

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

A403322991

FACILITY: The Dow Chemical Company U.S.A., Midland		SRN / ID: A4033
LOCATION: 1790 Building, MIDLAND		DISTRICT: Saginaw Bay
CITY: MIDLAND		COUNTY: MIDLAND
CONTACT: Jamie Dole , EH&S Delivery Specialist		ACTIVITY DATE: 09/17/2013
STAFF: Jennifer Lang	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MEGASITE
SUBJECT: Scheduled inspection at Styron of EU33-S2, EUB1-S2, FGRULE290-S2 & FGCOLDCLEANERS-S2		
RESOLVED COMPLAINTS:		

Inspection date: 9/17/13
Inspection started: 9:55 am
Inspection ended: 1:00 pm

Dow, Styron and MDEQ-AQD staff present during the inspection.

Jenny Lang (MDEQ-AQD)
Jamie Dole (Dow, Air Delivery Specialist)
Kayla Peacock (Dow, Air Delivery Specialist)
Meagan Martuch (Styron, Environmental Tech)
Justin Huschke (Styron, Responsible Care Leader)
Katie Frankowski (Styron, Improvement Engineer)

EU33-S2 (Styrene Copolymer Facility - MARS)

Compliance Status: Compliance

Items noted during the inspection.

- Condition no. VI.1 of table EU33-S2 of ROP No. MI-ROP-A4033-2011b (hereinafter "ROP") requires Styron to monitor and record the firebox temperature of each EU33-S2 process heater (i.e., FH1930 & FH1940) on a continuous basis (i.e., at least one data point every 15-minutes). Condition no. IV.1 of the same table in the ROP states Styron shall not operate EU33-S2 unless at least one of the process heaters is installed, maintained, and operated in a satisfactory manner (except as allowed in table EU33-S2 of the ROP). Satisfactory operation of the process heaters includes, but is not limited to, maintaining a minimum batch cycle daily average firebox temperature of 550 degrees C. Based upon continuous monitoring data provided during the inspection for 8/30/13 (see attached), the firebox temperature of furnace FH1940 (the furnace accepting process gas) was greater than 550 degrees C. Styron operates furnace FH1940 as its primary furnace and furnace FH1930 as its secondary or backup furnace. EU33-S2 was not operating at the time of my inspection due to a maintenance turnaround and lack of demand. August 30, 2013 was the last time this emission unit was in production mode. According to Styron, one heater typically receives process gas while the other is kept at ready state. Styron confirmed that a furnace malfunction would typically cause them to switch furnaces. Based upon continuous monitoring data provided during the inspection for 8/30/13 (see attached), backup furnace FH1940 had a firebox temperature between 200 – 300 degrees F. According to the latest Notification of Compliance Status Report (NOCSR) for 40 CFR Part 63, Subpart JJJ (P&R IV MACT), these furnaces are exempt from the requirements of Subpart JJJ as they're process heaters with streams introduced with primary fuel.
- Condition no. VI.3 of table EU33-S2 of the ROP requires Styron to maintain a current list of the materials used in EU33-S2 that are determined to be exempt from the health-based screening level requirement of Rule 225. The list shall include the compound name, the CAS number and a calculation demonstrating the emission rate of each material. According to Styron, this information was provided in the permit to install (PTI) application and it hasn't changed since it was submitted.
- Condition no. VI.4 of table EU33-S2 of the ROP requires Styron to record the time and duration of each bypass of venting the EU33-S2 process to the process heaters including cause of bypass (i.e., malfunction

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or startup/shutdown (S/S)). Condition nos. III.1 and 2 of the same table in the ROP limit bypass due to malfunction and S/S to 864 and 4380 hours, respectively (based on a 12-month rolling time period as determined at the end of each calendar month). Based upon data provided during the inspection (see attached), the 12-month rolling total bypass time due to malfunction and S/S through August 2013 was 10 and 2106 hours, respectively.

4. Condition no. VI.5 of table EU33-S2 of the ROP requires Styron to calculate the styrene emission rate from EU33-S2 monthly, for the preceding 12-month rolling time period. Condition no. I.1 of the same table in the ROP limits styrene emissions to 1.0 tpy based on a 12-month rolling time period (not to include fugitive emissions (i.e., emissions from valves, flanges, etc.)). Based upon information provided during the inspection for September through August 2013 (see attached), the 12-month rolling total styrene emissions were 0.05 tpy.
5. Condition no. IX.1 of table EU33-S2 of the ROP requires Styron to comply with the HON (40 CFR Part 63, Subpart H). On September 16, 2013, the AQD received the HON periodic report for EU33-S2. This report covers reporting period 1/1/13 – 6/30/13. According to the report, there was one visual leaker in April 2013 that was deemed "non-repairable". More specifically, pump 6176 at the US-10 tank farm was found leaking on 4/16/13 and placed on delay of repair on 4/19/13 because the equipment was isolated from the process and did not remain in VOC service. The pump was repaired, monitored, and placed back in service on 5/2/13. Further, according to the report, there were no startup or shutdown events during the reporting period that caused the source to exceed any applicable emission limitation in the relevant emission standard to be exceeded. Also, there were no malfunction events during the reporting period which caused, or had the potential to cause, the emission limitations in the applicable standard to be exceeded.
6. Condition no. IX.2 of table EU33-S2 of the ROP requires Styron to comply with 40 CFR Part 63, Subpart JJJ. On September 16, 2013, the AQD received the Subpart JJJ periodic report for EU33-S2. This report covers reporting period 1/1/13 – 6/30/13. According to the report, there were no compliance exceptions as specified in 63.1335(e)(6)(iii) through (e)(6)(ix) for the 6-month period covered by the report and no activities specified in paragraphs (e)(6)(iii) through (e)(6)(ix) occurred during the 6-month period covered by the report.
7. An updated NOCSR for EU33-S2 was submitted by Styron as part of the periodic report for 40 CFR Part 63, Subpart JJJ. This update was received on 9/16/13. During the inspection, Styron staff informed me that the NOCSR was updated to include documentation of where they're sending waste trailers.

B1053-FG290 (Burn Off Oven)

Compliance Status: Compliance

Items noted during the inspection.

1. Based upon the process description provided during the inspection (see attached), this oven is used to burn off polymer that has accumulated on vent pipes, dies, spargers, fittings, pumps and other misc. pieces of equipment. Emissions from the process are characterized as "uncontrolled" for the purpose of Rule 290.
2. Based upon information provided during the inspection (see attached), the total estimated worse case emissions of non-carcinogenic air contaminants (excluding 122(f) listed material) with an ITSL value ≥ 2 $\mu\text{g}/\text{m}^3$ is 0.248 lbs/mo uncontrolled. According to AQD Rule 290 limits, Dow can not exceed 1000 lbs/mo uncontrolled.
3. Based upon information provided during the inspection (see attached), the total estimated worse case emissions of non-carcinogenic air contaminants (excluding 122(f) listed material) with an ITSL value ≥ 0.04 $\mu\text{g}/\text{m}^3$ and < 2 $\mu\text{g}/\text{m}^3$ is 0.248 lbs/mo. According to AQD Rule 290 limits, Dow can not exceed 20 lbs/mo uncontrolled.
4. Based upon information provided during the inspection (see attached), the total estimated worse case emissions for carcinogenic air contaminants with an IRSL ≥ 0.04 $\mu\text{g}/\text{m}^3$ is 0.22 lbs/mo uncontrolled. According to AQD Rule 290 limits, Dow can not exceed 20 lbs/mo uncontrolled.
5. Based upon information provided during the inspection (see attached), the total estimated uncontrolled emissions from the process will not exceed 1 lb/mo. According to AQD Rule 290 limits, Dow can not exceed 1000 lbs/mo. It should be noted that no particulate matter is emitted from this process.

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6. Based upon Dow's monthly air emission estimate for August 2013 (see attached), total emissions from the process for the month were less than 0.1 pounds.

B1350-FG290 (Alumina Scrubber)

Compliance Status: NA

Items noted during the inspection.

1. This Rule 290 emission unit was not inspected as Styron informed me that it had been inactivated (i.e., not connected to the process, air gaps) and was expected to be demoed by the end of the year.

EUB1-S2 (S/B Latex Facility)

Compliance Status: Compliance

Items noted during the inspection.

1. EUB1-S2 has 5 reaction trains which can be used to make 5 different products at the same time. EUB1-S2 makes approximately 80 different products.
2. EUB1-S2 uses the 963 THROX as its primary control device. EUB1-S2 also has a backup TOX that it can use in the event the 963 THROX goes down. The backup TOX is dedicated to EUB1-S2 and is not used by any other facility. EUB1-S2 also has a surge control vessel which can be used to store vent gas for up to a day or less. Storage time for the surge control vessel will vary depending upon which reactions they're running and how hard they're running. This vessel is used to store vent gas until either oxidation unit is available for use.
3. Styron runs the backup TOX once per month to make sure it's running properly. During this run period, Styron gets the unit up to minimum temperature (i.e., 800 degrees C) using natural gas, and opens the valve to burn process vent gas.
4. EUB1-S2 always uses the backup TOX during 963 THROX maintenance turnaround. Maintenance turnaround for the THROX typically occurs in September of each year. At the time of my inspection, EUB1-S2 was in production mode.
5. **Condition no. VI.1 of table EUB1-S2 of the ROP requires Styron to monitor and record the firebox temperature of the backup TOX on a continuous basis (i.e., once every 15-minutes). According to data provided to me during the inspection for 9/16/13 (see attached), Styron appears to be monitoring and recording the temperature of the backup TOX on a continuous basis. Condition no. III.1 of the same table in the ROP and Subpart U require the backup TOX to run at or above 800 degrees C. For the purpose of determining compliance with Subpart U when the backup TOX is in use, Subpart U requires a daily average of temperature data. According to data provided to me during the inspection for 9/16/13 (see attached), the temperature of the TOX appeared to be above 800 degrees C, based on a daily average, when the valve was open (i.e., vent gas to the TOX). The temperature cycles observed in the attached data were due to the pressure limit of their surge tank. As mentioned above, EUB1-S2 has a surge control vessel which can be used to store vent gas prior to sending it to the 963 THROX or backup TOX.**
6. Condition no. IV.1 of table EUB1-S2 of the ROP states Styron shall not operate the portions of the system which are ducted to the afterburner/scrubber control system (963 THROX including control) unless the afterburner/scrubber or backup afterburner are installed and operating properly. I did not inspect the 963 THROX and its associated scrubber control system during my inspection as I previously inspected it on 4/18/12 and 6/11/12 and found it to be in compliance with air quality rules and regulations.

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7. Condition no. VI.2 of table EUB1-S2 of the ROP requires Styron to calculate and record emissions from the process for the previous calendar month to demonstrate compliance with the 12-month rolling time period emission limits specified in the permit. Based upon data provided to me during the inspection (see attached), the 12-month rolling sum of additives (non-carcinogenic air contaminants with ITSL > or = 2 ug/m³) and butadiene emissions as of August 2013 was 3.7 and 378.3 pounds, respectively. Condition nos. 1.2 and 3 of the same table in the ROP limits additive and butadiene emissions to 43.3 and 720 pounds per year, respectively, based on a 12-month rolling time period as determined at the end of each calendar month.
8. EUB1-S2 is subject to 40 CFR Part 63, Subpart U. The latest Subpart U semi-annual report was received by the MDEQ-AQD on 9/16/13. This report covers reporting period 1/1/13 – 6/30/13. According to the report, there were no compliance exceptions as specified in 63.506(e)(6)(iii) through (e)(6)(ix) for the 6-month period covered by the report and no activities specified in paragraphs (e)(6)(iii) through (e)(6)(ix) occurred during the 6-month period covered by the report.
9. The latest NOCSR received by the MDEQ-AQD for EUB1-S2 and Subpart U is dated 8/25/10. There were no revisions to the NOCSR with the latest semi-annual MACT report received on 9/16/13.
10. EUB1-S2 is subject to 40 CFR Part 63, Subpart H. The latest Subpart H semi-annual report was received by the MDEQ-AQD on 9/16/13. This report covers reporting period 1/1/13 – 6/30/13. According to the report, there were no delay of repairs for subject equipment.

FGCOLDCLEANERS-S2

Compliance Status: Non-Compliance (i.e., condition no. VI.1 of table FGCOLDCLEANERS-S2 in the ROP)

Items noted during the inspection.

Styron currently operates one cold cleaner where the solvent is not heated, and it's associated with EU33-S2 (MARS). It's referred to as Safety Kleen Model 81. During the inspection, Dow provided me with their operating procedures for this cold cleaner (see attached – entitled "MARS Using the Parts Washer"). This procedure appears to indicate that Styron is complying with the requirements of table FGCOLDCLEANERS-S2 of the ROP for this device.

Styron also uses two flat plate cleaners (i.e., FPHC-North & FPHC-South). These cleaners are used at the ABS process (EU31-S2), typically during process shutdown. The last time these cleaners were used was on 4/20/12. The solvent in the cleaners is heated above 120 degrees F. Styron indicated they were complying with the freeboard height to width ratio requirement (i.e., 0.7) specified in condition no. IV.5.a of table FGCOLDCLEANERS-S2 in the ROP. During the inspection, I asked for the weekly temperature monitoring records for the solvent as this is a requirement of condition no. VI.1 of table FGCOLDCLEANERS-S2 in the ROP. Styron told me that they only had monthly records. Later, following the inspection, Jamie Dole informed me that they only monitor/record the temperature monthly as this was the required frequency in the table prior to renewing the ROP. Dow/Styron did not realize the frequency had changed with renewal and neither did I. Because neither Dow/Styron or I was aware of the change in monitoring/recordkeeping frequency, and because Dow/Styron is working to resolve this issue site-wide, I am not issuing a violation notice for this non-compliance issue.

Prior to completing the inspection, I asked Styron to email the records required by condition nos. VI.1, 2 and 3 of table FGCOLDCLEANERS-S2 in the ROP (listed below). As of 10/17/13, I received all of the requested information. Based upon the information received (see attached), it appears the cold cleaners located at Styron are in compliance with the conditions listed below with the exception of condition no. VI.1 of table FGCOLDCLEANERS-S2 in the ROP which is discussed above. Condition nos. VI.1, 2 and 3 state:

1. For each new cold cleaner in which the solvent is heated, the solvent temperature shall be monitored and recorded at least once each calendar week during routine operating conditions. **(R 336.1213(3))**
2. The permittee shall maintain the following information on file for each cold cleaner: **(R 336.1213(3))**
 - a. A serial number, model number, or other unique identifier for each cold cleaner.
 - b. The date the unit was installed, manufactured or that it commenced operation.
 - c. The air/vapor interface area for any unit claimed to be exempt under Rule 281(h).

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- d. The applicable Rule 201 exemption.
 - e. The Reid vapor pressure of each solvent used.
 - f. If applicable, the option chosen to comply with Rule 707(2).
3. The permittee shall maintain written operating procedures for each cold cleaner. These written procedures shall be posted in an accessible, conspicuous location near each cold cleaner. (R 336.1611 (3), R 336.1707(4))

Styron indicated that condition no. VI.4 of table FGCOLDCLEANERS-S2 does not apply as they do not store waste solvent in non-closed containers.

NAME Jenny Styron

DATE 10/18/13 SUPERVISOR C. Aune

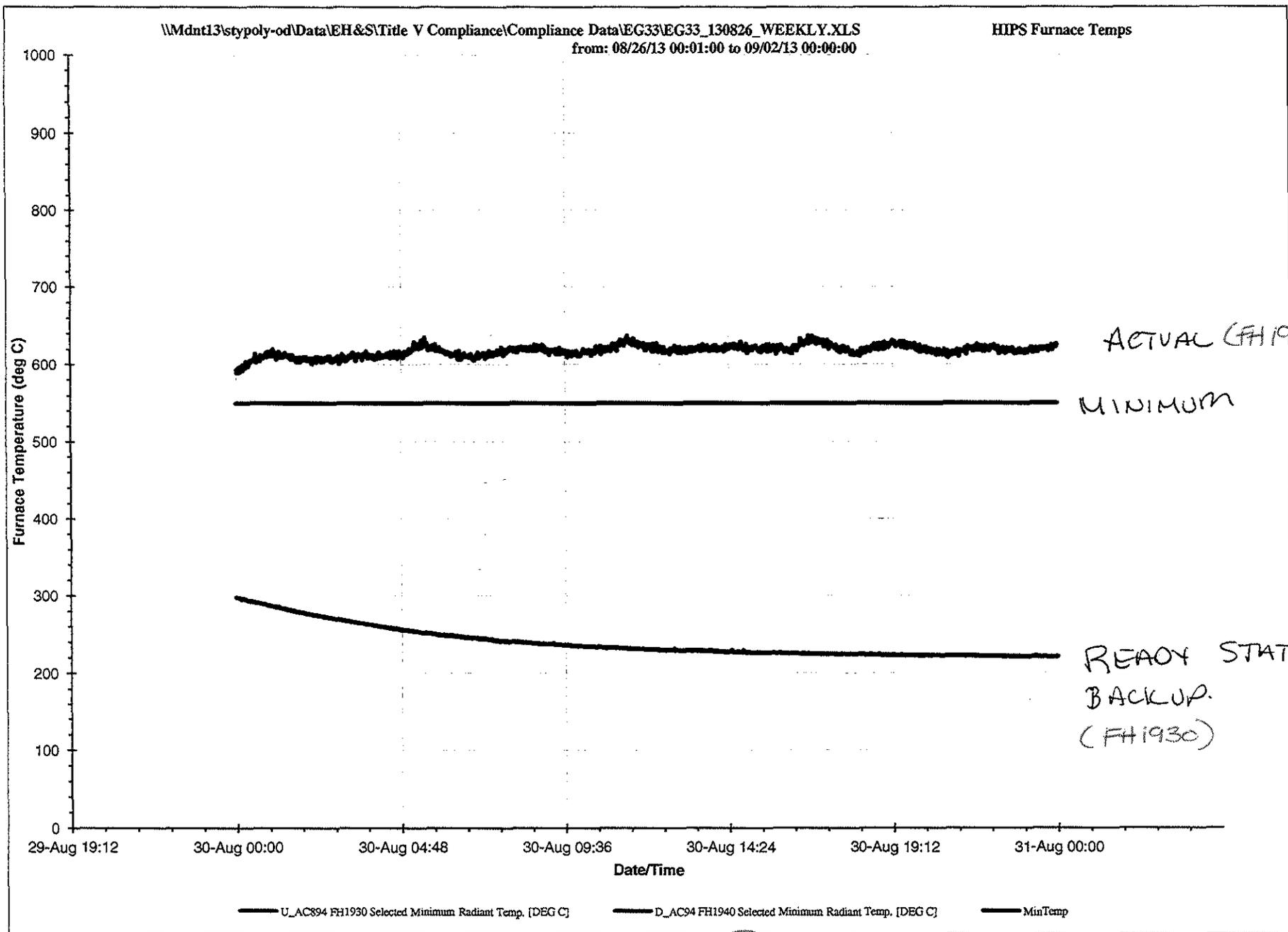
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EU33 HTF

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SECONDARY

PRIMARY

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E033

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12- Month Rolling Summary

	2012	2012	2012	2012	2012	2012	2013	2013	2013	2013	2013	2013	2013	2013
	July	August	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	August
Vent (SVEG33004) Furnace down-Venting to ATM (Malfunction)														
<i>Time furnace bypassed (Hr) (Must be < 864) =</i>	62	62	62	62	60	58	58	55	55	55	55	55	1	10
Vent (SVEG33004) Furnace down-Venting to ATM (Inventory Control)														
<i>Time furnace bypassed (Hr) (Must be < 4380) =</i>	1489	1411	1276	1552	1552	2043	2221	2221	2221	2106	2106	2106	2106	2106
<i>12 month rolling sum of total Styrene (t/yr)</i>	0.04	0.03	0.03	0.03	0.03	0.04	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.05

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Beringer Oven

Process Description

This exemption is for the use of a Beringer® Oven (burn-off oven) in the Styrene Polymer production facilities. This oven is used to burn off polymer that has accumulated on vent pipes, dies, spargers, fittings, pumps and other misc. pieces of equipment.

The oven consists of a closed insulated chamber with internal heaters, into which parts are placed for cleaning. A primary trap beneath the chamber collects polymer which drains from the parts. A secondary trap, fitted with water spray nozzles, condenses and collects vapors before they can enter the vacuum pump. This vacuum pump evacuates the chamber during cleaning, preventing burning of the hot polymer. Emissions from the vacuum pump are sent through a vent stack which exits on the roof of 658 Bldg.

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R290

9/17/13

Enclosure No. 3. Summary of Process Emissions (Without Controls)

Process/Project:
Beringer Oven

Dow File No
B1053-burn off oven:

Compound (Source)	ITSL/IRSL Data				Emission Rate (lb/month)
	(µg/m ³)	Avg. Time	Basis	Date	
I. Noncarcinogenic Volatile Organic Compounds					
1.	na	na	na	na	
2.	"	"	"	"	
3.	"	"	"	"	
4.	"	"	"	"	
Subtotal (shall not exceed 1000 lbs/month) =					
II. Noncarcinogenic Air Contaminants with ITSL's ≥ 2 µg/m³					
	(µg/m ³)	Avg. Time	Basis	Date	
1. VOC's as Butane					
2.					
3.					
4.					
Subtotal (shall not exceed 1000 lbs/month) =					0.248
III. Noncarcinogenic Air Contaminants with ITSL's ≥ 0.04 µg/m³ and < 2 µg/m³					
	(µg/m ³)	Avg. Time	Basis	Date	
1. N-phenyl maleimide	34	4 hr	ITSL	2/26/04	0.248
2.					
3.					
4.					
Subtotal (shall not exceed 20 lbs/month) =					0.248
IV. Carcinogenic Air Contaminants with IRSL's ≥ 0.04 µg/m³					
1. Benzene					0.011
2. Styrene					0.18
3. Ethylbenzene					0.03
4.					
Subtotal (shall not exceed 20 lbs/month) =					0.22
V. Air Contaminants with ITSL or IRSL < 0.04 µg/m³:					None allowed.
VI. Total uncontrolled emissions (shall not exceed 1000 lbs/month) =					1
VII. Particulate Emissions (if not included in emissions above)					<u>NA</u>
<ul style="list-style-type: none"> • Controlled by fabric filter collector system or equivalent? • Particulate concentration less than 0.01 lb / 1000 lb exhaust gas? • Exhaust gas flow rate less than 30,000 acfm? • Visible emissions less than 5% opacity? • All particulates noncarcinogenic, ITSL > 2 µg/m³? 					
Must answer yes to each item to be exempt, or NA if no particulates					

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9/18/13

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Beringer Oven Emissions Calculations

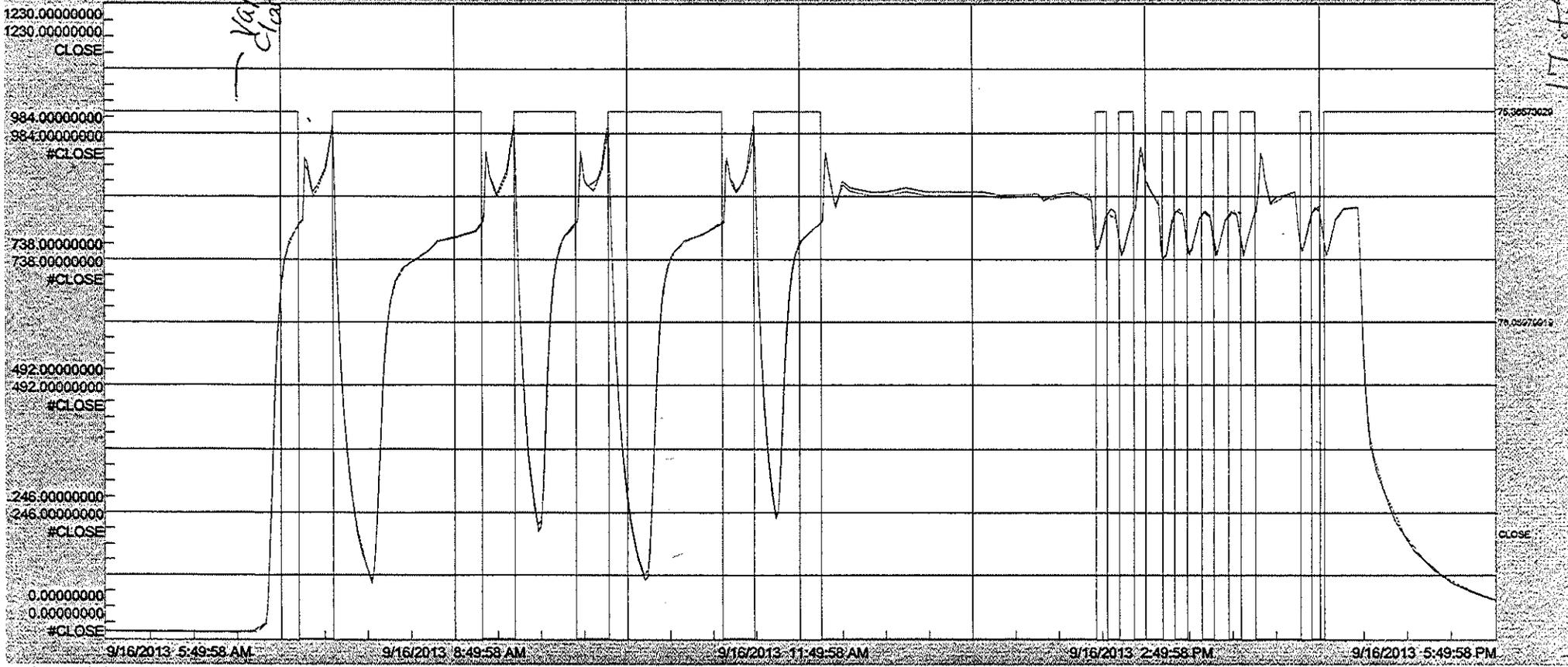
	Emissions/
Butene	0.004
Benzene	0.00018
Ethylbenzene	0.00048
Styrene	0.0028
N-phenyl Maleimide	0.004

	Aug-13
Number of Cycles	1
	lb
Butene	0.004
Benzene	0.00018
Ethylbenzene	0.00048
Styrene	0.0028
N-phenyl Maleimide	0.004
Total LBS. (Styrene, Benzene, EB)	0.00346

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Value closed

17.156

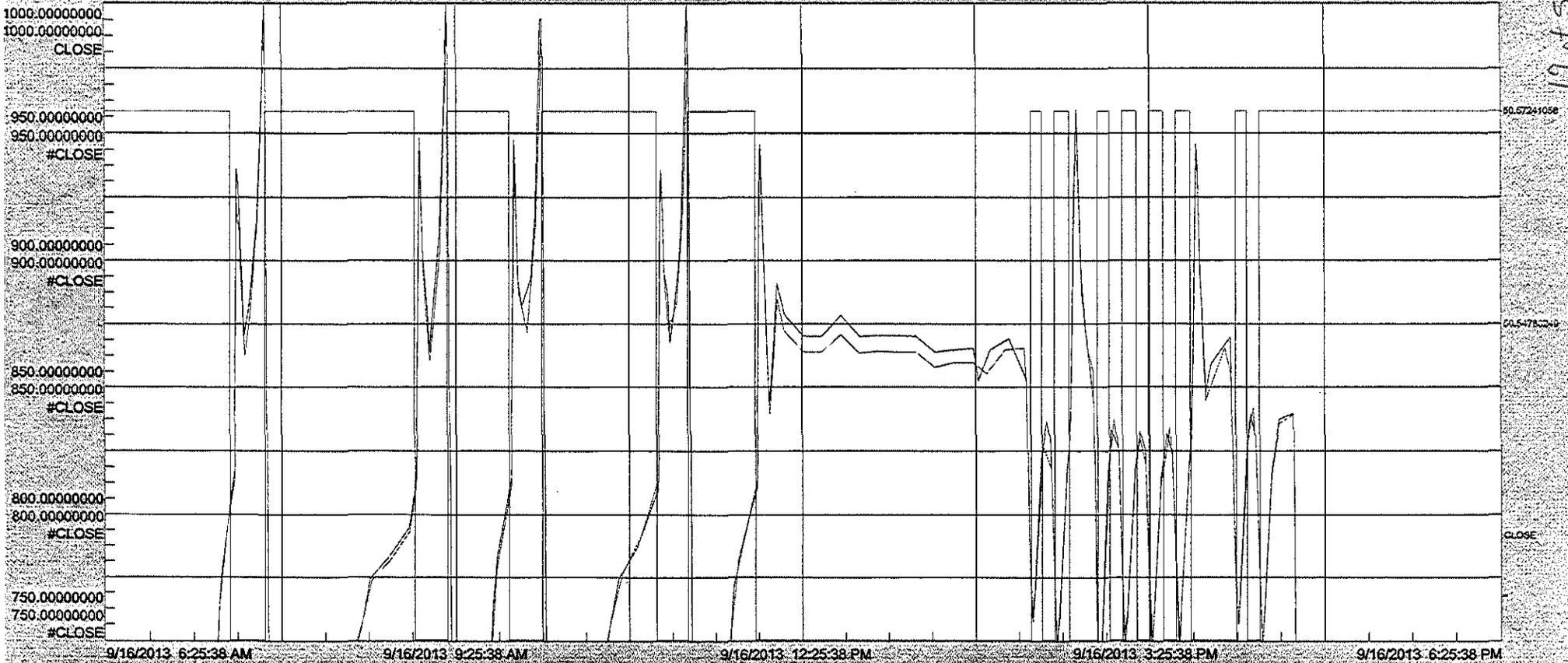


Name	Data Source	Map	Description	Value	Level	Status	Aut	Plot Min	Plot Max	Units	Shift	TZ	Type	Period	Method	Step	Ext
<input type="checkbox"/> h030_al_0619	USMDLPSTY	IP_AIMAP	TOX stack temp #1 [?C] [TT_]	75.36573	Good	Good	<input type="checkbox"/>	0.000000	1230.000	°C	0	0:00:00	Eastern [Best Fit]	1 Hour		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> h030_al_0649	USMDLPSTY	IP_AIMAP	TOX stack temp #2 [?C] [TT_]	76.05979	Good	Good	<input type="checkbox"/>	0.000000	1230.000	°C	0	0:00:00	Eastern [Best Fit]	1 Hour		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> h030_al_0618	USMDLPSTY	IP_DIMAP	TOX SURGE TK to TOX BV #2 [1=CL] [CLOSE]	Invalid T:	Good	Good	<input type="checkbox"/>	#CLOSE	CLOSE		0	0:00:00	Eastern [Best Fit]	1 Hour		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	USMDLPSTY						<input type="checkbox"/>	0	1.2		0	0:00:00		1		<input type="checkbox"/>	<input type="checkbox"/>

Cycles based on Surge tank pressure

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Name	Data Source	Map	Description	Value	Level	Status	Aut Plot	Min	Plot Max	Units	Shift	TZ	Type	Period	Method	Stp	Ext
<input type="checkbox"/> h030_al_0619	USMDLPSTY	IP_AIMAP	TOX stack temp #1 [?C] (TT_)	50.57241	Good	Good	<input type="checkbox"/>	750.0000	1000.000	°C	0 0:00:00	Eastern	[Best Fit]	1 Hour		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> h030_al_0649	USMDLPSTY	IP_AIMAP	TOX stack temp #2 [?C] (TT_)	50.54783	Good	Good	<input type="checkbox"/>	750.0000	1000.000	°C	0 0:00:00	Eastern	[Best Fit]	1 Hour		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> h030_di_0618	USMDLPSTY	IP_DIMAP	TOX SURGE TK to TOX BV #2 [1=CL:CLOSE		Good	Good	<input type="checkbox"/>	#CLOSE	CLOSE		0 0:00:00	Eastern	[Best Fit]	1 Hour		<input checked="" type="checkbox"/>	<input type="checkbox"/>

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EUB1-52
 Additives emission calcs.

9/17/13



Month	Monthly Methanol Emissions (lbs)	12-month rolling average (lbs)	Average Permit Limit (lbs)	12-month rolling sum (lbs)	Sum Permit Limit (lbs)
Jan-12	2.00	0.3	3.6	4.0	43.3
Feb-12	0.00	0.2	3.6	2.9	43.3
Mar-12	0.00	0.2	3.6	2.9	43.3
Apr-12	0.00	0.2	3.6	2.9	43.3
May-12	0.00	0.2	3.6	2.9	43.3
Jun-12	0.92	0.3	3.6	3.8	43.3
Jul-12	0.00	0.3	3.6	3.8	43.3
Aug-12	0.92	0.3	3.6	3.8	43.3
Sep-12	0.00	0.3	3.6	3.8	43.3
Oct-12	0.92	0.4	3.6	4.8	43.3
Nov-12	0.00	0.4	3.6	4.8	43.3
Dec-12	0.00	0.2	3.6	2.8	43.3
Jan-13	0.00	0.2	3.6	2.8	43.3
Feb-13	0.00	0.2	3.6	2.8	43.3
Mar-13	0.00	0.2	3.6	2.8	43.3
Apr-13	0.92	0.3	3.6	3.7	43.3
May-13	0.00	0.3	3.6	3.7	43.3
Jun-13	0.92	0.3	3.6	3.7	43.3
Jul-13	0.00	0.3	3.6	3.7	43.3
Aug-13	0.93	0.3	3.6	3.7	43.3
Sep-13		0.3	3.6	3.7	43.3
Oct-13		0.3	3.6	2.8	43.3
Nov-13		0.3	3.6	2.8	43.3
Dec-13		0.3	3.6	2.8	43.3

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E WBI - S2
 Butadiene

9/17/13



Month	Monthly Butadiene Emissions (lbs)	12-month rolling average (lbs)	Average Permit Limit (lbs)	12-month rolling sum (lbs)	Sum Permit Limit (lbs)
Jan-12	30.7	38.9	60	466.6	720
Feb-12	34.3	39.4	60	472.6	720
Mar-12	37.6	39.4	60	472.6	720
Apr-12	44.6	39.4	60	472.6	720
May-12	31.9	39.4	60	472.7	720
Jun-12	37	36.8	60	431.8	720
Jul-12	37.9	36.4	60	436.3	720
Aug-12	37.4	36.0	60	432.3	720
Sep-12	39.7	37.3	60	447.5	720
Oct-12	39.8	37.4	60	447.9	720
Nov-12	35.3	37.4	60	449.3	720
Dec-12	38.5	36.6	60	439.7	720
Jan-13	35	37.0	60	444.0	720
Feb-13	31.6	36.8	60	441.3	720
Mar-13	43.01	37.2	60	446.7	720
Apr-13	25.1	36.0	60	427.2	720
May-13	19.3	34.6	60	414.6	720
Jun-13	26	33.0	60	403.0	720
Jul-13	24.5	32.5	60	390.2	720
Aug-13	25.5	31.5	60	379.3	720
Sep-13		30.8	60	338.6	720
Oct-13		29.9	60	298.8	720
Nov-13		29.3	60	263.5	720
Dec-13		28.8	60	280.0	720

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9/17/13

MARS Using the Parts Washer

Scope

The purpose of this Procedure is to provide Title V guidance to the personnel working at the Styrene Polymers pant. Compliance with these requirements will allow individuals to comply with all of the requirements and conformance issues of Title V as it pertains to Parts Washers (cold cleaners). This procedure includes the responsibilities associated with the various members of our organization.

Attributes and Categories

Critical Emergency Operating Other / Routine Non-Routine

Health & Safety Hazards

(Check all that apply)

Flammable Noise Eye Strain Slip Hazard Pinch Points
 Electrical Abrasions Dust Weather Thermal Stress
 Back Strain Repetitive Fire Ergonomics Environmental
 Fumes Burns Driving Cuts Chemical expos.
 Rotating Equip Toxic Stairs Lighting Pressure
 Low Oxygen LOPC Heat Stress Other

LOPC Hazards

(Check all that apply)

Overflow Relief device activation Thermal expansion of trapped fluid
 Pinch Points Freeze/Thaw lines Open ended lines
 Corrosion Inadvertent opening Portable container handling
 Joint failure Cam Lock couplings Materials of Construction
 Valve leaking by Vibration/movement Seals (pump, valve packing)
 Flexible connections (boot/hose failure)
 Other

Hazards and precautions

The table below lists job hazards and the precautions that should be taken for safety, environmental, quality, ergonomics, Good Manufacturing Practices, etc... before beginning this procedure.

Hazard	Precaution
Pinch Points, cuts and scrapes	Use caution and wear appropriate gloves when handling parts.
Ergo Injuries	Maintain neutral body posture whenever possible. Avoid repetitive actions with hands and arms.
Spraying one's self with the cleaner.	Keep the wand pointed toward the interior of unit. Wear monogoggles or face shield when using the wand.

Continued on next page

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MARS Using the Parts Washer, Continued

Tools

(Check all that apply)

- | | | | |
|--|---|--|---------------------------------|
| <input type="checkbox"/> Torque Wrench | <input type="checkbox"/> Box End Wrench | <input type="checkbox"/> Explosimeter | <input type="checkbox"/> Stands |
| <input type="checkbox"/> Scott Air Pak | <input type="checkbox"/> Flange separator | <input type="checkbox"/> Laser Alignment | <input type="checkbox"/> Condor |
| <input type="checkbox"/> Dial indicator | <input type="checkbox"/> Channel locks | <input type="checkbox"/> Rope | <input type="checkbox"/> Radios |
| <input type="checkbox"/> Harness/Fall Protection | <input type="checkbox"/> Other | cold cleaner wand | |

PPE

See Department PPE Grid

Tools and equipment

The tools and equipment listed below may be needed to do this job.

Tool/Equipment	Use
Minimum PPE	Minimum: when in the Shops, wear safety glasses with side shields, steel toed boots or shoes, and the appropriate gloves when handling parts to protect hands from solvent exposure. Review key point card.
Additional PPE (as needed)	When using the Parts Washer's sprayer wand, wear either mono goggles or a face shield to avoid potential of splashing solvent in eyes while in operation.
Parts Washer	Review key point card

Before you begin

Read the MSDS information and Key point card attached to your Parts Washer

Safe operating limits

Know and understand the requirements needed to comply with the Title V Air Regulation.

Consequences of Deviation

Type of Deviation	Consequences and How to Avoid
Not following procedure.	Injury to individual(s): Follow procedure. Damage to Styron assets: Follow procedure. Nonconformance deviations: Follow procedure.
Not following standards.	Injury to persons performing work. All Styron Safety Standards must be followed.

Continued on next page

Title V Conformance w/ Parts Washer

Responsibilities

Responsibilities of all Individuals Utilizing the Parts Washers

Step	Action
1	Review the Key Point card and MSDS information located at each unit.
2	Wear appropriate PPE for the task at hand.
3	The lid cover to the parts washer <u>MUST</u> remain closed when not in operation.
4	You <u>may not leave</u> the unit unattended with the lid cover up
5	<u>Do not</u> clean porous or absorbent materials, such as cloth, leather, wood or paper
6	<u>Do not</u> remove devices designed to cover solvent, except to process work or perform maintenance
7	Drain clean parts for a minimum of <u>15 seconds</u> or until dripping ceases.
8	Keep solvent level <u>below</u> the maximum fill level.
9	Store solvent in <u>closed containers</u> and do not allow evaporation into the atmosphere
10	<u>Do not</u> operate the unit if any leak is apparent or occurs during use.
11	If any nonconformance deviations are found, with the Parts Washer, it must be reported to Supervision and EH&S Personnel.

Continued on next page

Lang, Jennifer (DEQ)

From: Lang, Jennifer (DEQ)
Sent: Monday, September 23, 2013 11:49 AM
To: Dole, Jamie (JS) (JSDole@dow.com)
Subject: 9/17/13 Styron Inspection - Questions

Jamie,

I noticed on the Rule 290 enclosure no. 3 worst-case emissions estimate, it lists "VOC's as Butane". However, on the emission calculation spreadsheet for August 2013 it lists "Butene". Which one should it be?

Also, when should I expect copies of the cold cleaner records required by condition nos. VI.1, 2 and 3 in table FGCOLDCLEANERS-S2 of the ROP? I've completed the draft of my inspection report except for the part covering cold cleaners at Styron. Just wondering when I'll receive these records, so I can finish my report.

Thanks ☺

Jennifer Lang, P.E.
Environmental Engineer Specialist
MDEQ - Air Quality Division
989-894-6216 (office)
989-891-9237 (fax)
langj1@michigan.gov

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Lang, Jennifer (DEQ)

From: Dole, Jamie (JS) <JSDole@dow.com>
Sent: Thursday, October 17, 2013 10:12 AM
To: Lang, Jennifer (DEQ)
Subject: RE: EU33 Inspection- Cold Cleaner information

See below.

From: Lang, Jennifer (DEQ) [mailto:LANGJ1@michigan.gov]
Sent: Monday, October 14, 2013 2:43 PM
To: Dole, Jamie (JS)
Subject: RE: EU33 Inspection- Cold Cleaner information

Jamie,

With regard to the "Cold Cleaner Air Compliance" spreadsheet, shouldn't the vapor space for Safety Kleen Model 81 be expressed in terms of cubic feet? Correct. I am not sure why this was recorded this way. However based on a 37 inch length and 36 inch width it has an air/vapor interface of less than 10 ft² and would comply with both R281(h) and R285(r).

Also, for the document entitled "MARS Using the Parts Washer" you emailed me on 10/11/13, this appears to be the same document you provided me during the inspection on 9/17/13. That is, both documents have the same history on page 4. Are they the same? Okay, my mistake ☺

I crossed out "Dow Restricted" on the document entitled "Flat Plat Cleaners Title V ROP Monthly Compliance Checklist". Let me know if this is a problem. Not a problem.

With regard to the temperature readings recorded on for the flat plate cleaners, the temperature recorded for both cleaners was 33 C or 91 F. Was the cleaner in use or was the solvent being heated when these temperatures were recorded? According to condition no. VI.1 of table FGCOLDCLEANERS-S2, the solvent temperature shall be monitored and recorded "during routine operating conditions". During the inspection, I was told that the last time these cleaners were operated was on 4/20/12. The signature date on the compliance checklist is 5/2/12, so I'm wondering if the checklist was completed when the unit was running?

Yes, these were in operation at the time of this reading. Understand that 4/20 is the date the FPH's were put into the cold cleaner and that the cleaning activity normally takes several weeks.

Thanks.

Jennifer Lang, P.E.
Environmental Engineer Specialist
MDEQ - Air Quality Division
989-894-6216 (office)
989-891-9237 (fax)
langj1@michigan.gov

From: Dole, Jamie (JS) [mailto:JSDole@dow.com]
Sent: Friday, October 11, 2013 2:02 PM
To: Lang, Jennifer (DEQ)
Subject: RE: EU33 Inspection- Cold Cleaner information

Sorry for the delay. The temperature recorded for flat plate heaters units in April 2012 was as follows (see attached):

- FPHC- North 33C

- FPHC-South 33C

Jamie

From: Lang, Jennifer (DEQ) [<mailto:LANGJ1@michigan.gov>]
Sent: Thursday, October 03, 2013 11:12 AM
To: Dole, Jamie (JS)
Subject: RE: EU33 Inspection- Cold Cleaner information

A few more things...

With regard to the cold cleaner compliance spreadsheet you sent me, can you answer the following questions?

1. Regarding the model 81 cold cleaner, is the vapor space listed accurately for this model? Based on my understanding, Yes.
2. Regarding the model 81 cold cleaner, what is the Reid vapor pressure of the solvent used? Dow is required to keep this record pursuant to SC no. VI.2.e of table FGCOLDCLEANERS-S2 in the ROP. The Vapor pressure is extremely low (0.2 mm HG at 68 F, See attached).
3. With regard to all three cold cleaners listed on your spreadsheet, is the cover for each of these mechanically assisted? It's required to be mechanically assisted according to R703(3)(a)(ii&iii). Yes.

Jennifer Lang, P.E.
Environmental Engineer Specialist
MDEQ - Air Quality Division
989-894-6216 (office)
989-891-9237 (fax)
langj1@michigan.gov

From: Dole, Jamie (JS) [<mailto:JSDole@dow.com>]
Sent: Thursday, October 03, 2013 8:40 AM
To: Lang, Jennifer (DEQ)
Subject: RE: EU33 Inspection- Cold Cleaner information

Jenny,

The two cold cleaners are identical units and the same procedure is used for both (see attached).

I will need to get the temperature data from the facility.

Regarding questions 3. I am working through this change at the site level. To answer your question the change is pending.

The cold cleaner compliance spreadsheet with the required VI.2 information is also attached.

Jamie

From: Lang, Jennifer (DEQ) [<mailto:LANGJ1@michigan.gov>]
Sent: Wednesday, October 02, 2013 4:08 PM

To: Dole, Jamie (JS)
Subject: RE: EU33 Inspection- Cold Cleaner information

Jamie,

Unfortunately...I have a few more questions.

For FPHC-North and FPHC-South which I presume are the flat plate cleaners at EU31-S2, could you send me the following information:

1. A copy of the written procedures for each of these cold cleaners as required by SC no. VI.3 in table FGCOLDCLEANERS-S2. During the inspection, I received a copy of the written procedures for the cold cleaner at EU33-S2. It was my understanding that this procedure did not cover the flat plate cleaners. I recall Meagan saying that she did not have a copy of the procedures as the only copy was posted at the cleaners.
2. The last solvent temperature recorded for FPHC-North and FPHC-South as required by SC condition no. VI.1 in table FGCOLDCLEANERS-S2. During the inspection, I was told the last time these cleaners were operating was on 4/20/12. Could I have the monthly temperature recorded during this time? I realize the requirement is weekly, but as we previously discussed, Dow was only recording the temperature monthly as this was the frequency specified in the ROP prior to renewal. Dow was unaware that the frequency had changed until now.
3. With regard to the solvent temperature monitoring/recordkeeping issue, has Dow changed its monitoring frequency to weekly until this issue is resolved?

For the cold cleaner at EU33-S2, could you send me the following information:

1. A copy of the records required by condition no. VI.2 of table FGCOLDCLEANERS-S2.

Give me a call if you'd like to discuss any of this further. Thanks.

Jennifer Lang, P.E.
Environmental Engineer Specialist
MDEQ - Air Quality Division
989-894-6216 (office)
989-891-9237 (fax)
langj1@michigan.gov

From: Dole, Jamie (JS) [<mailto:JSDole@dow.com>]
Sent: Tuesday, October 01, 2013 2:45 PM
To: Lang, Jennifer (DEQ)
Subject: EU33 Inspection- Cold Cleaner information

Jenny,

Regarding the R290 VOC information (Butane versus Butene). The material should read Butene.

Regarding the cold cleaner used to clean the flat plate heaters I have the following information:

FYI, this cold cleaner is associated with EU31, not EU33.

The permittee shall maintain the following information on file for each cold cleaner: **(R 336.1213(3))**

- a. A serial number, model number, or other unique identifier for each cold cleaner. FPHC-North and FPHC-South

- b. The date the unit was installed, manufactured or that it commenced operation. At this time we can only state it was installed prior to 1980. For purposes of this responses we will presume is meets the definition of new.
- c. The air/vapor interface area for any unit claimed to be exempt under Rule 281(h). The diameter of the tank is 24 inches with an Air/Vapor interface of 3.1416 Ft².
- d. The applicable Rule 201 exemption. Rule 281(h). See c. above. The air interface is less than 10 ft².
- e. The Reid vapor pressure of each solvent used. 0.02 PSIA
- f. If applicable, the option chosen to comply with Rule 707(2). The unit is monitored to assure it stays below 60 C (140 F). There are two sizes of flat plate heaters that are cleaned. One is 3 feet in height (36 inches), the other is 5 feet in height (60 inches). The cold cleaner was fabricated from an old flat plate heater shipping container that is 78 inches in height. Per their internal procedure they fill the unit with solvent until the hot plate heaters are just covered. Using the taller heaters, the ratio of freeboard height to diameter is:

$$18 \text{ inches} / 24 \text{ inches} = 0.75$$

R336.1707(2) It is unlawful for a person to operate a new cold cleaner using a solvent having a Reid vapor pressure of more than 0.6 psia or heated above 120 degrees Fahrenheit, unless at least 1 of the following conditions is met:

- (a) The cold cleaner is designed such that the ratio of the freeboard height to the width of the cleaner is equal to or greater than 0.7.
- (b) The solvent bath is covered with water if the solvent is insoluable and has a specific gravity of more than 1.0.
- (c) The cold cleaner is controlled by a carbon adsorption system, condensation system, or other method of equivalent control approved by the department

Let me know if you have additional questions,

Jamie

*Revised by MDEAR-AAD
on 10/3/13*

Cleaning Flat Plate Heaters

Scope

This procedure describes the steps to remove polymer from a flat plate heater, using the cleaning tanks located in 771. This procedure includes air permit requirements. Operators oversee cleaning of flat plate heater, including changing of the solvent and providing notification when the flat plate heater is ready to be removed for water blasting. Activity Coordinator schedules the water blasting contractor to clean the flat plate heaters once the polymer is loose enough for final removal.

Categories and attributes

Categories _____ / Attributes (Operating/Other)
 Critical Emergency Operating Other / Routine Non-Routine

Hazards and precautions

Hazard	Precaution
NMP solvent is a skin and eye irritant	<p>Proper PPE for handling NMP include:</p> <ul style="list-style-type: none"> • Respirator if the NMP solvent is hot • Mono goggles if the NMP is at ambient temperature • Chemical resistant gloves – either nitrile (green) or neoprene (blue/black). <p>Also, refer to PPE Grid, located on the wall of the SWP issuers office.</p>
Pinch point between flat plate heater and cleaning tank	<p>Watch for pinch points while lifting and moving flat plate heaters.</p> <p>Do not stand under flat plate heaters when they are moved.</p>

If any physical contact or exposure occurs, report and seek medical treatment immediately!

Tools and equipment

Tools and/or Equipment	Use
N-Methylpyrrolidone (NMP or Safety-Clean Solvent).	Cleaning solvent used to remove polymer from flat plate heaters
Cleaning tank and/or tank covers.	<p>Covers are required on the cleaning tanks if the tanks are empty.</p> <p>Covers over the opening of the flat plate heaters must be in place and secured with bolts if solvent is in the cleaning tanks.</p>

Continued on next page

Cleaning Flat Plate Heaters, Continued

Safe operating limits

NMP solvent temperature should not exceed 60°C.

Consequences of deviation

Type of Deviation	Consequences and How to Avoid
Covers must be in place on cleaning tank or over opening of flat plate heater. The covers must be secured with either bolts or clamps. The FPH Covers are stored on the West wall of 1272 Bldg. The FPH cleaning tanks for 771 Building FPHC-North and FPHC-South have a diameter of 24 inches with an Air/Vapor interface of 3.1416 Ft ²	Title V Deviation and Requirement of the air permit.
The ratio of the solvent freeboard height to the width of the cleaning tank must be equal to or greater than 0.7	Title V Deviation and Requirement of the air permit.
All drums containing NMP solvent (new or used) must be tightly capped	Title V Deviation and Requirement of the air permit.
After removing the flat plate heater from the cleaning tank, allow the heater to drip drain back into the cleaning tank for a minimum of 15 seconds	Title V Deviation and Requirement of the air permit.
A copy of the procedure requirements must be posted at the flat plate heater cleaning station	Title V Deviation and Requirement of the air permit.
NMP solvent temperature greater than its flash point of 92°C (199°F).	Potential fire. Turn off steam to cleaning tanks and allow solvent to cool below 60°C (140°F).

Continued on next page

Cleaning Flat Plate Heaters, Continued

Cleaning Flat Plate Heaters

Step	Action	Initials
1	Verify that there is a gasket present that goes between the cleaning tank and the flat plate heater. Normally used gasket material is Garlon 3510.	
2	Insert the flat plate heaters into the cleaning tanks. The cleaning tanks are located on the south side of the generator, building 11. This task is completed by Riggers and supervised by plant personnel.	
3	Verify that the heaters are positioned correctly so the tanks do not tip over.	
4	Connect a dip pipe to the suction side of the circulating pump to fill the tank with NMP out of drums.	
5	Fill the flat plate heater cleaning tank with NMP (Safety-Clean). Approx 4 drums. Verify that level is covering flat plate heater slots. After the tanks are filled, verify all Safety-Clean drums are tightly capped.	
6	Place the metal cover on top of the flat plate heater. Bolt the cover to the flat plate heater, using min. of 4 nuts to secure.	
7	Start both North and South circulating pumps and visually inspect system piping. Ensure that they are free of leaks and all caps and plugs are secured.	
8	Turn on steam supply to the steam coil and trap to heat the outside of the cleaning tank to heat the solvent. In the event of a steam outage, shut off the flat plate heater cleaning station circulation.	
9	Monitor temperature of the solvent in the cleaning tank. Solvent temperature should not exceed 60°C. (140°F) If solvent temperature exceeds 60°C reduce or shut down the steam flow to the outside of the cleaning tank.	
10	Circulate NMP solvent for approx. 15 days. Contact plant AC to schedule Riggers and Hydro blasters to complete initial water blasting.	
11	Pump NMP from Wash tanks into empty drums. Allow for solvent to properly cool prior to tightening bungs on drums a avoid drums from collapsing under vacuum as solvent cools. Once solvent is at ambient temperature, secure bungs, label solvent as used and transport to warehouse for storage.	

Continued on next page

Cleaning Flat Plate Heaters, Continued

Cleaning Flat Plate Heaters

(continued)

Step	Action	Initials
12	Supervise Flat plate heater removal. FPH need to be transported to the 433B wash area using modified shipping containers located in 1276 building.	
13	Instruct Riggers to place the Flat plate heaters on the cleaning racks located in the 433B wash area. Assure that there is adequate spacing between the heaters to allow hydro-blasters to access all sides of both Flat plate heaters.	
14	Instruct Hydro-blasters to water blast flat plate heaters. To remove any large build-up of polymer and assure there is a path between all the channels.	
15	Schedule Riggers to place partially cleaned Flat plate heaters back in wash tanks for final NMP wash. Follow steps 1 through 3 to complete	
16	Fill the flat plate heater cleaning tank with new NMP (Safety-Clean). Approx 4 drums. Verify that level is covering flat plate heater slots. After the tanks are filled, verify all Safety-Clean drums are tightly capped.	
17	Place metal covers over empty cleaning tanks. Bolt the cover to the flat plate heater, using min. of 4 nuts to secure. Covers are required on the cleaning tanks when not in use and if they contain solvent per the ABS air permit.	
18	Start both North and South circulating pumps and visually inspect system piping. Ensure that they are free of leaks and all caps and plugs are secured.	
19	Turn on steam supply to the steam coil and trap to heat the outside of the cleaning tank to heat the solvent. In the event of a steam outage, shut off the flat plate heater cleaning station circulation.	
20	Monitor temperature of the solvent in the cleaning tank. Solvent temperature should not exceed 60°C. If solvent temperature exceeds 60°C reduce or shut down the steam flow to the outside of the cleaning tank.	

Continued on next page

Cleaning Flat Plate Heaters, Continued

Cleaning Flat Plate Heaters

(continued)

Step	Action	Initials
21	Circulate NMP solvent for approx. 7 days. Contact plant AC to schedule Riggers and Hydro blasters to complete initial water blasting.	
22	Pump NMP from Wash tanks into empty drums. Allow for solvent to properly cool prior to tightening bungs on drums a avoid drums from collapsing under vacuum as solvent cools. Once solvent is at ambient temperature, secure bungs label solvent as used <u>once</u> and transport to warehouse for storage.	
23	Supervise Flat plate heater removal. FPH need to be transported to the 433B wash area using modified shipping containers located in 1276 building.	
24	Instruct Riggers to place the Flat plate heaters on the cleaning racks located in the 433B wash area. Assure that there is adequate spacing between the heaters to allow hydro-blasters to access all sides of both Flat plate heaters.	
25	Instruct Hydro-blasters to water blast flat plate heaters. This is the final cleaning. At this point all polymer must be removed from the Flat plate heater.	
26	Once Hydro-blasters have completed cleaning. Contact Activity Coordinator for final detailed inspection.	
27	<u>Final inspection</u> Activity Coordinator using flashlight needs to complete detailed inspection of cleaned flat plate heater. From the outside of the flat plate heater inspect all slots from top to bottom, 360 degrees. Inspect inside flat plate heater to verify that all polymer has been removed paying special attention to bottom cone.	
28	After completion of final inspection schedule Riggers to transport Clean flat plate heaters to 1276 building for storage.	
29	Verify that all NMP has been removed from Flat plate heater cleaning tanks. Should be at or below bottom outlet line.	
30	Shutoff steam supply to FPH Tank heating coil. Disconnect inlet tubing connection.(South tank) and outlet tubing connection.(North tank)	

Continued on next page

Cleaning Flat Plate Heaters, Continued

Cleaning Flat Plate Heaters

(continued)

Step	Action	Initials
31	Connect air fitting to inlet tubing and allow air to blow out all condensate for heating coil. Blow for approx 2 hours.	
32	Cap both inlet and outlet tubing lines.	
33	Connect steam trap to main steam supply line and reopen steam valve to prevent steam supply line from freezing.	

Signature

This procedure was completed by:

(Name)

(Date)

Continued on next page

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Cleaning Flat Plate Heaters, Continued

Follow-up Procedures

Housekeeping	Clean up area around flat plate heater cleaning tanks.															
Completion of Paperwork	Please be sure that this procedure checklist has been properly initialed and filled out. File this completed procedure checklist in the drop box located on the south wall of the 1350 control room.															
Document and Records Management	The current procedure is filed in the Document Management System, Electronic component (Web EDMS), under Procedures. This list does not include the master electronic copy located on the stypoly-od file server. If a document is located in a place other than the stypoly-od file server, or the location listed below, it is considered uncontrolled .															
Validation	This procedure was validated as the best known way to do this job by: <u>Ron Laitres, Maintenance Leader</u> <u>12/7/2012</u> <small>(Name/ Job Title)</small> <small>(Date)</small>															
Approvals	This procedure was approved by: <u>Lindsay Michalski, Operations Leader</u> <u>12/7/2012</u> <small>(Name/ Job Title)</small> <small>(Date)</small>															
MOC	MOC# ABS2012120002 Date Approved: 1/9/2012															
Revision history	The following information documents at least the last 3 changes to this document, with all the changes listed for the last 6 months.															
	<table border="1"> <thead> <tr> <th>Date</th> <th>Revised By</th> <th>Changes</th> </tr> </thead> <tbody> <tr> <td>4/3/12</td> <td>G. Fox</td> <td>Added some clarification by including the air vapor interface calculation into this document.</td> </tr> <tr> <td>7/27/12</td> <td>R. Laitres</td> <td>Clarified initial and final cleaning steps ABS2012070003</td> </tr> <tr> <td>8/15/2012</td> <td>G. Fox</td> <td>Added a note on where FPH covers are stored</td> </tr> <tr> <td>12/7/2012</td> <td>R. Laitres</td> <td>Updated to Critical procedure</td> </tr> </tbody> </table>	Date	Revised By	Changes	4/3/12	G. Fox	Added some clarification by including the air vapor interface calculation into this document.	7/27/12	R. Laitres	Clarified initial and final cleaning steps ABS2012070003	8/15/2012	G. Fox	Added a note on where FPH covers are stored	12/7/2012	R. Laitres	Updated to Critical procedure
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12/7/2012	R. Laitres	Updated to Critical procedure														

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Revised by MDEG-AOD
on 10/11/13

MARS Using the Parts Washer

Scope

The purpose of this Procedure is to provide Title V guidance to the personnel working at the Styrene Polymers pant. Compliance with these requirements will allow individuals to comply with all of the requirements and conformance issues of Title V as it pertains to Parts Washers (cold cleaners). This procedure includes the responsibilities associated with the various members of our organization.

Attributes and Categories

Critical Emergency Operating Other / Routine Non-Routine

Health & Safety Hazards

(Check all that apply)

Flammable Noise Eye Strain Slip Hazard Pinch Points
 Electrical Abrasions Dust Weather Thermal Stress
 Back Strain Repetitive Fire Ergonomics Environmental
 Fumes Burns Driving Cuts Chemical expos.
 Rotating Equip Toxic Stairs Lighting Pressure
 Low Oxygen LOPC Heat Stress Other

LOPC Hazards

(Check all that apply)

Overflow Relief device activation Thermal expansion of trapped fluid
 Pinch Points Freeze/Thaw lines Open ended lines
 Corrosion Inadvertent opening Portable container handling
 Joint failure Cam Lock couplings Materials of Construction
 Valve leaking by Vibration/movement Seals (pump, valve packing)
 Flexible connections (boot/hose failure)
 Other

Hazards and precautions

The table below lists job hazards and the precautions that should be taken for safety, environmental, quality, ergonomics, Good Manufacturing Practices, etc... before beginning this procedure.

Hazard	Precaution
Pinch Points, cuts and scrapes	Use caution and wear appropriate gloves when handling parts.
Ergo Injuries	Maintain neutral body posture whenever possible. Avoid repetitive actions with hands and arms.
Spraying one's self with the cleaner.	Keep the wand pointed toward the interior of unit. Wear monogoggles or face shield when using the wand.

Continued on next page

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MARS Using the Parts Washer, Continued

Tools

(Check all that apply)

- | | | | |
|--|---|--|---------------------------------|
| <input type="checkbox"/> Torque Wrench | <input type="checkbox"/> Box End Wrench | <input type="checkbox"/> Explosimeter | <input type="checkbox"/> Stands |
| <input type="checkbox"/> Scott Air Pak | <input type="checkbox"/> Flange separator | <input type="checkbox"/> Laser Alignment | <input type="checkbox"/> Condor |
| <input type="checkbox"/> Dial indicator | <input type="checkbox"/> Channel locks | <input type="checkbox"/> Rope | <input type="checkbox"/> Radios |
| <input type="checkbox"/> Harness/Fall Protection | <input type="checkbox"/> Other | cold cleaner wand | |

PPE

See Department PPE Grid

Tools and equipment

The tools and equipment listed below may be needed to do this job.

Tool/Equipment	Use
Minimum PPE	Minimum: when in the Shops, wear safety glasses with side shields, steel toed boots or shoes, and the appropriate gloves when handling parts to protect hands from solvent exposure. Review key point card.
Additional PPE (as needed)	When using the Parts Washer's sprayer wand, wear either mono goggles or a face shield to avoid potential of splashing solvent in eyes while in operation.
Parts Washer	Review key point card

Before you begin

Read the MSDS information and Key point card attached to your Parts Washer

Safe operating limits

Know and understand the requirements needed to comply with the Title V Air Regulation.

Consequences of Deviation

Type of Deviation	Consequences and How to Avoid
Not following procedure.	Injury to individual(s): Follow procedure. Damage to Styron assets: Follow procedure. Nonconformance deviations: Follow procedure.
Not following standards.	Injury to persons performing work. All Styron Safety Standards must be followed.

Continued on next page

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Title V Conformance w/ Parts Washer

Responsibilities

Responsibilities of all Individuals Utilizing the Parts Washers

Step	Action
1	Review the Key Point card and MSDS information located at each unit.
2	Wear appropriate PPE for the task at hand.
3	The lid cover to the parts washer MUST remain closed when not in operation.
4	You may not leave the unit unattended with the lid cover up
5	Do not clean porous or absorbent materials, such as cloth, leather, wood or paper
6	Do not remove devices designed to cover solvent, except to process work or perform maintenance
7	Drain clean parts for a minimum of 15 seconds or until dripping ceases.
8	Keep solvent level below the maximum fill level.
9	Store solvent in closed containers and do not allow evaporation into the atmosphere
10	Do not operate the unit if any leak is apparent or occurs during use.
11	If any nonconformance deviations are found, with the Parts Washer, it must be reported to Supervision and EH&S Personnel.

Continued on next page

Title V Conformance w/ Parts Washer

Related Documents

Title V Monthly Compliance Checklist – Cold Cleaners

Completion of Paperwork

Please be sure that this procedure has been properly initialed and filled out. File this completed procedure in the drop box located on the south wall of the 1350 control room.

Document and Records Management

The current procedure is filed in the Document Management System, Electronic component (Web EDMS), under Procedures. This list does not include the master electronic copy located on the stypoly-od file server. If a document is located in a place other than the stypoly-od file server, or the location listed below, it is considered **uncontrolled**.

The hardcopy of this document is located:

433 B Maintenance Shop on Parts Washer (hanging by magnet)

Validation

This procedure was validated as the best known way to do this job by:

Meaghan Martuch, Environmental Tech
(Name/Job Title)

10/2/2012
(Date)

Approvals

This procedure was approved by:

Lindsay Michalski, Operations Leader
(Name/Job Title)

10/2/2012
(Date)

MOC

MOC# STYPO2012100002

Date Approved: 12/6/2012

Document history

Below are at least the last three revisions of this document, including all revisions within the last three months.

Date	By	Description
10/2/12	M. Martuch	Created document for Styron use

Revised by MDEQ-AOD
on 10/11/13. JH

Flat Plat Cleaners Title V ROP Monthly Compliance Checklist

General Information	• Standard No.:	None, plant decision to check this system
	• Storage Location:	Monthly Checks binder (blank & completed forms)
	• Frequency:	Monthly
	• Retention Schedule:	Current + 5 Year
	• Responsibility:	Mass ABS Plant Engineer
Procedure	• The facility operates under Title V ROP, which has recordkeeping requirements.	
	• Use the procedure below to check compliance with the corresponding requirement.	
Date of Assessment	Month/Year	April, 2012

DESIGN PARAMETERS:	Read each item and check the appropriate box.
Pollution Control Equipment - All of the listed equipment in the ROP Table for this emission group is operational. If you answer no, list the deviation and corrective actions on the "deviation" page. Consider projects/maintenance, MOC's.	No: <input type="checkbox"/> Yes: <input type="checkbox"/> N/A: <input checked="" type="checkbox"/>
Stack/Vent Height Parameters - The vent height/dimension parameters listed in the ROP table for this emission group are correct. If you answer no, list the deviation and corrective action on the "deviation" page. Consider projects/maintenance, MOC's.	No: <input type="checkbox"/> Yes: <input type="checkbox"/> N/A: <input checked="" type="checkbox"/>
Other Design Parameters - The covers are installed and closed when the flat plate heaters are not being handed in the cleaner. If you answer no, list the deviation and corrective action on the "deviation" page. Inspect the cleaners - if not in use, covers must be on	No: <input type="checkbox"/> Yes: <input checked="" type="checkbox"/>
Other Design Parameters - The cover shall be mechanically assisted if the solvent is agitated or heated. If you answer no, list the deviation and corrective action on the "deviation" page. Inspect the cleaners - the clamps/bolts must be on the covers to ensure they are in place.	No: <input type="checkbox"/> Yes: <input checked="" type="checkbox"/>
Other Design Parameters - A device shall be available for draining cleaned parts. If you answer no, list the deviation and corrective action on the "deviation" page. The device is the hoist the riggers are using to lift the heaters and drain back into the cleaner. If the procedure is used, this is yes.	No: <input type="checkbox"/> Yes: <input checked="" type="checkbox"/>

MATERIAL USAGE/EMISSION LIMITS:	Read each item and check the appropriate box.
Material Usage - List the materials and maximum usage rate for the emissions unit.	N/A: <input type="checkbox"/> If this section does not apply
Material - the cleaning solvents shall not contain more than 5% by weight of the following halogenated compounds: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1- trichloroethane, carbon tetrachloride, chloroform, or any combination thereof. Check MOC's and projects to make sure current solvent (NMP) has not been changed.	No: <input type="checkbox"/> Yes: <input checked="" type="checkbox"/>

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Title V Monthly Compliance Checklist, Continued

COMPLIANCE EVALUATION:	
Monitoring and recordkeeping: Below lists the monitoring and recordkeeping requirements for this emissions unit. Determine if the requirements have been met and check the appropriate box. Document all deviations.	Is the unit in compliance with this condition?
Continuous Emission Monitoring (CEM) System and Recordkeeping	No: <input type="checkbox"/> Yes: <input type="checkbox"/> N/A: <input checked="" type="checkbox"/>
Process Monitoring System and Recordkeeping	No: <input type="checkbox"/> Yes: <input type="checkbox"/> N/A: <input checked="" type="checkbox"/>
Other Monitoring and/or Recordkeeping - the date of installation of each cold cleaner. The installation date is not known for these cold cleaners. This requires the rules for be R 336.1707 be followed. The rules to be followed are captured in this document and plant OD.	No: <input type="checkbox"/> Yes: <input checked="" type="checkbox"/>
Other Monitoring and/or Recordkeeping - the ID name/number (including bldg. location) air/vapor interface area and type of solvent used shall be maintained for each cold cleaner. Review cold cleaner operating procedure and ensure information is current.	No: <input type="checkbox"/> Yes: <input checked="" type="checkbox"/>
Other Monitoring and/or Recordkeeping - If the waste solvent is a safety hazard and is stored in non-closed containers, verification that the waste solvent is disposed of so that not more than 20% by weight is allowed to evaporate into the atmosphere shall be made on a monthly basis. Waste solvent is stored in a closed container	No: <input type="checkbox"/> Yes: <input type="checkbox"/> N/A: <input checked="" type="checkbox"/>
Other Monitoring and/or Recordkeeping - The temperature of the heated solvent shall be monitored and recorded on a monthly basis	No: <input type="checkbox"/> Yes: <input checked="" type="checkbox"/>
Take temperature at cleaners and record here South 33°C North 33°C	
Testing/Recordkeeping - List the testing and recordkeeping requirement and verify the emissions unit is in compliance with the requirement.	No: <input type="checkbox"/> Yes: <input type="checkbox"/> N/A: <input checked="" type="checkbox"/>
If any of the above statements are checked NO, there is a compliance check sheet completed listing the corrective action(s).	Yes: <input type="checkbox"/> N/A: <input checked="" type="checkbox"/>

REPORTING:	
Prompt, semi-annual and annual reporting will be triggered via the site responsible person. The data generated from this checksheet will be used to compile the semi-annual and annual reports.	

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Title V Monthly Compliance Checklist, Continued

OPERATIONAL PARAMETERS:		In Compliance?
The air/vapor interface of the cold cleaner is not more than 10 square feet The current cleaners meet this requirement.		No: <input type="checkbox"/> Yes: <input checked="" type="checkbox"/>
The cold cleaner is used for cleaning metal parts and the emissions are released to the general in-plant environment. The current cleaners meet this requirement.		No: <input type="checkbox"/> Yes: <input checked="" type="checkbox"/>
The waste solvent shall be stored only in closed containers. Check the cleaners and drums of solvent to make sure they are closed		No: <input type="checkbox"/> Yes: <input checked="" type="checkbox"/>
Parts shall be drained for not less than 15 seconds or until dripping ceases. Procedure states for parts to be drained for 15 seconds		No: <input type="checkbox"/> Yes: <input checked="" type="checkbox"/>
Routine maintenance has been completed as listed in GEMTS Check if any maintenance was scheduled during the month and that it was completed		No: <input type="checkbox"/> Yes: <input checked="" type="checkbox"/>
The cold cleaner must be designed so the ratio of the freeboard height to the width of the cleaner is equal to or greater than 0.7 Current operations meets this requirement and is documented in the operating procedure. Ensure nothing has changed at the cleaning station		No: <input type="checkbox"/> Yes: <input checked="" type="checkbox"/>
If any of the above statements are checked NO, there is a compliance check sheet completed listing the corrective action(s).		Yes: <input type="checkbox"/> N/A: <input checked="" type="checkbox"/>
If any of the above statements are checked NO and this is a recurring problem (for this month or previous months), a RCI has been completed and documented in the Event and Action tool with long term corrective actions.		Yes: <input type="checkbox"/> N/A: <input checked="" type="checkbox"/>

OTHER REQUIREMENTS:	Read each item and check the appropriate box.	N/A: <input type="checkbox"/>
Written procedures that meet the requirements of the cold cleaner regulation must be posted near the cleaners. Check that the procedure is posted at the cleaning station and that it is up to date and legible.		No: <input type="checkbox"/> Yes: <input checked="" type="checkbox"/>

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Title V Monthly Compliance Checklist, Continued

POTENTIAL DEVIATIONS: If any of the above boxes are marked NO, please note the potential deviation below. Determine root cause and corrective action if applicable. Consider documenting corrective action in the Event and Action tool. These potential deviations will be reviewed and if necessary reported in the semi-annual reporting.

Applicable Table & Condition No#	Occurrence Date & Duration	Previously Reported ¹ ? If Yes enter Date	Method Used to Determine Compliance (If different from ROP specification)	Event Description - include reason event occurred	Corrective Action

¹ If the event was reported under Rule 912 or any other regulatory reporting requirement indicate 'yes' and include the date the report was submitted

Completed by:		The person completing this check sheet shall complete this section.	
Printed Name	Date	Signature	
Jeffrey Hopper	5-2-12	<i>[Signature]</i>	
Reviewed by:		The person reviewing this check sheet shall complete this section.	
Printed Name	Date	Signature	

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Document Control and History

Revision history

The following information documents at least the last 3 changes to this document, with all the changes listed for the last 6 months.

Date	Revised By	Changes
5-17-04	M. Herkner	Added where to take and record temp. of solvent.
2/9/06	L. Borrousch	Review procedure, minor changes.
Jul-07	PDKeptner	Review, no changes to content
7/7/2010	B. Klett	Review; no changes

Document Location (This information should be added when the document is placed in the drop box, to be moved later by the Document Administrator)

Hard Copies

Location 1: 1350 Library/Checking & Corrective Action/Cold Cleaners ROP Monthly Checks

5 year record retention

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Cold Cleaner Air Compliance

→ Air/Vapor interface = 37" x 36"

Bldg contacts listed are responsible to obtain the following information: unit model, unit serial #, length and width of unit for vapor space calculations and whether unit is in service or not.

Location	Unit Information	Leased or Owned	Date Installed	Type of Solvent	Is Unit Heated or Agitated?	Vapor Space	Reid Vapor Pressure	Procedure Posted	Comments
433B	Safety Kleen Model 81	Leased	Oct-12	Premium Gold Solvent Petroleum Distillates	Agitated	37"X36"X52" = 40 sq.ft	0.00 PSIA (0.2 mm Hg @ 68 F)	Yes	R285(r) Equipment used for any of the following metal treatment processes if the process emissions are only released into the general in-plant environment: (iv) Cleaning.
771	FPHC-North	Owned	1980	N METHYL PYRROLIDONE	Heated <60C	diameter of 24 inches with an Air/Vapor interface of 3.1416 Ft ²	0.019 PSIA	Yes	APC Rule 281(h) *-0.067 PSIA Vapor pressure -Freeboard information *Container height: 6.5ft *FPH: 5ft *Liquid must not be filled above 5.1 ft (must be 1.4 ft below top of container)
771	FPHC-South	Owned	1980	N METHYL PYRROLIDONE	Heated <60C	diameter of 24 inches with an Air/Vapor interface of 3.1416 Ft ²	0.019 PSIA	Yes	APC Rule 281(h) *-0.067 PSIA Vapor pressure -Freeboard information *Container height: 6.5ft *FPH: 5ft *Liquid must not be filled above 5.1 ft (must be 1.4 ft below top of container)

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Revised by MDEQ-AOD on 10/11/13. *[Signature]*

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