with the ability to haul leachate if a power outage event lasts longer than this time period. At the peak flow, approximately 8 hours of storage will be provided in the Equalization Tank (TK-200). Standby generation will be available to pump leachate into the treatment tanks and periodically provide aeration sequentially in the treatment tanks to maintain a viable microbial population until power will be restored, but discharge will not occur during a power outage. Should an extended power outage occur, hauling to the Bissell Point Treatment Plant will occur with prearrange agreement with haulers and the MSD.

The permanent Pretreatment Plan achieves MSD's need to receive a consistent and compliant effluent stream. The current technological, engineering, and management evaluation supports the concept that a consistent, optimal operation of the entire liquids removal and treatment system is the best way of avoiding toxics and treating the high strength pollutants to an acceptable pretreatment discharge. This concept is based on the incorporation of the 316,000 gallon tank (TK-200) as an equalization tank followed by a treatment scenario described in subsequent sections.

In order to comply with MSD's request for UV interference removal, several investigative efforts were performed. The processes investigated included the following candidate technologies:

- Ozone;
- Ozone and Hydrogen Peroxide;
- Titanium Catalyst AOP (Purifics Process);
- Fenton's Reagent Oxidation;
- Sulfate Radical AOP;
- Carbon Adsorption;
- Nano Filtration;

MSD 029461

- Reverse Osmosis;
- Electrocoagulation; and
- Chemical addition or precipitation.

In addition, MSD requested the BLF investigate a time sequenced discharge in addition to the above options to minimize impact to the MRTF. Tests have been formulated to identify the time of travel from the BLF discharge point to the MRTF to accommodate this request.

An additional range of options were investigated for discharge to other locations, including the Clear Creek WWTP, The Bissel Point WWTP, and direct discharge to either the Missouri or Mississippi River. This resulted in a design to install a force main to the Bissell Point Treatment Facility, as described in another report.

These investigations were not capable of achieving the desired UV interference removal, and a UV treatment approach will not be used at the LPTP.

Although significant variation is seen in the raw leachate analytical results, the design basis used for a treatment evaluation includes the following parameters:

Flow:	300,000 gpd (design flow); 450,000 gpd Max Daily Flow
BOD:	31,000 mg/l
COD:	71,000 mg/l
TSS:	2,600 mg/l
Ammonia N:	1,000 mg/l
Zinc:	50 mg/l
Iron:	800 mg/l

1.4 TREATABILITY TEST PROGRAM – BENCH SCALE

In order to develop a pretreatment system that is appropriately designed and constructed to achieve the treatment goals of MSD, the plant was designed based on the treatability tests conducted during the design phase. Both bench scale tests and field pilot scale leachate treatability tests have been completed during a period from May through October 2013. CEC performed, a number of simulated bench scale treatability tests for settleability, metals removal, and BOD/COD reduction, employing pH adjustment chemicals of sodium hydroxide (caustic), lime, and fly ash from a coal burning power plant as an absorbent for volatile fatty acids, or other constituents. Other chemical additions are tested including ozone, hydrogen peroxide, ferric

chloride, Fenton's Reagent, and others. Subsequent to the precipitation and settling, membrane bioreactor (MBR) test unit has been evaluated at the Bridgeton Landfill site for treating the leachate. Anaerobic treatability tests were initially considered with an outside vendor, but will not be implemented, as reasonable treatment with aerobic systems is progressing, and the timing available for study and implementation do not achieve the schedule that Bridgeton Landfill and MSD are working for implementation of treatment.

Additionally, a bench scale test of the electrocoagulation treatment process was performed in June 2013 by Ecolotron of Kemah, Texas. Electrocoagulation (EC), the passing of electrical current through water, has proven effective in the removal of contaminants from water. Electrocoagulation systems have been in existence for many years (Dietrich, patented 1906), using a variety of anode and cathode geometries, including plates, balls, fluidized bed spheres, wire mesh, rods, and tubes. Limited evaluation has been performed on landfill leachate, and this test was conducted to identify short and long term characteristics of the process and applicability to the Bridgeton Landfill leachate. It was anticipated that implementation of an EC unit prior to clarification would have been considered based on the success of clarification removing a portion of the solids and heavy metals. Unfortunately, due to equipment malfunctions and leaks, suitable performance tests could not be run, and only limited inconclusive data was obtained before this equipment test was terminated.

The pH adjustment tests continued through July and August 2013. Liquid/solids separation occurred with the addition of coagulants and polymers, but significant volumes of sludge were generated. Volumetric evaluation of clarifier sludge was not possible, as raw leachate was processed concurrently with stored settled sludge from the Baker Tanks used to store previous volumes of leachate before hauling. Metals were also precipitated in the Actiflo test clarifier and zinc and iron, the two potentially inhibitory metals, were reduced to levels such that the leachate were aerobically treated without biological inhibition in the subsequent aeration tank trials. The bench scale aerobic biological treatment unit tests confirmed leachate treatability for design considerations.

Ultraviolet transmittance enhancement for removal of quenching substances was performed on a small sample of the BLF pilot scale effluent. As the MBR pilot unit was terminated on September 30, 2013, subsequent evaluations were performed with Lee County Landfill (South Carolina) leachate MBR effluent as a surrogate to the Bridgeton leachate, as the two landfills have somewhat similar leachate characteristics and pretreatment processes. None of the technologies evaluated on the Lee County effluent, including nanofilter membrane filtration with various membranes removing constituents above 1000 daltons, and nanofiltration plus passing

the leachate through The Ahlstrom Disruptor ® nonwoven fabric with activated alumina and zeolite impregnation for humic material adsorbance, improved the UV-T of the leachate when mixed with surrogate effluent, to 65% transmittance.

1.5 TREATABILITY TEST PROGRAM – PILOT SCALE

At the same time as the bench scale tests occurred, a pilot scale treatability evaluation was initiated at the site. A sand enhanced clarification mobile unit from Siemens ("Actiflo") was on-site with testing having started in mid-June 2013 until the end of September 2013. Other process components evaluated, in addition to the clarification unit, include pH adjusting to raise the pH for metals removal, and a pH adjustment to neutral following clarification for further biological treatment.

Foam control was evaluated and attempted during the pilot test. Silicone based defoamer was previously used throughout the temporary aeration activities at the storage tanks (Baker Tanks) prior to hauling off-site. Experience has shown that silicone based defoamers are incompatible with ultrafilter membranes. Therefore, several non-silicone based defoamers were used during the pilot test program. Nalco provided several samples of oil-based defoamers with various levels of effectiveness. During the pilot test program, the MBR effluent showed oil and grease effluent concentrations in the single digits mg/l range, indicating that these defoamers would not contribute to oil and grease effluent concentrations. Based on the results, a defoaming design was implemented for the 316,000 gallon Equalization Tank, the four-1 million gallon aeration tanks, and the aerated Waste Activated Sludges Holding Tank (TK-409).

The Siemens Actiflo pilot test clarifier operated during August 2013. It used a number of treatment chemicals, including ferric chloride and various polymers. A more detailed performance evaluation is expected from Siemens on clarifier performance. The following details the process, and equipment that are components of the pilot scale chemical modification tests at the Siemens clarification unit. The pH through the clarifier is shown along with the metals removal performance (Table 2).

The components of the pilot test of the clarifier include the following:

- Caustic pH adjustment tank
- Caustic feed pumps
- Caustic storage tank
- Acid pH adjustment tank

- Acid storage tank (concentrated)
- Acid feed pumps (concentrated)
- Chemical feed – Polymer, Ferric Chloride, or other chemicals

A further evaluation of the chemical additions was performed by Nalco. The recommendation includes:

- Caustic soda
- Magnesium hydroxide to limit caustic usage
- Polymer
- Aluminum chlorhydrate
- Sulfuric acid to trim excess high pH.

Nalco identified that liquids solids separation was most effective at a pH between 11 and 12, but reasonable performance could be expected between pH 7 and 8. The following table presents the clarifier performance comparing pH with metals removal. Arsenic and mercury exhibited little to no removal, while iron and zinc were significantly reduced through chemical precipitation.

Table 2. Pilot Scale Clarifier Performance – pH and Metals Removal

Constituent	Units	Date						
		8/9/2013	8/12/2013	8/15/2013	8/19/2013	8/22/2013	8/26/2013	8/29/2013
pH Influent	S.U.	5.90	8.97	5.80	5.81	5.66	6.19	6.08
pH Effluent	S.U.	8.55	7.86	7.59	7.24	8.10	8.75	8.81
Arsenic Influent	mg/l	0.44	0.38	0.61	0.81	0.7	0.15	0.63
Arsenic Effluent	mg/l	0.45	0.58	0.43	0.76	0.77	0.15	0.56
% As Reduction	%	-2.27%	-52.63%	29.51%	6.17%	-10.00%	0.00%	11.11%
Mercury Influent	mg/l	0.002	0.0035	0.001	0.022	0.013	0.002	0.011
Mercury Effluent	mg/l	0.002	0.0035	0.001	0.002	0.002	0.002	0.002
% Hg Reduction	%	0.00%	0.00%	0.00%	90.91%	84.62%	0.00%	81.82%
Iron Influent	mg/l	870	1100	850	750	730	870	900
Iron Effluent	mg/l	74	97	150	170	94	40	26
% Fe Reduction	%	91.49%	91.18%	82.35%	77.33%	87.12%	95.40%	97.11%
Zinc Influent	mg/l	18	16	11	9.7	13	16	15
Zinc Effluent	mg/l	2.8	2.2	2.1	1.8	2.5	2.3	1.5
% Zn Reduction	%	84.44%	86.25%	80.91%	81.44%	80.77%	85.63%	90.00%

A pilot Membrane Bioreactor (MBR) system was onsite during the period mid-August until the end of September, 2013. Dynatec Corporation supplied a pilot system consisting of two aeration tanks of 3,000 gallons and 1,000 gallons and an ultrafilter module to simulate a full scale aerobic and ultrafilter processes. The pilot system included an internal solids liquids separation device consisting of a membrane separation system unit to function as a MBR. This approach provided for a mixed liquor equivalent suspended solids concentration approaching 30,000 mg/l. The mixed liquor during the pilot test procedure was operating at significantly higher than is anticipated during full scale operation.

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Several analytical sampling events and analyses of this system demonstrated each metal constituent and TSS can be removed to below pretreatment standards.

Table 3. MBR Operation and Effluent Performance Compared to MSD Limits

Analyte	Conc.	MSD Limit (avg)	MSD Limit (Instantaneous)	Average Effluent Concentration
BOD Tot	mg/L	312	312?	181
BOD Sol	mg/L	312	312?	255
COD Total	mg/L	953	953?	5252
COD Sol	mg/L	N/A	N/A	6243
Chloride	mg/L	N/A	N/A	4263
Nitrate-N	mg/L	N/A	N/A	46.9
Nitrite-N	mg/L	N/A	N/A	44.9
Phos - Ortho as P	mg/L	N/A	N/A	423
Sulfate	mg/L	N/A	N/A	3356
TOC	mg/L	N/A	N/A	1561
Total Alk, as CaCO3	mg/L	N/A	N/A	849
Cyanide, amenable	mg/L	0.4	0.4	0.005
O&G	mg/L	200	200	8.8
Phenol	mg/L	7	21	3.3
TDS	mg/L	N/A	N/A	17427
TSS	mg/L	65	65?	11.3
TKN	mg/L	N/A	N/A	221
Ammonia - N	mg/L	N/A	N/A	103
Total Phos. As P	mg/L	N/A	N/A	177
As Tot.	mg/L	0.4	1.2	0.32
Fe Tot	mg/L	150	450	1.04
Hg Tot	mg/L	0.01	0.03	0.0020
Zn Tot	mg/L	3	3	0.196
Se Tot	mg/L	0.2	0.2	0.171
UV 254	%	65%?	65%?	0.00493%
MLVSS	mg/L	N/A	9	10740
MLSS	mg/L	N/A	N/A	27450

The wastewater is phosphorous deficient, and a small amount of phosphoric acid is required for nutrient addition. During the test period, an excessive amount of phosphoric acid was added to the mixed liquor in excess of biological demand, which resulted in the elevated phosphorus concentrations noted in the MBR effluent. As the arsenic and selenium concentrations averaged below, but close to the required discharge limits, effluent concentrations will be closely

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monitored. Should additional removal become necessary, additional of metal fixing chemical aids, such as TMT-15 or others will be instituted. If these actions fail to limit these metal constituents, other alternatives will be evaluated.

Defoaming agents have been evaluated. As the biological mixed liquor became more acclimated, some of the BOD results reported in the effluent were less than the 312 mg/l pretreatment standard. The COD reduction has been significant, but was above the pretreatment standard. The COD constituents in the effluent are likely to be recalcitrant humic and fulvic acids that are typically resistance to biological wastewater treatment processes. They generally do not exert a biological oxidation demand, and other than interfering with UV-T, do not result in increased treatment costs. Removals of these constituents ranged from 96% to above 99%.

Dynatec reported that a pilot throughput rate of 0.2 to 0.25 gpm was used and was selected based on the strength of the wastewater. With 4,000 gallons of bioreactor capacity and the 165 scfm that was included in the pilot system, the pilot MBR could biologically process at least 10-12,000 gpd of sanitary wastewater, but when the COD in the feed is 100 times typical sanitary wastewater the throughput rate must be decreased dramatically. The key to the pilot producing representative results is: does the system receive representative leachate and is the membrane system configured to allow extrapolation of the data. The Pilot UF operated with a PVDF 0.03 micron membrane, as was quoted, and the velocity across the membrane surface was the same as the system proposed. The average pressure of the pilot is a little lower than the system proposed. Therefore, with a representative leachate sample, Dynatec extrapolated the UF performance data to the full scale design parameters. The biological process reduced the BOD and COD significantly and the biomass appeared to be healthy. The pilot test effluent data was reported previously to MSD and confirmed BOD and metals removal. Based upon the Pilot UF performance and the corresponding feed water, Dynatec reported that it appears that the UF will require cleaning 4-6 times per month, which is more frequent than most MBR applications. The flux is relatively stable and in Dynatec's opinion, the cleaning process will be successful in controlling foulants of inorganic solids, such as iron and hard salts. Effluent COD was removed, with a residual recalcitrant COD higher than desirable, but should not impact aeration demands on the MRTF. The pilot unit MBR ultrafilter was performing at an average flux in the range of 56-60 gfd. Based on this experience, the full scale system is designed at 52 gallons per square foot per day (gfd), based on Dynatec recommendations. To assist in the Clean – In - Place (CIP) system, a water softener will be installed in the treatment building to provide cleaning water with divalent scale forming ions removed (calcium, magnesium, and strontium). These constituents will be discharge in the softener system backwash to the LPTP effluent.

The leachate liquid treatment system will require sludge storage, thickening, and a dewatering system, which is also a component of the pilot test program. Bio-Nomics Corporation tested a dewatering system consisting of a plate and frame dewatering press with integral chemical addition to condition the pilot test sludge as well as to dewater existing on-site sludge. Although sludge dewatering will include a sludge thickener and screw dewatering press, the pilot plate and frame press provided a baseline dewatering capability characteristic. The pH adjustment in the clarifier will elevate the pH of the clarifier sludge for dewatering. Polymer addition to enhance sludge dewatering is also being evaluated. Sludge dewatering performance has been successful, providing dewatered solids that pass the paint filter test. Odor control has been required during the test.

Odor control at the 316,000 gallon tank (TK-200), currently used as batch aeration treatment prior to leachate hauling or discharge to MSD, was initially controlled by activated carbon. As experience has shown that the carbon life was significantly shorter than estimated, other technologies for odor control were evaluated. The odor control technology selected for the carbon replacement was a thermal oxidizer. The thermal oxidizer was permitted, installed and operation commenced in late August 2013. Odors are being evaluated but appear to be controlled by the thermal oxidizer. Additionally, a chemical scrubber has been installed at the Equalization Tank as an alternate or an additional component of the odor control system. The design will include two 22,500 cfm Regenerative Thermal Oxidizers (RTOs) located at the exterior wall of the aeration tank containment to treat exhaust air from the Equalization Tank, the four Aeration tanks, and the Treatment Building. A natural gas supply to the RTOs will be provided.

1.6 GENERAL FACILITY LAYOUT DIAGRAM

Evaluation of the bench scale and pilot scale process tests have conceptually provided information for development of a facility layout and process flow diagrams to comply with the September 1st MDNR submission date. Design parameters for several of the process units that are being developed concurrently with the September 1st submission date include process assumptions and engineering experience on reaction and degradation rates. The site plan, process and instrumentation diagrams, and treatment building plan are provided in the figures attached to this report.

An interim leachate management approach is currently used, consisting of using the first -1 million gallon aeration tank (TK-307A) as the temporary equalization and physical aeration tank. Odor is controlled from the tank exhaust by a regenerative thermal oxidizer (RTO). Flow will

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then be pumped to the 316,000 gallon tank (TK-200) for further aeration and confirmation of compliance with benzene limits. Upon confirmation the contents of TK-200 are transferred to the second -1 million gallon tank (TK-307B) for storage until loading out to tankers to haul to the Bissell Point plant or other locations. A portion of this aerated leachate will be directly discharged to the MRTF though the nearby West Lake pump station. This interim plan will allow the temporary Baker Tanks to be removed from the site.

Following completion of the Treatment Building and the other treatment Tanks and appurtenant facilities, the final treatment process will be commissioned, with the entire treated flow hauled to the Bissell Point Treatment Plant or other locations until the proposed force main is completed. Then the entire flow will be discharged to MSD facilities.

Consolidated pilot test data for constituent concentrations are presented in the appendix. The sampling points for the various unit performances are identified as follows:

Sample point	Description
1A	Clarifier Influent.
1D	Clarifier Effluent.
1E	Clarifier underflow (Chemical sludge)
2	MBR Influent.
3	MBR Mixed liquor
4	MBR Effluent.
5A	Electrocoagulation Influent Unit 1
5B	Electrocoagulation Effluent Unit 1
5C	Electrocoagulation Influent Unit 2
5D	Electrocoagulation Effluent Unit 2
6	Sludge dewatering filtrate.

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2.0 FULL SCALE PRETREATMENT FACILITY DESIGN

The leachate pretreatment plan incorporates an equalization tank, physical/chemical precipitation to remove zinc, iron, and other metals that may inhibit biological pretreatment, aerobic biological treatment, leachate cooling, membrane separation for solids removal, return and waste sludge pumping, solids storage and dewatering, solids disposal, and effluent monitoring and discharge. Standby power will also be provided. Chemical addition at various stages will be required, and odor control for temporary power outages is included.

Process flow calculations were performed to identify candidate sizing for process treatment tank(s) for the Bridgeton Landfill leachate. The leachate exhibited significant variability in flow and strength. Therefore, the design basis incorporated many assumptions of strength, variability, process degradation rates of waste and many other assumptions associated with the leachate generated at the site. In addition, other unit processes may be recommended to reduce the leachate concentrations to a level acceptable by MSD, if the proposed processes in the full scale pretreatment plant do not adequately treat the leachate to the level desired, based on the bench and pilot tests described herein.

The anticipated flow and characteristics used in a preliminary design approach for aeration tank and other process unit sizing are presented below based on limited analyses or verbal discussions, and are listed as follows:

Flow:	300,000 gpd ADF, 450,000 gpd max flow
BOD:	31,000 mg/l
COD:	71,000 mg/l
TSS:	2, 600 mg/l
Ammonia N:	1,000 mg/l
Zinc:	50 mg/l
Iron	800 mg/l

Due to the concentrations identified above, a design basis of anaerobic treatment followed by aerobic treatment was originally considered, but eliminated due to the long treatability test period and the time to bring a completed system to full operation compared to a shorter timeframe for an aerobic biological treatment process. This decision on approach reduced the design and startup process by almost one year. Numerous ancillary units have been incorporated in the permanent pretreatment plant, including:

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- Pumping units
- Equalization Storage (incorporating the use of the 316,000 gallon tank and dual purpose of the four 1,000,000 gallon tanks)
- Rotary Drum Prescreening
- Chemical feed for pH modification for metals removal
- Chemical feed for coagulation and co-precipitation
- Polymer feed for agglomeration
- Chemical feed for neutralization
- Clarification
- Nutrient and chemical addition
- Aeration and activated sludge with ultrafiltration for membrane bio-reactor (MBR)
- Odor control by regenerative thermal oxidation
- Process cooling
- Solids wasting
- Sludge holding
- Solids dewatering
- Solids Loadout
- Effluent loadout
- Electrical feed and motor control center
- Process controls units
- Water supply
- Process Control Laboratory
- Operations Maintenance area
- Discharge to MSD or Loadout of liquid area using the 316,000 gallon tank.
- Force Main to the Bissel Point Treatment Plant, including modifications to the West Lake Pump Station and intermediate pump stations along the force main route.

EQUALIZATION

The existing 316,000 gallon tank (TK-200) will receive leachate from the landfill and provide aeration from two dedicated blowers and a pumped aeration mixing system delivered through a jet aeration mixer. The unit will operate at half volume, providing 12-hour detention at the average daily flow. The upper volume of the tank will provide for 8-hour storage at the maximum design flow. Discharge from this tank will flow to the treatment building for further treatment, or can be selectively hauled off for disposal at the dedicated sludge loadout area that is provided with secondary containment.

CLARIFICATION

Because there have been analyses of leachate suspended solids concentrations averaging 2,600 mg/l, a primary settling step is recommended. Additionally, leachate metals concentrations can impede biological treatment. Based on initial characterization, concentration levels of zinc may be a concern. Therefore, a preliminary sedimentation step for metals and some suspended solids removal is planned. Iron concentration will also be addressed by pre-aeration before the physical/chemical clarification step (to oxidize dissolved iron to change the form to particulates that are more easily removed in a clarification settling step) Because the clarification step was initially attempted and successful in the bench scale test at a pH in the 10 to 11 range, severe scaling of this scale-forming leachate was anticipated. Further testing and pilot scale test during the pilot test at the landfill to reduce the pH and still achieve separation at a slightly lower and less scale forming pH were successful, as measured by achieving liquid/solids separation at a pH of 9. Additional testing by Nalco Corp identified a more cost effective approach of initial pH adjustment to at least 5 or higher in the equalization tank, addition of magnesium hydroxide followed by 25% caustic soda and polymer and aluminum chlorhydrate in the flash mixer. This flow will then enter the inclined plate clarifier for liquids/solids separation and metals precipitation. The presence of iron (approximately 1,000 mg/l) will also assist by allowing iron coprecipitation of metals, as was observed in the pilot test. This lower operating pH (7.5 or 8 compared to pH of 11) reduces the scaling potential and the amount of caustic needed. Selection of materials of construction, proper anti-scaling agents, and polymer addition to sequester metals and aid in solids liquid separation at the lower pH may reduce the scaling/corrosion issue.

The clarification process will require chemical feeds identified in the pilot test, and includes the pH adjustment and coagulants and polymer discussed above. Based on bench scale and pilot scale testing and engineering judgment, equipment supplier recommendation and availability, an inclined plate clarifier with a net loading rate of 0.11 gpm/sf is included in the design. This translates to an equivalent traditional circular clarifier with an equivalent loading of 148 gpd/sf. The pilot unit clarifier was tested using the Siemens Actiflo sand enhanced clarification process incorporating an inclined plate clarifier. The process used a loading rate at least an order of magnitude greater than the design. Similarity with the planned gravity inclined plate clarifier is not possible, but the lower clarifier overflow rate is anticipated to be sufficient for liquids/solids separation with the chemicals described above. The equipment manufacturer, Monroe Environmental Corporation (MEC), reports that at the stated maximum daily flow of 300,000 GPD, the clarifier is designed to provide 2,500 square feet of effective settling area at a loading rate of 120 GPD/ft2 (0.0833 GPM/ft2). MEC typically designs Vertical Clarifiers with average solids loading (like this application) using a conservative loading rate of 288 GPD/ft2 (0.200 GPM/ft2). This particular unit was designed using a loading rate of 120 GPD/ft2 to

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accommodate a possible increase in hydraulic capacity (up to 720,000 GPD). The influent and effluent connections are designed to accommodate a hydraulic flow of up to 720,000 gpd. A rapid sludge withdrawal mechanism is included in the design to pump the clarifier sludge to a clarifier sludge holding tank.

The pilot test data, previously submitted, showed metals concentration from chemical precipitation to be sufficient for effluent purposes. Total zinc concentrations in the clarifier effluent ranged from 2 mg/l to slightly less than 3 mg/l; total arsenic concentration was at the effluent requirement, and the total iron concentration was typically less than 100 mg/l. Biological treatment was not impacted by these metal concentrations, and biological treatment described below, further decreased metals concentrations in the MBR effluent. Mercury concentrations in the clarifier effluent were ND, with concentrations below the method detection level of 0.02 mg/l. Pilot test influent and effluent concentrations from the various processes are presented in the appendix.

BIOLOGICAL TREATMENT

Based on the anticipated strength of the leachate, CEC initially evaluated the concept of a two stage anaerobic/aerobic treatment process following the initial clarification step. Based on time to develop a bench and pilot scale anaerobic system, complexity of operation, and other O&M requirements, the decision was made to eliminate this concept and provide treatment by aerobic treatment only. The time frame for design, installation, and startup of an anaerobic system would not allow meeting the plant originally planned startup date of December 31, 2013

A second option of using either a single or two stage aerobic Sequencing Batch Reactor with an internal settling device process was considered. As settling was not achievable in bench scale aerobic testing, the Sequencing Batch Reactor concept was eliminated. Using an external membrane ultrafilter following aeration was then considered as the most appropriate option.

Therefore, this design is based on four (4) tanks at 1,000,000 gallons each tank processing in parallel. The implementation of jet aeration was evaluated as the best alternative for this installation. The four tanks will be implemented with dual mixing flow and air supply headers in each tank, as shown in the attached plan. Process flow will be arranged such that the flow can be equally distributed to each tank, or two tanks will operate as a first stage with the second two tanks operating as a second stage without intermediate solids separation. Additionally, piping will be planned to provide a variety of options for flow split among the four tanks. Based on a flow rate of 300,000 gallons per day and a combined volume of 4 million gallons, a hydraulic detention time of almost 12 days is planned. The following design is based on engineering judgment, and by the results of the bench and pilot tests.

After equalization and primary pH adjustment and sedimentation treatment, the aerobic biological step will treat the leachate. This biological treatment step includes jet aeration blowers and pumps and an external membrane solids separation unit to achieve a BOD reduction and a similar COD reduction according to the following calculation:

Assuming no BOD reduction in primary clarification:

31,000 mg/l BOD influent = 31,000 mg/l effluent from the clarifier.

The BOD mass loading following primary sedimentation is at 31,000 mg/l at a flow rate of 300,000 gpd:

*BOD mass loading = 0.3 mgd * 31,000 mg/l *8.34 = 77,562 # BOD/day*

If the aeration units function as complete mixed conventional treatment, a food to microorganism ration (F/M) could range from 0.2 to 0.4 #/day.

THEREFORE;

Assume a F/M ratio of 0.3 lb BOD/lb MLSS:

The 4 million gallon tanks (939,000 gallons each after reduction for freeboard) = 14,197,680 liters. At 0.3 F/M ratio:

MLSS = 77,562 lb BOD/(0.3 F/M) = 258,540 lb MLSS under aeration

The loading of 77,562 lb BOD = (258,540 lb)(454 gm/lb)(1,000 mg/gm) = $11.74X10^{10}$ mg MLSS

Concentration of MLSS = $11.74\ X10^{10}$ mg MLSS /14,197,680 liters = 8,267 mg/l

This Mixed Liquor Suspended Solids (MLSS) concentration is at least double the concentration usually seen at municipal wastewater complete mixed aeration systems (2,500 mg/l to 5,000 mg/l), but is consistent with the process used at other landfills for an aeration system and membrane separation technology (from 8,000 mg/l up to 20,000 mg/l).

Air required in aeration system:

Oxygen requirements equal carbonaceous demand plus endogenous respiration plus nitrification demand.

The following parameters were supplied by MTS Corporation, the chosen supplier of the Jet Aeration system components. MTS recommended an oxygen supply based on an air flow of 17,120 scfm. Independent calculations provided an excess amount of air above MTS' recommendation.

MTS provided the following factors:

Alpha = 0.85 (Submerged aeration)
Beta = 0.9 (conservative)
C = 4.6 (for nitrification)

At 1.25lb Oxygen/lb BOD gives; (77,652lbs BOD)(1.25lb oxygen/lb BOD) = 97,065lb O_2 /day carbonaceous demand.

Endogenous = (0.08)(8,267 mg/l)*(4 MG)*(8.34) = 22,063lb/day*

Nitrification: (4.6)(0.3mg)*(1,000 mg/l ammonia)*(8.34) = 11,509 lb O_2/day*

AOR = (130,524 lbs/day)/ 24 = 5,439 lb/hr oxygen

SOTR correction for temperature, altitude, alpha, Beta corrections = 2.2 (AOTR)
At 0.0175 lb O_2/ CFM air

7 % efficiency per meter at depth (assume 30 feet or 9 meter)

Air flow = [(5,439 lb/hr)(2.2)] / [(0.0175)(0.07)(9 meter)] = 1,085,333 CF/hr for Total BOD demand.

Air flow = 1,080,943 CF/Hr/60 min/hr = 18,016 scfm,

The design is for two blowers for each tank at approximately 2,100 scfm per blower, with two spare blowers of the same size for maximum flow rate and concentration contingency for a total of 10 blowers. The design yields 21,400 scfm to account for the maximum conditions.

Equipment for the aeration system includes four 1,000,000 gallon tanks (TK-307A, TK-307B, TK-307c, and TK-307D), with each tank having two aeration headers, two blowers, and two jet aeration mixing pumps. The Jet Aeration system equipment is supplied by MTS, and the maximum air flow based on their evaluation is 17,120 scfm, which is similar to the design calculations above. The tanks will have a maximum operating height of 29 feet, but will be operated at approximately 27 feet to allow for an additional 1.5 days of storage, should a power outage occur.
Kaeser blowers have been supplied as a part of this system, providing 2,140 scfm, model HB 950 C 200 HP 2375 RPM, Each tanks will use two blowers per tank to provide 4,280 scfm to each tank to provide approximately 16% contingency with all units in operation.

The membrane ultrafilter system is designed with three modules of 150,000 gpd each module. The units are designed with two units on one skid and one unit on a second skid, with room for a future unit on the second skid, if flows increase. This design allows for the average daily flow to be treated with one unit out of service. Should a maximum day flow occur with a unit out of service, excess flow will be stored in the aeration tank volume. Additionally, the landfill has the ability to reduce flows, and will coordinate with the pretreatment plant during ultrafilter unit outages to reduce flows. The units are design on the basis of 0.56 gfd flux rate. The units include recirculation pumps, sludge wasting and local and remote controls.

SLUDGE PRODUCTION TREATMENT AND DISPOSAL

Sludge generation and dewatering evaluation based on pilot scale production will provide design and capacity requirements for a full scale installation. The components of the sludge production have been evaluated on the basis of both the bench scale settleability results with various coagulants and verified by the pilot scale clarifier unit.

The clarifier sludge holding tank (TK-412) will be combined with the waste activated sludge holding tank (TK-409) in a mechanical sludge thickener before a dewatering step. Drainage from the sludge thickener and sludge press will flow to a treatment building sump, which will then be pumped back to the 316,000 gallon equalization tank. A sludge thickener from Parkson Corporation and two Kusters Water sludge screw press dewatering at 400 gpm and 110 gpm, respectively, respectively have been ordered.

The biological waste activated sludge production was documented through the aerobic bench scale tests using raw leachate and with clarified leachate sources. Preliminary Clarifier sludge production may be estimated at 75% removal of the influent 2,600 mg/l TSS. As the majority of the BOD is soluble and will flow through to the aeration tanks, the TSS removal in the clarifier is an adjunct of the metals precipitation unit operation. It was not possible to estimate the removal percentages during the pilot test; therefore, a conservative approach to solids removal volume calculation was used. In this case, the primary solids generation anticipates 100 % of the TSS will be removed in the clarification unit. This will also account for the volume of chemical addition and the amount of metals precipitation to be achieved.

This clarifier sludge generation is calculated as:

0.3 mgd * 2,600 mg/l * 8.34 = 6,505 lbs per day

If this sludge will be collected at a 2 % concentration, the volume would equal:

6,505 lbs per day /(20,000 *8.34) = 0.039 mgd, which is 39,000 gallons per day.

The aerobic sludge wasting is calculated as follows:

Estimate 0.4 to 0.8 lbs sludge produced per lb BOD destroyed.

At the more conservative sludge wasting of 0.8 lb rate, aerobic sludge = 77,562 lbs/day feed and 62,050 lbs sludge produced.

At 2% (or 20,000 mg/l TSS) = 62,050lbs / ((20,000mg/l)(8.34)) = 372,000 gals aerobic sludge daily for dewatering. Therefore, the total sludge production is anticipated as the total of primary and secondary sludge as:

6,505 lbs + 62,050lbs = 68,555lbs/day for dewatering. = 12,511 ton dry solids/yr.
At 20% solids = 62,000 Tons wet solid/year. This approximates to 45,000 C.Y. per year.

A sludge thickener will be installed to thicken the estimated 2 % combined clarifier and waste activated sludge to 6% dry solids before sludge dewatering through a screw press.

A sludge thickener will be sized based on 1.5% solids and a pilot test recommendation of 347 gpm. Based on discussions with the manufacturer, a discharge concentration from the sludge

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thickener is expected at 7 – 12 % solids. Therefore, the design calculation is based on more conservative 6% solids. The screw press is estimated to produce sludge at 20% dry solids.

The flow rate to a screw press is estimated to be:

*68,555 lbs per day /(8.34*60,000 mg/l) = 137,000 gallons per day*
If dewatering occurs 24 hours per day = 95.2 gpm
If dewatering occurs 8 hours per day = 285 gpm

A sludge dewatering press will require a polymer feed, based on performance of a similar screw press at the Middlepoint, TN Republic landfill, and preliminary field tests by Nalco.

PROCESS COOLING

The aeration process will generate a significant amount of heat, based on concentration of organics, ambient temperature and other factors. A model was developed to predict temperature rise, and based on boundary conditions, temperatures ranged from 110 degrees F to 150 degrees F without process cooling. The cooling system will consist of a four cell cooling tower supplied by Baltimore Air Coil. Each cooling tower cell will provide up to 4.4 mBTU cool water. A dual pump system will provide cool water to six heat exchangers by Alfa-Laval. There will be three heat exchangers on a platform between Tanks TK-307 A and TK-307B, and three heat exchangers on a platform between Tanks TK 307C and TK-307D. Each tank will have a dedicated heat exchanger, with a spare heat exchanger on each platform. A 50 hp circulating pump will circulate hot leachate to each heat exchanger. A control valves will vary the cooling water to each heat exchanger based on tank temperature. The circulating pumps will run continuously. A clean in place flush system will be provided, and manual plate cleaning is also required.

A design temperature of 130 degrees F was selected for an uncontrolled cooling temperature and a temperature difference of 23 degrees F was selected for cooling to allow for a 107 degree operating temperature. A process cooling of 23 degrees F (delta T) will be provided by a closed loop cooling tower combined with a plate and frame cooling unit located in the membrane unit area. Air flow from an internal unit will be processed in the odor control unit described below. This temperature is well below the MSD required discharge temperature, and is provided solely for biological process control. The control temperatures will be initially set to turn on at 105 Degrees F and shut at 95 degrees F.

ODOR CONTROL

Odor Control units will be supplied for the Equalization Tank, the Treatment Building, and the four aeration tanks. Initial odor control units are planned for four 1 MG aeration tanks, and these odor control units at the aeration tanks are anticipated to be removed from the site as the biological solids become acclimated to the leachate constituents and odors abate.

The Equalization Tank odor control options were evaluated using either a carbon contactor, a thermal oxidizer, or a chemical scrubber. Evaluation of scrubber technology was also evaluated as a two stage scrubber using sodium hydroxide and sodium hypochlorite scrubbing in a second stage. A similar evaluation for the Treatment Building and temporary odor control at the four 1 MG tanks was reviewed for odor control to limit offensive odors.

Two regenerative thermal oxidizers (RTOs) devices are implemented for the 316,000 gallon equalization tank, the treatment building and the four (4) 1 million gallon aeration tanks. The two RTO units are sized at 22,500 scfm each. Natural gas will be supplied to each of these RTOs.

GRIT COLLECTION AND DISCHARGE

Site stormwater, leachate well spills and other site releases other than at the LPTP will be collected in vacuum trucks and hauled to a grit collection and removal unit at the 316 Tank pump station. This grit collection unit will separate out grit, stones, branches, leaves, and similar larger items prior to the LPTP influent pumps. These larger items will then be collected and hauled away.

STANDBY POWER

Standby power will be provided at the pretreatment plant in the event of a power outage. The system will be designed to provide service to the following:

- Controls at the leachate influent pump station;
- Controls at the 316,000 gallon equalization tank;
- 1 @ 7.5 HP pump at the leachate influent pump station;
- 15HP interim transfer pumps on a VFD;
- 1@ 200 hp blower at each of the 1 MG tanks to be operated sequentially during outages;
- 1@ 50 HP mixing pumps at each 1 MG tank, to be operated sequentially;
- Controls at the Treatment Building, including Control room power, building life support (with battery backup);

MSD 029480

- 7.5HP pump at the lift station;
- 10HP transfer pump on a VFD (Ivan please confirm exactly which transfer pump this is);
- 30KW of various system loads, including lighting, control panels, and related devices; and
- Building interior and exterior lighting will have selected units on battery backup.

Controls for the standby power will be designed to allow the landfill leachate to be pumped into the 316,000 gallon equalization tank during power outage, and then to pump the 316,000 gallon tank contents to the 4 – 1 MG tanks to be stored until power is restored. For coordination with potential power outages, the 316,000 tank should be operated at ½ capacity to yield 150,000 gallons of storage, or 12 hours detention at the average daily flow.

The 4 - 1 mg tanks can be operated 3-4 feet below overflow level to yield another 1½ day storage combined for a total of 2 days emergency storage. Additionally, the landfill has the ability to reduce flows during power outages, such that the maximum flows during that time period will not occur, allowing the retention time for emergency storage to be based on the average daily flow.

During that time, arrangements will be made to haul excess leachate directly to the Bissell Point Plant, if needed.

The calculation of estimated connected HP at the dedicated standby generator is 338 HP. This requires about 268 KW. Therefore, a 500 KW Genset will be installed, as there will be starting current demands and there may be other power draws not anticipated at this time that may be connected to the standby generator.

INSTRUMENTATION AND ALARMS

Each major unit subpanel (blowers, pump systems, chemical feed, compressors, and sludge thickeners, sludge dewatering screw press, ultrafilter membrane modules, and others) will be locally alarmed as well as tied into a plant control panel in the treatment building office. The plant control panel will signal alarms locally and by remote cellular contact with the plant operators. Key valves will be electrically or hydraulically actuated to close upon power outages. Specific instrumentation and control functions include:

- Alarms for power outage;

MSD 029481

- Alarms on pH levels outside the adjustment start and stop levels. E.g. pH is at 6.5 and adjustment does not raise the pH to at least 7.5 within a preset number of minutes. This could indicate a bad probe or a blocked/empty chemical tank;
- Alarms if caustic or acid pH adjustment tanks get below a minimum level or become empty;
- Alarms for dissolved oxygen levels, similar to that for pH levels. This could indicate equipment failures for the aeration blowers or other malfunctions;
- Dissolved Oxygen levels will control blower performance through Variable Frequency Drives. A low level signal will be run to an alarm; and
- The Ultrafilter tubular filter modules are controlled as part of manufacturer's control package, and that system will identify monitoring and alarms in the event of a major break tubular membrane break. The design includes a turbidity monitor that will detect TSS present, and if the turbidity increases, staff can determine if a module has a breached element, or requires a modification to address the breach. Should a module be required to be out of service, the landfill has the ability to temporarily reduce flows to accommodate a unit out of service, accommodating the planned and unplanned ultrafilter outages. Therefore, the ultrafilter design is based on passing the average daily flow with one entire ultrafilter train out of service.

3.0 Operation and Maintenance Considerations

The major components of the annual operation and maintenance include labor, chemicals, power (electricity), water, equipment replacement, and analytical testing and reporting. The chemicals anticipated to be used at the site include caustic soda (25% sodium hydroxide), sulfuric acid, coagulants, magnesium hydroxide, defoamer, polymers to enhance settling and sludge dewatering, anti-scaling agent to prevent scaling in the clarifier, and minor amounts of membrane cleaning chemicals consisting of caustic and bleach as well as phosphoric acid, urea, and micro-nutrients for the bio-reactors. The following sections describe and detail each of the operational and maintenance components.

3.1 LABOR

The labor to operate and maintain the pretreatment system is anticipated to require three (3) full time equivalents (FTE) during daytime shifts. The plant is anticipated to be staffed continuously, 24 hours per day. Significant components of the operation will be monitored and controlled by PLC controllers and remote reporting to a main control panel in the Treatment Building office. Major outside repair services will be a component of the repair and replacement cost item.

MSD 029482

3.2 CHEMICAL – MAGNESIUM HYDROXIDE

Magnesium Hydroxide (magox) is anticipated to be used to assist in the liquid/solids separation at the clarifier to reduce the caustic feed rate and provide a better settling sludge. Bench tests at the site provided recommendations to feed the magox at a feed rate of 40 gph at a 0.3 mgd leachate flow rate. This material in the storage tank requires mixing to keep the magox in suspension.

3.3 CHEMICAL – SODIUM HYDROXIDE

Sodium hydroxide (caustic) will be stored in a six thousand gallon tank inside the treatment building. The caustic will be used to raise the pH from approximately 5.5 S.U. to 9 S.U. in the pH adjustment tank before the clarifier to assist in precipitating zinc and other metals. Additional caustic feed points will be at the Equalization Tank, and at the first 1 MG Tank 307A for interim operation. The volume of caustic feed is based on preliminary bench scale testing that showed an addition of 0.016 gallon of 25% sodium hydroxide per 1.32 gallons of leachate will raise the pH to 11 S.U. at the 300,000 gpd leachate flow rate. This calculates to 0.012 gallons caustic per gallon of leachate. As the pH is anticipated to affect metals precipitation and solids separation at a pH of 9 S.U., a smaller volume of caustic is required than the adjustment to a pH of 11.. The anticipated flow a 300,000 gallons per day (gpd) will require 33% of the caustic to achieve a pH of 11 S.U. Sodium hydroxide has a specific gravity (S.G.) of 1.27. The caustic requirement is estimated is presented as follows:

$$Caustic = (300{,}000\ gpd)(365\ days/year)(0.012\ gal/gal)(33\%\ of\ pH\ 11)(1.27)(8.34\ lb/gal)$$

$$= 4{,}592{,}816\ lb/yr.$$

A minor amount of caustic will be used in the ultrafilter cleaning, and is within the range of the volume estimate provided above.

3.4 CHEMICAL – COAGULANT

Clarification will require a coagulant for effective liquids/solids separation. Testing at the pilot clarifier identified an aluminum chlorhydrate as an effective coagulant at a feed rate to achieve 300 mg/l concentration. This translates to a feed rate of up to 3 gallons per hour.

3.5 CHEMICAL – SULFURIC ACID

Sulfuric acid will be used to lower the pH after the clarifier before the leachate is pumped to the aeration tanks. A maximum of pH of 8 S.U. will be provided to the aeration tanks to prevent biological inhibition. The amount of sulfuric acid is based on the CEC preliminary bench scale test to lower the pH from 11 S.U. to 8 S.U. with sulfuric acid (93%) resulted in 309.7 gpd sulfuric acid at a flow rate of 100 gallons per minute (gpm). At 300,000 gpd (208 gpm), this would translate to 644.2 gpd. With a reduction in the change of pH 9 S.U. to 8 S.U. the usage is estimated at 3% of the higher pH reduction. The sulfuric acid has a specific gravity of 1.84. The estimated sulfuric acid annual usage is anticipated as follows:

Sulfuric Acid = (644.2 gpd)(3%)(8.34lbs/gal)(1.84 S.G.)(365 days)=

= 108,247 lbs/yr

3.6 CHEMICAL – DEFOAMER

Aeration of the leachate can cause extensive foaming that could interfere with efficient operation. In order to eliminate foam, a defoaming chemical must be added, and is currently in use. The application point will be in the 316,000 gallon tank from defoamer storage and feed location in the treatment building. Selection of defoamer will be based on field tests, but will focus on defoamers that do not include silicone to prevent membrane fouling. Typical application ranges from 10 mg/l to 50 mg/l. Defoamer can also be applied to the spray rings at the four aeration tanks and to the aerated waste activated sludge holding tank. For estimating purposes, a midpoint of 30 mg/l is used. The anticipated annual quantity of the defoamer is calculated as follows:

Defoamer = (30 mg/l)(8.34)(0.3 mgd)(365 days/yr)

= 27,370 lbs/yr.

A similar additional volume may be anticipated at the aeration tanks.

3.7 CHEMICAL – POLYMER

Polymer addition will be used in both the clarifier Rapid Mix tank to assist in liquid/solid separation, and as a sludge separation agent. Various polymers have been evaluated, and applications have been less that 50 mg/leach in the clarifier and in the sludge process area. It is

MSD 029484

anticipated that an anionic polymer will be used in the clarifier and a cationic polymer will be fed to the sludge thickening/dewatering process. The volume of various polymer chemicals used per year, at a feed rate of 50 mg/l is estimated below:

$$Polymer = (50\ mg/l)(0.3mgd)(8.34)(365\ days/yr)$$

$$= 45{,}662\ lb/yr\ each\ polymer$$

3.8 CHEMICAL – OTHER CHEMICALS

The treatment system will require a number of additional chemicals, ranging from anti-scaling agent, to phosphoric acid and other nutrient feed, to minor amounts of cleaning chemicals for process units, such as caustic and bleach for various processes, including the cooling tower and heat exchangers, and Dynatec's Memclean cleaner for the Ultrafilters for membrane cleaning maintenance chemicals. Other chemicals include salt for the softener system, phosphoric acid and nutrient addition for the insufficient leachate nutrients, and possibly other chemicals.

3.9 POWER

The pretreatment process will use electricity in various unit operations. The largest power draws are in the aeration blowers and pumps, with other uses including process pumping, chemical feed pumping, air pollution odor control from regenerative thermal oxidizers, and building electrical uses. Electric charges are calculated based on $0.07 per kilowatt hour (KW).

The power draw for the various uses is estimated as follows:

MSD 029485

Description	Volts	HP connected per unit	Number units	Total Connected HP	Actual Max Motor HP Draw, Units	Efficiency %	KW	Actual KW Consumed
Influent pumps	480	15	4	60	8.5	70		36.2
316 pumps	480	20	2	40	15.0	70		32.0
316 Blowers	480	40	2	80	60.0	70		127.9
Clarifier Feed Pump	480	5	1	5	5.0	70		5.3
8 @ Chemical Feed Pumps	480	2	8	16	1.0	70		8.5
2- mixers	480	2	2	4	1.0	70		2.1
4 - Aeration Tank Feed Pumps	480	15	3	45	0.9	70		2.9
4 - Jet Mixers pumps	480	40	8	320	30.0	70		255.8
4- Jet Aeration Blowers	480	200	8	1600	185.0	70		1577.3
4 – cooling system tank circulation pumps	480	50	4	200	22	70		90
4 - Membrane Feed Pumps	480	15	4	60	8.5	70		36.2
2- Cooling tower cool water pumps	480	20	1	40	15	70		32
4 - Membrane Aeration Pumps	480	5	4	20	3.0	70		12.8
4 Cooling Tower Fans	480	7.5	4	30	6	70		25
2 - membrane Circulation Pumps	480	200	4	800	85.0	70		362.3
2 - Membrane Effluent Pumps	480	5	2	10	3.0	70		6.4
Misc. chemical pumps, feeders	120	10	10	100	8.0	70		85.3
Sludge Thickener	480	75	1	75	8.0	70		8.5
Sludge Press	480	40	2	80	56.0	70		119.4
Regen Thermal Oxidizer	480	75	3	225	157.5	70	100	100.0
Building Electrical	110						100	100.0
Total				3540	82			3030

3.10 SLUDGE DISPOSAL

Dewatered sludge is to be disposed at the Roxana Landfill in Illinois. This assumes that the sludge will be non-hazardous, based on metals concentrations and recent TCLP analyses.

MSD 029486

Preliminary sludge wasting is calculated at 100% removal of 2,600 mg/l to account for chemical feed and contingency amounts, or

Clarifier Sludge = (2,600 mg/L))(8.34)(0.30 mgd)(365 days/yr)/(2,000 lbs/ton)

= 1,188 tons/yr

For biological sludge, an estimate is typically in the range of 0.4 to 0.8 pounds sludge produced per pound BOD destroyed. At the more conservative sludge wasting of 0.8 pound rate and an estimated 77,600 pounds per day of BOD applied

Aerobic sludge produced = (77,600 lb/day)(0.8)(365 days/yr)/(2,000lbs/ton).

= 11,329 tons Dry Solids/yr

Total sludge = 1,188 tons/yr + 11,329 tons/yr

= 12,517 tons Dry Solids/yr

If the sludge is 17% dry solids as a conservative estimate, then the weight is 12,517tons/yr / 17% = 73,633 tons/yr. At 68 lbs/cf, this relates 80,000 CY per year.

If the sludge is 25% dry solids (based on engineering estimates and discussions with the equipment manufacturer), the weight is 12,517 tons/yr / 25% = 50,000 tons/yr. At 68 lbs/cf, this relates to almost 55,000 CY per year. If sludge is produced at 20% dry solids, the volume would increase to 62,000 tons per year, and at 80 lbs/cf, this would relate to 45,000 CY per year. Actual operation and leachate characteristics will determine sludge production.

The design sludge hauling is based on an estimated 60,000 tons wet solids per year.

MSD 029487

4.0 SUMMARY OF DESIGN BASIS

The basis of design considers results of analytical tests, bench scale tests in progress at Civil & Environmental Consultants, Inc. (CEC) laboratory in Charlotte, NC; pilot tests currently being performed at the landfill; and engineering experience and judgment. The process anticipates using the existing 316,000 gallon aerated tank as an equalization tank and pumping the 316,000 gallon tank leachate to a treatment building. PLC Controls will be used for operation of hydraulic flow control at the various units and for chemical feed. Operation tasks include equipment performance monitoring, daily and other reports, chemical feed supply loading and ordering, equipment periodic and breakdown maintenance, responding to and evaluating alarms, and process optimization.

Processes in the treatment building will include a pH adjustment tank where caustic will be added to raise the pH to between 7 and 8 S.U. to help precipitate zinc and other metals, and then the leachate will flow to a clarifier rapid mix tank where coagulants, polymers and other chemicals will be added to encourage a preliminary liquids/solids separation. The leachate will flow by gravity to an inclined plate clarifier for solids separation. The liquid will then enter a pH adjustment tank where sulfuric acid may be added to lower the pH to 8 S.U. if higher than this level, before being pumped to four aeration tanks sized at one million gallons each.

The solids from the inclined plate clarifier will enter a sludge thickener that will raise the solids content from approximately 2% to approximately 5% solids and then pumped to a primary sludge storage tank in advance of being pumped to a screw dewatering press for mixing with the waste activated sludge and subsequent dewatering. The liquid flow from the aeration tanks will be pumped to an ultrafilter system to separate the mixed liquor solids from a relatively clear effluent. The jet aeration and membrane ultrafilter comprise a Membrane Bioreactor system (MBR). That effluent will be pumped to the existing 97,000 gallon storage tank before discharge to the MSD's MRTF. A portion of the solids separated in the ultrafilter will then be returned to the aeration tanks as return activated sludge. The excess sludge to be wasted will be pumped from the ultrafilter return sludge line to a waste activated sludge tank in the treatment building. The waste activated sludge solids in the treatment building will be thickened and mixed with the primary sludge and then mixed with polymers and other chemicals prior to dewatering in ascrew dewatering press. The dewatered solids from the screw presses will be placed in sludge hauling trailers for transport to the Roxana Landfill.

Exhaust air from the 316,000 gallon tank will be treated by a scrubber for reduced sulfur compounds and a regenerative thermal oxidizer odor control system for volatile constituent removal from the Equalization Tank, the Treatment Building, and the Aeration Tanks. ,. Initially, air exhaust from the four, one million-gallon jet aeration tanks will be treated by a rented thermal oxidizer for a period of time until the sludge mass becomes acclimated to the leachate. When acclimatization occurs, the odors from the exhaust air are anticipated to be minimal with an earthy odor; however, to confirm the removal of the volatile odors, the exhaust air will be treated in the central RTO system.

FIGURES

REFER TO PLAN SUBMITTED JUNE 2014

FIGURES

- TREATMENT BUILDING PLAN (DRAWING A-100)
- SITE PLAN (DRAWING C-200)
- PROCESS FLOW DIAGRAMS (DRAWINGS P-200 AND P-400 THROUGH P-411)

APPENDIX A

PILOT TEST DATA – (on CD)

-COMPLETE SET NOT SCANNED
-LOCATED IN OVERFLOW FILES
-DRM

STATE OF MISSOURI
KEVIN T. KAMP
NUMBER
PE-2008019670
PROFESSIONAL ENGINEER

DRAWING NO.: C000	BRIDGETON LANDFILL 13570 ST. CHARLES ROCK ROAD TREATMENT BLDG. CONSTRUCTION PLANS COVER SHEET		
	DATE: AUGUST 2013	DRAWN BY: JKS	
	DWG SCALE: (AS NOTED)	CHECKED BY: DRAFT	
	PROJECT NO: 130-484		
	APPROVED BY: DRAFT		

BRIDGETON LANDFILL, LLC
13570 ST. CHARLES ROCK ROAD
BRIDGETON, MO 63044
PHONE: (314) 744-8195
FAX: (314) 656-2107

6-6-2014

MSD 029493

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Thursday, June 05, 2014 9:56 AM
To: Doug Mendoza
Subject: FW: Question on hours/shift info for Bridgeton Landfill questionnaire

Doug, here's the response. Let me know if you need any further clarification.

Ed Galbraith

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From: Sehie, Bryan [mailto:BSehie@republicservices.com]
Sent: Wednesday, June 04, 2014 1:47 PM
To: Ed Galbraith
Cc: Power, Brian; Bouchard, Derek
Subject: RE: Question on hours/shift info for Bridgeton Landfill questionnaire

Bryan Sehie | Environmental Specialist | Republic Services, Inc.

13570 St. Charles Rock Rd. | Bridgeton, MO 63044

☎ 314.744.8190 314.443.0179

From: Ed Galbraith [mailto:EGalbraith@barr.com]
Sent: Wednesday, June 04, 2014 10:45 AM
To: Sehie, Bryan
Cc: Power, Brian; Bouchard, Derek
Subject: FW: Question on hours/shift info for Bridgeton Landfill questionnaire

Bryan, would be able to answer these questions from Doug?

1. How will the number of workers be different on weekdays vs. weekends, and what is the duration of the shifts? See below

2. I'm guessing that there will be more workers M-F, with some smaller amount of Sa-Su. Is that correct? Yes, see below

3. How will the coverage work for the PT system? Will it be different than currently? Yes, see below

Landfill:
M-F Day shift = 7 personnel (7am to 5:30pm); 2 personnel (6am to 6pm) I guess that is 1st and part of 2nd shift
M-F Night shift = 2 personnel (6pm to 6am), others available for call-outs. I guess that is the other part of 2nd shift and 3rd shift

Sat-Sun Day Shift = 1 personnel (8am to 4pm), 2 personnel (6am to 6pm), others available for call-outs. 1st and part of 2nd shift again?
Sat-Sun Night Shift = 2 personnel (6pm to 6am), others available for call-outs. Part of 2nd and all of 3rd shift again?

Treatment Plant (tentatively):
M-F Day shift= Plant Supervisor (6am to 4pm); 2 plant operators (6am to 6pm); 3 plant technicians (6am to 6pm); 1 Lab Technician (6am to 6pm)
M-F Night Shift = 2 Plant Operators (6am to 6pm); 3 Plant Technicians (6pm to 6am)
Sat-Sun Day Shift = same as M-F minus Plant Supervisor (on-call)
Sat-Sun Night Shift = same as M-F

For all shifts a designated Assistant Plant Supervisor will be either present or on-call when Plant Supervisor is absent.

Final details of the pretreatment plant operations contract are still in the works, but this is a pretty good look at what we are looking to do.

Ed Galbraith

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From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Wednesday, June 04, 2014 10:39 AM
To: Ed Galbraith
Subject: Question on hours/shift info for Bridgeton Landfill questionnaire

Ed,

The questionnaire has 2 shifts per day, 7 days per week.
Avg employees is 9 on 1st shift starting at 6 am, 2 on 2nd shift starting at 6 pm.

Of course, this info. doesn't really address the realities of a landfill. Could you give me some additional details, please?

How will the number of workers be different on weekdays vs. weekends, and what is the duration of the shifts?

I'm guessing that there will be more workers M-F, with some smaller amount of Sa-Su. And I'm not sure how the coverage will work for the PT system.

---Doug

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Wednesday, June 04, 2014 10:24 AM
To: 'Merrigan, Jessie (LG)'; Doug Mendoza; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; 'Bryan Sehie'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; "Theerman, Jeff' (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie E. Linscheid
Subject: Bridgeton Landfill Weekly Report

The materials for the previous week are now on Barr's ftp site.

As noted previously, we are operating under Alternative 1 of the leachate management SOP, approved by MSD April 18, 2014. All leachate is being treated and loaded into trucks from the 316K tank only. There is a long load-out time for Tank 2, possibly because of an air-locked line or pump problem. We are currently working to address the problem, however for the time being, loading from the 316 tank is the only viable option.

You will note that yesterday and today, less than the maximum permitted volume is being hauled to Bissell Point. It is possible that this trend may continue in the near future, however that is not certain and we would appreciate MSD maintaining the extended haul station hours currently in place. The reasons for the reduced volume are:

1. The landfill has worked down its leachate backlog, thanks to your assistance;
2. The pretreatment startup system is using about 25,000 gallons per day;
3. Some treated leachate is being used to fill the 1M tanks to a minimum operating volume;
4. Overall leachate volume is down, consistent with the pattern we have seen previously with sustained warm, dry weather. It would seem that the conditions that generally allow for increased volumes at Bissell Point also produce less leachate.

There was an adjustment on the daily flow reading on 5/26/2014 of 334 gallons. The precautions previously described are taken to insure that there was no actual flow to the lift station, including permanent lock out of the manual valve on the 96K tank.

Finally, in light of QC issues that were raised as part of the May 14, 2014 weekly update, we wanted to apprise you of the following steps that have been instituted:

1. Our review of the past several week's data from Pace Analytical had identified an increase in QC problems. This increase seemed to correlate with a new automated reporting system that the lab had recently implemented. We have asked Pace to discontinue using that system and revert to the former procedure which included an additional error check by the project manager. Pace has agreed to this. In addition we have asked Pace to review their process and provide us a report on any other procedural changes that might be instituted to increase overall QC quality.
2. At Bridgeton Landfill's request, Barr will generate a weekly internal report that will generate a list of outliers to help easily spot unusually high or low data values. An outlier is generally defined as the average plus or minus one standard deviation for the past 12 weeks of data.

Again, we wish to reiterate our appreciation for MSD's ongoing assistance, as we approach the implementation of a more permanent solution.

Ed Galbraith

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Bridgeton Landfill, LLC
Metropolitan St. Louis Sewer District
Weekly Disposal Summary

MSD - Bissell Point Tracking Table

Date	Concrete Batch	Daily Total Delivered	Daily Total Delivered	Daily Total Delivered	Daily Total Delivered
Sunday, May 25, 2014	Batch 316-309	30,000	202,500	30,000	202,500
	Batch 316-310	172,500		172,500	
Monday, May 26, 2014	Batch 316-310	30,000	202,500	30,000	202,500
	Batch 316-311	172,500		172,500	
Tuesday, May 27, 2014	Batch 316-311	30,000	202,500	30,000	202,500
	Batch 316-312	172,500		172,500	
Wednesday, May 28, 2014	Batch 316-312	30,000	202,500	30,000	202,500
	Batch 316-313	172,500		172,500	
Thursday, May 29, 2014	Batch 316-313	37,500	202,500	37,500	202,500
	Batch 316-314	165,000		165,000	
Friday, May 30, 2014	Batch 316-314	37,500	202,500	37,500	202,500
	Batch 316-315	165,000		165,000	
Saturday, May 31, 2014	Batch 316-315	37,500	202,500	37,500	202,500
	Batch 316-316	165,000		165,000	

Date	***5/25/2014 6:00***
Date	***6/1/2014 6:00***

MSD - Missouri River Tracking Table

Date	Concrete Batch Number	Daily Total Delivered	Start Date	End Date	Total Hours	Maximum Hourly Flow Rate (gpm)	Average Hourly Flow Rate (gpm)	% Capacity
Sunday, May 25, 2014	NA	-	5/25/2014 6:00	5/26/2014 16:42	34.7	840	0.0	NA
Monday, May 26, 2014	NA	-	5/26/2014 16:42	5/27/2014 6:00	13.3	840	0.0	NA
Tuesday, May 27, 2014	NA	-	5/27/2014 6:00	5/28/2014 6:00	24.0	840	0.0	NA
Wednesday, May 28, 2014	NA	-	5/28/2014 6:00	5/29/2014 6:00	24.0	840	0.0	NA
Thursday, May 29, 2014	NA	-	5/29/2014 6:00	5/30/2014 6:00	24.0	840	0.0	NA
Friday, May 30, 2014	NA	-	5/30/2014 6:00	5/31/2014 6:00	24.0	840	0.0	NA
Saturday, May 31, 2014	NA	-	5/31/2014 6:00	6/1/2014 6:00	24.0	840	0.0	NA

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Boudreau Title: Environmental Specialist Date: 06/03/14

Weekly Volume Summary - Week 58 (5-25-14 through 5-31-14).xlsx

MSD 029499

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/26/2014 4:42:00 PM	5/25/2014 6:00:00 AM	34.7 hours
Reading (Gallons):	2,026,978	2,026,644	334

Flow Meter Adjustment

Reading Adjustment:	334
Flow During Adjustment:	0

Comments

Adjusted for phantom flow readings while valve was off.

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 06/03/14

MSD Daily Flow Reading, ending 5-26-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/27/2014 6:00:00 AM	5/26/2014 4:42:00 PM	13.3 hours
Reading (Gallons):	2,026,978	2,026,978	0

Flow Meter Adjustment

Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 06/03/14

MSD Daily Flow Reading, ending 5-27-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/28/2014 6:00:00 AM	5/27/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,978	2,026,978	0

Flow Meter Adjustment

Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 06/03/14

MSD Daily Flow Reading, ending 5-28-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/29/2014 6:00:00 AM	5/28/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,978	2,026,978	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 06/03/14

MSD Daily Flow Reading, ending 5-29-2014

Daily Flow Reading

Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/30/2014 6:00:00 AM	5/29/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,978	2,026,978	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 06/03/14

MSD Daily Flow Reading, ending 5-30-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/31/2014 6:00:00 AM	5/30/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,978	2,026,978	0

Flow Meter Adjustment

Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 06/03/14

MSD Daily Flow Reading, ending 5-31-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	6/1/2014 6:00:00 AM	5/31/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,978	2,026,978	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Derek Bouchard

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Derek Bouchard *Name:* Derek Bouchard

Title: Env. Specialist *Date:* 06/03/2014

MSD Daily Flow Reading, ending 6-01-2014

OB-316-309

Bridgeton Landfill

Fill Data

Fill Start Date	5/23/2014
Fill Start Time	19:32
Fill Stop Date	5/24/2014
Fill Stop Time	00:50
Process Battery	316 AST

Processing Data

Process Start Date	5/23/2014
Process Start Time	20:12
Process Stop Date	5/24/2014
Process Stop Time	03:30

Approval Data

Approval Details	NAL 13026-1448
Test Results	Benzene ND <100ppb
Reprocessed Batch	

Notes

fill height 21'
MEK 21,000 ppb

Monday, June 02, 2014

OB-316-310 Bridgeton Landfill

Fill Data

Fill Start Date	5/24/2014
Fill Start Time	19:12
Fill Stop Date	5/25/2014
Fill Stop Time	00:36
Process Battery	316 AST

Processing Data

Process Start Date	5/24/2014
Process Start Time	21:06
Process Stop Date	5/25/2014
Process Stop Time	03:10

Approval Data

Approval Details	NAL13026-1450
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 19,000 ppb. Fill height = 21.04 ft.

Monday, June 02, 2014

OB-316-311 Bridgeton Landfill

Fill Data

Fill Start Date	5/25/2014
Fill Start Time	19:20
Fill Stop Date	5/26/2014
Fill Stop Time	00:25
Process Battery	316 AST

Processing Data

Process Start Date	5/25/2014
Process Start Time	19:57
Process Stop Date	5/26/2014
Process Stop Time	03:00

Approval Data

Approval Details	NAL13026-1452
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 18,000 ppb. Fill height = 21.06 ft.

Monday, June 02, 2014

OB-316-312 Bridgeton Landfill

Fill Data

Fill Start Date	5/26/2014
Fill Start Time	18:20
Fill Stop Date	5/26/2014
Fill Stop Time	23:58
Process Battery	316 AST

Processing Data

Process Start Date	5/26/2014
Process Start Time	19:40
Process Stop Date	5/27/2014
Process Stop Time	03:53

Approval Data

Approval Details	NAL13026-1456
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 18,000 ppb. Fill height = 21.00 ft.

Monday, June 02, 2014

OB-316-313 Bridgeton Landfill

Fill Data

Fill Start Date	5/27/2014
Fill Start Time	18:42
Fill Stop Date	5/28/2014
Fill Stop Time	01:05
Process Battery	316 AST

Processing Data

Process Start Date	5/27/2014
Process Start Time	20:25
Process Stop Date	5/28/2014
Process Stop Time	03:02

Approval Data

Approval Details	NAL13026-1458
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 19,000 ppb. Fill height = 20.97 ft. Both blowers were running, for a total of more than 3 blower-hours after filling stopped.

Monday, June 02, 2014

OB-316-314 Bridgeton Landfill

Fill Data

Fill Start Date	5/28/2014
Fill Start Time	18:23
Fill Stop Date	5/29/2014
Fill Stop Time	00:13
Process Battery	316 AST

Processing Data

Process Start Date	5/28/2014
Process Start Time	19:20
Process Stop Date	5/29/2014
Process Stop Time	04:25

Approval Data

Approval Details	NAL13026-1462
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 32,000 ppb. Fill height = 21.06 ft.

Monday, June 02, 2014

OB-316-315 Bridgeton Landfill

Fill Data

Fill Start Date	5/29/2014
Fill Start Time	19:09
Fill Stop Date	5/30/2014
Fill Stop Time	02:10
Process Battery	316 AST

Processing Data

Process Start Date	5/29/2014
Process Start Time	21:10
Process Stop Date	5/30/2014
Process Stop Time	03:40

Approval Data

Approval Details	NAL13026-1463
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 29,000 ppb. Fill height = 21.04 ft. Both blowers were running, for a total of 3 blower-hours after filling stopped.

Monday, June 02, 2014

OB-316-316 Bridgeton Landfill

Fill Data

Fill Start Date	5/30/2014
Fill Start Time	18:18
Fill Stop Date	5/30/2014
Fill Stop Time	23:02
Process Battery	316 AST

Processing Data

Process Start Date	5/30/2014
Process Start Time	19:13
Process Stop Date	5/31/2014
Process Stop Time	03:00

Approval Data

Approval Details	NAL13026-1467
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 27,000 ppb. Fill height = 18.56 ft.

Monday, June 02, 2014

MSD 029515

Table 1
General Parameters and Metals
March - June 2014
Bridgeton Landfill

					Biochemical Oxygen Demand (5-day)	Chemical Oxygen Demand	Nitrogen, ammonia as N	Oil and Grease	Oil and Grease - Silica gel cleanup	pH	pH, field
					NA	NA	NA	NA	NA	NA	NA
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-310	5/25/2014	Pace	Validated	60170002	29800	50700	639	1040	15.8	5.4	5.40
316-309	5/24/2014	Pace	Validated	60170001	31300	54700	630	926	18.3	5.4	5.38
316-307	5/22/2014	Pace	Validated	60169851	29400	54400	592	815	5.6	5.5	6.22
316-306	5/21/2014	Pace	Validated	60169745	33400	55000	592	976 *	ND	5.4	6.08
316-305	5/20/2014	Pace	Validated	60169645	36900	59400	589	888	10.8 *	5.4	5.96

Table 1
General Parameters and Metals
March - June 2014
Bridgeton Landfill

					Solids, total suspended	Aluminum	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Cobalt
					NA	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-310	5/25/2014	Pace	Validated	60170002	5460	5.95	ND	1.1	ND	ND	0.241	0.0415
316-309	5/24/2014	Pace	Validated	60170001	6060	4.53	ND	1.11	ND	ND	0.239	0.0415
316-307	5/22/2014	Pace	Validated	60169851	5460	9.65	ND	1.2	ND	ND	0.26	0.0439
316-306	5/21/2014	Pace	Validated	60169745	5840	10.5 *	ND	1.27 *	ND	ND	0.28	0.0479
316-305	5/20/2014	Pace	Validated	60169645	4780	3.68	ND	1.2	ND	ND	0.236	0.0375

MSD 029517

Table 1
General Parameters and Metals
March - June 2014
Bridgeton Landfill

					Copper	Iron	Lead	Mercury	Nickel	Selenium	Silver	Thallium
					Total	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-310	5/25/2014	Pace	Validated	60170002	ND	630	0.0905	ND	0.132	ND	ND	ND
316-309	5/24/2014	Pace	Validated	60170001	ND	647	0.0838	ND	0.127	ND	ND	ND
316-307	5/22/2014	Pace	Validated	60169851	ND	700	0.0996	0.0271	0.139	0.0924	ND	ND
316-306	5/21/2014	Pace	Validated	60169745	ND	786	0.108	ND	0.143	0.0877	ND	ND
316-305	5/20/2014	Pace	Validated	60169645	ND	609	0.0782	0.0139	0.117	0.0770	ND	ND

Table 1
General Parameters and Metals
March - June 2014
Bridgeton Landfill

					Zinc
					Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l
316-310	5/25/2014	Pace	Validated	60170002	5.25
316-309	5/24/2014	Pace	Validated	60170001	4.81
316-307	5/22/2014	Pace	Validated	60169851	4.77
316-306	5/21/2014	Pace	Validated	60169745	5.35
316-305	5/20/2014	Pace	Validated	60169645	5.18

Table 2
VOCs and SVOCs
March - June 2014
Bridgeton Landfill

					Benzene
Location	Date	Lab Name	Data Status	Lab Report	ug/l
316-310	5/25/2014	Pace	Validated	60170002	ND
316-309	5/24/2014	Pace	Validated	60170001	ND
316-307	5/22/2014	Pace	Validated	60169851	ND
316-306	5/21/2014	Pace	Validated	60169745	ND
316-305	5/20/2014	Pace	Validated	60169645	ND

MSD 029519

Doug Mendoza

From: Martin Blecha
Sent: Tuesday, June 03, 2014 7:47 AM
To: Catherine Politte; Mike Townley; Doug Mendoza; Steve Grace; Brian G. Gibson
Cc: John Lodderhose; Martin Blecha; Buffy Santel
Subject: Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 5/25/2014 to 5/31/2014. Corrected copy.

Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 5/25/2014 to 5/31/2014.

5/25 –202,500 gallons
5/26 –202,500 gallons
5/27 –202,500 gallons
5/28 –202,500 gallons
5/29 –202,500 gallons
5/30 –202,500 gallons
5/31– 202,500 gallons
Total = 1,417,500 gallons

Martin J. Blecha
Metropolitan St. Louis Sewer District
Environmental Engineering Associate
10 E. Grand Ave.
St. Louis, MO. 63147-2913.
Office Phone (314)-436-8718

Doug Mendoza

From: Doug Mendoza
Sent: Monday, June 02, 2014 7:53 AM
To: Jessie Merrigan (JMerrigan@LATHROPGAGE.COM); Power, Brian <BPower@republicservices.com> (BPower@republicservices.com) (BPower@republicservices.com); Ed Galbraith (EGalbraith@barr.com) (EGalbraith@barr.com); Dan Feezor (dfeezor@feezorengineering.com)
Cc: John Lodderhose; Brian G. Gibson; Martin Blecha; Steve Grace; Mike Townley; Catherine Politte
Subject: Allowable volume for Bridgeton Landfill to haul to MSD's Bissell Point station

Jessie et al,

The Bissell Point treatment plant management has indicated that the plant is performing acceptably, and they can allow one additional truck of landfill leachate per day to be hauled to the plant. Therefore, Bridgeton Landfill may begin delivering up to 210,000 GPD (28 trucks of 7500 gallons each) to the Bissell Point hauled waste station.

We will keep you informed should conditions and approval change.

Doug Mendoza

Doug Mendoza

Bridgeton Landfill

From: Mike Townley
Sent: Monday, June 02, 2014 7:41 AM
To: John Lodderhose; Doug Mendoza
Cc: Catherine Politte; Darrell Brown
Subject: Landfill Leachate Volumes

The treatment plant is performing better with the warmer temperatures. We could allow one more truck per day without jeopardizing our effluent. We will continue to monitor the effluent and recommend adjustments as necessary.

MAY 2014

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Friday, May 30, 2014 7:38 AM
To: Doug Mendoza
Cc: John Lodderhose; bpower@republicservices.com; bsehie@republicservices.com; Bouchard, Derek (DBouchard@republicservices.com); Ed Galbraith
Subject: RE: Bridgeton Landfill permit renewal letter
Attachments: IUQ_2014_05_29_submittal.pdf

Doug, on behalf of Bridgeton Landfill, please see the attached Industrial Use Questionnaire. Please let me know if you have any questions.

Ed Galbraith

Senior Environmental Scientist
Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

resourceful. naturally. BARR

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Monday, May 12, 2014 8:54 AM
To: Aaron Karlas; Andy Roberts; Bill Abernathy; Bret A. Berthold; Brian G. Gibson; Catherine Politte; 'chris.nagel@dnr.mo.gov'; Christopher J. Bulmahn; Cunningham, Ally (LG; Dan Feezor; David Eastvold; Doug Mendoza; Ed Galbraith; John Lodderhose; John Powell; Jonathon Sprague; Julie Croak; Ken Gambaro; Ken Goins; Lance LeComb; Mark Bright; Martin Blecha; Merrigan, Jessie (LG; Michael Grace; Mike Townley; Nora C. Estopare; Patti Abernathy; Paul Linscott; Power, Brian; Rob G Daly; Ryan Sabourin; Sehie, Bryan; Smith, Steve; Steve Grace; Susan Myers; Tippett Mosby, Leanne; Todd Heller; Tom Boehm
Subject: Bridgeton Landfill permit renewal letter

Hard copy being sent via US mail.

May 12, 2014

Brian Power
Environmental Manager
BRIDGETON LANDFILL LLC
13570 St. Charles Rock Road
Bridgeton, MO 63044

Re: Discharge Permit No: 1003803000 - Interim
For premise at: 13570 St. Charles Rock Road
Bridgeton, MO 63044

Dear Mr. Power:

Bridgeton Landfill, LLC

May 28, 2014

Mr. Doug Mendoza
Industrial Pretreatment Manager
Metropolitan St. Louis Sewer District
10 East Grand Ave.
St. Louis, MO 63147

Dear Mr. Mendoza:

Attached is an updated Industrial User Questionnaire for Bridgeton Landfill, LLC. This questionnaire is provided to assist MSD in preparing a new Industrial Pretreatment Permit to be in effect when Bridgeton Landfill's final pretreatment system is fully operating. The information in the questionnaire is designed to reflect conditions after successful startup of the pretreatment system. As such, the effluent information is based on pilot tests and must therefore be considered preliminary.

If you have any questions, please feel free to contact me at 314-744-8165 or by email at bpower@republicservices.com.

Best regards,

Brian J. Power

Brian Power
Environmental Manager
Bridgeton Landfill, LLC

Enclosures

cc Kevin Kamp, Civil & Environmental Consultants, Inc.
Ed Galbraith, Barr Engineering
Jessica Merrigan, Lathrop & Gage

via email

RECEIVED
MAY 30 2014
DIVISION OF
ENVIRONMENTAL COMPLIANCE

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Thursday, May 29, 2014 5:21 AM
To: 'Merrigan, Jessie (LG)'; Doug Mendoza; 'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; 'Brian Power'; 'Bryan Sehie'; Catherine Politte; 'Chris Nagel'; Christopher J. Bulmahn; 'Cunningham, Ally (LG)'; 'Dan Feezor'; 'David Eastvold'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; 'Leanne Tippett Mosby'; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; 'Patty Abernathy'; 'Paul Linscott'; Rob G Daly; Ryan Sabourin; Steve Grace; 'Steve Smith'; Susan Myers; Todd Heller; Tom Boehm; "Theerman, Jeff' (JTheerman@BrwnCald.com)'
Cc: Kelly Caddy; Dana B. Pasi; Carrie E. Linscheid
Subject: RE: Bridgeton Landfill Weekly Report

All, the materials for the previous week will be posted to Barr's ftp site by 12:00 noon today. Please excuse this early notice, however I will be on the road for most of the morning.

Currently, we are operating under Alternative 1 of the leachate management SOP, approved by MSD April 18, 2014. All leachate is being treated and loaded into trucks from the 316K tank only. It is taking too long to load out of Tank 2, possibly because of an air-locked line or pump problem. We are currently working to address the problem, however for the time being, loading from the 316 tank is the only viable option. Because this limits our leachate processing to 285,000 gallons per day, we are doing everything possible to correct the problem as quickly as possible.

Also, please note that Pace reports 60167571, 60167572, and 60167586 were originally received on April 30th, 2014. On May 13th, 2014 we received revisions to these reports noting a laboratory error and the BOD results were changed. After review of these revisions, it was noticed that the QA/QC information provided no longer included data previously included in the original report. For the Oil & Grease results, analyzed by EPA Method 1664A, the matrix spike (MS) and laboratory duplicate had incomplete information. The reports were revised May 20th, 2014 and the information was included. The revision did not affect the data results and did not create any additional qualification of the data.

There was an adjustment on the daily flow reading on 5/22/2014 of 615 gallons. The precautions previously described were taken to insure that there was no actual flow to the lift station, including lock out of the manual valve on the 96K tank.

Ed Galbraith

Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

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Bridgeton Landfill, LLC
Metropolitan St. Louis Sewer District
Weekly Disposal Summary

MSD - Bissell Point Tracking Table					
Date	Operational Batch	Delivered (gal)		Truck Capacity (gal)	
		Per Batch	Daily Total	Per Batch	Daily Total
Sunday, May 18, 2014	Batch 316-302	30,000	*195,000*	30,000	*195,000*
	Batch 316-303	165,000		165,000	
Monday, May 19, 2014	Batch 316-303	30,000	*195,000*	30,000	*195,000*
	Batch 316-304	165,000		165,000	
Tuesday, May 20, 2014	Batch 316-304	30,000	*202,500*	30,000	*202,500*
	Batch 316-305	172,500		172,500	
Wednesday, May 21, 2014	Batch 316-305	22,500	*202,500*	22,500	*202,500*
	Batch 316-306	180,000		180,000	
Thursday, May 22, 2014	Batch 316-306	22,500	*202,500*	22,500	*202,500*
	Batch 316-307	180,000		180,000	
Friday, May 23, 2014	Batch 316-307	22,500	*202,500*	22,500	*202,500*
	Batch 316-308	180,000		180,000	
Saturday, May 24, 2014	Batch 316-308	30,000	*202,500*	30,000	*202,500*
	Batch 316-309	172,500		172,500	

Date	*5/18/2014 6:00*
Date	*5/25/2014 6:00*

MSD - Missouri River Tracking Table								
Date	Operational Batch Transferred into 97K AST	Gallons Delivered	Batch Start Date and Time	Batch End Date and Time	Interval Hours	Maximum Hourly Flow (gph)	Average Hourly Flow (gph)	97K AST pH Check
Sunday, May 18, 2014	NA	-	5/18/2014 6:00	5/19/2014 6:00	24.0	840	0.0	NA
Monday, May 19, 2014	NA	-	5/19/2014 6:00	5/20/2014 6:00	24.0	840	0.0	NA
Tuesday, May 20, 2014	NA	-	5/20/2014 6:00	5/21/2014 6:00	24.0	840	0.0	NA
Wednesday, May 21, 2014	NA	-	5/21/2014 6:00	5/22/2014 13:30	31.5	840	0.0	NA
Thursday, May 22, 2014	NA	-	5/22/2014 13:30	5/23/2014 6:00	16.5	840	0.0	NA
Friday, May 23, 2014	NA	-	5/23/2014 6:00	5/24/2014 6:00	24.0	840	0.0	NA
Saturday, May 24, 2014	NA	-	5/24/2014 6:00	5/25/2014 6:00	24.0	840	0.0	NA

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: _____ Title: Environmental Specialist Date: 5/27/14

Weekly Volume Summary - Week 57 (5-18-14 through 5-24-14).xlsx

MSD 029527

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/19/2014 6:00:00 AM	5/18/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,029	2,026,029	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Schie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Schie *Name:* Bryan Schie

Title: Environmental Specialist *Date:* 5/19/14

MSD Daily Flow Reading, ending 5-19-2014

Daily Flow Reading — *Bridgeton Landfill*

	Current	Previous	Difference
Date / Time:	5/20/2014 6:00:00 AM	5/19/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,029	2,026,029	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/20/14

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/21/2014 6:00:00 AM	5/20/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,029	2,026,029	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

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Signed: Bryan K Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/21/14

MSD Daily Flow Reading, ending 5-21-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/22/2014 1:30:00 PM	5/21/2014 6:00:00 AM	31.5 hours
Reading (Gallons):	2,026,644	2,026,029	615

Flow Meter Adjustment		Comments
Reading Adjustment:	615	Adjusted for phantom flow readings while valve was off.
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

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Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/22/14

MSD Daily Flow Reading, ending 5-22-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/23/2014 6:00:00 AM	5/22/2014 1:30:00 PM	16.5 hours
Reading (Gallons):	2,026,644	2,026,644	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/23/14

MSD Daily Flow Reading, ending 5-23-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/24/2014 6:00:00 AM	5/23/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,644	2,026,644	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/24/14

MSD Daily Flow Reading, ending 5-24-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/25/2014 6:00:00 AM	5/24/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,644	2,026,644	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/25/14

MSD Daily Flow Reading, ending 5-25-2014

OB-316-302 | Bridgeton Landfill

Fill Data

Fill Start Date	5/16/2014
Fill Start Time	18:12
Fill Stop Date	5/16/2014
Fill Stop Time	23:37
Process Battery	316 AST

Processing Data

Process Start Date	5/16/2014
Process Start Time	19:16
Process Stop Date	5/17/2014
Process Stop Time	04:00

Approval Data

Approval Details	NAL 13026-1426
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

fill height = 21'

Monday, May 26, 2014

OB-316-303 | Bridgeton Landfill

Fill Data

Fill Start Date	5/17/2014
Fill Start Time	18:20
Fill Stop Date	5/17/2014
Fill Stop Time	22:40
Process Battery	316 AST

Processing Data

Process Start Date	5/17/2014
Process Start Time	19:14
Process Stop Date	5/18/2014
Process Stop Time	04:00

Approval Data

Approval Details	NAL13026-1430
Test Results	Benzene ND <100ppb
Reprocessed Batch	

Notes

fill height = 21.1'

Monday, May 26, 2014

OB-316-304 | Bridgeton Landfill

Fill Data

Fill Start Date	5/18/2014
Fill Start Time	18:12
Fill Stop Date	5/18/2014
Fill Stop Time	22:05
Process Battery	316 AST

Processing Data

Process Start Date	5/18/2014
Process Start Time	20:10
Process Stop Date	5/19/2014
Process Stop Time	03:30

Approval Data

Approval Details	NAL13026-1434
Test Results	Benzene ND<100 ppb
Reprocessed Batch	

Notes

fill height = 21.1'

Monday, May 26, 2014

OB-316-305 Bridgeton Landfill

Fill Data

Fill Start Date	5/19/2014
Fill Start Time	18:42
Fill Stop Date	5/19/2014
Fill Stop Time	22:56
Process Battery	316 AST

Processing Data

Process Start Date	5/19/2014
Process Start Time	20:12
Process Stop Date	5/20/2014
Process Stop Time	03:30

Approval Data

Approval Details	NAL 13026-1436
Test Results	Benzene ND <100ppb
Reprocessed Batch	

Notes

fill height 21.2'

Monday, May 26, 2014

OB-316-306 Bridgeton Landfill

Fill Data

Fill Start Date	5/20/2014
Fill Start Time	20:00
Fill Stop Date	5/21/2014
Fill Stop Time	02:22
Process Battery	316 AST

Processing Data

Process Start Date	5/20/2014
Process Start Time	21:45
Process Stop Date	5/21/2014
Process Stop Time	03:25

Approval Data

Approval Details	NAL13026-1438
Test Results	Benzene ND <100ppb
Reprocessed Batch	

Notes

Fill height 21.1'. Both blowers were running, for a total of more than 2 blower-hours after filling stopped.

Monday, May 26, 2014

OB-316-307 Bridgeton Landfill

Fill Data

Fill Start Date	5/21/2014
Fill Start Time	18:20
Fill Stop Date	5/21/2014
Fill Stop Time	23:36
Process Battery	316 AST

Processing Data

Process Start Date	5/21/2014
Process Start Time	19:14
Process Stop Date	5/22/2014
Process Stop Time	03:30

Approval Data

Approval Details	NAL13026-1442
Test Results	Benzene ND <100ppb
Reprocessed Batch	

Notes

Fill height - 21.0'

Monday, May 26, 2014

OB-316-308 Bridgeton Landfill

Fill Data

Fill Start Date	5/22/2014
Fill Start Time	19:47
Fill Stop Date	5/23/2014
Fill Stop Time	00:36
Process Battery	316 AST

Processing Data

Process Start Date	5/22/2014
Process Start Time	21:12
Process Stop Date	5/23/2014
Process Stop Time	03:30

Approval Data

Approval Details	NAL 13026-1444
Test Results	Benzene ND <100ppb
Reprocessed Batch	

Notes

fill height 20.9'

Monday, May 26, 2014

OB-316-309 Bridgeton Landfill

Fill Data

Fill Start Date	5/23/2014
Fill Start Time	19:32
Fill Stop Date	5/24/2014
Fill Stop Time	00:50
Process Battery	316 AST

Processing Data

Process Start Date	5/23/2014
Process Start Time	20:12
Process Stop Date	5/24/2014
Process Stop Time	03:30

Approval Data

Approval Details	NAL 13026-1448
Test Results	Benzene ND <100ppb
Reprocessed Batch	

Notes

fill height 21'
MEK 21,000 ppb

Monday, May 26, 2014

Table 1
General Parameters and Metals
March - May 2014
Bridgeton Landfill

					Biochemical Oxygen Demand (5 day)	Chemical Oxygen Demand	Nitrogen, ammonia as N	Oil and Grease	Oil and Grease - Silica gel cleanup	pH, lab	pH, field
					NA	NA	NA	NA	NA	NA	NA
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	pH units	pH units
316-304	5/19/2014	Pace	Validated	60169530	33100	47600	591	1080	7.9	5.4	5.92
316-303	5/18/2014	Pace	Validated	60169529	33000	48500	625	1070	ND	5.4	5.83
316-302	5/17/2014	Pace	Validated	60169528	34500	49100	605	1540	7.9	5.4	5.85
316-301	5/16/2014	Pace	Validated	60169464	29300	55700	614	2250	20.0	5.4	5.86
316-300	5/15/2014	Pace	Validated	60169395	28100	47800	536	1230	14.0	5.4	5.95
316-299	5/14/2014	Pace	Validated	60169282	31100	53500	555	1000	6.8	5.3	5.94
316-298	5/13/2014	Pace	Validated	60169171	30600	59100	555	1230	6.4	5.4	5.94

MSD 029543

Table 1
General Parameters and Metals
March - May 2014
Bridgeton Landfill

					Solids, total suspended	Aluminum	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Cobalt
					NA	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-304	5/19/2014	Pace	Validated	60169530	3860	14.3	0.0634	1.16	ND	ND	0.233	0.0383
316-303	5/18/2014	Pace	Validated	60169529	4540	21	0.0510	1.16	ND	ND	0.252	0.0490
316-302	5/17/2014	Pace	Validated	60169528	3700	20.8	0.0558	1.18	ND	ND	0.244	0.0467
316-301	5/16/2014	Pace	Validated	60169464	4320	12.8	ND	1.15	ND	ND	0.231	0.0454
316-300	5/15/2014	Pace	Validated	60169395	4120	12.4	0.108	1.32	ND	ND	0.191	0.0547
316-299	5/14/2014	Pace	Validated	60169282	6240	18.6	0.134	1.44	ND	0.0270	0.239	0.0696
316-298	5/13/2014	Pace	Validated	60169171	5440	25.6	0.135	1.4	ND	0.0286	0.253	0.0746

MSD 029544

Table 1
General Parameters and Metals
March - May 2014
Bridgeton Landfill

					Copper	Iron	Lead	Mercury	Nickel	Selenium	Silver	Thallium
					Total	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-304	5/19/2014	Pace	Validated	60169530	ND	792	0.116	ND	0.116	ND	ND	ND
316-303	5/18/2014	Pace	Validated	60169529	0.0606	850	0.15	ND	0.129	ND	ND	ND
316-302	5/17/2014	Pace	Validated	60169528	0.0733	788	0.131	ND	0.13	ND	ND	ND
316-301	5/16/2014	Pace	Validated	60169464	0.0854	630	0.138	0.0107	0.135	0.0916	ND	ND
316-300	5/15/2014	Pace	Validated	60169395	ND	610	0.101	0.0269	0.108	ND	ND	ND
316-299	5/14/2014	Pace	Validated	60169282	0.0820	786	0.155	0.0471	0.129	ND	ND	ND
316-298	5/13/2014	Pace	Validated	60169171	0.0996	830	0.15	0.0178	0.154	ND	ND	ND

Table 1
General Parameters and Metals
March - May 2014
Bridgeton Landfill

					Zinc
					Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l
316-304	5/19/2014	Pace	Validated	60169530	4.81
316-303	5/18/2014	Pace	Validated	60169529	4.82
316-302	5/17/2014	Pace	Validated	60169528	4.14
316-301	5/16/2014	Pace	Validated	60169464	3.96
316-300	5/15/2014	Pace	Validated	60169395	3.64
316-299	5/14/2014	Pace	Validated	60169282	4.28
316-298	5/13/2014	Pace	Validated	60169171	4.49

MSD 029546

Table 2
VOCs and SVOCs
March - May 2014
Bridgeton Landfill

					Benzene
Location	Date	Lab Name	Data Status	Lab Report	ug/l
316-304	5/19/2014	Pace	Validated	60169530	ND
316-303	5/18/2014	Pace	Validated	60169529	ND
316-302	5/17/2014	Pace	Validated	60169528	ND
316-301	5/16/2014	Pace	Validated	60169464	ND
316-300	5/15/2014	Pace	Validated	60169395	ND
316-299	5/14/2014	Pace	Validated	60169282	ND
316-298	5/13/2014	Pace	Validated	60169171	ND

Doug Mendoza

From: Martin Blecha
Sent: Tuesday, May 27, 2014 8:36 AM
To: Catherine Politte; Mike Townley; Doug Mendoza; Steve Grace; Brian G. Gibson; Buffy Santel
Cc: John Lodderhose; Martin Blecha
Subject: RE: Bridgeton Landfill leachate volume from 5/18/14 to 5/24/14.

From: Martin Blecha
Sent: Monday, May 19, 2014 8:17 AM
To: Catherine Politte; Mike Townley; Doug Mendoza; Steve Grace; Brian G. Gibson; Buffy Santel
Cc: John Lodderhose
Subject: Bridgeton Landfill leachate volume from 5/18/14 to 5/24/14.

Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 5/18/2014 to 5/24/2014.

5/18–202,500 gallons
5/19 –202,500 gallons
5/20 –202,500 gallons
5/21 –202,500 gallons
5/22 –202,500 gallons
5/23 –202,500 gallons
5/24– 202,500 gallons
Total = 1,417,500 gallons

Martin J. Blecha
Metropolitan St. Louis Sewer District
Environmental Engineering Associate
10 E. Grand Ave.
St. Louis, MO. 63147-2913.
Office Phone (314)-436-8718

Bridgeton Landfill

Doug Mendoza

From: Joe Pavlich
Sent: Tuesday, May 27, 2014 7:05 AM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: Meter reading

Doug, the meter reading on 5/23/14 @ 1125 was 2026644 with 0 gals. per hr. discharge.

Doug Mendoza

From: Doug Mendoza
Sent: Friday, May 23, 2014 9:55 AM
To: 'Ed Galbraith'; John Lodderhose
Cc: Kelly Caddy; Dana B. Pasi; Carrie E. Linscheid; bpower@republicservices.com; bsehie@republicservices.com; Bouchard, Derek (DBouchard@republicservices.com); Dan Feezor (dfeezor@feezorengineering.com); Bill Abernathy (babernathy@feezorengineering.com); David Eastvold (deastvold@feezorengineering.com); Aaron Karlas (akarlas@feezorengineering.com)
Subject: RE: Bridgeton Landfill Report for Memorial Day Week

Ed,

Because of the extenuating circumstances, we will allow next week's report delivery to be delayed by one day.

Doug

From: Ed Galbraith [mailto:EGalbraith@barr.com]
Sent: Friday, May 23, 2014 9:45 AM
To: Doug Mendoza; John Lodderhose
Cc: Kelly Caddy; Dana B. Pasi; Carrie E. Linscheid; bpower@republicservices.com; bsehie@republicservices.com; Bouchard, Derek (DBouchard@republicservices.com); Dan Feezor (dfeezor@feezorengineering.com); Bill Abernathy (babernathy@feezorengineering.com); David Eastvold (deastvold@feezorengineering.com); Aaron Karlas (akarlas@feezorengineering.com)
Subject: Bridgeton Landfill Report for Memorial Day Week

Doug, normally we receive the majority of lab reports from Pace on Monday. Pace is closed next Monday so I anticipate a large number of reports on Tuesday. Would it be possible to move the reporting deadline to Thursday May 29 at 12:00 noon? That will ensure that we give you as much up-to-date information as possible and still have time to review it.

Thank you for considering this request.

Ed Galbraith

Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

resourceful. naturally. BARR

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Friday, May 23, 2014 9:45 AM
To: Doug Mendoza; John Lodderhose
Cc: Kelly Caddy; Dana B. Pasi; Carrie E. Linscheid; bpower@republicservices.com; bsehie@republicservices.com; Bouchard, Derek (DBouchard@republicservices.com); Dan Feezor (dfeezor@feezorengineering.com); Bill Abernathy (babernathy@feezorengineering.com); David Eastvold (deastvold@feezorengineering.com); Aaron Karlas (akarlas@feezorengineering.com)
Subject: Bridgeton Landfill Report for Memorial Day Week

Doug, normally we receive the majority of lab reports from Pace on Monday. Pace is closed next Monday so I anticipate a large number of reports on Tuesday. Would it be possible to move the reporting deadline to Thursday May 29 at 12:00 noon? That will ensure that we give you as much up-to-date information as possible and still have time to review it.

Thank you for considering this request.

Ed Galbraith

Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

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Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Wednesday, May 21, 2014 9:36 AM
To: 'Merrigan, Jessie (LG)'; Doug Mendoza; Aaron Karlas; Andy Roberts; Bill Abernathy; Bret A. Berthold; Brian G. Gibson; Brian Power; Bryan Sehie; Catherine Politte; Chris Nagel; Christopher J. Bulmahn; Cunningham, Ally (LG); Dan Feezor; David Eastvold; John Lodderhose; John Powell; Jonathon Sprague; Julie Croak; Ken Gambaro; Ken Goins; Lance LeComb; Leanne Tippett Mosby; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; Patty Abernathy; Paul Linscott; Rob G Daly; Ryan Sabourin; Steve Grace; Steve Smith; Susan Myers; Todd Heller; Tom Boehm; 'Theerman, Jeff' (JTheerman@BrwnCald.com)
Subject: Bridgeton Landfill Weekly Report

Good morning,

The materials for last week for Bridgeton Landfill are available on Barr's FTP site. Please note that there was one adjustment of 190 gallons for SCADA-recorded "Phantom Flow" from the 96K tank on 5/13. Thank you.

Ed Galbraith
Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

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Bridgeton Landfill, LLC
Metropolitan St. Louis Sewer District
Weekly Disposal Summary

MSD - Bissell Point Tracking Table					
Date	Operational Batch	Delivered (gal)		Truck Capacity (gal)	
		Per Batch	Daily Total	Per Batch	Daily Total
Sunday, May 11, 2014	Batch 316-295	30,000	*195,000*	30,000	*195,000*
	Batch 316-296	165,000		165,000	
Monday, May 12, 2014	Batch 316-296	30,000	*195,000*	30,000	*195,000*
	Batch 316-297	165,000		165,000	
Tuesday, May 13, 2014	Batch 316-297	30,000	*195,000*	30,000	*195,000*
	Batch 316-298	165,000		165,000	
Wednesday, May 14, 2014	Batch 316-298	30,000	*195,000*	30,000	*195,000*
	Batch 316-299	165,000		165,000	
Thursday, May 15, 2014	Batch 316-299	30,000	*195,000*	30,000	*195,000*
	Batch 316-300	165,000		165,000	
Friday, May 16, 2014	Batch 316-300	30,000	*195,000*	30,000	*195,000*
	Batch 316-301	165,000		165,000	
Saturday, May 17, 2014	Batch 316-301	30,000	*195,000*	30,000	*195,000*
	Batch 316-302	165,000		165,000	

Date	*5/11/2014 6:00*
Date	*5/18/2014 6:00*

MSD - Missouri River Tracking Table								
Date	Operational Batch Transferred into 97K AST	Gallons Delivered	Batch Start Date and Time	Batch End Date and Time	Interval Hours	Maximum Hourly Flow (gph)	Average Hourly Flow (gph)	97K AST pH Check
Sunday, May 11, 2014	NA	-	5/11/2014 6:00	5/12/2014 6:00	24.0	840	0.0	NA
Monday, May 12, 2014	NA	-	5/12/2014 6:00	5/13/2014 6:54	24.9	840	0.0	NA
Tuesday, May 13, 2014	NA	-	5/13/2014 6:54	5/14/2014 6:00	23.1	840	0.0	NA
Wednesday, May 14, 2014	NA	-	5/14/2014 6:00	5/15/2014 6:00	24.0	840	0.0	NA
Thursday, May 15, 2014	NA	-	5/15/2014 6:00	5/16/2014 6:00	24.0	840	0.0	NA
Friday, May 16, 2014	NA	-	5/16/2014 6:00	5/17/2014 6:00	24.0	840	0.0	NA
Saturday, May 17, 2014	NA	-	5/17/2014 6:00	5/18/2014 6:00	24.0	840	0.0	NA

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: [signature] Title: Environmental Specialist Date: 5/20/14

MSD 029553

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/12/2014 6:00:00 AM	5/11/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,025,839	2,025,839	0

Flow Meter Adjustment	
Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/12/14

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/13/2014 6:54:00 AM	5/12/2014 6:00:00 AM	24.9 hours
Reading (Gallons):	2,026,029	2,025,839	190

Flow Meter Adjustment

Reading Adjustment:	190
Flow During Adjustment:	0

Comments

Adjusted for phantom flow readings while valve was off.

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/13/14

MSD Daily Flow Reading, ending 5-13-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/14/2014 6:00:00 AM	5/13/2014 6:54:00 AM	23.1 hours
Reading (Gallons):	2,026,029	2,026,029	0

Flow Meter Adjustment

Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Schie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Schie *Name:* Bryan Schie

Title: Environmental Specialist *Date:* 5/14/14

MSD Daily Flow Reading, ending 5-14-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/15/2014 6:00:00 AM	5/14/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,029	2,026,029	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/15/14

MSD Daily Flow Reading, ending 5-15-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/16/2014 6:00:00 AM	5/15/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,029	2,026,029	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Schie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Schie *Name:* Bryan Schie

Title: Environmental Specialist *Date:* 5/16/14

MSD Daily Flow Reading, ending 5-16-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/17/2014 6:00:00 AM	5/16/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,029	2,026,029	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: [signature] *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/17/14

MSD Daily Flow Reading, ending 5-17-2014

Daily Flow Reading

Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/18/2014 6:00:00 AM	5/17/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,026,029	2,026,029	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: [signature] *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/18/14

MSD Daily Flow Reading, ending 5-18-2014

OB-316-295 Bridgeton Landfill

Fill Data

Fill Start Date	5/9/2014
Fill Start Time	18:35
Fill Stop Date	5/9/2014
Fill Stop Time	22:50
Process Battery	316 AST

Processing Data

Process Start Date	5/9/2014
Process Start Time	19:12
Process Stop Date	5/10/2014
Process Stop Time	03:55

Approval Data

Approval Details	NAL13026-1408
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.11 ft.

Monday, May 19, 2014

OB-316-296

Bridgeton Landfill

Fill Data

Fill Start Date	5/10/2014
Fill Start Time	18:18
Fill Stop Date	5/10/2014
Fill Stop Time	22:52
Process Battery	316 AST

Processing Data

Process Start Date	5/10/2014
Process Start Time	19:22
Process Stop Date	5/11/2014
Process Stop Time	03:51

Approval Data

Approval Details	NAL13026-1410
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.13 ft.

Monday, May 19, 2014

OB-316-297

Bridgeton Landfill

Fill Data

Fill Start Date	5/11/2014
Fill Start Time	18:30
Fill Stop Date	5/11/2014
Fill Stop Time	23:00
Process Battery	316 AST

Processing Data

Process Start Date	5/11/2014
Process Start Time	18:45
Process Stop Date	5/12/2014
Process Stop Time	03:55

Approval Data

Approval Details	NAL13026-1412
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.19 ft.

Monday, May 19, 2014

OB-316-298

Bridgeton Landfill

Fill Data

Fill Start Date	5/12/2014
Fill Start Time	18:36
Fill Stop Date	5/13/2014
Fill Stop Time	00:10
Process Battery	316 AST

Processing Data

Process Start Date	5/12/2014
Process Start Time	18:36
Process Stop Date	5/13/2014
Process Stop Time	03:55

Approval Data

Approval Details	NAL13026-1416
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.24 ft.

Monday, May 19, 2014

OB-316-299

Bridgeton Landfill

Fill Data

Fill Start Date	5/13/2014
Fill Start Time	18:21
Fill Stop Date	5/13/2014
Fill Stop Time	23:21
Process Battery	316 AST

Processing Data

Process Start Date	5/13/2014
Process Start Time	19:00
Process Stop Date	5/14/2014
Process Stop Time	03:51

Approval Data

Approval Details	NAL13026-1418
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.04 ft.

Monday, May 19, 2014

OB-316-300 Bridgeton Landfill

Fill Data

Fill Start Date	5/14/2014
Fill Start Time	18:28
Fill Stop Date	5/14/2014
Fill Stop Time	22:56
Process Battery	316 AST

Processing Data

Process Start Date	5/14/2014
Process Start Time	18:44
Process Stop Date	5/15/2014
Process Stop Time	03:51

Approval Data

Approval Details	NAL13026-1422
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.09 ft.

Monday, May 19, 2014

OB-316-301

Bridgeton Landfill

Fill Data

Fill Start Date	5/15/2014
Fill Start Time	18:30
Fill Stop Date	5/15/2014
Fill Stop Time	23:35
Process Battery	316 AST

Processing Data

Process Start Date	5/15/2014
Process Start Time	19:40
Process Stop Date	5/16/2014
Process Stop Time	04:00

Approval Data

Approval Details	NAL13026-1424
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.11 ft.

Monday, May 19, 2014

OB-316-302 Bridgeton Landfill

Fill Data

Fill Start Date	5/16/2014
Fill Start Time	18:12
Fill Stop Date	5/16/2014
Fill Stop Time	23:37
Process Battery	316 AST

Processing Data

Process Start Date	5/16/2014
Process Start Time	19:16
Process Stop Date	5/17/2014
Process Stop Time	04:00

Approval Data

Approval Details	NAL 13026-1426
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

fill height = 21'

Monday, May 19, 2014

Table 1
General Parameters and Metals
February - May 2014
Bridgeton Landfill

					Biochemical Oxygen Demand (5-day)	Chemical Oxygen Demand	Nitrogen, ammonia as N	Oil and Grease	Oil and Grease - Silica gel cleanup	pH	pH, field
					NA	NA	NA	NA	NA	NA	NA
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	pH units	pH units
316-297	5/12/2014	Pace	Validated	60169031	32800	54400	617	1340	ND	5.3	6.02
316-296	5/11/2014	Pace	Validated	60169030	30900	55700	619	1180	6.7	5.3	5.96
316-295	5/10/2014	Pace	Validated	60169029	32900	56900	639	1340	6.4 *	5.4	5.97
316-294R	5/09/2014	Pace	Validated	60168924	32600	61700	612	1590	8.8 *	5.4	6.20
316-293	5/08/2014	Pace	Validated	60168816	27600	58000	620	1160	14.8	5.3	5.94
316-292	5/07/2014	Pace	Validated	60168703	35600	55500	640	1160	7.1	5.2	6.00
316-291	5/06/2014	Pace	Validated	60168582	36500	56800	638	889	7.2	5.3	5.90
316-290	5/05/2014	Pace	Validated	60168568	37500	61000	622	49.2	8.3	5.3	--
CB 05-05-14	5/05/2014	Pace	Validated	60168566	32100	55100	634	1190	8.9	5.3	5.93

MSD 029569

Table 1
General Parameters and Metals
February - May 2014
Bridgeton Landfill

					Solids, total suspended	Aluminum	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Cobalt
					NA	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-297	5/12/2014	Pace	Validated	60169031	1820	12.7	ND	1.03	ND	ND	0.237	0.0440
316-296	5/11/2014	Pace	Validated	60169030	4280	16.1	ND	1.15	ND	ND	0.263	0.0493
316-295	5/10/2014	Pace	Validated	60169029	5180	25	0.101	1.28	ND	ND	0.306	0.0604
316-294R	5/09/2014	Pace	Validated	60168924	5780	26.5	ND	1.17	ND	ND	0.286	0.0576
316-293	5/08/2014	Pace	Validated	60168816	2200	13.9	ND	1.2	ND	ND	0.27	0.0467
316-292	5/07/2014	Pace	Validated	60168703	5120	18.2	ND	1.14	ND	ND	0.269	0.0475
316-291	5/06/2014	Pace	Validated	60168582	4620	18	ND	1.14	ND	ND	0.263	0.0497
316-290	5/05/2014	Pace	Validated	60168568	4500	18.5	ND	1.1	ND	ND	0.266	0.0495
CB 05-05-14	5/05/2014	Pace	Validated	60168566	5640	11.5	ND	1.07	ND	ND	0.24	0.0428

MSD 029570

Table 1
General Parameters and Metals
February - May 2014
Bridgeton Landfill

					Copper	Iron	Lead	Mercury	Nickel	Selenium	Silver	Thallium
					Total	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
316-297	5/12/2014	Pace	Validated	60169031	ND	796	0.108	0.0272	0.123	ND	ND	ND
316-296	5/11/2014	Pace	Validated	60169030	ND	871	0.114	0.0273	0.134	ND	ND	ND
316-295	5/10/2014	Pace	Validated	60169029	0.103	994	0.183	0.0465	0.163	ND	ND	ND
316-294R	5/09/2014	Pace	Validated	60168924	0.176	899	0.17	0.0017	0.166	ND	ND	ND
316-293	5/08/2014	Pace	Validated	60168816	ND	876	0.102	0.00046	0.13	ND	ND	ND
316-292	5/07/2014	Pace	Validated	60168703	ND	872	0.123	0.0231	0.132	ND	ND	ND
316-291	5/06/2014	Pace	Validated	60168582	ND	859	0.12	0.0159	0.139	0.0800	ND	ND
316-290	5/05/2014	Pace	Validated	60168568	ND	860	0.116	ND	0.135	0.0842	ND	ND
CB 05-05-14	5/05/2014	Pace	Validated	60168566	0.0659	746	0.0992	ND	0.142	0.0882	ND	ND

MSD 029571

Table 1
General Parameters and Metals
February - May 2014
Bridgeton Landfill

					Zinc
					Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l
316-297	5/12/2014	Pace	Validated	60169031	4.36
316-296	5/11/2014	Pace	Validated	60169030	4.7
316-295	5/10/2014	Pace	Validated	60169029	5.5
316-294R	5/09/2014	Pace	Validated	60168924	5.09
316-293	5/08/2014	Pace	Validated	60168816	4.98
316-292	5/07/2014	Pace	Validated	60168703	4.86
316-291	5/06/2014	Pace	Validated	60168582	4.58
316-290	5/05/2014	Pace	Validated	60168568	4.32
CB 05-05-14	5/05/2014	Pace	Validated	60168566	5.05

Dm

Table 2
VOCs and SVOCs
February - May 2014
Bridgeton Landfill

					Benzene
Location	Date	Lab Name	Data Status	Lab Report	ug/l
316-297	5/12/2014	Pace	Validated	60169031	ND
316-296	5/11/2014	Pace	Validated	60169030	ND
316-295	5/10/2014	Pace	Validated	60169029	ND
316-294R	5/09/2014	Pace	Validated	60168924	ND
316-293	5/08/2014	Pace	Validated	60168816	ND
316-292	5/07/2014	Pace	Validated	60168703	ND
316-291	5/06/2014	Pace	Validated	60168582	ND
316-290	5/05/2014	Pace	Validated	60168568	ND
CB 05-05-14	5/05/2014	Pace	Validated	60168566	ND

MSD 029573

TO: **Chris Verplancke, Finance Department**
Cynthia Chalk, Finance Department

FROM: **Brian Gibson**

DATE: **May 21, 2014**

SUBJECT: **BRIDGETON LANDFILL LLC**
WASTEWATER USER CHARGE BILLING
ACCOUNT NUMBER 0039145-8

Pursuant to the MSD Industrial Wastewater Discharge Permit for the above referenced facility, please bill this facility for the following charges for the indicated billing period:

VOLUME
On-Site Discharge

---

0 gallons discharged on-site

VOLUME
Hauled Waste Discharge

5,174,000 gallons X $0.08/Gal = $413,920.000

Department of Environmental Compliance (REG) labor fee is $1,919.75. Use Revenue Code "INFO" and utility type Q. Budget code is 1101-08050-51011 so revenue will be credited back to Department of Environmental Compliance budget.

Department of Environmental Compliance (OT) labor fee is $11,315.87. Use Revenue Code "INFO" and utility type Q. Budget code is 1101-08050-51020 so revenue will be credited back to Department of Environmental Compliance budget.

Total Bill = $427,155.62

The volume was obtained from the customer's on-site discharge self-monitoring report and hauled waste total truck capacities.
SOURCE OF WASTE: SP 801 Commingled landfill leachate and landfill gas collection system condensate
BILLING PERIOD: April 1, 2014 through April 30, 2014.
Other applicable wastewater user charges, as per Ordinance 13402, should be included in this bill.
Please call me at 436-8784 if you have any questions.

bv

ec: Doug Mendoza
Laura Joiner
Cathy Politte
Keidra King
Margie Irvin

FILE: IU, Bridgeton Landfill LLC, 1003803000

Doug Mendoza

From: Merrigan, Jessie (LG) <JMerrigan@LATHROPGAGE.COM>
Sent: Tuesday, May 20, 2014 11:58 AM
To: Doug Mendoza; Aaron Karlas; Andy Roberts; Bill Abernathy; Bret A. Berthold; Brian G. Gibson; Brian Power; Bryan Sehie; Catherine Politte; Chris Nagel; Christopher J. Bulmahn; Cunningham, Ally (LG); Dan Feezor; David Eastvold; Ed Galbraith; John Lodderhose; John Powell; Jonathon Sprague; Julie Croak; Ken Gambaro; Ken Goins; Lance LeComb; Leanne Tippett Mosby; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; Patty Abernathy; Paul Linscott; Rob G Daly; Ryan Sabourin; Steve Grace; Steve Smith; Susan Myers; Todd Heller; Tom Boehm
Cc: 'Theerman, Jeff' (JTheerman@BrwnCald.com)
Subject: RE: Bridgeton Landfill Weekly Report
Attachments: 60168186_frc.pdf; 60168186.EFWEDD.XLS

Good morning,

We have requested a revised lab report for Batch CB 04-30-14 from Pace analytical. The original report calculated the value for BOD based on an incorrect dilution factor of 1, however the correct dilution factor is 100. The revised report and a corrected spreadsheet are attached and have been loaded on the ftp site.

We apologize that this was not caught in our routine QA/QC of the results and will work to ensure this does not happen again.

Thank you,
Jessie

LATHROP & GAGE LLP
Jessica E. Merrigan
2345 Grand Boulevard; Suite 2200 | Kansas City, MO 64108
P: 816-460-5706 | F: 816-292-2001 | jmerrigan@lathropgage.com
www.lathropgage.com

From: Merrigan, Jessie
Sent: Tuesday, May 20, 2014 10:33 AM
To: Doug Mendoza; Aaron Karlas; Andy Roberts; Bill Abernathy; Bret A. Berthold; Brian G. Gibson; Brian Power; Bryan Sehie; Catherine Politte; Chris Nagel; Christopher J. Bulmahn; Cunningham, Ally; Dan Feezor; David Eastvold; Ed Galbraith; John Lodderhose; John Powell; Jonathon Sprague; Julie Croak; Ken Gambaro; Ken Goins; Lance LeComb; Leanne Tippett Mosby; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; Patty Abernathy; Paul Linscott; Rob G Daly; Ryan Sabourin; Steve Grace; Steve Smith; Susan Myers; Todd Heller; Tom Boehm
Cc: 'Theerman, Jeff' (JTheerman@BrwnCald.com)
Subject: RE: Bridgeton Landfill Weekly Report

Good morning Doug,

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

May 20, 2014

Ed Galbraith
Barr Engineering Company
1001 Diamond Ridge, Ste 1100
Jefferson City, MO 65101

RE: Project: BRIDGETON LF CB 04-30-14
Pace Project No.: 60168186

Dear Ed Galbraith:
Enclosed are the analytical results for sample(s) received by the laboratory on May 01, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Amended report revised 05/20/14 to correct for the dilution factor for the results reported for BOD.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Angie Brown
Angie.Brown@pacelabs.com
Project Manager

Enclosures

cc: Bill Abernathy, Feezor Engineering
Kelly Caddy, Barr Engineering
DAN FEEZOR, FEEZOR ENGINEERING
Dana B. Pasi, Barr Engineering Co.
Brian Power, Republic Services
Brian Sehie, Republic Services
Margaret Treanor, Barr Engineering Company

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: BRIDGETON LF CB 04-30-14
Pace Project No.: 60168186

Sample: CB 04-30-14 **Lab ID: 60168186001** Collected: 04/30/14 12:49 Received: 05/01/14 00:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
1664 SGT-HEM, TPH	Analytical Method: EPA 1664A							
Total Petroleum Hydrocarbons	**9.6**	mg/L	5.0	1		05/08/14 07:04		
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	**4500**	mg/L	5.0	1		05/02/14 09:27		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+B							
pH at 25 Degrees C	**5.3**	Std. Units	0.10	1		05/08/14 12:10		H6
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B							
BOD, 5 day	**32300**	mg/L	200	100	05/02/14 10:55	05/07/14 14:19		
350.1 Ammonia	Analytical Method: EPA 350.1							
Nitrogen, Ammonia	**621**	mg/L	20.0	200		05/04/14 14:10	7664-41-7	
410.4 COD	Analytical Method: EPA 410.4							
Chemical Oxygen Demand	**57100**	mg/L	5000	500		05/08/14 10:46		

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Doug Mendoza

From: Merrigan, Jessie (LG) <JMerrigan@LATHROPGAGE.COM>
Sent: Tuesday, May 20, 2014 10:33 AM
To: Doug Mendoza; Aaron Karlas; Andy Roberts; Bill Abernathy; Bret A. Berthold; Brian G. Gibson; Brian Power; Bryan Sehie; Catherine Politte; Chris Nagel; Christopher J. Bulmahn; Cunningham, Ally (LG); Dan Feezor; David Eastvold; Ed Galbraith; John Lodderhose; John Powell; Jonathon Sprague; Julie Croak; Ken Gambaro; Ken Goins; Lance LeComb; Leanne Tippett Mosby; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; Patty Abernathy; Paul Linscott; Rob G Daly; Ryan Sabourin; Steve Grace; Steve Smith; Susan Myers; Todd Heller; Tom Boehm
Cc: 'Theerman, Jeff' (JTheerman@BrwnCald.com)
Subject: RE: Bridgeton Landfill Weekly Report
Attachments: MSD Batches, Week Ending 2014-05-10.pdf; Applicable 316 Batches, Week Ending 2014-05-10.pdf

Good morning Doug,

I have attached both files that should have been loaded to the FTP last week. It appears that one was inadvertently left off and we apologize for the inconvenience. We are also following up on the BOD question and will get back to you as soon as we hear back from the lab.

Thank you,
Jessie

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Monday, May 19, 2014 1:12 PM
To: Merrigan, Jessie; Aaron Karlas; Andy Roberts; Bill Abernathy; Bret A. Berthold; Brian G. Gibson; Brian Power; Bryan Sehie; Catherine Politte; Chris Nagel; Christopher J. Bulmahn; Cunningham, Ally; Dan Feezor; David Eastvold; Ed Galbraith; John Lodderhose; John Powell; Jonathon Sprague; Julie Croak; Ken Gambaro; Ken Goins; Lance LeComb; Leanne Tippett Mosby; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; Patty Abernathy; Paul Linscott; Rob G Daly; Ryan Sabourin; Steve Grace; Steve Smith; Susan Myers; Todd Heller; Tom Boehm
Cc: 'Theerman, Jeff' (JTheerman@BrwnCald.com)
Subject: RE: Bridgeton Landfill Weekly Report

Jessie,

Regarding the revised BOD results, fortunately we had not yet finalized the bill for April 2014. We will incorporate the revised values into our calculations.

Regarding the weekly report data, it appears that the Weekly Disposal Summary information is incomplete. The "Applicable 316 Batches, Week Ending 2015-05-10" contains only batches 287, 288, and 289 - all three of which were from the prior week's report. There were no batches for the applicable week. In addition, there was no report for the "MSD Batches, Week Ending 2014-05-10." This would have contained the daily reports from the Combined Batch (1 M gallon) tank and separate operational batches that were delivered for the week.

- Please either let me know where I have overlooked this information, or provide the information to me.

OB-316-287 Bridgeton Landfill

Fill Data

Fill Start Date	5/1/2014
Fill Start Time	23:11
Fill Stop Date	5/2/2014
Fill Stop Time	02:40
Process Battery	316 AST

Processing Data

Process Start Date	5/1/2014
Process Start Time	23:27
Process Stop Date	5/2/2014
Process Stop Time	04:26

Approval Data

Approval Details	NAL13026-1386
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.1 ft. Both blowers were running more than 1.5 hours, for a total more than 3 blower-hours.

Monday, May 12, 2014

OB-316-288

Bridgeton Landfill

Fill Data

Fill Start Date	5/2/2014
Fill Start Time	14:22
Fill Stop Date	5/2/2014
Fill Stop Time	18:11
Process Battery	316 AST

Processing Data

Process Start Date	5/2/2014
Process Start Time	15:40
Process Stop Date	5/3/2014
Process Stop Time	05:28

Approval Data

Approval Details	NAL13026-1390
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.15 ft.

Monday, May 12, 2014

OB-316-289

Bridgeton Landfill

Fill Data

Fill Start Date	5/3/2014
Fill Start Time	14:15
Fill Stop Date	5/3/2014
Fill Stop Time	17:45
Process Battery	316 AST

Processing Data

Process Start Date	5/3/2014
Process Start Time	14:15
Process Stop Date	5/4/2014
Process Stop Time	05:30

Approval Data

Approval Details	NAL13026-1391
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.13 ft.

Monday, May 12, 2014

Combined Batch 05-03-14

Bridgeton Landfill

Fill Data

Fill Start Date	
Fill Start Time	
Fill Stop Date	
Fill Stop Time	
Process Battery	T2M

Processing Data

Process Start Date	
Process Start Time	
Process Stop Date	
Process Stop Time	

Approval Data

Approval Details	NAL13026-1389
Test Results	Benzene ND <.100 ppb
Reprocessed Batch	

Notes

MEK = 19,000 ppb.

Monday, May 12, 2014

Combined Batch 05-04-14

Bridgeton Landfill

Fill Data

Fill Start Date	
Fill Start Time	
Fill Stop Date	
Fill Stop Time	
Process Battery	T2M

Processing Data

Process Start Date	
Process Start Time	
Process Stop Date	
Process Stop Time	

Approval Data

Approval Details	NAL13026-1392
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 18,000 ppb.

Monday, May 12, 2014

Combined Batch 05-05-14

Bridgeton Landfill

Fill Data

Fill Start Date	
Fill Start Time	
Fill Stop Date	
Fill Stop Time	
Process Battery	T2M

Processing Data

Process Start Date	
Process Start Time	
Process Stop Date	
Process Stop Time	

Approval Data

Approval Details	NAL13026-1394
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 19,000 ppb.

Monday, May 12, 2014

OB-316-290

Bridgeton Landfill

Fill Data

Fill Start Date	5/4/2014
Fill Start Time	15:50
Fill Stop Date	5/4/2014
Fill Stop Time	19:15
Process Battery	316 AST

Processing Data

Process Start Date	5/4/2014
Process Start Time	15:50
Process Stop Date	5/5/2014
Process Stop Time	03:45

Approval Data

Approval Details	NAL13026-1393
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.18 ft.

Monday, May 12, 2014

OB-316-291

Bridgeton Landfill

Fill Data

Fill Start Date	5/5/2014
Fill Start Time	17:53
Fill Stop Date	5/5/2014
Fill Stop Time	21:32
Process Battery	316 AST

Processing Data

Process Start Date	5/5/2014
Process Start Time	17:53
Process Stop Date	5/6/2014
Process Stop Time	03:54

Approval Data

Approval Details	NAL13026-1397
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.09 ft.

Monday, May 12, 2014

OB-316-292 Bridgeton Landfill

Fill Data

Fill Start Date	5/6/2014
Fill Start Time	18:34
Fill Stop Date	5/6/2014
Fill Stop Time	22:14
Process Battery	316 AST

Processing Data

Process Start Date	5/6/2014
Process Start Time	20:00
Process Stop Date	5/7/2014
Process Stop Time	03:52

Approval Data

Approval Details	NAL13026-1398
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.11 feet.

Monday, May 12, 2014

OB-316-293 Bridgeton Landfill

Fill Data

Fill Start Date	5/7/2014
Fill Start Time	17:45
Fill Stop Date	5/8/2014
Fill Stop Time	00:00
Process Battery	316 AST

Processing Data

Process Start Date	5/7/2014
Process Start Time	17:45
Process Stop Date	5/8/2014
Process Stop Time	04:57

Approval Data

Approval Details	NAL13026-1401
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.22 ft.

Monday, May 12, 2014

OB-316-294R

Bridgeton Landfill

Fill Data

Fill Start Date	5/8/2014
Fill Start Time	18:30
Fill Stop Date	5/8/2014
Fill Stop Time	23:30
Process Battery	316 AST

Processing Data

Process Start Date	5/8/2014
Process Start Time	19:30
Process Stop Date	5/9/2014
Process Stop Time	03:45

Approval Data

Approval Details	NAL13026-1405
Test Results	Benzene 63 ppb
Reprocessed Batch	1st benzene = 110 ppb

Notes

Fill height 20.97 ft.

Monday, May 12, 2014

OB-316-295

Bridgeton Landfill

Fill Data

Fill Start Date	5/9/2014
Fill Start Time	18:35
Fill Stop Date	5/9/2014
Fill Stop Time	22:50
Process Battery	316 AST

Processing Data

Process Start Date	5/9/2014
Process Start Time	19:12
Process Stop Date	5/10/2014
Process Stop Time	03:55

Approval Data

Approval Details	NAL13026-1408
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.11 ft.

Monday, May 12, 2014

Bridgeton Landfill, LLC 1003803000

May 19, 2014

Brian Hoelscher
Executive Director
St. Louis Metropolitan Sewer District
2350 Market Street
St. Louis, MO 63103

Re: Authorized Signatory for Certification for Bridgeton Landfill, LLC

Dear Mr. Hoelscher:

Pursuant to MSD Ordinance 12559, Article X, Section 3.B.4 I, as an Officer of Bridgeton Landfill, LLC, would like to authorize Derek Bouchard as an authorized individual to sign certifications on behalf of Bridgeton Landfill, LLC. Derek Bouchard is an Environmental Specialist with Bridgeton Landfill, LLC. As Environmental Specialist, Mr. Bouchard occupies a "position having responsibility for the overall operation of the facility from which the discharge originates."

Please let me know if you have any questions or need any additional information to permit Mr. Bouchard to sign certifications on behalf of Bridgeton Landfill, LLC. We appreciate MSD's continued cooperation and support.

Sincerely,

Tim Trost
Area President

cc Doug Mendoza, MSD Industrial Pretreatment Manager
Brian Power, Bridgeton Landfill, LLC

DW

Doug Mendoza

From: Merrigan, Jessie (LG) <JMerrigan@LATHROPGAGE.COM>
Sent: Monday, May 19, 2014 1:16 PM
To: Doug Mendoza; Aaron Karlas; Andy Roberts; Bill Abernathy; Bret A. Berthold; Brian G. Gibson; Brian Power; Bryan Sehie; Catherine Politte; Chris Nagel; Christopher J. Bulmahn; Cunningham, Ally (LG); Dan Feezor; David Eastvold; Ed Galbraith; John Lodderhose; John Powell; Jonathon Sprague; Julie Croak; Ken Gambaro; Ken Goins; Lance LeComb; Leanne Tippett Mosby; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; Patty Abernathy; Paul Linscott; Rob G Daly; Ryan Sabourin; Steve Grace; Steve Smith; Susan Myers; Todd Heller; Tom Boehm
Cc: 'Theerman, Jeff' (JTheerman@BrwnCald.com)
Subject: RE: Bridgeton Landfill Weekly Report

Thank you for the follow up, Doug, and we apologize for any inconvenience. We will look into these questions right away and report back.

Thank you,
Jessie

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Monday, May 19, 2014 1:12 PM
To: Merrigan, Jessie; Aaron Karlas; Andy Roberts; Bill Abernathy; Bret A. Berthold; Brian G. Gibson; Brian Power; Bryan Sehie; Catherine Politte; Chris Nagel; Christopher J. Bulmahn; Cunningham, Ally; Dan Feezor; David Eastvold; Ed Galbraith; John Lodderhose; John Powell; Jonathon Sprague; Julie Croak; Ken Gambaro; Ken Goins; Lance LeComb; Leanne Tippett Mosby; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; Patty Abernathy; Paul Linscott; Rob G Daly; Ryan Sabourin; Steve Grace; Steve Smith; Susan Myers; Todd Heller; Tom Boehm
Cc: 'Theerman, Jeff' (JTheerman@BrwnCald.com)
Subject: RE: Bridgeton Landfill Weekly Report

Jessie,

Regarding the revised BOD results, fortunately we had not yet finalized the bill for April 2014. We will incorporate the revised values into our calculations.

Regarding the weekly report data, it appears that the Weekly Disposal Summary information is incomplete. The "Applicable 316 Batches, Week Ending 2015-05-10" contains only batches 287, 288, and 289 - all three of which were from the prior week's report. There were no batches for the applicable week. In addition, there was no report for the "MSD Batches, Week Ending 2014-05-10." This would have contained the daily reports from the Combined Batch (1 M gallon) tank and separate operational batches that were delivered for the week.

- Please either let me know where I have overlooked this information, or provide the information to me.

The data results spreadsheet also has a listed BOD of 323 mg/L for CB 04-30-14. This would appear to be an obvious error, especially considering that the COD was 57,100 mg/L and BOD almost always run about 1/2 of the COD for your leachate (excepting those ones where BOD was almost equal to COD). I see that the laboratory reported the 323 mg/L value, so it was not mis-transcribed to the spreadsheet. Considering the lab's data corrections that were included with your weekly report, along with the lab's familiarity with your leachate's results and typical BOD vs. COD ratios, I am

Doug Mendoza

From: Doug Mendoza
Sent: Monday, May 19, 2014 1:24 PM
To: Jessie Merrigan (JMerrigan@LATHROPGAGE.COM); Ed Galbraith (EGalbraith@barr.com) (EGalbraith@barr.com); Brian G. Gibson; Dan Feezor
Cc: Brian G. Gibson; Martin Blecha; Steve Grace; Dave Schepers; Jason T. Edwards; Joe Pavlich; Keith Holderle; Christopher J. Bulmahn; Dave Kupke; Jason Gill; Michael S. Kynion; Tom Boehm; Scott Rehmer; John Lodderhose; Catherine Politte; Mike Townley
Subject: Increase in approved volume of Bridgeton Landfill leachate for trucking to MSD's Bissell Point hauled waste station

Jessie,

Bissell Point plant management has indicated that the plant performance has improved to the extent that they can accept one more truck per day for the next couple of weeks. Therefore, Bridgeton Landfill may begin hauling and discharging up to 27 trucks of 7500 gallons each, for a total of up to 202,500 gallons per day of leachate.

The plant management will re-evaluate the situation on about June 2 to indicate what future levels it can accept.

Please feel free to pass this on to other personnel associated with Bridgeton Landfill that may need to know.

Doug Mendoza
MSD Industrial Pretreatment Manager

Doug Mendoza

From: Doug Mendoza
Sent: Monday, May 19, 2014 1:12 PM
To: 'Merrigan, Jessie (LG)'; Aaron Karlas; Andy Roberts; Bill Abernathy; Bret A. Berthold; Brian G. Gibson; Brian Power; Bryan Sehie; Catherine Politte; Chris Nagel; Christopher J. Bulmahn; Cunningham, Ally (LG); Dan Feezor; David Eastvold; Ed Galbraith; John Lodderhose; John Powell; Jonathon Sprague; Julie Croak; Ken Gambaro; Ken Goins; Lance LeComb; Leanne Tippett Mosby; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; Patty Abernathy; Paul Linscott; Rob G Daly; Ryan Sabourin; Steve Grace; Steve Smith; Susan Myers; Todd Heller; Tom Boehm
Cc: 'Theerman, Jeff' (JTheerman@BrwnCald.com)
Subject: RE: Bridgeton Landfill Weekly Report

Jessie,

Regarding the revised BOD results, fortunately we had not yet finalized the bill for April 2014. We will incorporate the revised values into our calculations.

Regarding the weekly report data, it appears that the Weekly Disposal Summary information is incomplete. The "Applicable 316 Batches, Week Ending 2015-05-10" contains only batches 287, 288, and 289 - all three of which were from the prior week's report. There were no batches for the applicable week. In addition, there was no report for the "MSD Batches, Week Ending 2014-05-10." This would have contained the daily reports from the Combined Batch (1 M gallon) tank and separate operational batches that were delivered for the week.

- Please either let me know where I have overlooked this information, or provide the information to me.

The data results spreadsheet also has a listed BOD of 323 mg/L for CB 04-30-14. This would appear to be an obvious error, especially considering that the COD was 57,100 mg/L and BOD almost always run about 1/2 of the COD for your leachate (excepting those ones where BOD was almost equal to COD). I see that the laboratory reported the 323 mg/L value, so it was not mis-transcribed to the spreadsheet. Considering the lab's data corrections that were included with your weekly report, along with the lab's familiarity with your leachate's results and typical BOD vs. COD ratios, I am surprised that they would have submitted that BOD value without comment. In addition, I am surprised that Bridgeton Landfill would submit the result to MSD without noting the discrepancy or having asked the lab to check the value.

- We cannot accept this BOD result. You will need to have the BOD result investigated and corrected. Please let us know your findings as soon as possible.

Thank you,
Doug Mendoza
MSD Industrial Pretreatment Manager

-----Original Message-----
From: Merrigan, Jessie (LG) [mailto:JMerrigan@LATHROPGAGE.COM]
Sent: Wednesday, May 14, 2014 10:32 AM
To: Aaron Karlas; Andy Roberts; Bill Abernathy; Bret A. Berthold; Brian G. Gibson; Brian Power; Bryan Sehie; Catherine Politte; Chris Nagel; Christopher J. Bulmahn; Cunningham, Ally (LG); Dan Feezor; David Eastvold; Doug Mendoza; Ed Galbraith; John Lodderhose; John Powell; Jonathon Sprague; Julie Croak; Ken Gambaro; Ken Goins; Lance LeComb; Leanne Tippett Mosby; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; Patty Abernathy; Paul Linscott; Rob G Daly; Ryan Sabourin; Steve Grace; Steve Smith; Susan Myers; Todd Heller; Tom Boehm

Doug Mendoza

From: Mike Townley
Sent: Monday, May 19, 2014 1:01 PM
To: Doug Mendoza
Cc: Catherine Politte
Subject: Landfill Leachate

Our plant performance has improved since the weather warmed up. We are willing to accept one more truck per day for the next couple of weeks. At about June 2 we will re-evaluate where we should go with the leachate volumes.

Doug Mendoza

From: Martin Blecha
Sent: Monday, May 19, 2014 8:17 AM
To: Catherine Politte; Mike Townley; Doug Mendoza; Steve Grace; Brian G. Gibson; Buffy Santel
Cc: John Lodderhose
Subject: Bridgeton Landfill leachate volume from 5/11/14 to 5/17/14.

Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 5/11/2014 to 5/17/2014.

5/11–195,000 gallons
5/12 –195,000 gallons
5/13 –195,000 gallons
5/14 –195,000 gallons
5/15 –195,000 gallons
5/16–195,000 gallons
5/17– 195,000 gallons
Total = 1,365,000 gallons

Martin J. Blecha
Metropolitan St. Louis Sewer District
Environmental Engineering Associate
10 E. Grand Ave.
St. Louis, MO. 63147-2913.
Office Phone (314)-436-8718

Doug Mendoza

From: Jason T. Edwards
Sent: Saturday, May 17, 2014 8:56 AM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: Bridgeton Reading

Hi Doug,

The Bridgeton Landfill meter reading was 2,026,029 gal. The reading was taken at 11:00am on Friday, May 16, 2014.

Thanks,
Jason

Doug Mendoza

From: Merrigan, Jessie (LG) <JMerrigan@LATHROPGAGE.COM>
Sent: Wednesday, May 14, 2014 10:32 AM
To: Aaron Karlas; Andy Roberts; Bill Abernathy; Bret A. Berthold; Brian G. Gibson; Brian Power; Bryan Sehie; Catherine Politte; Chris Nagel; Christopher J. Bulmahn; Cunningham, Ally (LG); Dan Feezor; David Eastvold; Doug Mendoza; Ed Galbraith; John Lodderhose; John Powell; Jonathon Sprague; Julie Croak; Ken Gambaro; Ken Goins; Lance LeComb; Leanne Tippett Mosby; Mark Bright; Martin Blecha; Michael Grace; Mike Townley; Nora C. Estopare; Patty Abernathy; Paul Linscott; Rob G Daly; Ryan Sabourin; Steve Grace; Steve Smith; Susan Myers; Todd Heller; Tom Boehm
Cc: 'Theerman, Jeff' (JTheerman@BrwnCald.com)
Subject: Bridgeton Landfill Weekly Report
Attachments: BRIDGETON BOD Letter 051314.pdf; image001.png; image002.gif

Good morning,

The materials for last week for Bridgeton Landfill will be available on Barr's FTP site by noon today. Most are currently available, only the certified logs need to be added, but I have to get on a plane and since southwest wifi is not terribly reliable, I wanted to get this report out now. We sincerely appreciate MSD's allowance of 200,000/day in volume this past week.

In addition to the routine materials, we wanted to draw your attention to the attached letter from Pace, which is also on Barr's FTP site. Yesterday, May 13, 2014, we received the attached letter from Pace Analytical regarding errors in five BOD results that we have already reported to MSD. In part, the letter states the following:

"Pace staff determined that for a very brief time we had a data entry error in our BOD calculations. We have re-issued the report for your above referenced sample due to a bias in the calculation. The reported result was low due to an incorrect amount of seed being entered to calculate the seed blank depletion. The following is a table of the information including the revised result: [cid:image001.png@01CF6ECA.DF9F9360]
We have corrected the data and implemented a corrective action to improve our peer review process. We apologize for any inconvenience this may have caused."

While correction of the errors does not appear to substantially alter the reported results, and Pace has informed us they have implemented corrective action, we are conscious of the need for MSD to receive accurate information in each data submittal and will reiterate that to Pace.

Please let us know if you have any questions or need any additional information. This email should reflect the updated recipient list in accordance with Doug's email, but please let me know if there are any other changes needed. We appreciate your ongoing assistance.

Thank you,
Jessie

[Description: Description: Lathrop & Gage LLP]

Jessica E. Merrigan

2345 Grand Boulevard; Suite 2200 | Kansas City, MO 64108
P: 816-460-5706 | F: 816-292-2001 | jmerrigan@lathropgage.com<mailto:jmerrigan@lathropgage.com>
www.lathropgage.com<http://www.lathropgage.com/>

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Bridgeton
Landfill

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www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219

Phone: 913.599.5665
Fax: 913.599.1759

May 12, 2014

Mr. Ed Galbraith
Barr Engineering Company
1001 Diamond Ridge, Suite 1100
Jefferson City, MO 65101

Subject: Revised Analytical Report for BOD Samples; Pace Batch Numbers 47557, 47566, 47560

Dear Ed Galbraith,

Pace staff determined that for a very brief time we had a data entry error in our BOD calculations. We have re-issued the report for your above referenced sample due to a bias in the calculation. The reported result was low due to an incorrect amount of seed being entered to calculate the seed blank depletion. The following is a table of the information including the revised result:

Sample ID	Batch	Orig. Result	Revised Result	Client ID
60167475001	47557	28700	29800	316-274
60167476001	47557	29300	30500	316-275
60167586001	47566	26300	27200	CB 04-22-14
60167571001	47560	29200	30500	CB 04-21-14
60167572001	47560	35700	37100	316-276

We have corrected the data and implemented a corrective action to improve our peer review process. We apologize for any inconvenience this may have caused.

Please accept our earnest apologies for any inconvenience this situation may have caused. One of Pace's most fundamental values is to supply only the highest quality data possible to our clients and it is our sincere hope that this isolated incident has not diminished your faith in our abilities to do so.

If you have any questions you can e-mail me at Greg.Busch@pacelabs.com or call my direct line at 913-563-1444.

Sincerely,

GA Busch

Gregory A. Busch
Quality Manager
Pace Analytical-Kansas

Bridgeton Landfill, LLC
Metropolitan St. Louis Sewer District
Weekly Disposal Summary

MSD - Bissell Point Tracking Table					
Date	Operational Batch	Delivered (gal) Per Batch	Delivered (gal) Daily Total	Truck Capacity (gal) Per Batch	Truck Capacity (gal) Daily Total
Sunday, May 4, 2014	CB 05-03-14	52,500	195,000	52,500	195,000
	CB 05-04-14	142,500		142,500	
Monday, May 5, 2014	CB 05-04-14	30,000	195,000	30,000	195,000
	CB 05-05-14	112,500		112,500	
	Batch 316-290	52,500		52,500	
Tuesday, May 6, 2014	Batch 316-290	30,000	195,000	30,000	195,000
	Batch 316-291	165,000		165,000	
Wednesday, May 7, 2014	Batch 316-291	30,000	195,000	30,000	195,000
	Batch 316-292	165,000		165,000	
Thursday, May 8, 2014	Batch 316-292	30,000	195,000	30,000	195,000
	Batch 316-293	165,000		165,000	
Friday, May 9, 2014	Batch 316-293	30,000	195,000	30,000	195,000
	Batch 316-294R	165,000		165,000	
Saturday, May 10, 2014	Batch 316-294R	30,000	195,000	30,000	195,000
	Batch 316-295	165,000		165,000	

Date	5/4/2014 6:00
Date	5/11/2014 6:00

MSD - Missouri River Tracking Table								
Date	Operational Batch Transferred into 97K AST	Gallons Delivered	Batch Start Date and Time	Batch End Date and Time	Interval Hours	Maximum Hourly Flow (gph)	Average Hourly Flow (gph)	97K AST pH Check
Sunday, May 4, 2014	NA	-	5/4/2014 6:00	5/5/2014 6:00	24.0	840	0.0	NA
Monday, May 5, 2014	NA	-	5/5/2014 6:00	5/6/2014 6:00	24.0	840	0.0	NA
Tuesday, May 6, 2014	NA	-	5/6/2014 6:00	5/7/2014 6:58	25.0	840	0.0	NA
Wednesday, May 7, 2014	NA	-	5/7/2014 6:58	5/8/2014 6:00	23.0	840	0.0	NA
Thursday, May 8, 2014	NA	-	5/8/2014 6:00	5/9/2014 6:00	24.0	840	0.0	NA
Friday, May 9, 2014	NA	-	5/9/2014 6:00	5/10/2014 6:00	24.0	840	0.0	NA
Saturday, May 10, 2014	NA	-	5/10/2014 6:00	5/11/2014 6:00	24.0	840	0.0	NA

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: [illegible] Title: Environmental Specialist Date: 5/14/14

Weekly Volume Summary - Week 55 (5-4-14 through 5-10-14)

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/5/2014 6:00:00 AM	5/4/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,025,839	2,025,839	0

Flow Meter Adjustment	
Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/5/14

MSD Daily Flow Reading, ending 5-05-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/6/2014 6:00:00 AM	5/5/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,025,839	2,025,839	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/6/14

MSD Daily Flow Reading, ending 5-06-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/7/2014 6:58:00 AM	5/6/2014 6:00:00 AM	25.0 hours
Reading (Gallons):	2,025,839	2,025,839	0

Flow Meter Adjustment	
Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/7/14

MSD Daily Flow Reading, ending 5-07-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/8/2014 6:00:00 AM	5/7/2014 6:58:00 AM	23.0 hours
Reading (Gallons):	2,025,839	2,025,839	0

Flow Meter Adjustment	
Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/8/14

MSD Daily Flow Reading, ending 5-08-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/9/2014 6:00:00 AM	5/8/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,025,839	2,025,839	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/9/14

MSD Daily Flow Reading, ending 5-09-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/10/2014 6:00:00 AM	5/9/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,025,839	2,025,839	0

Flow Meter Adjustment	
Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/10/14

MSD Daily Flow Reading, ending 5-10-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/11/2014 6:00:00 AM	5/10/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,025,839	2,025,839	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/11/14

MSD Daily Flow Reading, ending 5-11-2014

OB-316-287

Bridgeton Landfill

Fill Data

Fill Start Date	5/1/2014
Fill Start Time	23:11
Fill Stop Date	5/2/2014
Fill Stop Time	02:40
Process Battery	316 AST

Processing Data

Process Start Date	5/1/2014
Process Start Time	23:27
Process Stop Date	5/2/2014
Process Stop Time	04:26

Approval Data

Approval Details	NAL13026-1386
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.1 ft. Both blowers were running more than 1.5 hours, for a total more than 3 blower-hours.

Monday, May 12, 2014

OB-316-288

Bridgeton Landfill

Fill Data

Fill Start Date	5/2/2014
Fill Start Time	14:22
Fill Stop Date	5/2/2014
Fill Stop Time	18:11
Process Battery	316 AST

Processing Data

Process Start Date	5/2/2014
Process Start Time	15:40
Process Stop Date	5/3/2014
Process Stop Time	05:28

Approval Data

Approval Details	NAL13026-1390
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.15 ft.

Monday, May 12, 2014

OB-316-289

Bridgeton Landfill

Fill Data

Fill Start Date	5/3/2014
Fill Start Time	14:15
Fill Stop Date	5/3/2014
Fill Stop Time	17:45
Process Battery	316 AST

Processing Data

Process Start Date	5/3/2014
Process Start Time	14:15
Process Stop Date	5/4/2014
Process Stop Time	05:30

Approval Data

Approval Details	NAL13026-1391
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.13 ft.

Monday, May 12, 2014

Table 1
General Parameters and Metals
February - May 2014
Bridgeton Landfill

					Biochemical Oxygen Demand (5-day)	Chemical Oxygen Demand	Nitrogen, ammonia as N	Oil and Grease	Oil and Grease - Silica gel cleanup	pH, lab	pH, field
					NA	NA	NA	NA	NA	NA	NA
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	pH units	pH units
CB 05-04-14	5/04/2014	Pace	Validated	60168436	29500	54400	599	1140	7.3	5.2	5.96
CB 05-03-14	5/03/2014	Pace	Validated	60168437	30000	58400 *	602	1550	6.8	5.2	6.00
CB 05-02-14	5/02/2014	Pace	Validated	60168364	29300	59900	604	1290	ND	5.2	5.97
316-286	5/01/2014	Pace	Validated	60168281	31300	60500	597	1110	5.6	5.3	--
CB 05-01-14	5/01/2014	Pace	Validated	60168278	31800	61300	581	1320	6.9	5.3	6.03
CB 04-30-14	4/30/2014	Pace	Validated	60168186	323	57100	621	890	9.6	5.3 h	5.91
CB 4-29-14	4/29/2014	Pace	Validated	60168079	37200	59600	557	824	9.6	5.3	5.92

MSD 029612

Table 1
General Parameters and Metals
February - May 2014
Bridgeton Landfill

					Solids, total suspended	Aluminum	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Cobalt
					NA	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
CB 05-04-14	5/04/2014	Pace	Validated	60168436	6360	33.1 *	ND	1.09	ND	ND	0.299	0.0628
CB 05-03-14	5/03/2014	Pace	Validated	60168437	5480	17	ND	1.06	ND	ND	0.266	0.0498
CB 05-02-14	5/02/2014	Pace	Validated	60168364	4340	17.2	ND	1.24	ND	ND	0.295	0.0554
316-286	5/01/2014	Pace	Validated	60168281	6840	13.9	ND	1.22	ND	ND	0.261	0.0362
CB 05-01-14	5/01/2014	Pace	Validated	60168278	2620	12.8	0.0628	1.32	ND	ND	0.293	0.0426
CB 04-30-14	4/30/2014	Pace	Validated	60168186	4500	12.8	0.0508	1.13	ND	ND	0.25	0.0412
CB 4-29-14	4/29/2014	Pace	Validated	60168079	5160	11.5	0.0631	1.1	ND	ND	0.247	0.0434

MSD 029613

Table 1
General Parameters and Metals
February - May 2014
Bridgeton Landfill

					Copper	Iron	Lead	Mercury	Nickel	Selenium	Silver	Thallium
					Total	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
CB 05-04-14	5/04/2014	Pace	Validated	60168436	0.119	898	0.136	0.0111	0.167	0.0784	ND	ND
CB 05-03-14	5/03/2014	Pace	Validated	60168437	ND	830	0.12	ND	0.146	0.0972	ND	ND
CB 05-02-14	5/02/2014	Pace	Validated	60168364	ND	888	0.12	0.0270	0.152	0.0986	ND	ND
316-286	5/01/2014	Pace	Validated	60168281	ND	704	0.0866	ND	0.103	ND	ND	ND
CB 05-01-14	5/01/2014	Pace	Validated	60168278	ND	818	0.1	ND	0.118	ND	ND	ND
CB 04-30-14	4/30/2014	Pace	Validated	60168186	ND	760	0.117	ND	0.113	ND	ND	ND
CB 4-29-14	4/29/2014	Pace	Validated	60168079	1.92	776	0.431	0.0297	0.131	ND	ND	ND

MSD 029614

Table 1
General Parameters and Metals
February - May 2014
Bridgeton Landfill

					Zinc
					Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l
CB 05-04-14	5/04/2014	Pace	Validated	60168436	5.38
CB 05-03-14	5/03/2014	Pace	Validated	60168437	5.15
CB 05-02-14	5/02/2014	Pace	Validated	60168364	5.94
316-286	5/01/2014	Pace	Validated	60168281	4.91
CB 05-01-14	5/01/2014	Pace	Validated	60168278	6.51
CB 04-30-14	4/30/2014	Pace	Validated	60168186	5.76
CB 4-29-14	4/29/2014	Pace	Validated	60168079	7.15

Da

Table 2
VOCs and SVOCs
February - May 2014
Bridgeton Landfill

					Benzene
Location	Date	Lab Name	Data Status	Lab Report	ug/l
CB 05-04-14	5/04/2014	Pace	Validated	60168436	ND
CB 05-03-14	5/03/2014	Pace	Validated	60168437	ND
CB 05-02-14	5/02/2014	Pace	Validated	60168364	ND
316-286	5/01/2014	Pace	Validated	60168281	ND
CB 05-01-14	5/01/2014	Pace	Validated	60168278	ND
CB 04-30-14	4/30/2014	Pace	Validated	60168186	ND
CB 4-29-14	4/29/2014	Pace	Validated	60168079	ND

Doug Mendoza

From: Brian G. Gibson
Sent: Wednesday, May 14, 2014 9:57 AM
To: Catherine Politte; Mike Townley; Doug Mendoza; Steve Grace; Martin Blecha
Cc: John Lodderhose
Subject: Bridgeton Landfill volume 5/04/14-5/10/14

Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 5/04/2014 to 5/10/2014.

5/04–195,000 gallons
5/05 –195,000 gallons
5/06 –195,000 gallons
5/07 –195,000 gallons
5/08 –195,000 gallons
5/09–195,000 gallons
5/10– 195,000 gallons
Total = 1,365,000 gallons

Brian G. Gibson
Metropolitan St. Louis Sewer District
Division of Environmental Compliance
10 East Grand Avenue
St. Louis, MO 63147-2913
(314) 436-8784

Doug Mendoza

From:	Doug Mendoza
Sent:	Monday, May 12, 2014 8:54 AM
To:	'Aaron Karlas'; 'Andy Roberts'; 'Bill Abernathy'; Bret A. Berthold; Brian G. Gibson; Catherine Politte; 'chris.nagel@dnr.mo.gov'; Christopher J. Bulmahn; 'Cunningham, Ally (LG'; 'Dan Feezor'; 'David Eastvold'; Doug Mendoza; 'Ed Galbraith'; John Lodderhose; 'John Powell'; Jonathon Sprague; 'Julie Croak'; Ken Gambaro; Ken Goins; Lance LeComb; Mark Bright; Martin Blecha; 'Merrigan, Jessie (LG'; Michael Grace; Mike Townley; Nora C. Estopare; 'Patti Abernathy'; 'Paul Linscott'; 'Power, Brian'; Rob G Daly; Ryan Sabourin; 'Sehie, Bryan'; 'Smith, Steve'; Steve Grace; Susan Myers; 'Tippett Mosby, Leanne'; Todd Heller; Tom Boehm
Subject:	Bridgeton Landfill permit renewal letter
Attachments:	IUQ_05-07.pdf; IUQ_instructions.pdf; BRIDGETON LANDFILL LLC old IUQ.pdf

Hard copy being sent via US mail.

May 12, 2014

Brian Power
Environmental Manager
BRIDGETON LANDFILL LLC
13570 St. Charles Rock Road
Bridgeton, MO 63044

Re: Discharge Permit No: 1003803000 - Interim
For premise at: 13570 St. Charles Rock Road
Bridgeton, MO 63044

Dear Mr. Power:

The Metropolitan St. Louis Sewer District Wastewater Discharge permit for the above premise expires no later than December 31, 2014, and is intended to be replaced upon successful startup of Bridgeton Landfill's new pretreatment system. For MSD to issue the new permit, you must submit an application.

We have enclosed an Industrial User Questionnaire form and instructions. You also may download an electronic version from MSD's website at www.stlmsd.com. This questionnaire serves as your permit application. Please complete and return the questionnaire to us as soon as possible, but not later than May 31, 2014. You should complete the questionnaire to reflect anticipated conditions after successful startup of the new pretreatment system. You may skip Section G of the questionnaire. Please retain a copy for your files. For your convenience, we have also enclosed a copy of the questionnaire submitted for the prior permit's application.

We will use the questionnaire and our records on your facility to prepare a draft permit. The draft permit will be sent to you for comment, prior to sending a final permit.

We appreciate your cooperation and support in helping us to comply with the federal regulations. If you have any questions or need assistance in completing the questionnaire, please contact me at 314.436.8717.

Sincerely,
METROPOLITAN ST. LOUIS SEWER DISTRICT

Douglas M. Mendoza, P.E.
Manager of Industrial Pretreatment

Enclosures: IUQ form, instructions, prior IUQ

cc: John Lodderhose

Metropolitan St. Louis Sewer District
Division of Environmental Compliance
10 East Grand Avenue
St. Louis, MO 63147-2913
Phone: 314.768.6200 www.stlmsd.com

May 12, 2014

Brian Power
Environmental Manager
BRIDGETON LANDFILL LLC
13570 St. Charles Rock Road
Bridgeton, MO 63044

Re: Discharge Permit No: 1003803000 - Interim
For premise at: 13570 St. Charles Rock Road
Bridgeton, MO 63044

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We will use the questionnaire and our records on your facility to prepare a draft permit. The draft permit will be sent to you for comment, prior to sending a final permit.

We appreciate your cooperation and support in helping us to comply with the federal regulations. If you have any questions or need assistance in completing the questionnaire, please contact me at 314.436.8717.

Sincerely,
METROPOLITAN ST. LOUIS SEWER DISTRICT

Douglas M. Mendoza, P.E.
Manager of Industrial Pretreatment

Enclosures: IUQ form, instructions, prior IUQ

cc: John Lodderhose

Doug Mendoza

From: Jason T. Edwards
Sent: Friday, May 09, 2014 12:32 PM
To: Doug Mendoza
Cc: Brian G. Gibson
Subject: Bridgeton Reading

Hi Doug,

The Bridgeton Landfill meter reading was 2,025,839 gal. The reading was taken at 10:30am on Friday, May 09, 2014.

Thanks,
Jason

Christopher J. Bulmahn

From: Sehie, Bryan <BSehie@republicservices.com>
Sent: Thursday, May 08, 2014 5:20 PM
To: Christopher J. Bulmahn
Cc: Bouchard, Derek; Power, Brian
Subject: Monthly Outfall Report - Bridgeton Landfill, LLC - April 2014
Attachments: Bridgeton Landfill LLC 2014 Outfall report.pdf

1003803000

Chris,

Please find attached, for billing purposes, the monthly leachate outfall report for the Bridgeton Landfill, LLC for April 2014. Please let me know if you have any questions.

Thanks,

Bryan

Bryan Sehie | Environmental Specialist | Republic Services, Inc.

13570 St. Charles Rock Rd. | Bridgeton, MO 63044

☎ 314.744.8190 314.443.0179

2014

Bridgeton Landfill LLC
Monthly Leachate Outfall Report

5/8/2014 Filed in 15.4

Month	Net Meter Reading	Precipitation Inches	Date of Reading	Gallons	Average Daily Discharge (Gal)	Equivalent Cubic Feet	Equivalent 100 Cubic Feet
January	1,842,366*	1.67	2/1/2014	153,280	4,945	20,491.98	204.92
February	1,842,366	1.48	3/1/2014	0	0	0.00	0.00
March	1,910,653*	1.55	4/1/2014	0	0	0.00	0.00
April	2025839*	8.38	5/1/2014	0	0	0.00	0.00
May							
June							
July							
August							
September							
October							
November							
December							

CB
5-09

Note:

*Due to Phantom Flow Readings at Flow Meter 184,538 gallons have been removed from flow total (see daily logs)

Discharge to MO River Plant ceased in February for UV disinfection period. Plan to resume on 11/1/14 if permitted.

Doug Mendoza

From: Scott D Kappelmann
Sent: Thursday, May 08, 2014 7:40 AM
To: Doug Mendoza
Cc: John Lodderhose; Jason Peterein; John Grimm; Christopher J. Bulmahn; Tom Boehm; Jay Kniker
Subject: RE: Bridgeton Landfill leachate forcemain comments (P-30040) - revised submittal - DEC comments

Doug,
Please see below, and give me a call if you want to discuss.

Thank you,
Scott

From: Doug Mendoza
Sent: Wednesday, May 07, 2014 8:36 AM
To: Scott D Kappelmann
Cc: John Lodderhose; Jason Peterein; John Grimm; Christopher J. Bulmahn; Tom Boehm
Subject: Bridgeton Landfill leachate forcemain comments (P-30040) - revised submittal - DEC comments

Scott,

It appears that the consultant has addressed my concerns contained in my 4/7/14 email to you. Regarding their revised submittal, I just had a couple of further comments:

1. Sheet C-400 shows the details of the gravity sewer for the sanitary flows from Corporate Exchange. The first new manhole, to reroute the flows from Westlake PS to the new PS, is identified as [101] 60" valve junction box. The current line from Corporate Exchange into Westlake PS is still in place, too. I have a question about this, although it ultimately would be a decision for MSD Operations/Pump Stations to decide. Would this valve junction box be controlled in the same time/manner as the valve junction box for the Bridgeton Landfill discharge? Per our meeting with Bridgeton Landfill on 5/2/14, these will be owned and controlled by MSD. I may have overlooked it, but I didn't see any notes or specs on their operation and control in the plans. Please let me know if I missed them. I also am not certain that we would want a situation where only the Corporate Exchange flow is entering the Westlake PS. It would be quite low, sitting in the wet well for extended periods of time. So unless there is a problem with the new gravity line that reroutes the Corporate Exchange flow, we would want to be sure that the Corporate Exchange flow only goes to the Westlake PS when Bridgeton Landfill also is going there.

Please see the note on the upper left sheet C300. Also, the plan is for all flow to enter the new PS system.
The best thing to do here as far as keeping the existing pump station in service for intermittent operations is to pump it completely out (or nearly so) and then fill the system with tap water, including the 12-inch force main. Then it can be run a little periodically and refilled with tap water. We will need to make sure that there is an appropriately sized yard hydrant on site.
Jon Sprague likes this idea.

2. Sheet C-300 shows a bypass pipe on the discharge force main from the new PS. At first, I thought this was a constructed bypass! However, after talking with Kevin Kamp from CEC, I realized it is a line to allow the force main to be pumped empty (into a tanker trunk) in the event that the forcemain was shut down.
   a. The sheet notes say, "See MSD pumping connection detail." However, I did not find that detail. I don't look at plans that often, so I could easily have missed it. Please let me know if I did. The consultant did not show it this time – I did ask him to, though. He will next time.

b. This bypass pipe is located right at the entrance of a storm culvert. There doesn't appear to be any spill containment, either. Any spills or leaks would flow directly to the storm system. The correct name for this is "bypass pumping connection". It is to provide the ability to continue to pump through the force main when the regular pumps are out of operation during power outage or other failure. A portable pump can draw from the wetwell with the pump discharge connected (by quick connect) to this bypass pumping connection as required.
c. This pipe needs to be moved away from the storm culvert entrance, and needs to have spill containment in place (both for leaks at the pump and spills/leaks when loading a truck). If we keep the bypass pipe at all, then it may be best to move it down to the new PS and have spill containment in place. That way, any spills or leaks could be flushed back into the PS. I would say that this pipe needs to be inside the fence for the PS. It is connected to the new PS discharge force main. The bypass pumping connection will not leak, there is no need for containment.
d. The pipe also needs to be relabeled so that it is clearly identified not as a "bypass" but as a drain/haul pipe or something similar. Yes, indeed. The correct name is "bypass pumping connection"
e. Actually, I'm not sure why we want or need this at all. Could we not simply pump from the new PS wet well instead, like we do during PS failures? I would suggest this instead. See above. It provided MSD Ops another way of providing service during times of pumping failure.

Jay K. please comment if you see the need.

Thanks, all

Scott

Please either let me know where I have missed something, or have the consultant address the above.

Thanks,
Doug Mendoza

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Wednesday, May 07, 2014 9:24 AM
To: 'Merrigan, Jessie (LG)'; Cunningham, Ally (LG); Aaron Karlas; Andy Roberts; Bill Abernathy; Bret A. Berthold; Brian G. Gibson; Brian Power; Bryan Sehie; Catherine Politte; Chris Nagel; Christopher J. Bulmahn; Dan Feezor; Darin Lewis; David Eastvold; Doug Mendoza; John Lodderhose; John Powell; Jonathon Sprague; Julie Croak; Ken Gambaro; Ken Goins; Lance LeComb; Leanne Tippett Mosby; Mark Bright; Michael Grace; Mike Townley; Nora C. Estopare; Patty Abernathy; Paul Linscott; Rob G Daly; Ryan Sabourin; Sara Kammerer; Steve Grace; Steve Smith; Susan Myers; Todd Heller; Tom Boehm
Cc: Ed Galbraith
Subject: Bridgeton Landfill Weekly Report

Good morning,

The Bridgeton Landfill materials for the last week are now available on Barr's FTP site.

Please note that BOD readings have continued to remain at normal levels since the prior submittal.

Regarding the SCADA-recorded "Phantom Flows" no adjustments were required this week.

As noted last week, the "Applicable Batches" are the batches from the 316K tank that were processed and transferred over to Tank 2 rather than loaded out directly. There will be no confirmation testing out of these batches unless they were loaded directly to the trucks. On days we used the Tank 2, we took the confirmation samples from Tank 2, and those would be "Combined Batches" (CB). Please let us know if you have questions about the data and how it appears on the FTP site.

Ed Galbraith

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www.barr.com

resourceful. naturally. BARR

R
5-7-14

Bridgeton Landfill, LLC
Metropolitan St. Louis Sewer District
Weekly Disposal Summary

MSD - Bissell Point Tracking Table					
Date	Operational Batch	Delivered (gal) Per Batch	Delivered (gal) Daily Total	Truck Capacity (gal) Per Batch	Truck Capacity (gal) Daily Total
Sunday, April 27, 2014	CB 04-26-14	52,500	172,500	52,500	172,500
	CB 04-27-14	120,000		120,000	
Monday, April 28, 2014	CB 04-27-14	52,500	172,500	52,500	172,500
	CB 04-28-14	120,000		120,000	
Tuesday, April 29, 2014	CB 04-28-14	52,500	172,500	52,500	172,500
	CB 04-29-14	120,000		120,000	
Wednesday, April 30, 2014	CB 04-29-14	52,500	172,500	52,500	172,500
	CB 04-30-14	120,000		120,000	
Thursday, May 1, 2014	CB 04-30-14	30,000	195,000	30,000	195,000
	CB 05-01-14	142,500		142,500	
	96-SW3R22	22,500		22,500	
Friday, May 2, 2014	CB 05-01-14	45,000	172,500	45,000	172,500
	CB 05-02-14	127,500		127,500	
Saturday, May 3, 2014	CB 05-02-14	52,500	195,000	52,500	195,000
	CB 05-03-14	142,500		142,500	

Date	4/27/2014 6:00
Date	5/4/2014 6:00

MSD - Missouri River Tracking Table								
Date	Operational Batch Transferred into 97K AST	Gallons Delivered	Batch Start Date and Time	Batch End Date and Time	Interval Hours	Maximum Hourly Flow (gph)	Average Hourly Flow (gph)	97K AST pH Check
Sunday, April 27, 2014	NA	-	4/27/2014 6:00	4/28/2014 6:00	24.0	840	0.0	NA
Monday, April 28, 2014	NA	-	4/28/2014 6:00	4/29/2014 6:00	24.0	840	0.0	NA
Tuesday, April 29, 2014	NA	-	4/29/2014 6:00	4/30/2014 6:00	24.0	840	0.0	NA
Wednesday, April 30, 2014	NA	-	4/30/2014 6:00	5/1/2014 6:00	24.0	840	0.0	7.38
Thursday, May 1, 2014	NA	-	5/1/2014 6:00	5/2/2014 6:00	24.0	840	0.0	NA
Friday, May 2, 2014	NA	-	5/2/2014 6:00	5/3/2014 6:00	24.0	840	0.0	NA
Saturday, May 3, 2014	NA	-	5/3/2014 6:00	5/4/2014 6:00	24.0	840	0.0	NA

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: [signature] Title: Environmental Specialist Date: 5/6/14

Weekly Volume Summary - Week 54 (4-27-14 through 5-3-14)

Daily Flow Reading — *Bridgeton Landfill*

	Current	Previous	Difference
Date / Time:	4/28/2014 6:00:00 AM	4/27/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,025,839	2,025,839	0

Flow Meter Adjustment	
Reading Adjustment:	0
Flow During Adjustment:	0

Comments

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan K Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 4/28/14

MSD Daily Flow Reading, ending 4-28-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	4/29/2014 6:00:00 AM	4/28/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,025,839	2,025,839	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Schie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Schie *Name:* Bryan Schie

Title: Environmental Specialist *Date:* 4/29/14

MSD Daily Flow Reading, ending 4-29-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	4/30/2014 6:00:00 AM	4/29/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,025,839	2,025,839	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 4/30/14

MSD Daily Flow Reading, ending 4-30-2014

Daily Flow Reading — *Bridgeton Landfill*

	Current	Previous	Difference
Date / Time:	5/1/2014 6:00:00 AM	4/30/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,025,839	2,025,839	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/1/14

MSD Daily Flow Reading, ending 5-01-2014

Daily Flow Reading — *Bridgeton Landfill*

	Current	Previous	Difference
Date / Time:	5/2/2014 6:00:00 AM	5/1/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,025,839	2,025,839	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Sehie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Sehie *Name:* Bryan Sehie

Title: Environmental Specialist *Date:* 5/2/14

MSD Daily Flow Reading, ending 5-02-2014

Daily Flow Reading — *Bridgeton Landfill*

	Current	Previous	Difference
Date / Time:	5/3/2014 6:00:00 AM	5/2/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,025,839	2,025,839	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Schie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Schie *Name:* Bryan Schie

Title: Environmental Specialist *Date:* 5/3/14

MSD Daily Flow Reading, ending 5-03-2014

Daily Flow Reading — Bridgeton Landfill

	Current	Previous	Difference
Date / Time:	5/4/2014 6:00:00 AM	5/3/2014 6:00:00 AM	24.0 hours
Reading (Gallons):	2,025,839	2,025,839	0

Flow Meter Adjustment		Comments
Reading Adjustment:	0	
Flow During Adjustment:	0	

Total Flow: 0 gallons

Bridgeton Landfill, LLC representative: Bryan Schie

I certify that the readings are correct and in compliance with the volume and rate restrictions established by MSD.

I further certify under penalty of Law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: Bryan Schie *Name:* Bryan Schie

Title: Environmental Specialist *Date:* 5/4/14

MSD Daily Flow Reading, ending 5-04-2014

5-7-14

OB-316-281

Bridgeton Landfill

Fill Data

Fill Start Date	4/25/2014
Fill Start Time	18:20
Fill Stop Date	4/25/2014
Fill Stop Time	22:35
Process Battery	316 AST

Processing Data

Process Start Date	4/25/2014
Process Start Time	20:00
Process Stop Date	4/26/2014
Process Stop Time	05:35

Approval Data

Approval Details	NAL13026-1362
Test Results	Benzene-ND
Reprocessed Batch	

Notes

fill height = 21'

Monday, May 5, 2014

OB-316-282 Bridgeton Landfill

Fill Data

Fill Start Date	4/26/2014
Fill Start Time	16:45
Fill Stop Date	4/26/2014
Fill Stop Time	22:30
Process Battery	316 AST

Processing Data

Process Start Date	4/26/2014
Process Start Time	17:30
Process Stop Date	4/27/2014
Process Stop Time	04:00

Approval Data

Approval Details	NAL13026-1366
Test Results	Benzene = <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.2'

Monday, May 5, 2014

OB-316-283 *Bridgeton Landfill*

Fill Data

Fill Start Date	4/27/2014
Fill Start Time	14:00
Fill Stop Date	4/27/2014
Fill Stop Time	18:40
Process Battery	316 AST

Processing Data

Process Start Date	4/27/2014
Process Start Time	15:00
Process Stop Date	4/28/2014
Process Stop Time	05:00

Approval Data

Approval Details	NAL 13026-1370
Test Results	Benzene = <100 ppb
Reprocessed Batch	

Notes

fill height=21.1'
MEK=17,000 ppb

Monday, May 5, 2014

OB-316-284 Bridgeton Landfill

Fill Data

Fill Start Date	4/28/2014
Fill Start Time	18:12
Fill Stop Date	4/28/2014
Fill Stop Time	22:40
Process Battery	316 AST

Processing Data

Process Start Date	4/28/2014
Process Start Time	18:42
Process Stop Date	4/29/2014
Process Stop Time	05:05

Approval Data

Approval Details	NAL13026-1374
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height=21.1'

Monday, May 5, 2014

OB-316-285 Bridgeton Landfill

Fill Data

Fill Start Date	4/29/2014
Fill Start Time	19:42
Fill Stop Date	4/30/2014
Fill Stop Time	00:12
Process Battery	316 AST

Processing Data

Process Start Date	4/29/2014
Process Start Time	20:14
Process Stop Date	4/30/2014
Process Stop Time	05:05

Approval Data

Approval Details	NAL13026-1378
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

fill height 21.1'

Monday, May 5, 2014

OB-316-286 Bridgeton Landfill

Fill Data

Fill Start Date	4/30/2014
Fill Start Time	18:20
Fill Stop Date	4/30/2014
Fill Stop Time	22:45
Process Battery	316 AST

Processing Data

Process Start Date	4/30/2014
Process Start Time	19:06
Process Stop Date	5/1/2014
Process Stop Time	03:59

Approval Data

Approval Details	NAL13026-1384
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.07 ft.

Monday, May 5, 2014

OB-316-287 Bridgeton Landfill

Fill Data

Fill Start Date	5/1/2014
Fill Start Time	23:11
Fill Stop Date	5/2/2014
Fill Stop Time	02:40
Process Battery	316 AST

Processing Data

Process Start Date	5/1/2014
Process Start Time	23:27
Process Stop Date	5/2/2014
Process Stop Time	04:26

Approval Data

Approval Details	NAL13026-1386
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.1 ft. Both blowers were running more than 1.5 hours, for a total more than 3 blower-hours.

Monday, May 5, 2014

OB-316-288 Bridgeton Landfill

Fill Data

Fill Start Date	5/2/2014
Fill Start Time	14:22
Fill Stop Date	5/2/2014
Fill Stop Time	18:11
Process Battery	316 AST

Processing Data

Process Start Date	5/2/2014
Process Start Time	15:40
Process Stop Date	5/3/2014
Process Stop Time	05:28

Approval Data

Approval Details	NAL13026-1390
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

Fill height = 21.15 ft.

Monday, May 5, 2014

5-7-14

Combined Batch 04-26-14

Bridgeton Landfill

Fill Data

Fill Start Date	
Fill Start Time	
Fill Stop Date	
Fill Stop Time	
Process Battery	T2M

Processing Data

Process Start Date	
Process Start Time	
Process Stop Date	
Process Stop Time	

Approval Data

Approval Details	NAL 13026-1362
Test Results	Benzene = <100 ppb
Reprocessed Batch	

Notes

MEK = 26,000 ppb

Monday, May 5, 2014

Combined Batch 04-27-14 — *Bridgeton Landfill*

Fill Data

Fill Start Date	
Fill Start Time	
Fill Stop Date	
Fill Stop Time	
Process Battery	T2M

Processing Data

Process Start Date	
Process Start Time	
Process Stop Date	
Process Stop Time	

Approval Data

Approval Details	NAL 13026-1367
Test Results	Benzene = <100 ppb
Reprocessed Batch	

Notes

MEK = 22,000 ppb

Monday, May 5, 2014

Combined Batch 04-28-14 — *Bridgeton Landfill*

Fill Data

Fill Start Date	
Fill Start Time	
Fill Stop Date	
Fill Stop Time	
Process Battery	T2M

Processing Data

Process Start Date	
Process Start Time	
Process Stop Date	
Process Stop Time	

Approval Data

Approval Details	NAL 13026-1371
Test Results	Benzene=<100 ppb
Reprocessed Batch	

Notes

Monday, May 5, 2014

Combined Batch 04-29-14 — *Bridgeton Landfill*

Fill Data

Fill Start Date	
Fill Start Time	
Fill Stop Date	
Fill Stop Time	
Process Battery	T2M

Processing Data

Process Start Date	
Process Start Time	
Process Stop Date	
Process Stop Time	

Approval Data

Approval Details	NAL 13026-1375
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 26,000ppb

Monday, May 5, 2014

Combined Batch 04-30-14 — *Bridgeton Landfill*

Fill Data

Fill Start Date	
Fill Start Time	
Fill Stop Date	
Fill Stop Time	
Process Battery	T2M

Processing Data

Process Start Date	
Process Start Time	
Process Stop Date	
Process Stop Time	

Approval Data

Approval Details	NAL 13026-1379
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 17,000 ppb

Monday, May 5, 2014

Combined Batch 05-01-14 — *Bridgeton Landfill*

Fill Data

Fill Start Date	
Fill Start Time	
Fill Stop Date	
Fill Stop Time	
Process Battery	T2M

Processing Data

Process Start Date	
Process Start Time	
Process Stop Date	
Process Stop Time	

Approval Data

Approval Details	NAL13026-1383
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 19,000 ppb.

Monday, May 5, 2014

Combined Batch 05-02-14

Bridgeton Landfill

Fill Data

Fill Start Date	
Fill Start Time	
Fill Stop Date	
Fill Stop Time	
Process Battery	T2M

Processing Data

Process Start Date	
Process Start Time	
Process Stop Date	
Process Stop Time	

Approval Data

Approval Details	NAL13026-1385
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 20,000 ppb.

Monday, May 5, 2014

Combined Batch 05-03-14

Bridgeton Landfill

Fill Data

Fill Start Date	
Fill Start Time	
Fill Stop Date	
Fill Stop Time	
Process Battery	T2M

Processing Data

Process Start Date	
Process Start Time	
Process Stop Date	
Process Stop Time	

Approval Data

Approval Details	NAL13026-1389
Test Results	Benzene ND <100 ppb
Reprocessed Batch	

Notes

MEK = 19,000 ppb.

Monday, May 5, 2014

96-SW3R22 — Bridgeton Landfill

Fill Data

Fill Start Date	1/10/2014
Fill Start Time	
Fill Stop Date	2/18/2014
Fill Stop Time	
Process Battery	96 AST

Processing Data

Process Start Date	1/10/2014
Process Start Time	
Process Stop Date	4/3/2014
Process Stop Time	06:12

Approval Data

Approval Details	NAL13026-1268
Test Results	Benzene 81 ppb
Reprocessed Batch	

Notes

Batch 96-SW3R22 is comprised of leachate-impacted stormwater that was collected over time and stored in the 96k AST. It was processed over several weeks (recirculation).

Monday, May 5, 2014

Table 1
General Parameters and Metals
February 2014 - April 2014
Bridgeton Landfill

					Biochemical Oxygen Demand (5-day)	Chemical Oxygen Demand	Nitrogen, ammonia as N	Oil and Grease	Oil and Grease - Silica gel cleanup	pH	pH, field	Solids, total suspended
					NA	NA	NA	NA	NA	NA	NA	NA
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	pH units	pH units	mg/l
CB 4-28-14	4/28/2014	Pace	Validated	60167981	33800	53000	578	981	5.2	5.3	5.91	4000
CB 4-27-14	4/27/2014	Pace	Validated	60167982	36600	56000	585	762	5.8	5.3	5.91	5000
CB 4/26/14	4/26/2014	Pace	Validated	60167978	22000 h	53000	603	874	8.0	5.3	5.99	5060
CB 04-25-14	4/25/2014	Pace	Validated	60167912	29000	52900 *	554	1190	6.9	5.2	6.07	4200
CB 04-24-14	4/24/2014	Pace	Validated	60167821	32900	51900	504	1160	9.2	5.3	6.05	5280
CB 04-23-14	4/23/2014	Pace	Validated	60167708	35200	51600	491	907	5.8	5.3	6.03	3480
CB 04-22-14	4/22/2014	Pace	Validated	60167586	26300	52600	517	1470	ND	5.3	5.85	4420
316-276	4/21/2014	Pace	Validated	60167572	35700	61700	571	1440	9.2	5.2	--	4940
CB 04-21-14	4/21/2014	Pace	Validated	60167571	29200	49100	499	1260	11.5	5.3	6.09	3780

MSD 029652

Table 1
General Parameters and Metals
February 2014 - April 2014
Bridgeton Landfill

					Aluminum	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Cobalt	Copper
					Total	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
CB 4-28-14	4/28/2014	Pace	Validated	60167981	7.5	ND	1.01	ND	ND	0.243	0.0402	1.54
CB 4-27-14	4/27/2014	Pace	Validated	60167982	8.82	ND	1.02	ND	ND	0.255	0.0428	0.134
CB 4/26/14	4/26/2014	Pace	Validated	60167978	7.98	ND	0.992	ND	ND	0.25	0.0423	ND
CB 04-25-14	4/25/2014	Pace	Validated	60167912	2.99	ND	0.898	ND	ND	0.193	0.0289	ND
CB 04-24-14	4/24/2014	Pace	Validated	60167821	9.48	0.0627	1.06	ND	ND	0.232	0.0363	0.0610
CB 04-23-14	4/23/2014	Pace	Validated	60167708	4.97	ND	1.06	ND	ND	0.215	0.0479	ND
CB 04-22-14	4/22/2014	Pace	Validated	60167586	8.56	ND	1.15	ND	ND	0.271	0.0477	ND
316-276	4/21/2014	Pace	Validated	60167572	9.14	ND	1.26	ND	ND	0.293	0.0551	ND
CB 04-21-14	4/21/2014	Pace	Validated	60167571	7.01	ND	1.02	ND	ND	0.239	0.0435	ND

MSD 029653

Table 1
General Parameters and Metals
February 2014 - April 2014
Bridgeton Landfill

					Iron	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
					Total	Total	Total	Total	Total	Total	Total	Total
Location	Date	Lab Name	Data Status	Lab Report	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
CB 4-28-14	4/28/2014	Pace	Validated	60167981	722	0.247	0.0182	0.135	0.0828	ND	ND	6.53
CB 4-27-14	4/27/2014	Pace	Validated	60167982	781	0.107	0.0268	0.128	0.0818	ND	ND	6
CB 4/26/14	4/26/2014	Pace	Validated	60167978	772	0.104	0.0190	0.129	ND	ND	ND	6.02
CB 04-25-14	4/25/2014	Pace	Validated	60167912	455	0.0524	0.0360	0.0974	ND	ND	ND	5.86
CB 04-24-14	4/24/2014	Pace	Validated	60167821	760	0.112	0.0273	0.112	ND	ND	ND	6.31
CB 04-23-14	4/23/2014	Pace	Validated	60167708	618	0.0805	0.0253	0.0892	0.0970	ND	ND	6.05
CB 04-22-14	4/22/2014	Pace	Validated	60167586	778	0.124	0.0241	0.133	0.0884	ND	ND	7.03
316-276	4/21/2014	Pace	Validated	60167572	874	0.121	0.0309	0.138	0.0945	ND	ND	7.43
CB 04-21-14	4/21/2014	Pace	Validated	60167571	706	0.108	0.0212	0.124	0.0844	ND	ND	6.41

Table 2
VOCs and SVOCs
February 2014 - April 2014
Bridgeton Landfill

				Parameter	Benzene
				Units	ug/l
Location	Date	lab_name_code	Data Status	lab_sdg	
CB 4-28-14	4/28/2014	Pace	Validated	60167981	ND
CB 4-27-14	4/27/2014	Pace	Validated	60167982	ND
CB 4/26/14	4/26/2014	Pace	Validated	60167978	ND
CB 04-25-14	4/25/2014	Pace	Validated	60167912	ND
CB 04-24-14	4/24/2014	Pace	Validated	60167821	ND
CB 04-23-14	4/23/2014	Pace	Validated	60167708	ND
CB 04-22-14	4/22/2014	Pace	Validated	60167586	ND
316-276	4/21/2014	Pace	Validated	60167572	ND
CB 04-21-14	4/21/2014	Pace	Validated	60167571	ND

DM

Doug Mendoza

From: Doug Mendoza
Sent: Wednesday, May 07, 2014 8:36 AM
To: Scott D Kappelmann
Cc: John Lodderhose; Jason Peterein; John Grimm; Christopher J. Bulmahn; Tom Boehm
Subject: Bridgeton Landfill leachate forcemain comments (P-30040) - revised submittal - DEC comments

Scott,

It appears that the consultant has addressed my concerns contained in my 4/7/14 email to you. Regarding their revised submittal, I just had a couple of further comments:

1. Sheet C-400 shows the details of the gravity sewer for the sanitary flows from Corporate Exchange. The first new manhole, to reroute the flows from Westlake PS to the new PS, is identified as [101] 60" valve junction box. The current line from Corporate Exchange into Westlake PS is still in place, too. I have a question about this, although it ultimately would be a decision for MSD Operations/Pump Stations to decide. Would this valve junction box be controlled in the same time/manner as the valve junction box for the Bridgeton Landfill discharge? Per our meeting with Bridgeton Landfill on 5/2/14, these will be owned and controlled by MSD. I may have overlooked it, but I didn't see any notes or specs on their operation and control in the plans. Please let me know if I missed them. I also am not certain that we would want a situation where only the Corporate Exchange flow is entering the Westlake PS. It would be quite low, sitting in the wet well for extended periods of time. So unless there is a problem with the new gravity line that reroutes the Corporate Exchange flow, we would want to be sure that the Corporate Exchange flow only goes to the Westlake PS when Bridgeton Landfill also is going there.

2. Sheet C-300 shows a bypass pipe on the discharge force main from the new PS. At first, I thought this was a constructed bypass! However, after talking with Kevin Kamp from CEC, I realized it is a line to allow the force main to be pumped empty (into a tanker trunk) in the event that the forcemain was shut down.
   a. The sheet notes say, "See MSD pumping connection detail." However, I did not find that detail. I don't look at plans that often, so I could easily have missed it. Please let me know if I did.
   b. This bypass pipe is located right at the entrance of a storm culvert. There doesn't appear to be any spill containment, either. Any spills or leaks would flow directly to the storm system.
   c. This pipe needs to be moved away from the storm culvert entrance, and needs to have spill containment in place (both for leaks at the pump and spills/leaks when loading a truck). If we keep the bypass pipe at all, then it may be best to move it down to the new PS and have spill containment in place. That way, any spills or leaks could be flushed back into the PS.
   d. The pipe also needs to be relabeled so that it is clearly identified not as a "bypass" but as a drain/haul pipe or something similar.
   e. Actually, I'm not sure why we want or need this at all. Could we not simply pump from the new PS wet well instead, like we do during PS failures? I would suggest this instead.

Please either let me know where I have missed something, or have the consultant address the above.

Thanks,
Doug Mendoza

Doug Mendoza

From: Brian G. Gibson
Sent: Monday, May 05, 2014 2:01 PM
To: Catherine Politte; Mike Townley; Doug Mendoza; Steve Grace
Cc: John Lodderhose
Subject: Bridgeton Landfill volume 4/27-5/3

Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 4/27/2014 to 5/03/2014.

4/27– 172,500 gallons
4/28 – 172,500 gallons
4/29 – 172,500 gallons
4/30 – 172,500 gallons
5/01 – 172,500 gallons
5/02– 172,500 gallons
5/03– 195,000 gallons
Total = 1,230,000 gallons

Brian G. Gibson
Metropolitan St. Louis Sewer District
Division of Environmental Compliance
10 East Grand Avenue
St. Louis, MO 63147-2913
(314) 436-8784

Doug Mendoza

From: Power, Brian <BPower@republicservices.com>
Sent: Friday, May 02, 2014 2:25 PM
To: Doug Mendoza
Cc: Ed Galbraith (EGalbraith@barr.com) (EGalbraith@barr.com); Jessica E. Merrigan (jmerrigan@lathropgage.com) (jmerrigan@lathropgage.com)
Subject: Bridgeton Landfill Permit No:1003803000 Review

Doug,

This email is to confirm that I have reviewed and have no comments on the terms of the draft Interim Permit (Permit Number: 100380300) for the Bridgeton Landfill.

Please feel free to contact me with any questions.

Sincerely,

Brian J. Power
Environmental Manager
Bridgeton Landfill, LLC.
13570 Saint Charles Rock Road
Bridgeton, MO 63044

Phone: (618) 410-0157
Email: bpower@republicservices.com

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Monday, April 21, 2014 7:46 AM
To: Ed Galbraith
Cc: Dan Feezor (dfeezor@feezorengineering.com); Bill Abernathy (babernathy@feezorengineering.com); Kamp, Kevin; Power, Brian; Sehie, Bryan; John Lodderhose
Subject: RE: SOP Alternative Treatment Process

Ed,

This revision, dated April 18, 2014 is approved and becomes the officially approved version.

Doug

From: Ed Galbraith [mailto:EGalbraith@barr.com]
Sent: Friday, April 18, 2014 8:01 AM
To: Doug Mendoza
Cc: Dan Feezor (dfeezor@feezorengineering.com); Bill Abernathy (babernathy@feezorengineering.com); Kamp, Kevin; bpower@republicservices.com; bsehie@republicservices.com
Subject: SOP Alternative Treatment Process

Hi Doug,

This is to memorialize our conversation regarding the leachate SOP. As we discussed, the intent of Alternative 2 is to be able to transfer an approved batch (<= to 100 ppb benzene) from the 316 tank to Tank 2 as soon as it is ready. You

Doug Mendoza

From: Ed Galbraith <EGalbraith@barr.com>
Sent: Friday, May 02, 2014 11:25 AM
To: John Lodderhose; Doug Mendoza
Cc: Bill Abernathy (babernathy@feezorengineering.com); bsehie@republicservices.com; Dan Feezor (dfeezor@feezorengineering.com); Catherine Politte; Mike Townley; Brian G. Gibson; Dave Schepers; Scott Rehmer; Steve Grace; Dave Kupke; Jason Gill; Martin Blecha; Michael S. Kynion; Tom Boehm; bpower@republicservices.com
Subject: RE: Contaminated Stormwater Disposal at Bissell from Bridgeton Landfill

John, thank you very much. Can't tell you how helpful this is. We will provide notification of the timing of the increase via the morning email update.

Ed Galbraith

Senior Environmental Scientist
Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

resourceful. naturally. BARR

From: John Lodderhose [mailto:JRLODD@stlmsd.com]
Sent: Friday, May 02, 2014 11:06 AM
To: Ed Galbraith; Doug Mendoza
Cc: Bill Abernathy (babernathy@feezorengineering.com); bsehie@republicservices.com; Dan Feezor (dfeezor@feezorengineering.com); Catherine Politte; Mike Townley; Brian G. Gibson; Dave Schepers; Scott Rehmer; Steve Grace; Dave Kupke; Jason Gill; Martin Blecha; Michael S. Kynion; Tom Boehm; bpower@republicservices.com
Subject: RE: Contaminated Stormwater Disposal at Bissell from Bridgeton Landfill

Ed, we have also received approval from the Bissell Point Plant to increase the volume of hauled leachate from 175,000 GPD to 200,000 GPD. You may proceed with the increase at your earliest convenience.

John R. Lodderhose, P.E.
Metropolitan St. Louis Sewer District
Assistant Director of Engineering
Environmental Compliance
314-436-8714

From: Ed Galbraith [mailto:EGalbraith@barr.com]
Sent: Wednesday, April 30, 2014 7:43 AM
To: Doug Mendoza; John Lodderhose
Cc: Bill Abernathy (babernathy@feezorengineering.com); bsehie@republicservices.com; Dan Feezor (dfeezor@feezorengineering.com); Catherine Politte; Mike Townley; Brian G. Gibson; Dave Schepers; Scott Rehmer; Steve Grace; Dave Kupke; Jason Gill; Martin Blecha; Michael S. Kynion; Tom Boehm; bpower@republicservices.com
Subject: RE: Contaminated Stormwater Disposal at Bissell from Bridgeton Landfill

Thanks Doug. The conditions you outline below should be no problem.

Doug Mendoza

From: John Lodderhose
Sent: Friday, May 02, 2014 11:06 AM
To: Ed Galbraith; Doug Mendoza
Cc: Bill Abernathy (babernathy@feezorengineering.com); bsehie@republicservices.com; Dan Feezor (dfeezor@feezorengineering.com); Catherine Politte; Mike Townley; Brian G. Gibson; Dave Schepers; Scott Rehmer; Steve Grace; Dave Kupke; Jason Gill; Martin Blecha; Michael S. Kynion; Tom Boehm; bpower@republicservices.com
Subject: RE: Contaminated Stormwater Disposal at Bissell from Bridgeton Landfill

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John R. Lodderhose, P.E.
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Assistant Director of Engineering
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Subject: RE: Contaminated Stormwater Disposal at Bissell from Bridgeton Landfill

Thanks Doug. The conditions you outline below should be no problem.

Ed Galbraith

Senior Environmental Scientist
Jefferson City office: 573.638.5024
cell: 573.418.5562
egalbraith@barr.com
www.barr.com

resourceful. naturally. BARR

From: Doug Mendoza [mailto:DMENDOZA@stlmsd.com]
Sent: Wednesday, April 30, 2014 7:37 AM
To: Ed Galbraith; John Lodderhose
Cc: Bill Abernathy (babernathy@feezorengineering.com); bsehie@republicservices.com; Dan Feezor (dfeezor@feezorengineering.com); Catherine Politte; Mike Townley; Brian G. Gibson; Dave Schepers; Scott Rehmer; Steve Grace; Dave Kupke; Jason Gill; Martin Blecha; Michael S. Kynion; Tom Boehm
Subject: RE: Contaminated Stormwater Disposal at Bissell from Bridgeton Landfill

Ed,

Doug Mendoza

From: Brian G. Gibson
Sent: Thursday, May 01, 2014 3:48 PM
To: Catherine Politte; Mike Townley; Doug Mendoza; Steve Grace
Cc: John Lodderhose
Subject: Bridgeton Landfill weekly volume 4/20-26/14

Total Bridgeton Landfill leachate volume hauled to Bissell Point Treatment Plant from 4/20/2014 to 4/26/2014.

4/20– 172,500 gallons
4/21 – 172,500 gallons
4/22 – 172,500 gallons
4/23 – 172,500 gallons
4/24 – 172,500 gallons
4/25 – 172,500 gallons
4/26 – 172,500 gallons
Total = 1,207,500 gallons

Brian G. Gibson
Metropolitan St. Louis Sewer District
Division of Environmental Compliance
10 East Grand Avenue
St. Louis, MO 63147-2913
(314) 436-8784