

From: [Larsen, Thurman](#)
To: [Smith, Cory, EMNRD](#); [VanHorn, Kristen, NMENV](#)
Subject: C-141 Initial Report for South Carbon Canister Rupture Disk Incident on 010716
Date: Friday, January 22, 2016 3:46:31 PM
Attachments: [C141 Initial Carbon Canister Incident 010716.pdf](#)

Dear Kristen and Cory,

The following is the initial C-141 Report for the incident that occurred on January 7, 2016.

Regards,

Beck Larsen
Environmental Engineer
Western Refining Southwest (Gallup Refinery)
92 Giant Crossing Road - New Mailing Address
Gallup, NM 87301
Office: (505) 722-0258
cell: (505) 862-1749

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Blanco Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

WRG Carbon Canister
Overflow
2016 Wastewater
Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in
accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: WESTERN REFINING	Contact: Beck Larsen
Address: I-40 / EXIT 39, JAMESTOWN, NM 87347	Telephone No. (505) 722-0258
Facility Name: WESTERN RENING (GALLUP REFINERY)	Facility Type: Petroleum Refinery

Surface Owner	Mineral Owner	API No.
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	28	15 N	15 W					MCKINLEY

Latitude 35° 029' 024" Longitude 108° 024' 024"

NATURE OF RELEASE


Type of Release: Untreated Wastewater	Volume of Release: 40-46 bbls (1680 - 1710 gal) (untreated wastewater)	Volume Recovered: 32-34 bbl (1342-1428 gal) (untreated wastewater)
Source of Release: Slop Oil Transfer Line from T-107/108 to API	Date and Hour of Occurrence 1/7/2016; 2300 hrs	Date and Hour of Discovery 1/7/2016; 2320 hrs
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? OCD (Brandon Powell, Msg) / NMED HWB (Kristen Van Horn, Msg)	
By Whom? Cheryl Johnson	Date and Hour: 1/8/2016 (1536; 1539)	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.* N/A

Describe Cause of Problem and Remedial Action Taken.* At 2300 hours on January 7, 2016, the south carbon canister rupture disk at the Wastewater Treatment Plant over-pressured allowing approximately 40 to 46 bbls of untreated wastewater to be released, filling the earthen dike containment and the excess overflow ran downhill toward Pond (EP-1) but did not reach EP-1. The incident lasted for about 20 minutes. Wastewater Treatment Plant Operators immediately upon discovery changed from the south carbon canister to the north carbon canister. Since the incident occurred at night and the area was covered with snow, assessment of the extent of the contamination was not completed until the next morning.

Describe Area Affected and Cleanup Action Taken.* On January 8, a vacuum truck began to remove the untreated wastewater from the affected area at the Wastewater Treatment Plant around the carbon canister containment area and the sloping downhill area. A sample was collected of the liquid and sent to our internal onsite laboratory. The results showed that the wastewater had a benzene level that exceeded the 0.5 ppm Regulatory Limit. The vacuum truck removed about 27 bbls from the containment area and an additional 5 to 7 bbls on the downhill slope side west of the carbon canisters. Soil samples were collected and sent to outside laboratory for analysis. Analytical results are still pending. About 2 to 3 inches of soil was removed on the downhill slope west of the carbon canisters.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	OIL CONSERVATION DIVISION		
Printed Name: Beck Larsen:	Approved by Environmental Specialist:		
Title: Environmental Engineer	Approval Date:	Expiration Date:	
E-mail Address: Thurman.larsen@wnr.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 1/22/16 Phone: (505) 722-0258			

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1800 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87506

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back
side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Western Refining Southwest Inc.	Contact: Loretta Morgan
Address: 1-40 Exit 39 Jamestown, NM 87347	Telephone No: 505-722-3833
Facility Name: Gallup Refinery	Facility Type: Oil Refinery

Surface Owner: Western Refining	Mineral Owner: Western Refining	Lease No.
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LOCATION OF RELEASE

Unit Letter	Section 23&33	Township 15N	Range 15W	Feet from the	North/South Line	Feet from the	East/West Line	County McKinley
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Latitude 35°29'22"

Longitude 108°25'24"

NATURE OF RELEASE

Type of Release: Treated Wastewater	Volume of Release: Estimate 158 barrel of wastewater	Volume Recovered: Undetermined
Source of Release: Waste Water Treatment Plant Carbon Canister	Date and Hour of Occurrence: 12/27/2015 4:00 pm	Date and Hour of Discovery: 12/27/2015 4:00 pm
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom? Ruth Horowitz, NMED Hazardous Waste Bureau (phone call left message) Kristen VanHorn, NMED Hazardous Waste Bureau (phone call left message) Brandon Powell, Oil Conservation Division (phone call left message)	
By Whom? Loretta Morgan	Date and Hour: 12/27/2015 8:16 pm	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. No, did not impact watercourse.	

If a Watercourse was Impacted, Describe Fully.
Not applicable

Describe Cause of Problem and Remedial Action Taken:

At approximately 4 pm on 12/27/2015, Wastewater Operators were back flushing the south carbon canister and wastewater was released from the rupture disk located on the outlet side of the canister due to a block valve downstream. Immediate action was taken to clean up the wastewater that was release. The Maintenance Department was called out to begin vacuuming up the area. Carbon canisters are located downstream of MPPE unit. The wastewater was treated prior to the release with no environmental impact or safety concerns. A benzene water sample was collected and it was found to be less than RCRA limit of 0.5 ppm.

Describe Area Affected and Cleanup Action Taken:

The Carbon Canisters are located on the west side of waste water treatment plant. Standing water was vacuumed up by Maintenance and contract personnel.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:



OIL CONSERVATION DIVISION

Printed Name: Beck Larsen

Title: Environmental Engineer - Gallup Refinery

E-mail Address: Thurman.Larsen@wnr.com

Date: 1/8/2016

Phone: 505-722-0258

Approved by District Supervisor:

Approval Date:

Expiration Date:

Conditions of Approval:

Attached ☐

Please answer these questions to the best of your ability:

1. What is the purpose of back flushing a carbon canister? **To remove carbon fines from the top of the carbon bed that was deposited when the canister was loaded. It also is used to fluff the bed to remove air from the carbon bed.** Are the carbon canisters made to be or meant to be backflushed? **Yes; it's is recommended by the manufacturer.** How often are the canisters backflushed? **Before the canisters are put on line, and when there is a high pressure differential across the bed.**
2. What is the process for back flushing? **See procedure (attached)**
3. How is the back-flushed water managed? **See procedure (attached)**
4. Is the back-flushed water tested? **No** If so, what analyses are conducted and, in general, what are the constituent concentration ranges that are typically detected?
5. Where in the system is the rupture disc located? **At the inlet of both canisters.** What is causing the valve blockage? **These are manual valves controlled by the Waste Water Operator.**
6. Was the MPPE unit in use? **No** Are the MPPE inline filters still in use? **Yes**
7. How was the estimate of 158 barrels made? **See attached**
8. What analyses were conducted on the water sample? **Benzene**
9. Were the analyses conducted on-site or at an off-site analytical laboratory? **On-site laboratory**
10. What are the results of the testing? Is there a lab report? **Benzene= 0.45 mg which is < 0.5 mg/l RCRA Limit; See the attached internal analysis.**
11. How much wastewater was recovered by the vacuum truck? **Approximately 27 bbls was recovered from the containment area. The amount of water that was recovered from the spill flowing downhill was indistinguishable from the snow melt that covered this area.**
12. Where did the wastewater flow? **The water flowed into a small earthen containment area around the carbon canisters. When the containment became full, it overflowed and ran down the hill.**
13. Send a figure of the site with the location of the release and the extent of water flow and the locations of pooled water sketched on the figure. **See attached**
14. Were soil samples collected to characterize the residual soil contamination? If so, where and at what depth were the samples collected and what method was used to collect the VOC samples? **A water sample was collected to determine the benzene concentration; however, no soil samples were collected.**

15. How was waste water treated prior to release if this is the result of back flushing of the carbon canister? The water coming out of the south canister was still below the allowable limit of 0.5 ppm benzene. On this particular release the water was routed through the south canister, then through the north canister. The outlet valve on the north canister was mistakenly blocked in resulting in the release.

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Larsen, Thurman

From: Walters, Lucas
Sent: Tuesday, January 19, 2016 8:48 AM
To: Larsen, Thurman
Subject: RE: Carbon Canister Spill from Rupture Disk of 12-27-2015

Beck,

The calculation for the carbon canister leak was approached in the following manner:

Assumptions:

- 1) The carbon canister rupture disk ruptured immediately after the carbon canisters were put online. There is pressure indication on the inlet to the carbon canisters but does not reflect when the disk would have ruptured. With this in mind, the worst case scenario was taken into account. Time noted on operator log was 4:00 pm.
- 2) The flow was stopped immediately once the outside operator noticed the disk. Time noted on operator log was 4:35 pm.
- 3) Flow meter 84fc901 average for this time period was 190.3 GPM. It is the flow meter that goes to though both sets of filters and then the carbon canisters.

The maximum volume that could have leaked out of the rupture disk would be $190.3 \text{ GPM} \times 35 \text{ min} = 6660.5 \text{ gallons}$ or 158.5 barrels. Let me know if you need anything else.

Lucas

From: Walters, Lucas
Sent: Tuesday, January 19, 2016 8:27 AM
To: Larsen, Thurman
Subject: RE: Carbon Canister Spill from Rupture Disk of 12-27-2015

Give me about 20 minutes.

Lucas

From: Larsen, Thurman
Sent: Tuesday, January 19, 2016 8:18 AM
To: Walters, Lucas
Subject: Carbon Canister Spill from Rupture Disk of 12-27-2015

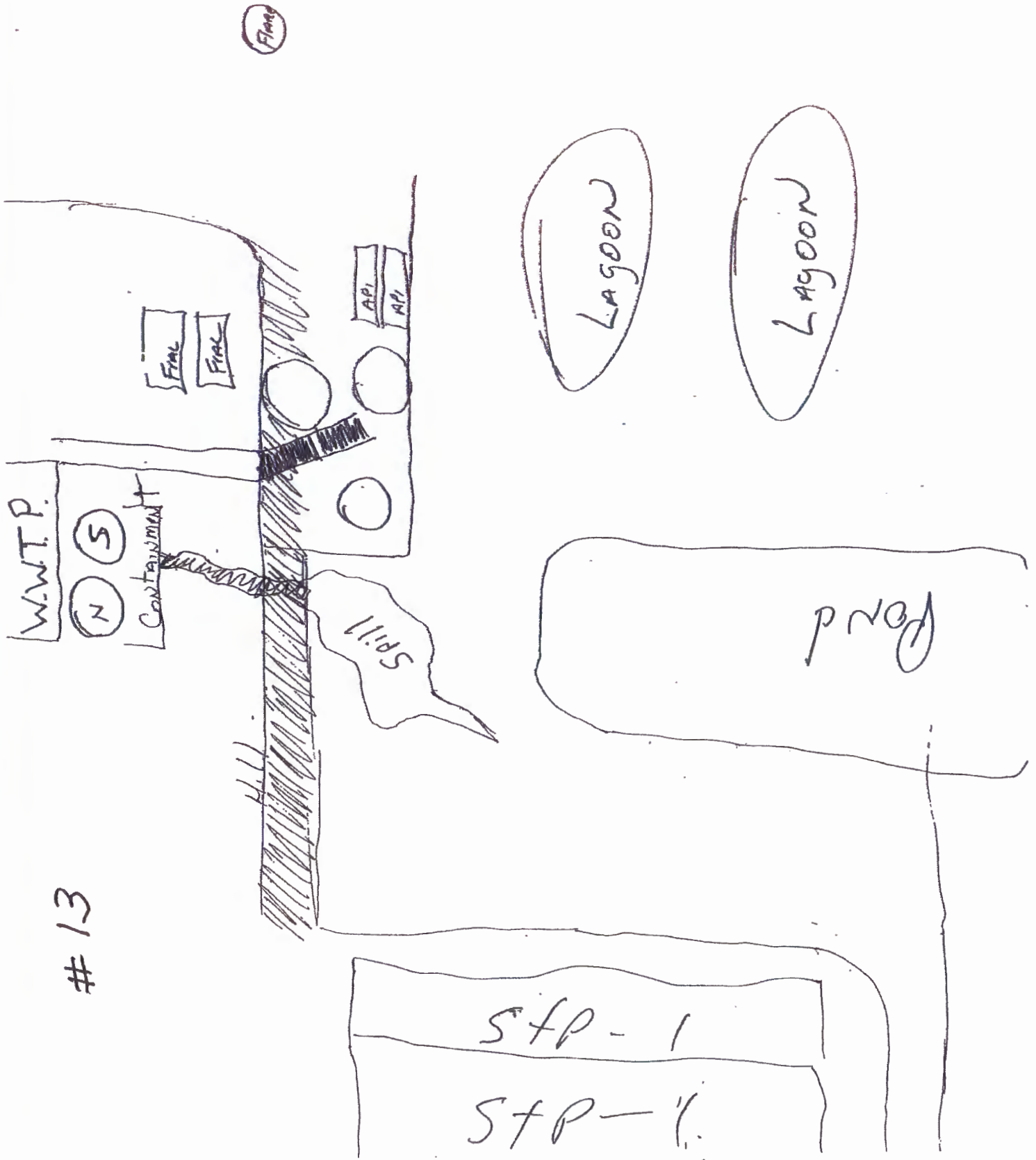
Lucas,

Do you have any calculations or any additional information to contribute that I could use concerning the carbon canister spill that occurred on 12-27-15 due to the rupture disk? I am working on a report to the agency.

Thanks,

Beck Larsen
Environmental Engineer
Western Refining Southwest (Gallup Refinery)
92 Giant Crossing Road - New Mailing Address
Gallup, NM 87301
Office: (505) 722-0258
cell: (505) 862-1749

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GALLUP REFINERY

BACKWASHING THE CARBON CANISTER TO REDUCE PRESSURE ON THE VESSEL

PURPOSE

1. The purpose of this procedure is to inform the WWTP Operator how to safely, and effectively, backwash the WWTP carbon canisters when the canisters begin to pressure up. This backwash will remove deposits that have accumulated on top of the carbon bed and improve water flow through the carbon bed.

REFERENCE MATERIAL

1. Evoqua Water Technologies Tech Note No. 29

MINIMUM PERSONNAL

1. WWTP Operator

SAFETY EQUIPMENT

1. Standard refinery PPE including, but not limited to:
 - a. Hard hat
 - b. Steel toe boots
 - c. Fire resistant coveralls
 - d. Personal H2S monitor
 - e. Safety glasses/goggles
 - f. Leather gloves
 - g. Face shield

EQUIPMENT INVOLVED

1. WWTP Carbon Canisters
2. WWTP PLC
3. Carbon canister backwash hose to STP-1.

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4. Carbon Canister Pressure Transmitter

OBJECTIVE:

1. The objective of this procedure is to safely, and effectively, backwash the WWTP carbon canisters to alleviate pressure buildup in the vessel. This backwash should be conducted when the pressure on the vessels exceeds 35 PSI. The backwash of the carbon bed removes deposits from the carbon bed that can harden and impede the effluent flow through the carbon bed.

PRE-REQUISITES/PRE-CAUTIONS

1. Prior to the backwash, verify that the correct valve lineup is in effect to make a backwash possible. This lineup is reflected in this procedure.
2. **Caution:** While conducting a backwash, pay attention to the pressure on the carbon canisters to avoid over-pressuring the vessels and busting a rupture disk. There is local pressure indication (a digital gauge) located on the inlet piping directly southeast of the canisters. The pressure is also displayed on the WWTP PI screen in the Control Room. The rupture disks are set to bust at 75 PSI.

PROCEDURE:

1. When the pressure on the carbon canisters exceeds 35 PSI, prepare to conduct a backwash on the carbon canister that the flow is **first** being routed to if the canisters are in lead/lag. (This is the canister that will have deposits accumulated on top of the carbon bed that will impede water flow through the bed.)
2. Start off with a low flow rate (100 GPM).
3. A carbon canister backwash lineup is achieved by using the following valve lineup:
 - a. Line up the WWTP effluent, first, to the carbon canister that is not being backwashed. The valve should be opened to allow effluent to travel to the top of the canister that is not being backwashed.
 - b. Close the valve behind the manifold to keep effluent from traveling to STP-1.
 - c. Once the STP-1 valve is closed, open the two valves on the very bottom of the manifold to allow the flow to travel from the bottom of one canister to the bottom of the canister that is being backwashed.
 - d. Close the valve that accesses the middle piping of the manifold or the flow will not go to the other canister; it will go directly to the backwash hose to STP-1.
 - e. The flow will travel from the bottom of one canister to the bottom of the backwash canister and out the top of this canister. This backwash will remove any deposits that have accumulated on top of the carbon bed while this vessel was in service.

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SOP00

- f. Open the valve on the manifold to allow the flow to travel out of the top of the backwash canister and into the middle pipe on the manifold that accesses the backwash hose.
 - g. Open the valve that goes to the backwash hose.
 - h. Open the valve at the end of the backwash hose to allow flow to travel to STP-1.
4. Closely monitor the pressure of the carbon canisters to avoid busting the overpressure rupture disks (75 PSI max.) on the carbon canister manifold.
5. Slowly bring up the flow to 200 GPM to "fluff" the carbon bed and allow bed expansion for optimum carbon performance.
6. Run this backwash for at least an hour to cleanse and fluff the carbon bed thoroughly.
7. After the backwash, return the valve lineup to its original configuration and flow through one canister only until the benzene levels reach critical level, then put the canisters into lead-lag.

The unit operator has full authority to shut down unit during any unsafe conditions.

PROCEDURE SIGN-OFF

GALLUP REFINERY

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DATE	NAME	SIGNATURE



GALLUP REFINERY

GALLUP REFINERY

WASTE WATER TREATMENT PLANT

WWTP CARBON CANISTER LINE UP AND OPERATION

PURPOSE

1. The purpose of this procedure is to detail how to safely fill and operate the temporary carbon canisters on the west side of the WWTP building. This procedure also details the steps that need to be taken when the benzene samples fail.

REFERENCE MATERIAL

1. Siemens Carbon Canister Operating Manual

MINIMUM PERSONNEL

1. Waste Water Treatment Plant Operator
2. API Operator

SAFETY EQUIPMENT

1. Standard refinery PPE.

EQUIPMENT INVOLVED

1. Return Water Pumps (Z84-P56/57)
2. Siemens Carbon Canisters
3. DGF Feed Tank (Z84-V11)
4. STP-1
5. Buffer Tank (Z84-V18)

OBJECTIVES

1. Safely fill and operate the temporary Siemens Carbon Canisters to allow increased flow to STP-1 while removing benzene from the waste water.

PREREQUISITES / PRECAUTIONS

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1. Always wear the proper PPE needed for this unit.
2. Be aware of the location of emergency pull stations in case of an emergency.

PROCEDURE

WWTP STARTUP:

Date/Time Initial

- _____ 1. Block in valves 4A and 4B on the carbon canister manifold to isolate back flush piping from process piping.
- _____ 2. Block in valves 2A and 2B on the manifold.
- _____ 3. Open process inlet valve at the manifold (Valve 1A to line up the north canister; Valve 1B to open the south canister.)
- _____ 4. Open valve 3A (north canister) or valve 3B (south canister) to access outlet piping.
- _____ 5. Open valve C1 to access outlet piping.
- _____ 6. Open/close valves near the DGF Feed Tank Containment Pad to direct flow to the DGF Feed Tank (block in the valve going to STP-1). **Be mindful of the level in the DGF Feed Tank, as water will be circulating back to this tank.**
- _____ 7. Turn on one of the Return Water Pumps (P56/57) to start flow to the canisters. (Be sure to fill the Buffer Tank (V-18) with wastewater. The Return Water Pumps (P56/57) will use this water to flow through the carbon canisters.)
- _____ 8. Verify flow by viewing FT-770 on the PLC. Check low/middle/high level indicator bleeders on the carbon canister that is on line to verify that the canister is filling.
- _____ 9. Check canisters and piping for leaks. Monitor Return Water Pumps (P56/57).
- _____ 10. Allow the water to run for 10-15 minutes. Catch a benzene sample from sample point PI-2008 if you are flowing through the north carbon canister. If you are flowing water through the south canister, capture a sample from sample point PI- 2010 on the carbon canister manifold.
- _____ 11. If the benzene samples pass (< 0.5), open the valve going to STP-1 and block in the valve going to the DGF Feed Tank (Z84-V11). These valves are located east of the DGF Feed Tank Containment Pad.
- _____ 12. **NOTE: IF THE BENZENE SAMPLE PASSES, DISREGARD STEPS 11-14. If the benzenes do not pass (> 0.5), water must be diverted to the DGF Feed Tank (Z84-V11) and circulated back into the system. Circulate the water for an hour and catch another benzene sample and send it to the lab for analysis. If the benzene sample passes, open the valve from the**

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carbon canisters to STP-1 and block in the valve going to the DGF Feed Tank (Z84-V11).

_____ 13.If the benzene sample continues to fail, shut off the Return Water Pumps (P56/57) and line up the other canister and block in the canister that is online by following Steps 1-5.

_____ 14.Catch another benzene sample for the lab after the water has been flowing through the new canister for 10-15 minutes.

_____ 15.If the benzene sample passes divert flow to STP-1 and block in the valve going to the DGF Feed Tank (Z84-V11).

Supervisor Sign Off _____ Date/Time _____

Approved/Recertified Erik Loera	Effective Aug 2013	Supercedes NEW	Revision #	Page 3 of 3
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Larsen, Thurman

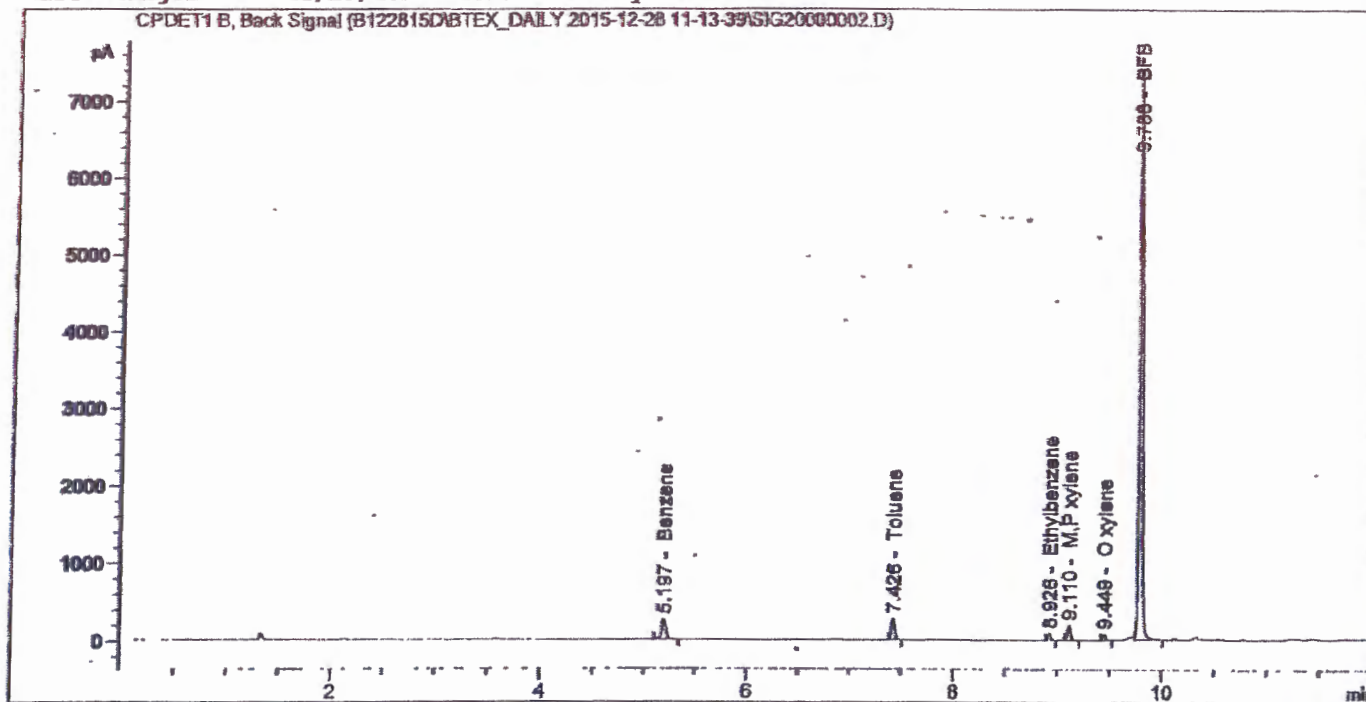
From: Neumann, Maribel
Sent: Monday, December 28, 2015 12:45 PM
To: Larsen, Thurman
Cc: Walters, Lucas
Subject: Canister Spill 122715
Attachments: Canister Spill 122715.pdf

Attached is the Benzene result for the Canister Spill. The result is 0.45. If you have any questions please let me know. Jesse Lawrence will be running the chloride testing.

Thanks,
Maribel Neumann
Laboratory Technician
Western Refining-Gallup

Sample Name: Canister Spill 122715 pH 7.7

Acq. Operator : SYSTEM Seq. Line : 2
 Acq. Instrument : Purge and Trap Location : Vial 3
 Injection Date : 12/28/2015 11:52:33 AM Inj : 1
 Inj Volume : Manually
 Method : C:\CHEM32\1\DATA\B122815D\BTEX_DAILY 2015-12-28 11-13-39\BTEX.M (Sequence Method)
 Last changed : 12/28/2015 11:13:39 AM by SYSTEM



Internal Standard Report

Sorted By : Signal
 Calib. Data Modified : Wednesday, November 18, 2015 11:53:12 AM
 Multiplier : 50.0000
 Dilution : 1.0000

Do not use Multiplier & Dilution Factor with ISTDs

Sample ISTD Information:

ISTD ISTD Amount Name
 # [ppm]

1 100.00000 BFB

Signal 1: CPDET1 B, Back Signal

RetTime [min]	Type	ISTD used	Area [pA*s]	Amt/Area ratio	Amount [ppm]	Grp	Name
5.197	BB	1	713.48334	1.82544e-3	4.53296e-1		Benzene 0.45
7.426	BB	1	563.16870	0.00000	0.00000		Toluene
8.926	BB	1	164.85704	0.00000	0.00000		Ethylbenzene
9.110	BB	1	411.93872	0.00000	0.00000		M,P xylene
9.449	BB	1	147.29042	0.00000	0.00000		O xylene

Sample Name: Canister Spill 122715 pH 7.7

RetTime [min]	Type	ISTD used	Area [pA*s]	Ant/Area ratio	Amount [ppm]	Grp	Name
9.788	VB S I	1	1.43661e4	1.00000	100.00000	BFB	

Totals without ISTD(s) : 4.53296e-1

5 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Negative results set to zero (cal. curve intercept), (Toluene)
Warning : Negative results set to zero (cal. curve intercept), (Ethylbenzene)
Warning : Negative results set to zero (cal. curve intercept), (M,P xylene)
Warning : Negative results set to zero (cal. curve intercept), (O xylene)

*** End of Report ***