TECHNICAL MEMORANDUM

TO: Jodi Howard, US EPA/OAQPS/SPPD/RCG

FROM: Eastern Research Group, Inc.

DATE: February 9, 2012

SUBJECT: **Generally Available Control Technology (GACT) Analysis for Area Sources in the Polyvinyl Chloride and Copolymers (PVC) Production Source Category**

1.0 Introduction

This memorandum documents the methodology and results of the analysis of generally available control technology (GACT) options for the polyvinyl chloride and copolymers (PVC) production source category. An analysis of baseline levels of control for the existing area sources is presented as well as analyses of additional control options for the existing area sources. Also presented is an analysis of generally available levels of control for new area sources.

2.0 Existing and New Area Source Facilities

There are two existing non-major (area) sources of hazardous air pollutant (HAP) emissions in the PVC source category, CertainTeed Corporation's Lake Charles, LA facility and Occidental Chemical (OxyVinyls) Corporation's Deer Park, TX facility. Additionally, we do not expect any new area sources will be constructed in the next 5 years.

2.1 Sources of Data

The determination of available technology for the control of emissions from existing area sources was based on data and information available from the two operating area source facilities, CertainTeed Lake Charles and OxyVinyls Deer Park. Data from major sources were also used to determine available control technology for stripped resin subcategories for which no area source data existed. These sources of information and data included the following:

- Facility state operating permits (see Attachment A);
- The companies' responses to US EPA's Clean Air Act Section 114 survey and testing requests (section 114) of August 21, 2009 and March 2011;
- Additional information, data, and comments provided by CertainTeed Lake Charles, or its parent corporation, Saint-Gobain, during development of the PVC source category NESHAP rulemaking or following publication of the proposed rule; and
- Additional information, data, and comments provided by OxyVinyls Deer Park, or its parent corporation, Occidental Petroleum Corporation, during development of the

proposed NESHAP rule for the PVC source category or following publication of the proposed rule.

2.2 Analysis of Data

2.2.1 General Process Description

The CertainTeed Lake Charles facility produces PVC via the bulk resin process in 2 production lines and manufactured 447 million pounds of resin in 2008.Vinyl chloride monomer (VCM) is piped in from off-site and is polymerized in 9 polymerization reactors. Residual vinyl chloride (VC) is removed from the polymerized resin (stripped) in the reactor. Due to the nature of the bulk manufacturing process, the polymerized resin leaving the reactors is not dewatered or dried, but rather routed to resin hoppers where the resin is then screened and sent to storage silos. The resin is loaded into railcars and then shipped off-site. There is a VC recovery system (condenser) to recover VC that is vented from the reactors and wastewater stripper.

Process vents from the reactors are routed to the VC recovery system along with the vent stream from the wastewater stripper where VC is recovered and the remaining gas stream is sent to a thermal oxidizer equipped with a packed bed scrubber for acid control.

The OxyVinyls Deer Park facility produces PVC via the suspension resin process in 2 production lines and has a reported production capacity of 550 million pounds per year. VCM is piped in and is polymerized in 8 polymerization reactors. After polymerization, residual VC is stripped from the polymerized resin in steam strippers. The stripped resin is dewatered in centrifuges and dried in flash dryers. The resin is then pneumatically conveyed, screened, and stored in silos. The resin is transported to customers primarily by rail, with the balance transported by truck. There is a VC recovery system (condensers) to recover VC that is vented from the process.

Process vents, including vents from the resin stripper and the wastewater stripper, are routed to the VCM recovery system and the remaining gas stream is sent to thermal oxidizers equipped with spray nozzle scrubbers for acid control located at OxyVinyls LaPorte VCM plant.

2.2.2 Regulations

The CertainTeed facility is subject to 40 CFR part 61 subpart F, 40 CFR part 61 subpart V, and LA State Air Permit, 0520-00025-05, issued September 29, 2005 (see Attachment A) according to CertainTeed's response to the August 21, 2009 section 114 request.

In addition to the standards, limits, and requirements of the above, the CertainTeed facility must maintain the stripped resin limits as specified in 40 CFR 61.64(e). The methods and procedures of 40 CFR 61.67(g)(6) apply, and the facility must measure and record the residual VC in each batch of PVC product. Furthermore, the facility is subject to a state-only stripped resin permit limit for VC of 10 ppmw (LA specific condition 1).

The CertainTeed facility must maintain continuous monitoring of thermal oxidizer stacks for VC emissions; the stack concentration cannot exceed 10 parts per million by volume (ppmv) over a 3 hour period.

In addition, the CertainTeed facility must maintain a leak detection and repair (LDAR) program that meets 40 CFR part 61 subparts F and V; except with a leak definition of 1000 ppmv (state only permit condition for leak definition). The facility must also operate and maintain an ambient air monitoring system for VC in accordance with 40 CFR 61.65(b)(8)(i).

The OxyVinyls Deer Park facility is subject to 40 CFR part 61 subpart A, 40 CFR part 61 subpart F, 40 CFR part 61 subpart V, 40 CFR part 63 subpart F, 30 TAC 115, 30 TAC 116, 30 TAC 106, 30 TAC 111 and TX State Air Permit, 4673B, issued July 13, 2009 (see Attachment A).

In addition to the standards, limits, and requirements of the above, the OxyVinyls facility must maintain the stripped resin limits as specified in 40 CFR 61.64(e). The methods and procedures of 40 CFR 61.67(g)(3) apply. Furthermore, the OxyVinyls Deer Park is limited to a stripped resin VC limit of 8 ppmv on an annual average basis by the State Air Permit.

2.2.3 Permitted Emissions

The CertainTeed Lake Charles facility has the facility-wide permitted emission rates as shown in Table 1[1]. A breakout of those emissions by permitted emission point is shown in Table 2.

Table 1. Facility-Wide Permitted Emissions for CertainTeed Lake Charles

Pollutant	Permitted Emissions (tons/year)
Carbon monoxide (CO)	5.7
Volatile organic compounds (VOC)	4.41
Vinyl chloride Monomer (VCM)	3.96

[1] See also memorandum titled "Potential to Emit Calculations for CertainTeed – Lake Charles, LA" from Eastern Research Group, Inc. to Jodi Howard, dated April 8, 2011 (Docket ID No. EPA-HQ-OAR-2002-0037) concerning CertainTeed's potential to emit.

Table 2. Permitted Emissions for CertainTeed Lake Charles by Emission Point

Emission Point No.	Emission Point	CO (tons/year)	VOC (tons/year)	VCM (tons/year)
1-76	Boiler	4.2	0.33	-
5-76	Initial Classification (Unit 1 Poly)	-	0.82	0.82
6-76	Crusher Conveyor "B" Product	-	-	-
2-79A	Thermal Oxidizer "A"	0.5	0.26	0.22
2-79B	Thermal Oxidizer "B"	0.5	0.26	0.22
2-79C	Thermal Oxidizer "C"	0.5	0.26	0.22
3-87	Reactor Openings (9 reactors)	-	0.04	0.04
4-87	Fugitives	-	0.5	0.5
1-97	Initial Classification (Unit 2 Poly)	-	0.43	0.43
1-01	Stack (7-76, 8-76, and 9-76)	-	1.51	1.51
1-05	Classification Building #2 Bag-house	-	-	-
Totals		**5.7**	**4.41**	**3.96**

CO – Carbon monoxide
VOC – Volatile organic compounds
VCM – Vinyl chloride monomer

The OxyVinyls Deer Park facility has the facility-wide permitted emission rates[2] as indicated in the attached facility permit, found in Attachment A.

2.2.4 Section 114 Survey Responses

As discussed in a separate memorandum[1], both CertainTeed Lake Charles and OxyVinyls Deer Park facilities were included in the August 21, 2009, section 114 which collected data related to facility operations, emissions testing and resin sampling. As noted in the memorandum[1], CertainTeed Lake Charles did not provide 30-day resin sampling information. As also discussed in the memorandum[1], during the Deer Park facility emissions testing in response to the August 21, 2009 section 114, only the process vents from the PVC production were routed to the control system operated by OxyVinls LaPorte facility. OxyVinyls Deer Park provided additional emissions testing information in response to the March 16, 2011 section 114. For the March 2011 section 114, OxyVinyls performed emissions testing under normal operating conditions (i.e., all process vents normally routed to the control device were being controlled). The facility responses to the August 21, 2009 and March 2011 section 114 can be found in the docket.

3.0 Determination of Currently Available Level of Control at Existing Area Sources

The level of control currently available to the existing area sources was determined for process vents, stripped resin, wastewater, equipment leaks, heat exchangers, storage tanks and other emission sources. The following section describes how the level of control currently available to the existing area sources was determined for each emission point.

[2] See also memorandum titled "Potential to Emit Calculations for OxyVinyls – Deer Park, TX" from Eastern Research Group, Inc. to Jodi Howard, dated January 9, 2012 (Docket ID No. EPA-HQ-OAR-2002-0037) concerning Deer Park's potential to emit.

3.1 Process Vents

The CertainTeed Lake Charles facility operates a PVC-only process vent, as defined in a separate memorandum[2]. The OxyVinyls Deer Park facility operates a PVC-combined process vent, also defined in a separate memorandum[2]. The level of control currently available was determined for each type of process vent. The level of control for both types of process vents was determined in a similar fashion to the MACT floors determined for process vents at major sources[2] except that data from only the single area source in each subcategory were analyzed. Data variability was incorporated into the level of control currently available using the same methodology as described in the memorandum "Revised Maximum Achievable Control Technology (MACT) Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category[2]." Non-detect (ND) values were also incorporated in the same manner as described the aforementioned memorandum.

3.1.1 PVC-Only Process Vents

The CertainTeed Lake Charles facility submitted emissions testing information in response to the August 21, 2009, section 114 for VC, chlorinated dibenzodioxin and chlorinated dibenzofurans (CDD/CDF), total organic HAP and total hydrocarbons (THC). The level of control currently available for PVC-only process vents was determined using the CertainTeed Lake Charles emissions testing data. Tables 3 through 6 present the results of the variability analysis for VC, CDD/CDF, total organic HAP and THC for PVC-only process vents at area sources. The PVC-only process vent analysis for the level of control currently available at existing area sources is presented in Attachment B.

Table 3. Current Level of Control Available at PVC-Only Area Sources – VC

	Normal	Lognormal
Sample Size	3.00	3.00
Non-Detects	0	0
Average (ppmvd)	5.24	1.66
Median (ppmvd)	5.24	1.66
Standard Deviation (ppmvd)	1.00E-02	1.91E-03
Minimum (ppmvd)	5.23	1.65
Maximum (ppmvd)	5.25	1.66
Skewness	0	-2.86E-03
SE Skewness	1.41	1.41
Skewness Test	Normal	Normal
Kurtosis	NA	NA
SE Kurtosis	NA	NA
Kurtosis Test	NA	NA
99.0% t-statistic for UPL	6.96	6.96
99.0% UPL (ppmvd)	5.30	5.30
Detection Limit Analysis		
Average (ppmvd)		5.24
RDL (ppmvd)		1.84E-01
3x RDL(ppmvd)		5.52E-01
UPL Value Using Normally Distributed Data		
99.0% UPL (ppmvd)		5.3
UPL Value Using LN Transformed Data		
99.0% UPL (ppmvd)		5.3

ppmvd – Parts per million by volume dry basis corrected to 3 percent oxygen
SE – Standard error (applied to skewness or kurtosis)
UPL - Upper prediction limit
DL – Detection limit
LN – Log normal
NA – Analysis not applicable (limited number of data points)
3x Max DL – Maximum detection limit less than or equal to average multiplied by 3

Table 4. Current Level of Control Available at PVC-Only Area Sources – CDD/CDF (TEQ)

	Normal	Lognormal
Sample Size	3.00	3.00
Average (ng/dscm)	3.11E-02	-3.56
Median (ng/dscm)	2.29E-02	-3.78
Standard Deviation (ng/dscm)	1.73E-02	5.15E-01
Minimum (ng/dscm)	1.94E-02	-3.94
Maximum (ng/dscm)	5.09E-02	-2.98
Skewness	1.65	1.53
SE Skewness	1.41	1.41
Skewness Test	Normal	Normal
Kurtosis	NA	NA
SE Kurtosis	NA	NA
Kurtosis Test	NA	NA
99.0% t-statistic for UPL	6.96	6.96
99.0% UPL (ng/dscm)	1.29E-01	5.30E-01
Detection Limit Analysis		
Average (ng/dscm)		3.11E-02
RDL[1] (ng/dscm)		1.25E-02
3x RDL[1] (ng/dscm)		3.74E-02
UPL Value Using Normally Distributed Data		
99.0% UPL (ng/dscm)		1.29E-01
UPL Value Using LN Transformed Data		
99.0% UPL (ng/dscm)		5.30E-01

[1] – Calculated based on data from various industries[3]
ng/dscm – nanograms per dry standard cubic meter, corrected to 3 percent oxygen, toxic equivalency basis
SE – Standard error (applied to skewness or kurtosis)
UPL - Upper prediction limit
DL – Detection limit
LN – Log normal
NA – Analysis not applicable (limited number of data points)
RDL – Representative detection limit

Table 5. Current Level of Control Available at PVC-Only Area Sources – Total Organic HAP

	Normal	Lognormal
Sample Size	3.00	3.00
Non-Detects	3.00	3.00
Average (ppmvd)	73.7	4.29
Median (ppmvd)	75.5	4.32
Standard Deviation (ppmvd)	10.7	1.49E-01
Minimum (ppmvd)	62.2	4.13
Maximum (ppmvd)	83.4	4.42
Skewness	-7.36E-01	-9.07E-01
SE Skewness	1.41	1.41
Skewness Test	Normal	Normal
Kurtosis	NA	NA
SE Kurtosis	NA	NA
Kurtosis Test	NA	NA
99.0% t-statistic for UPL	6.96	6.96
99.0% UPL (ppmvd)	135	171
Detection Limit Analysis		
Average (ppmvd)		73.7
RDL (ppmvd)		1.81
3x RDL (ppmvd)		5.42
UPL Value Using Normally Distributed Data		
99.0% UPL (ppmvd)		135
UPL Value Using LN Transformed Data		
99.0% UPL (ppmvd)		171

ppmvd – Parts per million by volume dry basis corrected to 3 percent oxygen
SE – Standard error (applied to skewness or kurtosis)
UPL - Upper prediction limit
DL – Detection limit
LN – Log normal
NA – Analysis not applicable (limited number of data points)
RDL – Representative detection limit

Table 6. Current Level of Control Available at PVC-Only Area Sources – THC

	Normal	Lognormal
Sample Size	3.00	3.00
Average (ppmvd)	16.6	2.78
Median (ppmvd)	15.3	2.72
Standard Deviation (ppmvd)	5.05	2.96E-01
Minimum (ppmvd)	12.4	2.51
Maximum (ppmvd)	22.2	3.10
Skewness	1.10	78.9E-01
SE Skewness	1.41	1.41
Skewness Test	Normal	Normal
Kurtosis	NA	NA
SE Kurtosis	NA	NA
Kurtosis Test	NA	NA
99.0% t-statistic for UPL	6.96	6.96
99.0% UPL (ppmvd)	45.32	86.912
Detection Limit Analysis		
Average in variability analysis (ppmvd)		16.6
RDL (ppmvd)		8.45E-01
3x RDL (ppmvd)		2.53
UPL Value Using Normally Distributed Data		
99.0% UPL (ppmvd)		45.3
UPL Value Using LN Transformed Data		
99.0% UPL (ppmvd)		86.9

ppmvd – Parts per million by volume dry basis corrected to 3 percent oxygen as propane
SE – Standard error (applied to skewness or kurtosis)
UPL - Upper prediction limit
DL – Detection limit
LN – Log normal
NA – Analysis not applicable (limited number of data points)
RDL – Representative detection limit

3.1.2 PVC-Combined Process Vents

The OxyVinyls Deer Park facility submitted emissions testing information in response to the August 21, 2009, section 114 for VC, CDD/CDF, and total organic HAP; however, testing was performed under non-normal operating conditions[3]. The facility submitted additional testing data in response to the March 16, 2011 section 114. The March 2011 section 114 required facilities to test only for VC, CDD/CDF and THC; the facilities included in the section 114 were not required to test for any other HAP, nor did OxyVinyls Deer Park voluntarily test for any other HAP. As a result the level of control currently available for PVC-combined process vents at area sources was determined using the OxyVinyls Deer Park 2011 emissions testing data for VC, CDD/CDF and THC but not for total organic HAP because OxyVinyls Deer Park did not submit total organic HAP emissions data for its PVC combined process vent while operating

[3] Please refer to the memorandum titled "Revised Maximum Achievable Control Technology (MACT) Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category" section 3.1 for a description of normal and non-normal operating conditions.

under normal conditions. The level of control currently available for PVC –combined process vents at area sources for total organic HAP was determined using data from the least controlled major source, the Westlake – Geismar facility. Tables 7 through 10 present the results of the variability analysis for VC, CDD/CDF, total organic HAP and THC for PVC-combined process vents at area sources. The PVC-combined process vent analysis for the level of control currently available at existing area sources is presented in Attachment C.

Table 7. Current Level of Control Available at PVC-Combined Area Sources – VC

	Normal	Lognormal
Sample Size	3.00	3.00
Non-Detects	3.00	3.00
Average (ppmvd)	1.93E-01	-1.65
Median (ppmvd)	1.93E-01	-1.65
Standard Deviation (ppmvd)	3.40E-17	0
Minimum (ppmvd)	1.93E-01	-1.65
Maximum (ppmvd)	1.93E-01	-1.65
Skewness	NA	NA
SE Skewness	1.41	1.41
Skewness Test	Normal	Normal
Kurtosis	NA	NA
SE Kurtosis	NA	NA
Kurtosis Test	NA	NA
99.0% t-statistic for UPL	6.96	6.96
99.0% UPL (ppmvd)	1.93E-01	1.93E-01
Detection Limit Analysis		
Average (ppmvd)		1.93E-01
RDL (ppmvd)		1.84E-01
3x RDL(ppmvd)		5.52E-01
UPL Value Using Normally Distributed Data		
99.0% UPL (ppmvd)		1.93E-01
UPL Value Using LN Transformed Data		
99.0% UPL (ppmvd)		1.93E-01

ppmvd – Parts per million by volume dry basis corrected to 3 percent oxygen
SE – Standard error (applied to skewness or kurtosis)
UPL - Upper prediction limit
DL – Detection limit
LN – Log normal
NA – Analysis not applicable (limited number of data points)
RDL – Representative detection limit

Table 8. Current Level of Control Available at PVC-Combined Area Sources – CDD/CDF (TEQ)

	Normal	Lognormal
Sample Size	3.00	3.00
Average (ng/dscm)	1.53E-02	-4.33
Median (ng/dscm)	1.07E-02	-4.54
Standard Deviation (ng/dscm)	1.06E-02	6.50E-01
Minimum (ng/dscm)	7.89E-03	-4.84
Maximum (ng/dscm)	2.74E-02	-3.60
Skewness	1.60	1.32
SE Skewness	1.41	1.41
Skewness Test	Normal	Normal
Kurtosis	NA	NA
SE Kurtosis	NA	NA
Kurtosis Test	NA	NA
99.0% t-statistic for UPL	6.96	6.96
99.0% UPL (ng/dscm)	7.55E-02	5.34E-01
Detection Limit Analysis		
Average (ng/dscm)		1.53E-02
RDL[1] (ng/dscm)		1.12E-02
3x RDL[1] (ng/dscm)		3.35E-02
UPL Value Using Normally Distributed Data		
99.0% UPL (ng/dscm)		7.55E-02
UPL Value Using LN Transformed Data		
99.0% UPL (ng/dscm)		5.34E-01

[1] – Calculated based on data from various industries[3]
ng/dscm – nanograms per dry standard cubic meter, corrected to 3 percent oxygen, toxic equivalency basis
SE – Standard error (applied to skewness or kurtosis)
UPL - Upper prediction limit
DL – Detection limit
LN – Log normal
NA – Analysis not applicable (limited number of data points)
RDL – Representative detection limit

Table 9. Current Level of Control Available at PVC-Combined Area Sources – Total Organic HAP[1]

	Normal	Lognormal
Sample Size	3.00	3.00
Non-Detects	3.00	3.00
Average (ppmvd)	4.02	1.00
Median (ppmvd)	1.93	6.59E-01
Standard Deviation (ppmvd)	4.28	1.06
Minimum (ppmvd)	1.17	1.58E-01
Maximum (ppmvd)	8.94	2.19
Skewness	1.67	1.31
SE Skewness	1.41	1.41
Skewness Test	Normal	Normal
Kurtosis	NA	NA
SE Kurtosis	NA	NA
Kurtosis Test	NA	NA
99.0% t-statistic for UPL	6.96	6.96
99.0% UPL (ppmvd)	28.4	1,126
Detection Limit Analysis		
Average (ppmvd)		4.02
RDL (ppmvd)		1.81
3x RDL (ppmvd)		5.42
UPL Value Using Normally Distributed Data		
99.0% UPL (ppmvd)		28.4
UPL Value Using LN Transformed Data		
99.0% UPL (ppmvd)		1,126

[1] – Based on data from least controlled major source for PVC-Combined process vents (Westlake Geismar)

ppmvd – Parts per million by volume dry basis corrected to 3 percent oxygen
SE – Standard error (applied to skewness or kurtosis)
UPL - Upper prediction limit
DL – Detection limit
LN – Log normal
NA – Analysis not applicable (limited number of data points)
RDL – Representative detection limit

Table 10. Current Level of Control Available at PVC-Combined Area Sources – THC

	Normal	Lognormal
Sample Size	3.00	3.00
Average (ppmvd)	1.10E-01	-2.21
Median (ppmvd)	1.10E-01	-2.21
Standard Deviation (ppmvd)	0	0
Minimum (ppmvd)	1.10E-01	-2.21
Maximum (ppmvd)	1.10E-01	-2.21
Skewness	NA	NA
SE Skewness	NA	NA
Skewness Test	NA	NA
Kurtosis	NA	NA
SE Kurtosis	NA	NA
Kurtosis Test	NA	NA
99.0% t-statistic for UPL	6.96	6.96
99.0% UPL (ppmvd)	1.10E-01	1.10E-01
Detection Limit Analysis		
Average (ppmvd)		1.10E-01
RDL (ppmvd)		7.58E-01
3x RDL (ppmvd)		2.27
UPL Value Using Normally Distributed Data		
99.0% UPL (ppmvd)		1.10E-01
UPL Value Using LN Transformed Data		
99.0% UPL (ppmvd)		1.10E-01

ppmvd – Parts per million by volume dry basis corrected to 3 percent oxygen as propane
SE – Standard error (applied to skewness or kurtosis)
UPL - Upper prediction limit
DL – Detection limit
LN – Log normal
NA – Analysis not applicable (limited number of data points)
RDL – Representative detection limit

Table 11 presents a summary of the level of control currently available at area sources for PVC-only and PVC-combined process vents.

Table 11. Current Level of Control (as Concentration) Available at Existing Area Sources – Process Vents

Pollutant	PVC-Only[1]	PVC-Combined[1]
VC (ppmv)	5.3	5.6E-01[2]
CDD/CDF (TEQ) (ng/dscm)	1.3E-01	7.6E-02
Total Organic HAP (ppmv)	140	29
THC (ppmv as propane)	46	2.3[2]

[1] Current level of control concentrations were rounded **up** to 2 significant figures (e.g., 100.1 would be rounded to 110).
[2] Level of control result of detection limit variability analysis.
CDD/CDF – Chlorinated dibenzodioxin and Chlorinated dibenzofuran

HAP – Hazardous air pollutants
THC – Total hydrocarbons
ppmv – Parts per million by volume dry basis corrected to 3 percent oxygen
ng/dscm – nanograms per dry standard cubic meter, corrected to 3 percent oxygen, toxic equivalency basis

3.2 Stripped Resin

The CertainTeed Lake Charles facility produces bulk resin. The OxyVinyls Deer Park facility produces suspension resin. The level of control currently available was determined for both types of resin in a similar fashion to the MACT floors determined for stripped resins at major sources except that data from only the single area source in each subcategory were analyzed. Data variability was incorporated into the level of control currently available using the same methodology as described in the memorandum " Revised Maximum Achievable Control Technology (MACT) Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category[2]." ND values were also incorporated in the same manner as described in the aforementioned memorandum. The analysis for the level of control currently available at existing area sources for stripped resins is presented in Attachment D.

3.2.1 Stripped Resin - Bulk Resins

The CertainTeed Lake Charles facility did not report resin sampling results for the 4 year Method 107 data set or the 30 day sampling required by the August 21, 2009 section 114, as described in a separate memorandum[1]. For bulk resins, the level of control currently available at existing PVC area sources was determined using the survey data reported through the August 21, 2009 section 114. Furthermore, statistical and variability analyses could not be performed since these types of analyses require multiple data points which were not available. Table 12 presents the level of control currently available for bulk resins at existing PVC area sources.

Table 12. Average VC and Total Non-VC Organic HAP Concentrations in Bulk Resin at Existing Area Sources

Company/Facility	Average VC Concentration[1] (ppmw)	Average Total Non-VC Organic HAP Concentration[1] (ppmw)
CertainTeed - Lake Charles	7.1	160

[1] Average concentrations were rounded **up** to 2 significant figures (e.g., 100.1 would be rounded to 110).
HAP – hazardous air pollutant
ppmw – parts per million by weight

3.2.2 Stripped Resin - Suspension Resins

The current level of control for VC in suspension resins at existing PVC area sources was determined using 4 years of Method 107 concentration data at the OxyVinyls Deer Park facility, submitted by the Vinyl Institute. The current level of control for total non-vinyl chloride organic HAP (total non-VC organic HAP) was determined using the updated 30-day resin sampling data for OxyVinyls Deer Park. Table 13 presents the results of the 99.9 percentile analysis for VC and

Table 14 presents the results of the total non- VC organic HAP variability analysis. The methodologies used to perform each analysis are described in a separate memorandum[2].

Table 13. 99.9 Percentile VC Concentration in Suspension Resin at Existing Area Sources

Company/Facility	99.9 Percentile Value (ppmw)
OxyVinyls - Deer Park	35.2

HAP – hazardous air pollutant
ppmw – parts per million by weight

Table 14. Current Level of Control Available at PVC Area Sources – Suspension Resin – Total Non-VC Organic HAP

	Normal	Log-Normal
Sample Size	27	27
Average (ppmw)	12.1	2.38
Median (ppmw)	8.98	2.20
Standard Deviation (ppmw)	6.25	4.65E-01
Minimum (ppmw)	6.25	1.84
Maximum (ppmw)	24.8	3.21
Skewness	1.01	6.97E-01
SE Skewness	4.71E-01	4.71E-01
Skewness Test	Non-normal	Normal
Kurtosis	-5.92E-01	-1.06
SE Kurtosis	9.43E-01	9.43E-01
Kurtosis Test	Normal	Normal
99.0% t-statistic for UPL	2.48	2.48
99.0% UPL (ppmw)	27.9	35.0
Detection Limit Analysis		
Average in variability analysis (ppmw)		12.1
RDL (ppmw)		4.75
3x RDL (ppmw)		14.3
UPL Value Using Normally Distributed Data		
99.0% UPL (ppmw)		27.9
UPL Value Using LN Transformed Data		
99.0% UPL (ppmw)		35.0

ppmw – Parts per million by weight basis
SE – Standard error (applied to skewness or kurtosis)
UPL - Upper prediction limit
DL – Detection limit
LN – Log normal
RDL – Representative detection limit

3.2.3 Stripped Resin – Dispersion, Suspension Blending, and Copolymer Resins

No existing area sources produce dispersion resin, suspension blending resin, or copolymer resin. However, if an existing PVC major source is able to become a synthetic area source (e.g., by taking a federally enforceable limit on its potential to emit) before the first compliance date, it would be subject to area source rather than major source requirements. Therefore, in order to develop GACT standards for other stripped resin subcategories, the level of control currently available to existing area sources for these resin types was determined to be equivalent to that of the least controlled existing major source for each resin type. For dispersion resins, the least controlled major source was determined to be the Formosa – Delaware City facility. The VC and total non-VC organic HAP analyses for dispersion resins are shown in Table 15 and Table 16. Since there is only 1 source in the suspension blending and copolymer resin types, the level of control currently available to existing area sources was determined to be equivalent to the MACT floor determination for suspension blending and copolymer resin types. The analyses for suspension blending and copolymer resin types are presented in a separate memorandum[2]. Table 17 presents a summary of the level of control currently available to existing PVC area sources for each resin type.

Table 15. 99.9 Percentile VC Concentration in Dispersion Resin at Existing Area Sources

Company/Facility	99.9 Percentile Value (ppmw)
Formosa – Delaware	1,432

HAP – hazardous air pollutant
ppmw – parts per million by weight

Table 16. Current Level of Control Available at PVC Area Sources – Dispersion Resin – Total Non-VC Organic HAP

	Normal	Log-Normal
Sample Size	28	28
Average (ppmw)	67.6	4.00
Median (ppmw)	55.3	4.01
Standard Deviation (ppmw)	50.0	7.04E-01
Minimum (ppmw)	6.24	1.83
Maximum (ppmw)	267	5.59
Skewness	2.52	-6.73E-01
SE Skewness	4.63E-01	4.63E-01
Skewness Test	Non-normal	Normal
Kurtosis	8.89	2.56
SE Kurtosis	9.26E-01	9.26E-01
Kurtosis Test	Non-normal	Non-normal
99.0% t-statistic for UPL	2.47	2.47
99.0% UPL (ppmw)	193	319
Detection Limit Analysis		
Average in variability analysis (ppmw)		67.6
RDL (ppmw)		4.75
3x RDL (ppmw)		14.3
UPL Value Using Normally Distributed Data		
99.0% UPL (ppmw)		193
UPL Value Using LN Transformed Data		
99.0% UPL (ppmw)		319

ppmw – Parts per million by weight basis
SE – Standard error (applied to skewness or kurtosis)
UPL - Upper prediction limit
DL – Detection limit
LN – Log normal
3x Max DL – Maximum detection limit less than or equal to average multiplied by 3

Table 17. Summary of Level of Control Currently Available [1] to Area Sources for Resins at Existing Sources

Resin Type	VC[2] (ppmw)	Total Non-VC Organic HAP[3] (ppmw)
Suspension	36	36[4]
Dispersion	1,500	320
Suspension Blending	140	500
Copolymer	790	1,900
Bulk	7.1	170[5]

[1] – Levels of control were rounded **up** to two significant figures (e.g., 100.1 would be rounded to 110).
[2] – calculated using 99.9th percentile.
[3] – calculated using 99% UPL with m=1
[4] – UPL value calculated as 35.003 ppmw – rounded to 36.0 ppmw.
[5] – Rounded from 160.2 ppmw to 170 ppmw.
HAP – Hazardous air pollutant
Total non-VC organic HAP does not include vinyl chloride.

3.3 Wastewater

The level of control currently available at existing PVC area sources was determined for VC and total non-VC organic HAP for process wastewater. The CertainTeed Lake Charles facility provided wastewater concentration data at the wastewater stripper outlet in response to the August 21, 2009 section 114. The Vinyl Institute submitted year 2008 VC concentration data at the outlet of the stripper for the OxyVinyls Deer Park facility. For both facilities, the annual average VC concentration at the wastewater stripper outlet was determined to be 0.4 ppmw. However, a variability analysis was performed on the monthly OxyVinyls Deer Park data and is presented in Table 18. A variability analysis could not be performed on the CertainTeed concentration data since only 1 data point was submitted. The analysis for the level of control currently available at existing area sources for wastewater is presented in Attachment E.

Table 18. Wastewater Stripper Outlet Concentration Variability Analysis for Existing Area Sources – VC

	Normal	Log-Normal
Sample Size	12	12
Average (ppmw)	3.99E-01	-1.19
Median (ppmw)	2.89E-01	-1.24
Standard Deviation (ppmw)	4.16E-01	6.77E-01
Minimum (ppmw)	1.20E-01	-2.12
Maximum (ppmw)	1.67	5.14E-01
Skewness	3.05	1.32
SE Skewness	7.07E-01	7.07E-01
Skewness Test	Non-normal	Normal
Kurtosis	9.92	3.17
SE Kurtosis	1.41	1.41
Kurtosis Test	Non-normal	Non-normal
99.0% t-statistic for UPL	2.72	2.72
99.0% UPL (ppmw)	1.58	2.06
Detection Limit Analysis		
Average in variability analysis (ppmw)		3.99E-01
RDL (ppmw)		1.00E-02
3x RDL (ppmw)		3.00E-02
UPL Value Using Normally Distributed Data		
99.0% UPL (ppmw)		1.58
UPL Value Using LN Transformed Data		
99.0% UPL (ppmw)		2.06

ppmw – Parts per million by weight basis
SE – Standard error (applied to skewness or kurtosis)
UPL - Upper prediction limit
DL – Detection limit
LN – Log normal
3x Max DL – Maximum detection limit less than or equal to average multiplied by 3

The level of control currently available to existing area sources at the wastewater stripper outlet for total non-VC organic HAP was determined using data submitted by OxyVinyls Deer Park in response to the August 21, 2009 section 114, as the CertainTeed facility did not provide any total non-VC organic HAP concentration data for the wastewater stripper outlet. OxyVinyls Deer Park only submitted 1 concentration value of 0.018 ppmw total non-VC organic HAP which was determined to be the level of control currently available to existing area sources at the wastewater stripper outlet on a monthly basis. Table 19 summarizes the level of control for wastewater at existing area sources.

Table 19. Level of Control Currently Available to Existing PVC Area Sources for Process Wastewater

Pollutant	Level of Control Currently Available (ppmw)
VC (ppmw)	2.1
Total Non-VC Organic HAP (ppmw)	1.8E-02

HAP – hazardous air pollutant
ppmw – parts per million by weight

3.4 Equipment Leaks

Facility submitted survey information was reviewed to determine the level of control currently available for equipment leaks. Both facilities currently comply with the LDAR program requirements of 40 CFR part 61 subpart F and 40 CFR part 61 subpart V. Therefore; 40 CFR part 61 subpart F and 40 CFR part 61 subpart V were determined to be the level of control currently available to existing area sources for equipment leaks.

3.5 Heat Exchangers

Facility submitted survey information was reviewed to determine the level of control currently available for heat exchangers. A leak definition of 5,000 parts per billion by weight (ppbw) and monthly monitoring were determined to be the level of control currently available at existing area sources for equipment leaks. The analysis for the level of control currently available at existing area sources for heat exchangers is presented in Attachment F.

3.6 Other Emission Sources

Facility submitted survey information was reviewed to determine the level of control currently available for other emission sources. Each area source facility currently complies with 40 CFR part 61 subpart F to limit emissions from reactor openings. Neither facility currently controls emissions from gasholders. Therefore, 40 CFR part 61 subpart F was determined to be the level of control currently available for other emission sources at existing area sources.

3.7 Storage Vessels

Facility submitted survey information was reviewed to determine the level of control currently available for storage vessels. Neither facility currently controls emissions from storage vessels. Therefore, no level of control currently available for storage vessels at existing area sources was determined.

4.0 Determination of Expected Level of Control at New Area Sources

New area sources are expected to be controlled as well as, if not better than, existing area sources. Therefore, the level of control available to new area sources was determined to be equivalent to the level of control currently available to existing area sources. Consideration was given to estimating the new area source level of control by using the best controlled existing area

source. However, with data from only two facilities available for this GACT analysis, the analysis for PVC-combined process vents, PVC-only process vents, bulk resin, and suspension resin is based on data from only one facility. For the other emission points (except dispersion resin, suspension blending resin and copolymer resin discussed in section 3.0) both facilities are equivalent in terms of their current level of control. For example, for equipment leaks, the CertainTeed Lake Charles facility and the OxyVinyls Deer Park facility both comply with 40 CFR part 61, subpart V; therefore, both facilities represent the best controlled area source. Consequently, the current level of control for new area sources was determined to be equivalent to the current level of control for existing area sources and, as a result, the remainder of the GACT analysis was determined to be equivalent for existing and new area sources.

5.0 Annual Emissions Estimate

The annual emissions from each emission point for each area source facility were estimated using the same methodology as described in the technical memorandum titled "Revised Baseline Emission Estimates for Major Sources in the Polyvinyl Chloride and Copolymers (PVC) Production Source Category[4]."

5.1 Process Vents

Annual emission estimates for VC, CDD/CDF and total organic HAP were calculated for process vents at each area source facility. Table 20 presents the results of the annual emission estimate calculation which is provided in Attachment B and Attachment C.

Table 20. Annual Emission Estimates for Existing Area Sources – Process Vents

Facility	Annual Emission Estimate (Tons/Year)		
	VC	CDD/CDF (TEQ)	Total Organic HAP
CertainTeed – Lakes Charles[1]	5.84E-02	1.32E-10	1.07
OxyVinyls – Deer Park[2]	2.79E-01	8.42E-09	4.61

[1] PVC-only process vent
[2] PVC-combined process vent
TEQ – Toxic Equivalency

5.2 Resins

Annual emission estimates for VC and total non-VC organic HAP were calculated for stripped resin at each area source facility. As discussed in a separate memorandum, it was assumed that the total amount of all VC and other HAP in the stripped resin would be emitted from process equipment downstream of the resin stripper. For facilities that manufacture a type of resin other than a bulk resin, the majority of these emissions would likely occur from the resin centrifuge and/or dryer vents as the resin slurry is dried. However, the manufacture of bulk resins does not require the use of a resin dryer as the product is a solid and not a slurry after the polymerization process. Therefore, emission estimates reported in CertainTeed's survey response were used to calculate annual emissions instead of assuming all residual HAP remaining in the resin would be emitted. Although there are no existing area sources that currently produce dispersion, suspension blending, or copolymer resins, annual emission estimates for such resin types were determined by assuming an annual resin production rate of approximately 4.4 million tons per year. A resin production rate of 4.4 million tons per year results in total annual facility

emission estimates of less than 25 tons per year of total HAP for a model facility producing dispersion, suspension blending, or copolymer resins. Table 21 presents the results of the annual emission estimate calculation for resins which is provided in Attachment D.

Table 21. Annual Emission Estimates for Existing Area Sources – Resins

Facility	Annual Emission Estimate (Tons/Year)	
	VC	Total Non-VC Organic HAP
CertainTeed – Lakes Charles[1]	9.39E-01	5.58
OxyVinyls – Deer Park[2]	2.38E-01	3.34
Dispersion Resin Facility	1.17	1.48E-01
Suspension Blending Resin Facility	3.43E-02	1.40E-01
Copolymer Resin Facility	7.91E-01	1.95E-01

[1] Facility produces bulk resin.
[2] Facility produces suspension resin.

5.3 Wastewater

Annual emission estimates for VC and total non-VC organic HAP were calculated for process and maintenance wastewater for each area source facility. Table 22 presents the results of the annual emission estimate calculation for wastewater which is provided in Attachment E.

Table 22. Annual Emission Estimates for Existing Area Sources – Wastewater

Facility	Annual Emission Estimate (Tons/Year)	
	VC	Total Non-VC Organic HAP
CertainTeed – Lakes Charles	3.91E-01	3.44
OxyVinyls – Deer Park	5.12E-01	8.81

5.4 Equipment Leaks

Annual emission estimates for total organic HAP were calculated for equipment leaks at each existing area source facility. As previously stated, the same methodology as described in the technical memorandum titled " Revised Baseline Emission Estimates for Major Sources in the Polyvinyl Chloride and Copolymers (PVC) Production Source Category[4]" was used except that equipment counts provided by CertainTeed Lake Charles were substituted where applicable; otherwise, equipment counts from a simple complexity chemical facility were used. Table 23 presents the results of the annual emission estimate calculation for equipment leaks which is provided in Attachment G.

Table 23. Annual Emission Estimates for Existing Area Sources – Equipment Leaks

Facility	Annual Emission Estimate (Tons/Year)
	Total Organic HAP
CertainTeed – Lakes Charles	10.0
OxyVinyls – Deer Park	10.0

5.5 Heat Exchangers

Annual emission estimates for VC and total organic HAP were calculated for heat exchange systems at existing area sources. Table 24 presents the results of the annual emission estimate calculation for heat exchange systems which is provided in Attachment F.

Table 24. Annual Emission Estimates for Existing Area Sources – Heat Exchangers

Facility	Annual Emission Estimate (Tons/Year)	
	VC	Total Organic HAP
CertainTeed – Lakes Charles	5.31	5.31
OxyVinyls – Deer Park	1.25	1.25

5.6 Other Emission Sources

Annual emission estimates for VC and total organic HAP were extracted from information submitted in the August 21, 2009 section 114 for other emission sources at existing area sources. Table 25 summarizes the annual emission estimate for other emission sources provided in the survey. Survey information is presented in Attachment H.

Table 25. Annual Emission Estimates for Existing Area Sources – Other Emission Sources

Facility	Annual Emission Estimate (Tons/Year)	
	VC	Total Organic HAP
CertainTeed – Lakes Charles	3.35E-02	3.35E-02
OxyVinyls – Deer Park	3.04E-01	3.06E-01

5.7 Storage Vessels

Annual emission estimates for VC and total organic HAP were extracted from information submitted in the August 21, 2009 section 114 for storage vessels at existing area sources. Table 26 summarizes the annual emission estimate for storage vessels provided in the survey. Survey information is presented in Attachment J.

Table 26. Annual Emission Estimates for Existing Area Sources – Storage Vessels

Facility	Annual Emission Estimate (Tons/Year)	
	VC	Total Organic HAP
CertainTeed – Lakes Charles	-	1.00E-04
OxyVinyls – Deer Park	3.36E-01	4.92E-01

6.0 Control Options Analysis

For each emission point, multiple control options beyond level of control currently available were evaluated on a basis of cost effectiveness (i.e., dollars per ton of total organic HAP reduced per year). The following section describes how the costs of such controls and the associated emission reductions were calculated.

6.1 Process Vents

Two control options beyond the level of control currently being used were evaluated for each type of process vent. The first option was requiring the testing, monitoring, recordkeeping and reporting requirements for major sources in addition to the level of control currently being used by existing area sources. The same methodology used to calculate testing, monitoring, recordkeeping and reporting costs for major sources was used for area sources and is described in a separate memorandum[5]. Table 27 summarizes the costs of requiring major source testing, monitoring, recordkeeping and reporting for area source facilities. No emission reductions are expected as a result of area sources complying with the testing, monitoring, recordkeeping and reporting requirements for major sources. The testing and monitoring cost algorithm for PVC-only process vents and PVC-combined process vents is presented in Attachment B and C respectively. The recordkeeping and reporting cost algorithm is presented in Attachment I.

Table 27. Summary of Costs for Major Source Testing, Monitoring, Recordkeeping and Reporting for Area Sources – Process Vents

Facility	Initial Costs		Annual Costs		Total Costs	
	Testing and Monitoring ($)	Recordkeeping and Reporting ($)	Testing and Monitoring ($/yr)	Recordkeeping and Reporting ($/yr)	Initial Cost ($)	Annual Cost ($/yr)
CertainTeed - Lake Charles	43,198	4,963	8,640	2,250	48,161	10,890
OxyVinyls - Deer Park	43,198	4,963	8,640	2,250	48,161	10,890

The second option analyzed for process vents consisted of area sources complying with the emission limits for existing major sources in addition to the testing and monitoring requirements for existing major sources. As shown in Table 28, the CertainTeed Lake Charles facility does not meet the major source emission limits for PVC-only process vents; however, the OxyVinyls Deer Park facility meets the major source emission limits for PVC-combined process vents. The cost of installing and operating a refrigerated condenser at the CertainTeed Lake Charles facility was estimated. Emission reductions as a result of meeting the major source emission limits for PVC-only process vents were also calculated. Costs and emission reductions

were estimated using the same methodology presented in the memorandum titled "Revised Costs and Emission Reductions for Major Sources in the Polyvinyl Chloride and Copolymers (PVC) Production Source Category[5]." The costs of installing and operating a refrigerated condenser are presented in Table 29. The cost effectiveness of existing area sources complying with the major source emission limits for PVC-only process vents is presented in Table 30. The analysis is presented in Attachment B.

Table 28. Summary of Existing Area Source Performance Compared to Existing Major Source Emission Limits – Process Vents

Facility	Pollutant	Average Facility Concentration	Major Source Emission Limit	Percent Reduction Required to Meet Major Source Limit	Emission Reductions as a Result of Meeting Major Source Limit (Tons/Year)
CertainTeed - Lake Charles (PVC-Only)	VC (ppmv)	5.25	6.0	-	1.40E-02[1]
	CDD/CDF (TEQ) (ng/dscm)	3.11E-02	3.8E-02	-	3.17E-011[1]
	Total Organic HAP (ppmv)	73.7	56	24.0	2.57E-01
OxyVinyls - Deer Park (PVC-Combined)	VC (ppmv)	1.93E-01	1.1	-	-
	CDD/CDF (TEQ) (ng/dscm)	1.53E-02	5.1E-02	-	-
	Total Organic HAP (ppmv)	4.02	9.8	-	-

[1] Emission reductions are a result of co-control
TPY – Tons per year
VC – Vinyl Chloride
CDD/CDF – Chlorinated dibenzodioxin and chlorinated dibenzofuran
HAP – Hazardous air pollutants
ppmv – parts per million on a dry volume basis, corrected to 3 percent oxygen
ng/dscm – nanograms per dry standard cubic meter, corrected to 3 percent oxygen

Table 29. Summary of Costs for Existing Area Sources Complying with Existing Major Source Emission Limits for PVC-Only Process Vents

Facility	Control Equipment Capital Cost ($)	Control Equipment Annualized Capital Costs ($/yr)	Control Equipment Annual Costs ($/yr)	Total Annualized Costs ($/yr)
CertainTeed - Lake Charles (PVC-Only)	302,550	28,559	140,797	169,355

$ - Dollars
$/yr - Dollars per year

Table 30. Summary of Cost Effectiveness for Existing Area Sources Complying with Existing Major Source Emission Limits for PVC-Only Process Vents

Facility	Total Annualized Costs[1] ($/yr)	Annual Emission Reductions (as Total Organic HAP) (Tons/Year)	Cost Effectiveness (Total Organic HAP Basis) ($/Ton)
CertainTeed - Lake Charles (PVC-Only)	180,245	2.57E-01	701,814

[1] Includes annual cost of testing, monitoring, recordkeeping and reporting in addition to annualized control equipment costs
HAP – Hazardous air pollutants
$/yr – Dollars per year

6.1 Stripped Resins

Two control options beyond the level of control currently being used were evaluated for each type of resin that could potentially be produced at existing area sources. The first option was requiring the testing, monitoring, recordkeeping and reporting requirements for major sources in addition to the level of control currently available at existing area sources. The same methodology used to calculate testing, monitoring, recordkeeping and reporting costs for major sources was used for area sources and is described in a separate memorandum[5]. Table 31 summarizes the costs of requiring major source testing, monitoring, recordkeeping and reporting for area source facilities. No emission reductions are expected as a result of area sources complying with the testing, monitoring, recordkeeping and reporting requirements for major sources. The testing and monitoring cost algorithm for stripped resins is presented in Attachment D. The recordkeeping and reporting cost algorithm is presented in Attachment I.

Table 31. Summary of Costs for Major Source Testing, Monitoring, Recordkeeping and Reporting for Area Sources - Resins

Facility	Initial Costs		Annual Costs		Total Costs	
	Testing and Monitoring ($)	Recordkeeping and Reporting ($)	Testing and Monitoring ($/yr)	Recordkeeping and Reporting ($/yr)	Initial Cost ($)	Annual Cost ($/yr)
CertainTeed - Lake Charles	1,803	2,516	7,212	3,403	4,319	10,615
OxyVinyls - Deer Park	1,803	2,516	7,212	3,403	4,319	10,615

$ - Dollars
$/yr – Dollars per year

The second option analyzed for resins consisted of area sources complying with the emission limits for existing major sources in addition to the testing and monitoring requirements for existing major sources. As shown in Table 32, all the levels of control currently available at existing area sources are below the major source resin limits for each resin type; therefore, no emission reductions or cost of controls were estimated.

Table 32. Summary of Existing Area Source Performance Compared to Existing Major Source Concentration Limits – Resins

Facility (Resin Type)	Pollutant	Average Facility Concentration (ppmw)	Major Source Concentration Limit (ppmw)	Percent Reduction Required to Meet Major Source Limit
CertainTeed - Lake Charles (Bulk)	VC	7.1	7.1	-
	Total Non-VC Organic HAP	160	170	-
OxyVinyls - Deer Park (Suspension)	VC	8.64E-01	37	-
	Total Non-VC Organic HAP	12.1	670	-
(Dispersion[1])	VC	534	1300	-
	Total Non-VC Organic HAP	67.6	240	-
(Suspension Blending[1])	VC	15.7	140	-
	Total Non-VC Organic HAP	64.2	500	-

Facility (Resin Type)	Pollutant	Average Facility Concentration (ppmw)	Major Source Concentration Limit (ppmw)	Percent Reduction Required to Meet Major Source Limit
(Copolymer[1])	VC	361	790	-
	Total Non-VC Organic HAP	893	1900	-

[1] - No existing area sources produce dispersion resin, suspension blending resin, or copolymer resin. The average facility concentration from the least controlled major source was used to model the average concentration of existing area sources.
VC – Vinyl chloride
Total Non-VC Organic HAP – Total non-vinyl chloride organic HAP
HAP – Hazardous air pollutant
ppmw – Parts per million by weight

6.3 Process and Maintenance Wastewater

Three control options beyond the level of control currently being used were evaluated for process and maintenance wastewater at existing area sources. The first option was requiring the testing, monitoring, recordkeeping and reporting requirements for major sources in addition to the level of control currently available at existing area sources. The same methodology used to calculate testing, monitoring, recordkeeping and reporting costs for major sources was used for area sources and is described in a separate memorandum[5]. Table 33 summarizes the costs of requiring major source testing, monitoring, recordkeeping and reporting for area source facilities. No emission reductions are expected as a result of area sources complying with the testing, monitoring, recordkeeping and reporting requirements for major sources. The testing and monitoring cost algorithm for wastewater is presented in Attachment E. The recordkeeping and reporting cost algorithm is presented in Attachment I.

Table 33. Summary of Costs for Major Source Testing, Monitoring, Recordkeeping and Reporting for Area Sources - Wastewater

Facility	Initial Costs		Annual Costs		Total Costs	
	Testing and Monitoring ($)	Recordkeeping and Reporting[1] ($)	Testing and Monitoring ($/yr)	Recordkeeping and Reporting ($/yr)	Initial Cost ($)	Annual Cost ($/yr)
CertainTeed - Lake Charles	981	2,734	6,377	3,512	3,715	9,888
OxyVinyls - Deer Park	981	2,734	6,377	3,512	3,715	9,888

[1] Costs for recordkeeping and reporting include development of a maintenance wastewater work practice plan
$ - Dollars
$/yr – Dollars per year

The second option analyzed for wastewater consisted of area sources complying with the emission limits for existing major sources in addition to the testing and monitoring requirements for existing major sources. As shown in Table 34, the level of control currently available at existing area sources is below the major source wastewater concentration limits; therefore, no emission reductions or cost of controls were estimated for the second option.

Table 34. Summary of Existing Area Source Performance Compared to Existing Major Source Concentration Limits – Process Wastewater

Facility	Pollutant	Average Facility Stripper Outlet Concentration	Average Uncontrolled Wastewater Concentration	Existing Major Source Concentration Limit
CertainTeed - Lake Charles	VC (ppmw)	4.00E-01	2.50E-03	6.8
	Total Non-VC Organic HAP (ppmw)	0.018[1]	13.8[3]	110
OxyVinyls - Deer Park	VC (ppmw)	4.00E-01	2.50E-03[2]	6.8
	Total Non-VC Organic HAP (ppmw)	0.018	13.8[3]	110

[1] Estimated based on average concentration of OxyVinyls Deer Park facility
[2] Estimated based on average concentration of CertainTeed Lake Charles facility
[3] Estimated based on average concentration of all major source facilities
VC – Vinyl Chloride
Total Non-VC Organic HAP – Total non-vinyl chloride organic HAP
HAP - Hazardous air pollutants
ppmw – parts per million by weight

The third option analyzed for wastewater consisted of area sources complying with the concentration limits for new major sources in addition to the testing and monitoring requirements for existing major sources. As shown in Table 35, both facilities would be required to collect and treat previously uncontrolled wastewater streams in addition to further VC reduction in streams currently treated by the wastewater stripper. Using the same methodology described in the memorandum titled "Revised Beyond-the-Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category[6]" costs were estimated for both existing area source facilities to install and maintain hard piping to convey previously uncontrolled streams to the wastewater collection system. The cost of installing and maintaining a wastewater stripper sized to accommodate the additional wastewater was also estimated. Emission reductions were estimated using the methodology presented in a separate memorandum[6]. The costs of installing and operating hard piping and a new wastewater stripper at both existing area source facilities are presented in Table 36. The cost effectiveness of existing area sources complying with the major source wastewater concentration limits is presented in Table 37.The wastewater cost and emission reduction analysis is presented in Attachment E.

Table 35. Summary of Existing Area Source Performance Compared to New Major Source Concentration Limits – Process Wastewater

Facility	Pollutant	Average Facility Stripper Outlet Concentration	Average Uncontrolled Wastewater Concentration	New Major Source Emission Limit	Emission Reductions as a Result of Meeting Major Source Limit (Tons/Year)
CertainTeed - Lake Charles	VC (ppmw)	4.00E-01	2.50E-03	2.8E-01	1.80E-06
	Total Non-VC Organic HAP (ppmw)	0.018[1]	13.8[3]	1.8E-02	3.42
OxyVinyls - Deer Park	VC (ppmw)	4.00E-01	2.50E-03[2]	2.8E-01	8.55E-03
	Total Non-VC Organic HAP (ppmw)	0.018	13.8[3]	1.8E-02	8.78

[1] Estimated based on average concentration of OxyVinyls Deer Park facility
[2] Estimated based on average concentration of CertainTeed Lake Charles facility
[3] Estimated based on average concentration of all major source facilities
VC – Vinyl Chloride

Total Non-VC Organic HAP – Total non-vinyl chloride organic HAP
HAP - Hazardous air pollutants
ppmw – parts per million by weight

Table 36. Summary of Costs for Existing Area Sources Complying with Major New Source Concentration Limits for Process Wastewater

Facility	Control Equipment Capital Cost ($)	Control Equipment Annualized Capital Costs ($/yr)	Control Equipment Annual Costs ($/yr)	Total Annualized Costs ($/yr)
CertainTeed - Lake Charles	4,312,496	407,064	588,583	995,647
OxyVinyls - Deer Park	8,050,612	759,910	1,221,056	1,980,967

$ - Dollars
$/yr – Dollars per year

Table 37. Summary of Cost Effectiveness for Existing Area Sources Complying with New Major Source Concentration Limits for Process Wastewater

Facility	Total Annualized Costs[1] ($/yr)	Annual Emission Reductions (as Total Organic HAP[2]) (Tons/Year)	Cost Effectiveness (Total Organic HAP Basis) ($/Ton)
CertainTeed - Lake Charles	1,005,535	3.42	294,016
OxyVinyls - Deer Park	1,990,855	8.79	226,491
Total	2,966,390	12.2	245,516

[1] Includes annual cost of testing, monitoring, recordkeeping and reporting in addition to annualized control equipment costs
[2] Total Organic HAP includes VC
TPY – Tons per year
HAP – Hazardous air pollutants
$ - Dollars
$ /yr – Dollars per year

6.4 Equipment Leaks

For equipment leaks, the option of requiring area sources to comply with the existing major source testing, monitoring, recordkeeping and reporting requirements was analyzed. The cost and emission reductions of area sources complying with the LDAR program in 40 CFR part 63, subpart UU was estimated using the methodology presented in a separate memorandum[6] except that equipment counts provided by CertainTeed Lake Charles were substituted for existing area sources, where applicable; otherwise, equipment counts from a simple complexity chemical facility were used. The cost of existing area sources installing a wireless electronic pressure relief device (PRD) monitoring system was also estimated using the methodology presented in a separate memorandum[5]. Table 38 presents a summary of the costs of existing area source facilities complying with 40 CFR part 63, subpart UU and installing wireless electronic PRD monitoring systems. The analysis for area sources complying with subpart UU and installing a wireless PRD monitoring system is presented in Attachment G. The recordkeeping and reporting cost algorithm is presented in Attachment I. Table 39 presents the emission reductions and cost effectiveness associated with existing area sources complying with subpart UU and installing a wireless electronic PRD monitoring system.

Table 38. Summary of Costs for Existing Area Sources Complying with Existing Major Source Equipment Leak Requirements

Facility	Initial Costs ($)			Annual Costs ($/yr)				Total Costs	
	LDAR	Capital Cost of PRD System	Initial Record-keeping and Reporting	Annualized Initial Cost of LDAR	Annualized Capital Cost of PRD System	Annual LDAR Cost[1]	Annual Recordkeeping and Reporting	Total Initial Cost ($)	Annualized Cost ($/yr)
CertainTeed - Lake Charles	64,244	113,116	2,625	9,171	16,105	6,496	4,491	179,985	36,263
OxyVinyls - Deer Park	64,244	113,116	2,625	9,171	16,105	6,496	4,491	179,985	36,263
Total	**128,488**	**226,232**	**5,250**	**18,341**	**32,210**	**12,993**	**8,982**	**359,790**	**72,525**

[1] Incremental cost from subpart V to subpart UU
$ - Dollars
$/yr – Dollars per year

Table 39. Summary of Cost Effectiveness for Existing Area Sources Complying with Existing Major Source Equipment Leak Requirements

Facility	Total Annualized Cost ($/yr)	Annual Emission Reductions (as Total Organic HAP) (Tons/Year)	Cost Effectiveness (Total Organic HAP Basis) ($/Ton)
CertainTeed - Lake Charles	36,263	4.64	7,807
OxyVinyls - Deer Park	36,263	4.64	7,807
Total	72,525	9.29	7,807

$ - Dollars
$/yr – Dollars per year

6.5 Heat Exchange Systems

For heat exchangers, the option of requiring area sources to comply with the existing major source testing, monitoring, recordkeeping and reporting requirements was analyzed. The cost and emission reductions of area sources complying with the existing major source leak action level and monitoring interval was estimated using the methodology presented in a separate memorandum[6]. The heat exchanger analysis is presented in Attachment F. The recordkeeping and reporting cost algorithm is presented in Attachment I. Table 40 presents the costs, emission reductions, and cost effectiveness of existing area source facilities complying with the existing major source testing, monitoring, recordkeeping and reporting requirements for heat exchange systems.

Table 39. Summary of Costs, Emission Reductions and Cost Effectiveness for Existing Area Sources Complying with Existing Major Source Heat Exchange System Requirements

Facility	Initial Recordkeeping and Reporting Cost ($)	Annual Recordkeeping and Reporting Cost ($/yr)	Annual Cost of Repair[1] ($/yr)	Total Annual Cost ($/yr)	Total Organic HAP Emission Reduction (TPY)	Cost Effectiveness (Total Organic HAP Basis) ($/Ton)
CertainTeed Lake Charles	3,713	4,164	8,600	12,764	3.67	3,478
OxyVinyls Deer Park	3,713	4,164	8,600	12,764	11.4	1,119

Facility	Initial Recordkeeping and Reporting Cost ($)	Annual Recordkeeping and Reporting Cost ($/yr)	Annual Cost of Repair[1] ($/yr)	Total Annual Cost ($/yr)	Total Organic HAP Emission Reduction (TPY)	Cost Effectiveness (Total Organic HAP Basis) ($/Ton)
Total	**7,425**	**8,328**	**17,200**	**25,529**	**15.1**	**1,690**

[1] – Cost of repair estimated at $4,300 per cooling tower

6.6 Other Emission Sources

For other emission sources, the option of requiring area sources to comply with the existing major source requirements was analyzed. Existing major sources must comply with the equipment opening requirements from 40 CFR part 61, subpart F in addition to work practices for gasholders (i.e., floating objects on the gasholder water seal). The current level of control for existing area sources is equivalent to 40 CFR part 61, subpart F for equipment openings; however, neither of the existing area sources use gasholders in the production of PVC. Therefore, the costs and emission reductions for major source work practices applied to a gasholder at a model area source facility were estimated using the same methodology presented in a separate memorandum[6]. The analysis of requiring major source work practices for gasholders at existing area sources is presented in Attachment H. The recordkeeping and reporting cost algorithm is presented in Attachment I. Table 40 presents the costs, emission reductions, and cost effectiveness of existing area source facilities complying with the existing major source requirements for other emission sources.

Table 40. Summary of Costs, Emission Reductions and Cost Effectiveness for Existing Area Sources Complying with Existing Major Source Other Emission Sources Requirements

Facility	Capital Cost of Gasholder Work Practice ($)	Initial Record-keeping and Reporting Cost ($)	Annualized Capital Cost ($/yr)	Annual Recordkeeping and Reporting Cost ($/yr)	Annual Work Practice Cost ($/yr)	Total Initial Cost ($)	Total Annual Cost ($/yr)	Total Organic HAP Emission Reduction (TPY)	Cost Effectiveness (Total Organic HAP Basis) ($/Ton)
CertainTeed Lake Charles	-	1,102	-	1,554	-	1,102	1,554	-	-
OxyVinyls Deer Park	-	1,102	-	1,554	-	1,102	1,554	-	-
Model Area Source[2]	5,000	1,102	928	1,554	550	6,102	3,032	0.62	4,922
Total[1]	**-**	**2,204**	**-**	**3,108**	**-**	**2,204**	**3,108**	**-**	**-**

[1] – Total costs do not include model area source.
[2] – Model area source included in table for illustrative purposes.
$ - Dollars
$/yr – Dollars per year

6.7 Storage Vessels

For storage vessels, the option of requiring area sources to comply with the existing major source requirements was analyzed. No storage vessels meeting the subpart Kb criteria were identified at existing area sources. However, the theoretical analysis of a 40,000 gallon tank storing methanol (with a resulting cost effectiveness between $2,000 and $12,000 per ton of HAP reduced) described in a separate memorandum[6] is applicable to area sources as well. Recordkeeping and reporting costs were estimated for existing area sources with a total initial cost of $1,102 per facility and a total annual cost of $1,554 per facility. The recordkeeping and reporting cost analysis is presented in Attachment I.

7.0 Summary of Results

Table 41 presents a summary of annual emissions from existing area sources and the costs and emission reductions of control options beyond the level of control currently available at existing area sources for process vents, wastewater, equipment leaks, heat exchange systems, other emission sources, and storage vessels. Table 42 presents a summary of annual emissions from existing and model new area sources and the costs and emission reductions of control options beyond the level of control currently available at existing and model new area sources for resins. Table 43 presents a summary of annual emissions for a model new area source and the costs and emission reductions of control options beyond the level of control currently available at a model new area source for process vents, wastewater, equipment leaks, heat exchange systems, other emission sources and storage vessels. Table 43 indicates on which existing area source facility each emission point was based.

Table 41. Existing Source GACT Analysis Summary for Process Vents, Wastewater, Equipment Leaks, Heat Exchange Systems, Other Emission Sources and Storage Vessels

Emission Point	Control Option[1]	Total Initial Cost ($)	Total Annual Cost ($/yr)	Baseline Emission and Reductions[2] (Tons/yr)			Cost Effectiveness ($/ton, Total Organic HAP basis)
				VC	CDD/CDF (g/yr)	Total Organic HAP	
Process Vents (PVC-Only)	**Baseline** (Current Performance)			5.8E-02	1.20E-04	1.07	
	Option 1 (Existing Major Source Testing and Monitoring)	48,161[3]	10,890[4]	-	-	-	-
	Option 2[5] (Existing Major Source Emission Limits)	350,711	180,245	1.40E-02[6]	2.87E-05	2.57E-01	701,814
Process Vents (PVC-Combined)	**Baseline** (Current Performance)			2.79E-01	7.64E-03	4.61	
	Option 1 (Existing Major Source Testing and Monitoring)	48,161[3]	10,890[4]	-	-	-	-
	Option 2[5] (Existing Major Source Emission Limits)	48,161[3]	10,890[4]	-	-	-	-
Wastewater	**Baseline** (Current Performance)			9.03E-01	-	13.1	
	Option 1[7] (Major Source Testing and Monitoring)	7,429	19,777	-	-	-	-
	Option 2[7] (Existing Major Source Concentration Limits and Work Practices)	7,429	19,777	-	-	-	-
	Option 3[8] (New Major Source Concentration Limits and Work Practices)	12,370,537	2,996,390	8.55E-03	-	12.2	245,516
Equipment Leaks[9]	**Baseline** (Current Level of Control - Subpart F/V)					20.0	
	Option 1[10] (Existing Major Source Requirements)	359,970	72,525	-	-	9.29	7,807
Heat Exchangers[11]	**Baseline** (LDAR - 5000 ppb and monthly monitoring)			17.8	-	17.8	
	Option 1 (LDAR - Major Source 50 ppb and quarterly monitoring)	7,425	25,529	15.1	-	15.1	1,691
Other Emission Sources	**Baseline** (Current Level of Control - Subpart F)			3.4E-01	-	3.4E-01	
	Option 1 (Existing Major Source Requirements and Work Practices)	2,204	3,108	-	-	-	-
Storage Vessels	**Baseline** (Current Level of Control - No Control)			3.4E-01	-	4.9E-01	
	Option 1 (Existing Major Source Requirements)	2,204	3,108	-	-	-	2,000-12,000[12]

[1] –For process vents, option 1 equals the testing and monitoring major source requirements for VC, CDD/CDF, and total organic HAP and option 2 equals the existing major source requirements. For wastewater, option 1 equals the testing and monitoring major source requirements for VC and total non-VC organic HAP, option 2 equals the existing major source major sources, and option 3 equals the new major source requirements. For equipment leaks and reactor openings, option 1 equals the existing major source requirements.

[2] – Baseline emissions are shown for the level of control currently available at existing area sources. Total Organic HAP baselines and reductions include vinyl chloride.

[3] – Total capital cost for process vents includes initial record keeping and reporting costs (which include year 1 annual costs) and initial process vent testing.

[4] – Total annual costs for process vents include process vent testing and annual record keeping and reporting (starting in year 2).

[5] – Capital costs include 1)a condenser before the thermal oxidizer, 2) initial record keeping and reporting (which include year 1 annual costs), and 3) initial process vent testing. Annual costs include 1) the operation of the condenser, 2) annual record keeping and reporting (starting in year 2) and 3) annual process vent testing.

[6] – Vinyl chloride emission reductions are a co-result of dioxins/furans and Total Organic HAP reductions.

[7] – Initial cost consists of initial uncontrolled stream testing for vinyl chloride and Total Non-VC Organic HAP in additional to initial record keeping and reporting costs. Annual cost consists of monthly testing and monitoring for vinyl chloride and Total Non-VC Organic HAP in the wastewater stripper outlet flow, annual testing for vinyl chloride and total Non-VC Organic HAP at the uncontrolled streams, and annual record keeping and reporting costs. No emission reductions are associated with the testing and monitoring cost. The testing and monitoring requirements also include development of a standard operating procedure for maintenance wastewater.
[8] – Capital costs for wastewater include hard piping of previously uncontrolled streams, a new wastewater stripper, and initial testing and monitoring in addition to initial record keeping and reporting costs. Annual costs for wastewater include controlling previously uncontrolled streams, annual testing and monitoring costs, and annual record keeping and reporting costs.
[9] – Emissions and reductions of volatile organic compounds (VOCs)/volatile hazardous air pollutants (VHAPs), and organic hazardous air pollutants (HAPs) categorized as Total Organic HAP. Emissions, reductions, and associated costs referenced from memorandum - Cindy Hancy, RTI, to Jodi Howard, EPA/OAQPS, dated December 21, 2011, subject "Analysis of Emissions Reduction Techniques for Equipment Leaks.". Baseline emissions, reductions, and costs are adjusted based on equipment counts provided by CertainTeed.
[10] – Capital costs for equipment leaks include capital associated with complying with Subpart UU, the cost of an electronic PRD monitoring system, and the initial record keeping and reporting requirements. Annual costs include operation of the PRD monitoring system, complying with Subpart UU, and annual record keeping and reporting costs.

[11] – VOCs and vinyl chloride assumed to be total organic HAP.

[12] – Emissions reductions and costs were calculated for retrofitting subpart WW controls on model fixed roof tanks meeting Subpart Kb vapor pressure and size parameters. The results of the analysis showed that cost effectiveness ranged from $2,000 to $12,000 per ton of HAP reduced by this option depending on the number of turnovers assumed. Based on information submitted by PVC production facilities, no storage vessels from affected sources that meet the capacity levels storing materials that meet the vapor pressure levels were identified. Therefore, it was assumed that no storage vessels meeting capacity levels storing materials that meet the vapor pressure levels would be constructed at a new source.

CDD/CDF – Dioxins/Furans, toxic equivalency basis (TEQ)

GACT – Generally Available Control Technology

gr/yr – Grams per year

ng/dscm – Nanograms per dry standard cubic meter, toxic equivalency basis (TEQ)

ppmv – Parts per million, dry volume basis corrected to 3 percent oxygen

ppmw – Parts per million by weight

Tons/yr – Tons per year

Total Organic HAP – Total Organic Hazardous air pollutants. Organic HAP (process vents) does not include hydrogen chloride (HCl). Total Organic HAP includes vinyl chloride, dioxins/furans, and all other organic HAP.

Total Non-VC Organic HAP – Total organic hazardous air pollutants not including vinyl chloride

VC – Vinyl Chloride

$ - Dollars

$/ton – Dollars per ton

$/yr – Dollars per year

Table 42. Existing and New Source GACT Analysis Summary for Resins

Resin Type	Control Option[1]	Total Initial Cost ($)	Total Annual Cost ($/yr)	Baseline Emission and Reductions[2] (tons/yr)		Cost Effectiveness ($/ton, Total Organic HAP basis)
				VC	Total Organic HAP[3]	
Bulk	**Baseline** (Current Performance)			9.39E-01	6.51	
	Option 1[4] (Major Source Testing and Monitoring)	4,319	10,615	-	-	-
	Option 2[4] (Existing Source Concentration Limits)	4,319	10,615	-	-	-
Suspension	**Baseline** (Current Performance)			2.38E-01	3.57	
	Option 1[4] (Major Source Testing and Monitoring)	4,319	10,615	-	-	-
	Option 2[4] (Existing Source Concentration Limits)	4,319	10,615	-	-	-
Dispersion	**Baseline** (Current Performance)			1.17	1.32	
	Option 1[4] (Major Source Testing and Monitoring)	4,319	10,615	-	-	-
	Option 2[4] (Existing Source Concentration Limits)	4,319	10,615	-	-	-
Suspension Blending	**Baseline** (Current Performance)			3.43E-02	1.75E-01	
	Option 1[4] (Major Source Testing and Monitoring)	4,319	10,615	-	-	-
	Option 2[4] (Existing Source Concentration Limits)	4,319	10,615	-	-	-
Copolymer	**Baseline** (Current Performance)			7.91E-01	2.75	
	Option 1[4] (Major Source Testing and Monitoring)	4,319	10,615	-	-	-
	Option 2[4] (Existing Source Concentration Limits)	4,319	10,615	-	-	-

[1] – For dispersion, suspension blending, and copolymer resins, baseline for existing area sources was determined to be the level of control of the least controlled major source in the applicable stripped resin subcategory. Option 1 is equivalent to baseline with the addition of major source testing and monitoring requirements. Option 2 consists of the existing major concentration limits in each resin subcategory.
[2] – Emission reductions are presented for Option 2 where applicable. Emissions reductions are not applicable to Option 1 as there are no emission reductions associated with testing and monitoring only.

[3] – Total Organic HAP baseline and reductions include vinyl chloride.
[4] – $4,700 consists of the initial testing, record keeping and reporting requirements. $10,615 consists of annual testing and monitoring for Total Non-VC Organic HAP in addition to annual record keeping and reporting costs.

GACT – Generally Available Control Technology

ppmw – Parts per million by weight

Tons/yr – Tons per year

Total Non-VC Organic HAP – Total organic hazardous air pollutants not including vinyl

chloride

VC – Vinyl Chloride

$ - Dollars

$/ton – Dollars per ton

$/yr – Dollars per year

Table 43. New Source GACT Analysis Summary for Process Vents, Wastewater, Equipment Leaks, Heat Exchange Systems, Other Emission Sources and Storage Vessels

Emission Point	Control Option[1]	Total Initial Cost ($)	Total Annual Cost ($/yr)	Baseline Emission and Reductions[2] (Tons/yr)			Cost Effectiveness ($/ton, Total Organic HAP basis)
				VC	CDD/CDF (g/yr)	Total Organic HAP	
Process Vents (PVC-Only)	**Baseline** (Current Performance – CertainTeed Lake Charles)			5.8E-02	1.20E-04	1.07	
	Option 1 (Existing Major Source Testing and Monitoring)	48,161[3]	10,890[4]	-	-	-	-
	Option 2[5] (Existing Major Source Emission Limits)	350,711	180,245	1.40E-02[6]	2.87E-05	2.57E-01	701,814
Process Vents (PVC-Combined)	**Baseline** (Current Performance – OxyVinyls Deer Park)			2.79E-01	7.64E-03	4.61	
	Option 1 (Existing Major Source Testing and Monitoring)	48,161[3]	10,890[4]	-	-	-	-
	Option 2[5] (Existing Major Source Emission Limits)	48,161[3]	10,890[4]	-	-	-	-
Wastewater	**Baseline** (Current Performance - OxyVinyls Deer Park)			6.34E-01	-	9.44	
	Option 1[7] (Major Source Testing and Monitoring)	3,715	9,888		-	-	-
	Option 2[7] (Existing Major Source Concentration Limits and Work Practices)	3,715	9,888	-	-	-	-
	Option 3[8] (New Major Source Concentration Limits and Work Practices)	8,054,327	1,988,368	1.31E-01	-	8.91	223,169
Equipment Leaks[9]	**Baseline** (Current Level of Control - Subpart F/V - OxyVinyls Deer Park)					10	
	Option 1[10] (Existing Major Source Requirements)	179,985	36,263	-	-	4.64	7,807
Heat Exchangers[11]	**Baseline** (LDAR - 5000 ppb and monthly monitoring - OxyVinyls Deer Park)			12.5	-	12.5	
	Option 1 (LDAR - Major Source 50 ppb and quarterly monitoring)	3,713	12,764	11.4	-	11.4	1,117
Other Emission Sources	**Baseline** (Current Level of Control - Subpart F - Model Area Source Presented in Section 6.0)			1.18	-	1.19	
	Option 1 (Existing Major Source Requirements and Work Practices)	6,102	3,032	6.16E-01	-	6.16E-01	4,922
Storage Vessels	**Baseline** (Current Level of Control - No Control - OxyVinyls Deer Park)			3.36E-01	-	4.92E-01	
	Option 1 (Existing Major Source Requirements)	1,102	1,554	-	-	-	2,000-12,000[12]

[1] –For process vents, option 1 equals the testing and monitoring major source requirements for VC, CDD/CDF, and total organic HAP and option 2 equals the existing major source requirements. For wastewater, option 1 equals the testing and monitoring major source requirements for VC and total non-VC organic HAP, option 2 equals the existing major source major sources, and option 3 equals the new major source requirements. For equipment leaks and reactor openings, option 1 equals the existing major source requirements. The facility basis for emissions and costs estimates for the model area source is provided in the "Baseline" explanation.

[2] – Baseline emissions are shown for the level of control currently available at existing area sources. Total Organic HAP baselines and reductions include vinyl chloride.

[3] – Total capital cost for process vents includes initial record keeping and reporting costs (which include year 1 annual costs) and initial process vent testing.

[4] – Total annual costs for process vents include process vent testing and annual record keeping and reporting (starting in year 2).

[5] – Capital costs include 1)a condenser before the thermal oxidizer, 2) initial record keeping and reporting (which include year 1 annual costs), and 3) initial process vent testing. Annual costs include 1) the operation of the condenser, 2) annual record keeping and reporting (starting in year 2) and 3) annual process vent testing.

[6] – Vinyl chloride emission reductions are a co-result of dioxins/furans and Total Organic HAP reductions.

[7] – Initial cost consists of initial uncontrolled stream testing for vinyl chloride and Total Non-VC Organic HAP in additional to initial record keeping and reporting costs. Annual cost consists of monthly testing and monitoring for vinyl chloride and Total Non-VC Organic HAP in the wastewater stripper outlet flow, annual testing for vinyl chloride and total Non-VC Organic HAP at the uncontrolled streams, and annual record keeping and reporting costs. No emission reductions are associated with the testing and monitoring cost. The testing and monitoring requirements also include development of a standard operating procedure for maintenance wastewater.
[8] – Capital costs for wastewater include hard piping of previously uncontrolled streams, a new wastewater stripper, and initial testing and monitoring in addition to initial record keeping and reporting costs. Annual costs for wastewater include controlling previously uncontrolled streams, annual testing and monitoring costs, and annual record keeping and reporting costs.
[9] – Emissions and reductions of volatile organic compounds (VOCs)/volatile hazardous air pollutants (VHAPs), and organic hazardous air pollutants (HAPs) categorized as Total Organic HAP. Emissions, reductions, and associated costs referenced from memorandum - Cindy Hancy, RTI, to Jodi Howard, EPA/OAQPS, dated December 21, 2011, subject "Analysis of Emissions Reduction Techniques for Equipment Leaks." Baseline emissions, reductions, and costs are adjusted based on equipment counts provided by CertainTeed.
[10] – Capital costs for equipment leaks include capital associated with complying with Subpart UU, the cost of an electronic PRD monitoring system, and the initial record keeping and reporting requirements. Annual costs include operation of the PRD monitoring system, complying with Subpart UU, and annual record keeping and reporting costs.

[11] – VOCs and vinyl chloride assumed to be total Organic HAP.

[12] – Emissions reductions and costs were calculated for retrofitting subpart WW controls on model fixed roof tanks meeting Subpart Kb vapor pressure and size parameters. The results of the analysis showed that cost effectiveness ranged from $2,000 to $12,000 per ton of HAP reduced by this option depending on the number of turnovers assumed. Based on information submitted by PVC production facilities, no storage vessels from affected sources that meet the capacity levels storing materials that meet the vapor pressure levels were identified. Therefore, it was assumed that no storage vessels meeting capacity levels storing materials that meet the vapor pressure levels would be constructed at a new source.

CDD/CDF – Dioxins/Furans, toxic equivalency basis (TEQ)

GACT – Generally Available Control Technology

gr/yr – Grams per year

ng/dscm – Nanograms per dry standard cubic meter, toxic equivalency basis (TEQ)
ppmv – Parts per million, dry volume basis corrected to 3 percent oxygen

ppmw – Parts per million by weight

Tons/yr – Tons per year

Total Organic HAP – Total Organic Hazardous air pollutants. Organic HAP (process vents) does not include hydrogen chloride (HCl). Total Organic HAP includes vinyl chloride, dioxins/furans, and all other organic HAP.

Total Non-VC Organic HAP – Total organic hazardous air pollutants not including vinyl chloride

VC – Vinyl Chloride

$ - Dollars

$/ton – Dollars per ton

$/yr – Dollars per year

8.0 References

1. "Information Collection for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category." Memorandum from Eastern Research Group, Inc. To Jodi Howard, U.S. Environmental Protection Agency. February 2012.

2. "Revised Maximum Achievable Control Technology (MACT) Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category." Memorandum from Eastern Research Group, Inc. to Jodi Howard, U.S. Environmental Protection Agency. February 2012.

3. "Data and procedure for handling below detection level data in analyzing various pollutant emissions database for MACT and RTR emission limits." Memorandum from Peter Westlin, U.S. Environmental Protection Agency, to Sector Policies and Programs Division Management and Technical Staff, U.S. Environmental Protection Agency. December 13, 2011.

4. "Revised Baseline Emission Estimates for Major Sources in the Polyvinyl Chloride and Copolymers (PVC) Production Source Category." Memorandum from Eastern Research Group, Inc. to Jodi Howard, U.S. Environmental Protection Agency. February 2012.

5. "Revised Costs and Emission Reductions for Major Sources in the Polyvinyl Chloride and Copolymers (PVC) Production Source Category." Memorandum from Eastern Research Group, Inc. to Jodi Howard, U.S. Environmental Protection Agency. February 2012.

6. "Revised Beyond-the-Floor Analysis for the Polyvinyl Chloride and Copolymers (PVC) Production Source Category." Memorandum from Eastern Research Group, Inc. to Jodi Howard, U.S. Environmental Protection Agency. February 2012.

Attachments

Attachment A. CertainTeed Lake Charles and OxyVinyls Deer Park Operating Permits

Attachment B. GACT Analysis for PVC-Only Process Vents

Attachment C. GACT Analysis for PVC-Combined Process Vents

Attachment D. GACT Analysis for Stripped Resins

Attachment E. GACT Analysis for Process and Maintenance Wastewater

Attachment F. GACT Analysis for Heat Exchange Systems

Attachment G. GACT Analysis for Equipment Leaks

Attachment H. GACT Analysis for Other Emission Sources

Attachment I. Recordkeeping and Reporting Cost Estimation for Area Sources

Attachment J. Storage Vessel Information Provided in Facility Survey

Attachment A

CertainTeed Lake Charles and OxyVinyls Deer Park Operating Permits

State of Louisiana

Department of Environmental Quality

KATHLEEN BABINEAUX BLANCO
GOVERNOR

MIKE D. McDANIEL, Ph.D.
SECRETARY

Certified Mail No: 7004 1160 0003 2710 3692

Mr. Frank L. Conrad
Certainteed Corporation
P.O. Box 253
Sulphur, LA 70663

RE: Permit modification, CertainTeed Corporation, Sulphur, Calcasieu Parish, Louisiana.
Agency Interest (AI) No. 3063, Activity No. 20050001.

Dear Mr. Conrad:

This is to inform you that the permit modification for the above referenced facility has been approved under LAC 33:III.501. The submittal was approved on the basis of the emissions reported and the approval in no way guarantees the design scheme presented will be capable of controlling the emissions as to the types and quantities stated. A new application must be submitted if the reported emissions are exceeded after operations begin. The synopsis, data sheets and conditions are attached herewith.

It will be considered a violation of the permit if all proposed control measures and/or equipment are not installed and properly operated and maintained as specified in the application.

The permit number cited below and the Agency Interest (AI) Number 3063 should be referenced in future correspondence regarding this facility.

Done this 29th day of September, 2005.

Permit No.:0520-00025-05

Sincerely,

Chuck Carr Brown, Ph. D.
Assistant Secretary

Date

CCB:DXW

AIR PERMIT BRIEFING SHEET
PERMITS DIVISION
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

CERTAINTEED CORPORATION
SULPHUR, CALCASIEU PARISH, LOUISIANA

I. BACKGROUND

CertainTeed Corporation has operated a polyvinyl chloride (PVC) polymer plant in Sulphur since 1973. The facility currently operates under Permit No. 0520-00025-04 issued September 21, 2000.

II. ORIGIN

A permit application and Emission Inventory Questionnaire (EIQ) dated April 15, 2005, were received requesting a permit modification.

III. DESCRIPTION

CertainTeed Corporation utilizes the bulk (or dry) polymerization process to produce PVC. Liquid VCM from pipeline is stored in a pressure tank and then introduced into closed reactors where it is polymerized. Unreacted VCM is recycled. Dry PVC polymer is classified. Large particle PVC is ground to desired size. PVC product is conveyed to the storage silo and then shipped out.

CertainTeed requests a permit modification for the following:

- Delete three PVC reactors authorized under previous Permit No. 0520-00025-04. Due to a poor products market, CertainTeed did not construct the three additional closed batch reactors to increase PVC production rate to 650 MM lbs/yr. Production will remain at nine reactors at a rate of 550 MM lbs/yr.
- Route emissions from EPN 8-76, "B" Product Conveyor, to the 50 foot "New Stack", EPN 1-01 for better dispersion control.
- Add EPN 1-05, Classification Building No.2, to better track particulates for Poly 2 Bag-house.

Estimated emission changes in tons per year are as follows:

Pollutant	Before	After	Change
PM_{10}	10.41	8.84	-1.57
SO_2	0.09	0.10	+0.01
NO_X	21.12	22.82	+1.70
CO	5.29	5.70	+0.41
VOC	5.45	4.41	-1.04
VCM (VOC)	3.40	3.96	+0.56

AIR PERMIT BRIEFING SHEET
PERMITS DIVISION
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

CERTAINTEED CORPORATION
SULPHUR, CALCASIEU PARISH, LOUISIANA

IV. TYPE OF REVIEW

This permit was reviewed for compliance with Louisiana Air Quality Regulations, New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP). Prevention of Significant Deterioration (PSD) does not apply.

This facility is a minor source of toxic air pollutants.

V. PUBLIC NOTICE

Public notice is not required for a modification to a minor source permit.

SPECIFIC CONDITIONS

CERTAINTEED CORPORATION
SULPHUR, CALCASIEU PARISH, LOUISIANA

1. To ensure compliance with Louisiana Ambient Air Standards (AAS) for vinyl chloride, permittee shall measure and record the VCM residue in each batch of PVC product and comply with the following(*):

   a. Methods and procedures described in 40 CFR 61.67(g)(6) shall be used. The vinyl chloride in PVC shall be stripped to 10 ppmw.

   b. The weighted average of residual VCM in all grades of resin processed through the stripper for each calendar day and the average VCM residue for the last ninety (90) calendar days shall be calculated and recorded daily. Average VCM residual in PVC resin above the maximum listed condition for any ninety (90) day period shall be a violation of this permit and must be reported to the Office of Environmental Compliance, Enforcement Division. A report showing the ninety day average shall be included in the LESHAP report. These records shall be kept on site and available for inspection by the Office of Environmental Compliance, Surveillance Division. Any ninety (90) consecutive day average VCM residue above the limits specified by this condition shall be a violation of this permit and must be reported to the Office of Environmental Compliance, Enforcement Division.

(*) This is a State Only permit Condition

SPECIFIC CONDITIONS

CERTAINTEED CORPORATION
SULPHUR, CALCASIEU PARISH, LOUISIANA

2. Permittee shall comply with all applicable provisions of NESHAP, 40 CFR 61, Subpart F - National Emission Standard for Vinyl Chloride and Subpart V - National Emission Standard for Equipment Leaks (Fugitive Emission Source), including, but not limited to the following:

a) Submit to the Office of Environmental Compliance, Enforcement Division by March 15, June 15, September 15, and December 15 each year a report in writing containing the information required by 40 CFR 61, Subpart F.

b) Continuously monitor the stacks of the thermal oxidizers, Emission Points 2-79A, 2-79B, and 2-79C, for vinyl chloride emissions. A concentration of 10 ppmv vinyl chloride or less averaged over a three hour period is allowed.

c) Conduct a leak detection and repair program that meets the requirements of NESHAP Subparts F and V, except the definition of a leak shall be 1000 ppmv. (*)

d) Maintain daily average of VCM residue in PVC at or below the limits specified in 40 CFR 61.64(e). (**)

e) Operate an area ambient air monitoring system for VCM in accordance with 40 CFR 61.65(b)(8)(i).

(*) The 1000 ppmv leak definition is a State Only condition.
(**) CertainTeed must meet the more stringent State Only limits of Specific Condition 1, although the NESHAP limit also applies.

LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS

I. This permit is issued on the basis of the emissions reported in the application for approval of emissions and in no way guarantees that the design scheme presented will be capable of controlling the emissions to the type and quantities stated. Failure to install, properly operate and/or maintain all proposed control measures and/or equipment as specified in the application and supplemental information shall be considered a violation of the permit and LAC 33:III.501. If the emissions are determined to be greater than those allowed by the permit (e.g. during the shakedown period for new or modified equipment) or if proposed control measures and/or equipment are not installed or do not perform according to design efficiency, an application to modify the permit must be submitted. All terms and conditions of this permit shall remain in effect unless and until revised by the permitting authority.

II. The permittee is subject to all applicable provisions of the Louisiana Air Quality Regulations. Violation of the terms and conditions of the permit constitutes a violation of these regulations.

III. The attached Facility Specific Requirements or, where included, Emission Inventory Questionnaire sheets establish the emission limitations and are a part of the permit. Any operating limitations are noted in the Facility Specific Requirements or, where included, Tables 2 and 3 of the permit. The permit is based on the permit application and Emission Inventory Questionnaire (EIQ) dated April 15, 2005.

IV. This permit shall become invalid, for the sources not constructed, if:

A. Construction is not commenced, or binding agreements or contractual obligations to undertake a program of construction of the project are not entered into, within two (2) years (18 months for PSD permits) after issuance of this permit, or;

B. If construction is discontinued for a period of two (2) years (18 months for PSD permits) or more.

The administrative authority may extend this time period upon a satisfactory showing that an extension is justified.

This provision does not apply to the time period between construction of the approved phases of a phased construction project. However, each phase must commence construction within two (2) years (18 months for PSD permits) of its projected and approved commencement date.

LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS

V. The permittee shall submit semiannual reports of progress outlining the status of construction, noting any design changes, modifications or alterations in the construction schedule which have or may have an effect on the emission rates or ambient air quality levels. These reports shall continue to be submitted until such time as construction is certified as being complete. Furthermore, for any significant change in the design, prior approval shall be obtained from the Office of Environmental Services, Permits Division.

VI. The permittee shall notify the Department of Environmental Quality, Office of Environmental Services, Permits Division within ten (10) calendar days from the date that construction is certified as complete and the estimated date of start-up of operation. The appropriate Regional Office shall also be so notified within the same time frame.

VII. Any emissions testing performed for purposes of demonstrating compliance with the limitations set forth in paragraph III shall be conducted in accordance with the methods described in the Specific Conditions and, where included, Tables 1, 2, 3, 4, and 5 of this permit. Any deviation from or modification of the methods used

for testing shall have prior approval from the Office of Environmental Assessment, Environmental Technology Division.

VIII. The emission testing described in paragraph VII above, or established in the specific conditions of this permit, shall be conducted within sixty (60) days after achieving normal production rate or after the end of the shakedown period, but in no event later than 180 days after initial start-up (or restart-up after modification). The Office of Environmental Assessment, Environmental Technology Division shall be notified at least (30) days prior to testing and shall be given the opportunity to conduct a pretest meeting and observe the emission testing. The test results shall be submitted to the Environmental Technology Division within sixty (60) days after the complete testing. As required by LAC 33:III.913, the permittee shall provide necessary sampling ports in stacks or ducts and such other safe and proper sampling and testing facilities for proper determination of the emission limits.

IX. The permittee shall, within 180 days after start-up and shakedown of each project or unit, report to the Office of Environmental Compliance, Surveillance Division any significant difference in operating emission rates as compared to those limitations specified in paragraph III. This report shall also include, but not be limited to, malfunctions and upsets. A permit modification shall be submitted, if necessary, as required in Condition I.

X. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of at least five (5) years.

LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS

XI. If for any reason the permittee does not comply with, or will not be able to comply with, the emission limitations specified in this permit, the permittee shall provide the Office of Environmental Compliance, Surveillance Division with a written report as specified below.

A. A written report shall be submitted within 7 days of any emission in excess of permit requirements by an amount greater than the Reportable Quantity established for that pollutant in LAC 33.I.Chapter 39.

B. A written report shall be submitted within 7 days of the initial occurrence of any emission in excess of permit requirements, regardless of the amount, where such emission occurs over a period of seven days or longer.

C. A written report shall be submitted quarterly to address all emission limitation exceedances not included in paragraphs A or B above. The schedule for submittal of quarterly reports shall be no later than the dates specified below for any emission limitation exceedances occurring during the corresponding specified calendar quarter:

1. Report by June 30 to cover January through March
2. Report by September 30 to cover April through June
3. Report by December 31 to cover July through September
4. Report by March 31 to cover October through December

D. Each report submitted in accordance with this condition shall contain the following information:

1. Description of noncomplying emission(s);
2. Cause of noncompliance;
3. Anticipated time the noncompliance is expected to continue, or if corrected, the duration of the period of noncompliance;
4. Steps taken by the permittee to reduce and eliminate the noncomplying emissions; and
5. Steps taken by the permittee to prevent recurrences of the noncomplying emissions.

E. Any written report submitted in advance of the timeframes specified above, in accordance with an applicable regulation, may serve to meet the reporting requirements of this condition provided all information specified above is included. For Part 70 sources, reports submitted in accordance with Part 70 General Condition R shall serve to meet the requirements of this condition provided all specified information is included. Reporting under this condition does not relieve the permittee from the reporting requirements of any applicable regulation, including LAC 33.I.Chapter 39, LAC 33.III.Chapter 9, and LAC 33.III.5107.

XII. Permittee shall allow the authorized officers and employees of the Department of Environmental Quality, at all reasonable times and upon presentation of identification, to:

A. Enter upon the permittee's premises where regulated facilities are located, regulated activities are conducted or where records required under this permit are kept;

B. Have access to and copy any records that are required to be kept under the terms and conditions of this permit, the Louisiana Air Quality Regulations, or the Act;

C. Inspect any facilities, equipment (including monitoring methods and an operation and maintenance inspection), or operations regulated under this permit; and

D. Sample or monitor, for the purpose of assuring compliance with this permit or as otherwise authorized by the Act or regulations adopted thereunder, any substances or parameters at any location.

XIII. If samples are taken under Section XII.D. above, the officer or employee obtaining such samples shall give the owner, operator or agent in charge a receipt describing the sample obtained. If requested prior to leaving the premises, a portion of each sample equal in volume or weight to the portion retained shall be given to the owner, operator or agent in charge. If an analysis is made of such samples, a copy of the analysis shall be furnished promptly to the owner, operator or agency in charge.

XIV. The permittee shall allow authorized officers and employees of the Department of Environmental Quality, upon presentation of identification, to enter upon the permittee's premises to investigate potential or alleged violations of the Act or the rules and regulations adopted thereunder. In such investigations, the permittee shall be notified at the time entrance is requested of the nature of the suspected violation. Inspections under this subsection shall be limited to the aspects of alleged violations. However, this shall not in any way preclude prosecution of all violations found.

LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS

XV. The permittee shall comply with the reporting requirements specified under LAC 33:III.919 as well as notification requirements specified under LAC 33:III.927.

XVI. In the event of any change in ownership of the source described in this permit, the permittee and the succeeding owner shall notify the Office of Environmental Services, Permits Division, within ninety (90) days after the event, to amend this permit.

XVII. Very small emissions to the air resulting from routine operations, that are predictable, expected, periodic, and quantifiable and that are submitted by the permitted facility and approved by the Permits Division are considered authorized discharges. Approved activities are noted in the General Condition XVII Activities List of this permit. To be approved as an authorized discharge, these very small releases must:

1. Generally be less than 5 TPY
2. Be less than the minimum emission rate (MER)
3. Be scheduled daily, weekly, monthly, etc., or
4. Be necessary prior to plant startup or after shutdown [line or compressor pressuring/depressuring for example]

These releases are not included in the permit totals because they are small and will have an insignificant impact on air quality. This general condition does not authorize the maintenance of a nuisance, or a danger to public health and safety. The permitted facility must comply with all applicable requirements, including release reporting under LAC 33:I.3901.

XVIII. Provisions of this permit may be appealed in writing pursuant to La. R.S. 30:2024(A) within 30 days from receipt of the permit. Only those provisions specifically appealed will be suspended by a request for hearing, unless the secretary or the assistant secretary elects to suspend other provisions as well. Construction cannot proceed except as specifically approved by the secretary or assistant secretary. A request for hearing must be sent to the following:

Attention: Office of the Secretary, Legal Services Division
La. Dept. of Environmental Quality
Post Office Box 4302
Baton Rouge, Louisiana 70821-4302

XIX. Certain Part 70 general conditions may duplicate or conflict with state general conditions. To the extent that any Part 70 conditions conflict with state general conditions, then the Part 70 general conditions control. To the extent that any Part 70 general conditions duplicate any state general conditions, then such state and Part 70 provisions will be enforced as if there is only one condition rather than two conditions.

AIR QUALITY DATA SHEET

CERTAINTEED CORPORATION
SULPHUR, CALCASIEU PARISH, LOUISIANA

Location of plant: 15 UTM: 471.370 Km E 3343.960 Km N

Description of location: 253 Pete Manena Road, Sulphur

Estimated starting date of construction: N.A.
Estimated starting date of operation: Operating
Type of Dispersion Calculations Used: ISCST3

EFFECTS ON AMBIENT AIR

Pollutant	Time Period	Calculated Maximum Ground Level Concentration	Louisiana Air Quality Standard (NAAQS)
VCM	Annual average	0.991 $\mu g/m^3$	1.19 $\mu g/m^3$

NEW __ OR MODIFIED _X_ EMISSION SOURCES PVC Production
(Type of Source)

EMISSION POINT LIST

CERTAINTEED CORPORATION
SULPHUR, CALCASIEU PARISH, LOUISIANA

Emission Point No.	Description	Operating Rate (Max) or Tank Capacity	Operating Schedule		
			H/D	D/W	W/Y
1-76	Boiler	23.9 MM BTU/hr	24	7	52
5-76	Initial Classification Conveyor (Poly 1)	Batch	24	7	51
6-76	Crusher Conveyor "B" Product	Batch	24	7	51
2-79A	Thermal Oxidizer No. 1	3 MM BTU/hr	24	7	51
2-79B	Thermal Oxidizer No. 2	3 MM BTU/hr	24	7	51
2-79C	Thermal Oxidizer No. 3	3 MM BTU/hr	24	7	51
3-87	Reactor Openings	Batch	24	7	51
4-87	Fugitives	Batch	24	7	51
1-97	Initial Classification Conveyor (Poly 2)	Batch	24	7	51
1-01	Common Vent 7-76, 8-76 and 9-76 ("A" Product Conveyor, "B" Product Conveyor, Blend Hoppers, respectively)	Batch	24	7	51
1-05	Classification Bldg #2 Baghouse	Batch	24	7	51

Insignificant Activities List:

Lab Hood	Batch (Small samples)
Diesel Storage Tank (6)	250 gal (each)
Emergency diesel pumps	Emergency use (15 minutes run/month/each)

Department of Environmental Quality
Permits Division
P. O. Box 4313
Baton Rouge, Louisiana 70821-4313
(225) 219-3181

LOUISIANA

SINGLE POINT/AREA/VOLUME SOURCE
Emission Inventory Questionnaire (EIQ)
for Air Pollutants

Company Name	Plant location and name (if any)	Date of submittal
CertainTeed Corporation	Sulphur, Louisiana	January, 2005

Source ID number	Descriptive name of the equipment served by this stack or vent	Approximate location of stack or vent (see instructions on how to determine location of area sources)
1-76	Boiler	UTM zone no. ☐ 15 ☐ 16 Horizontal coordinate 471349 mE Vertical coordinate 3343955 mN

Stack and Discharge Physical Characteristics [Change ☐yes☐no]	Height of Stack above grade (ft)	Diameter (ft) or stack discharge area (ft²)	Stack gas exit temperature (°F)	Stack gas flow at process conditions, not at standard (ft³/min)	Stack gas exit velocity (ft/sec)	Date of construction/modification	Operating rate (Max) or tank capacity
	40	10 ☐ ft	500	8,300	19.6	N/A	N/A

Fuel

	Type of fuel used and heat input (see Instructions)		Operating Characteristics	Percent of annual throughput of pollutants through this emission point				Normal operating time of this point			Normal Operating Rate
	Type of fuel	Heat Input (MM BTU/hr)		Dec-Feb	Mar-May	Jun-Aug	Sep-Nov	hrs/day	days/wk	wk/yr	
a	Natural Gas	23.9		25%	25%	25%	25%	24	7	52	
b											
c											

SCC

Air Pollutant Specific Information

Pollutant	Control Equipment Code	Control Equipment Efficiency	Emission Rate			Emission Estimation Method	Add, Change, or Delete Code	Concentration in gases exiting at stack
			Average (lbs/hr)	Maximum (lbs/hr)	Annual (tons/yr)			
Particulate matter (PM_{10})	000	98%	0.08	0.16	0.35	3		gr/std ft³
Sulfur dioxide	000		0.02	0.04	0.07	3		ppm by vol
Nitrogen dioxide	000		3.83	7.66	16.76	3		ppm by vol
Carbon monoxide	000		0.96	1.92	4.20	3		ppm by vol
Total VOC (including those listed below)								ppm by vol
Non-Methane	000		0.08	0.16	0.33	3		ppm by vol
Methane	000		0.08	0.16	0.35	3		ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol

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SINGLE POINT/AREA/VOLUME SOURCE
Emission Inventory Questionnaire (EIQ)
for Air Pollutants

Company Name	Plant location and name (if any)	Date of submittal
CertainTeed Corporation	Sulphur, Louisiana	January, 2005

Source ID number	Descriptive name of the equipment served by this stack or vent	Approximate location of stack or vent (see instructions on how to determine location of area sources)
5-76	Initial Classification (Unit 1 Poly)	UTM zone no. ☐ 15 ☐ 16 Horizontal coordinate 471282.5 mE Vertical coordinate 3343901 mN

Stack and Discharge Physical Characteristics [Change ☐yes☐no]	Height of Stack above grade (ft)	Diameter (ft) or stack discharge area (ft^2)	Stack gas exit temperature (°F)	Stack gas flow at process conditions, not at standard (ft^3/min)	Stack gas exit velocity (ft/sec)	Date of construction/modification	Operating rate (Max) or tank capacity
	89.2	1.33 ☐ ft	188	8,800	110	N/A	N/A

Fuel

	Type of fuel used and heat input (see Instructions)		Operating Characteristics	Percent of annual throughput of pollutants through this emission point				Normal operating time of this point			Normal Operating Rate
	Type of fuel	Heat Input (MM BTU/hr)		Dec-Feb	Mar-May	Jun-Aug	Sep-Nov	hrs/day	days/wk	wk/yr	
a	N/A			25%	25%	25%	25%	24	7	51	Batch
b											
c											

SR

Air Pollutant Specific Information

Pollutant	Control Equipment Code	Control Equipment Efficiency	Emission Rate			Emission Estimation Method	Add, Change, or Delete Code	Concentration in gases exiting at stack
			Average (lbs/hr)	Maximum (lbs/hr)	Annual (tons/yr)			
Particulate matter (PM_{10})	017	98%	0.32	0.96	1.33	4		gr/std ft^3
Sulfur dioxide								ppm by vol
Nitrogen dioxide								ppm by vol
Carbon monoxide								ppm by vol
Total VOC (including those listed below)								ppm by vol
Vinyl Chloride	000		0.19	0.57	0.82	4		ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol

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LOUISIANA

SINGLE POINT/AREA/VOLUME SOURCE
Emission Inventory Questionnaire (EIQ)
for Air Pollutants

Company Name	Plant location and name (if any)	Date of submittal
CertainTeed Corporation	Sulphur, Louisiana	January, 2005

Source ID number	Descriptive name of the equipment served by this stack or vent	Approximate location of stack or vent (see instructions on how to determine location of area sources)
6-76	Crusher Conveyor "B" Product	UTM zone no. ☐ 15 ☐ 16 Horizontal coordinate 471275 mE Vertical coordinate 3343928 mN

Stack and Discharge Physical Characteristics [Change ☐yes☐no]	Height of Stack above grade (ft)	Diameter (ft) or stack discharge area (ft^2)	Stack gas exit temperature (°F)	Stack gas flow at process conditions, not at standard (ft^3/min)	Stack gas exit velocity (ft/sec)	Date of construction/modification	Operating rate (Max) or tank capacity
	89.25	0.83 ☐ ft	75	3,300	66	N/A	N/A

Fuel

	Type of fuel used and heat input (see Instructions)	
	Type of fuel	Heat Input (MM BTU/hr)
a	N/A	
b		
c		

Operating Characteristics

Percent of annual throughput of pollutants through this emission point				Normal operating time of this point			Normal Operating Rate
Dec-Feb	Mar-May	Jun-Aug	Sep-Nov	hrs/day	days/wk	wk/yr	
25%	25%	25%	25%	24	7	51	Batch

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Air Pollutant Specific Information

Pollutant	Control Equipment Code	Control Equipment Efficiency	Emission Rate			Emission Estimation Method	Add, Change, or Delete Code	Concentration in gases exiting at stack
			Average (lbs/hr)	Maximum (lbs/hr)	Annual (tons/yr)			
Particulate matter (PM_{10})		98%	0.26	0.78	1.11	4	change	gr/std ft^3
Sulfur dioxide								ppm by vol
Nitrogen dioxide								ppm by vol
Carbon monoxide								ppm by vol
Total VOC (including those listed below)								ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol

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LOUISIANA

SINGLE POINT/AREA/VOLUME SOURCE
Emission Inventory Questionnaire (EIQ)
for Air Pollutants

Company Name	Plant location and name (if any)	Date of submittal
CertainTeed Corporation	Sulphur, Louisiana	January, 2005

Source ID number	Descriptive name of the equipment served by this stack or vent	Approximate location of stack or vent (see instructions on how to determine location of area sources)
2-79 A	Thermal Oxidizer "A"	UTM zone no. ☐ 15 ☐ 16 Horizontal coordinate 471355 mE Vertical coordinate 3343955 mN

Stack and Discharge Physical Characteristics [Change ☐yes☐no]	Height of Stack above grade (ft)	Diameter (ft) or stack discharge area (ft^2)	Stack gas exit temperature (°F)	Stack gas flow at process conditions, not at standard (ft^3/min)	Stack gas exit velocity (ft/sec)	Date of construction/modification	Operating rate (Max) or tank capacity
	50	1.58 ☐ ft	125	2,642	22.46	N/A	N/A

Fuel

	Type of fuel used and heat input (see Instructions)	
	Type of fuel	Heat Input (MM BTU/hr)
a	Natural Gas	3 MM BTU
b		
c		

Operating Characteristics

Percent of annual throughput of pollutants through this emission point				Normal operating time of this point			Normal Operating Rate
Dec-Feb	Mar-May	Jun-Aug	Sep-Nov	hrs/day	days/wk	wk/yr	
25%	25%	25%	25%	24	7	51	

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Air Pollutant Specific Information

Pollutant	Control Equipment Code	Control Equipment Efficiency	Emission Rate			Emission Estimation Method	Add, Change, or Delete Code	Concentration in gases exiting at stack
			Average (lbs/hr)	Maximum (lbs/hr)	Annual (tons/yr)			
Particulate matter (PM_{10})	000		0.010	0.030	0.043	3		gr/std ft^3
Sulfur dioxide	000		0.002	0.006	0.008	3		ppm by vol
Nitrogen dioxide	000		0.470	1.200	2.016	3		ppm by vol
Carbon monoxide	000		0.120	0.360	0.504	3		ppm by vol
Total VOC (including those listed below)								ppm by vol
Non-Methane	000		0.010	0.030	0.040	3		ppm by vol
Methane	000		0.010	0.030	0.043	3		ppm by vol
Vinyl Chloride	021	99%+	0.052	0.160	0.223	3		ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol

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LOUISIANA

SINGLE POINT/AREA/VOLUME SOURCE
Emission Inventory Questionnaire (EIQ)
for Air Pollutants

Company Name	Plant location and name (if any)	Date of submittal
CertainTeed Corporation	Sulphur, Louisiana	January, 2005

Source ID number	Descriptive name of the equipment served by this stack or vent	Approximate location of stack or vent (see instructions on how to determine location of area sources)
2-79 B	Thermal Oxidizer "B"	UTM zone no. ☐ 15 ☐ 16 Horizontal coordinate 471364 mE Vertical coordinate 3343955 mN

Stack and Discharge Physical Characteristics [Change ☐yes☐no]	Height of Stack above grade (ft)	Diameter (ft) or stack discharge area (ft^2)	Stack gas exit temperature (°F)	Stack gas flow at process conditions, not at standard (ft^3/min)	Stack gas exit velocity (ft/sec)	Date of construction/modification	Operating rate (Max) or tank capacity
	50	1.58 ☐ ft	125	2,642	22.46	N/A	N/A

Fuel

	Type of fuel used and heat input (see Instructions)		Operating Characteristics	Percent of annual throughput of pollutants through this emission point				Normal operating time of this point			Normal Operating Rate
	Type of fuel	Heat Input (MM BTU/hr)		Dec-Feb	Mar-May	Jun-Aug	Sep-Nov	hrs/day	days/wk	wk/yr	
a	Natural Gas	3 MM BTU		25%	25%	25%	25%	24	7	51	
b											
c											

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Air Pollutant Specific Information

Pollutant	Control Equipment Code	Control Equipment Efficiency	Emission Rate			Emission Estimation Method	Add, Change, or Delete Code	Concentration in gases exiting at stack
			Average (lbs/hr)	Maximum (lbs/hr)	Annual (tons/yr)			
Particulate matter (PM_{10})	000		0.010	0.030	0.043	3		gr/std ft^3
Sulfur dioxide	000		0.002	0.006	0.008	3		ppm by vol
Nitrogen dioxide	000		0.470	1.200	2.016	3		ppm by vol
Carbon monoxide	000		0.120	0.360	0.504	3		ppm by vol
Total VOC (including those listed below)								ppm by vol
Non-Methane	000		0.010	0.030	0.040	3		ppm by vol
Methane	000		0.010	0.030	0.043	3		ppm by vol
Vinyl Chloride	021	99%+	0.052	0.160	0.223	1		ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol

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LOUISIANA

SINGLE POINT/AREA/VOLUME SOURCE
Emission Inventory Questionnaire (EIQ)
for Air Pollutants

Company Name	Plant location and name (if any)	Date of submittal
CertainTeed Corporation	Sulphur, Louisiana	January, 2005

Source ID number	Descriptive name of the equipment served by this stack or vent	Approximate location of stack or vent (see instructions on how to determine location of area sources)
2-79 C	Thermal Oxidizer "C"	UTM zone no. ☐ 15 ☐ 16 Horizontal coordinate 471373 mE Vertical coordinate 3343955 mN

Stack and Discharge Physical Characteristics [Change ☐yes☐no]	Height of Stack above grade (ft)	Diameter (ft) or stack discharge area (ft^2)	Stack gas exit temperature (°F)	Stack gas flow at process conditions, not at standard (ft^3/min)	Stack gas exit velocity (ft/sec)	Date of construction/modification	Operating rate (Max) or tank capacity
	50	1.58 ☐ ft	125	2,642	22.46	N/A	N/A

Fuel

	Type of fuel used and heat input (see Instructions)		Operating Characteristics	Percent of annual throughput of pollutants through this emission point				Normal operating time of this point			Normal Operating Rate
	Type of fuel	Heat Input (MM BTU/hr)		Dec-Feb	Mar-May	Jun-Aug	Sep-Nov	hrs/day	days/wk	wk/yr	
a	Natural Gas	3 MM BTU		25%	25%	25%	25%	24	7	51	
b											
c											

SCC

Air Pollutant Specific Information

Pollutant	Control Equipment Code	Control Equipment Efficiency	Emission Rate			Emission Estimation Method	Add, Change, or Delete Code	Concentration in gases exiting at stack
			Average (lbs/hr)	Maximum (lbs/hr)	Annual (tons/yr)			
Particulate matter (PM_{10})	000		0.010	0.030	0.043	3		gr/std ft^3
Sulfur dioxide	000		0.002	0.006	0.008	3		ppm by vol
Nitrogen dioxide	000		0.470	1.200	2.016	3		ppm by vol
Carbon monoxide	000		0.120	0.360	0.504	3		ppm by vol
Total VOC (including those listed below)								ppm by vol
Non-Methane	000		0.010	0.030	0.040	3		ppm by vol
Methane	000		0.010	0.030	0.043	3		ppm by vol
Vinyl Chloride	021	99%+	0.052	0.160	0.223	1		ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol

Department of Environmental Quality
Permits Division
P. O. Box 4313
Baton Rouge, Louisiana 70821-4313
(225) 219-3181

LOUISIANA

SINGLE POINT/AREA/VOLUME SOURCE
Emission Inventory Questionnaire (EIQ)
for Air Pollutants

Company Name	Plant location and name (if any)	Date of submittal
CertainTeed Corporation	Sulphur, Louisiana	January, 2005

Source ID number	Descriptive name of the equipment served by this stack or vent	Approximate location of stack or vent (see instructions on how to determine location of area sources)
3-87	Reactor Openings (9 reactors)	UTM zone no. ☐ 15 ☐ 16 Horizontal coordinate mE Vertical coordinate mN

Stack and Discharge Physical Characteristics [Change ☐yes☐no]	Height of Stack above grade (ft)	Diameter (ft) or stack discharge area (ft^2)	Stack gas exit temperature (°F)	Stack gas flow at process conditions, not at standard (ft^3/min)	Stack gas exit velocity (ft/sec)	Date of construction/modification	Operating rate (Max) or tank capacity
	N/A	N/A ☐ ft	N/A	N/A	N/A	N/A	N/A

Fuel

	Type of fuel used and heat input (see Instructions)		Operating Characteristics	Percent of annual throughput of pollutants through this emission point				Normal operating time of this point			Normal Operating Rate
	Type of fuel	Heat Input (MM BTU/hr)		Dec-Feb	Mar-May	Jun-Aug	Sep-Nov	hrs/day	days/wk	wk/yr	
a	N/A			25%	25%	25%	25%	24	7	51	Batch
b											
c											

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Air Pollutant Specific Information

Pollutant	Control Equipment Code	Control Equipment Efficiency	Emission Rate			Emission Estimation Method	Add, Change, or Delete Code	Concentration in gases exiting at stack
			Average (lbs/hr)	Maximum (lbs/hr)	Annual (tons/yr)			
Particulate matter (PM_{10})								gr/std ft^3
Sulfur dioxide								ppm by vol
Nitrogen dioxide								ppm by vol
Carbon monoxide								ppm by vol
Total VOC (including those listed below)								ppm by vol
Vinyl Chloride			0.009	0.027	0.040		Change	ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol

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LOUISIANA

SINGLE POINT/AREA/VOLUME SOURCE
Emission Inventory Questionnaire (EIQ)
for Air Pollutants

Company Name	Plant location and name (if any)	Date of submittal
CertainTeed Corporation	Sulphur, Louisiana	January, 2005

Source ID number	Descriptive name of the equipment served by this stack or vent	Approximate location of stack or vent (see instructions on how to determine location of area sources)
4-87	Fugitives	UTM zone no. ☐ 15 ☐ 16 Horizontal coordinate mE Vertical coordinate mN

Stack and Discharge Physical Characteristics [Change ☐yes☐no]	Height of Stack above grade (ft)	Diameter (ft) or stack discharge area (ft^2)	Stack gas exit temperature (°F)	Stack gas flow at process conditions, not at standard (ft^3/min)	Stack gas exit velocity (ft/sec)	Date of construction/modification	Operating rate (Max) or tank capacity
	N/A	N/A ☐ ft	N/A	N/A	N/A	N/A	N/A

Fuel

	Type of fuel used and heat input (see Instructions)		Operating Characteristics	Percent of annual throughput of pollutants through this emission point				Normal operating time of this point			Normal Operating Rate
	Type of fuel	Heat Input (MM BTU/hr)		Dec-Feb	Mar-May	Jun-Aug	Sep-Nov	hrs/day	days/wk	wk/yr	
a				25%	25%	25%	25%	24	7	51	
b											
c											

Air Pollutant Specific Information

Pollutant	Control Equipment Code	Control Equipment Efficiency	Emission Rate			Emission Estimation Method	Add, Change, or Delete Code	Concentration in gases exiting at stack
			Average (lbs/hr)	Maximum (lbs/hr)	Annual (tons/yr)			
Particulate matter (PM_{10})								gr/std ft^3
Sulfur dioxide								ppm by vol
Nitrogen dioxide								ppm by vol
Carbon monoxide								ppm by vol
Total VOC (including those listed below)								ppm by vol
Vinyl Chloride			0.120	0.360	0.504		Change	ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol

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LOUISIANA

SINGLE POINT/AREA/VOLUME SOURCE
Emission Inventory Questionnaire (EIQ)
for Air Pollutants

Company Name	Plant location and name (if any)	Date of submittal
CertainTeed Corporation	Sulphur, Louisiana	January, 2005

Source ID number	Descriptive name of the equipment served by this stack or vent	Approximate location of stack or vent (see instructions on how to determine location of area sources)
1-97	Initial Classification (Unit 2 Poly)	UTM zone no. ☐ 15 ☐ 16 Horizontal coordinate 471269 mE Vertical coordinate 3343937 mN

Stack and Discharge Physical Characteristics [Change ☐yes☐no]	Height of Stack above grade (ft)	Diameter (ft) or stack discharge area (ft^2)	Stack gas exit temperature (°F)	Stack gas flow at process conditions, not at standard (ft^3/min)	Stack gas exit velocity (ft/sec)	Date of construction/modification	Operating rate (Max) or tank capacity
	71	1.33 ☐ ft	188	9,000	133	N/A	N/A

Fuel

	Type of fuel used and heat input (see Instructions)		Operating Characteristics	Percent of annual throughput of pollutants through this emission point				Normal operating time of this point			Normal Operating Rate
	Type of fuel	Heat Input (MM BTU/hr)		Dec-Feb	Mar-May	Jun-Aug	Sep-Nov	hrs/day	days/wk	wk/yr	
a	N/A			25%	25%	25%	25%	24	7	51	Batch
b											
c											

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Air Pollutant Specific Information

Pollutant	Control Equipment Code	Control Equipment Efficiency	Emission Rate			Emission Estimation Method	Add, Change, or Delete Code	Concentration in gases exiting at stack
			Average (lbs/hr)	Maximum (lbs/hr)	Annual (tons/yr)			
Particulate matter (PM_{10})	017	98%	0.21	0.63	0.93	4		gr/std ft^3
Sulfur dioxide								ppm by vol
Nitrogen dioxide								ppm by vol
Carbon monoxide								ppm by vol
Total VOC (including those listed below)								ppm by vol
Vinyl Chloride	000		0.10	0.30	0.43	4	Change	ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol

Department of Environmental Quality
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LOUISIANA

SINGLE POINT/AREA/VOLUME SOURCE
Emission Inventory Questionnaire (EIQ)
for Air Pollutants

Company Name	Plant location and name (if any)	Date of submittal
CertainTeed Corporation	Sulphur, Louisiana	January, 2005

Source ID number	Descriptive name of the equipment served by this stack or vent	Approximate location of stack or vent (see instructions on how to determine location of area sources)
1-01	Stack (7-76, 8-76 and 9-76)	UTM zone no. ☐ 15 Horizontal coordinate 471363.3 mE ☐ 16 Vertical coordinate 3343902.7 mN

Stack and Discharge Physical Characteristics [Change ☐yes☐no]	Height of Stack above grade (ft)	Diameter (ft) or stack discharge area (ft^2)	Stack gas exit temperature (°F)	Stack gas flow at process conditions, not at standard (ft^3/min)	Stack gas exit velocity (ft/sec)	Date of construction/modification	Operating rate (Max) or tank capacity
	50	2 ☐ ft	95	2,000		6/2001	N/A

Fuel

	Type of fuel used and heat input (see Instructions)		Operating Characteristics	Percent of annual throughput of pollutants through this emission point				Normal operating time of this point			Normal Operating Rate
	Type of fuel	Heat Input (MM BTU/hr)		Dec-Feb	Mar-May	Jun-Aug	Sep-Nov	hrs/day	days/wk	wk/yr	
a	N/A			25%	25%	25%	25%	24	7	51	
b											
c											

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Air Pollutant Specific Information

Pollutant	Control Equipment Code	Control Equipment Efficiency	Emission Rate			Emission Estimation Method	Add, Change, or Delete Code	Concentration in gases exiting at stack
			Average (lbs/hr)	Maximum (lbs/hr)	Annual (tons/yr)			
Particulate matter (PM_{10})			1.10	3.30	4.63	4		gr/std ft^3
Sulfur dioxide								ppm by vol
Nitrogen dioxide								ppm by vol
Carbon monoxide								ppm by vol
Total VOC (including those listed below)								ppm by vol
Vinyl Chloride			0.35	1.05	1.51	4	Change	ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol

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LOUISIANA

SINGLE POINT/AREA/VOLUME SOURCE
Emission Inventory Questionnaire (EIQ)
for Air Pollutants

Company Name	Plant location and name (if any)	Date of submittal
CertainTeed Corporation	Sulphur, Louisiana	January, 2005

Source ID number	Descriptive name of the equipment served by this stack or vent	Approximate location of stack or vent (see instructions on how to determine location of area sources)
1-05	Classification Building #2 Bag-house	UTM zone no. ☐ 15 ☐ 16 Horizontal coordinate 471381 mE Vertical coordinate 3343902 mN

Stack and Discharge Physical Characteristics [Change ☐yes☐no]	Height of Stack above grade (ft)	Diameter (ft) or stack discharge area (ft^2)	Stack gas exit temperature (°F)	Stack gas flow at process conditions, not at standard (ft^3/min)	Stack gas exit velocity (ft/sec)	Date of construction/modification	Operating rate (Max) or tank capacity
	35	3 ☐ ft	118	3,420	96.33	N/A	N/A

Fuel 64

	Type of fuel used and heat input (see Instructions)	
	Type of fuel	Heat Input (MM BTU/hr)
a	N/A	
b		
c		

Operating Characteristics

Percent of annual throughput of pollutants through this emission point				Normal operating time of this point			Normal Operating Rate
Dec-Feb	Mar-May	Jun-Aug	Sep-Nov	hrs/day	days/wk	wk/yr	
25%	25%	25%	25%	24	7	51	Batch

Air Pollutant Specific Information

Pollutant	Control Equipment Code	Control Equipment Efficiency	Emission Rate			Emission Estimation Method	Add, Change, or Delete Code	Concentration in gases exiting at stack
			Average (lbs/hr)	Maximum (lbs/hr)	Annual (tons/yr)			
Particulate matter (PM_{10})			0.09	0.27	0.37	4	Add	gr/std ft^3
Sulfur dioxide								ppm by vol
Nitrogen dioxide								ppm by vol
Carbon monoxide								ppm by vol
Total VOC (including those listed below)								ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol
								ppm by vol

ANNUAL EMISSION RATES

CERTAINTEED CORPORATION
SULPHUR, CALCASIEU PARISH, LOUISIANA

Emission	Permitted emission rates are listed in tons per year					
Point No	PM_{10}	SO_2	NO_X	CO	VOC	VCM
1-76	0.35	0.07	16.76	4.20	0.33	-
5-76	1.33	-	-	-	0.82	0.82
6-76	1.11	-	-	-	-	-
2-79A	0.04	0.01	2.02	0.50	0.26	0.22
2-79B	0.04	0.01	2.02	0.50	0.26	0.22
2-79C	0.04	0.01	2.02	0.50	0.26	0.22
3-87	-	-	-	-	0.04	0.04
4-87	-	-	-	-	0.50	0.50
1-97	0.93	-	-	-	0.43	0.43
1-01	4.63	-	-	-	1.51	1.51
1-05	0.37	-	-	-	-	-
Totals	8.84	0.10	22.82	5.70	4.41	3.96

VOC includes 3.96 TPY of VCM

AIR PERMIT ROUTING/APPROVAL SLIP

APPLICATION RECEIVED MAY 2, 2005

Mailed 9/30/05

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AI No.:	3063	Company:	CERTAINTEED CORPORATION	Category:	
Activity No.:	PER20050001	Facility:		File Name:	
CDS No.:	0520-00025	Permit No.:	0520-00025-05	Rush:	Yes ☐ No ☐

Technical Review	Approved	Date Received	Date Forwarded	Comments
Permit Writer	DXW	5/6/05	7/18/05	STATE PERMIT MINOR MOD.
Env. Technology	SP		9/19/05	O-K
Air Toxics Support				
Jordan/PSD/NNSR				
Technical Reviewer	EAMS # 32848620			

Management Review	Approved	Date Received	Date Forwarded	Comments
Supervisor	JHD		JHD 9/29/05 8/10/05	-OK.
Manager	DVC	9/29/05	9/29/05	Approved as noted
Advisor				assessment ?
Assistant Secretary/Notice				
Assistant Secretary/Final	CKB		9/25/05	

$1966 @ CK# 273720

Please Answer All of the Following

1.	Fee Paid:	Yes ☐	No ☐	No Fee Required ☐	
2.	LAC 33:I.1701 Information:	Yes ☐	No ☐	Date:	
3.	Groundwater Approval:	Yes ☐	No ☐	Date:	(Policy Memo 18)
4.	Air Toxics Support:	Yes ☐	No ☐	Date:	
5.	IT Questions:	Yes ☐	No ☐		(Permit Manual, § 4.6, p.120)

6. Compliance Histories: Yes ☐ No ☐ Received: Air ☐ HW ☐ SW ☐ Water ☐
(New Sources or Major Mods +100 TPY Criteria, +10/25 TPY TAPs, +50 TPY VOC NSR; Memo 9)

7. Application Completeness Review: Yes ☐ No ☐ Complete Date: _____ Sent Date: _____
(LAC 33.I.1503; Memo 41)

8. Public Notice of Application: Yes ☐ No ☐
Newspaper: _____ Date: _____

9. Public Notice of Proposed Permit: Yes ☐ No ☐ (LAC 33:III.531.A; Policy Memos 36 & 38)
Newspaper: _____ Date: _____
Newspaper: _____ Date: _____

10. VOC Reduction Plan: Yes ☒ No ☐ (LAC 33:III.2113.A.4)
No. 5-9, if No, state reason here: _____

11. Affected Glycol Unit: Yes ☐ No ☐ (LAC 33:III.2116)

12. Compressor Testing: Yes ☐ No ☐ Engineering Approval Date: _____ (Memo 28)

13. Affected Tanks: NSPS ☐ Ka ☐ Kb ☐ Kb (60.116b) ☐ NA ☐
Subpart K
Other NSPS Subparts: _____

14. Applicable NESHAP Subparts: Yes ☐ No ☐ Part 61: _____
Part 63: _____

15. PSD and/or NNSR Review: Yes ☐ No ☐ Pollutants _____

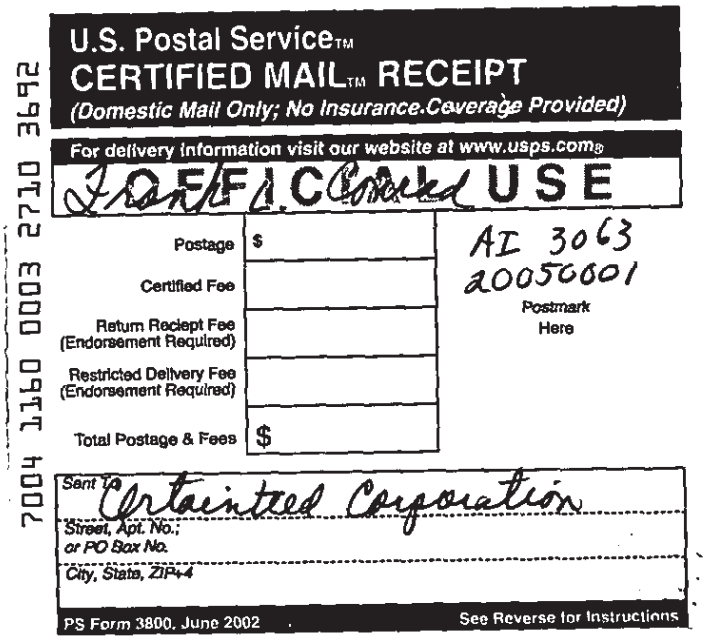
16. Contemporaneous Netting: Yes ☐ No ☐ Pollutants _____

17. Proposed Permit Sent to/Received by EPA (PSD, Title V, or Special) BBS ☐ Email ☐ Mail ☐
Date: _____

18. Basis for Decision (Memo 66): Yes ☐ Date: _____ NA ☐

NA is not an acceptable answer to No. 3 – 10. If No, state the reason in the space provided.

Revision 03.25.04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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 6, 2006

Mr. Mark Woodall
Environmental Manager of Houston Operations
Oxy Vinyls, L.P.
P.O. Box 849
Pasadena, Texas 77501-0849

Re: Permit Alteration
Permit Number: 48356
Deer Park Chlor-Alkali Plant
Pasadena, Harris County
Regulated Entity Number: RN100225879
Customer Reference Number: CN600129126
Account Number: HG-0192-D

Dear Mr. Woodall:

This is in response to your letter dated August 25, 2006, requesting alteration of the conditions and maximum allowable emission rates table (MAERT) of the above-referenced permit. We understand that you have requested the establishment of hazardous air pollutant emissions for the plant's wastewater treatment facilities based on the measured inlet concentrations to the wastewater treatment area. In addition, we understand that you have requested that Boiler Nos. 3, 4, and 5 (Emission Point Nos. DPU-002, DPU-003, and DPU-004) be removed from the permit.

As indicated in Title 30 Texas Administrative Code § 116.116(c), and based on our review, Permit Number 48356 is altered. Enclosed are the altered permit conditions and MAERT to replace those currently attached to your permit. Please attach these to your permit.

Your cooperation in this matter is appreciated. If you need further information or have any questions, please contact Mr. Tony Ionescu at (512) 239-1277 or write to the Texas Commission on Environmental Quality, Office of Permitting, Remediation, and Registration, Air Permits Division (MC-163), P.O. Box 13087, Austin, Texas 78711-3087.

Re: Permit Number: 48356

This action is authorized on behalf of the Texas Commission on Environmental Quality Executive Director.

Sincerely,

Richard A. Hyde, P.E., Director
Air Permits Division
Office of Permitting, Remediation, and Registration
Texas Commission on Environmental Quality

RAH/TI/mb

Enclosure

cc: Mr. Stuart Keil, P.E., Keil Environmental, Austin
Mr. Badruddin (Bud) Karachiwala, Director, Pollution Control Department, Harris County Public Health and Environmental Services, Pasadena
Air Section Manager, Region 12 - Houston

Project Number: 124422

SPECIAL CONDITIONS

Permit Number 48356

OPERATIONAL WORK PRACTICES AND DESIGN

1. Piping, Valves, Pumps, and Compressors in Service

   A. Audio, olfactory, and visual checks for Freon leaks within the operating area shall be made once during each 12-hour work shift.

   B. Immediately, but no later than one hour upon detection of a leak, plant personnel shall take the following actions:

      (1) Isolate the leak.

      (2) If the leak cannot be isolated, commence repair or replacement of the leaking component within four hours.

      (3) Use a leak collection/contaminant system to prevent the leak until repair or replacement can be made if immediate repair is not possible

      (4) For leaks that cannot be controlled with collection/contaminant systems a qualified repair company will be immediately contracted to remove Freon from the machine to stop the leak.

   Date and time of each inspection shall be noted in the operator's log or equivalent. Records shall be maintained at the plant site of all repairs and replacements made due to leaks. These records shall be made available to representatives of the Texas Commission on Environmental Quality (TCEQ) upon request.

2. The abrasive blasting associated with this facility is limited to the use of copper slag. Copper Slag usage rate is limited to 1333 lb/hr. Records shall be kept on-site demonstrating compliance with this condition. Other types of blasting medium is allowed if allowed by Permit by Rule.

3. The inlet volatile organic compounds (VOC) concentration in the water entering the wastewater treatment facility shall not exceed 20 ppmw. The concentration of inlet wastewater shall be measured and recorded weekly and be made available to any TCEQ representative upon request. The EPA Methods 601 or 624 shall be used for this measurement.

4. The 12 month average concentration of vinyl chloride monomer (VCM) in the remediation stripper stream routed to wastewater shall not exceed 0.8 ppmw. The 12-month average concentration of VCM in the PVC Plant wastewater stream shall not exceed 1.8 ppmw. The permit holder shall calculate the 12-month emission rate in terms of tons per year (tpy) using Water 9 for each wastewater stream for VCM, compare it to the annual VCM allowable on the Maximum Allowable Emission Rate Table (MAERT). The concentration of VCM in the remediation stripper stream and in the PVC Plant wastewater stream shall be measured and recorded weekly and be made available to any TCEQ representative upon request. Samples shall be taken to minimize loss of volatiles before analysis. The wastewater flow rate shall be measured and recorded when a sample is collected. The EPA Methods 601 or 624 shall be used for this measurement. The rolling 12-month emission rate calculation for VCM shall be based on the rolling 12-month average contaminant concentration and the rolling 12-month wastewater flow in the remediation stripper stream and from the PVC Plant wastewater sump. **(10/06)**

5. The 12 month average concentration of acetaldehyde or non-VCM hazardous air pollutants (HAP), in the PVC Plant sump wastewater shall not exceed 2.9 ppmw. The 12-month average of acetaldehyde or non-VCM HAP in the remediation stripper stream shall not exceed 2.0 ppmw. The permit holder shall calculate the rolling 12-month emission rate for acetaldehyde and non-VCM HAP in terms of tons per year (tpy) using Water 9 for each wastewater stream and compare it to the annual allowable for non-VCM HAP on the MAERT. The concentration of acetaldehyde in the wastewater shall be measured and recorded quarterly and be made available to any TCEQ representative upon request. Samples shall be taken to minimize loss of volatiles before analysis. The wastewater flow rate shall be measured and recorded when a sample is collected. The EPA Method 8315A or equivalent shall be used for this measurement. The rolling 12-month emission rate calculation for acetaldehyde shall be based on the rolling 12-month average contaminant concentration and the rolling 12-month wastewater flow in the remediation stripper stream and from the PVC Plant wastewater sump. **(10/06)**

Dated October 6, 2006

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit Number 48356

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

		AIR CONTAMINANTS DATA		
Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates ** lb/hr	TPY *
F-DP-M02	Abrasive Blasting	PM	3.94	2.43
		PM_{10}	0.48	0.29
DP-W01A	Clarifier Thickener	VOC (6)	0.32	1.38
		Acetone	0.03	0.10
		VCM		(7)
		HAP		(8)
DP-W01B	North Storage Tank	VOC (6)	0.74	3.25
		Acetone	0.09	0.38
		VCM		(7)
		HAP		(8)
DP-W01C	South Storage Tank	VOC (6)	0.75	3.25
		Acetone	0.09	0.38
		VCM		(7)
		HAP		(8)
DP-W01D	Rapid Mix Basin	VOC (6)	0.74	3.23
		Acetone	0.01	0.03
		VCM		(7)
		HAP		(8)
DP-W01E	Slow Mix Basin	VOC (6)	0.26	1.15
		Acetone	0.01	0.02
		VCM		(7)
		HAP		(8)
DP-W01F	Primary Clarifier	VOC (6)	0.07	0.34
		Acetone	0.02	0.05
		VCM		(7)
		HAP		(8)

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates ** lb/hr	TPY*
DP-W01G	Aeration Basin	VOC (6)	0.25	1.08
		Acetone	0.01	0.02
		VCM		(7)
		HAP		(8)
DP-W01H	Secondary Clarifier	VOC (6)	0.01	0.03
		Acetone	0.01	0.01
		VCM		(7)
		HAP		(8)
F-DPU-02	Utilities Area Fugitives (4)	Freon-500	0.46	2.00

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources use area name or fugitive source name.
(3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
NO_x - total oxides of nitrogen
CO - carbon monoxide
SO_2 - sulfur dioxide
PM - particulate matter, suspended in the atmosphere, including PM_{10}.
PM_{10} - particulate matter equal to or less than 10 microns in diameter. Where PM is not listed, it shall be assumed that no particulate matter greater than 10 microns in emitted.
VCM - vinyl chloride monomer
HAP - unspeciated hazardous air pollutants
(4) Fugitive emissions are an estimate only and should not be considered as a maximum allowable emission rate.
(5) NO_x emissions are effective after new Burner upgrades as required by Special Condition No. 2.
(6) Total VOCs including VCM and other hazardous air pollutants (HAPs)
(7) Total for VCM emissions from the wastewater system is limited to 1.95 tons per year.
(8) Total for non-VCM HAP emissions from the wastewater system is limited to 0.93 tons per year.

* Annual emissions are based on a rolling 12 month average.

** Emission rates are based on and the facilities are limited by the following maximum operating schedule:

_____ Hrs/day _____ Days/week _____ Weeks/year or 8,760 Hrs/year

Dated October 6, 2006

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 13, 2009

MS JADIE PRYOR
ENVIRONMENTAL ENGINEER
OXY VINYLS LP
PO BOX 500
DEER PARK TX 77536-5000

Re: Permit Alteration
Permit Number: 4673B
Deer Park PVC Plant
Deer Park, Harris County
Regulated Entity Number: RN100225879
Customer Reference Number: CN600129126
Account Number: HG-0192-D

Dear Ms. Pryor:

This is in response to your letter dated January 22, 2009, requesting alteration of the conditions of the above-referenced permit. We understand you are requesting this alteration in order to address federal Compliance Assurance Monitoring requirements within the permit.

As indicated in Title 30 Texas Administrative Code § 116.116(c) [30 TAC § 116.116(c)], and based on our review, Permit Number 4673B is altered. Enclosed are the altered permit conditions and maximum allowable emission rates table to replace those currently attached to your permit. Please attach these to your permit.

As of July 1, 2008, all analytical data generated by a mobile or stationary laboratory in support of compliance with air permits must be obtained from a NELAC (National Environmental Laboratory Accreditation Conference) accredited laboratory under the Texas Laboratory Accreditation Program or meet one of several exemptions. Specific information concerning which laboratories must be accredited and which are exempt may be found in 30 TAC §§ 25.4 and 25.6.

For additional information regarding the laboratory accreditation program and a list of accredited laboratories and their fields of accreditation, please see the following Web site:

http://www.tceq.state.tx.us/compliance/compliance_support/qa/env_lab_accreditation.html

P.O. Box 13087 • Austin, Texas 78711-3087 • 512/239-1000 • Internet address: www.tceq.state.tx.us

For questions regarding the accreditation program, you may contact the Texas Laboratory Accreditation Program at (512) 239-3754 or by e-mail at labprgms@tceq.state.tx.us.

Your cooperation in this matter is appreciated. If you need further information or have any questions, please contact Mr. Harry Pruett at (512) 239-1291 or write to the Texas Commission on Environmental Quality, Office of Permitting and Registration, Air Permits Division, MC-163, P.O. Box 13087, Austin, Texas 78711-3087.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality.

Sincerely,

Steve Hagle, P.E., Acting Director
Air Permits Division
Office of Permitting and Registration
Texas Commission on Environmental Quality

SH/HP/pg

Enclosures

cc: Mr. Stuart L. Keil, P.E., Keil Environmental, Austin
Director, Environmental Public Health Division, Harris County Public Health and Environmental Services, Pasadena
Air Section Manager, Region 12 - Houston

Project Number: 143862

SPECIAL CONDITIONS

Permit Number 4673B

EMISSIONS STANDARDS AND OPERATIONAL LIMITATIONS

1. These facilities shall comply with all requirements of the U.S. Environmental Protection Agency (EPA) regulations on National Emission Standards for Hazardous Air Pollutants (NESHAPS) promulgated for Vinyl Chloride Monomer (VCM) Producing or Consuming Plants in Title 40 Code of Federal Regulation (40 CFR) Part 61, Subparts A and F.

2. The VCM content of the stripped slurry produced in these facilities shall not exceed 8 parts per million by volume (ppmv) on an annual average basis. **(10/06)**

3. The annual production of polyvinyl chloride (PVC) from these facilities shall not exceed 740 million pounds per year. **(10/06)**

4. The firing rates of A Dryer and B Dryer are limited to 0.2 MM dry standard cubic feet (dscf) of natural gas per hour. **(10/06)**

FUGITIVE EMISSIONS LEAK DETECTION AND REPAIR PROGRAM

5. Piping, Valves, Flanges, Pumps, and Compressors in Volatile Organic Compounds (VOC) Service - Intensive Directed Maintenance - 28MID

   Except as may be provided for in the special conditions of this permit, the following requirements apply to the above-referenced equipment.

   A. These conditions shall not apply (1) where the VOC has an aggregate partial pressure or vapor pressure of less than 0.044 pound per square inch absolute at 68°F or (2) where the operating pressure is at least 5 kilopascals (0.725 pound per square inch) below ambient pressure. Equipment excluded from this condition shall be identified in a list to be made available upon request.

   B. Construction of new and reworked piping, valves, pump systems, and compressor systems shall conform to applicable American National Standards Institute, American Petroleum Institute, American Society of Mechanical Engineers, or equivalent codes.

   C. New and reworked underground process pipelines shall contain no buried valves such that fugitive emission monitoring is rendered impractical.

D. To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be so located to be reasonably accessible for leak-checking during plant operation. Non-accessible valves, as defined by Title 30 Texas Administrative Code Chapter 115 (30 TAC Chapter 115), shall be identified in a list to be made available upon request.

E. New and reworked piping connections shall be welded or flanged. Screwed connections are permissible only on piping smaller than two-inch diameter. No later than the next scheduled quarterly monitoring after initial installation or replacement, all new or reworked connections shall be gas-tested or hydraulically-tested at no less than normal operating pressure and adjustments made, as necessary, to obtain leak-free performance. Flanges shall be inspected by visual, audible, and/or olfactory means at least weekly by operating personnel walk-through.

Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve. Except during sampling, the second valve shall be closed.

F. Accessible valves shall be monitored by leak-checking for fugitive emissions at least quarterly using an approved gas analyzer with a directed maintenance program. Sealless/leakless valves (including, but not limited to, welded bonnet bellows and diaphragm valves) and relief valves equipped with a rupture disc upstream or venting to a control device are not required to be monitored. For valves equipped with rupture discs, a pressure sensing device shall be installed between the relief valve and rupture disc to monitor disc integrity. All leaking discs shall be replaced at the earliest opportunity but no later than the next process shutdown.

An approved gas analyzer shall conform to requirements listed in 40 CFR § 60.485(a) - (b).

A directed maintenance program shall consist of the repair and maintenance of components assisted simultaneously by the use of an approved gas analyzer such that a minimum concentration of leaking VOC is obtained for each component being maintained. Replaced components shall be re-monitored within 15 days of being placed back into VOC service.

G. All new and replacement pumps and compressors shall be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. These seal systems need not be monitored and may include (but are not limited to) dual pump seals with barrier fluid at higher pressure than process pressure, seals degassing to vent control systems kept in good working order, or seals equipped with an automatic seal failure detection and alarm system.

Submerged pumps or sealless pumps (including, but not limited to, diaphragm, canned, or magnetic driven pumps) may be used to satisfy the requirements of this condition and need not be monitored.

All other pump and compressor seals emitting VOC shall be monitored with an approved gas analyzer at least quarterly.

H. Damaged or leaking valves, flanges, compressor seals, and pump seals found to be emitting VOC in excess of 500 ppmv or found by visual inspection to be leaking (e.g., dripping process fluids) shall be tagged and replaced or repaired. Every reasonable effort shall be made to repair a leaking component, as specified in this paragraph, within 15 days after the leak is found. If the repair of a component would require a unit shutdown, the repair may be delayed until the next scheduled shutdown. All leaking components which cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging. The Texas Commission on Environmental Quality (TCEQ) Executive Director, at his discretion, may require early unit shutdown or other appropriate action based on the number and severity of tagged leaks awaiting shutdown.

I. The results of the required fugitive monitoring and maintenance program shall be made available to the TCEQ Executive Director or his designated representative upon request. Records shall indicate appropriate dates, test methods, instrument readings, repair results, and corrective actions taken. Records of the weekly walk-through flange inspections are not required unless a leak is detected.

J. Compliance with the requirements of this condition does not assure compliance with requirements of 30 TAC Chapter 115, an applicable New Source Performance Standard (NSPS), or an applicable NESHAPS and does not constitute approval of alternative standards for these regulations.

6. Quarterly Connector Monitoring **(10/06)**

A. In addition to the weekly physical inspection required by Item E of Special Condition No. 5, all accessible connectors in gas/vapor and light liquid service shall be monitored quarterly with an approved gas analyzer in accordance with Items F through J of Special Condition No. 5.

B. In lieu of the monitoring frequency specified in paragraph A, connectors may be monitored on a semiannual basis if the percent of connectors leaking for two consecutive quarterly monitoring periods is less than 0.5 percent.

Connectors may be monitored on an annual basis if the percent of connectors leaking for two consecutive semiannual monitoring periods is less than 0.5 percent.

If the percent of connectors leaking for any semiannual or annual monitoring period is 0.5 percent or greater, the facility shall revert to quarterly monitoring until the facility again qualifies for the alternative monitoring schedules previously outlined in this paragraph.

C. The percent of connectors leaking used in paragraph B shall be determined using the following formula:

$$(Cl + Cs) \times 100/Ct = Cp$$

Where:

Cl = the number of connectors found leaking by the end of the monitoring period, either by Method 21 or sight, sound, and smell.

Cs = the number of connectors for which repair has been delayed and are listed on the facility shutdown log.

Ct = the total number of connectors in the facility subject to the monitoring requirements, as of the last day of the monitoring period, not including nonaccessible and unsafe-to-monitor connectors.

Cp = the percentage of leaking connectors for the monitoring period.

7. Piping, Valves, Pumps, and Compressors in NH_3 Service **(01/05)**

A. Audio, olfactory, and visual checks for NH_3 leaks within the operating area shall be made every shift.

B. Immediately, upon detection of a leak, plant personnel shall take one of the following actions:

(1) Isolate the leak.

(2) Commence repair or replacement of the leaking component.

(3) Use a leak collection/containment system to prevent the leak until repair or replacement can be made if immediate repair is not possible.

Date and time of each inspection shall be noted in the operator's log or equivalent. Records shall be maintained at the plant site of all repairs and replacements made due to leaks. These records shall be made available to representatives of the Texas Commission on Environmental Quality (TCEQ) upon request.

CARBON COMPOUND WASTE GAS STREAMS

8. A. Except as may be provided for elsewhere in the special conditions of this permit, all waste gas from point sources containing VOC and/or other organic compounds (hydrocarbons and/or hydrocarbon derivatives excluding carbon dioxide) shall be routed to an incinerator. The incinerator shall operate with no less than 99.5 percent efficiency in disposing of the carbon compounds captured by the collection system. The waste gas streams shall include process vents, analyzer vents, and steam jet exhausts. Storage tank vents, cooling tower exhaust, and process fugitive emissions are excluded from this requirement. Any other exception to this condition requires prior review and approval by the TCEQ Executive Director, and such exceptions may be subject to strict monitoring requirements.

B. Vinyl chloride emissions associated with the cooling tower water shall be monitored monthly using EPA Method 107. The appropriate equipment shall be maintained so as to minimize fugitive vinyl chloride emissions from the cooling tower. Faulty equipment shall be repaired at the earliest opportunity, but no later than the next scheduled shutdown of the process unit in which the leak occurs. The results of the monitoring and maintenance efforts shall be recorded, and such records shall be maintained for a period of two years. The records shall be made available to the TCEQ Executive Director upon request. **(01/05)**

STACK SAMPLING REQUIREMENTS

9. The holder of this permit shall perform additional or repetitive stack sampling and other testing upon the request of the Executive Director of the TCEQ or other designated authority. The holder of this permit is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at his expense.

A. The appropriate TCEQ Regional Office in the region where the source is located shall be contacted as soon as testing is scheduled but not less than 45 days prior to sampling to schedule a pretest meeting.

The notice shall include:

(1) Date for pretest meeting.
(2) Date sampling will occur.
(3) Name of firm conducting sampling.
(4) Type of sampling equipment to be used.
(5) Method or procedure to be used in sampling.

The purpose of the pretest meeting is to review the necessary sampling and testing procedures, to provide the proper data forms for recording pertinent data, and to review the format procedures for submitting the test reports.

A written proposed description of any deviation from sampling procedures specified in permit condition or TCEQ or EPA sampling procedures shall be made available to the TCEQ prior to the pretest meeting. The TCEQ Regional Director or the Director of the TCEQ Compliance Support Division shall approve or disapprove of any deviation from specified sampling procedures.

Requests to waive testing for any pollutant specified in B of this condition shall be submitted to the TCEQ Air Permits Division. Test waivers and alternate/equivalent procedure proposals for NSPS testing, which must have EPA approval, shall be submitted to the TCEQ Compliance Support Division in Austin.

B. Air contaminants to be tested for include (but are not limited to) VOC and particulate matter less than 10 microns in diameter.

C. Sampling shall occur within 60 days after the request from the Executive Director of the TCEQ or other designated authority. Requests for additional time to perform sampling shall be submitted to the TCEQ Regional Office.

D. Three copies of the final sampling report shall be forwarded to the TCEQ within 30 days after sampling is completed. Sampling reports shall comply with the enclosed provisions of Chapter 14 of the TCEQ Sampling Procedures Manual. The reports shall be distributed as follows:

One copy to the TCEQ Houston Regional Office.
One copy to the Harris County Pollution Control Department, Pasadena.
One copy to the TCEQ Compliance Support Division in Austin.

QUALIFICATIONS TO SPECIAL CONDITIONS

10. Safety relief valves that discharge to the atmosphere only as a result of fire or failure of utilities are exempt from Special Condition No. 8A, provided that each valve is equipped with a rupture disc upstream. A pressure gauge or equivalent device shall be installed between the relief valve and rupture disc to monitor disc integrity. All leaking discs shall be replaced at the earliest opportunity but no later than the next scheduled process shutdown. A list of safety relief valves exempted by this condition must be maintained and made available upon request to the Executive Director of the TCEQ or his designated representative.

11. Special Condition No. 8A shall not apply to those emissions monitored under the conditions of NESHAPS promulgated for VCM Producing or Consuming Plants in 40 CFR Part 61, Subparts A and F.

RECORDKEEPING

12. The average VCM concentration (daily sampling average) of the stripped PVC shall be calculated each month. If any monthly average is greater than 8 ppmv, calculations shall be made readily available to verify that the 8 ppmv annual average has not been exceeded. This will serve to document compliance with General Condition No. 9 and Special Condition No. 2. Both the monthly averages and any supporting calculations shall be made available upon request to the Executive Director of the TCEQ or his designated representative. **(10/06)**

13. Monthly PVC production records shall be maintained at the plant site to demonstrate compliance with Special Condition No. 3. These records shall be maintained for at least three years and shall be available to the Executive Director of the TCEQ or his designated representative upon request.

14. The permit holder shall install and operate a totalizing fuel flow meter to measure the gas fuel usage for both A Dryer and B Dryer. The combined fuel usage for both dryers shall be recorded monthly. The monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications or at least annually, whichever is more frequent, and shall be accurate to within 5 percent. **(10/06)**

COMPLIANCE ASSURANCE MONITORING (CAM) **(07/09)**

15. The following requirements apply to each water scrubber, EPN DPP30 and DPP31.

    A. The differential pressure across each scrubber shall be monitored and shall be recorded at least once a day.

    B. The pressure drop shall be at least 6 inches of water.

    C. The minimum liquid flow to each scrubber shall be 100 gpm for an hourly average. The liquid flow rate shall be monitored and recorded at least once an hour.

    D. Each flow and pressure monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, or at least annually, whichever is more frequent, and shall be accurate to within 2 percent of span (5 for pressure) or 5 percent of the design value.

    E. Quality assured (or valid) data must be generated when the dryer is operating. Loss of valid data due to periods of monitor breakdown, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration may be exempted provided it does not exceed 5 percent of the time (in hours) that the dryer operated over the previous rolling 12 month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

16. The following requirements apply to capture systems for EPN DPP30 and DPP31.

    A. Inspect any fan and verify proper operation and inspect the capture system to verify that there are no cracks, holes, and other defects once a year.

    B. The control device shall not have a bypass.

    C. Records of the inspections required shall be maintained and if the results of any of the above inspections are not satisfactory, the permit holder shall promptly take necessary corrective action.

Dated July 13, 2009

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit Number 4673B

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates * lb/hr	TPY**
DPP 30	A Dryer Scrubber	VCM	(5)	(5)
		VOC (7)	0.11	0.48
		HAP (8)	0.18	0.77
		PM_{10}	1.88	8.24
		NO_x	2.80	12.26
		SO_2	0.01	0.04
		CO	0.70	3.07
DPP 31	B Dryer Scrubber	VCM	(5)	(5)
		VOC (7)	0.11	0.48
		HAP (8)	0.18	0.77
		PM_{10}	1.88	8.24
		NO_x	2.80	12.26
		SO_2	0.01	0.04
		CO	0.70	3.07
DPP 40	Silo Dust Collector, 570 Baghouse	VCM	(5)	(5)
		PM_{10}	0.22	0.97
DPP 41	Silo Dust Collector, 580 Baghouse	VCM	(5)	(5)
		PM_{10}	0.22	0.97
DPP 42	Silo Dust Collector, 590 Baghouse	VCM	(5)	(5)
		PM_{10}	0.20	0.89
DPP 43	Resin Dust Collector	VCM	(5)	(5)
		PM_{10}	0.72	3.15

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates * lb/hr	TPY**
DPP 45	A Train Receiver	VCM	(5)	(5)
		PM_{10}	0.17	0.76
DPP 46	B Train Receiver	VCM	(5)	(5)
		PM_{10}	0.17	0.76
DPP 51	Vacuum Cleaner Baghouse	VCM	(5)	(5)
		PM_{10}	0.03	0.13
DPP 57	Reactor Vent Blower	VCM	0.30	0.50
DPP 71	Blending Silo Dust Collector, 514 Baghouse	VCM	(5)	(5)
		PM_{10}	0.15	0.64
DPP 72	Blending Silo Dust Collector, 515 Baghouse	VCM	(5)	(5)
		PM_{10}	0.15	0.64
DPP 73	Blending Silo Dust Collector, 516 Baghouse	VCM	(5)	(5)
		PM_{10}	0.15	0.64
DPP 74	Silo Dust Collector, 517 Baghouse	VCM	(5)	(5)
		PM_{10}	0.15	0.64
DPP 80	Ammonia Scrubber Vent	NH_3	<0.01	<0.01
DPP 84	Blending Silo Dust Collector, 526 Baghouse	VCM	(5)	(5)
		PM_{10}	0.12	0.54
DPP 85	Blending Silo Dust Collector, 527 Baghouse	VCM	(5)	(5)
		PM_{10}	0.12	0.54
DPP 86	Blending Silo Dust Collector, 528 Baghouse	VCM	(5)	(5)
		PM_{10}	0.12	0.54

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates * lb/hr	TPY**
DPP 87	Blending Silo Dust Collector, 525 Baghouse	VCM	(5)	(5)
		PM_{10}	0.12	0.54
DPP 88	Blending Silo Dust Collector, 511 Baghouse	VCM	(5)	(5)
		PM_{10}	0.15	0.64
DPP 91	Blending Silo Dust Collector, 510 Baghouse	VCM	(5)	(5)
		PM_{10}	0.15	0.64
DPP 94	Blending Silo Dust Collector, 595 Baghouse	VCM	(5)	(5)
		PM_{10}	0.15	0.68
DPP 95	Equipment Openings	VCM	0.54	0.01
DPP 96	Blend Tank A	VCM	0.08	(5)
		HAP (9)	0.01	0.01
DPP 97	Blend Tank AA	VCM	0.08	(5)
		HAP (9)	0.01	0.01
DPP 98	Blend Tank B	VCM	0.08	(5)
		HAP (9)	0.01	0.01
DPP 99	Blend Tank BB	VCM	0.08	(5)
		HAP (9)	0.01	0.01
DPP 101	PVC Truck Transloading	VCM	(5)	(5)
		PM_{10}	0.01	0.02
DPP 102	Process Fugitives (4)	VOC (6)	0.09	0.38
		VCM	0.82	3.58
		PM	0.01	0.01
		NH_3	0.33	1.45
DPP 104	Bulk Emulsifier Tank (6)	VOC	0.09	0.01
DPP 110	Centrifuge Vent A	VCM	0.36	(5)
		HAP (9)	0.05	0.22

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates * lb/hr	TPY**
DPP 111	Centrifuge Vent A	VCM	0.36	(5)
		HAP (9)	0.05	0.22
DPP 68-L 71-L-75-L, 84-L-88-L, 91-L and 92-L	PVC Railcar loading	VCM	(5)	(5)

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources use area name or fugitive source name.
(3) VOC - volatile organic compound
PM_{10} - particulate matter (PM) equal to or less than 10 microns in diameter. Where PM is not listed, it shall be assumed that no particulate matter greater than 10 microns is emitted.
NO_x - total oxides of nitrogen
SO_2 - sulfur dioxide
CO - carbon monoxide
VCM - vinyl chloride monomer
NH_3 - anhydrous ammonia
HAP - unspeciated hazardous air pollutants
(4) Fugitive emissions are an estimate based on component count, emission factors, and applicable reduction credits for a leak detection and repair program.
(5) Total for residual VCM emissions is 2.16 pounds per hour and 2.96 tons per year.
(6) Total VOCs not including VCM and other hazardous air pollutants (HAPs).
(7) VOC emissions due to combustion of natural gas.
(8) Acetaldehyde and other unspeciated HAPs due to decomposition reactions and the combustion of natural gas.
(9) Acetaldehyde and other unspeciated HAPs, not including VCM, due to decomposition reactions.

* Emission rates are based on and the facilities are limited by the following maximum operating schedule:

Hrs/day 24 Days/week 7 Weeks/year 52 or Hrs/year 8,760

** Compliance with annual emission limits is based on a rolling 12-month period.

Dated July 13, 2009

Attachment B

GACT Analysis for PVC-Only Process Vents

GACT Analysis Process Vents Summary

PVC ONLY

Calculated GACT Limits for Process Vents - PVC Only

Calculated Limits	Area Source Current Level of Performance (CTLC Averages)	Existing Source - Current Level of Control Calculted Limits (CTLC w/ Variability)	New Source Current Level of Performance	New Source (Least Controlled MACT Source w/ Variability)
Vinyl Chloride (ppmv)	5.24E+00	5.30E+00	5.24E+00	5.30E+00
Dioxins/Furans (TEQ - ng/dscm)	3.11E-02	1.30E-01	3.11E-02	1.30E-01
Total Organic HAP (ppmv)	7.37E+01	1.40E+02	7.37E+01	1.40E+02
THC (ppmvd as propane)	1.66E+01	4.53E+01	1.66E+01	4.53E+01

Existing Source GACT Summary for Process Vents - PVC Only

Pollutant	Area Source Current Level of Performance (CTLC Averages)	Option 1 Limit (Major Source Requirement)	Baseline Emissions - Based on CTLC Average Concentration (TPY)	Emission Reductions as a Result of Complying w/ Major Source Reqs (TPY)
Vinyl Chloride (ppmv)	5.24E+00	6.00E+00	5.84E-02	1.40E-02
Dioxins/Furans (TEQ - ng/dscm)	3.11E-02	3.80E-02	1.32E-10	3.17E-11
Total Organic HAP (ppmv)	7.37E+01	5.60E+01	1.07E+00	2.57E-01

New Source GACT Summary for Process Vents - PVC Only

Pollutant	New Area Source Current Level of Performance (Model new Source Avg. Concentrations)	Option 1 Limit (Existing Source MACT)	Baseline Emissions - Based on CTLC Average Concentration (TPY)	Emission Reductions as a Result of Complying w/ Major Source Reqs (TPY)
Vinyl Chloride (ppmv)	5.24E+00	6.00E+00	5.84E-02	1.40E-02
Dioxins/Furans (TEQ - ng/dscm)	3.11E-02	3.80E-02	1.32E-10	3.17E-11
Total Organic HAP (ppmv)	7.37E+01	5.60E+01	1.07E+00	2.57E-01

Existing and New Source GACT Costs for Compliance with Major Source Requirements [1] - PVC Only

Compliance with Major Source Requirements Cost Summary	
Initial Costs	
Control Equipment Capital Cost	3.03E+05
Process Vent Emissions Testing	4.32E+04
Record Keeping and Reporting	4.96E+03
Total Initial Costs	**3.51E+05**
Annual Costs	
Annualized Capital Cost	2.86E+04
Annual Control Equipment Cost	1.41E+05
Annualized Initial Testing and Monitoring Cost[2]	0.00E+00
Annual Testing and Monitoring Cost	8.64E+03
Annual Record Keeping and Reporting Cost	2.25E+03
Total Annual Cost	**1.80E+05**

1 - Both existing and new source facilities are based on CTLC, therefore, costs are equivalent.

2 - Annual testing cost = Initial testing cost, therefore, initial testing cost was not amortized.

ATTACHMENT B - PVC ONLY PROCESS VENTS ANALYSIS

02/09/2012

Process Vents - PVC ONLY - New and Existing Limit Calculations

New and Existing GACT VC Floor (CertainTeed Lake Charles)

Facility	Run	Conc (PPMV @ 3% O2)	LN Conc (PPMV @ 3% O2)	DL average run value	DL for Max Sorting
CTLC	1	5.23E+00	1.65E+00	0.00E+00	0.00E+00
CTLC	2	5.25E+00	1.66E+00	0.00E+00	0.00E+00
CTLC	3	5.24E+00	1.66E+00	0.00E+00	0.00E+00

	Normal	LN
Sample Size	3.00E+00	3.00E+00
Non-Detects	0.00E+00	0.00E+00
Average	5.24E+00	1.66E+00
Median	5.24E+00	1.66E+00
Standard Deviation	1.00E-02	1.91E-03
Minimum	5.23E+00	1.65E+00
Maximum	5.25E+00	1.66E+00
Skewness	0.00E+00	-2.86E-03
SE Skewness	1.41E+00	1.41E+00
Skewness Test	Normal	Normal
Kurtosis		
SE Kurtosis	2.83E+00	2.83E+00
Kurtosis Test		
99.0% t-statistic for UPL	6.96E+00	6.96E+00
99.0% UPL	5.30E+00	5.30E+00

average in variability analysis	5.24E+00	PPMVD @ 3% O2
RDL	1.84E-01	PPMVD @ 3% O2
3 x RDL	5.52E-01	PPMVD @ 3% O2
99.0% UPL	5.30E+00	PPMVD @ 3% O2
Area Source w/ Variability	**5.30E+00**	**PPMVD @ 3% O2**

1) if the 3x RDL value is less than or equal to the calculated floor or emissions limit, use the calculated floor or emissions limit value

2) if the 3x RDL value is greater than the calculated floor or emissions limit, use the 3x RDL value as the floor or emissions limit adjusted for measurement variability

New and Existing GACT CDD/CDF on a TEQ Basis (CertainTeed Lake Charles)

Facility	Run	TEQ Conc (ng/dscm @ 3% O2)	LN(TEQ)
CTLC	1	5.09E-02	-2.98E+00
CTLC	2	2.29E-02	-3.78E+00
CTLC	3	1.94E-02	-3.94E+00

	Normal	LN
Sample Size	3.00E+00	3.00E+00
Average	3.11E-02	-3.56E+00
Median	2.29E-02	-3.78E+00
Standard Deviation	1.73E-02	5.15E-01
Minimum	1.94E-02	-3.94E+00
Maximum	5.09E-02	-2.98E+00
Skewness	1.65E+00	1.53E+00
SE Skewness	1.41E+00	1.41E+00
Skewness Test	Normal	Normal
Kurtosis		
SE Kurtosis	2.83E+00	2.83E+00
Kurtosis Test		
99.0% t-statistic for UPL	6.96E+00	6.96E+00
99.0% UPL	1.29E-01	5.30E-01

average in variability analysis	3.11E-02	ng/dscm @ 3% O2
RDL	1.25E-02	ng/dscm @ 3% O2
3 x RDL	3.74E-02	ng/dscm @ 3% O2
99.0% UPL	1.29E-01	ng/dscm @ 3% O2
Area Source w/ Variability	**1.30E-01**	**ng/dscm @ 3% O2**

1) if the 3x RDL value is less than or equal to the calculated floor or emissions limit, use the calculated floor or emissions limit value

2) if the 3x RDL value is greater than the calculated floor or emissions limit, use the 3x RDL value as the floor or emissions limit adjusted for measurement variability

Process Vents - PVC ONLY - New and Existing Limit Calculations

New and Existing Source GACT Floor for Total Organic HAP (CertainTeed Lake Charles)

Facility	Run	Conc (PPMV @ 3% O2)	LN Conc (PPMV @ 3% O2)	DL average run value	DL for Max Sorting
CTLC	1	75.5	4.32	5.33E-09	5.33E-09
CTLC	2	62.2	4.13	3.06E-09	3.06E-09
CTLC	3	83.4	4.42	182	0.00E+00

	Normal	LN
Sample Size	**3.00E+00**	**3.00E+00**
Non-Detects	**3.00E+00**	**3.00E+00**
Average	**7.37E+01**	**4.29E+00**
Median	**7.55E+01**	**4.32E+00**
Standard Deviation	**1.07E+01**	**1.49E-01**
Minimum	**6.22E+01**	**4.13E+00**
Maximum	**8.34E+01**	**4.42E+00**
Skewness	**-7.36E-01**	**-9.07E-01**
SE Skewness	**1.41E+00**	**1.41E+00**
Skewness Test	**Normal**	**Normal**
Kurtosis		
SE Kurtosis	**2.83E+00**	**2.83E+00**
Kurtosis Test		
99.0% t-statistic for UPL	**6.96E+00**	**6.96E+00**
99.0% UPL	**1.35E+02**	**1.71E+02**

average in variability analysis	7.37E+01	ppmvd @ 3% O2
RDL	1.84E-01	ppmvd @ 3% O2
3 x RDL	5.52E-01	ppmvd @ 3% O2
99.0% UPL	1.35E+02	ppmvd @ 3% O2
Area Source w/ Variability	**1.40E+02**	**ppmvd @ 3% O2**

1) if the 3x RDL value is less than or equal to the calculated floor or emissions limit, use the calculated floor or emissions limit value

2) if the 3x RDL value is greater than the calculated floor or emissions limit, use the 3x RDL value as the floor or emissions limit adjusted for measurement variability

ATTACHMENT B - PVC ONLY PROCESS VENTS ANALYSIS

02/09/2012

Process Vents - PVC ONLY - New and Existing Limit Calculations

THC - PVC Only - Existing Area Source

Company	Facility	Compound_Std	Method	Run	Date	Value	Ln Value	Units
CertainTeed	Lake Charles	THC	EPA Method 25A	1	1/26/2010	15.28	2.726544784	ppmvd @ 3% O2
CertainTeed	Lake Charles	THC	EPA Method 25A	2	1/26/2010	12.36	2.514465452	ppmvd @ 3% O2
CertainTeed	Lake Charles	THC	EPA Method 25A	3	1/26/2010	22.19	3.099641737	ppmvd @ 3% O2
				Average		**16.61**		**ppmvd @ 3% O2**

THC Variability Analysis - PVC ONLY (Existing)		
	Normal	**LN**
Sample Size	3	3
Compliance Avg	3	3
Average	16.6100	2.7802
Median	15.28	2.727
Standard Deviation	5.05	0.296
Minimum	12.36	2.514
Maximum	22.19	3.100
Skewness	1.10	0.79
SE Skewness	1.41	1.41
Skewness Test	Normal	Normal
Kurtosis	*	*
SE Kurtosis	2.83	2.83
Kurtosis Test	*	*
99.0% t-statistic for UL	4.54	4.54
99.0% UL	39.53	61.895
99.0% t-statistic for UPL	6.96	6.96
99.0% UPL	45.32	86.912
RDL	0.85	PPMVD @ 3% O2
3x RDL	2.535	PPMVD @ 3% O2
99.0% UL	39.5	PPMVD @ 3% O2
99.0% UPL	**45.3**	**PPMVD @ 3% O2**

* Cannot perform Kurtosis test.

Process Vents - PVC ONLY - Costs and Emissions Reductions for New and Existing Area Sources

Major Source Requirements (Existing PVC Only MACT Floor)

VC	Area Source	6.00	ppmvd @ 3% O2
HCl	Area Source		ppmvd @ 3% O2
CDD/CDF	Area Source	0.038	ng/dscm @ 3% O2
TOHAP	Area Source	56	ppmvd @ 3% O2

Facility	Classification	Outlet Conditions							Inlet Conditions						Baseline Emissions Estimates								Percent Reductions Needed to Meet Floors				Reductions (Tons/yr)				Total Reductions
		Outlet Max Flow Rate (DSCMM)	Average O2 (%)	Avg. Temp (C)	Vinyl Chloride (ppmvd @ 3%O2)	HCl (ppmvd @ 3%O2)	CDD/CDF (ng/dscm @ 3%O2)	TotalHAP (ppmvd @ 3%O2)	Inlet Max Flow Rate (DSCMM)	Average O2 (%)	Avg. Temp (C)	Vinyl Chloride (ppmvd @ 3%O2)	CE Redux Effy	Vinyl Chloride (lbs/hr)	VC Baseline (lbs/hr)	HCl Baseline (lbs/hr)	CDD/CDF Baseline (lbs/hr)	TOHAP Baseline (lbs/hr)	VC Baseline (Tons/Yr)	HCl Baseline (Tons/Yr)	CDD/CDF (TEQ) Baseline (Tons/Yr)	TOHAP Baseline (Tons/Yr)	VC - % Redux to Meet Conc. Limit	HCl - % Redux to Meet Conc. Limit	CDD/CDF - % Redux to Meet Conc. Limit	TOHAP - % Redux to Meet Conc. Limit	VC	HCl	CDD/CDF	TOHAP	Tons/yr
CertainTeed Lake Charles	Area Source	3.43E+01	1.69E+01	5.71E+01	5.24E+00		3.11E-02	7.37E+01	5.65E+00	3.33E-02	6.47E+01	9.59E+04	1.00E+02	2.20E+02	1.39E-02	0.00E+00	3.14E-11	2.55E-01	5.84E-02	0.00E+00	1.32E-10	1.07E+00				2.40E+01	1.40E-02	0.00E+00	3.17E-11	2.57E-01	2.57E-01

2.87E-05 g/yr (CDD/CDF)

ATTACHMENT B - PVC ONLY PROCESS VENTS ANALYSIS

02/09/2012

Refrigerated Condenser Package for PVC-Only Process Vents

INPUT PARAMETERS:	Equation	Certain Teed Lake Charles PVC-Only
-- Inlet stream flowrate (DSCMM):		5.65E+00
-- Inlet stream flowrate (scfm): (Qin)	=DSCMM/35.31	2.00E+02
-- Inlet stream temperature (oC):		6.47E+01
-- Inlet stream temperature (oF): (Tin)	=oC*1.8+32	1.48E+02
-- VOC to be condensed:		Vinyl chloride
-- VOC inlet volume fraction:(Yvoc,in)	=ppm/1E6	9.59E-02
-- Required VOC removal (fraction): (n)		2.40E-01
-- Antoine equation constants for VOC: [4]		
A:		6.50E+00
B:		7.83E+02
C:		2.30E+02
-- VOC heat of condensation (BTU/lb-mole): (ΔHvoc,r)		1.01E+04
-- VOC heat capacity (BTU/lb-mole-oF): (Cp,voc)		1.17E+01
-- Coolant specific heat (BTU/lb-oF): Cp,cool		6.50E-01
-- VOC boiling point (oF): (Tboil)		6.53E+00
-- VOC critical temperature (oR): (Tc)		7.73E+02
-- VOC molecular weight (lb/lb-mole): (MWvoc)		6.25E+01
-- VOC condensate density (lb/gal):		8.15E+00
-- Air heat capacity (BTU/lb-mole-oF): (Cp,air)		6.95E+00
DESIGN PARAMETERS:		
-- Outlet VOC partial pressure (mm Hg): (Pvoc)	=760*(Yvoc,in*(1-n)/(1-Yvoc,in*n))	5.67E+01
-- Condensation temperature, Tc (oF): (Tcon)	=(B/(A-log10(Pvoc))-C)*1.8+32	-8.48E+01
(oR):	=Tcon+460	3.75E+02
-- VOC flowrate in (lb-moles/hr): (Mvoc,in)	=Qin*Yvoc,in*60/392	2.93E+00
-- VOC flowrate out (lb-moles/hr): (Mvoc,out)	=Mvoc,in*(1-n)	2.23E+00
-- VOC condensed (lb-moles/hr): (Mvoc,con)	=Mvoc,in-Mvoc,out	7.03E-01
(lb/hr): (Lb/hrvoc,con)	=Mwvoc*Mvoc,con	4.40E+01
-- VOC heat of condensation @ Tc (BTU/lb-mole): (ΔHvoc)	=(ΔHvoc,r)*[(1-Tcon/Tc)/(1-Tboil/Tc)]^0.38	1.11E+04
-- Enthalpy change, condensed VOC (BTU/hr): (ΔHcon)	=Mvoc,con[ΔHvoc+Cp,voc(Tin-Tcon)	9.74E+03
-- Enthalpy change, uncondensed VOC (BTU/hr):(ΔHuncon)	=Mvoc,out*Cp,voc*(Tin-Tcon)	6.05E+03
-- Enthalpy change, air (BTU/hr): (ΔHnoncon)	=Cp,air*(Tin-Tcon)*(Qin*60/392-Mvoc,in)	4.48E+04
-- Condenser heat load (BTU/hr): (Hload)	=ΔHcon+ΔHuncon+ΔHnoncon	6.06E+04
-- Heat transfer coefficient, U (BTU/hr-ft2-oF):	Estimate from OAQPS Manual	2.00E+01
-- Log-mean temperature difference (oF): Tlm	=(Tin-Tcon-25)/ln((Tin-Tcon-10)/15)	7.71E+01
-- Condenser surface area (ft2): (Acon)	=Hload/U*Tlm	3.93E+01
-- Coolant flowrate (lb/hr):	=Hload/(Cp,cool*(Tcon-15+25)-(Tcon-15))	3.73E+03
-- Refrigeration capacity (tons): (R)	=Hload/1200	5.05E+00
-- Electricity requirement (kW/ton) [6]: (kW)	=-9E-06(Tcon)^3 - 0.0004(Tcon)2 - 0.0331(Tcon) + 3.560	8.97E+00
CAPITAL COSTS		
Equipment Costs ($):		
-- Refrigeration unit/single-stage (< 10 tons): (Rss<10)	=exp(9.83-0.014Tcon+0.340lnR)	1.06E+05
-- Refrigeration unit/single-stage (> 10 tons): (Rss>10)	=exp(9.26-0.007Tcon+0.627lnR)	0.00E+00
-- Multistage refrigeration unit: (Mru)	exp(9.73-0.012Tcon+0.584lnR)	1.20E+05
Total equipment cost ($)--base: (ECp)	=1.25*MAX(Rss<10,Rss>10,Mru)	1.50E+05
Cost Index		
a. 2010 CE Equip (Feb Final)	CE Equipment index (Feb 2010 Final)	6.41E+02
b. 1990 CE Equip (Oct Final)	CE Equipment index (Oct 1990 Final)	3.94E+02
' ' ' '--escalated: (ECpe)	=(ECp)*(FebFinal/OctFinal)	2.44E+05
Purchased Equipment Cost ($): (PECp)	=ECpe*1.08	2.63E+05
Total Capital Investment ($): (TCI)	=PECp*1.15	3.03E+05

Refrigerated Condenser Package for PVC-Only Process Vents

ANNUAL COST INPUTS:		
Operating factor (hr/yr): (OF)		8.40E+03
Operating labor rate ($/hr): (LR)		3.46E+01
Maintenance labor rate ($/hr): (MR)		3.81E+01
Operating labor factor (hr/sh): (OLF)	1/2 hour per 8 hour shift	5.00E-01
Maintenance labor factor (hr/sh): (MLF)	1/2 hour per 8 hour shift	5.00E-01
Electricity price ($/kWhr): (EP)		7.00E-02
Recovered VOC value ($/lb)[5]: (Rvoc)		0.00E+00
Annual interest rate (fraction): (Int)		7.00E-02
Control system life (years): (EL)		2.00E+01
Capital recovery factor: (CRF)	=Int*(1+Int)^EL/((1+Int)^EL-1)	9.44E-02
Taxes, insurance, admin. factor: (TaxF)		4.00E-02
ANNUAL COSTS:		
Item		Cost ($/yr)
Operating labor	=OF/8*OLF*LR	1.82E+04
Supervisory labor	=.15*Operating Labor	2.72E+03
Maintenance labor	=OF/8*MLF*MR	2.00E+04
Maintenance materials	100% of maintenance labor	2.00E+04
Electricity	=EP*OF*kW*R/0.85	3.13E+04
Overhead	=.60*(Operating Labor+Supervisory Labor+Maint Labor+Maint Materials)	3.65E+04
Taxes, insurance, administrative	=TaxF*TCI	1.21E+04
Capital recovery	=CRF*TCI	2.86E+04
Total Annual Cost (without credits) (TACwoc)	=sum of all annual costs	1.69E+05
Recovery credits (RC)	=-Rvoc*OF*Lb/hrvoc,con	0.00E+00
Total Annual Cost (with credits)	=TACwoc+RC	1.69E+05

NOTES:
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1. Base equipment costs reflect Third Quart 1990
2. Operating labor rate: Bureau of Labor Statistics, Occupational Employment Statistics, May 2008 National Industry-Specific Occupational Employment and Wage Estimates
3. Electricity cost: Energy Information Administration. Average Industrial Retail Price of Electricity: October 2009.
4. Antoine constants listed in OAQPS Manual
5. ICIS, http://www.icis.com/v2/chemicals/9076567/vinyl-chloride/pricing.html, October 20, 2010. (Avg. $690/tonne = $0.313/lb)
6. Polynomial of best fit based on Table 2.5 OAQPS Control Cost Manual Section 3.1 Chapter 2.

ATTACHMENT B - PVC ONLY PROCESS VENTS ANALYSIS

02/09/2012

Process Vents Emission Testing Costs

Parameters/Costs		Equation	Values	Testing Freq.*	Annual Cost of Test	Annualized Cost of Initial Test	TAC of Testing
A. Parameters							
	1. CE Plant Cost index						
	a. 2010 (Feb 10 Final CE Index)		539.1				
	b. 2009 (Annual CE Index)		521.9				
	c. 1992 (Annual CE Index)		358.2				
B. Testing Costs, $							
	1. Method 1 or 1A	Included as part of M 23	$ -	5	$ -	$ -	$ -
	2. Method 26 (HCl)	= $5,000 x (539.1/358.2)					
	3. Method 23 (CDD/CDF)	= $21,000 x (539.1/358.2) - $5,000	$27,000	5	$ 5,400		$ 5,400
	4. Method 25A (THC)	=$6,000x(539.1/521.9)	$6,198	5	$ 1,240		$ 1,240
	5. Method 18 (Assumed cost equal to 0031)		$10,000	5	$ 2,000		$ 2,000
C.	CRF (20 yr, 7%):	(0.07*(1+0.07)^20)/((1+0.07)^20-1)	0.09439				
D. Facility Totals							
	1.TOH, &VC						**$ 3,240**
	2. CDD/CDF						**$ 5,400**
	3. Facility Total		**$ 43,197.74**				**$ 8,640**

* Number of Years Between Tests

Note:

1. Initial testing costs to be annualized over 20 years at 7% interest.

2. Testing costs have been rounded to the nearest $1,000 to be consistent with level of rounding in original costs; costs also adjusted based on additional information from EPA.

Sources:

1. Memorandum from R. Segall, EPA/EMB, to R. Copland, EPA/SDB. October 14, 1992. Medical Waste Incinerator Study: Emission Measurement and Continuous Monitoring. (II-B-89)
2. E-mail from Jason Dewees, EPA, to Peter Westlin, EPA. August 20, 2008. Monitoring Options for SNCR & Test Cost Questions.
3. E-mail from Jason Dewees, EPA, to Mary Johnson, EPA. August 20, 2008. Re: Monitoring Options for SNCR & Test Cost Questions.
4. Conversation with Ray Merrill, ERG - 11/5/2010.
5. Email from Peter Westlin, EPA 4/8/2011 to ERG: Method 18 Costs

Attachment C

GACT Analysis for PVC-Combined Process Vents

PVC Combined

Calculated GACT Limits for Process Vents - PVC Combined

Calculated Limits	Area Source Current Level of Performance (OVDP Averages)	Existing Source - Current Level of Control Calculted Limits (OVDP w/	New Source Current Level of Performance	New Source Current Level of Control
Vinyl Chloride (ppmv)	1.93E-01	5.60E-01	1.93E-01	5.60E-01
Dioxins/Furans (TEQ - ng/dscm)	1.53E-02	7.60E-02	1.53E-02	7.60E-02
Total Organic HAP (ppmv) - Based on WLG since OVDP did not test for TOHAP 2nd round 114)	4.02E+00	2.90E+01	4.02E+00	2.90E+01
THC (ppmvd as propane)	1.10E-01	2.30E+00	1.10E-01	2.30E+00

Existing Source GACT Summary for Process Vents - PVC Combined

Pollutant	Area Source Current Level of Performance (OVDP Averages)	Option 1 Limit (Major Source Requirements)	Baseline Emissions - Based on OVDP Average Concentrations (TPY)	Emission Reductions as a Result of Complying w/ Major Source Requirements (TPY)
Vinyl Chloride (ppmv)	1.93E-01	1.10E+00	2.79E-01	-
Dioxins/Furans (TEQ - ng/dscm)	1.53E-02	5.10E-02	8.42E-09	-
Total Organic HAP (ppmv)	4.02E+00	9.80E+00	4.61E+00	-

New Source GACT Summary for Process Vents - PVC Combined

Pollutant	New Area Source Current Level of Performance (Model new Source Avg. Concentrations)	Option 1 Limit (Major Source Requirements)	Baseline Emissions - Based on Model New Source Average Concentrations (TPY)	Emission Reductions as a Result of Complying w/ Major Source Requirements (TPY)
Vinyl Chloride (ppmv)	1.93E-01	1.10E+00	2.79E-01	-
Dioxins/Furans (TEQ - ng/dscm)	1.53E-02	5.10E-02	8.42E-09	-
Total Organic HAP (ppmv)	4.02E+00	9.80E+00	4.61E+00	-

Existing and New Source GACT Costs for Compliance with Major Source Requirements[1] - PVC Combined

MACT Floor Cost Summary	
Initial Costs	
Control Equipment Capital Cost	-
Process Vent Emissions Testing	4.32E+04
Record Keeping and Reporting	4.96E+03
Total Initial Costs	**4.82E+04**
Annual Costs	
Annualized Capital Cost	-
Annual Control Equipment Cost	-
Annualized Initial Testing and Monitoring Cost[2]	-
Annual Testing and Monitoring Cost	8.64E+03
Annual Record Keeping and Reporting Cost	2.25E+03
Total Annual Cost	**1.09E+04**

1 - Both existing and new source facilities are based on CTLC, therefore, costs are

2 - Annual testing cost = Initial testing cost, therefore, initial testing cost was not

ATTACHMENT C - PVC Combined PROCESS VENTS ANALYSIS

02/09/2012

Process Vents - PVC Combined - Existing Area Source Limit Calculations

PVC Process Vents - GACT Analysis - Vinyl Chloride - PVC Combined

Facility	Run	Conc (PPMV @ 3% O2)	LN Conc (PPMV @ 3% O2)	DL average run value	DL for Max Sorting
OVLADP	1	1.93E-01	-1.65E+00	1.00E+00	1.93E-01
OVLADP	2	1.93E-01	-1.65E+00	1.00E+00	1.93E-01
OVLADP	3	1.93E-01	-1.65E+00	1.00E+00	1.93E-01

	Normal	LN
Sample Size	**3.00**	**3.00**
Non-Detects	**3.00**	**3.00**
Average	**1.93E-01**	**-1.65**
Median	**1.93E-01**	**-1.65**
Standard Deviation	**3.40E-17**	**0**
Minimum	**1.93E-01**	**-1.65**
Maximum	**1.93E-01**	**-1.65**
Skewness		
SE Skewness	**1.41**	**1.41**
Skewness Test	**Normal**	**Normal**
Kurtosis		
SE Kurtosis	**2.83**	**2.83**
Kurtosis Test	**Normal**	**Normal**
99.0% t-statistic for UPL	**6.96**	**6.96**
99.0% UPL	**1.93E-01**	**1.93E-01**

average in variability analysis	1.93E-01	
RDL	1.84E-01	
3 x RDL	5.52E-01	
99.0% UPL	1.93E-01	
New Source GACT Limit	**5.60E-01**	**PPMVD @ 3% O2**

1) if the 3x RDL value is less than or equal to the calculated floor or emissions limit, use the calculated floor or emissions limit value

2) if the 3x RDL value is greater than the calculated floor or emissions limit, use the 3x RDL value as the floor or emissions limit adjusted for measurement variability

PVC Process Vents - GACT Analysis -CDD/CDF (TEQ) - PVC Combined

Facility	Run	TEQ Conc (ng/dscm @ 3% O2)	LN(TEQ)
OVLADP	1	2.74E-02	-3.60E+00
OVLADP	2	1.07E-02	-4.54E+00
OVLADP	3	7.89E-03	-4.84E+00

	Normal	LN
Sample Size	**3.00E+00**	**3.00E+00**
Average	**1.53E-02**	**-4.33E+00**
Median	**1.07E-02**	**-4.54E+00**
Standard Deviation	**1.06E-02**	**6.50E-01**
Minimum	**7.89E-03**	**-4.84E+00**
Maximum	**2.74E-02**	**-3.60E+00**
Skewness	**1.60E+00**	**1.32E+00**
SE Skewness	**1.41E+00**	**1.41E+00**
Skewness Test	**Normal**	**Normal**
Kurtosis		
SE Kurtosis	**2.83E+00**	**2.83E+00**
Kurtosis Test	**Normal**	**Normal**
99.0% t-statistic for UPL	**6.96E+00**	**6.96E+00**
99.0% UPL	**7.55E-02**	**5.34E-01**

average in variability analysis	1.53E-02	
3x RDL	3.35E-02	
99.0% UPL	7.55E-02	
New Source GACT Limit	**7.60E-02**	**ng/dscm @ 3% O2**

1) if the 3x RDL value is less than or equal to the calculated floor or emissions limit, use the calculated floor or emissions limit value

2) if the 3x RDL value is greater than the calculated floor or emissions limit, use the 3x RDL value as the floor or emissions limit adjusted for measurement variability

Process Vents - PVC Combined - Existing Area Source Limit Calculations

PVC Process Vents - GACT Analysis -TOHAP - PVC Combined

Facility	Run	Conc (PPMV @ 3% O2)	LN Conc (PPMV @ 3% O2)	DL average run value	DL for Max Sorting
WLG	1	1.17E+00	1.58E-01	2.56E+00	2.56E+00
WLG	2	8.94E+00	2.19E+00	2.49E+00	2.49E+00
WLG	3	1.93E+00	6.59E-01	2.69E+00	2.69E+00

	Normal	LN
Sample Size	**3.00E+00**	**3.00E+00**
Non-Detects	**3.00E+00**	**3.00E+00**
Average	**4.02E+00**	**1.00E+00**
Median	**1.93E+00**	**6.59E-01**
Standard Deviation	**4.28E+00**	**1.06E+00**
Minimum	**1.17E+00**	**1.58E-01**
Maximum	**8.94E+00**	**2.19E+00**
Skewness	**1.67E+00**	**1.31E+00**
SE Skewness	**1.41E+00**	**1.41E+00**
Skewness Test	**Normal**	**Normal**
Kurtosis		
SE Kurtosis	**2.83E+00**	**2.83E+00**
Kurtosis Test	**Normal**	**Normal**
99.0% t-statistic for UPL	**6.96E+00**	**6.96E+00**
99.0% UPL	**2.84E+01**	**1.13E+03**

average in variability analysis	4.02E+00
RDL	1.81E+00
3 x RDL	5.42E+00
99.0% UPL	2.84E+01
New Source GACT Limit	**2.90E+01 ppmvd @ 3% O2**

1) if the 3x RDL value is less than or equal to the calculated floor or emissions limit, use the calculated floor or emissions limit value

2) if the 3x RDL value is greater than the calculated floor or emissions limit, use the 3x RDL value as the floor or emissions limit adjusted for measurement variability

Process Vents - PVC Combined - Existing Area Source Limit Calculations

THC PVC Combined - Existing Area Source

Company	Facility	Compound_Std	Method	Run	Date	Value	Ln Value	Units
OxyVinyls	Deer Park	THC	EPA Method 25A	1	8/31/2011	1.10E-01	-2.21E+00	ppmvd @ 3% O2
OxyVinyls	Deer Park	THC	EPA Method 25A	2	8/31/2011	1.10E-01	-2.21E+00	ppmvd @ 3% O2
OxyVinyls	Deer Park	THC	EPA Method 25A	3	8/31/2011	1.10E-01	-2.21E+00	ppmvd @ 3% O2
				Average		**1.10E-01**		**ppmvd @ 3% O2**

Note: All Values Reported as ND

THC Variability Analysis - PVC Combined (Existing)		
	Normal	**LN**
Sample Size	3.00E+00	3.00E+00
Compliance Avg	3.00E+00	3.00E+00
Average	1.10E-01	-2.21E+00
Median	1.10E-01	-2.21E+00
Standard Deviation	0.00E+00	0.00E+00
Minimum	1.10E-01	-2.21E+00
Maximum	1.10E-01	-2.21E+00
Skewness		
SE Skewness	1.41E+00	1.41E+00
Skewness Test		
Kurtosis		
SE Kurtosis	2.83E+00	2.83E+00
Kurtosis Test		
99.0% t-statistic for UL	4.54E+00	4.54E+00
99.0% UL	1.10E-01	1.10E-01
99.0% t-statistic for UPL	6.96E+00	6.96E+00
99.0% UPL	1.10E-01	1.10E-01
average in variability analysis	1.10E-01	
RDL	7.58E-01	
3x RDL	2.27E+00	
99.0% UPL	1.10E-01	
Existing Source Level of Cont	**2.30E+00**	**ppmvd @ 3% O2**

* Cannot perform Skewness or Kurtosis test.

1) if the 3x RDL value is less than or equal to the calculated floor or emissions limit, use the calculated floor or emissions limit value

2) if the 3x RDL value is greater than the calculated floor or emissions limit, use the 3x RDL value as the floor or emissions limit adjusted for measurement variability

Process Vents - PVC Combined - Costs and Emissions Reductions for New and Existing Area Source

Major Source Requirements (Existing PVC Combined MACT Floor)

VC	Area Source	1.10	ppmvd @ 3% O2
HCl	Area Source		ppmvd @ 3% O2
CDD/CDF	Area Source	0.051	ng/dscm @ 3% O2
TOHAP	Area Source	9.8	ppmvd @ 3% O2

Facility	Classification	Outlet Conditions							Inlet Conditions						Baseline Emissions Estimates							Percent Reductions Needed to Meet Floors				Reductions (Tons/yr)				Total Reductions
		Outlet Max Flow Rate (DSCMM)	Average O2 (%)	Avg. Temp (C)	Vinyl Chloride (ppmvd @ 3%O2)	HCl (ppmvd @ 3%O2)	CDD/CDF (ng/dscm @ 3%O2)	TotalHAP (ppmvd @ 3%O2)	Inlet Max Flow Rate (DSCMM)	Average O2 (%)	Avg. Temp (C)	Vinyl Chloride (ppmvd @ 3%O2)	CE Redux Effy	Vinyl Chloride (lbs/hr)	VC Baseline (lbs/hr)	HCl Baseline (lbs/hr)	CDD/CDF Baseline (lbs/hr)	TOHAP Baseline (lbs/hr)	VC Baseline (Tons/Yr)	HCl Baseline (Tons/Yr)	CDD/CDF (TEQ) Baseline (Tons/Yr)	TOHAP Baseline (Tons/Yr)	VC - % Redux to Meet Conc. Limit	HCl - % Redux to Meet Conc. Limit	CDD/CDF - % Redux to Meet Conc. Limit	TOHAP - % Redux to Meet Conc. Limit	VC	HCl	CDD/CDF	TOHAP	Tons/yr
OVDP	Area Source	1.05E+03	4.07E+00	5.50E+01	1.93E-01		1.53E-02	4.02E+00	2.13E+01	2.43E+00	1.89E+01	1.93E+04	1.00E+02	1.61E+02	6.64E-02		2.01E-09	1.10E+00	2.79E-01		8.42E-09	4.61E+00					0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

0.00E+00 g/yr (CDD/CDF)

Average of PVC Combined Facilities
Based on Average Factor (Inlet Flow Rate/Outlet Flow Rate) of PVC Combined Facilities
Estimated by calculating average Reduction Effy for VC for All PVC facilities and applying to outlet concentration
Average of All Facilities
Calculated using Inlet flow, O_2 and VC Concentration estimates
Estimated by Calculating Average Factor of TOHAP/VC for Other Facilities

Total Organic HAP Emission Rate Estimate for OVDP

Notes:
Current level of performance for OVDP is based on WLG since OVDP was not required to, and did not, perform testing for any HAP other than VC and CDD/CDF in response to the March 16 section 114

Baseline emission estimate is calculated using OVDP stack conditions (flow, temperature, etc) during the March 16 section 114 testing: concentration information from WLG.

	TOHAP Emission Rate	lb/hr	Tons/yr
OVDP Stack Conditions.		**1.10E+00**	**4.61E+00**

Flow Rate (DSCMM)	1.05E+03
Average O2%	4.07E+00
Average Temp	5.50E+01

Westlake Geismar Concentration Information

HAP	Avg. MW Weight	Concentration (ppm	Emission Rate (Lb/hr)	Emission Rate (Tons/yr)
1,2,3,4,6,7,8-Heptachlorodibenzofuran	4.09E+02	8.38E-09	1.89E-08	7.93E-08
1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin	4.25E+02	8.77E-10	2.05E-09	8.61E-09
1,2,3,4,7,8,9-Heptachlorodibenzofuran	3.18E+02	2.02E-09	3.54E-09	1.49E-08
1,2,3,4,7,8-Hexachlorodibenzofuran	3.75E+02	3.27E-09	6.74E-09	2.83E-08
1,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin	3.91E+02	2.85E-10	6.13E-10	2.58E-09
1,2,3,6,7,8-Hexachlorodibenzofuran	3.75E+02	2.30E-09	4.74E-09	1.99E-08
1,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin	3.91E+02	2.17E-10	4.66E-10	1.96E-09
1,2,3,7,8,9-Hexachlorodibenzofuran	3.75E+02	7.30E-10	1.51E-09	6.32E-09
1,2,3,7,8,9-Hexachlorodibenzo-p-Dioxin	3.91E+02	2.27E-10	4.89E-10	2.05E-09
1,2,3,7,8-Pentachlorodibenzofuran	3.40E+02	1.46E-09	2.73E-09	1.15E-08
1,2,3,7,8-Pentachlorodibenzo-p-Dioxin	3.56E+02	1.70E-10	3.32E-10	1.40E-09
2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)	3.95E+02	1.08E-09	2.36E-09	9.89E-09
2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156)	3.61E+02	1.98E-09	3.93E-09	1.65E-08
2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157)	3.61E+02	2.25E-09	4.46E-09	1.87E-08
2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)	3.26E+02	2.81E-09	5.04E-09	2.12E-08
2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167)	3.61E+02	2.06E-09	4.10E-09	1.72E-08
2,3,4,4',5-Pentachlorobiphenyl (PCB 114)	3.26E+02	3.15E-09	5.66E-09	2.38E-08
2,3',4,4',5-Pentachlorobiphenyl (PCB 118)	3.26E+02	1.06E-08	1.91E-08	8.03E-08
2,3,4,6,7,8-Hexachlorodibenzofuran	3.75E+02	1.35E-09	2.79E-09	1.17E-08
2,3,4,7,8-Pentachlorodibenzofuran	3.40E+02	1.82E-09	3.41E-09	1.43E-08
2,3,7,8-Tetrachlorodibenzofuran	3.06E+02	5.29E-10	8.90E-10	3.74E-09
2,3,7,8-Tetrachlorodibenzo-p-Dioxin	3.22E+02	1.92E-10	3.40E-10	1.43E-09
2-Methylnaphthalene	1.42E+02	1.06E-05	8.31E-06	3.49E-05
3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169)	3.61E+02	2.36E-09	4.69E-09	1.97E-08
3,3',4,4',5-Pentachlorobiphenyl (PCB 126)	3.26E+02	3.41E-09	6.12E-09	2.57E-08
3,3',4,4'-Tetrachlorobiphenyl (PCB 77)	2.92E+02	5.14E-09	8.25E-09	3.47E-08
Acetaldehyde	4.41E+01	3.35E+00	8.12E-01	3.41E+00
Benzo[e]Pyrene	2.52E+02	8.40E-07	1.17E-06	4.90E-06
Benzo[g,h,i,]Perylene	2.76E+02	7.67E-07	1.17E-06	4.90E-06
Ethyl Chloride	6.45E+01	6.42E-04	2.28E-04	9.56E-04
Ethylene Dichloride	9.90E+01	5.76E-02	3.14E-02	1.32E-01
Fluoranthene	2.02E+02	1.05E-06	1.17E-06	4.90E-06
Formaldehyde	3.00E+01	2.89E-01	4.77E-02	2.00E-01
Methanol	3.20E+01	2.89E-01	5.09E-02	2.14E-01
Methyl Chloride	5.05E+01	1.12E-02	3.11E-03	1.31E-02
Methylene Chloride	8.49E+01	5.73E-03	2.68E-03	1.12E-02
Naphthalene	1.28E+02	2.39E-05	1.69E-05	7.08E-05
Octachlorodibenzofuran	4.44E+02	7.93E-09	1.94E-08	8.13E-08
Octachlorodibenzo-p-Dioxin	4.60E+02	2.71E-09	6.85E-09	2.88E-08
Perylene	2.52E+02	8.40E-07	1.17E-06	4.90E-06
Phenanthrene	1.78E+02	1.04E-05	1.02E-05	4.27E-05
Phenol	9.41E+01	2.89E-01	1.49E-01	6.28E-01
Pyrene	2.02E+02	1.05E-06	1.17E-06	4.90E-06
Toluene	9.21E+01	6.70E-04	3.40E-04	1.43E-03
Vinyl Chloride	6.25E+01	7.31E-04	2.51E-04	1.06E-03

ATTACHMENT C - PVC Combined PROCESS VENTS ANALYSIS

02/09/2012

Process Vents Emission Testing Costs

Parameters/Costs		Equation	Values	Testing Freq.*	Annual Cost of Test	Annual Cost of Initial Test	TAC of Testing
A. Parameters							
	1. CE Plant Cost index						
	a. 2010 (Feb 10 Final CE Index)		539.1				
	b. 2009 (Annual CE Index)		521.9				
	c. 1992 (Annual CE Index)		358.2				
B. Testing Costs, $							
	1. Method 1 or 1A	Included as part of M 23	$ -	5	$ -	$ -	$ -
	2. Method 26 (HCl)	= $5,000 x (539.1/358.2)		5		$ -	$ -
	3. Method 23 (CDD/CDF)	= $21,000 x (539.1/358.2) - $5,000	$27,000	5	$ 5,400		$ 5,400
	4. Method 25A (THC)	=$6,000x(539.1/521.9)	$6,198	5	$ 1,240		$ 1,240
	5. Method 18 (Assumed cost equal to 0031)		$10,000	5	$ 2,000		$ 2,000
C.	CRF (20 yr, 7%):	(0.07*(1+0.07)^20)/((1+0.07)^20-1)	0.09439				
D. Facility Totals							
	1.TOH, &VC						**$ 3,240**
	2. CDD/CDF						**$ 5,400**
	3. Facility Total		**$ 43,197.74**				**$ 8,640**

* Number of Years Between Tests

Note:

1. Initial testing costs to be annualized over 20 years at 7% interest.
2. Testing costs have been rounded to the nearest $1,000 to be consistent with level of rounding in original costs; costs also adjusted based on additional information from EPA.

Sources:

1. Memorandum from R. Segall, EPA/EMB, to R. Copland, EPA/SDB. October 14, 1992. Medical Waste Incinerator Study: Emission Measurement and Continuous Monitoring. (II-B-89)

2. E-mail from Jason Dewees, EPA, to Peter Westlin, EPA. August 20, 2008. Monitoring Options for SNCR & Test Cost Questions.

3. E-mail from Jason Dewees, EPA, to Mary Johnson, EPA. August 20, 2008. Re: Monitoring Options for SNCR & Test Cost Questions.

4. Conversation with Ray Merrill, ERG - 11/5/2010.

5. Email from Peter Westlin, EPA 4/8/2011 to ERG: Method 18 Costs

Attachment D

GACT Analysis for Stripped Resins

Resins Summary

Cretain Teed Resin Production	**4.47E+08**	(lbs/yr)
OVDP Resin Production[1]	**5.51E+08**	(lbs/yr)
Model Resin Production	**4.38E+06**	(lbs/yr)

1 - VI 009 Submission - 2006 Capacity Data

New and Existing Source GACT Summary for Stripped Resins

Resin Type	Pollutant	Area Source Current Level of Performance (Avg. Concentrations)	Area Source Current Level of Performance (With Variability) (ppmw)	Option 1 Concentration (Existing Source Requirements) (ppmw)	Current Level of Performance Emissions (Tons/yr)	Existing Source Requirements Emissions (Tons/yr)	Emissions Reduction for Option 1 (Tons/yr)
CTLC - Bulk	VC	7.10	7.10	7.10	0.94	0.94	0.00
	Total Non-VC HAP	160.20	170.00	170.00	5.57	5.57	0.00
OVDP-Suspension	VC	0.86	36.00	37.00	0.24	10.20	0.00
	Total Non-VC HAP	12.11	36.00	670.00	3.34	184.64	0.00
Dispersion	VC	533.50	1500.00	1300.00	1.17	2.85	0.00
	Total Non-VC HAP	67.60	320.00	240.00	0.15	0.53	0.00
Suspension Blending	VC	15.66	140.00	140.00	0.03	0.31	0.00
	Total Non-VC HAP	64.16	500.00	500.00	0.14	1.09	0.00
Copolymer	VC	361.44	790.00	790.00	0.79	1.73	0.00
	Total Non-VC HAP	892.77	1900.00	1900.00	1.95	4.16	0.00

Note - OVDP is better controlled than the least controlled MACT Source, therefore, new = exisitng. CTLC is only bulk source, therefore new=existing.
All other categories = least controlled MACT source.

Total HAP Disp.	2.34E+01 TPY
Total HAP SB	2.23E+01 TPY
Total HAP CP	2.48E+01 TPY

GACT Analysis - Resins -New and Existing Source Costs to Meet Exisitng Major Source Requirements

Cost Component	Bulk	Suspension	Dispersion	Suspension Blending	Copolymer
Initial Costs					
Control Equipment C	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Initial Resin Testing	1.80E+03	1.80E+03	1.80E+03	1.80E+03	1.80E+03
Initial Record Keepin	2.52E+03	2.52E+03	2.52E+03	2.52E+03	2.52E+03
Total Initial Costs	**4.32E+03**	**4.32E+03**	**4.32E+03**	**4.32E+03**	**4.32E+03**
Annual Costs					
Annualized Capital C	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Annual Control Equip	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Annualized Initial Te	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Annual Testing and M	7.21E+03	7.21E+03	7.21E+03	7.21E+03	7.21E+03
Annual Record Keep	3.40E+03	3.40E+03	3.40E+03	3.40E+03	3.40E+03
Total Annual Cost	**1.06E+04**	**1.06E+04**	**1.06E+04**	**1.06E+04**	**1.06E+04**

1 - Initial Testing Cost less than annual; therefore, no amortization of initial testing cost

Resins - Suspension - Existing Area Sources - VC

Resin Type	Suspension

Percentile: 9.99E+01

GACT Limit (ppmw) **3.52E+01** **New**

Average of Vinyl Chloride Concentration (ppmw)			
Facility	Date	Total	Vinyl Chloride (ppmw)
OxyVinyls - Deer Park	1/1/2007	#DIV/0!	
	1/2/2007	9.20E-02	9.20E-02
	1/3/2007	3.19E-01	3.19E-01
	1/4/2007	2.39E-01	2.39E-01
	1/5/2007	2.06E-01	2.06E-01
	1/6/2007	3.18E-01	3.18E-01
	1/7/2007	3.01E-01	3.01E-01
	1/8/2007	3.05E-01	3.05E-01
	1/9/2007	1.88E-01	1.88E-01
	1/10/2007	1.51E-01	1.51E-01
	1/11/2007	1.58E-01	1.58E-01
	1/12/2007	4.09E-01	4.09E-01
	1/13/2007	3.15E-01	3.15E-01
	1/14/2007	3.25E-01	3.25E-01
	1/15/2007	1.73E-01	1.73E-01
	1/16/2007	4.96E-01	4.96E-01
	1/17/2007	2.42E-01	2.42E-01
	1/18/2007	1.13E+00	1.13E+00
	1/19/2007	1.99E+00	1.99E+00
	1/20/2007	1.72E+00	1.72E+00
	1/21/2007	1.47E+00	1.47E+00
	1/22/2007	1.39E+00	1.39E+00
	1/23/2007	1.87E+00	1.87E+00
	1/24/2007	8.97E+00	8.97E+00
	1/25/2007	2.27E+00	2.27E+00
	1/26/2007	2.64E+00	2.64E+00
	1/27/2007	3.41E+00	3.41E+00
	1/28/2007	1.84E+00	1.84E+00
	1/29/2007	5.68E-01	5.68E-01
	1/30/2007	1.51E-01	1.51E-01
	1/31/2007	2.23E-01	2.23E-01
	2/1/2007	4.01E-01	4.01E-01
	2/2/2007	8.78E-01	8.78E-01
	2/3/2007	3.54E-01	3.54E-01
	2/4/2007	7.01E-01	7.01E-01
	2/5/2007	4.11E-01	4.11E-01
	2/6/2007	2.92E-01	2.92E-01
	2/7/2007	2.76E-01	2.76E-01
	2/8/2007	7.47E-01	7.47E-01
	2/9/2007	9.83E-01	9.83E-01
	2/10/2007	6.69E-01	6.69E-01
	2/11/2007	6.37E-01	6.37E-01
	2/12/2007	5.37E-01	5.37E-01
	2/13/2007	2.50E-02	2.50E-02
	2/14/2007	1.04E-01	1.04E-01
	2/15/2007	2.09E-01	2.09E-01
	2/16/2007	3.25E-01	3.25E-01
	2/17/2007	3.96E-01	3.96E-01
	2/18/2007	2.15E-01	2.15E-01
	2/19/2007	2.21E-01	2.21E-01
	2/20/2007	7.90E-02	7.90E-02
	2/21/2007	1.96E+00	1.96E+00
	2/22/2007	3.25E+00	3.25E+00
	2/23/2007	3.55E+00	3.55E+00
	2/24/2007	4.55E-01	4.55E-01
	2/25/2007	2.10E+00	2.10E+00
	2/26/2007	4.30E+00	4.30E+00
	2/27/2007	9.76E-01	9.76E-01
	2/28/2007	6.35E-01	6.35E-01
	3/1/2007	1.80E+00	1.80E+00

Resins - Suspension - Existing Area Sources - VC

	3/2/2007	3.30E+00	3.30E+00
	3/3/2007	8.81E-01	8.81E-01
	3/4/2007	6.19E-01	6.19E-01
	3/5/2007	1.32E+00	1.32E+00
	3/6/2007	6.35E-01	6.35E-01
	3/7/2007	7.14E-01	7.14E-01
	3/8/2007	7.08E-01	7.08E-01
	3/9/2007	1.31E+00	1.31E+00
	3/10/2007	9.45E-01	9.45E-01
	3/11/2007	1.10E+00	1.10E+00
	3/12/2007	6.79E-01	6.79E-01
	3/13/2007	1.60E-01	1.60E-01
	3/14/2007	2.00E-01	2.00E-01
	3/15/2007	2.28E-01	2.28E-01
	3/16/2007	2.49E-01	2.49E-01
	3/17/2007	1.24E-01	1.24E-01
	3/18/2007	2.13E-01	2.13E-01
	3/19/2007	2.64E-01	2.64E-01
	3/20/2007	#DIV/0!	
	3/21/2007	1.07E+00	1.07E+00
	3/22/2007	1.97E-01	1.97E-01
	3/23/2007	1.77E-01	1.77E-01
	3/24/2007	6.32E-01	6.32E-01
	3/25/2007	3.96E-01	3.96E-01
	3/26/2007	4.24E-01	4.24E-01
	3/27/2007	4.20E+00	4.20E+00
	3/28/2007	2.11E-01	2.11E-01
	3/29/2007	3.25E-01	3.25E-01
	3/30/2007	1.99E-01	1.99E-01
	3/31/2007	6.34E-01	6.34E-01
	4/1/2007	2.69E-01	2.69E-01
	4/2/2007	1.10E-01	1.10E-01
	4/3/2007	2.95E-01	2.95E-01
	4/4/2007	6.68E-01	6.68E-01
	4/5/2007	5.70E-01	5.70E-01
	4/6/2007	6.58E-01	6.58E-01
	4/7/2007	5.38E-01	5.38E-01
	4/8/2007	5.68E-01	5.68E-01
	4/9/2007	8.46E-01	8.46E-01
	4/10/2007	1.05E+00	1.05E+00
	4/11/2007	1.33E+00	1.33E+00
	4/12/2007	1.48E+00	1.48E+00
	4/13/2007	1.32E+00	1.32E+00
	4/14/2007	1.17E+00	1.17E+00
	4/15/2007	1.21E+00	1.21E+00
	4/16/2007	5.49E-01	5.49E-01
	4/17/2007	2.74E-01	2.74E-01
	4/18/2007	1.58E-01	1.58E-01
	4/19/2007	4.62E-01	4.62E-01
	4/20/2007	2.53E-01	2.53E-01
	4/21/2007	1.81E-01	1.81E-01
	4/22/2007	1.62E-01	1.62E-01
	4/23/2007	2.15E-01	2.15E-01
	4/24/2007	3.00E-01	3.00E-01
	4/25/2007	1.46E+00	1.46E+00
	4/26/2007	2.39E-01	2.39E-01
	4/27/2007	3.51E-01	3.51E-01
	4/28/2007	7.99E-01	7.99E-01
	4/29/2007	2.75E-01	2.75E-01
	4/30/2007	2.19E-01	2.19E-01
	5/1/2007	1.69E-01	1.69E-01
	5/2/2007	1.81E-01	1.81E-01
	5/3/2007	#DIV/0!	
	5/4/2007	3.88E+00	3.88E+00
	5/5/2007	#DIV/0!	

Resins - Suspension - Existing Area Sources - VC

	5/6/2007	#DIV/0!	
	5/7/2007	#DIV/0!	
	5/8/2007	#DIV/0!	
	5/9/2007	#DIV/0!	
	5/10/2007	7.20E-02	7.20E-02
	5/11/2007	1.00E-02	1.00E-02
	5/12/2007	#DIV/0!	
	5/13/2007	#DIV/0!	
	5/14/2007	4.50E-02	4.50E-02
	5/15/2007	2.20E-01	2.20E-01
	5/16/2007	2.43E-01	2.43E-01
	5/17/2007	2.60E-01	2.60E-01
	5/18/2007	1.92E-01	1.92E-01
	5/19/2007	2.03E-01	2.03E-01
	5/20/2007	3.62E-01	3.62E-01
	5/21/2007	2.41E-01	2.41E-01
	5/22/2007	3.22E-01	3.22E-01
	5/23/2007	6.49E-01	6.49E-01
	5/24/2007	1.06E+00	1.06E+00
	5/25/2007	1.94E+00	1.94E+00
	5/26/2007	2.19E+00	2.19E+00
	5/27/2007	2.29E+00	2.29E+00
	5/28/2007	3.34E+00	3.34E+00
	5/29/2007	1.34E+00	1.34E+00
	5/30/2007	8.06E-01	8.06E-01
	5/31/2007	2.03E+00	2.03E+00
	6/1/2007	3.77E-01	3.77E-01
	6/2/2007	2.39E-01	2.39E-01
	6/3/2007	4.42E-01	4.42E-01
	6/4/2007	5.86E-01	5.86E-01
	6/5/2007	1.03E+00	1.03E+00
	6/6/2007	9.92E-01	9.92E-01
	6/7/2007	3.44E+00	3.44E+00
	6/8/2007	3.39E+00	3.39E+00
	6/9/2007	2.77E+00	2.77E+00
	6/10/2007	2.69E+00	2.69E+00
	6/11/2007	7.61E-01	7.61E-01
	6/12/2007	1.19E+00	1.19E+00
	6/13/2007	3.09E-01	3.09E-01
	6/14/2007	7.40E-01	7.40E-01
	6/15/2007	7.78E-01	7.78E-01
	6/16/2007	1.14E+00	1.14E+00
	6/17/2007	1.15E+00	1.15E+00
	6/18/2007	9.96E-01	9.96E-01
	6/19/2007	6.52E-01	6.52E-01
	6/20/2007	5.09E-01	5.09E-01
	6/21/2007	6.38E-01	6.38E-01
	6/22/2007	6.40E-01	6.40E-01
	6/23/2007	4.48E-01	4.48E-01
	6/24/2007	4.82E-01	4.82E-01
	6/25/2007	6.59E+00	6.59E+00
	6/26/2007	3.33E-01	3.33E-01
	6/27/2007	6.13E-01	6.13E-01
	6/28/2007	5.88E-01	5.88E-01
	6/29/2007	3.06E-01	3.06E-01
	6/30/2007	2.05E-01	2.05E-01
	7/1/2007	2.88E-01	2.88E-01
	7/2/2007	1.95E-01	1.95E-01
	7/3/2007	1.57E-01	1.57E-01
	7/4/2007	5.31E-01	5.31E-01
	7/5/2007	1.56E-01	1.56E-01
	7/6/2007	3.60E-01	3.60E-01
	7/7/2007	2.99E-01	2.99E-01
	7/8/2007	4.04E-01	4.04E-01
	7/9/2007	3.85E-01	3.85E-01

Resins - Suspension - Existing Area Sources - VC

	7/10/2007	2.91E-01	2.91E-01
	7/11/2007	5.27E-01	5.27E-01
	7/12/2007	4.30E-01	4.30E-01
	7/13/2007	4.83E-01	4.83E-01
	7/14/2007	9.49E-01	9.49E-01
	7/15/2007	4.79E-01	4.79E-01
	7/16/2007	3.88E-01	3.88E-01
	7/17/2007	6.29E-01	6.29E-01
	7/18/2007	6.03E-01	6.03E-01
	7/19/2007	5.51E-01	5.51E-01
	7/20/2007	5.75E-01	5.75E-01
	7/21/2007	3.39E-01	3.39E-01
	7/22/2007	2.83E-01	2.83E-01
	7/23/2007	3.77E-01	3.77E-01
	7/24/2007	2.76E-01	2.76E-01
	7/25/2007	4.27E-01	4.27E-01
	7/26/2007	2.03E+00	2.03E+00
	7/27/2007	1.37E+00	1.37E+00
	7/28/2007	7.21E-01	7.21E-01
	7/29/2007	4.05E-01	4.05E-01
	7/30/2007	5.63E-01	5.63E-01
	7/31/2007	2.50E-01	2.50E-01
	8/1/2007	5.47E-01	5.47E-01
	8/2/2007	5.77E-01	5.77E-01
	8/3/2007	1.09E+00	1.09E+00
	8/4/2007	2.27E+00	2.27E+00
	8/5/2007	1.30E+00	1.30E+00
	8/6/2007	4.66E-01	4.66E-01
	8/7/2007	6.14E-01	6.14E-01
	8/8/2007	1.20E+00	1.20E+00
	8/9/2007	2.67E-01	2.67E-01
	8/10/2007	1.56E-01	1.56E-01
	8/11/2007	2.05E-01	2.05E-01
	8/12/2007	1.53E-01	1.53E-01
	8/13/2007	1.82E-01	1.82E-01
	8/14/2007	9.20E-02	9.20E-02
	8/15/2007	3.31E-01	3.31E-01
	8/16/2007	1.42E+00	1.42E+00
	8/17/2007	6.46E-01	6.46E-01
	8/18/2007	7.05E-01	7.05E-01
	8/19/2007	6.54E-01	6.54E-01
	8/20/2007	5.83E-01	5.83E-01
	8/21/2007	6.69E-01	6.69E-01
	8/22/2007	6.76E-01	6.76E-01
	8/23/2007	5.89E-01	5.89E-01
	8/24/2007	3.88E+01	3.88E+01
	8/25/2007	6.10E-01	6.10E-01
	8/26/2007	3.35E-01	3.35E-01
	8/27/2007	3.68E-01	3.68E-01
	8/28/2007	3.03E-01	3.03E-01
	8/29/2007	4.86E-01	4.86E-01
	8/30/2007	7.88E-01	7.88E-01
	8/31/2007	5.29E-01	5.29E-01
	9/1/2007	3.76E-01	3.76E-01
	9/2/2007	3.57E-01	3.57E-01
	9/3/2007	7.41E-01	7.41E-01
	9/4/2007	4.26E-01	4.26E-01
	9/5/2007	4.46E-01	4.46E-01
	9/6/2007	3.58E-01	3.58E-01
	9/7/2007	4.92E-01	4.92E-01
	9/8/2007	8.48E-01	8.48E-01
	9/9/2007	3.93E-01	3.93E-01
	9/10/2007	5.02E-01	5.02E-01
	9/11/2007	4.73E-01	4.73E-01
	9/12/2007	2.68E-01	2.68E-01

Resins - Suspension - Existing Area Sources - VC

	9/13/2007	2.10E-01	2.10E-01
	9/14/2007	2.68E-01	2.68E-01
	9/15/2007	3.92E-01	3.92E-01
	9/16/2007	4.89E-01	4.89E-01
	9/17/2007	2.81E-01	2.81E-01
	9/18/2007	3.50E-01	3.50E-01
	9/19/2007	2.89E-01	2.89E-01
	9/20/2007	3.32E-01	3.32E-01
	9/21/2007	#DIV/0!	
	9/22/2007	#DIV/0!	
	9/23/2007	#DIV/0!	
	9/24/2007	2.00E-02	2.00E-02
	9/25/2007	#DIV/0!	
	9/26/2007	5.87E-01	5.87E-01
	9/27/2007	8.02E-01	8.02E-01
	9/28/2007	9.96E-01	9.96E-01
	9/29/2007	1.27E+00	1.27E+00
	9/30/2007	1.23E+00	1.23E+00
	10/1/2007	1.12E+00	1.12E+00
	10/2/2007	6.80E-01	6.80E-01
	10/3/2007	2.18E-01	2.18E-01
	10/4/2007	5.15E-01	5.15E-01
	10/5/2007	1.69E-01	1.69E-01
	10/6/2007	2.87E-01	2.87E-01
	10/7/2007	3.95E-01	3.95E-01
	10/8/2007	4.66E-01	4.66E-01
	10/9/2007	8.42E-01	8.42E-01
	10/10/2007	5.63E-01	5.63E-01
	10/11/2007	7.33E-01	7.33E-01
	10/12/2007	#DIV/0!	
	10/13/2007	#DIV/0!	
	10/14/2007	#DIV/0!	
	10/15/2007	#DIV/0!	
	10/16/2007	#DIV/0!	
	10/17/2007	#DIV/0!	
	10/18/2007	#DIV/0!	
	10/19/2007	#DIV/0!	
	10/20/2007	#DIV/0!	
	10/21/2007	#DIV/0!	
	10/22/2007	1.60E-02	1.60E-02
	10/23/2007	8.60E-02	8.60E-02
	10/24/2007	4.75E-01	4.75E-01
	10/25/2007	3.80E-01	3.80E-01
	10/26/2007	3.77E-01	3.77E-01
	10/27/2007	3.04E-01	3.04E-01
	10/28/2007	3.69E-01	3.69E-01
	10/29/2007	2.47E-01	2.47E-01
	10/30/2007	3.61E-01	3.61E-01
	10/31/2007	3.69E-01	3.69E-01
	11/1/2007	8.82E-01	8.82E-01
	11/2/2007	8.43E-01	8.43E-01
	11/3/2007	9.11E-01	9.11E-01
	11/4/2007	6.57E+00	6.57E+00
	11/5/2007	8.06E-01	8.06E-01
	11/6/2007	5.83E-01	5.83E-01
	11/7/2007	5.08E-01	5.08E-01
	11/8/2007	6.70E-01	6.70E-01
	11/9/2007	6.24E-01	6.24E-01
	11/10/2007	6.13E-01	6.13E-01
	11/11/2007	3.67E-01	3.67E-01
	11/12/2007	3.38E-01	3.38E-01
	11/13/2007	3.33E-01	3.33E-01
	11/14/2007	2.56E-01	2.56E-01
	11/15/2007	3.23E-01	3.23E-01
	11/16/2007	1.82E-01	1.82E-01

Resins - Suspension - Existing Area Sources - VC

	11/17/2007	3.12E-01	3.12E-01
	11/18/2007	3.05E-01	3.05E-01
	11/19/2007	4.62E-01	4.62E-01
	11/20/2007	5.22E-01	5.22E-01
	11/21/2007	1.00E-02	1.00E-02
	11/22/2007	5.04E+00	5.04E+00
	11/23/2007	3.84E-01	3.84E-01
	11/24/2007	5.62E-01	5.62E-01
	11/25/2007	1.09E+00	1.09E+00
	11/26/2007	3.35E+00	3.35E+00
	11/27/2007	5.99E+00	5.99E+00
	11/28/2007	2.72E+00	2.72E+00
	11/29/2007	1.81E+00	1.81E+00
	11/30/2007	3.26E+00	3.26E+00
	12/1/2007	1.24E+00	1.24E+00
	12/2/2007	4.03E+00	4.03E+00
	12/3/2007	1.68E+00	1.68E+00
	12/4/2007	1.39E+00	1.39E+00
	12/5/2007	1.69E+00	1.69E+00
	12/6/2007	2.18E+00	2.18E+00
	12/7/2007	4.63E+00	4.63E+00
	12/8/2007	2.15E+00	2.15E+00
	12/9/2007	1.94E+00	1.94E+00
	12/10/2007	4.25E+00	4.25E+00
	12/11/2007	3.45E+00	3.45E+00
	12/12/2007	7.34E-01	7.34E-01
	12/13/2007	1.39E-01	1.39E-01
	12/14/2007	1.58E-01	1.58E-01
	12/15/2007	3.54E-01	3.54E-01
	12/16/2007	9.91E-01	9.91E-01
	12/17/2007	6.00E-02	6.00E-02
	12/18/2007	#DIV/0!	
	12/19/2007	#DIV/0!	
	12/20/2007	#DIV/0!	
	12/21/2007	1.26E-01	1.26E-01
	12/22/2007	3.23E-01	3.23E-01
	12/23/2007	6.30E-02	6.30E-02
	12/24/2007	2.33E-01	2.33E-01
	12/25/2007	2.30E-01	2.30E-01
	12/26/2007	2.66E-01	2.66E-01
	12/27/2007	1.29E-01	1.29E-01
	12/28/2007	3.55E-01	3.55E-01
	12/29/2007	8.54E-01	8.54E-01
	12/30/2007	3.80E-01	3.80E-01
	12/31/2007	6.34E-01	6.34E-01
	1/1/2008	6.32E-01	6.32E-01
	1/2/2008	6.56E-01	6.56E-01
	1/3/2008	1.03E+00	1.03E+00
	1/4/2008	1.05E+00	1.05E+00
	1/5/2008	1.69E+00	1.69E+00
	1/6/2008	1.72E+00	1.72E+00
	1/7/2008	2.45E+00	2.45E+00
	1/8/2008	6.45E-01	6.45E-01
	1/9/2008	3.66E-01	3.66E-01
	1/10/2008	2.74E-01	2.74E-01
	1/11/2008	3.05E-01	3.05E-01
	1/12/2008	2.39E-01	2.39E-01
	1/13/2008	2.45E-01	2.45E-01
	1/14/2008	2.47E-01	2.47E-01
	1/15/2008	3.14E-01	3.14E-01
	1/16/2008	1.84E-01	1.84E-01
	1/17/2008	2.30E-01	2.30E-01
	1/18/2008	1.27E-01	1.27E-01
	1/19/2008	7.52E-01	7.52E-01
	1/20/2008	1.44E-01	1.44E-01

Resins - Suspension - Existing Area Sources - VC

1/21/2008	2.36E-01	2.36E-01
1/22/2008	2.30E-01	2.30E-01
1/23/2008	9.25E-01	9.25E-01
1/24/2008	1.67E-01	1.67E-01
1/25/2008	1.81E-01	1.81E-01
1/26/2008	4.03E-01	4.03E-01
1/27/2008	2.53E-01	2.53E-01
1/28/2008	3.25E-01	3.25E-01
1/29/2008	3.24E-01	3.24E-01
1/30/2008	1.09E+00	1.09E+00
1/31/2008	3.70E-01	3.70E-01
2/1/2008	4.61E-01	4.61E-01
2/2/2008	4.26E-01	4.26E-01
2/3/2008	4.22E-01	4.22E-01
2/4/2008	4.45E-01	4.45E-01
2/5/2008	3.74E-01	3.74E-01
2/6/2008	1.22E-01	1.22E-01
2/7/2008	5.91E-01	5.91E-01
2/8/2008	2.77E-01	2.77E-01
2/9/2008	1.82E-01	1.82E-01
2/10/2008	3.28E-01	3.28E-01
2/11/2008	2.53E-01	2.53E-01
2/12/2008	2.01E-01	2.01E-01
2/13/2008	1.88E-01	1.88E-01
2/14/2008	4.44E-01	4.44E-01
2/15/2008	3.91E-01	3.91E-01
2/16/2008	1.96E-01	1.96E-01
2/17/2008	2.94E-01	2.94E-01
2/18/2008	3.16E-01	3.16E-01
2/19/2008	2.45E-01	2.45E-01
2/20/2008	4.04E-01	4.04E-01
2/21/2008	1.23E-01	1.23E-01
2/22/2008	4.90E-01	4.90E-01
2/23/2008	6.52E-01	6.52E-01
2/24/2008	8.16E-01	8.16E-01
2/25/2008	1.06E+00	1.06E+00
2/26/2008	#DIV/0!	
2/27/2008	#DIV/0!	
2/28/2008	#DIV/0!	
2/29/2008	#DIV/0!	
3/1/2008	#DIV/0!	
3/2/2008	#DIV/0!	
3/3/2008	2.52E-01	2.52E-01
3/4/2008	1.62E+00	1.62E+00
3/5/2008	2.51E-01	2.51E-01
3/6/2008	3.00E-01	3.00E-01
3/7/2008	7.30E-01	7.30E-01
3/8/2008	5.57E-01	5.57E-01
3/9/2008	5.03E-01	5.03E-01
3/10/2008	2.51E-01	2.51E-01
3/11/2008	2.89E-01	2.89E-01
3/12/2008	2.84E-01	2.84E-01
3/13/2008	2.16E-01	2.16E-01
3/14/2008	3.12E-01	3.12E-01
3/15/2008	1.23E-01	1.23E-01
3/16/2008	1.86E-01	1.86E-01
3/17/2008	8.14E-01	8.14E-01
3/18/2008	2.08E+00	2.08E+00
3/19/2008	1.08E+00	1.08E+00
3/20/2008	1.29E+00	1.29E+00
3/21/2008	1.20E+00	1.20E+00
3/22/2008	7.96E-01	7.96E-01
3/23/2008	1.88E+00	1.88E+00
3/24/2008	9.26E-01	9.26E-01
3/25/2008	#DIV/0!	

Resins - Suspension - Existing Area Sources - VC

	3/26/2008	#DIV/0!	
	3/27/2008	#DIV/0!	
	3/28/2008	#DIV/0!	
	3/29/2008	1.00E-02	1.00E-02
	3/30/2008	#DIV/0!	
	3/31/2008	1.60E-02	1.60E-02
	4/1/2008	#DIV/0!	
	4/2/2008	7.20E-01	7.20E-01
	4/3/2008	1.96E-01	1.96E-01
	4/4/2008	3.17E-01	3.17E-01
	4/5/2008	3.56E-01	3.56E-01
	4/6/2008	3.71E-01	3.71E-01
	4/7/2008	6.12E-01	6.12E-01
	4/8/2008	2.36E-01	2.36E-01
	4/9/2008	2.34E-01	2.34E-01
	4/10/2008	2.22E-01	2.22E-01
	4/11/2008	3.90E-01	3.90E-01
	4/12/2008	3.76E-01	3.76E-01
	4/13/2008	7.72E-01	7.72E-01
	4/14/2008	6.00E-01	6.00E-01
	4/15/2008	6.63E-01	6.63E-01
	4/16/2008	1.50E+00	1.50E+00
	4/17/2008	1.44E+00	1.44E+00
	4/18/2008	7.93E-01	7.93E-01
	4/19/2008	#DIV/0!	
	4/20/2008	#DIV/0!	
	4/21/2008	#DIV/0!	
	4/22/2008	#DIV/0!	
	4/23/2008	#DIV/0!	
	4/24/2008	#DIV/0!	
	4/25/2008	#DIV/0!	
	4/26/2008	#DIV/0!	
	4/27/2008	#DIV/0!	
	4/28/2008	#DIV/0!	
	4/29/2008	#DIV/0!	
	4/30/2008	#DIV/0!	
	5/1/2008	1.59E-01	1.59E-01
	5/2/2008	1.43E-01	1.43E-01
	5/3/2008	3.70E-01	3.70E-01
	5/4/2008	8.39E+00	8.39E+00
	5/5/2008	3.31E-01	3.31E-01
	5/6/2008	2.53E-01	2.53E-01
	5/7/2008	2.21E-01	2.21E-01
	5/8/2008	6.46E-01	6.46E-01
	5/9/2008	5.35E-01	5.35E-01
	5/10/2008	1.36E+00	1.36E+00
	5/11/2008	1.37E+00	1.37E+00
	5/12/2008	1.37E+00	1.37E+00
	5/13/2008	1.18E+00	1.18E+00
	5/14/2008	2.87E+00	2.87E+00
	5/15/2008	2.46E-01	2.46E-01
	5/16/2008	3.74E-01	3.74E-01
	5/17/2008	7.01E-01	7.01E-01
	5/18/2008	2.37E-01	2.37E-01
	5/19/2008	2.81E-01	2.81E-01
	5/20/2008	2.14E-01	2.14E-01
	5/21/2008	4.62E-01	4.62E-01
	5/22/2008	3.83E-01	3.83E-01
	5/23/2008	3.87E-01	3.87E-01
	5/24/2008	2.60E-01	2.60E-01
	5/25/2008	3.52E-01	3.52E-01
	5/26/2008	4.23E-01	4.23E-01
	5/27/2008	3.95E-01	3.95E-01
	5/28/2008	4.50E-01	4.50E-01
	5/29/2008	1.11E+00	1.11E+00

Resins - Suspension - Existing Area Sources - VC

	5/30/2008	6.12E-01	6.12E-01
	5/31/2008	7.79E-01	7.79E-01
	6/1/2008	7.14E-01	7.14E-01
	6/2/2008	7.57E-01	7.57E-01
	6/3/2008	5.67E-01	5.67E-01
	6/4/2008	4.90E-01	4.90E-01
	6/5/2008	6.23E-01	6.23E-01
	6/6/2008	2.44E-01	2.44E-01
	6/7/2008	2.88E-01	2.88E-01
	6/8/2008	2.83E-01	2.83E-01
	6/9/2008	2.79E-01	2.79E-01
	6/10/2008	9.33E-01	9.33E-01
	6/11/2008	8.18E-01	8.18E-01
	6/12/2008	6.26E-01	6.26E-01
	6/13/2008	9.00E-01	9.00E-01
	6/14/2008	9.05E-01	9.05E-01
	6/15/2008	4.90E-01	4.90E-01
	6/16/2008	6.47E-01	6.47E-01
	6/17/2008	9.51E-01	9.51E-01
	6/18/2008	3.18E-01	3.18E-01
	6/19/2008	5.83E-01	5.83E-01
	6/20/2008	5.17E-01	5.17E-01
	6/21/2008	3.83E-01	3.83E-01
	6/22/2008	3.66E-01	3.66E-01
	6/23/2008	4.24E-01	4.24E-01
	6/24/2008	3.28E-01	3.28E-01
	6/25/2008	1.02E-01	1.02E-01
	6/26/2008	9.43E-01	9.43E-01
	6/27/2008	5.39E-01	5.39E-01
	6/28/2008	1.58E-01	1.58E-01
	6/29/2008	2.94E+00	2.94E+00
	6/30/2008	2.34E-01	2.34E-01
	7/1/2008	2.04E-01	2.04E-01
	7/2/2008	3.83E-01	3.83E-01
	7/3/2008	1.88E-01	1.88E-01
	7/4/2008	2.62E-01	2.62E-01
	7/5/2008	3.68E-01	3.68E-01
	7/6/2008	2.86E-01	2.86E-01
	7/7/2008	3.08E-01	3.08E-01
	7/8/2008	2.28E+00	2.28E+00
	7/9/2008	3.80E-01	3.80E-01
	7/10/2008	5.48E-01	5.48E-01
	7/11/2008	7.72E-01	7.72E-01
	7/12/2008	1.14E+00	1.14E+00
	7/13/2008	3.38E-01	3.38E-01
	7/14/2008	4.24E-01	4.24E-01
	7/15/2008	3.45E-01	3.45E-01
	7/16/2008	6.93E-01	6.93E-01
	7/17/2008	6.18E-01	6.18E-01
	7/18/2008	1.50E+00	1.50E+00
	7/19/2008	2.01E+00	2.01E+00
	7/20/2008	3.88E-01	3.88E-01
	7/21/2008	4.48E-01	4.48E-01
	7/22/2008	5.93E-01	5.93E-01
	7/23/2008	1.38E+00	1.38E+00
	7/24/2008	5.59E-01	5.59E-01
	7/25/2008	4.02E-01	4.02E-01
	7/26/2008	6.26E-01	6.26E-01
	7/27/2008	4.42E-01	4.42E-01
	7/28/2008	1.73E+00	1.73E+00
	7/29/2008	1.51E+00	1.51E+00
	7/30/2008	3.82E-01	3.82E-01
	7/31/2008	3.65E-01	3.65E-01
	8/1/2008	3.13E-01	3.13E-01
	8/2/2008	4.77E-01	4.77E-01

Resins - Suspension - Existing Area Sources - VC

	8/3/2008	4.82E-01	4.82E-01
	8/4/2008	4.95E-01	4.95E-01
	8/5/2008	7.43E-01	7.43E-01
	8/6/2008	4.69E-01	4.69E-01
	8/7/2008	8.93E-01	8.93E-01
	8/8/2008	5.50E-01	5.50E-01
	8/9/2008	8.13E-01	8.13E-01
	8/10/2008	5.58E-01	5.58E-01
	8/11/2008	6.02E-01	6.02E-01
	8/12/2008	7.29E-01	7.29E-01
	8/13/2008	5.12E-01	5.12E-01
	8/14/2008	5.17E-01	5.17E-01
	8/15/2008	1.03E+00	1.03E+00
	8/16/2008	3.74E-01	3.74E-01
	8/17/2008	6.10E-01	6.10E-01
	8/18/2008	4.70E-01	4.70E-01
	8/19/2008	3.25E-01	3.25E-01
	8/20/2008	4.56E-01	4.56E-01
	8/21/2008	3.46E-01	3.46E-01
	8/22/2008	5.89E-01	5.89E-01
	8/23/2008	6.73E-01	6.73E-01
	8/24/2008	1.49E+00	1.49E+00
	8/25/2008	5.53E-01	5.53E-01
	8/26/2008	6.89E-01	6.89E-01
	8/27/2008	3.36E-01	3.36E-01
	8/28/2008	3.97E-01	3.97E-01
	8/29/2008	1.12E+00	1.12E+00
	8/30/2008	7.06E-01	7.06E-01
	8/31/2008	1.12E+00	1.12E+00
	9/1/2008	2.94E-01	2.94E-01
	9/2/2008	6.33E-01	6.33E-01
	9/3/2008	1.89E-01	1.89E-01
	9/4/2008	4.40E-01	4.40E-01
	9/5/2008	4.56E-01	4.56E-01
	9/6/2008	5.88E-01	5.88E-01
	9/7/2008	2.71E-01	2.71E-01
	9/8/2008	1.68E-01	1.68E-01
	9/9/2008	4.35E-01	4.35E-01
	9/10/2008	3.00E-01	3.00E-01
	9/11/2008	1.54E-01	1.54E-01
	9/12/2008	#DIV/0!	
	9/13/2008	#DIV/0!	
	9/14/2008	#DIV/0!	
	9/15/2008	#DIV/0!	
	9/16/2008	#DIV/0!	
	9/17/2008	#DIV/0!	
	9/18/2008	#DIV/0!	
	9/19/2008	5.40E-02	5.40E-02
	9/20/2008	1.00E-02	1.00E-02
	9/21/2008	5.44E-01	5.44E-01
	9/22/2008	3.05E+00	3.05E+00
	9/23/2008	1.28E+00	1.28E+00
	9/24/2008	1.47E+00	1.47E+00
	9/25/2008	2.39E+00	2.39E+00
	9/26/2008	1.39E+00	1.39E+00
	9/27/2008	1.57E+00	1.57E+00
	9/28/2008	6.11E-01	6.11E-01
	9/29/2008	4.52E-01	4.52E-01
	9/30/2008	4.25E-01	4.25E-01
	10/1/2008	3.35E-01	3.35E-01
	10/2/2008	2.50E-01	2.50E-01
	10/3/2008	3.73E-01	3.73E-01
	10/4/2008	3.76E-01	3.76E-01
	10/5/2008	3.05E-01	3.05E-01
	10/6/2008	2.12E-01	2.12E-01

Resins - Suspension - Existing Area Sources - VC

	10/7/2008	4.09E-01	4.09E-01
	10/8/2008	2.16E-01	2.16E-01
	10/9/2008	4.81E-01	4.81E-01
	10/10/2008	4.97E-01	4.97E-01
	10/11/2008	6.57E-01	6.57E-01
	10/12/2008	4.02E-01	4.02E-01
	10/13/2008	2.39E-01	2.39E-01
	10/14/2008	6.33E-01	6.33E-01
	10/15/2008	1.32E+00	1.32E+00
	10/16/2008	2.89E+00	2.89E+00
	10/17/2008	7.22E+00	7.22E+00
	10/18/2008	5.17E+00	5.17E+00
	10/19/2008	2.45E+00	2.45E+00
	10/20/2008	2.35E+00	2.35E+00
	10/21/2008	9.27E-01	9.27E-01
	10/22/2008	8.02E-01	8.02E-01
	10/23/2008	3.93E-01	3.93E-01
	10/24/2008	5.85E-01	5.85E-01
	10/25/2008	5.80E-01	5.80E-01
	10/26/2008	4.41E-01	4.41E-01
	10/27/2008	4.30E-01	4.30E-01
	10/28/2008	2.46E-01	2.46E-01
	10/29/2008	1.02E-01	1.02E-01
	10/30/2008	2.38E-01	2.38E-01
	10/31/2008	4.20E-01	4.20E-01
	11/1/2008	2.23E-01	2.23E-01
	11/2/2008	1.90E-01	1.90E-01
	11/3/2008	3.43E-01	3.43E-01
	11/4/2008	1.95E-01	1.95E-01
	11/5/2008	8.50E-02	8.50E-02
	11/6/2008	9.80E-02	9.80E-02
	11/7/2008	1.47E-01	1.47E-01
	11/8/2008	1.06E-01	1.06E-01
	11/9/2008	1.18E-01	1.18E-01
	11/10/2008	1.88E-01	1.88E-01
	11/11/2008	4.73E-01	4.73E-01
	11/12/2008	2.06E-01	2.06E-01
	11/13/2008	2.83E-01	2.83E-01
	11/14/2008	2.25E-01	2.25E-01
	11/15/2008	2.78E-01	2.78E-01
	11/16/2008	2.29E-01	2.29E-01
	11/17/2008	1.24E+00	1.24E+00
	11/18/2008	3.72E-01	3.72E-01
	11/19/2008	3.94E-01	3.94E-01
	11/20/2008	3.69E-01	3.69E-01
	11/21/2008	3.76E-01	3.76E-01
	11/22/2008	5.34E-01	5.34E-01
	11/23/2008	#DIV/0!	
	11/24/2008	#DIV/0!	
	11/25/2008	1.00E-02	1.00E-02
	11/26/2008	1.00E-02	1.00E-02
	11/27/2008	#DIV/0!	
	11/28/2008	#DIV/0!	
	11/29/2008	#DIV/0!	
	11/30/2008	#DIV/0!	
	12/1/2008	#DIV/0!	
	12/2/2008	#DIV/0!	
	12/3/2008	1.59E+01	1.59E+01
	12/4/2008	9.40E-02	9.40E-02
	12/5/2008	2.45E-01	2.45E-01
	12/6/2008	1.35E-01	1.35E-01
	12/7/2008	2.29E-01	2.29E-01
	12/8/2008	2.50E-01	2.50E-01
	12/9/2008	1.13E-01	1.13E-01
	12/10/2008	1.28E-01	1.28E-01

Resins - Suspension - Existing Area Sources - VC

	12/11/2008	7.00E-02	7.00E-02
	12/12/2008	2.40E-02	2.40E-02
	12/13/2008	1.72E-01	1.72E-01
	12/14/2008	1.64E-01	1.64E-01
	12/15/2008	3.12E-01	3.12E-01
	12/16/2008	1.71E-01	1.71E-01
	12/17/2008	1.24E-01	1.24E-01
	12/18/2008	1.98E-01	1.98E-01
	12/19/2008	2.33E-01	2.33E-01
	12/20/2008	3.79E+00	3.79E+00
	12/21/2008	#DIV/0!	
	12/22/2008	#DIV/0!	
	12/23/2008	#DIV/0!	
	12/24/2008	#DIV/0!	
	12/25/2008	#DIV/0!	
	12/26/2008	#DIV/0!	
	12/27/2008	#DIV/0!	
	12/28/2008	#DIV/0!	
	12/29/2008	2.40E-02	2.40E-02
	12/30/2008	5.13E-01	5.13E-01
	12/31/2008	1.30E-01	1.30E-01
	1/1/2009	1.09E-01	1.09E-01
	1/2/2009	2.92E-01	2.92E-01
	1/3/2009	2.32E-01	2.32E-01
	1/4/2009	1.28E-01	1.28E-01
	1/5/2009	1.46E-01	1.46E-01
	1/6/2009	#DIV/0!	
	1/7/2009	#DIV/0!	
	1/8/2009	1.04E-01	1.04E-01
	1/9/2009	1.00E-01	1.00E-01
	1/10/2009	4.21E-01	4.21E-01
	1/11/2009	1.49E-01	1.49E-01
	1/12/2009	1.53E-01	1.53E-01
	1/13/2009	1.78E-01	1.78E-01
	1/14/2009	9.30E-02	9.30E-02
	1/15/2009	1.90E-01	1.90E-01
	1/16/2009	4.22E-01	4.22E-01
	1/17/2009	3.87E-01	3.87E-01
	1/18/2009	5.36E-01	5.36E-01
	1/19/2009	8.14E-01	8.14E-01
	1/20/2009	1.11E+00	1.11E+00
	1/21/2009	6.00E-01	6.00E-01
	1/22/2009	1.83E-01	1.83E-01
	1/23/2009	1.88E-01	1.88E-01
	1/24/2009	2.09E-01	2.09E-01
	1/25/2009	2.40E-01	2.40E-01
	1/26/2009	1.40E-01	1.40E-01
	1/27/2009	7.96E-01	7.96E-01
	1/28/2009	4.51E-01	4.51E-01
	1/29/2009	6.33E-01	6.33E-01
	1/30/2009	4.36E+00	4.36E+00
	1/31/2009	#DIV/0!	
	2/1/2009	1.05E+00	1.05E+00
	2/2/2009	2.18E+00	2.18E+00
	2/3/2009	6.39E-01	6.39E-01
	2/4/2009	1.01E+00	1.01E+00
	2/5/2009	2.60E-01	2.60E-01
	2/6/2009	8.88E-01	8.88E-01
	2/7/2009	5.71E-01	5.71E-01
	2/8/2009	1.06E+00	1.06E+00
	2/9/2009	#DIV/0!	
	2/10/2009	#DIV/0!	
	2/11/2009	#DIV/0!	
	2/12/2009	#DIV/0!	
	2/13/2009	1.50E-02	1.50E-02

Resins - Suspension - Existing Area Sources - VC

	2/14/2009	2.17E+00	2.17E+00
	2/15/2009	9.18E-01	9.18E-01
	2/16/2009	2.14E-01	2.14E-01
	2/17/2009	3.69E-01	3.69E-01
	2/18/2009	5.62E-01	5.62E-01
	2/19/2009	7.09E-01	7.09E-01
	2/20/2009	8.47E-01	8.47E-01
	2/21/2009	6.93E-01	6.93E-01
	2/22/2009	2.82E+00	2.82E+00
	2/23/2009	2.70E-01	2.70E-01
	2/24/2009	2.00E-01	2.00E-01
	2/25/2009	3.33E+00	3.33E+00
	2/26/2009	1.43E+00	1.43E+00
	2/27/2009	1.66E+00	1.66E+00
	2/28/2009	1.62E+00	1.62E+00
	3/1/2009	4.95E-01	4.95E-01
	3/2/2009	4.80E-01	4.80E-01
	3/3/2009	5.07E-01	5.07E-01
	3/4/2009	1.19E+00	1.19E+00
	3/5/2009	4.28E-01	4.28E-01
	3/6/2009	5.61E-01	5.61E-01
	3/7/2009	4.81E-01	4.81E-01
	3/8/2009	1.02E+00	1.02E+00
	3/9/2009	5.57E-01	5.57E-01
	3/10/2009	1.58E+00	1.58E+00
	3/11/2009	5.88E-01	5.88E-01
	3/12/2009	3.03E-01	3.03E-01
	3/13/2009	2.68E-01	2.68E-01
	3/14/2009	5.80E-02	5.80E-02
	3/15/2009	4.01E-01	4.01E-01
	3/16/2009	1.56E-01	1.56E-01
	3/17/2009	3.95E+00	3.95E+00
	3/18/2009	9.55E-01	9.55E-01
	3/19/2009	2.89E+00	2.89E+00
	3/20/2009	1.22E+00	1.22E+00
	3/21/2009	7.01E-01	7.01E-01
	3/22/2009	5.01E-01	5.01E-01
	3/23/2009	#DIV/0!	
	3/24/2009	#DIV/0!	
	3/25/2009	#DIV/0!	
	3/26/2009	#DIV/0!	
	3/27/2009	#DIV/0!	
	3/28/2009	#DIV/0!	
	3/29/2009	#DIV/0!	
	3/30/2009	#DIV/0!	
	3/31/2009	#DIV/0!	
	4/1/2009	#DIV/0!	
	4/2/2009	2.70E-02	2.70E-02
	4/3/2009	9.64E-01	9.64E-01
	4/4/2009	3.44E-01	3.44E-01
	4/5/2009	1.25E-01	1.25E-01
	4/6/2009	2.50E-01	2.50E-01
	4/7/2009	1.75E-01	1.75E-01
	4/8/2009	1.72E-01	1.72E-01
	4/9/2009	6.78E-01	6.78E-01
	4/10/2009	6.00E-02	6.00E-02
	4/11/2009	6.12E-01	6.12E-01
	4/12/2009	1.59E-01	1.59E-01
	4/13/2009	3.86E-01	3.86E-01
	4/14/2009	1.14E+00	1.14E+00
	4/15/2009	1.32E+00	1.32E+00
	4/16/2009	1.22E+00	1.22E+00
	4/17/2009	2.22E+00	2.22E+00
	4/18/2009	1.29E+00	1.29E+00
	4/19/2009	6.90E-01	6.90E-01

Resins - Suspension - Existing Area Sources - VC

	4/20/2009	#DIV/0!	
	4/21/2009	#DIV/0!	
	4/22/2009	#DIV/0!	
	4/23/2009	#DIV/0!	
	4/24/2009	#DIV/0!	
	4/25/2009	2.60E-02	2.60E-02
	4/26/2009	1.22E+00	1.22E+00
	4/27/2009	1.21E+00	1.21E+00
	4/28/2009	1.11E+00	1.11E+00
	4/29/2009	9.70E-01	9.70E-01
	4/30/2009	1.35E+00	1.35E+00
	5/1/2009	3.34E+00	3.34E+00
	5/2/2009	5.30E+00	5.30E+00
	5/3/2009	3.65E+00	3.65E+00
	5/4/2009	3.67E-01	3.67E-01
	5/5/2009	1.45E-01	1.45E-01
	5/6/2009	1.80E+00	1.80E+00
	5/7/2009	3.51E+00	3.51E+00
	5/8/2009	1.93E+00	1.93E+00
	5/9/2009	3.34E-01	3.34E-01
	5/10/2009	2.60E-01	2.60E-01
	5/11/2009	1.04E+00	1.04E+00
	5/12/2009	2.57E-01	2.57E-01
	5/13/2009	4.44E-01	4.44E-01
	5/14/2009	5.60E-01	5.60E-01
	5/15/2009	3.25E-01	3.25E-01
	5/16/2009	2.83E-01	2.83E-01
	5/17/2009	4.55E-01	4.55E-01
	5/18/2009	3.05E-01	3.05E-01
	5/19/2009	4.77E-01	4.77E-01
	5/20/2009	4.86E-01	4.86E-01
	5/21/2009	3.81E-01	3.81E-01
	5/22/2009	2.25E-01	2.25E-01
	5/23/2009	5.63E-01	5.63E-01
	5/24/2009	1.40E+00	1.40E+00
	5/25/2009	6.95E-01	6.95E-01
	5/26/2009	5.01E-01	5.01E-01
	5/27/2009	3.97E-01	3.97E-01
	5/28/2009	5.07E-01	5.07E-01
	5/29/2009	7.11E-01	7.11E-01
	5/30/2009	6.21E-01	6.21E-01
	5/31/2009	4.91E-01	4.91E-01
	6/1/2009	1.25E+00	1.25E+00
	6/2/2009	2.75E+00	2.75E+00
	6/3/2009	7.97E-01	7.97E-01
	6/4/2009	2.37E-01	2.37E-01
	6/5/2009	4.61E-01	4.61E-01
	6/6/2009	3.34E-01	3.34E-01
	6/7/2009	5.29E-01	5.29E-01
	6/8/2009	2.11E-01	2.11E-01
	6/9/2009	2.02E-01	2.02E-01
	6/10/2009	4.71E-01	4.71E-01
	6/11/2009	6.38E-01	6.38E-01
	6/12/2009	2.97E-01	2.97E-01
	6/13/2009	2.00E-01	2.00E-01
	6/14/2009	2.82E-01	2.82E-01
	6/15/2009	3.00E-01	3.00E-01
	6/16/2009	#DIV/0!	
	6/17/2009	#DIV/0!	
	6/18/2009	#DIV/0!	
	6/19/2009	#DIV/0!	
	6/20/2009	#DIV/0!	
	6/21/2009	#DIV/0!	
	6/22/2009	#DIV/0!	
	6/23/2009	#DIV/0!	

Resins - Suspension - Existing Area Sources - VC

	6/24/2009	#DIV/0!	
	6/25/2009	4.20E-01	4.20E-01
	6/26/2009	1.73E-01	1.73E-01
	6/27/2009	5.33E-01	5.33E-01
	6/28/2009	5.36E-01	5.36E-01
	6/29/2009	1.92E-01	1.92E-01
	6/30/2009	1.20E+00	1.20E+00
	7/1/2009	1.59E-01	1.59E-01
	7/2/2009	2.53E-01	2.53E-01
	7/3/2009	2.04E-01	2.04E-01
	7/4/2009	1.67E-01	1.67E-01
	7/5/2009	6.44E-01	6.44E-01
	7/6/2009	5.30E-02	5.30E-02
	7/7/2009	2.13E-01	2.13E-01
	7/8/2009	2.73E-01	2.73E-01
	7/9/2009	2.27E-01	2.27E-01
	7/10/2009	4.26E-01	4.26E-01
	7/11/2009	3.25E-01	3.25E-01
	7/12/2009	2.40E-01	2.40E-01
	7/13/2009	2.61E-01	2.61E-01
	7/14/2009	2.53E-01	2.53E-01
	7/15/2009	1.35E-01	1.35E-01
	7/16/2009	1.38E-01	1.38E-01
	7/17/2009	8.47E-01	8.47E-01
	7/18/2009	2.58E-01	2.58E-01
	7/19/2009	2.48E-01	2.48E-01
	7/20/2009	3.76E-01	3.76E-01
	7/21/2009	2.91E-01	2.91E-01
	7/22/2009	2.75E-01	2.75E-01
	7/23/2009	3.66E-01	3.66E-01
	7/24/2009	2.94E-01	2.94E-01
	7/25/2009	7.62E-01	7.62E-01
	7/26/2009	3.72E-01	3.72E-01
	7/27/2009	5.22E-01	5.22E-01
	7/28/2009	4.11E-01	4.11E-01
	7/29/2009	5.53E-01	5.53E-01
	7/30/2009	5.82E-01	5.82E-01
	7/31/2009	1.04E+00	1.04E+00
	8/1/2009	6.04E-01	6.04E-01
	8/2/2009	3.56E-01	3.56E-01
	8/3/2009	2.94E-01	2.94E-01
	8/4/2009	3.50E-01	3.50E-01
	8/5/2009	5.78E-01	5.78E-01
	8/6/2009	2.71E+01	2.71E+01
	8/7/2009	4.58E+00	4.58E+00
	8/8/2009	7.17E-01	7.17E-01
	8/9/2009	6.26E+00	6.26E+00
	8/10/2009	9.42E-01	9.42E-01
	8/11/2009	#DIV/0!	
	8/12/2009	#DIV/0!	
	8/13/2009	#DIV/0!	
	8/14/2009	1.73E-01	1.73E-01
	8/15/2009	7.38E-01	7.38E-01
	8/16/2009	8.98E+00	8.98E+00
	8/17/2009	1.54E+00	1.54E+00
	8/18/2009	1.63E+00	1.63E+00
	8/19/2009	3.35E+00	3.35E+00
	8/20/2009	1.15E+00	1.15E+00
	8/21/2009	9.48E-01	9.48E-01
	8/22/2009	1.14E+00	1.14E+00
	8/23/2009	1.51E+00	1.51E+00
	8/24/2009	1.67E+00	1.67E+00
	8/25/2009	1.05E+01	1.05E+01
	8/26/2009	6.37E+00	6.37E+00
	8/27/2009	1.39E+00	1.39E+00

Resins - Suspension - Existing Area Sources - VC

8/28/2009	3.23E-01	3.23E-01
8/29/2009	2.90E-01	2.90E-01
8/30/2009	3.96E-01	3.96E-01
8/31/2009	3.82E-01	3.82E-01
9/1/2009	6.90E-01	6.90E-01
9/2/2009	4.66E-01	4.66E-01
9/3/2009	1.93E+00	1.93E+00
9/4/2009	1.79E+00	1.79E+00
9/5/2009	6.20E-01	6.20E-01
9/6/2009	2.50E+00	2.50E+00
9/7/2009	5.25E-01	5.25E-01
9/8/2009	1.39E+00	1.39E+00
9/9/2009	1.25E+00	1.25E+00
9/10/2009	1.01E+00	1.01E+00
9/11/2009	5.11E-01	5.11E-01
9/12/2009	3.21E-01	3.21E-01
9/13/2009	2.93E-01	2.93E-01
9/14/2009	6.02E-01	6.02E-01
9/15/2009	4.21E-01	4.21E-01
9/16/2009	5.76E-01	5.76E-01
9/17/2009	5.49E-01	5.49E-01
9/18/2009	4.25E-01	4.25E-01
9/19/2009	1.83E-01	1.83E-01
9/20/2009	3.81E-01	3.81E-01
9/21/2009	#DIV/0!	
9/22/2009	1.00E-02	1.00E-02
9/23/2009	1.00E-02	1.00E-02
9/24/2009	#DIV/0!	
9/25/2009	8.80E-02	8.80E-02
9/26/2009	1.45E-01	1.45E-01
9/27/2009	1.60E-01	1.60E-01
9/28/2009	1.37E+00	1.37E+00
9/29/2009	2.90E-01	2.90E-01
9/30/2009	1.51E-01	1.51E-01
10/1/2009	9.80E+00	9.80E+00
10/2/2009	7.40E-01	7.40E-01
10/3/2009	1.34E+00	1.34E+00
10/4/2009	3.76E+00	3.76E+00
10/5/2009	2.42E-01	2.42E-01
10/6/2009	3.22E-01	3.22E-01
10/7/2009	5.25E-01	5.25E-01
10/8/2009	6.93E-01	6.93E-01
10/9/2009	6.32E-01	6.32E-01
10/10/2009	2.47E-01	2.47E-01
10/11/2009	9.24E-01	9.24E-01
10/12/2009	2.33E-01	2.33E-01
10/13/2009	1.91E-01	1.91E-01
10/14/2009	2.60E-01	2.60E-01
10/15/2009	2.53E-01	2.53E-01
10/16/2009	2.49E-01	2.49E-01
10/17/2009	7.69E-01	7.69E-01
10/18/2009	2.43E-01	2.43E-01
10/19/2009	2.94E-01	2.94E-01
10/20/2009	2.35E-01	2.35E-01
10/21/2009	9.70E-01	9.70E-01
10/22/2009	1.22E+00	1.22E+00
10/23/2009	5.48E-01	5.48E-01
10/24/2009	7.19E-01	7.19E-01
10/25/2009	1.45E+00	1.45E+00
10/26/2009	5.62E-01	5.62E-01
10/27/2009	3.85E-01	3.85E-01
10/28/2009	3.69E-01	3.69E-01
10/29/2009	8.70E-02	8.70E-02
10/30/2009	6.24E-01	6.24E-01
10/31/2009	#DIV/0!	

Resins - Suspension - Existing Area Sources - VC

	11/1/2009	#DIV/0!	
	11/2/2009	#DIV/0!	
	11/3/2009	#DIV/0!	
	11/4/2009	#DIV/0!	
	11/5/2009	#DIV/0!	
	11/6/2009	#DIV/0!	
	11/7/2009	#DIV/0!	
	11/8/2009	#DIV/0!	
	11/9/2009	#DIV/0!	
	11/10/2009	#DIV/0!	
	11/11/2009	#DIV/0!	
	11/12/2009	#DIV/0!	
	11/13/2009	#DIV/0!	
	11/14/2009	#DIV/0!	
	11/15/2009	#DIV/0!	
	11/16/2009	1.00E-02	1.00E-02
	11/17/2009	2.90E-02	2.90E-02
	11/18/2009	1.27E-01	1.27E-01
	11/19/2009	8.60E-02	8.60E-02
	11/20/2009	1.17E-01	1.17E-01
	11/21/2009	2.82E-01	2.82E-01
	11/22/2009	2.19E-01	2.19E-01
	11/23/2009	2.66E-01	2.66E-01
	11/24/2009	1.44E-01	1.44E-01
	11/25/2009	1.96E-01	1.96E-01
	11/26/2009	1.38E-01	1.38E-01
	11/27/2009	1.39E-01	1.39E-01
	11/28/2009	1.60E-01	1.60E-01
	11/29/2009	3.34E-01	3.34E-01
	11/30/2009	1.24E-01	1.24E-01
	12/1/2009	1.50E-01	1.50E-01
	12/2/2009	1.13E-01	1.13E-01
	12/3/2009	1.76E-01	1.76E-01
	12/4/2009	5.20E-01	5.20E-01
	12/5/2009	1.40E+00	1.40E+00
	12/6/2009	1.78E-01	1.78E-01
	12/7/2009	2.35E-01	2.35E-01
	12/8/2009	5.90E-01	5.90E-01
	12/9/2009	1.76E+00	1.76E+00
	12/10/2009	1.01E+00	1.01E+00
	12/11/2009	1.29E-01	1.29E-01
	12/12/2009	1.36E+00	1.36E+00
	12/13/2009	2.94E-01	2.94E-01
	12/14/2009	2.70E+00	2.70E+00
	12/15/2009	3.04E-01	3.04E-01
	12/16/2009	6.04E-01	6.04E-01
	12/17/2009	1.87E+00	1.87E+00
	12/18/2009	1.18E+00	1.18E+00
	12/19/2009	1.63E+00	1.63E+00
	12/20/2009	#DIV/0!	
	12/21/2009	#DIV/0!	
	12/22/2009	#DIV/0!	
	12/23/2009	#DIV/0!	
	12/24/2009	#DIV/0!	
	12/25/2009	#DIV/0!	
	12/26/2009	#DIV/0!	
	12/27/2009	#DIV/0!	
	12/28/2009	#DIV/0!	
	12/29/2009	#DIV/0!	
	12/30/2009	#DIV/0!	
	12/31/2009	#DIV/0!	
	1/1/2010	#DIV/0!	
	1/2/2010	#DIV/0!	
	1/3/2010	#DIV/0!	
	1/4/2010	#DIV/0!	

Resins - Suspension - Existing Area Sources - VC

	1/5/2010	6.80E-02	6.80E-02
	1/6/2010	2.51E-01	2.51E-01
	1/7/2010	8.80E-02	8.80E-02
	1/8/2010	6.70E-02	6.70E-02
	1/9/2010	1.10E-02	1.10E-02
	1/10/2010	1.00E-02	1.00E-02
	1/11/2010	1.00E-02	1.00E-02
	1/12/2010	1.00E-02	1.00E-02
	1/13/2010	1.00E-02	1.00E-02
	1/14/2010	1.55E-01	1.55E-01
	1/15/2010	1.11E-01	1.11E-01
	1/16/2010	1.05E-01	1.05E-01
	1/17/2010	2.13E-01	2.13E-01
	1/18/2010	1.69E-01	1.69E-01
	1/19/2010	9.70E-02	9.70E-02
	1/20/2010	1.92E-01	1.92E-01
	1/21/2010	2.87E-01	2.87E-01
	1/22/2010	3.45E-01	3.45E-01
	1/23/2010	3.22E-01	3.22E-01
	1/24/2010	3.24E-01	3.24E-01
	1/25/2010	2.12E-01	2.12E-01
	1/26/2010	7.00E-02	7.00E-02
	1/27/2010	2.18E-01	2.18E-01
	1/28/2010	2.64E-01	2.64E-01
	1/29/2010	3.07E-01	3.07E-01
	1/30/2010	4.93E+01	4.93E+01
	1/31/2010	3.92E-01	3.92E-01
	2/1/2010	1.41E-01	1.41E-01
	2/2/2010	4.68E-01	4.68E-01
	2/3/2010	1.86E-01	1.86E-01
	2/4/2010	5.66E-01	5.66E-01
	2/5/2010	1.01E+00	1.01E+00
	2/6/2010	6.79E-01	6.79E-01
	2/7/2010	8.98E-01	8.98E-01
	2/8/2010	3.18E+00	3.18E+00
	2/9/2010	1.60E+00	1.60E+00
	2/10/2010	1.76E-01	1.76E-01
	2/11/2010	2.45E-01	2.45E-01
	2/12/2010	2.26E-01	2.26E-01
	2/13/2010	3.22E-01	3.22E-01
	2/14/2010	3.69E-01	3.69E-01
	2/15/2010	4.83E-01	4.83E-01
	2/16/2010	4.16E-01	4.16E-01
	2/17/2010	4.23E-01	4.23E-01
	2/18/2010	1.52E-01	1.52E-01
	2/19/2010	8.30E-02	8.30E-02
	2/20/2010	1.32E-01	1.32E-01
	2/21/2010	1.56E-01	1.56E-01
	2/22/2010	2.38E-01	2.38E-01
	2/23/2010	6.49E-01	6.49E-01
	2/24/2010	1.29E-01	1.29E-01
	2/25/2010	1.00E-01	1.00E-01
	2/26/2010	9.10E-02	9.10E-02
	2/27/2010	1.19E-01	1.19E-01
	2/28/2010	1.33E-01	1.33E-01
	3/1/2010	1.80E-01	1.80E-01
	3/2/2010	1.76E-01	1.76E-01
	3/3/2010	4.48E-01	4.48E-01
	3/4/2010	1.24E+00	1.24E+00
	3/5/2010	1.13E+00	1.13E+00
	3/6/2010	1.25E+00	1.25E+00
	3/7/2010	1.52E+00	1.52E+00
	3/8/2010	3.47E-01	3.47E-01
	3/9/2010	1.06E-01	1.06E-01
	3/10/2010	2.78E-01	2.78E-01

Resins - Suspension - Existing Area Sources - VC

	3/11/2010	1.32E-01	1.32E-01
	3/12/2010	7.74E+00	7.74E+00
	3/13/2010	1.57E+01	1.57E+01
	3/14/2010	8.28E-01	8.28E-01
	3/15/2010	4.52E-01	4.52E-01
	3/16/2010	1.12E-01	1.12E-01
	3/17/2010	4.09E-01	4.09E-01
	3/18/2010	1.70E-01	1.70E-01
	3/19/2010	1.56E-01	1.56E-01
	3/20/2010	2.54E-01	2.54E-01
	3/21/2010	1.36E-01	1.36E-01
	3/22/2010	1.12E-01	1.12E-01
	3/23/2010	7.90E-02	7.90E-02
	3/24/2010	1.72E-01	1.72E-01
	3/25/2010	2.46E-01	2.46E-01
	3/26/2010	5.21E-01	5.21E-01
	3/27/2010	1.46E-01	1.46E-01
	3/28/2010	1.96E-01	1.96E-01
	3/29/2010	3.10E-01	3.10E-01
	3/30/2010	4.49E-01	4.49E-01
	3/31/2010	3.54E-01	3.54E-01
	4/1/2010	5.07E-01	5.07E-01
	4/2/2010	5.13E-01	5.13E-01
	4/3/2010	7.02E-01	7.02E-01
	4/4/2010	5.11E-01	5.11E-01
	4/5/2010	4.27E-01	4.27E-01
	4/6/2010	1.53E-01	1.53E-01
	4/7/2010	1.36E-01	1.36E-01
	4/8/2010	1.91E-01	1.91E-01
	4/9/2010	2.19E-01	2.19E-01
	4/10/2010	3.05E-01	3.05E-01
	4/11/2010	2.32E-01	2.32E-01
	4/12/2010	3.38E-01	3.38E-01
	4/13/2010	1.35E-01	1.35E-01
	4/14/2010	2.02E-01	2.02E-01
	4/15/2010	1.18E-01	1.18E-01
	4/16/2010	1.87E-01	1.87E-01
	4/17/2010	2.30E-01	2.30E-01
	4/18/2010	2.07E-01	2.07E-01
	4/19/2010	1.58E-01	1.58E-01
	4/20/2010	1.77E-01	1.77E-01
	4/21/2010	1.17E-01	1.17E-01
	4/22/2010	2.25E-01	2.25E-01
	4/23/2010	1.21E+00	1.21E+00
	4/24/2010	2.07E+00	2.07E+00
	4/25/2010	2.20E+00	2.20E+00
	4/26/2010	#DIV/0!	
	4/27/2010	#DIV/0!	
	4/28/2010	#DIV/0!	
	4/29/2010	#DIV/0!	
	4/30/2010	#DIV/0!	
	5/1/2010	1.68E-01	1.68E-01
	5/2/2010	4.09E-01	4.09E-01
	5/3/2010	3.72E-01	3.72E-01
	5/4/2010	3.32E-01	3.32E-01
	5/5/2010	2.05E-01	2.05E-01
	5/6/2010	1.99E-01	1.99E-01
	5/7/2010	2.10E-01	2.10E-01
	5/8/2010	8.20E-02	8.20E-02
	5/9/2010	1.71E-01	1.71E-01
	5/10/2010	1.27E-01	1.27E-01
	5/11/2010	1.91E-01	1.91E-01
	5/12/2010	1.01E-01	1.01E-01
	5/13/2010	8.40E-02	8.40E-02
	5/14/2010	8.30E-02	8.30E-02

Resins - Suspension - Existing Area Sources - VC

	5/15/2010	1.07E-01	1.07E-01
	5/16/2010	1.42E-01	1.42E-01
	5/17/2010	1.94E-01	1.94E-01
	5/18/2010	4.01E-01	4.01E-01
	5/19/2010	1.82E-01	1.82E-01
	5/20/2010	5.35E-01	5.35E-01
	5/21/2010	7.28E-01	7.28E-01
	5/22/2010	3.74E-01	3.74E-01
	5/23/2010	6.14E-01	6.14E-01
	5/24/2010	6.73E-01	6.73E-01
	5/25/2010	1.79E+01	1.79E+01
	5/26/2010	2.11E-01	2.11E-01
	5/27/2010	2.64E-01	2.64E-01
	5/28/2010	2.17E-01	2.17E-01
	5/29/2010	6.46E-01	6.46E-01
	5/30/2010	1.23E-01	1.23E-01
	5/31/2010	1.48E-01	1.48E-01
	6/1/2010	1.54E-01	1.54E-01
	6/2/2010	8.10E-02	8.10E-02
	6/3/2010	1.66E-01	1.66E-01
	6/4/2010	3.73E-01	3.73E-01
	6/5/2010	5.09E-01	5.09E-01
	6/6/2010	1.27E-01	1.27E-01
	6/7/2010	1.52E-01	1.52E-01
	6/8/2010	1.45E-01	1.45E-01
	6/9/2010	5.20E-02	5.20E-02
	6/10/2010	1.14E-01	1.14E-01
	6/11/2010	1.18E-01	1.18E-01
	6/12/2010	8.50E-02	8.50E-02
	6/13/2010	1.20E-01	1.20E-01
	6/14/2010	1.01E-01	1.01E-01
	6/15/2010	1.26E-01	1.26E-01
	6/16/2010	1.60E-01	1.60E-01
	6/17/2010	3.57E-01	3.57E-01
	6/18/2010	6.35E-01	6.35E-01
	6/19/2010	8.70E-01	8.70E-01
	6/20/2010	3.10E+00	3.10E+00
	6/21/2010	1.76E+00	1.76E+00
	6/22/2010	4.21E-01	4.21E-01
	6/23/2010	3.05E-01	3.05E-01
	6/24/2010	3.03E-01	3.03E-01
	6/25/2010	6.08E-01	6.08E-01
	6/26/2010	9.32E-01	9.32E-01
	6/27/2010	1.51E+00	1.51E+00
	6/28/2010	1.33E-01	1.33E-01
	6/29/2010	1.01E-01	1.01E-01
	6/30/2010	1.13E-01	1.13E-01
	7/1/2010	2.03E-01	2.03E-01
	7/2/2010	5.40E-02	5.40E-02
	7/3/2010	6.90E-02	6.90E-02
	7/4/2010	8.60E-02	8.60E-02
	7/5/2010	1.18E-01	1.18E-01
	7/6/2010	3.74E-01	3.74E-01
	7/7/2010	1.20E-01	1.20E-01
	7/8/2010	2.98E-01	2.98E-01
	7/9/2010	1.28E-01	1.28E-01
	7/10/2010	1.84E-01	1.84E-01
	7/11/2010	1.37E-01	1.37E-01
	7/12/2010	2.69E-01	2.69E-01
	7/13/2010	2.37E-01	2.37E-01
	7/14/2010	2.82E-01	2.82E-01
	7/15/2010	3.47E-01	3.47E-01
	7/16/2010	3.76E-01	3.76E-01
	7/17/2010	3.34E-01	3.34E-01
	7/18/2010	3.01E-01	3.01E-01

Resins - Suspension - Existing Area Sources - VC

	7/19/2010	2.98E-01	2.98E-01
	7/20/2010	1.36E-01	1.36E-01
	7/21/2010	1.20E-01	1.20E-01
	7/22/2010	2.17E-01	2.17E-01
	7/23/2010	2.29E-01	2.29E-01
	7/24/2010	2.10E-01	2.10E-01
	7/25/2010	2.28E-01	2.28E-01
	7/26/2010	2.98E+00	2.98E+00
	7/27/2010	2.42E-01	2.42E-01
	7/28/2010	2.57E-01	2.57E-01
	7/29/2010	2.29E-01	2.29E-01
	7/30/2010	2.73E-01	2.73E-01
	7/31/2010	2.79E-01	2.79E-01
	8/1/2010	3.41E-01	3.41E-01
	8/2/2010	2.95E-01	2.95E-01
	8/3/2010	1.36E+00	1.36E+00
	8/4/2010	9.56E-01	9.56E-01
	8/5/2010	4.10E-01	4.10E-01
	8/6/2010	7.03E-01	7.03E-01
	8/7/2010	3.81E-01	3.81E-01
	8/8/2010	6.37E-01	6.37E-01
	8/9/2010	2.99E-01	2.99E-01
	8/10/2010	9.75E-01	9.75E-01
	8/11/2010	6.21E-01	6.21E-01
	8/12/2010	1.12E+00	1.12E+00
	8/13/2010	1.13E+00	1.13E+00
	8/14/2010	1.40E+00	1.40E+00
	8/15/2010	6.61E-01	6.61E-01
	8/16/2010	3.02E-01	3.02E-01
	8/17/2010	4.63E-01	4.63E-01
	8/18/2010	1.45E-01	1.45E-01
	8/19/2010	1.59E-01	1.59E-01
	8/20/2010	7.38E-01	7.38E-01
	8/21/2010	5.85E-01	5.85E-01
	8/22/2010	1.04E+00	1.04E+00
	8/23/2010	2.11E+00	2.11E+00
	8/24/2010	1.39E+00	1.39E+00
	8/25/2010	1.98E+00	1.98E+00
	8/26/2010	3.03E+00	3.03E+00
	8/27/2010	1.27E+00	1.27E+00
	8/28/2010	1.05E+00	1.05E+00
	8/29/2010	2.28E+00	2.28E+00
	8/30/2010	3.46E-01	3.46E-01
	8/31/2010	8.00E-01	8.00E-01
	9/1/2010	2.53E-01	2.53E-01
	9/2/2010	2.70E-01	2.70E-01
	9/3/2010	2.11E-01	2.11E-01
	9/4/2010	2.20E-01	2.20E-01
	9/5/2010	2.52E-01	2.52E-01
	9/6/2010	5.02E-01	5.02E-01
	9/7/2010	1.31E+00	1.31E+00
	9/8/2010	6.00E+00	6.00E+00
	9/9/2010	1.66E+00	1.66E+00
	9/10/2010	1.09E+00	1.09E+00
	9/11/2010	1.90E+00	1.90E+00
	9/12/2010	1.80E+00	1.80E+00
	9/13/2010	1.96E+00	1.96E+00
	9/14/2010	4.05E+00	4.05E+00
	9/15/2010	3.31E+00	3.31E+00
	9/16/2010	2.75E-01	2.75E-01
	9/17/2010	3.15E-01	3.15E-01
	9/18/2010	2.41E-01	2.41E-01
	9/19/2010	2.64E-01	2.64E-01
	9/20/2010	2.00E-01	2.00E-01
	9/21/2010	6.49E-01	6.49E-01

Resins - Suspension - Existing Area Sources - VC

	9/22/2010	4.30E-01	4.30E-01
	9/23/2010	2.49E-01	2.49E-01
	9/24/2010	2.90E-01	2.90E-01
	9/25/2010	5.73E-01	5.73E-01
	9/26/2010	5.71E-01	5.71E-01
	9/27/2010	4.71E-01	4.71E-01
	9/28/2010	2.38E-01	2.38E-01
	9/29/2010	2.14E-01	2.14E-01
	9/30/2010	2.71E-01	2.71E-01
	10/1/2010	8.00E-02	8.00E-02
	10/2/2010	9.30E-02	9.30E-02
	10/3/2010	9.40E-02	9.40E-02
	10/4/2010	1.82E-01	1.82E-01
	10/5/2010	1.33E-01	1.33E-01
	10/6/2010	3.36E-01	3.36E-01
	10/7/2010	8.52E-01	8.52E-01
	10/8/2010	3.37E-01	3.37E-01
	10/9/2010	4.02E-01	4.02E-01
	10/10/2010	1.07E+00	1.07E+00
	10/11/2010	5.01E-01	5.01E-01
	10/12/2010	2.43E-01	2.43E-01
	10/13/2010	2.55E-01	2.55E-01
	10/14/2010	3.53E-01	3.53E-01
	10/15/2010	1.98E-01	1.98E-01
	10/16/2010	3.43E-01	3.43E-01
	10/17/2010	3.16E-01	3.16E-01
	10/18/2010	8.30E-02	8.30E-02
	10/19/2010	8.24E-01	8.24E-01
	10/20/2010	6.29E-01	6.29E-01
	10/21/2010	4.69E-01	4.69E-01
	10/22/2010	1.29E+00	1.29E+00
	10/23/2010	5.89E-01	5.89E-01
	10/24/2010	9.68E-01	9.68E-01
	10/25/2010	9.11E-01	9.11E-01
	10/26/2010	3.30E+00	3.30E+00
	10/27/2010	1.27E+01	1.27E+01
	10/28/2010	1.97E+00	1.97E+00
	10/29/2010	8.30E+00	8.30E+00
	10/30/2010	2.97E-01	2.97E-01
	10/31/2010	3.12E-01	3.12E-01
	11/1/2010	2.68E-01	2.68E-01
	11/2/2010	3.45E-01	3.45E-01
	11/3/2010	1.52E+00	1.52E+00
	11/4/2010	2.38E-01	2.38E-01
	11/5/2010	1.59E+00	1.59E+00
	11/6/2010	2.08E+00	2.08E+00
	11/7/2010	1.24E+00	1.24E+00
	11/8/2010	1.21E+00	1.21E+00
	11/9/2010	2.86E-01	2.86E-01
	11/10/2010	1.47E+00	1.47E+00
	11/11/2010	6.62E-01	6.62E-01
	11/12/2010	9.34E-01	9.34E-01
	11/13/2010	8.46E-01	8.46E-01
	11/14/2010	1.81E+00	1.81E+00
	11/15/2010	#DIV/0!	
	11/16/2010	1.33E-01	1.33E-01
	11/17/2010	1.31E+00	1.31E+00
	11/18/2010	4.23E-01	4.23E-01
	11/19/2010	8.12E-01	8.12E-01
	11/20/2010	3.85E-01	3.85E-01
	11/21/2010	2.44E+00	2.44E+00
	11/22/2010	5.77E-01	5.77E-01
	11/23/2010	2.38E-01	2.38E-01
	11/24/2010	1.76E-01	1.76E-01
	11/25/2010	2.65E-01	2.65E-01

Resins - Suspension - Existing Area Sources - VC

	11/26/2010	2.44E-01	2.44E-01
	11/27/2010	4.05E-01	4.05E-01
	11/28/2010	6.76E-01	6.76E-01
	11/29/2010	1.04E+00	1.04E+00
	11/30/2010	2.54E-01	2.54E-01
	12/1/2010	3.77E-01	3.77E-01
	12/2/2010	1.83E-01	1.83E-01
	12/3/2010	1.76E-01	1.76E-01
	12/4/2010	2.79E-01	2.79E-01
	12/5/2010	3.62E-01	3.62E-01
	12/6/2010	7.81E-01	7.81E-01
	12/7/2010	5.89E-01	5.89E-01
	12/8/2010	8.79E-01	8.79E-01
	12/9/2010	1.17E+00	1.17E+00
	12/10/2010	2.25E+00	2.25E+00
	12/11/2010	4.16E-01	4.16E-01
	12/12/2010	3.62E-01	3.62E-01
	12/13/2010	3.20E-01	3.20E-01
	12/14/2010	#DIV/0!	
	12/15/2010	#DIV/0!	
	12/16/2010	2.44E+00	2.44E+00
	12/17/2010	5.16E-01	5.16E-01
	12/18/2010	1.33E+00	1.33E+00
	12/19/2010	1.09E-01	1.09E-01
	12/20/2010	1.45E-01	1.45E-01
	12/21/2010	2.13E-01	2.13E-01
	12/22/2010	2.02E-01	2.02E-01
	12/23/2010	3.10E-01	3.10E-01
	12/24/2010	3.55E-01	3.55E-01
	12/25/2010	#DIV/0!	
	12/26/2010	#DIV/0!	
	12/27/2010	#DIV/0!	
	12/28/2010	#DIV/0!	
	12/29/2010	#DIV/0!	
	12/30/2010	1.50E-02	1.50E-02
	12/31/2010	#DIV/0!	

Resins - Suspension - Existing Area Sources - Total Non-VC HAP

Method	Method 8260B
Resin Type	Suspension
HAP (0=no, 1=yes)	1

Average of Wet Resin from Stripper Bottoms, ppm			Analyte_Std																
Reporting Plant	Sample Date	BDL (0=no, 1=yes)	2,2,4-Trimethylpentane	Acetaldehyde	Acetophenone	Benzene	Chloroform	Cumene	Ethyl Chloride	Ethylene Dichloride	Ethylidene Dichloride	Formaldehyde	Hydroquinone	Methanol	Methyl Chloride	Toluene	Vinylidene Chloride	Xylenes (Mixed Isomers)	
Oxy DP	12/1/2009	0		2.99E+00										1.16E+00					
		1	1.15E-01		3.60E-01	5.00E-02	4.70E-02	7.60E-02	1.45E-01	5.10E-02	2.05E-02	2.35E-01	4.45E+00	9.70E-02	2.45E-02	4.30E-02	9.75E-02	6.90E-02	
	12/1/2009 Total		1.15E-01	2.99E+00	3.60E-01	5.00E-02	4.70E-02	7.60E-02	1.45E-01	5.10E-02	2.05E-02	2.35E-01	4.45E+00	6.29E-01	2.45E-02	4.30E-02	9.75E-02	6.90E-02	
	12/2/2009	0		2.33E+00										5.99E-01					
		1	1.15E-01		3.05E-01	4.90E-02	4.55E-02	7.45E-02	1.40E-01	4.95E-02	2.00E-02	2.00E-01	3.75E+00		2.40E-02	4.20E-02	9.55E-02	6.75E-02	
	12/2/2009 Total		1.15E-01	2.33E+00	3.05E-01	4.90E-02	4.55E-02	7.45E-02	1.40E-01	4.95E-02	2.00E-02	2.00E-01	3.75E+00	5.99E-01	2.40E-02	4.20E-02	9.55E-02	6.75E-02	
	12/3/2009	0		7.77E-01								7.35E-01		1.25E+00					
		1	1.20E-01		2.85E-01	5.15E-02	4.85E-02	7.85E-02	1.50E-01	5.20E-02	2.10E-02	1.90E-01	3.50E+00	1.00E-01	2.50E-02	4.45E-02	1.03E-01	7.10E-02	
	12/3/2009 Total		1.20E-01	7.77E-01	2.85E-01	5.15E-02	4.85E-02	7.85E-02	1.50E-01	5.20E-02	2.10E-02	4.63E-01	3.50E+00	6.75E-01	2.50E-02	4.45E-02	1.03E-01	7.10E-02	
	12/4/2009	0		2.97E-01	5.76E+00				5.34E-01	1.08E-01	9.35E-02								
		1	1.10E-01		2.70E-01	4.85E-02	4.55E-02	7.35E-02	1.40E-01	4.90E-02	2.00E-02	1.75E-01	3.30E+00	9.05E-02	2.35E-02	4.15E-02	9.45E-02	6.65E-02	
	12/4/2009 Total		1.10E-01	2.97E-01	3.02E+00	4.85E-02	4.55E-02	7.35E-02	3.37E-01	7.85E-02	5.68E-02	1.75E-01	3.30E+00	9.05E-02	2.35E-02	4.15E-02	9.45E-02	6.65E-02	
	12/5/2009	0		6.69E-01	5.01E+00		6.27E-02		1.67E+00	2.71E-01	2.52E-01	4.45E-01		6.73E-01					
		1	1.05E-01		2.70E-01	4.65E-02	4.50E-02	7.05E-02	1.40E-01	4.90E-02	1.90E-02		3.15E+00	8.90E-02	2.25E-02	3.95E-02	9.00E-02	6.35E-02	
	12/5/2009 Total		1.05E-01	6.69E-01	2.64E+00	4.65E-02	5.39E-02	7.05E-02	9.05E-01	1.60E-01	1.36E-01	4.45E-01	3.15E+00	3.81E-01	2.25E-02	3.95E-02	9.00E-02	6.35E-02	
	12/6/2009	0		5.47E-01	4.08E+00				2.58E-01	1.04E-01	8.66E-02	4.05E-01		4.26E-01					
		1	1.10E-01		2.70E-01	4.70E-02	4.40E-02	7.20E-02	1.50E-01	5.20E-02	2.10E-02		3.05E+00	9.90E-02	2.30E-02	4.05E-02	9.20E-02	6.55E-02	
	12/6/2009 Total		1.10E-01	5.47E-01	2.18E+00	4.70E-02	4.40E-02	7.20E-02	2.04E-01	7.80E-02	5.38E-02	4.05E-01	3.05E+00	2.63E-01	2.30E-02	4.05E-02	9.20E-02	6.55E-02	
	12/7/2009	0		2.14E-01	5.11E+00				1.53E-01	5.32E-02	5.65E-02	3.15E-01							
		1	1.10E-01		2.60E-01	4.70E-02	4.40E-02	7.15E-02	1.40E-01	5.00E-02	2.00E-02		3.05E+00	9.20E-02	2.30E-02	4.00E-02	9.15E-02	6.50E-02	
	12/7/2009 Total		1.10E-01	2.14E-01	2.69E+00	4.70E-02	4.40E-02	7.15E-02	1.47E-01	5.16E-02	3.83E-02	3.15E-01	3.05E+00	9.20E-02	2.30E-02	4.00E-02	9.15E-02	6.50E-02	
	12/8/2009	0		2.71E-01	4.63E+00				3.99E-01	1.31E-01	9.69E-02	3.87E-01		7.91E-01					
		1	1.10E-01		2.80E-01	4.75E-02	4.45E-02	7.25E-02	1.50E-01	5.20E-02	2.10E-02	1.80E-01	3.15E+00	9.30E-02	2.30E-02	4.10E-02	9.25E-02	6.55E-02	
	12/8/2009 Total		1.10E-01	2.71E-01	2.46E+00	4.75E-02	4.45E-02	7.25E-02	2.75E-01	9.15E-02	5.90E-02	2.84E-01	3.15E+00	4.42E-01	2.30E-02	4.10E-02	9.25E-02	6.55E-02	
	12/9/2009	0		2.85E-01	4.21E+00				3.46E-01	6.85E-02	3.54E-02	3.80E-01		1.07E+00					
		1	1.04E-01		2.60E-01	4.40E-02	4.10E-02	6.65E-02	1.30E-01	4.60E-02	1.90E-02		3.05E+00	8.60E-02	2.10E-02	3.75E-02	8.50E-02	6.00E-02	
	12/9/2009 Total		1.04E-01	2.85E-01	2.24E+00	4.40E-02	4.10E-02	6.65E-02	2.38E-01	5.73E-02	2.72E-02	3.80E-01	3.05E+00	5.78E-01	2.10E-02	3.75E-02	8.50E-02	6.00E-02	
	12/10/2009	0			3.72E+00				3.97E-01					8.22E-01					
		1	1.00E-01	6.30E-02	2.40E-01	4.45E-02	4.15E-02	6.70E-02	1.30E-01	4.45E-02	1.80E-02	1.55E-01	2.85E+00		2.15E-02	3.75E-02	8.60E-02	6.10E-02	
	12/10/2009 Total		1.00E-01	6.30E-02	1.98E+00	4.45E-02	4.15E-02	6.70E-02	2.64E-01	4.45E-02	1.80E-02	1.55E-01	2.85E+00	8.22E-01	2.15E-02	3.75E-02	8.60E-02	6.10E-02	
	12/11/2009	0			6.13E+00				6.41E-01	5.23E-01	1.79E-01			3.09E+00		1.08E+00		1.01E+00	
		1	2.65E-01	6.60E-02	2.50E-01	1.14E-01	1.07E-01	1.71E-01	1.40E-01	4.80E-02	1.90E-02	1.60E-01	3.00E+00		5.50E-02	4.00E-02	2.21E-01	6.50E-02	
	12/11/2009 Total		2.65E-01	6.60E-02	3.19E+00	1.14E-01	1.07E-01	1.71E-01	3.91E-01	2.86E-01	9.90E-02	1.60E-01	3.00E+00	3.09E+00	5.50E-02	5.60E-01	2.21E-01	5.38E-01	
	12/12/2009	0		1.04E+00	5.63E+00					8.04E-02	2.54E-02			1.00E+00					
		1	9.90E-02		2.70E-01	4.30E-02	4.00E-02	6.55E-02	1.25E-01	4.30E-02	1.70E-02	1.65E-01	3.10E+00		2.05E-02	3.70E-02	8.40E-02	5.95E-02	
	12/12/2009 Total		9.90E-02	1.04E+00	2.95E+00	4.30E-02	4.00E-02	6.55E-02	1.25E-01	6.17E-02	2.12E-02	1.65E-01	3.10E+00	1.00E+00	2.05E-02	3.70E-02	8.40E-02	5.95E-02	
	12/13/2009	0		4.34E-01	5.62E+00					9.26E-02				8.29E-01					
		1	9.90E-02		2.40E-01	4.25E-02	3.95E-02	6.45E-02	1.25E-01	4.30E-02	1.70E-02	1.55E-01	2.90E+00		2.05E-02	3.65E-02	8.20E-02	5.85E-02	
	12/13/2009 Total		9.90E-02	4.34E-01	2.93E+00	4.25E-02	3.95E-02	6.45E-02	1.25E-01	6.78E-02	1.70E-02	1.55E-01	2.90E+00	8.29E-01	2.05E-02	3.65E-02	8.20E-02	5.85E-02	
	12/14/2009	0		3.78E-01	4.51E+00									1.36E+00					
		1	1.10E-01		2.40E-01	4.65E-02	4.35E-02	7.05E-02	1.35E-01	4.70E-02	1.90E-02	1.55E-01	2.90E+00	8.70E-02	2.25E-02	3.95E-02	9.05E-02	6.40E-02	
	12/14/2009 Total		1.10E-01	3.78E-01	2.38E+00	4.65E-02	4.35E-02	7.05E-02	1.35E-01	4.70E-02	1.90E-02	1.55E-01	2.90E+00	7.24E-01	2.25E-02	3.95E-02	9.05E-02	6.40E-02	
	12/15/2009	0		3.66E-01	5.51E+00				4.02E-01	1.73E-01	3.18E-02			1.29E+00					
		1	1.05E-01		2.50E-01	4.65E-02	4.35E-02	7.05E-02	1.40E-01	5.00E-02	2.00E-02	1.70E-01	3.20E+00		2.25E-02	3.95E-02	9.05E-02	6.40E-02	
	12/15/2009 Total		1.05E-01	3.66E-01	2.88E+00	4.65E-02	4.35E-02	7.05E-02	2.71E-01	1.12E-01	2.59E-02	1.70E-01	3.20E+00	1.29E+00	2.25E-02	3.95E-02	9.05E-02	6.40E-02	
	12/16/2009	0		3.98E-01	1.07E+01				2.74E-02	1.36E-01	4.12E-02			1.71E+00	5.61E-02				
		1	6.75E-02		2.50E-01	2.60E-02	2.60E-02	2.60E-02	1.40E-01	2.70E-02	1.90E-02	1.60E-01	3.00E+00			2.60E-02	2.60E-02	2.60E-02	
	12/16/2009 Total		6.75E-02	3.98E-01	5.48E+00	2.60E-02	2.60E-02	2.60E-02	8.37E-02	8.15E-02	3.01E-02	1.60E-01	3.00E+00	1.71E+00	5.61E-02	2.60E-02	2.60E-02	2.60E-02	
	12/17/2009	0		5.65E-01	1.40E+01				4.96E-01	1.43E-01	2.27E-02			1.54E+00					
		1	1.10E-01		2.50E-01	2.75E-02	2.75E-02	2.75E-02	1.50E-01	3.00E-02	2.10E-02	1.60E-01	2.95E+00		2.30E-02	2.75E-02	6.25E-02	2.75E-02	
	12/17/2009 Total		1.10E-01	5.65E-01	7.13E+00	2.75E-02	2.75E-02	2.75E-02	3.23E-01	8.65E-02	2.19E-02	1.60E-01	2.95E+00	1.54E+00	2.30E-02	2.75E-02	6.25E-02	2.75E-02	
	12/18/2009	0		6.25E-01	1.17E+01				9.71E-02	9.57E-02				1.71E+00		1.16E-02			
		1	1.05E-01		2.70E-01	2.65E-02	2.65E-02	2.65E-02	1.40E-01	2.80E-02	1.80E-02	1.65E-01	3.10E+00		2.20E-02	2.80E-02	2.65E-02	2.65E-02	
	12/18/2009 Total		1.05E-01	6.25E-01	5.99E+00	2.65E-02	2.65E-02	2.65E-02	1.19E-01	6.19E-02	1.80E-02	1.65E-01	3.10E+00	1.71E+00	2.20E-02	1.98E-02	2.65E-02	2.65E-02	
	12/19/2009	0		5.66E-01	1.26E+01		3.22E-02		6.16E-01	2.40E-01	7.03E-02			1.66E+00					
		1	2.50E-02			2.50E-02		2.50E-02				1.60E-01	2.90E+00		2.00E-02	2.50E-02	2.50E-02	2.50E-02	
	12/19/2009 Total		2.50E-02	5.66E-01	1.26E+01	2.50E-02	3.22E-02	2.50E-02	6.16E-01	2.40E-01	7.03E-02	1.60E-01	2.90E+00	1.66E+00	2.00E-02	2.50E-02	2.50E-02	2.50E-02	
	1/7/2010	0		2.03E+00					1.36E-02			1.73E+00		5.01E+00					
		1	2.60E-02	7.70E-02	2.75E-01	2.60E-02	2.60E-02	2.60E-02	2.90E-02	2.60E-02	2.60E-02		3.35E+00	9.50E-02	2.60E-02	2.60E-02	2.60E-02	2.60E-02	
	1/7/2010 Total		2.60E-02	1.05E+00	2.75E-01	2.60E-02	2.60E-02	2.60E-02	2.13E-02	2.60E-02	2.60E-02	1.73E+00	3.35E+00	2.55E+00	2.60E-02	2.60E-02	2.60E-02	2.60E-02	
	1/8/2010	0	1.67E-02	7.30E-01					4.25E-02			2.50E-03	8.41E-01	1.08E+00	8.46E-02	4.70E-03			
		1	2.90E-02		2.80E-01	2.90E-02	2.90E-02	2.90E-02		2.90E-02	2.90E-02			1.90E-01	2.90E-02	2.90E-02	2.90E-02	2.90E-02	
	1/8/2010 Total		2.29E-02	7.30E-01	2.80E-01	2.90E-02	2.90E-02	2.90E-02	4.25E-02	2.90E-02	1.58E-02	8.41E-01	3.45E+00	6.35E-01	5.68E-02	1.69E-02	2.90E-02	2.90E-02	
	1/26/2010	0	2.37E-02		1.56E+01			5.87E-02	6.02E-02		3.19E-02			1.11E+00				2.04E-02	
		1		7.20E-02		2.90E-02	2.90E-02			2.90E-02		1.70E-01	3.00E+00		2.40E-02	2.90E-02	2.90E-02		
	1/26/2010 Total		2.37E-02	7.20E-02	1.56E+01	2.90E-02	2.90E-02	5.87E-02	6.02E-02	2.90E-02	3.19E-02	1.70E-01	3.00E+00	1.11E+00	2.40E-02	2.90E-02	2.90E-02	2.04E-02	
	1/27/2010	0	1.83E-02	2.51E-01	1.66E+01			7.39E-02	3.16E-02		2.13E-02	9.68E-01						2.31E-02	
		1				2.70E-02	2.70E-02			2.70E-02			3.00E+00	1.70E-01	2.20E-02	2.70E-02	2.70E-02		
	1/27/2010 Total		1.83E-02	2.51E-01	1.66E+01	2.70E-02	2.70E-02	7.39E-02	3.16E-02	2.70E-02	2.13E-02	9.68E-01	3.00E+00	1.70E-01	2.20E-02	2.70E-02	2.70E-02	2.31E-02	
	1/28/2010	0	1.43E-02	1.22E+00	1.47E+01			6.08E-02	2.27E-02		1.26E-02	1.44E+00							
		1				2.60E-02	2.60E-02			2.60E-02			3.20E+00	1.70E-01	2.60E-02	2.60E-02	2.60E-02	2.60E-02	
	1/28/2010 Total		1.43E-02	1.22E+00	1.47E+01	2.60E-02	2.60E-02	6.08E-02	2.27E-02	2.60E-02	1.26E-02	1.44E+00	3.20E+00	1.70E-01	2.60E-02	2.60E-02	2.60E-02	2.60E-02	
	1/30/2010	0		7.02E-01	1.90E+01			2.51E-02			7.80E-03	1.34E+00							
		1	2.70E-02			2.70E-02	2.70E-02		2.70E-02	2.70E-02			3.30E+00	1.80E-01	2.70E-02	2.70E-02	2.70E-02	2.70E-02	
	1/30/2010 Total		2.70E-02	7.02E-01	1.90E+01	2.70E-02	2.70E-02	2.51E-02	2.70E-02	2.70E-02	7.80E-03	1.34E+00	3.30E+00	1.80E-01	2.70E-02	2.70E-02	2.70E-02	2.70E-02	
	1/31/2010	0	2.46E-02	7.14E-01	1.73E+01			5.25E-02	1.09E-01		2.11E-02	1.54E+00		1.09E+00		3.61E-02		3.60E-02	
		1				3.10E-02	3.10E-02			3.10E-02			3.00E+00		3.10E-02		3.10E-02		
	1/31/2010 Total		2.46E-02	7.14E-01	1.73E+01	3.10E-02	3.10E-02	5.25E-02	1.09E-01	3.10E-02	2.11E-02	1.54E+00	3.00E+00	1.09E+00	3.10E-02	3.61E-02	3.10E-02	3.60E-02	
	2/1/2010	0	1.50E-02	1.05E+00	1.61E+01			4.27E-02	1.09E-01		1.49E-02	1.40E+00		1.38E+00					
		1				2.70E-02	2.70E-02			2.70E-02			2.60E+00		2.70E-02	2.70E-02	2.70E-02	2.70E-02	
	2/1/2010 Total		1.50E-02	1.05E+00	1.61E+01	2.70E-02	2.70E-02	4.27E-02	1.09E-01	2.70E-02	1.49E-02	1.40E+00	2.60E+00	1.38E+00	2.70E-02	2.70E-02	2.70E-02	2.70E-02	

Resins - Suspension - Existing Area Sourc **Resins - Suspension - Existing Area Sources - Total Non-VC HAP**

Detection Limit Analysis

Facility	HAP Sum	Daily HAP Sum	In Total HAP
Oxy DP	4.15E+00		
Oxy DP	5.88E+00		
Oxy DP	9.40E+00	9.40E+00	2.24E+00
Oxy DP	2.92E+00		
Oxy DP	4.98E+00		
Oxy DP	7.90E+00	7.90E+00	2.07E+00
Oxy DP	2.76E+00		
Oxy DP	4.84E+00		
Oxy DP	6.46E+00	6.46E+00	1.87E+00
Oxy DP	6.79E+00		
Oxy DP	4.55E+00		
Oxy DP	7.85E+00	7.85E+00	2.06E+00
Oxy DP	9.05E+00		
Oxy DP	4.20E+00		
Oxy DP	8.98E+00	8.98E+00	2.19E+00
Oxy DP	5.91E+00		
Oxy DP	4.14E+00		
Oxy DP	7.27E+00	7.27E+00	1.98E+00
Oxy DP	5.90E+00		
Oxy DP	4.10E+00		
Oxy DP	7.08E+00	7.08E+00	1.96E+00
Oxy DP	6.71E+00		
Oxy DP	4.42E+00		
Oxy DP	7.52E+00	7.52E+00	2.02E+00
Oxy DP	6.39E+00		
Oxy DP	4.05E+00		
Oxy DP	7.31E+00	7.31E+00	1.99E+00
Oxy DP	4.94E+00		
Oxy DP	3.96E+00		
Oxy DP	6.66E+00	6.66E+00	1.90E+00
Oxy DP	1.26E+01		
Oxy DP	4.72E+00		
Oxy DP	1.23E+01	1.23E+01	2.51E+00
Oxy DP	7.78E+00		
Oxy DP	4.17E+00		
Oxy DP	8.91E+00	8.91E+00	2.19E+00
Oxy DP	6.98E+00		
Oxy DP	3.92E+00		
Oxy DP	7.90E+00	7.90E+00	2.07E+00
Oxy DP	6.25E+00		
Oxy DP	4.07E+00		
Oxy DP	7.22E+00	7.22E+00	1.98E+00
Oxy DP	7.77E+00		
Oxy DP	4.31E+00		
Oxy DP	8.79E+00	8.79E+00	2.17E+00
Oxy DP	1.31E+01		
Oxy DP	3.82E+00		
Oxy DP	1.12E+01	1.12E+01	2.42E+00
Oxy DP	1.68E+01		
Oxy DP	3.89E+00		
Oxy DP	1.31E+01	1.31E+01	2.57E+00
Oxy DP	1.42E+01		
Oxy DP	4.01E+00		
Oxy DP	1.21E+01	1.21E+01	2.49E+00
Oxy DP	1.58E+01		
Oxy DP	3.23E+00		
Oxy DP	1.90E+01	1.90E+01	2.95E+00
Oxy DP	8.78E+00		
Oxy DP	4.09E+00		
Oxy DP	9.24E+00	9.24E+00	2.22E+00
Oxy DP	2.80E+00		
Oxy DP	4.21E+00		
Oxy DP	6.26E+00	6.26E+00	1.83E+00
Oxy DP	1.69E+01		
Oxy DP	3.41E+00		
Oxy DP	2.03E+01	2.03E+01	3.01E+00
Oxy DP	1.80E+01		
Oxy DP	3.33E+00		
Oxy DP	2.13E+01	2.13E+01	3.06E+00
Oxy DP	1.75E+01		
Oxy DP	3.55E+00		
Oxy DP	2.10E+01	2.10E+01	3.05E+00
Oxy DP	2.11E+01		
Oxy DP	3.72E+00		
Oxy DP	2.48E+01	2.48E+01	3.21E+00
Oxy DP	2.09E+01		
Oxy DP	3.16E+00		
Oxy DP	2.41E+01	2.41E+01	3.18E+00
Oxy DP	2.01E+01		
Oxy DP	2.79E+00		
Oxy DP	2.29E+01	2.29E+01	3.13E+00

	Normal	Lognormal
n	2.70E+01	2.70E+01
m	1.00E+00	1.00E+00
Average	1.21E+01	2.38E+00
Median	8.98E+00	2.19E+00
Standard Deviation	6.25E+00	4.65E-01
Minimum	6.26E+00	1.83E+00
Maximum	2.48E+01	3.21E+00
Skewness	1.01E+00	6.97E-01
SE Skewness	4.71E-01	4.71E-01
Skewness Test	Non-normal	Normal
Kurtosis	-5.92E-01	-1.06E+00
SE Kurtosis	9.43E-01	9.43E-01
Kurtosis Test	Normal	Normal
t-statistic for UPL	2.48E+00	2.48E+00
UPL	2.79E+01	3.50E+01

Average for variability analysis	1.21E+01	
RDL	4.75E+00	
3 x RDL	1.43E+01	
UPL	3.50E+01	ppmw
MACT Floor	**3.50E+01**	**ppmw**

1) if the 3x RDL value is less than or equal to the calculated floor or emissions limit, use the calculated floor or emissions limit value for the rule making.
2) if the 3x RDL value is greater than the calculated floor or emissions limit, use the 3x RDL value as the floor or emissions limit adjusted for measurement variability for the rule making

Resins - Dispersion - Existing Area Sources - VC

GACT Worst Performer Determination

Resin Type	Dispersion

	Data				
Facility	Sum of NR	Count of Vinyl Chloride Concentration (ppmw)	Sum of BDL	Average of Vinyl Chloride Concentration (ppmw)	Rank
PolyOne - Pedricktown	3.50E+02	1.46E+03	0.00E+00	1.44E+02	1
PolyOne - Henry	2.17E+02	1.46E+03	0.00E+00	3.81E+02	2
Formosa - Delaware City	2.57E+02	1.46E+03	0.00E+00	5.34E+02	3
Grand Total	8.24E+02	4.38E+03	0.00E+00	3.59E+02	

GACT Limit Calculation

Resin Type	Dispersion

Percentile: 9.99E+01
GACT Limit (ppmw) **1.43E+03** **New**

Average of Vinyl Chloride Concentration (ppmw)			
Facility	Date	Total	Vinyl Chloride (ppmw)
Formosa - Delaware City	1/1/2007	#DIV/0!	
	1/2/2007	#DIV/0!	
	1/3/2007	6.70E+02	6.70E+02
	1/4/2007	6.31E+02	6.31E+02
	1/5/2007	4.87E+02	4.87E+02
	1/6/2007	5.16E+02	5.16E+02
	1/7/2007	6.90E+02	6.90E+02
	1/8/2007	5.50E+02	5.50E+02
	1/9/2007	5.69E+02	5.69E+02
	1/10/2007	5.88E+02	5.88E+02
	1/11/2007	4.91E+02	4.91E+02
	1/12/2007	8.01E+02	8.01E+02
	1/13/2007	#DIV/0!	
	1/14/2007	#DIV/0!	
	1/15/2007	#DIV/0!	
	1/16/2007	#DIV/0!	
	1/17/2007	#DIV/0!	
	1/18/2007	#DIV/0!	
	1/19/2007	#DIV/0!	
	1/20/2007	#DIV/0!	
	1/21/2007	#DIV/0!	
	1/22/2007	#DIV/0!	
	1/23/2007	#DIV/0!	
	1/24/2007	#DIV/0!	
	1/25/2007	#DIV/0!	
	1/26/2007	#DIV/0!	
	1/27/2007	#DIV/0!	
	1/28/2007	#DIV/0!	
	1/29/2007	#DIV/0!	
	1/30/2007	#DIV/0!	
	1/31/2007	#DIV/0!	
	2/1/2007	#DIV/0!	
	2/2/2007	#DIV/0!	
	2/3/2007	#DIV/0!	
	2/4/2007	5.58E+02	5.58E+02
	2/5/2007	4.18E+02	4.18E+02
	2/6/2007	3.93E+02	3.93E+02
	2/7/2007	4.01E+02	4.01E+02
	2/8/2007	3.94E+02	3.94E+02
	2/9/2007	4.42E+02	4.42E+02
	2/10/2007	4.03E+02	4.03E+02
	2/11/2007	4.89E+02	4.89E+02
	2/12/2007	4.54E+02	4.54E+02
	2/13/2007	4.51E+02	4.51E+02
	2/14/2007	4.20E+02	4.20E+02
	2/15/2007	5.34E+02	5.34E+02
	2/16/2007	5.20E+02	5.20E+02
	2/17/2007	6.15E+02	6.15E+02
	2/18/2007	6.73E+02	6.73E+02
	2/19/2007	7.46E+02	7.46E+02
	2/20/2007	7.93E+02	7.93E+02
	2/21/2007	9.31E+02	9.31E+02
	2/22/2007	5.16E+02	5.16E+02
	2/23/2007	5.80E+02	5.80E+02
	2/24/2007	5.89E+02	5.89E+02
	2/25/2007	5.68E+02	5.68E+02
	2/26/2007	4.92E+02	4.92E+02
	2/27/2007	5.73E+02	5.73E+02
	2/28/2007	5.24E+02	5.24E+02
	3/1/2007	4.91E+02	4.91E+02
	3/2/2007	2.84E+02	2.84E+02
	3/3/2007	5.34E+02	5.34E+02
	3/4/2007	6.87E+02	6.87E+02
	3/5/2007	4.75E+02	4.75E+02
	3/6/2007	5.85E+02	5.85E+02
	3/7/2007	5.58E+02	5.58E+02
	3/8/2007	6.97E+02	6.97E+02
	3/9/2007	6.52E+02	6.52E+02
	3/10/2007	5.22E+02	5.22E+02
	3/11/2007	6.19E+02	6.19E+02
	3/12/2007	6.60E+02	6.60E+02
	3/13/2007	5.87E+02	5.87E+02
	3/14/2007	5.60E+02	5.60E+02
	3/15/2007	#DIV/0!	
	3/16/2007	#DIV/0!	
	3/17/2007	#DIV/0!	
	3/18/2007	#DIV/0!	
	3/19/2007	#DIV/0!	
	3/20/2007	#DIV/0!	
	3/21/2007	#DIV/0!	
	3/22/2007	#DIV/0!	
	3/23/2007	#DIV/0!	
	3/24/2007	#DIV/0!	
	3/25/2007	#DIV/0!	
	3/26/2007	#DIV/0!	
	3/27/2007	#DIV/0!	
	3/28/2007	#DIV/0!	
	3/29/2007	#DIV/0!	
	3/30/2007	#DIV/0!	
	3/31/2007	#DIV/0!	
	4/1/2007	#DIV/0!	
	4/2/2007	2.73E+02	2.73E+02
	4/3/2007	2.32E+02	2.32E+02
	4/4/2007	3.45E+02	3.45E+02
	4/5/2007	3.26E+02	3.26E+02
	4/6/2007	4.40E+02	4.40E+02
	4/7/2007	3.37E+02	3.37E+02
	4/8/2007	3.07E+02	3.07E+02
	4/9/2007	3.56E+02	3.56E+02
	4/10/2007	3.85E+02	3.85E+02
	4/11/2007	3.28E+02	3.28E+02
	4/12/2007	4.34E+02	4.34E+02
	4/13/2007	3.28E+02	3.28E+02
	4/14/2007	4.44E+02	4.44E+02
	4/15/2007	3.82E+02	3.82E+02
	4/16/2007	3.16E+02	3.16E+02
	4/17/2007	4.93E+02	4.93E+02
	4/18/2007	4.04E+02	4.04E+02
	4/19/2007	3.41E+02	3.41E+02
	4/20/2007	4.94E+02	4.94E+02
	4/21/2007	4.49E+02	4.49E+02
	4/22/2007	5.60E+02	5.60E+02
	4/23/2007	4.25E+02	4.25E+02
	4/24/2007	6.95E+02	6.95E+02
	4/25/2007	4.83E+02	4.83E+02
	4/26/2007	4.40E+02	4.40E+02
	4/27/2007	3.50E+02	3.50E+02
	4/28/2007	3.73E+02	3.73E+02

Resins - Dispersion - Existing Area Sources - VC

4/29/2007	4.43E+02	4.43E+02
4/30/2007	2.84E+02	2.84E+02
5/1/2007	3.21E+02	3.21E+02
5/2/2007	3.86E+02	3.86E+02
5/3/2007	4.19E+02	4.19E+02
5/4/2007	4.00E+02	4.00E+02
5/5/2007	3.98E+02	3.98E+02
5/6/2007	3.89E+02	3.89E+02
5/7/2007	4.18E+02	4.18E+02
5/8/2007	3.96E+02	3.96E+02
5/9/2007	4.38E+02	4.38E+02
5/10/2007	3.98E+02	3.98E+02
5/11/2007	3.84E+02	3.84E+02
5/12/2007	3.79E+02	3.79E+02
5/13/2007	4.30E+02	4.30E+02
5/14/2007	4.30E+02	4.30E+02
5/15/2007	4.07E+02	4.07E+02
5/16/2007	3.47E+02	3.47E+02
5/17/2007	3.26E+02	3.26E+02
5/18/2007	3.59E+02	3.59E+02
5/19/2007	3.81E+02	3.81E+02
5/20/2007	3.35E+02	3.35E+02
5/21/2007	4.79E+02	4.79E+02
5/22/2007	6.87E+02	6.87E+02
5/23/2007	3.41E+02	3.41E+02
5/24/2007	2.93E+02	2.93E+02
5/25/2007	2.10E+02	2.10E+02
5/26/2007	2.72E+02	2.72E+02
5/27/2007	2.87E+02	2.87E+02
5/28/2007	2.50E+02	2.50E+02
5/29/2007	#DIV/0!	
5/30/2007	#DIV/0!	
5/31/2007	#DIV/0!	
6/1/2007	#DIV/0!	
6/2/2007	#DIV/0!	
6/3/2007	#DIV/0!	
6/4/2007	#DIV/0!	
6/5/2007	#DIV/0!	
6/6/2007	#DIV/0!	
6/7/2007	#DIV/0!	
6/8/2007	#DIV/0!	
6/9/2007	#DIV/0!	
6/10/2007	#DIV/0!	
6/11/2007	#DIV/0!	
6/12/2007	#DIV/0!	
6/13/2007	#DIV/0!	
6/14/2007	#DIV/0!	
6/15/2007	#DIV/0!	
6/16/2007	#DIV/0!	
6/17/2007	#DIV/0!	
6/18/2007	#DIV/0!	
6/19/2007	3.39E+02	3.39E+02
6/20/2007	3.48E+02	3.48E+02
6/21/2007	3.66E+02	3.66E+02
6/22/2007	3.88E+02	3.88E+02
6/23/2007	3.97E+02	3.97E+02
6/24/2007	4.89E+02	4.89E+02
6/25/2007	4.99E+02	4.99E+02
6/26/2007	4.70E+02	4.70E+02
6/27/2007	5.18E+02	5.18E+02
6/28/2007	4.91E+02	4.91E+02
6/29/2007	5.91E+02	5.91E+02
6/30/2007	3.81E+02	3.81E+02
7/1/2007	3.60E+02	3.60E+02
7/2/2007	3.46E+02	3.46E+02
7/3/2007	2.92E+02	2.92E+02
7/4/2007	3.31E+02	3.31E+02
7/5/2007	4.16E+02	4.16E+02
7/6/2007	6.00E+02	6.00E+02
7/7/2007	6.41E+02	6.41E+02
7/8/2007	4.55E+02	4.55E+02
7/9/2007	5.80E+02	5.80E+02
7/10/2007	6.36E+02	6.36E+02
7/11/2007	5.91E+02	5.91E+02
7/12/2007	4.74E+02	4.74E+02
7/13/2007	5.31E+02	5.31E+02
7/14/2007	2.11E+02	2.11E+02
7/15/2007	3.83E+02	3.83E+02
7/16/2007	5.44E+02	5.44E+02
7/17/2007	5.79E+02	5.79E+02
7/18/2007	6.95E+02	6.95E+02
7/19/2007	6.66E+02	6.66E+02
7/20/2007	6.66E+02	6.66E+02
7/21/2007	5.77E+02	5.77E+02
7/22/2007	5.84E+02	5.84E+02
7/23/2007	6.44E+02	6.44E+02
7/24/2007	6.22E+02	6.22E+02
7/25/2007	5.08E+02	5.08E+02
7/26/2007	4.94E+02	4.94E+02
7/27/2007	5.65E+02	5.65E+02
7/28/2007	7.00E+02	7.00E+02
7/29/2007	6.56E+02	6.56E+02
7/30/2007	5.81E+02	5.81E+02
7/31/2007	5.35E+02	5.35E+02
8/1/2007	5.35E+02	5.35E+02
8/2/2007	3.71E+02	3.71E+02
8/3/2007	4.03E+02	4.03E+02
8/4/2007	5.86E+02	5.86E+02
8/5/2007	5.37E+02	5.37E+02
8/6/2007	4.29E+02	4.29E+02
8/7/2007	5.58E+02	5.58E+02
8/8/2007	6.74E+02	6.74E+02
8/9/2007	#DIV/0!	
8/10/2007	4.79E+02	4.79E+02
8/11/2007	#DIV/0!	
8/12/2007	#DIV/0!	
8/13/2007	#DIV/0!	
8/14/2007	#DIV/0!	
8/15/2007	#DIV/0!	
8/16/2007	#DIV/0!	
8/17/2007	#DIV/0!	
8/18/2007	#DIV/0!	
8/19/2007	#DIV/0!	
8/20/2007	#DIV/0!	
8/21/2007	#DIV/0!	
8/22/2007	#DIV/0!	
8/23/2007	#DIV/0!	
8/24/2007	#DIV/0!	
8/25/2007	#DIV/0!	
8/26/2007	#DIV/0!	
8/27/2007	#DIV/0!	
8/28/2007	#DIV/0!	
8/29/2007	#DIV/0!	
8/30/2007	4.61E+02	4.61E+02
8/31/2007	5.92E+02	5.92E+02
9/1/2007	5.46E+02	5.46E+02
9/2/2007	3.07E+02	3.07E+02
9/3/2007	3.52E+02	3.52E+02
9/4/2007	2.76E+02	2.76E+02
9/5/2007	4.95E+02	4.95E+02

Resins - Dispersion - Existing Area Sources - VC

9/6/2007	2.35E+02	2.35E+02
9/7/2007	3.35E+02	3.35E+02
9/8/2007	4.45E+02	4.45E+02
9/9/2007	4.89E+02	4.89E+02
9/10/2007	4.38E+02	4.38E+02
9/11/2007	3.77E+02	3.77E+02
9/12/2007	3.55E+02	3.55E+02
9/13/2007	4.06E+02	4.06E+02
9/14/2007	3.29E+02	3.29E+02
9/15/2007	3.76E+02	3.76E+02
9/16/2007	3.99E+02	3.99E+02
9/17/2007	3.44E+02	3.44E+02
9/18/2007	3.55E+02	3.55E+02
9/19/2007	2.76E+02	2.76E+02
9/20/2007	3.48E+02	3.48E+02
9/21/2007	3.34E+02	3.34E+02
9/22/2007	3.10E+02	3.10E+02
9/23/2007	3.33E+02	3.33E+02
9/24/2007	4.26E+02	4.26E+02
9/25/2007	4.07E+02	4.07E+02
9/26/2007	3.92E+02	3.92E+02
9/27/2007	3.88E+02	3.88E+02
9/28/2007	4.43E+02	4.43E+02
9/29/2007	4.37E+02	4.37E+02
9/30/2007	3.72E+02	3.72E+02
10/1/2007	4.28E+02	4.28E+02
10/2/2007	3.90E+02	3.90E+02
10/3/2007	4.61E+02	4.61E+02
10/4/2007	2.49E+02	2.49E+02
10/5/2007	#DIV/0!	
10/6/2007	#DIV/0!	
10/7/2007	#DIV/0!	
10/8/2007	#DIV/0!	
10/9/2007	#DIV/0!	
10/10/2007	#DIV/0!	
10/11/2007	#DIV/0!	
10/12/2007	#DIV/0!	
10/13/2007	#DIV/0!	
10/14/2007	#DIV/0!	
10/15/2007	#DIV/0!	
10/16/2007	#DIV/0!	
10/17/2007	4.92E+02	4.92E+02
10/18/2007	5.52E+02	5.52E+02
10/19/2007	4.17E+02	4.17E+02
10/20/2007	4.45E+02	4.45E+02
10/21/2007	3.87E+02	3.87E+02
10/22/2007	3.68E+02	3.68E+02
10/23/2007	4.55E+02	4.55E+02
10/24/2007	3.89E+02	3.89E+02
10/25/2007	3.84E+02	3.84E+02
10/26/2007	5.16E+02	5.16E+02
10/27/2007	7.79E+02	7.79E+02
10/28/2007	4.88E+02	4.88E+02
10/29/2007	3.14E+02	3.14E+02
10/30/2007	4.30E+02	4.30E+02
10/31/2007	#DIV/0!	
11/1/2007	1.00E+03	1.00E+03
11/2/2007	8.29E+02	8.29E+02
11/3/2007	#DIV/0!	
11/4/2007	1.62E+01	1.62E+01
11/5/2007	6.25E+02	6.25E+02
11/6/2007	5.94E+02	5.94E+02
11/7/2007	6.12E+02	6.12E+02
11/8/2007	6.65E+02	6.65E+02
11/9/2007	8.06E+02	8.06E+02
11/10/2007	#DIV/0!	
11/11/2007	#DIV/0!	
11/12/2007	4.06E+02	4.06E+02
11/13/2007	3.97E+02	3.97E+02
11/14/2007	3.22E+02	3.22E+02
11/15/2007	1.73E+02	1.73E+02
11/16/2007	3.28E+02	3.28E+02
11/17/2007	#DIV/0!	
11/18/2007	6.22E+02	6.22E+02
11/19/2007	5.02E+02	5.02E+02
11/20/2007	3.55E+02	3.55E+02
11/21/2007	3.69E+02	3.69E+02
11/22/2007	2.88E+02	2.88E+02
11/23/2007	1.01E+03	1.01E+03
11/24/2007	#DIV/0!	
11/25/2007	#DIV/0!	
11/26/2007	#DIV/0!	
11/27/2007	#DIV/0!	
11/28/2007	6.06E+02	6.06E+02
11/29/2007	3.87E+02	3.87E+02
11/30/2007	4.12E+02	4.12E+02
12/1/2007	4.91E+02	4.91E+02
12/2/2007	4.54E+02	4.54E+02
12/3/2007	3.83E+02	3.83E+02
12/4/2007	4.26E+02	4.26E+02
12/5/2007	4.76E+02	4.76E+02
12/6/2007	4.00E+02	4.00E+02
12/7/2007	4.44E+02	4.44E+02
12/8/2007	4.50E+02	4.50E+02
12/9/2007	4.58E+02	4.58E+02
12/10/2007	6.77E+02	6.77E+02
12/11/2007	8.58E+02	8.58E+02
12/12/2007	5.19E+02	5.19E+02
12/13/2007	7.18E+02	7.18E+02
12/14/2007	6.08E+02	6.08E+02
12/15/2007	1.07E+03	1.07E+03
12/16/2007	8.73E+02	8.73E+02
12/17/2007	6.85E+02	6.85E+02
12/18/2007	7.17E+02	7.17E+02
12/19/2007	6.52E+02	6.52E+02
12/20/2007	7.20E+02	7.20E+02
12/21/2007	8.60E+02	8.60E+02
12/22/2007	7.56E+02	7.56E+02
12/23/2007	9.16E+02	9.16E+02
12/24/2007	6.57E+02	6.57E+02
12/25/2007	5.10E+02	5.10E+02
12/26/2007	5.44E+02	5.44E+02
12/27/2007	5.74E+02	5.74E+02
12/28/2007	6.30E+02	6.30E+02
12/29/2007	6.31E+02	6.31E+02
12/30/2007	5.76E+02	5.76E+02
12/31/2007	4.75E+02	4.75E+02
1/1/2008	4.66E+02	4.66E+02
1/2/2008	5.39E+02	5.39E+02
1/3/2008	4.07E+02	4.07E+02
1/4/2008	4.36E+02	4.36E+02
1/5/2008	#DIV/0!	
1/6/2008	#DIV/0!	
1/7/2008	2.67E+02	2.67E+02
1/8/2008	4.57E+02	4.57E+02
1/9/2008	3.17E+02	3.17E+02
1/10/2008	2.75E+02	2.75E+02
1/11/2008	3.67E+02	3.67E+02
1/12/2008	3.23E+02	3.23E+02
1/13/2008	#DIV/0!	

Resins - Dispersion - Existing Area Sources - VC

1/14/2008	4.08E+02	4.08E+02
1/15/2008	3.64E+02	3.64E+02
1/16/2008	5.49E+02	5.49E+02
1/17/2008	4.66E+02	4.66E+02
1/18/2008	4.56E+02	4.56E+02
1/19/2008	#DIV/0!	
1/20/2008	#DIV/0!	
1/21/2008	6.23E+02	6.23E+02
1/22/2008	6.88E+02	6.88E+02
1/23/2008	5.64E+02	5.64E+02
1/24/2008	6.79E+02	6.79E+02
1/25/2008	7.29E+02	7.29E+02
1/26/2008	8.28E+02	8.28E+02
1/27/2008	6.69E+02	6.69E+02
1/28/2008	5.02E+02	5.02E+02
1/29/2008	6.17E+02	6.17E+02
1/30/2008	5.88E+02	5.88E+02
1/31/2008	6.10E+02	6.10E+02
2/1/2008	6.35E+02	6.35E+02
2/2/2008	5.92E+02	5.92E+02
2/3/2008	6.51E+02	6.51E+02
2/4/2008	6.16E+02	6.16E+02
2/5/2008	4.67E+02	4.67E+02
2/6/2008	3.28E+02	3.28E+02
2/7/2008	5.55E+02	5.55E+02
2/8/2008	5.20E+02	5.20E+02
2/9/2008	6.24E+02	6.24E+02
2/10/2008	7.19E+02	7.19E+02
2/11/2008	5.05E+02	5.05E+02
2/12/2008	4.84E+02	4.84E+02
2/13/2008	3.95E+02	3.95E+02
2/14/2008	3.08E+02	3.08E+02
2/15/2008	4.00E+02	4.00E+02
2/16/2008	#DIV/0!	
2/17/2008	#DIV/0!	
2/18/2008	4.56E+02	4.56E+02
2/19/2008	5.54E+02	5.54E+02
2/20/2008	6.66E+02	6.66E+02
2/21/2008	4.70E+02	4.70E+02
2/22/2008	4.92E+02	4.92E+02
2/23/2008	#DIV/0!	
2/24/2008	#DIV/0!	
2/25/2008	6.40E+02	6.40E+02
2/26/2008	4.12E+02	4.12E+02
2/27/2008	3.97E+02	3.97E+02
2/28/2008	5.43E+02	5.43E+02
2/29/2008	4.89E+02	4.89E+02
3/1/2008	3.92E+02	3.92E+02
3/2/2008	4.22E+02	4.22E+02
3/3/2008	2.82E+02	2.82E+02
3/4/2008	4.19E+02	4.19E+02
3/5/2008	6.21E+02	6.21E+02
3/6/2008	6.22E+02	6.22E+02
3/7/2008	6.31E+02	6.31E+02
3/8/2008	4.81E+02	4.81E+02
3/9/2008	5.19E+02	5.19E+02
3/10/2008	4.71E+02	4.71E+02
3/11/2008	5.14E+02	5.14E+02
3/12/2008	3.97E+02	3.97E+02
3/13/2008	5.17E+02	5.17E+02
3/14/2008	4.34E+02	4.34E+02
3/15/2008	4.71E+02	4.71E+02
3/16/2008	4.92E+02	4.92E+02
3/17/2008	5.28E+02	5.28E+02
3/18/2008	6.81E+02	6.81E+02
3/19/2008	7.02E+02	7.02E+02
3/20/2008	6.97E+02	6.97E+02
3/21/2008	7.60E+02	7.60E+02
3/22/2008	7.71E+02	7.71E+02
3/23/2008	8.87E+02	8.87E+02
3/24/2008	7.28E+02	7.28E+02
3/25/2008	7.37E+02	7.37E+02
3/26/2008	6.82E+02	6.82E+02
3/27/2008	#DIV/0!	
3/28/2008	#DIV/0!	
3/29/2008	9.96E+02	9.96E+02
3/30/2008	7.82E+02	7.82E+02
3/31/2008	3.62E+02	3.62E+02
4/1/2008	3.78E+02	3.78E+02
4/2/2008	4.37E+02	4.37E+02
4/3/2008	4.92E+02	4.92E+02
4/4/2008	4.27E+02	4.27E+02
4/5/2008	3.90E+02	3.90E+02
4/6/2008	4.46E+02	4.46E+02
4/7/2008	3.75E+02	3.75E+02
4/8/2008	5.03E+02	5.03E+02
4/9/2008	8.66E+02	8.66E+02
4/10/2008	9.46E+02	9.46E+02
4/11/2008	7.41E+02	7.41E+02
4/12/2008	6.15E+02	6.15E+02
4/13/2008	7.37E+02	7.37E+02
4/14/2008	5.94E+02	5.94E+02
4/15/2008	5.38E+02	5.38E+02
4/16/2008	6.52E+02	6.52E+02
4/17/2008	4.14E+02	4.14E+02
4/18/2008	3.60E+02	3.60E+02
4/19/2008	#DIV/0!	
4/20/2008	#DIV/0!	
4/21/2008	#DIV/0!	
4/22/2008	#DIV/0!	
4/23/2008	#DIV/0!	
4/24/2008	#DIV/0!	
4/25/2008	#DIV/0!	
4/26/2008	#DIV/0!	
4/27/2008	#DIV/0!	
4/28/2008	#DIV/0!	
4/29/2008	#DIV/0!	
4/30/2008	7.73E+02	7.73E+02
5/1/2008	7.23E+02	7.23E+02
5/2/2008	6.92E+02	6.92E+02
5/3/2008	7.42E+02	7.42E+02
5/4/2008	7.68E+02	7.68E+02
5/5/2008	6.47E+02	6.47E+02
5/6/2008	4.05E+02	4.05E+02
5/7/2008	7.62E+02	7.62E+02
5/8/2008	7.30E+02	7.30E+02
5/9/2008	6.64E+02	6.64E+02
5/10/2008	7.71E+02	7.71E+02
5/11/2008	5.91E+02	5.91E+02
5/12/2008	5.07E+02	5.07E+02
5/13/2008	5.71E+02	5.71E+02
5/14/2008	5.09E+02	5.09E+02
5/15/2008	5.52E+02	5.52E+02
5/16/2008	5.59E+02	5.59E+02
5/17/2008	5.93E+02	5.93E+02
5/18/2008	3.06E+02	3.06E+02
5/19/2008	8.33E+02	8.33E+02
5/20/2008	4.01E+02	4.01E+02
5/21/2008	3.39E+02	3.39E+02
5/22/2008	3.68E+02	3.68E+02

Resins - Dispersion - Existing Area Sources - VC

5/23/2008	4.30E+02	4.30E+02
5/24/2008	#DIV/0!	
5/25/2008	#DIV/0!	
5/26/2008	3.75E+02	3.75E+02
5/27/2008	3.89E+02	3.89E+02
5/28/2008	3.50E+02	3.50E+02
5/29/2008	4.47E+02	4.47E+02
5/30/2008	3.96E+02	3.96E+02
5/31/2008	#DIV/0!	
6/1/2008	#DIV/0!	
6/2/2008	#DIV/0!	
6/3/2008	#DIV/0!	
6/4/2008	#DIV/0!	
6/5/2008	1.82E+01	1.82E+01
6/6/2008	5.61E+02	5.61E+02
6/7/2008	5.06E+02	5.06E+02
6/8/2008	5.52E+02	5.52E+02
6/9/2008	8.11E+02	8.11E+02
6/10/2008	1.02E+03	1.02E+03
6/11/2008	1.09E+03	1.09E+03
6/12/2008	6.19E+02	6.19E+02
6/13/2008	7.52E+02	7.52E+02
6/14/2008	9.06E+02	9.06E+02
6/15/2008	6.32E+02	6.32E+02
6/16/2008	7.61E+02	7.61E+02
6/17/2008	7.58E+02	7.58E+02
6/18/2008	8.51E+02	8.51E+02
6/19/2008	6.19E+02	6.19E+02
6/20/2008	8.03E+02	8.03E+02
6/21/2008	7.21E+02	7.21E+02
6/22/2008	6.46E+02	6.46E+02
6/23/2008	7.47E+02	7.47E+02
6/24/2008	6.09E+02	6.09E+02
6/25/2008	7.93E+02	7.93E+02
6/26/2008	6.82E+02	6.82E+02
6/27/2008	6.08E+02	6.08E+02
6/28/2008	3.65E+02	3.65E+02
6/29/2008	5.07E+02	5.07E+02
6/30/2008	4.21E+02	4.21E+02
7/1/2008	2.31E+02	2.31E+02
7/2/2008	4.07E+02	4.07E+02
7/3/2008	4.32E+02	4.32E+02
7/4/2008	3.79E+02	3.79E+02
7/5/2008	4.67E+02	4.67E+02
7/6/2008	5.03E+02	5.03E+02
7/7/2008	4.16E+02	4.16E+02
7/8/2008	3.80E+02	3.80E+02
7/9/2008	4.67E+02	4.67E+02
7/10/2008	8.42E+02	8.42E+02
7/11/2008	6.28E+02	6.28E+02
7/12/2008	7.31E+02	7.31E+02
7/13/2008	7.64E+02	7.64E+02
7/14/2008	7.32E+02	7.32E+02
7/15/2008	6.28E+02	6.28E+02
7/16/2008	8.64E+02	8.64E+02
7/17/2008	8.93E+02	8.93E+02
7/18/2008	4.85E+02	4.85E+02
7/19/2008	5.50E+02	5.50E+02
7/20/2008	5.40E+02	5.40E+02
7/21/2008	5.48E+02	5.48E+02
7/22/2008	4.87E+02	4.87E+02
7/23/2008	4.78E+02	4.78E+02
7/24/2008	4.60E+02	4.60E+02
7/25/2008	#DIV/0!	
7/26/2008	#DIV/0!	
7/27/2008	5.54E+02	5.54E+02
7/28/2008	#DIV/0!	
7/29/2008	#DIV/0!	
7/30/2008	#DIV/0!	
7/31/2008	4.45E+02	4.45E+02
8/1/2008	5.31E+02	5.31E+02
8/2/2008	#DIV/0!	
8/3/2008	#DIV/0!	
8/4/2008	3.05E+02	3.05E+02
8/5/2008	5.42E+02	5.42E+02
8/6/2008	2.89E+02	2.89E+02
8/7/2008	2.52E+02	2.52E+02
8/8/2008	5.50E+02	5.50E+02
8/9/2008	#DIV/0!	
8/10/2008	#DIV/0!	
8/11/2008	1.13E+03	1.13E+03
8/12/2008	7.79E+02	7.79E+02
8/13/2008	9.69E+02	9.69E+02
8/14/2008	7.48E+02	7.48E+02
8/15/2008	5.47E+02	5.47E+02
8/16/2008	#DIV/0!	
8/17/2008	#DIV/0!	
8/18/2008	3.58E+02	3.58E+02
8/19/2008	8.47E+02	8.47E+02
8/20/2008	2.39E+02	2.39E+02
8/21/2008	3.63E+02	3.63E+02
8/22/2008	4.44E+02	4.44E+02
8/23/2008	4.68E+02	4.68E+02
8/24/2008	5.98E+02	5.98E+02
8/25/2008	4.85E+02	4.85E+02
8/26/2008	5.42E+02	5.42E+02
8/27/2008	5.20E+02	5.20E+02
8/28/2008	3.85E+02	3.85E+02
8/29/2008	3.70E+02	3.70E+02
8/30/2008	#DIV/0!	
8/31/2008	#DIV/0!	
9/1/2008	7.69E+02	7.69E+02
9/2/2008	6.87E+02	6.87E+02
9/3/2008	7.32E+02	7.32E+02
9/4/2008	6.27E+02	6.27E+02
9/5/2008	5.30E+02	5.30E+02
9/6/2008	5.89E+02	5.89E+02
9/7/2008	6.27E+02	6.27E+02
9/8/2008	8.40E+02	8.40E+02
9/9/2008	8.24E+02	8.24E+02
9/10/2008	8.61E+02	8.61E+02
9/11/2008	6.01E+02	6.01E+02
9/12/2008	5.59E+02	5.59E+02
9/13/2008	3.60E+02	3.60E+02
9/14/2008	4.30E+02	4.30E+02
9/15/2008	4.76E+02	4.76E+02
9/16/2008	4.47E+02	4.47E+02
9/17/2008	6.04E+02	6.04E+02
9/18/2008	8.37E+02	8.37E+02
9/19/2008	6.92E+02	6.92E+02
9/20/2008	#DIV/0!	
9/21/2008	#DIV/0!	
9/22/2008	1.01E+03	1.01E+03
9/23/2008	6.72E+02	6.72E+02
9/24/2008	5.03E+02	5.03E+02
9/25/2008	6.83E+02	6.83E+02
9/26/2008	6.38E+02	6.38E+02
9/27/2008	5.85E+02	5.85E+02
9/28/2008	#DIV/0!	
9/29/2008	7.49E+02	7.49E+02

Resins - Dispersion - Existing Area Sources - VC

9/30/2008	4.62E+02	4.62E+02
10/1/2008	6.33E+02	6.33E+02
10/2/2008	6.54E+02	6.54E+02
10/3/2008	5.32E+02	5.32E+02
10/4/2008	#DIV/0!	
10/5/2008	#DIV/0!	
10/6/2008	6.96E+02	6.96E+02
10/7/2008	4.41E+02	4.41E+02
10/8/2008	8.49E+02	8.49E+02
10/9/2008	7.49E+02	7.49E+02
10/10/2008	7.11E+02	7.11E+02
10/11/2008	6.04E+02	6.04E+02
10/12/2008	6.69E+02	6.69E+02
10/13/2008	7.13E+02	7.13E+02
10/14/2008	6.95E+02	6.95E+02
10/15/2008	6.35E+02	6.35E+02
10/16/2008	5.22E+02	5.22E+02
10/17/2008	4.31E+02	4.31E+02
10/18/2008	5.78E+02	5.78E+02
10/19/2008	6.76E+02	6.76E+02
10/20/2008	5.70E+02	5.70E+02
10/21/2008	4.31E+02	4.31E+02
10/22/2008	7.23E+02	7.23E+02
10/23/2008	5.77E+02	5.77E+02
10/24/2008	8.78E+02	8.78E+02
10/25/2008	6.28E+02	6.28E+02
10/26/2008	8.36E+02	8.36E+02
10/27/2008	6.52E+02	6.52E+02
10/28/2008	6.97E+02	6.97E+02
10/29/2008	1.19E+03	1.19E+03
10/30/2008	8.65E+02	8.65E+02
10/31/2008	7.80E+02	7.80E+02
11/1/2008	6.54E+02	6.54E+02
11/2/2008	6.94E+02	6.94E+02
11/3/2008	9.73E+02	9.73E+02
11/4/2008	8.29E+02	8.29E+02
11/5/2008	6.58E+02	6.58E+02
11/6/2008	5.13E+02	5.13E+02
11/7/2008	5.90E+02	5.90E+02
11/8/2008	4.09E+02	4.09E+02
11/9/2008	4.81E+02	4.81E+02
11/10/2008	4.12E+02	4.12E+02
11/11/2008	4.69E+02	4.69E+02
11/12/2008	5.84E+02	5.84E+02
11/13/2008	5.20E+02	5.20E+02
11/14/2008	5.79E+02	5.79E+02
11/15/2008	6.08E+02	6.08E+02
11/16/2008	4.75E+02	4.75E+02
11/17/2008	6.53E+02	6.53E+02
11/18/2008	5.05E+02	5.05E+02
11/19/2008	#DIV/0!	
11/20/2008	#DIV/0!	
11/21/2008	#DIV/0!	
11/22/2008	#DIV/0!	
11/23/2008	#DIV/0!	
11/24/2008	#DIV/0!	
11/25/2008	#DIV/0!	
11/26/2008	#DIV/0!	
11/27/2008	#DIV/0!	
11/28/2008	#DIV/0!	
11/29/2008	#DIV/0!	
11/30/2008	#DIV/0!	
12/1/2008	#DIV/0!	
12/2/2008	#DIV/0!	
12/3/2008	#DIV/0!	
12/4/2008	#DIV/0!	
12/5/2008	#DIV/0!	
12/6/2008	#DIV/0!	
12/7/2008	#DIV/0!	
12/8/2008	7.77E+02	7.77E+02
12/9/2008	8.10E+02	8.10E+02
12/10/2008	5.39E+02	5.39E+02
12/11/2008	4.60E+02	4.60E+02
12/12/2008	6.99E+02	6.99E+02
12/13/2008	6.05E+02	6.05E+02
12/14/2008	5.89E+02	5.89E+02
12/15/2008	5.75E+02	5.75E+02
12/16/2008	5.26E+02	5.26E+02
12/17/2008	4.17E+02	4.17E+02
12/18/2008	4.70E+02	4.70E+02
12/19/2008	#DIV/0!	
12/20/2008	#DIV/0!	
12/21/2008	#DIV/0!	
12/22/2008	#DIV/0!	
12/23/2008	#DIV/0!	
12/24/2008	#DIV/0!	
12/25/2008	#DIV/0!	
12/26/2008	#DIV/0!	
12/27/2008	#DIV/0!	
12/28/2008	#DIV/0!	
12/29/2008	#DIV/0!	
12/30/2008	#DIV/0!	
12/31/2008	#DIV/0!	
1/1/2009	#DIV/0!	
1/2/2009	#DIV/0!	
1/3/2009	#DIV/0!	
1/4/2009	#DIV/0!	
1/5/2009	#DIV/0!	
1/6/2009	4.25E+02	4.25E+02
1/7/2009	3.94E+02	3.94E+02
1/8/2009	4.91E+02	4.91E+02
1/9/2009	5.66E+02	5.66E+02
1/10/2009	4.09E+02	4.09E+02
1/11/2009	3.81E+02	3.81E+02
1/12/2009	2.80E+02	2.80E+02
1/13/2009	#DIV/0!	
1/14/2009	#DIV/0!	
1/15/2009	#DIV/0!	
1/16/2009	#DIV/0!	
1/17/2009	#DIV/0!	
1/18/2009	#DIV/0!	
1/19/2009	#DIV/0!	
1/20/2009	#DIV/0!	
1/21/2009	#DIV/0!	
1/22/2009	#DIV/0!	
1/23/2009	#DIV/0!	
1/24/2009	#DIV/0!	
1/25/2009	#DIV/0!	
1/26/2009	#DIV/0!	
1/27/2009	#DIV/0!	
1/28/2009	3.57E+02	3.57E+02
1/29/2009	5.43E+02	5.43E+02
1/30/2009	6.92E+02	6.92E+02
1/31/2009	6.26E+02	6.26E+02
2/1/2009	8.94E+02	8.94E+02
2/2/2009	1.02E+03	1.02E+03
2/3/2009	7.22E+02	7.22E+02
2/4/2009	#DIV/0!	
2/5/2009	#DIV/0!	
2/6/2009	7.43E+02	7.43E+02

Resins - Dispersion - Existing Area Sources - VC

2/7/2009	8.54E+02	8.54E+02
2/8/2009	5.36E+02	5.36E+02
2/9/2009	4.76E+02	4.76E+02
2/10/2009	6.44E+02	6.44E+02
2/11/2009	4.04E+02	4.04E+02
2/12/2009	4.45E+02	4.45E+02
2/13/2009	5.79E+02	5.79E+02
2/14/2009	5.75E+02	5.75E+02
2/15/2009	#DIV/0!	
2/16/2009	#DIV/0!	
2/17/2009	#DIV/0!	
2/18/2009	#DIV/0!	
2/19/2009	#DIV/0!	
2/20/2009	#DIV/0!	
2/21/2009	#DIV/0!	
2/22/2009	#DIV/0!	
2/23/2009	#DIV/0!	
2/24/2009	#DIV/0!	
2/25/2009	#DIV/0!	
2/26/2009	#DIV/0!	
2/27/2009	#DIV/0!	
2/28/2009	#DIV/0!	
3/1/2009	#DIV/0!	
3/2/2009	#DIV/0!	
3/3/2009	#DIV/0!	
3/4/2009	3.25E+02	3.25E+02
3/5/2009	3.62E+02	3.62E+02
3/6/2009	3.12E+02	3.12E+02
3/7/2009	3.98E+02	3.98E+02
3/8/2009	3.69E+02	3.69E+02
3/9/2009	3.48E+02	3.48E+02
3/10/2009	2.68E+02	2.68E+02
3/11/2009	2.90E+02	2.90E+02
3/12/2009	4.70E+02	4.70E+02
3/13/2009	3.13E+02	3.13E+02
3/14/2009	4.99E+02	4.99E+02
3/15/2009	3.99E+02	3.99E+02
3/16/2009	2.78E+02	2.78E+02
3/17/2009	3.95E+02	3.95E+02
3/18/2009	3.72E+02	3.72E+02
3/19/2009	3.54E+02	3.54E+02
3/20/2009	3.47E+02	3.47E+02
3/21/2009	6.26E+02	6.26E+02
3/22/2009	4.17E+02	4.17E+02
3/23/2009	5.32E+02	5.32E+02
3/24/2009	5.01E+02	5.01E+02
3/25/2009	#DIV/0!	
3/26/2009	#DIV/0!	
3/27/2009	#DIV/0!	
3/28/2009	#DIV/0!	
3/29/2009	#DIV/0!	
3/30/2009	4.20E+02	4.20E+02
3/31/2009	6.08E+02	6.08E+02
4/1/2009	4.93E+02	4.93E+02
4/2/2009	4.14E+02	4.14E+02
4/3/2009	4.45E+02	4.45E+02
4/4/2009	4.86E+02	4.86E+02
4/5/2009	6.26E+02	6.26E+02
4/6/2009	4.82E+02	4.82E+02
4/7/2009	7.67E+02	7.67E+02
4/8/2009	7.65E+02	7.65E+02
4/9/2009	1.02E+03	1.02E+03
4/10/2009	#DIV/0!	
4/11/2009	#DIV/0!	
4/12/2009	#DIV/0!	
4/13/2009	#DIV/0!	
4/14/2009	#DIV/0!	
4/15/2009	#DIV/0!	
4/16/2009	#DIV/0!	
4/17/2009	#DIV/0!	
4/18/2009	4.80E+02	4.80E+02
4/19/2009	5.47E+02	5.47E+02
4/20/2009	5.25E+02	5.25E+02
4/21/2009	4.37E+02	4.37E+02
4/22/2009	4.79E+02	4.79E+02
4/23/2009	4.86E+02	4.86E+02
4/24/2009	3.28E+02	3.28E+02
4/25/2009	#DIV/0!	
4/26/2009	#DIV/0!	
4/27/2009	3.05E+02	3.05E+02
4/28/2009	1.44E+02	1.44E+02
4/29/2009	3.90E+02	3.90E+02
4/30/2009	3.87E+02	3.87E+02
5/1/2009	4.74E+02	4.74E+02
5/2/2009	4.85E+02	4.85E+02
5/3/2009	6.30E+02	6.30E+02
5/4/2009	4.03E+02	4.03E+02
5/5/2009	3.24E+02	3.24E+02
5/6/2009	3.35E+02	3.35E+02
5/7/2009	3.56E+02	3.56E+02
5/8/2009	4.84E+02	4.84E+02
5/9/2009	4.88E+02	4.88E+02
5/10/2009	4.21E+02	4.21E+02
5/11/2009	4.97E+02	4.97E+02
5/12/2009	4.79E+02	4.79E+02
5/13/2009	3.15E+02	3.15E+02
5/14/2009	3.71E+02	3.71E+02
5/15/2009	6.07E+02	6.07E+02
5/16/2009	#DIV/0!	
5/17/2009	#DIV/0!	
5/18/2009	2.98E+02	2.98E+02
5/19/2009	#DIV/0!	
5/20/2009	#DIV/0!	
5/21/2009	#DIV/0!	
5/22/2009	5.55E+02	5.55E+02
5/23/2009	7.19E+02	7.19E+02
5/24/2009	5.98E+02	5.98E+02
5/25/2009	#DIV/0!	
5/26/2009	#DIV/0!	
5/27/2009	7.52E+02	7.52E+02
5/28/2009	8.06E+02	8.06E+02
5/29/2009	7.20E+02	7.20E+02
5/30/2009	#DIV/0!	
5/31/2009	#DIV/0!	
6/1/2009	5.70E+02	5.70E+02
6/2/2009	3.88E+02	3.88E+02
6/3/2009	4.18E+02	4.18E+02
6/4/2009	3.24E+02	3.24E+02
6/5/2009	3.26E+02	3.26E+02
6/6/2009	4.63E+02	4.63E+02
6/7/2009	5.40E+02	5.40E+02
6/8/2009	4.66E+02	4.66E+02
6/9/2009	4.75E+02	4.75E+02
6/10/2009	5.40E+02	5.40E+02
6/11/2009	5.21E+02	5.21E+02
6/12/2009	3.75E+02	3.75E+02
6/13/2009	5.04E+02	5.04E+02
6/14/2009	5.00E+02	5.00E+02
6/15/2009	4.17E+02	4.17E+02
6/16/2009	2.68E+02	2.68E+02

Resins - Dispersion - Existing Area Sources - VC

6/17/2009	4.62E+02	4.62E+02
6/18/2009	4.90E+02	4.90E+02
6/19/2009	9.48E+02	9.48E+02
6/20/2009	#DIV/0!	
6/21/2009	#DIV/0!	
6/22/2009	5.77E+02	5.77E+02
6/23/2009	7.49E+02	7.49E+02
6/24/2009	5.95E+02	5.95E+02
6/25/2009	6.81E+02	6.81E+02
6/26/2009	5.70E+02	5.70E+02
6/27/2009	8.12E+02	8.12E+02
6/28/2009	#DIV/0!	
6/29/2009	3.60E+02	3.60E+02
6/30/2009	#DIV/0!	
7/1/2009	2.07E+02	2.07E+02
7/2/2009	3.77E+02	3.77E+02
7/3/2009	#DIV/0!	
7/4/2009	#DIV/0!	
7/5/2009	#DIV/0!	
7/6/2009	4.21E+02	4.21E+02
7/7/2009	5.31E+02	5.31E+02
7/8/2009	5.49E+02	5.49E+02
7/9/2009	6.04E+02	6.04E+02
7/10/2009	7.69E+02	7.69E+02
7/11/2009	5.41E+02	5.41E+02
7/12/2009	5.21E+02	5.21E+02
7/13/2009	3.98E+02	3.98E+02
7/14/2009	4.97E+02	4.97E+02
7/15/2009	5.66E+02	5.66E+02
7/16/2009	8.74E+02	8.74E+02
7/17/2009	4.59E+02	4.59E+02
7/18/2009	8.07E+02	8.07E+02
7/19/2009	2.56E+02	2.56E+02
7/20/2009	3.84E+02	3.84E+02
7/21/2009	3.49E+02	3.49E+02
7/22/2009	5.14E+02	5.14E+02
7/23/2009	3.25E+02	3.25E+02
7/24/2009	5.09E+02	5.09E+02
7/25/2009	3.85E+02	3.85E+02
7/26/2009	3.10E+02	3.10E+02
7/27/2009	2.52E+02	2.52E+02
7/28/2009	4.49E+02	4.49E+02
7/29/2009	4.04E+02	4.04E+02
7/30/2009	6.01E+02	6.01E+02
7/31/2009	3.48E+02	3.48E+02
8/1/2009	3.44E+02	3.44E+02
8/2/2009	6.31E+02	6.31E+02
8/3/2009	4.27E+02	4.27E+02
8/4/2009	4.39E+02	4.39E+02
8/5/2009	4.63E+02	4.63E+02
8/6/2009	3.50E+02	3.50E+02
8/7/2009	3.83E+02	3.83E+02
8/8/2009	4.38E+02	4.38E+02
8/9/2009	5.47E+02	5.47E+02
8/10/2009	6.41E+02	6.41E+02
8/11/2009	6.35E+02	6.35E+02
8/12/2009	6.90E+02	6.90E+02
8/13/2009	6.44E+02	6.44E+02
8/14/2009	5.84E+02	5.84E+02
8/15/2009	4.92E+02	4.92E+02
8/16/2009	7.17E+02	7.17E+02
8/17/2009	4.39E+02	4.39E+02
8/18/2009	4.48E+02	4.48E+02
8/19/2009	3.76E+02	3.76E+02
8/20/2009	2.79E+02	2.79E+02
8/21/2009	4.07E+02	4.07E+02
8/22/2009	4.06E+02	4.06E+02
8/23/2009	3.84E+02	3.84E+02
8/24/2009	3.57E+02	3.57E+02
8/25/2009	3.99E+02	3.99E+02
8/26/2009	4.17E+02	4.17E+02
8/27/2009	4.07E+02	4.07E+02
8/28/2009	4.18E+02	4.18E+02
8/29/2009	5.13E+02	5.13E+02
8/30/2009	6.27E+02	6.27E+02
8/31/2009	9.29E+02	9.29E+02
9/1/2009	7.20E+02	7.20E+02
9/2/2009	5.57E+02	5.57E+02
9/3/2009	6.03E+02	6.03E+02
9/4/2009	4.76E+02	4.76E+02
9/5/2009	4.99E+02	4.99E+02
9/6/2009	6.22E+02	6.22E+02
9/7/2009	8.02E+02	8.02E+02
9/8/2009	5.64E+02	5.64E+02
9/9/2009	5.53E+02	5.53E+02
9/10/2009	5.31E+02	5.31E+02
9/11/2009	6.37E+02	6.37E+02
9/12/2009	5.76E+02	5.76E+02
9/13/2009	5.98E+02	5.98E+02
9/14/2009	4.38E+02	4.38E+02
9/15/2009	5.50E+02	5.50E+02
9/16/2009	5.92E+02	5.92E+02
9/17/2009	3.55E+02	3.55E+02
9/18/2009	5.11E+02	5.11E+02
9/19/2009	3.71E+02	3.71E+02
9/20/2009	5.88E+02	5.88E+02
9/21/2009	5.73E+02	5.73E+02
9/22/2009	4.92E+02	4.92E+02
9/23/2009	3.23E+02	3.23E+02
9/24/2009	3.94E+02	3.94E+02
9/25/2009	3.60E+02	3.60E+02
9/26/2009	3.11E+02	3.11E+02
9/27/2009	4.24E+02	4.24E+02
9/28/2009	4.34E+02	4.34E+02
9/29/2009	4.73E+02	4.73E+02
9/30/2009	4.54E+02	4.54E+02
10/1/2009	5.03E+02	5.03E+02
10/2/2009	5.50E+02	5.50E+02
10/3/2009	6.22E+02	6.22E+02
10/4/2009	6.36E+02	6.36E+02
10/5/2009	5.05E+02	5.05E+02
10/6/2009	4.94E+02	4.94E+02
10/7/2009	4.90E+02	4.90E+02
10/8/2009	6.90E+02	6.90E+02
10/9/2009	4.76E+02	4.76E+02
10/10/2009	7.66E+02	7.66E+02
10/11/2009	1.36E+02	1.36E+02
10/12/2009	4.05E+02	4.05E+02
10/13/2009	5.64E+02	5.64E+02
10/14/2009	6.15E+02	6.15E+02
10/15/2009	4.01E+02	4.01E+02
10/16/2009	5.30E+02	5.30E+02
10/17/2009	6.91E+02	6.91E+02
10/18/2009	6.29E+02	6.29E+02
10/19/2009	7.84E+02	7.84E+02
10/20/2009	5.21E+02	5.21E+02
10/21/2009	4.05E+02	4.05E+02
10/22/2009	4.90E+02	4.90E+02
10/23/2009	4.65E+02	4.65E+02
10/24/2009	3.58E+02	3.58E+02

Resins - Dispersion - Existing Area Sources - VC

10/25/2009	6.58E+02	6.58E+02
10/26/2009	5.31E+02	5.31E+02
10/27/2009	5.32E+02	5.32E+02
10/28/2009	3.18E+02	3.18E+02
10/29/2009	8.04E+02	8.04E+02
10/30/2009	7.02E+02	7.02E+02
10/31/2009	1.99E+02	1.99E+02
11/1/2009	5.35E+02	5.35E+02
11/2/2009	5.41E+02	5.41E+02
11/3/2009	3.46E+02	3.46E+02
11/4/2009	6.33E+02	6.33E+02
11/5/2009	4.69E+02	4.69E+02
11/6/2009	4.34E+02	4.34E+02
11/7/2009	5.16E+02	5.16E+02
11/8/2009	5.86E+02	5.86E+02
11/9/2009	4.05E+02	4.05E+02
11/10/2009	4.61E+02	4.61E+02
11/11/2009	5.98E+02	5.98E+02
11/12/2009	1.03E+03	1.03E+03
11/13/2009	5.81E+02	5.81E+02
11/14/2009	4.40E+02	4.40E+02
11/15/2009	5.02E+02	5.02E+02
11/16/2009	3.74E+02	3.74E+02
11/17/2009	4.57E+02	4.57E+02
11/18/2009	4.35E+02	4.35E+02
11/19/2009	2.66E+02	2.66E+02
11/20/2009	7.69E+02	7.69E+02
11/21/2009	8.37E+02	8.37E+02
11/22/2009	1.20E+03	1.20E+03
11/23/2009	7.45E+02	7.45E+02
11/24/2009	8.53E+02	8.53E+02
11/25/2009	6.44E+02	6.44E+02
11/26/2009	1.22E+03	1.22E+03
11/27/2009	8.09E+02	8.09E+02
11/28/2009	2.21E+02	2.21E+02
11/29/2009	3.24E+02	3.24E+02
11/30/2009	3.29E+02	3.29E+02
12/1/2009	3.28E+02	3.28E+02
12/2/2009	2.28E+02	2.28E+02
12/3/2009	5.20E+02	5.20E+02
12/4/2009	5.21E+02	5.21E+02
12/5/2009	4.67E+02	4.67E+02
12/6/2009	7.20E+02	7.20E+02
12/7/2009	6.73E+02	6.73E+02
12/8/2009	5.32E+02	5.32E+02
12/9/2009	6.78E+02	6.78E+02
12/10/2009	4.21E+02	4.21E+02
12/11/2009	5.48E+02	5.48E+02
12/12/2009	4.77E+02	4.77E+02
12/13/2009	4.26E+02	4.26E+02
12/14/2009	5.38E+02	5.38E+02
12/15/2009	5.65E+02	5.65E+02
12/16/2009	4.54E+02	4.54E+02
12/17/2009	5.09E+02	5.09E+02
12/18/2009	4.00E+02	4.00E+02
12/19/2009	8.22E+02	8.22E+02
12/20/2009	6.02E+02	6.02E+02
12/21/2009	1.12E+03	1.12E+03
12/22/2009	#DIV/0!	
12/23/2009	1.20E+03	1.20E+03
12/24/2009	5.31E+02	5.31E+02
12/25/2009	1.03E+03	1.03E+03
12/26/2009	1.04E+03	1.04E+03
12/27/2009	6.80E+02	6.80E+02
12/28/2009	5.70E+02	5.70E+02
12/29/2009	8.68E+02	8.68E+02
12/30/2009	8.53E+02	8.53E+02
12/31/2009	6.44E+02	6.44E+02
1/1/2010	3.06E+02	3.06E+02
1/2/2010	3.73E+02	3.73E+02
1/3/2010	6.43E+02	6.43E+02
1/4/2010	3.11E+02	3.11E+02
1/5/2010	2.38E+02	2.38E+02
1/6/2010	2.00E+02	2.00E+02
1/7/2010	4.52E+02	4.52E+02
1/8/2010	3.09E+02	3.09E+02
1/9/2010	5.93E+02	5.93E+02
1/10/2010	7.19E+02	7.19E+02
1/11/2010	3.41E+02	3.41E+02
1/12/2010	3.84E+02	3.84E+02
1/13/2010	5.17E+02	5.17E+02
1/14/2010	3.72E+02	3.72E+02
1/15/2010	3.94E+02	3.94E+02
1/16/2010	6.61E+02	6.61E+02
1/17/2010	7.40E+02	7.40E+02
1/18/2010	5.47E+02	5.47E+02
1/19/2010	1.25E+03	1.25E+03
1/20/2010	9.25E+02	9.25E+02
1/21/2010	8.20E+02	8.20E+02
1/22/2010	1.16E+03	1.16E+03
1/23/2010	7.71E+02	7.71E+02
1/24/2010	7.29E+02	7.29E+02
1/25/2010	4.45E+02	4.45E+02
1/26/2010	7.39E+02	7.39E+02
1/27/2010	5.20E+02	5.20E+02
1/28/2010	8.92E+02	8.92E+02
1/29/2010	5.87E+02	5.87E+02
1/30/2010	9.63E+02	9.63E+02
1/31/2010	8.73E+02	8.73E+02
2/1/2010	5.00E+02	5.00E+02
2/2/2010	5.81E+02	5.81E+02
2/3/2010	8.23E+02	8.23E+02
2/4/2010	5.82E+02	5.82E+02
2/5/2010	6.52E+02	6.52E+02
2/6/2010	5.59E+02	5.59E+02
2/7/2010	5.88E+02	5.88E+02
2/8/2010	6.05E+02	6.05E+02
2/9/2010	8.39E+02	8.39E+02
2/10/2010	5.85E+02	5.85E+02
2/11/2010	6.38E+02	6.38E+02
2/12/2010	6.98E+02	6.98E+02
2/13/2010	2.79E+02	2.79E+02
2/14/2010	3.04E+02	3.04E+02
2/15/2010	7.45E+02	7.45E+02
2/16/2010	4.84E+02	4.84E+02
2/17/2010	5.36E+02	5.36E+02
2/18/2010	3.94E+02	3.94E+02
2/19/2010	5.14E+02	5.14E+02
2/20/2010	3.69E+02	3.69E+02
2/21/2010	1.87E+02	1.87E+02
2/22/2010	2.83E+02	2.83E+02
2/23/2010	3.78E+02	3.78E+02
2/24/2010	1.71E+02	1.71E+02
2/25/2010	2.27E+02	2.27E+02
2/26/2010	3.27E+02	3.27E+02
2/27/2010	2.38E+02	2.38E+02
2/28/2010	2.15E+02	2.15E+02
3/1/2010	6.60E+02	6.60E+02
3/2/2010	6.31E+02	6.31E+02
3/3/2010	6.76E+02	6.76E+02

Resins - Dispersion - Existing Area Sources - VC

3/4/2010	#DIV/0!	
3/5/2010	8.09E+02	8.09E+02
3/6/2010	6.53E+02	6.53E+02
3/7/2010	7.38E+02	7.38E+02
3/8/2010	5.90E+02	5.90E+02
3/9/2010	7.42E+02	7.42E+02
3/10/2010	6.28E+02	6.28E+02
3/11/2010	7.31E+02	7.31E+02
3/12/2010	6.39E+02	6.39E+02
3/13/2010	5.68E+02	5.68E+02
3/14/2010	5.89E+02	5.89E+02
3/15/2010	6.98E+02	6.98E+02
3/16/2010	8.18E+02	8.18E+02
3/17/2010	4.74E+02	4.74E+02
3/18/2010	4.72E+02	4.72E+02
3/19/2010	5.76E+02	5.76E+02
3/20/2010	4.92E+02	4.92E+02
3/21/2010	4.25E+02	4.25E+02
3/22/2010	4.43E+02	4.43E+02
3/23/2010	4.15E+02	4.15E+02
3/24/2010	5.52E+02	5.52E+02
3/25/2010	5.52E+02	5.52E+02
3/26/2010	5.67E+02	5.67E+02
3/27/2010	7.52E+02	7.52E+02
3/28/2010	4.65E+02	4.65E+02
3/29/2010	4.09E+02	4.09E+02
3/30/2010	3.08E+02	3.08E+02
3/31/2010	6.06E+02	6.06E+02
4/1/2010	1.02E+03	1.02E+03
4/2/2010	1.56E+02	1.56E+02
4/3/2010	3.49E+02	3.49E+02
4/4/2010	3.48E+02	3.48E+02
4/5/2010	3.18E+02	3.18E+02
4/6/2010	4.50E+02	4.50E+02
4/7/2010	2.59E+02	2.59E+02
4/8/2010	3.18E+02	3.18E+02
4/9/2010	3.10E+02	3.10E+02
4/10/2010	4.20E+02	4.20E+02
4/11/2010	3.73E+02	3.73E+02
4/12/2010	4.58E+02	4.58E+02
4/13/2010	4.02E+02	4.02E+02
4/14/2010	7.34E+02	7.34E+02
4/15/2010	4.74E+02	4.74E+02
4/16/2010	8.19E+02	8.19E+02
4/17/2010	4.81E+02	4.81E+02
4/18/2010	6.83E+02	6.83E+02
4/19/2010	3.27E+02	3.27E+02
4/20/2010	5.94E+02	5.94E+02
4/21/2010	5.57E+02	5.57E+02
4/22/2010	4.97E+02	4.97E+02
4/23/2010	6.07E+02	6.07E+02
4/24/2010	5.49E+02	5.49E+02
4/25/2010	8.99E+02	8.99E+02
4/26/2010	6.72E+02	6.72E+02
4/27/2010	7.47E+02	7.47E+02
4/28/2010	6.60E+02	6.60E+02
4/29/2010	4.61E+02	4.61E+02
4/30/2010	5.16E+02	5.16E+02
5/1/2010	7.37E+02	7.37E+02
5/2/2010	6.32E+02	6.32E+02
5/3/2010	7.05E+02	7.05E+02
5/4/2010	6.66E+02	6.66E+02
5/5/2010	6.50E+02	6.50E+02
5/6/2010	3.50E+02	3.50E+02
5/7/2010	4.16E+02	4.16E+02
5/8/2010	4.51E+02	4.51E+02
5/9/2010	3.92E+02	3.92E+02
5/10/2010	3.83E+02	3.83E+02
5/11/2010	4.16E+02	4.16E+02
5/12/2010	3.16E+02	3.16E+02
5/13/2010	1.92E+02	1.92E+02
5/14/2010	3.98E+02	3.98E+02
5/15/2010	5.77E+02	5.77E+02
5/16/2010	5.33E+02	5.33E+02
5/17/2010	4.74E+02	4.74E+02
5/18/2010	8.19E+02	8.19E+02
5/19/2010	7.77E+02	7.77E+02
5/20/2010	4.49E+02	4.49E+02
5/21/2010	3.36E+02	3.36E+02
5/22/2010	4.18E+02	4.18E+02
5/23/2010	3.81E+02	3.81E+02
5/24/2010	7.21E+02	7.21E+02
5/25/2010	6.85E+02	6.85E+02
5/26/2010	7.63E+02	7.63E+02
5/27/2010	7.58E+02	7.58E+02
5/28/2010	6.87E+02	6.87E+02
5/29/2010	6.35E+02	6.35E+02
5/30/2010	9.25E+02	9.25E+02
5/31/2010	2.16E+02	2.16E+02
6/1/2010	2.49E+02	2.49E+02
6/2/2010	1.00E+02	1.00E+02
6/3/2010	3.47E+02	3.47E+02
6/4/2010	6.84E+02	6.84E+02
6/5/2010	4.64E+02	4.64E+02
6/6/2010	4.54E+02	4.54E+02
6/7/2010	2.88E+02	2.88E+02
6/8/2010	3.48E+02	3.48E+02
6/9/2010	3.05E+02	3.05E+02
6/10/2010	3.40E+02	3.40E+02
6/11/2010	3.40E+02	3.40E+02
6/12/2010	3.30E+02	3.30E+02
6/13/2010	3.50E+02	3.50E+02
6/14/2010	3.65E+02	3.65E+02
6/15/2010	4.14E+02	4.14E+02
6/16/2010	5.84E+02	5.84E+02
6/17/2010	4.72E+02	4.72E+02
6/18/2010	5.38E+02	5.38E+02
6/19/2010	4.95E+02	4.95E+02
6/20/2010	5.28E+02	5.28E+02
6/21/2010	4.41E+02	4.41E+02
6/22/2010	5.04E+02	5.04E+02
6/23/2010	5.23E+02	5.23E+02
6/24/2010	4.16E+02	4.16E+02
6/25/2010	5.15E+02	5.15E+02
6/26/2010	4.66E+02	4.66E+02
6/27/2010	5.11E+02	5.11E+02
6/28/2010	3.54E+02	3.54E+02
6/29/2010	5.11E+02	5.11E+02
6/30/2010	4.22E+02	4.22E+02
7/1/2010	5.62E+02	5.62E+02
7/2/2010	7.45E+02	7.45E+02
7/3/2010	6.61E+02	6.61E+02
7/4/2010	5.99E+02	5.99E+02
7/5/2010	4.99E+02	4.99E+02
7/6/2010	7.77E+02	7.77E+02
7/7/2010	4.05E+02	4.05E+02
7/8/2010	6.28E+02	6.28E+02
7/9/2010	7.22E+02	7.22E+02
7/10/2010	6.44E+02	6.44E+02
7/11/2010	5.27E+02	5.27E+02

Resins - Dispersion - Existing Area Sources - VC

7/12/2010	4.55E+02	4.55E+02
7/13/2010	5.05E+02	5.05E+02
7/14/2010	4.19E+02	4.19E+02
7/15/2010	5.48E+02	5.48E+02
7/16/2010	4.64E+02	4.64E+02
7/17/2010	5.38E+02	5.38E+02
7/18/2010	3.85E+02	3.85E+02
7/19/2010	4.21E+02	4.21E+02
7/20/2010	5.63E+02	5.63E+02
7/21/2010	5.58E+02	5.58E+02
7/22/2010	5.88E+02	5.88E+02
7/23/2010	5.87E+02	5.87E+02
7/24/2010	6.73E+02	6.73E+02
7/25/2010	4.07E+02	4.07E+02
7/26/2010	1.00E+03	1.00E+03
7/27/2010	6.35E+02	6.35E+02
7/28/2010	5.26E+02	5.26E+02
7/29/2010	4.39E+02	4.39E+02
7/30/2010	5.99E+02	5.99E+02
7/31/2010	3.87E+02	3.87E+02
8/1/2010	4.48E+02	4.48E+02
8/2/2010	4.39E+02	4.39E+02
8/3/2010	3.70E+02	3.70E+02
8/4/2010	3.92E+02	3.92E+02
8/5/2010	4.25E+02	4.25E+02
8/6/2010	4.10E+02	4.10E+02
8/7/2010	3.99E+02	3.99E+02
8/8/2010	6.43E+02	6.43E+02
8/9/2010	7.73E+02	7.73E+02
8/10/2010	7.36E+02	7.36E+02
8/11/2010	7.79E+02	7.79E+02
8/12/2010	7.10E+02	7.10E+02
8/13/2010	6.69E+02	6.69E+02
8/14/2010	8.29E+02	8.29E+02
8/15/2010	1.44E+03	1.44E+03
8/16/2010	7.36E+02	7.36E+02
8/17/2010	8.86E+02	8.86E+02
8/18/2010	5.97E+02	5.97E+02
8/19/2010	4.84E+02	4.84E+02
8/20/2010	7.84E+02	7.84E+02
8/21/2010	7.05E+02	7.05E+02
8/22/2010	6.88E+02	6.88E+02
8/23/2010	5.87E+02	5.87E+02
8/24/2010	5.67E+02	5.67E+02
8/25/2010	6.86E+02	6.86E+02
8/26/2010	6.44E+02	6.44E+02
8/27/2010	5.79E+02	5.79E+02
8/28/2010	5.80E+02	5.80E+02
8/29/2010	5.79E+02	5.79E+02
8/30/2010	3.75E+02	3.75E+02
8/31/2010	3.00E+02	3.00E+02
9/1/2010	3.43E+02	3.43E+02
9/2/2010	3.52E+02	3.52E+02
9/3/2010	6.15E+02	6.15E+02
9/4/2010	5.74E+02	5.74E+02
9/5/2010	6.76E+02	6.76E+02
9/6/2010	5.60E+02	5.60E+02
9/7/2010	4.97E+02	4.97E+02
9/8/2010	5.75E+02	5.75E+02
9/9/2010	4.96E+02	4.96E+02
9/10/2010	4.87E+02	4.87E+02
9/11/2010	8.80E+02	8.80E+02
9/12/2010	9.69E+02	9.69E+02
9/13/2010	5.18E+02	5.18E+02
9/14/2010	4.56E+02	4.56E+02
9/15/2010	7.16E+02	7.16E+02
9/16/2010	5.36E+02	5.36E+02
9/17/2010	2.30E+02	2.30E+02
9/18/2010	2.83E+02	2.83E+02
9/19/2010	2.61E+02	2.61E+02
9/20/2010	3.52E+02	3.52E+02
9/21/2010	2.82E+02	2.82E+02
9/22/2010	3.18E+02	3.18E+02
9/23/2010	3.67E+02	3.67E+02
9/24/2010	5.19E+02	5.19E+02
9/25/2010	4.50E+02	4.50E+02
9/26/2010	3.92E+02	3.92E+02
9/27/2010	2.99E+02	2.99E+02
9/28/2010	3.17E+02	3.17E+02
9/29/2010	2.44E+02	2.44E+02
9/30/2010	5.66E+02	5.66E+02
10/1/2010	4.51E+02	4.51E+02
10/2/2010	5.40E+02	5.40E+02
10/3/2010	4.66E+02	4.66E+02
10/4/2010	3.19E+02	3.19E+02
10/5/2010	2.84E+02	2.84E+02
10/6/2010	5.19E+02	5.19E+02
10/7/2010	3.37E+02	3.37E+02
10/8/2010	4.10E+02	4.10E+02
10/9/2010	3.83E+02	3.83E+02
10/10/2010	#DIV/0!	
10/11/2010	4.58E+02	4.58E+02
10/12/2010	4.43E+02	4.43E+02
10/13/2010	3.78E+02	3.78E+02
10/14/2010	8.01E+02	8.01E+02
10/15/2010	5.98E+02	5.98E+02
10/16/2010	6.41E+02	6.41E+02
10/17/2010	7.28E+02	7.28E+02
10/18/2010	5.36E+02	5.36E+02
10/19/2010	5.40E+02	5.40E+02
10/20/2010	5.14E+02	5.14E+02
10/21/2010	6.55E+02	6.55E+02
10/22/2010	4.52E+02	4.52E+02
10/23/2010	4.11E+02	4.11E+02
10/24/2010	2.93E+02	2.93E+02
10/25/2010	3.02E+02	3.02E+02
10/26/2010	3.01E+02	3.01E+02
10/27/2010	5.13E+02	5.13E+02
10/28/2010	4.05E+02	4.05E+02
10/29/2010	4.15E+02	4.15E+02
10/30/2010	8.78E+02	8.78E+02
10/31/2010	4.38E+02	4.38E+02
11/1/2010	6.52E+02	6.52E+02
11/2/2010	5.56E+02	5.56E+02
11/3/2010	5.57E+02	5.57E+02
11/4/2010	5.08E+02	5.08E+02
11/5/2010	4.92E+02	4.92E+02
11/6/2010	6.26E+02	6.26E+02
11/7/2010	5.99E+02	5.99E+02
11/8/2010	8.67E+02	8.67E+02
11/9/2010	3.65E+02	3.65E+02
11/10/2010	4.70E+02	4.70E+02
11/11/2010	1.40E+03	1.40E+03
11/12/2010	4.61E+02	4.61E+02
11/13/2010	5.15E+02	5.15E+02
11/14/2010	4.99E+02	4.99E+02
11/15/2010	5.21E+02	5.21E+02
11/16/2010	4.62E+02	4.62E+02
11/17/2010	3.45E+02	3.45E+02
11/18/2010	3.89E+02	3.89E+02

Resins - Dispersion - Existing Area Sources - VC

	11/19/2010	2.25E+02	2.25E+02
	11/20/2010	3.77E+02	3.77E+02
	11/21/2010	4.81E+02	4.81E+02
	11/22/2010	5.27E+02	5.27E+02
	11/23/2010	5.39E+02	5.39E+02
	11/24/2010	3.74E+02	3.74E+02
	11/25/2010	4.56E+02	4.56E+02
	11/26/2010	5.46E+02	5.46E+02
	11/27/2010	5.20E+02	5.20E+02
	11/28/2010	5.69E+02	5.69E+02
	11/29/2010	6.50E+02	6.50E+02
	11/30/2010	4.88E+02	4.88E+02
	12/1/2010	5.70E+02	5.70E+02
	12/2/2010	6.69E+02	6.69E+02
	12/3/2010	6.67E+02	6.67E+02
	12/4/2010	6.14E+02	6.14E+02
	12/5/2010	5.29E+02	5.29E+02
	12/6/2010	9.22E+02	9.22E+02
	12/7/2010	1.61E+03	1.61E+03
	12/8/2010	4.80E+02	4.80E+02
	12/9/2010	5.66E+02	5.66E+02
	12/10/2010	5.23E+02	5.23E+02
	12/11/2010	5.61E+02	5.61E+02
	12/12/2010	4.53E+02	4.53E+02
	12/13/2010	5.76E+02	5.76E+02
	12/14/2010	6.07E+02	6.07E+02
	12/15/2010	5.44E+02	5.44E+02
	12/16/2010	3.97E+02	3.97E+02
	12/17/2010	3.57E+02	3.57E+02
	12/18/2010	4.70E+02	4.70E+02
	12/19/2010	5.37E+02	5.37E+02
	12/20/2010	4.35E+02	4.35E+02
	12/21/2010	4.20E+02	4.20E+02
	12/22/2010	3.34E+02	3.34E+02
	12/23/2010	3.80E+02	3.80E+02
	12/24/2010	9.17E+02	9.17E+02
	12/25/2010	8.10E+02	8.10E+02
	12/26/2010	7.58E+02	7.58E+02
	12/27/2010	5.59E+02	5.59E+02
	12/28/2010	7.55E+02	7.55E+02
	12/29/2010	8.63E+02	8.63E+02
	12/30/2010	1.08E+03	1.08E+03
	12/31/2010	#DIV/0!	

Resins - Dispersion - Existing Area Sources - Total Non-VC HAP

GACT Worst Performer Determination

Method	Method 8260B
Resin Type	Dispersion
HAP (0=no, 1=yes)	1
Wet Resin From Stripper Bottoms Exclude Data (0=no,	0

Average of Wet Resin from Stripper Bottoms, ppm		Analyte_Std								
Reporting Plant	Sample Date	Acetaldehyde	Acetophenone	Cumene	Ethyl Chloride	Ethylene Dichloride	Ethylidene Dichloride	Formaldehyde	Methanol	Methyl Chloride
FPC DE	1/12/2010	1.06E+01			6.25E+00	7.87E-01		2.46E-01	1.10E+01	2.20E-01
	1/13/2010	9.29E+00			1.01E+01	1.15E+00		7.09E-01	5.90E+00	3.64E-01
	1/14/2010	1.16E+01			5.81E+00	1.03E+00		4.55E-01	1.10E+01	2.13E-01
	1/15/2010	6.69E+00			6.10E+00	6.82E-01		1.40E-01	1.20E+01	2.40E-01
	1/16/2010	1.29E+01			1.02E+01	6.47E-01		2.13E-01	1.20E-01	1.30E-01
	1/17/2010	2.38E+01			1.44E+01	5.69E-01		2.77E-01	1.20E-01	2.50E-01
	1/18/2010	1.41E+01			1.24E+01	5.94E-01		1.40E-01	5.90E+00	2.50E-01
	1/19/2010	1.69E+01			4.38E+00	3.61E-01		1.40E-01	9.80E+00	1.60E-01
	1/20/2010	1.28E+01			1.63E+01	8.86E-01		1.49E-01	9.10E+00	2.20E-01
	1/29/2010	4.70E+01			1.96E+01	1.12E+00		3.74E-01	1.00E+01	8.49E-01
	1/30/2010	3.62E+01			7.29E+00	4.48E-01		1.50E-01	1.00E+01	2.80E-01
	1/31/2010	3.18E+01			4.30E+00	2.72E-01		1.83E-01	1.30E+01	2.30E-01
	2/1/2010	1.14E+01			6.36E+00	3.82E-01		1.40E-01	5.80E+00	2.93E-01
	2/2/2010	4.00E+00			1.12E+01	1.35E+00		6.90E-01	1.80E-01	2.20E-01
	2/3/2010	2.53E+00			1.03E+01	1.35E+00		6.80E-01	1.10E-01	4.20E-01
	2/4/2010	2.68E+00			8.99E+00	1.35E+00		6.80E-01	1.10E-01	2.10E-01
	2/6/2010	5.32E+00			9.72E+00	1.14E+00		3.90E-01	1.10E+00	2.20E-01
	2/7/2010	3.84E+00			9.04E+00	1.20E+00		3.61E-01	1.10E+00	5.80E-01
	2/10/2010	1.43E+00			8.09E+00	4.75E-01		3.43E-01	1.20E+00	1.20E-01
	2/11/2010	2.26E+00			1.46E+01	7.15E-01		5.44E-01	1.20E+00	2.30E-01
	2/13/2010	5.18E-01			6.33E+00	4.44E-01		1.40E-01	1.20E+00	1.20E-01
P1-Henry	12/9/2009			6.60E+00	1.30E+01	6.60E+00	6.60E+00			1.30E+01
	12/10/2009			3.70E+00	7.40E+00	3.70E+00	3.70E+00			7.40E+00
	12/11/2009			1.40E+00	2.80E+00	1.40E+00	1.40E+00			2.80E+00
	12/12/2009			1.80E+00	3.50E+00	1.80E+00	1.80E+00			3.50E+00
	12/13/2009			1.80E+00	3.50E+00	1.80E+00	1.80E+00			3.50E+00
	12/14/2009			1.70E-01	3.50E-01	1.70E-01	1.70E-01			3.50E-01
	12/15/2009			1.80E+00	3.60E+00	1.80E+00	1.80E+00			3.60E+00
	12/16/2009			1.60E+00	3.20E+00	1.60E+00	1.60E+00			3.20E+00
	12/17/2009			1.90E-01	3.80E-01	1.90E-01	1.90E-01			3.80E-01
	12/18/2009			4.40E+00	8.80E+00	4.40E+00	4.40E+00			8.80E+00
	12/19/2009			2.70E+00	5.50E+00	2.70E+00	2.70E+00			5.50E+00
	12/20/2009			5.20E+00	1.00E+01	5.20E+00	5.20E+00			1.00E+01
	1/5/2010			8.10E+00	8.10E+00	8.10E+00	8.10E+00			1.60E+01
	1/6/2010			3.40E+00	3.40E+00	3.40E+00	3.40E+00			6.80E+00
	1/7/2010			3.60E+00	3.60E+00	3.60E+00	3.60E+00			7.10E+00
	1/8/2010			6.40E+00	6.40E+00	6.40E+00	6.40E+00			1.30E+01
	1/9/2010			5.40E+00	5.40E+00	5.40E+00	5.40E+00			1.10E+01
	1/10/2010			3.70E+00	3.70E+00	3.70E+00	3.70E+00			7.40E+00
	1/11/2010			4.20E+00	4.20E+00	4.20E+00	4.20E+00			8.50E+00
	1/12/2010			4.20E+00	4.20E+00	4.20E+00	4.20E+00			8.30E+00
	1/13/2010			5.10E+00	5.10E+00	5.10E+00	5.10E+00			1.00E+01
	1/14/2010			4.90E+00	4.90E+00	4.90E+00	4.90E+00			9.80E+00
	1/15/2010			5.10E+00	5.10E+00	5.10E+00	5.10E+00			1.00E+01
	1/16/2010			3.30E+00	3.30E+00	3.30E+00	3.30E+00			6.70E+00
	1/17/2010			1.10E+01	1.10E+01	1.10E+01	1.10E+01			2.20E+01
	1/18/2010			1.10E+01	1.10E+01	1.10E+01	1.10E+01			2.30E+01
	1/19/2010			4.60E+00	4.60E+00	4.60E+00	4.60E+00			9.20E+00
	1/20/2010			3.80E+00	3.80E+00	3.80E+00	3.80E+00			7.60E+00
	1/21/2010			1.70E+00	1.70E+00	1.70E+00	1.70E+00			3.30E+00
	1/22/2010			5.30E+00	5.30E+00	5.30E+00	5.30E+00			1.10E+01
P1-Ptown	12/2/2009	6.00E-02	1.10E+00	2.00E-01	6.40E+00	1.42E-01	5.50E-02	4.73E-01	1.57E+01	7.73E-01
	12/3/2009	6.00E-02	2.30E+00	2.10E-01	6.30E+00	1.40E-01	5.50E-02	5.23E-01	1.11E+01	6.43E-01
	12/4/2009	9.56E-02	1.10E+00	2.10E-01	1.74E+01	2.38E-01	7.54E-02	6.36E-01	1.22E+01	9.66E-01
	12/5/2009	4.70E-02	1.80E+00	1.60E-01	3.68E+00	2.07E-01	9.22E-02	1.56E-01	4.80E-02	5.00E-02
	12/6/2009	2.67E-01	2.75E+01	6.74E-01	3.68E+01	4.42E-01	1.10E-01	3.95E-01	3.10E+00	4.42E+00
	12/7/2009	5.52E-01	2.20E+00	9.32E-01	5.43E+01	7.56E-01	2.13E-01	3.41E-01	2.02E+02	5.55E+00
	12/8/2009	2.64E-01	2.30E+00	4.00E-01	2.10E+01	4.72E-01	1.22E-01	6.31E-01	2.85E+01	1.16E+00
	12/9/2009	3.42E-01	2.30E+00	3.70E-01	2.84E+01	6.01E-01	1.29E-01	5.10E-01	5.80E+00	3.20E+00
	12/10/2009	4.14E-01	2.30E+00	7.70E-01	3.94E+01	5.17E-01	2.00E-01	3.89E-01	6.30E+00	5.45E+00
	12/11/2009	4.82E-01	1.59E+01	1.81E+00	5.44E+01	8.29E-01	1.30E-01	3.43E-01	1.20E+01	3.41E+00
	12/12/2009									
	12/13/2009	4.20E-01	2.20E+00	4.00E-01	4.73E+01	5.95E-01	1.10E-01	3.81E-01	1.30E+01	4.10E+00
	12/14/2009	1.09E-01	2.30E+00	7.40E-01	4.16E+01	9.54E-01	2.00E-01	1.50E-01	3.10E+00	2.10E+00
	12/15/2009	4.34E-01	2.30E+00	7.40E-01	1.55E+01	9.73E-01	2.00E-01	1.72E-01	1.20E+01	2.40E-01
	12/16/2009	1.30E+00	2.30E+00	2.10E-01	3.62E+01	5.10E-01	6.91E-02	5.02E-01	1.20E+01	3.58E+00
	12/17/2009	2.93E-01	2.20E+00	2.00E-01	1.82E+01	3.60E-01	5.30E-02	3.87E-01	1.30E+01	6.70E-01
	12/18/2009	3.62E-01	2.30E+00	4.10E-01	5.17E+01	6.31E-01	1.10E-01	3.21E-01	1.20E+01	5.32E+00
	1/4/2010	6.19E-01	2.30E+00	8.60E-01	5.91E+01	9.65E-01	2.30E-01	5.11E-01	2.71E+01	4.71E+00
	1/5/2010	8.34E-01	2.30E+00	7.40E-01	3.79E+01	4.90E-01	2.00E-01	6.16E-01	3.75E+01	3.13E+00
	1/6/2010	1.09E+00	2.30E+00	2.20E+00	6.57E+01	1.40E+00	5.70E-01	6.32E-01	1.07E+01	5.40E+00
	1/7/2010	8.36E-01	2.30E+00	4.10E-01	1.66E+01	3.27E-01	1.10E-01	1.18E+00	8.11E+00	6.95E-01
	1/8/2010	1.00E+00	2.20E+00	3.50E-01	3.75E+01	2.30E-01	9.30E-02	3.98E-01	7.84E+00	3.67E+00
	1/9/2010	9.37E-01	2.20E+00	8.10E-01	4.47E+01	5.40E-01	2.10E-01	9.03E-01	2.57E+01	4.53E+00
	1/10/2010									
	1/11/2010	1.84E+00	2.30E+00	5.41E-01	8.16E+01	1.21E+00	1.40E-01	7.38E-01	6.10E+00	5.92E+00
	1/12/2010	3.51E+00	4.64E+01	8.53E-01	4.53E+01	5.85E-01	2.00E-01	2.71E+00	6.10E+00	1.76E+00
	1/13/2010	1.06E+00	2.40E-01	2.20E-01	2.72E+01	3.16E-01	5.90E-02	7.83E-01	6.30E-01	5.89E+00
	1/14/2010	7.23E-01	2.30E+00	8.26E-01	1.79E+01	4.36E-01	1.00E-01	6.90E-01	1.20E+01	1.97E+00
	1/15/2010	7.49E-01	2.30E+00	3.70E-01	2.64E+01	7.25E-01	1.00E-01	6.11E-01	1.20E+01	2.38E+00
	1/16/2010		2.20E-01	1.40E+00	1.12E+02	9.50E-01	3.80E-01		1.20E+01	1.95E+01

ATTACHMENT D- RESINS ANALYSIS

02/09/2012

ATTACHMENT D- RESINS ANALYSIS

02/09/2012

Resins - Dispersion - Existing Area Sources - Total Non-VC HAP

Facility	Average of Total HAP	Rank
P1-Henry	2.63E+01	1
FPC DE	2.90E+01	2
P1-Ptown	6.47E+01	3

ATTACHMENT D- RESINS ANALYSIS

02/09/2012

Resins - Dispersion - Existing Area Sources - Total Non-VC HAP

GACT Limit Data
New Sources

Method	Method 8260B
Resin Type	Dispersion
HAP (0=no, 1=yes)	1
Wet Resin From Stripper Bottoms Exclude Data (0=no,	0

Average of Wet Resin from Stripper Bottoms, ppm			Analyte_Std								
Reporting Plant	Sample Date	BDL (0=no, 1=yes)	Acetaldehyde	Acetophenone	Cumene	Ethyl Chloride	Ethylene Dichloride	Ethylidene Dichloride	Formaldehyde	Methanol	Methyl Chloride
P1-Ptown	12/2/2009	0				6.40E+00	1.42E-01		4.73E-01	1.57E+01	7.73E-01
		1	6.00E-02	1.10E+00	2.00E-01			5.50E-02			
	12/2/2009 Total		6.00E-02	1.10E+00	2.00E-01	6.40E+00	1.42E-01	5.50E-02	4.73E-01	1.57E+01	7.73E-01
	12/3/2009	0				6.30E+00			5.23E-01	1.11E+01	6.43E-01
		1	6.00E-02	2.30E+00	2.10E-01		1.40E-01	5.50E-02			
	12/3/2009 Total		6.00E-02	2.30E+00	2.10E-01	6.30E+00	1.40E-01	5.50E-02	5.23E-01	1.11E+01	6.43E-01
	12/4/2009	0	9.56E-02			1.74E+01	2.38E-01	7.54E-02	6.36E-01	1.22E+01	9.66E-01
		1		1.10E+00	2.10E-01						
	12/4/2009 Total		9.56E-02	1.10E+00	2.10E-01	1.74E+01	2.38E-01	7.54E-02	6.36E-01	1.22E+01	9.66E-01
	12/5/2009	0				3.68E+00	2.07E-01	9.22E-02	1.56E-01		
		1	4.70E-02	1.80E+00	1.60E-01					4.80E-02	5.00E-02
	12/5/2009 Total		4.70E-02	1.80E+00	1.60E-01	3.68E+00	2.07E-01	9.22E-02	1.56E-01	4.80E-02	5.00E-02
	12/6/2009	0	2.67E-01	2.75E+01	6.74E-01	3.68E+01	4.42E-01		3.95E-01		4.42E+00
		1						1.10E-01		3.10E+00	
	12/6/2009 Total		2.67E-01	2.75E+01	6.74E-01	3.68E+01	4.42E-01	1.10E-01	3.95E-01	3.10E+00	4.42E+00
	12/7/2009	0	5.52E-01		9.32E-01	5.43E+01	7.56E-01	2.13E-01	3.41E-01	2.02E+02	5.55E+00
		1		2.20E+00							
	12/7/2009 Total		5.52E-01	2.20E+00	9.32E-01	5.43E+01	7.56E-01	2.13E-01	3.41E-01	2.02E+02	5.55E+00
	12/8/2009	0	2.64E-01			2.10E+01	4.72E-01	1.22E-01	6.31E-01	2.85E+01	1.16E+00
		1		2.30E+00	4.00E-01						
	12/8/2009 Total		2.64E-01	2.30E+00	4.00E-01	2.10E+01	4.72E-01	1.22E-01	6.31E-01	2.85E+01	1.16E+00
	12/9/2009	0	3.42E-01			2.84E+01	6.01E-01	1.29E-01	5.10E-01		3.20E+00
		1		2.30E+00	3.70E-01					5.80E+00	
	12/9/2009 Total		3.42E-01	2.30E+00	3.70E-01	2.84E+01	6.01E-01	1.29E-01	5.10E-01	5.80E+00	3.20E+00
	12/10/2009	0	4.14E-01			3.94E+01	5.17E-01		3.89E-01		5.45E+00
		1		2.30E+00	7.70E-01			2.00E-01		6.30E+00	
	12/10/2009 Total		4.14E-01	2.30E+00	7.70E-01	3.94E+01	5.17E-01	2.00E-01	3.89E-01	6.30E+00	5.45E+00
	12/11/2009	0	4.82E-01	1.59E+01	1.81E+00	5.44E+01	8.29E-01	1.30E-01	3.43E-01		3.41E+00
		1								1.20E+01	
	12/11/2009 Total		4.82E-01	1.59E+01	1.81E+00	5.44E+01	8.29E-01	1.30E-01	3.43E-01	1.20E+01	3.41E+00
	12/12/2009	0									
	12/12/2009 Total										
	12/13/2009	0	4.20E-01			4.73E+01	5.95E-01		3.81E-01		4.10E+00
		1		2.20E+00	4.00E-01			1.10E-01		1.30E+01	
	12/13/2009 Total		4.20E-01	2.20E+00	4.00E-01	4.73E+01	5.95E-01	1.10E-01	3.81E-01	1.30E+01	4.10E+00
	12/14/2009	0	1.09E-01			4.16E+01	9.54E-01				2.10E+00
		1		2.30E+00	7.40E-01			2.00E-01	1.50E-01	3.10E+00	
	12/14/2009 Total		1.09E-01	2.30E+00	7.40E-01	4.16E+01	9.54E-01	2.00E-01	1.50E-01	3.10E+00	2.10E+00
	12/15/2009	0	4.34E-01			1.55E+01	9.73E-01		1.72E-01		
		1		2.30E+00	7.40E-01			2.00E-01		1.20E+01	2.40E-01
	12/15/2009 Total		4.34E-01	2.30E+00	7.40E-01	1.55E+01	9.73E-01	2.00E-01	1.72E-01	1.20E+01	2.40E-01
	12/16/2009	0	1.30E+00			3.62E+01	5.10E-01	6.91E-02	5.02E-01		3.58E+00
		1		2.30E+00	2.10E-01					1.20E+01	
	12/16/2009 Total		1.30E+00	2.30E+00	2.10E-01	3.62E+01	5.10E-01	6.91E-02	5.02E-01	1.20E+01	3.58E+00
	12/17/2009	0	2.93E-01			1.82E+01	3.60E-01		3.87E-01		6.70E-01
		1		2.20E+00	2.00E-01			5.30E-02		1.30E+01	
	12/17/2009 Total		2.93E-01	2.20E+00	2.00E-01	1.82E+01	3.60E-01	5.30E-02	3.87E-01	1.30E+01	6.70E-01
	12/18/2009	0	3.62E-01			5.17E+01	6.31E-01		3.21E-01		5.32E+00
		1		2.30E+00	4.10E-01			1.10E-01		1.20E+01	
	12/18/2009 Total		3.62E-01	2.30E+00	4.10E-01	5.17E+01	6.31E-01	1.10E-01	3.21E-01	1.20E+01	5.32E+00
	1/4/2010	0	6.19E-01			5.91E+01	9.65E-01		5.11E-01	2.71E+01	4.71E+00
		1		2.30E+00	8.60E-01			2.30E-01			
	1/4/2010 Total		6.19E-01	2.30E+00	8.60E-01	5.91E+01	9.65E-01	2.30E-01	5.11E-01	2.71E+01	4.71E+00
	1/5/2010	0	8.34E-01			3.79E+01			6.16E-01	3.75E+01	3.13E+00
		1		2.30E+00	7.40E-01		4.90E-01	2.00E-01			
	1/5/2010 Total		8.34E-01	2.30E+00	7.40E-01	3.79E+01	4.90E-01	2.00E-01	6.16E-01	3.75E+01	3.13E+00
	1/6/2010	0	1.09E+00			6.57E+01			6.32E-01	1.07E+01	5.40E+00
		1		2.30E+00	2.20E+00		1.40E+00	5.70E-01			
	1/6/2010 Total		1.09E+00	2.30E+00	2.20E+00	6.57E+01	1.40E+00	5.70E-01	6.32E-01	1.07E+01	5.40E+00
	1/7/2010	0	8.36E-01			1.66E+01	3.27E-01		1.18E+00	8.11E+00	6.95E-01
		1		2.30E+00	4.10E-01			1.10E-01			
	1/7/2010 Total		8.36E-01	2.30E+00	4.10E-01	1.66E+01	3.27E-01	1.10E-01	1.18E+00	8.11E+00	6.95E-01
	1/8/2010	0	1.00E+00			3.75E+01			3.98E-01	7.84E+00	3.67E+00
		1		2.20E+00	3.50E-01		2.30E-01	9.30E-02			
	1/8/2010 Total		1.00E+00	2.20E+00	3.50E-01	3.75E+01	2.30E-01	9.30E-02	3.98E-01	7.84E+00	3.67E+00
	1/9/2010	0	9.37E-01			4.47E+01			9.03E-01	2.57E+01	4.53E+00
		1		2.20E+00	8.10E-01		5.40E-01	2.10E-01			
	1/9/2010 Total		9.37E-01	2.20E+00	8.10E-01	4.47E+01	5.40E-01	2.10E-01	9.03E-01	2.57E+01	4.53E+00
	1/10/2010	0									
	1/10/2010 Total										
	1/11/2010	0	1.84E+00		5.41E-01	8.16E+01	1.21E+00		7.38E-01		5.92E+00
		1		2.30E+00				1.40E-01		6.10E+00	
	1/11/2010 Total		1.84E+00	2.30E+00	5.41E-01	8.16E+01	1.21E+00	1.40E-01	7.38E-01	6.10E+00	5.92E+00
	1/12/2010	0	3.51E+00	4.64E+01	8.53E-01	4.53E+01	5.85E-01		2.71E+00		1.76E+00
		1						2.00E-01		6.10E+00	
	1/12/2010 Total		3.51E+00	4.64E+01	8.53E-01	4.53E+01	5.85E-01	2.00E-01	2.71E+00	6.10E+00	1.76E+00
	1/13/2010	0	1.06E+00			2.72E+01	3.16E-01		7.83E-01		5.89E+00
		1		2.40E-01	2.20E-01			5.90E-02		6.30E-01	
	1/13/2010 Total		1.06E+00	2.40E-01	2.20E-01	2.72E+01	3.16E-01	5.90E-02	7.83E-01	6.30E-01	5.89E+00
	1/14/2010	0	7.23E-01		8.26E-01	1.79E+01	4.36E-01		6.90E-01		1.97E+00
		1		2.30E+00				1.00E-01		1.20E+01	
	1/14/2010 Total		7.23E-01	2.30E+00	8.26E-01	1.79E+01	4.36E-01	1.00E-01	6.90E-01	1.20E+01	1.97E+00
	1/15/2010	0	7.49E-01			2.64E+01	7.25E-01		6.11E-01		2.38E+00
		1		2.30E+00	3.70E-01			1.00E-01		1.20E+01	
	1/15/2010 Total		7.49E-01	2.30E+00	3.70E-01	2.64E+01	7.25E-01	1.00E-01	6.11E-01	1.20E+01	2.38E+00
	1/16/2010	0				1.12E+02					1.95E+01

		1	2.20E-01	1.40E+00		9.50E-01	3.80E-01	1.20E+01		
	1/16/2010 Total		2.20E-01	1.40E+00	1.12E+02	9.50E-01	3.80E-01	1.20E+01	1.95E+01	

Resins - Dispersion - Existing Area Sources - Total Non-VC HAP

Detection Limit Analysis

Facility	HAP Sum	Daily HAP Sum	In Total HAP		
P1-Ptown	2.35E+01				0.00E+00
P1-Ptown	1.42E+00				1.00E+00
P1-Ptown	2.49E+01	2.49E+01	3.21E+00		
P1-Ptown	1.86E+01				0.00E+00
P1-Ptown	2.77E+00				1.00E+00
P1-Ptown	2.13E+01	2.13E+01	3.06E+00		
P1-Ptown	3.16E+01				0.00E+00
P1-Ptown	1.31E+00				1.00E+00
P1-Ptown	3.29E+01	3.29E+01	3.49E+00		
P1-Ptown	4.14E+00				0.00E+00
P1-Ptown	2.11E+00				1.00E+00
P1-Ptown	6.24E+00	6.24E+00	1.83E+00		
P1-Ptown	7.05E+01				0.00E+00
P1-Ptown	3.21E+00				1.00E+00
P1-Ptown	7.37E+01	7.37E+01	4.30E+00		
P1-Ptown	2.65E+02				0.00E+00
P1-Ptown	2.20E+00				1.00E+00
P1-Ptown	2.67E+02	2.67E+02	5.59E+00		
P1-Ptown	5.21E+01				0.00E+00
P1-Ptown	2.70E+00				1.00E+00
P1-Ptown	5.48E+01	5.48E+01	4.00E+00		
P1-Ptown	3.32E+01				0.00E+00
P1-Ptown	8.47E+00				1.00E+00
P1-Ptown	4.17E+01	4.17E+01	3.73E+00		
P1-Ptown	4.62E+01				0.00E+00
P1-Ptown	9.57E+00				1.00E+00
P1-Ptown	5.57E+01	5.57E+01	4.02E+00		
P1-Ptown	7.73E+01				0.00E+00
P1-Ptown	1.20E+01				1.00E+00
P1-Ptown	8.93E+01	8.93E+01	4.49E+00		
P1-Ptown	0.00E+00				0.00E+00
P1-Ptown	0.00E+00				
P1-Ptown	5.28E+01				0.00E+00
P1-Ptown	1.57E+01				1.00E+00
P1-Ptown	6.85E+01	6.85E+01	4.23E+00		
P1-Ptown	4.48E+01				0.00E+00
P1-Ptown	6.49E+00				1.00E+00
P1-Ptown	5.13E+01	5.13E+01	3.94E+00		
P1-Ptown	1.71E+01				0.00E+00
P1-Ptown	1.55E+01				1.00E+00
P1-Ptown	3.26E+01	3.26E+01	3.48E+00		
P1-Ptown	4.22E+01				0.00E+00
P1-Ptown	1.45E+01				1.00E+00
P1-Ptown	5.67E+01	5.67E+01	4.04E+00		
P1-Ptown	1.99E+01				0.00E+00
P1-Ptown	1.55E+01				1.00E+00
P1-Ptown	3.54E+01	3.54E+01	3.57E+00		
P1-Ptown	5.83E+01				0.00E+00
P1-Ptown	1.48E+01				1.00E+00
P1-Ptown	7.32E+01	7.32E+01	4.29E+00		
P1-Ptown	9.30E+01				0.00E+00
P1-Ptown	3.39E+00				1.00E+00
P1-Ptown	9.64E+01	9.64E+01	4.57E+00		
P1-Ptown	8.00E+01				0.00E+00
P1-Ptown	3.73E+00				1.00E+00
P1-Ptown	8.37E+01	8.37E+01	4.43E+00		
P1-Ptown	8.35E+01				0.00E+00
P1-Ptown	6.47E+00				1.00E+00
P1-Ptown	9.00E+01	9.00E+01	4.50E+00		
P1-Ptown	2.77E+01				0.00E+00
P1-Ptown	2.82E+00				1.00E+00
P1-Ptown	3.06E+01	3.06E+01	3.42E+00		
P1-Ptown	5.04E+01				0.00E+00
P1-Ptown	2.87E+00				1.00E+00
P1-Ptown	5.33E+01	5.33E+01	3.98E+00		
P1-Ptown	7.68E+01				0.00E+00
P1-Ptown	3.76E+00				1.00E+00
P1-Ptown	8.05E+01	8.05E+01	4.39E+00		
P1-Ptown	0.00E+00				0.00E+00
P1-Ptown	0.00E+00				
P1-Ptown	9.18E+01				0.00E+00
P1-Ptown	8.54E+00				1.00E+00
P1-Ptown	1.00E+02	1.00E+02	4.61E+00		
P1-Ptown	1.01E+02				0.00E+00
P1-Ptown	6.30E+00				1.00E+00
P1-Ptown	1.07E+02	1.07E+02	4.68E+00		
P1-Ptown	3.52E+01				0.00E+00
P1-Ptown	1.15E+00				1.00E+00
P1-Ptown	3.64E+01	3.64E+01	3.59E+00		
P1-Ptown	2.25E+01				0.00E+00
P1-Ptown	1.44E+01				1.00E+00
P1-Ptown	3.69E+01	3.69E+01	3.61E+00		
P1-Ptown	3.09E+01				0.00E+00
P1-Ptown	1.48E+01				1.00E+00
P1-Ptown	4.56E+01	4.56E+01	3.82E+00		
P1-Ptown	1.32E+02				0.00E+00

P1-Ptown	1.50E+01				1.00E+00
P1-Ptown	1.46E+02	1.46E+02	4.99E+00		

Resins - Dispersion - Existing Area Sources - Total Non-VC HAP

GACT Limit and Variability Calculation
New Sources

Total Non-VC HAP PL 9.90E+01

	Normal	Lognormal
n	2.80E+01	2.80E+01
m	1.00E+00	1.00E+00
Average	6.76E+01	3.99E+00
Median	5.53E+01	4.01E+00
Standard Deviation	5.00E+01	7.04E-01
Minimum	6.24E+00	1.83E+00
Maximum	2.67E+02	5.59E+00
Skewness	2.52E+00	-6.73E-01
SE Skewness	4.63E-01	4.63E-01
Skewness Test	Non-normal	Normal
Kurtosis	8.89E+00	2.56E+00
SE Kurtosis	9.26E-01	9.26E-01
Kurtosis Test	Non-normal	Non-normal
t-statistic for UPL	2.47E+00	2.47E+00
UPL	1.93E+02	3.19E+02

Average for variability analysis	6.76E+01
Max DL < or = avg	4.75E+00
3x Max DL	1.43E+01
UPL	3.19E+02 ppmw
GACT Floor	**3.19E+02 ppmw**

1) if the 3x RDL value is less than or equal to the calculated floor or emissions limit, use the calculated floor or emissions limit value for the rule making.
2) if the 3x RDL value is greater than the calculated floor or emissions limit, use the 3x RDL value as the floor or emissions limit adjusted for measurement variability for the rule making

ATTACHMENT D- RESINS ANALYSIS

02/09/2012

ATTACHMENT D- RESINS ANALYSIS

02/09/2012

Resin Sampling and Monitoring

	Low	High	Average
Cost of US EPA Method 8260B [1]	$201	$400	$301

Initial Compliance

3	outlet tests x 2 strippers[2]	$1,803.00
Total Compliance Cost		$1,803.00
CRF (20 yr, 7%):	(0.07*(1+0.07)^20)/((1+0.07)^20-1)	0.09439
Annual Cost of Initial Compliance	`= (3 inlet tests*Avg Cost*2 Strippers)*CRF	**$170.19**

Monitoring

1	tests per month for each type of resin x 2 strippers[2]	$601.00

Company	Location	Resin Type	Number of Resin Types	TAC of Resin Testing
Certain Teed	Lake Charles	B	1	$7,212.00
Certain Teed	Lake Charles	B	1	$7,212.00

1. National Environmental Methods Index Website
https://www.nemi.gov/apex/f?p=237:38:951365369293524::::P38_METHOD_ID:7041

2. Average number of strippers calculated from facility submitted survey data

CertainTeed Lake Charles Resin Emission Estimate
Using Reported Survey Data

P-2

Emission Point ID	Vinyl chloride	Methyl chloride (Chloromethane)	Ethyl chloride (Chloroethane)	1,3-Butadiene	Ethylene dichloride (1,2-Dichloroethane)	Ethylene glycol
(EP-x)	(pounds)	(pounds)	(pounds)	(pounds)	(pounds)	(pounds)
EP-6	2.20E+02	4.10E+02	1.54E+02	1.40E+01	4.00E+00	7.22E+02
EP-7	2.19E+02	4.08E+02	1.63E+02	1.40E+01	3.00E+00	7.00E+02

P-1

Emission Point ID	Vinyl chloride	Methyl chloride (Chloromethane)	Ethyl chloride (Chloroethane)	1,3-Butadiene	Ethylene dichloride (1,2-Dichloroethane)	Ethylene glycol
(EP-x)	(pounds)	(pounds)	(pounds)	(pounds)	(pounds)	(pounds)
EP-1	4.00E+02	7.45E+02	2.98E+02	2.60E+01	6.00E+00	1.31E+03
EP-2	3.98E+02	7.41E+02	2.96E+02	2.50E+01	6.00E+00	1.27E+03
EP-3a	3.20E+02	5.95E+02	2.38E+02	2.10E+01	5.00E+00	1.05E+03
EP-3b	3.20E+02	5.95E+02	2.38E+02	2.10E+01	5.00E+00	1.05E+03
TOTAL (lbs/yr)	1.88E+03	3.49E+03	1.39E+03	1.21E+02	2.90E+01	6.10E+03
TOTAL (tpy)	9.39E-01	1.75E+00	6.94E-01	6.05E-02	1.45E-02	3.05E+00

TOTAL VC (tpy) **9.39E-01**
TOTAL NON-VC HAP (tpy) **5.57E+00**

Attachment E

GACT Analysis for Process and Maintenance Wastewater

Wastewater Summary

Calculated GACT Baseline

Calculated Limits	Existing Area Source Current Level of Performance (Least Controlled, Avg Concentrations)	Existing Area Source Current Level of Control (Least Controlled, Variability Included)	New Area Source Current level of Performance	New Area Source Current level of Control
Vinyl Chloride (ppmw)	**4.00E-01**	2.10E+00	4.00E-01	2.10E+00
Total Non-VC HAP (ppmw)	**1.80E-02**	1.80E-02	1.80E-02	1.80E-02

Existing and New Source GACT Summary for Wastewater (Option 2)

Pollutant	Existing Area Source Current Level of Performance (Least Controlled, Avg Concentrations)	Major Existing Source Requirements	Emissions for Current Level of Control	Emissions Reductions as a Result of Complaince with Major Existing Source Requirements (tons/yr)
Vinyl Chloride (ppmw)	**4.00E-01**	6.80E+00	9.03E-01	-
Total Non-VC HAP (ppmw)	**1.80E-02**	1.10E+02	1.31E+01	-

Existing Source GACT Summary for Wastewater (Option 3)

Pollutant	Existing Area Source Current Level of Performance (Least Controlled, Avg Concentrations)	Major New Source Requirement	Emissions for Current Level of Control	Emissions Reductions as a Result of Complaince with Major New Source Requirements (tons/yr)
Vinyl Chloride (ppmw)	**4.00E-01**	2.80E-01	9.03E-01	8.55E-03
Total Non-VC HAP (ppmw)	**1.80E-02**	1.80E-02	1.31E+01	1.22E+01

New Source GACT Summary for Wastewater (Option 3) (Based on OxyVinyls Deer Park)

Pollutant	New Area Source Current Level of Performance (Least Controlled, Avg Concentrations)	Major New Source Requirement	Emissions for Current Level of Control	Emissions Reductions as a Result of Complaince with Major New Source Requirements (tons/yr)
Vinyl Chloride (ppmw)	**4.00E-01**	2.80E-01	6.34E-01	1.31E-01
Total Non-VC HAP (ppmw)	**1.80E-02**	1.80E-02	9.44E+00	8.91E+00

GACT Analysis - Wastewater - Existing and New - Area Source - Costs to Meet NEW MACT Floor

Cost Component	CTLC	OVDP	Model New Facility (Based on OxyVinyls Deer Park)
Initial Costs			
Control Equipment Capital Cost			
Hard Pipe / Pump / Motor for Uncontrolled Stream	150155.34	234074.35	234074.35
New Wastewater Stripper	4162340.18	7816537.83	7816537.83
Initial Wastewater Testing	981.00	981.00	981.00
Initial Record Keeping and Reporting Cost	2733.51	2733.51	2733.51
Total Initial Costs	**4316210.02**	**8054326.70**	**8054326.70**
Annual Costs			
Annualized Capital Cost			
Hard Pip / Pump / Motor for Uncontrolled Stream	14168.30	22084.61	22084.61
New Wastewater Stripper	392895.47	737825.88	737825.88
Annual Hardpipe/Pump/Motor Equipment Cost	13975.96	16462.59	13975.96
Annual Wastewater Stripper Cost	574607.30	1204593.50	1204593.50
Annualized Initial Testing and Monitoring Cost[1]	0.00	0.00	0.00
Annual Testing and Monitoring Cost	6376.50	6376.50	6376.50
Annual Record Keeping and Reporting Cost	3511.84	3511.84	3511.84
Total Annual Cost	**1005535.37**	**1990854.91**	**1988368.29**

1 - Initial Testing Cost less than annual; therefore, no amortization of initial testing cost

Wastewater - New and Existing Area Sources - VC

CTLC Baseline - VC
0.4 ppm

OVDP Baseline - VC

Averages based on Daily Averages

Average of Avg VC Conc			
Company	Month/Yr	Total	LN
OXYDP	Jan-08	2.65E-01	-1.33E+00
	Feb-08	2.83E-01	-1.26E+00
	Mar-08	1.47E-01	-1.92E+00
	Apr-08	4.80E-01	-7.34E-01
	May-08	2.95E-01	-1.22E+00
	Jun-08	2.22E-01	-1.51E+00
	Jul-08	3.38E-01	-1.09E+00
	Aug-08	3.15E-01	-1.16E+00
	Sep-08	1.67E+00	5.14E-01
	Oct-08	1.90E-01	-1.66E+00
	Nov-08	1.20E-01	-2.12E+00
	Dec-08	4.58E-01	-7.82E-01

New Source - Monthly	**Normal**	**LN**
Sample Size	1.20E+01	1.20E+01
Compliance Avg Period	1.00E+00	1.00E+00
Average	3.99E-01	-1.19E+00
Median	2.89E-01	-1.24E+00
Standard Deviation	4.16E-01	6.77E-01
Minimum	1.20E-01	-2.12E+00
Maximum	1.67E+00	5.14E-01
Skewness	3.05E+00	1.32E+00
SE Skewness	7.07E-01	7.07E-01
Skewness Test	Non-normal	Normal
Kurtosis	9.92E+00	3.17E+00
SE Kurtosis	1.41E+00	1.41E+00
Kurtosis Test	Non-normal	Non-normal
99.0% t-statistic for UPL	2.72E+00	2.72E+00
99.0% UPL	1.57E+00	2.07E+00

average in variability analysi	3.99E-01	
Max DL < or = avg	1.00E-02	
3x Max DL	3.00E-02	
99.0% UPL	2.07E+00	ppm
MACT Floor Limit	**2.10E+00**	**ppm**

1) if the 3x RDL value is less than or equal to the calculated floor or emissions limit, use the calculated floor or emissions limit value

2) if the 3x RDL value is greater than the calculated floor or emissions limit, use the 3x RDL value as the floor or emissions limit adjusted for measurement variability

Wastewater - New and Existing Area Sources - Total Non-VC HAP

MACT Floor Data Set

Company & Facility	Originating Equipment	Acetaldehyde	EDC	MeOH	MIBK	Total Non-VC HAP	Rank
OxyVinyls Deer Park	Waste Water Stripper	1.80E-02				1.80E-02	1
Formosa Baton Rouge	Wastewater Stripping Columns		3.00E-01			3.00E-01	2
Westlake Calvert City	Water Stripper Col Feed Heat Exch			2.26E+00		2.26E+00	3
Shintech Freeport	HEAT EXCHANGER			3.90E+01	2.59E-01	3.93E+01	4
Shintech Addis	Waste Water Stripper			4.00E+01	2.60E-01	4.03E+01	5
Shintech Plaquemine	Waste Water Stripper			4.00E+01	3.00E-01	4.03E+01	6

Note: CTLC did not provide any WW concentration data other than VC for Stripper Outlet

Wastewater - Existing Area Sources - Baseline & Reductions & Hardpiping/Stripper Costs

Option 2 Analysis for New and Existing Area Sources

Wastewater Stripper Outlet Concentration Limits (Monthly Basis)		
Pollutant	Existing Source (ppmw)	New Source (ppmw)
VC	6.80E+00	2.80E-01
Total Non_VC HAP	1.10E+02	1.80E-02

Stripper Outlet Wastewater Baseline Estimation

Company & Facility	Resin Type	2008 lbs of Resin	2008 lb of Resin CBI?	2006 Capacity	2008 Stripper WW (Gal)	2008 Stripper Outlet (Gals)/Lb of Resin	2008 Stripper Outlet (Gals/YR)	VC Conc W/ Avg for Non-Report (PPMW)	% Reduction of VC Conc Needed to meet New Source MACT floor limit	Total Non-VC HAP Conc W/ Avg for Non-Report (PMW)	% Reduction of Total Non-VC HAP Conc Needed to meet MACT floor limit	Baseline VC (Tons/YR)	Baseline Total Non-VCHAP (Tons/YR)	VC Reduction (Tons Per Year)	Total Non-VC HAP Reduction (Tons/yr)
Certain Teed Lake Charles	Bulk	4.47E+08	No	4.81E+08	3.60E+03	8.05E-06	3.60E+03	4.00E-01	3.00E-01	1.80E-02	-	6.01E-06	2.70E-07	1.80E-06	0.00E+00
Dow Midland	Other	2.16E+07	No												
Formosa Baton Rouge	Other		Yes	9.17E+08	1.37E+07										
Formosa Delaware	Dispersion		Yes	1.43E+08											
Formosa Point Comfort	Other		Yes	1.57E+09											
OxyVinyls Deer Park	Other		Yes	5.51E+08			1.73E+07	3.99E-01	2.98E-01	1.80E-02	-	2.87E-02	1.30E-03	8.55E-03	0.00E+00
OxyVinyls Pasadena	Other		Yes	2.10E+09	6.40E+07										
OxyVinyls Pedricktown	Other			3.51E+08											
PolyOne Henry	Other/Dispersion	7.60E+07	No	1.26E+08	4.95E+06	6.52E-02									
PolyOne Pedricktown	Dispersion	3.98E+07	No	1.30E+08	2.47E+05	6.21E-03									
Shintech Addis	Other		Yes	6.24E+08	1.48E+07										
Shintech Freeport	Other		Yes	3.20E+09	2.70E+07										
Shintech Plaquemine	Other		Yes	1.30E+09	3.80E+06										
Westlake Calvert City	Other	1.10E+09	No	8.00E+08	2.89E+07	2.63E-02									
Westlake Geismar	Other	4.76E+08	No	5.73E+08	1.32E+07	2.78E-02									
Georgia Gulf Aberdeen	Other			1.00E+09	1.06E+07										
Georgia Gulf Plaquemine	Other			1.20E+09											

Average* 3.14E-02

*Average does not include CTLC due to absence of H20 in Bulk process

UNCONTROLLED WASTEWATER STREAMS

Wastewater - Existing Area Sources - Baseline & Reductions & Hardpiping/Stripper Costs

UnControlled Data

	Data		
FacilityName	Sum of Total WW (GAL)	Sum of VC2	Sum of Total Non-VC HAP2
Formosa Plastics Corporation Baton Rouge	3.42E+08	1.43E-01	
Georgia Gulf Chemicals Aberdeen Facility	2.77E+07	0.00E+00	
Lake Charles Polymer Plant	5.96E+07	6.22E-04	
OxyVinyls Deer Park		0.00E+00	
OxyVinyls Pasadena	4.62E+08	0.00E+00	1.44E+00
PolyOne Henry	4.13E+07	3.44E-01	
Shintech Addis	5.11E+07	7.94E-03	2.49E+00
Shintech Freeport	2.70E+07	6.76E-04	4.42E+00
Shintech Plaquemine	1.00E+07	2.80E-03	6.20E-01
Westlake Calvert City	6.46E+07	0.00E+00	6.10E-01
Westlake Geismar	1.11E+08	6.67E-03	

Company & Facility	Total WW (GAL)	Tons VC	Tons Total Non-VC HAP	VC Conc (PPMW)	Total Non-VC HAP Conc (PPMW)
Formosa Baton Rouge	3.42E+08	1.43E-01		1.00E-01	
Georgia Gulf Aberdeen	2.77E+07	0.00E+00		0.00E+00	
Certain Teed Lake Charles	5.96E+07	6.22E-04		2.50E-03	
OxyVinyls Deer Park		0.00E+00			
OxyVinyls Pasadena	4.62E+08	0.00E+00	1.44E+00	0.00E+00	7.47E-01
PolyOne Henry	4.13E+07	3.44E-01		2.00E+00	
Shintech Addis	5.11E+07	7.94E-03	2.49E+00	3.72E-02	1.17E+01
Shintech Freeport	2.70E+07	6.76E-04	4.42E+00	6.00E-03	3.93E+01
Shintech Plaquemine	1.00E+07	2.80E-03	6.20E-01	6.69E-02	1.48E+01
Westlake Calvert City	6.46E+07	0.00E+00	6.10E-01	0.00E+00	2.26E+00
Westlake Geismar	1.11E+08	6.67E-03		1.45E-02	
			Average	2.23E-01	1.38E+01

(see "Hardpipe Costing" sheet)

Company & Facility	Resin Type	2008 lbs of Resin	2008 lb of Resin CBI?	2006 Capacity	2008 Uncontrolled WW (Gal)	2008 Uncontrolled Flow (Gals/Lb of Resin	2008 Uncontrolled Flow (Gals/YR)	VC Conc W/ Avg for Non-Report (PPMW)	Total Non-VC HAP Conc W/ Avg for Non-Report (PMW)	Baseline VC (Tons/YR)	Baseline Total Non-VC HAP (Tons/YR)	Hardpipe TCI ($)	Hardpipe TAC ($/yr)	Hardpipe CR ($/yr)	VC Reductions (tpy)	Non-VC HAP Reductions (tpy)
Certain Teed Lake Charles	Bulk	4.47E+08	No	4.81E+08	5.96E+07	1.33E-01	5.96E+07	2.50E-03	1.38E+01	6.22E-04	3.42E+00	1.50E+05	1.40E+04	1.42E+04	0.00E+00	3.42E+00
Dow Midland	Other	2.16E+07	No				6.00E+06									
Formosa Baton Rouge	Other		Yes	9.17E+08	3.42E+08		3.42E+08									
Formosa Delaware	Dispersion		Yes	1.43E+08			3.98E+07									
Formosa Point Comfort	Other		Yes	1.57E+09			4.35E+08									
OxyVinyls Deer Park	Other		Yes	5.51E+08			1.53E+08	2.50E-03	1.38E+01	1.60E-03	8.79E+00	2.34E+05	1.65E+04	2.21E+04	0.00E+00	8.78E+00
OxyVinyls Pasadena	Other		Yes	2.10E+09	4.62E+08		4.62E+08									
OxyVinyls Pedricktown	Other			3.51E+08			9.74E+07									
PolyOne Henry	Other/Dispersion	7.60E+07	No	1.26E+08	4.13E+07	5.43E-01	4.13E+07									
PolyOne Pedricktown	Dispersion	3.98E+07	No	1.30E+08			1.11E+07									
Shintech Addis	Other		Yes	6.24E+08	5.11E+07		5.11E+07									
Shintech Freeport	Other		Yes	3.20E+09	2.70E+07		2.70E+07									
Shintech Plaquemine	Other		Yes	1.30E+09	1.00E+07		1.00E+07									
Westlake Calvert City	Other	1.10E+09	No	8.00E+08	6.46E+07	5.88E-02	6.46E+07									
Westlake Geismar	Other	4.76E+08	No	5.73E+08	1.11E+08	2.32E-01	1.11E+08									
Georgia Gulf Aberdeen	Other			1.00E+09	2.77E+07		2.77E+07									
Georgia Gulf Plaquemine	Other			1.20E+09			3.33E+08									
				Average*		2.78E-01										

*Average does not include CTLC due to absence of H20 in Bulk process

Wastewater - Existing Area Sources - Baseline & Reductions & Hardpiping/Stripper Costs

MAINTENANCE WW STREAMS

Company & Facility	Total WW (GAL)	VC Conc (PPMW)	Total Non-VC HAP Conc (PPMW)
PolyOne Henry	2.22E+07	2.00E+00	
Shintech Freeport	4.30E+05		7.70E-02
Westlake Calvert City	1.21E+06		
Westlake Geismar	8.52E+05	2.25E+00	
		2.13E+00	7.70E-02

Company & Facility	Resin Type	2008 lbs of Resin	2008 lb of Resin CBI?	2006 Capacity	2008 Main WW (Gal)	2008 Maint Flow (Gals/Lb of Resin	2008 Maint Flow (Gals/YR)	VC Conc W/ Avg for Non-Report (PPMW)	TOHAP Conc W/ Avg for Non-Report (PMW)	Baseline VC (Tons/YR)	Baseline TOHAP (Tons/YR)
Certain Teed Lake Charles	Bulk	4.47E+08	No	4.81E+08			4.41E+07	2.13E+00	7.70E-02	3.91E-01	1.42E-02
Dow Midland	Other	2.16E+07	No				2.13E+06				
Formosa Baton Rouge	Other		Yes	9.17E+08			9.03E+07				
Formosa Delaware	Dispersion		Yes	1.43E+08			1.41E+07				
Formosa Point Comfort	Other		Yes	1.57E+09			1.54E+08				
OxyVinyls Deer Park	Other		Yes	5.51E+08			5.43E+07	2.13E+00	7.70E-02	4.81E-01	1.74E-02
OxyVinyls Pasadena	Other		Yes	2.10E+09			2.07E+08				
OxyVinyls Pedricktown	Other			3.51E+08			3.45E+07				
PolyOne Henry	Other/Dispersion	7.60E+07	No	1.26E+08	2.22E+07	2.93E-01	2.22E+07				
PolyOne Pedricktown	Dispersion	3.98E+07	No	1.30E+08			3.92E+06				
Shintech Addis	Other		Yes	6.24E+08			6.15E+07				
Shintech Freeport	Other		Yes	3.20E+09	4.30E+05		4.30E+05				
Shintech Plaquemine	Other		Yes	1.30E+09			1.28E+08				
Westlake Calvert City	Other	1.10E+09	No	8.00E+08	1.21E+06	1.10E-03	1.21E+06				
Westlake Geismar	Other	4.76E+08	No	5.73E+08	8.52E+05	1.79E-03	8.52E+05				
Georgia Gulf Aberdeen	Other			1.00E+09			9.86E+07				
Georgia Gulf Plaquemine	Other			1.20E+09			1.18E+08				

Average* 9.85E-02
*Average does not include CTLC due to absence of H20 in Bulk process

Stripper Outlet, Uncontrolled, and Maint. Wastewater Combined

Company & Facility	Resin Type	Baseline VC (Tons/YR)	Baseline Total Non-VC HAP (Tons/YR)	VC Reduction (Tons Per Year)	Total Non-VC HAP Reduction (Tons Per Year)
Certain Teed - Lake Charles	Bulk	3.91E-01	3.44E+00	1.80E-06	3.42E+00
OxyVinyls Deer Park	Suspension	5.12E-01	8.81E+00	8.55E-03	8.78E+00

Wastewater - New Area Sources - Baseline & Reductions & Hardpiping Costs

Option 2 Analysis for New and Existing Area Sources

Wastewater Stripper Outlet Concentration Limits (Monthly Basis)		
Pollutant	Existing Source (ppmw)	New Source (ppmw)
VC	6.80E+00	2.80E-01
Total Non_VC HAP	110.00	0.018

Stripper Outlet Wastewater Baseline Estimation

Company & Facility	Resin Type	2008 lbs of Resin	2008 lb of Resin CBI?	2006 Capacity	2008 Stripper WW (Gal)	2008 Stripper Outlet (Gals)/Lb of Resin	2008 Stripper Outlet (Gals/YR)	VC Conc W/ Avg for Non-Report (PPMW)	% Reduction of VC Conc Needed to meet MACT floor limit	Total Non-VC HAP Conc W/ Avg for Non-Report (PMW)	% Reduction of Total Non-VC HAP Conc Needed to meet MACT floor limit	Baseline VC (Tons/YR)	Baseline Total Non-VCHAP (Tons/YR)	VC Reduction (Tons Per Year)	Total Non-VC HAP Reduction (Tons/yr)
Certain Teed Lake Charles	Bulk	4.47E+08	No	4.81E+08	3.60E+03	8.05E-06									
Dow Midland	Other	2.16E+07	No												
Formosa Baton Rouge	Other		Yes	9.17E+08	1.37E+07										
Formosa Delaware	Dispersion		Yes	1.43E+08											
Formosa Point Comfort	Other		Yes	1.57E+09											
OxyVinyls Deer Park	Other		Yes	5.51E+08			1.73E+07	2.10E+00	8.67E-01	1.80E-02	-	1.51E-01	1.30E-03	1.31E-01	0.00E+00
OxyVinyls Pasadena	Other		Yes	2.10E+09	6.40E+07										
OxyVinyls Pedricktown	Other			3.51E+08											
PolyOne Henry	Other/Dispersion	7.60E+07	No	1.26E+08	4.95E+06	6.52E-02									
PolyOne Pedricktown	Dispersion	3.98E+07	No	1.30E+08	2.47E+05	6.21E-03									
Shintech Addis	Other		Yes	6.24E+08	1.48E+07										
Shintech Freeport	Other		Yes	3.20E+09	2.70E+07										
Shintech Plaquemine	Other		Yes	1.30E+09	3.80E+06										
Westlake Calvert City	Other	1.10E+09	No	8.00E+08	2.89E+07	2.63E-02									
Westlake Geismar	Other	4.76E+08	No	5.73E+08	1.32E+07	2.78E-02									
Georgia Gulf Aberdeen	Other			1.00E+09	1.06E+07										
Georgia Gulf Plaquemine	Other			1.20E+09											

Average* 3.14E-02

*Average does not include CTLC due to absence of H20 in Bulk process

UNCONTROLLED WASTEWATER STREAMS

Wastewater - New Area Sources - Baseline & Reductions & Hardpiping Costs

UnControlled Data

	Data		
FacilityName	Sum of Total WW (GAL)	Sum of VC2	Sum of Total Non-VC HAP2
Formosa Plastics Corporation Baton Rouge	3.42E+08	1.43E-01	
Georgia Gulf Chemicals Aberdeen Facility	2.77E+07	0.00E+00	
Lake Charles Polymer Plant	5.96E+07	6.22E-04	
OxyVinyls Deer Park		0.00E+00	
OxyVinyls Pasadena	4.62E+08	0.00E+00	1.44E+00
PolyOne Henry	4.13E+07	3.44E-01	
Shintech Addis	5.11E+07	7.94E-03	2.49E+00
Shintech Freeport	2.70E+07	6.76E-04	4.42E+00
Shintech Plaquemine	1.00E+07	2.80E-03	6.20E-01
Westlake Calvert City	6.46E+07	0.00E+00	6.10E-01
Westlake Geismar	1.11E+08	6.67E-03	

Company & Facility	Total WW (GAL)	Tons VC	Tons Total Non-VC HAP	VC Conc (PPMW)	Total Non-VC HAP Conc (PPMW)
Formosa Baton Rouge	3.42E+08	1.43E-01		1.00E-01	
Georgia Gulf Aberdeen	2.77E+07	0.00E+00		0.00E+00	
Certain Teed Lake Charles	5.96E+07	6.22E-04		2.50E-03	
OxyVinyls Deer Park		0.00E+00			
OxyVinyls Pasadena	4.62E+08	0.00E+00	1.44E+00	0.00E+00	7.47E-01
PolyOne Henry	4.13E+07	3.44E-01		2.00E+00	
Shintech Addis	5.11E+07	7.94E-03	2.49E+00	3.72E-02	1.17E+01
Shintech Freeport	2.70E+07	6.76E-04	4.42E+00	6.00E-03	3.93E+01
Shintech Plaquemine	1.00E+07	2.80E-03	6.20E-01	6.69E-02	1.48E+01
Westlake Calvert City	6.46E+07	0.00E+00	6.10E-01	0.00E+00	2.26E+00
Westlake Geismar	1.11E+08	6.67E-03		1.45E-02	
		Average		2.23E-01	1.38E+01

(see "Hardpipe Costing" sheet)

Company & Facility	Resin Type	2008 lbs of Resin	2008 lb of Resin CBI?	2006 Capacity	2008 Uncontrolled WW (Gal)	2008 Uncontrolled Flow (Gals/Lb of Resin	2008 Uncontrolled Flow (Gals/YR)	VC Conc W/ Avg for Non-Report (PPMW)	Total Non-VC HAP Conc W/ Avg for Non-Report (PMW)	Baseline VC (Tons/YR)	Baseline Total Non-VC HAP (Tons/YR)	Hardpipe TCI ($)	Hardpipe TAC ($/yr)	Hardpipe CR ($/yr)	VC Reductions (tpy)	Non-VC HAP Reductions (tpy)
Certain Teed Lake Charles	Bulk	4.47E+08	No	4.81E+08	5.96E+07	1.33E-01	5.96E+07									
Dow Midland	Other	2.16E+07	No				6.00E+06									
Formosa Baton Rouge	Other		Yes	9.17E+08	3.42E+08		3.42E+08									
Formosa Delaware	Dispersion		Yes	1.43E+08			3.98E+07									
Formosa Point Comfort	Other		Yes	1.57E+09			4.35E+08									
OxyVinyls Deer Park	Other		Yes	5.51E+08			1.53E+08	2.50E-03	1.38E+01	1.60E-03	8.79E+00	2.34E+05	1.65E+04	2.21E+04	0.00E+00	8.78E+00
OxyVinyls Pasadena	Other		Yes	2.10E+09	4.62E+08		4.62E+08									
OxyVinyls Pedricktown	Other			3.51E+08			9.74E+07									
PolyOne Henry	Other/Dispersion	7.60E+07	No	1.26E+08	4.13E+07	5.43E-01	4.13E+07									
PolyOne Pedricktown	Dispersion	3.98E+07	No	1.30E+08			1.11E+07									
Shintech Addis	Other		Yes	6.24E+08	5.11E+07		5.11E+07									
Shintech Freeport	Other		Yes	3.20E+09	2.70E+07		2.70E+07									
Shintech Plaquemine	Other		Yes	1.30E+09	1.00E+07		1.00E+07									
Westlake Calvert City	Other	1.10E+09	No	8.00E+08	6.46E+07	5.88E-02	6.46E+07									
Westlake Geismar	Other	4.76E+08	No	5.73E+08	1.11E+08	2.32E-01	1.11E+08									
Georgia Gulf Aberdeen	Other			1.00E+09	2.77E+07		2.77E+07									
Georgia Gulf Plaquemine	Other			1.20E+09			3.33E+08									
					Average*	2.78E-01										

*Average does not include CTLC due to absence of H20 in Bulk process

Wastewater - New Area Sources - Baseline & Reductions & Hardpiping Costs

MAINTENANCE WW STREAMS

Company & Facility	Total WW (GAL)	VC Conc (PPMW)	Total Non-VC HAP Conc (PPMW)
PolyOne Henry	2.22E+07	2.00E+00	
Shintech Freeport	4.30E+05		7.70E-02
Westlake Calvert City	1.21E+06		
Westlake Geismar	8.52E+05	2.25E+00	
		2.13E+00	7.70E-02

Company & Facility	Resin Type	2008 lbs of Resin	2008 lb of Resin CBI?	2006 Capacity	2008 Main WW (Gal)	2008 Maint Flow (Gals/Lb of Resin	2008 Maint Flow (Gals/YR)	VC Conc W/ Avg for Non-Report (PPMW)	TOHAP Conc W/ Avg for Non-Report (PMW)	Baseline VC (Tons/YR)	Baseline TOHAP (Tons/YR)
Certain Teed Lake Charles	Bulk	4.47E+08	No	4.81E+08			4.41E+07				
Dow Midland	Other	2.16E+07	No				2.13E+06				
Formosa Baton Rouge	Other		Yes	9.17E+08			9.03E+07				
Formosa Delaware	Dispersion		Yes	1.43E+08			1.41E+07				
Formosa Point Comfort	Other		Yes	1.57E+09			1.54E+08				
OxyVinyls Deer Park	Other		Yes	5.51E+08			5.43E+07	2.13E+00	7.70E-02	4.81E-01	1.74E-02
OxyVinyls Pasadena	Other		Yes	2.10E+09			2.07E+08				
OxyVinyls Pedricktown	Other			3.51E+08			3.45E+07				
PolyOne Henry	Other/Dispersion	7.60E+07	No	1.26E+08	2.22E+07	2.93E-01	2.22E+07				
PolyOne Pedricktown	Dispersion	3.98E+07	No	1.30E+08			3.92E+06				
Shintech Addis	Other		Yes	6.24E+08			6.15E+07				
Shintech Freeport	Other		Yes	3.20E+09	4.30E+05		4.30E+05				
Shintech Plaquemine	Other		Yes	1.30E+09			1.28E+08				
Westlake Calvert City	Other	1.10E+09	No	8.00E+08	1.21E+06	1.10E-03	1.21E+06				
Westlake Geismar	Other	4.76E+08	No	5.73E+08	8.52E+05	1.79E-03	8.52E+05				
Georgia Gulf Aberdeen	Other			1.00E+09			9.86E+07				
Georgia Gulf Plaquemine	Other			1.20E+09			1.18E+08				

Average* 9.85E-02
*Average does not include CTLC due to absence of H20 in Bulk process

Stripper Outlet, Uncontrolled, and Maint. Wastewater Combined

Company & Facility	Resin Type	Baseline VC (Tons/YR)	Baseline Total Non-VC HAP (Tons/YR)	VC Reduction (Tons Per Year)	Total Non-VC HAP Reduction (Tons Per Year)
OxyVinyls Deer Park	Suspension	6.34E-01	8.81E+00	1.31E-01	8.78E+00

Wastewater - Steam Stripper Costing

Steam Stripper - PVC Resin - Cost Analysis - VC and TOH

Parameters/Costs	Equation	Company	Westlake Chemical Corporation	Certain Teed Lake Charles	Certain Teed Lake Charles	
		Facility	Westlake Geismar			
		Process Type	Suspension	Bulk	Bulk	
		Process Type Std	Suspension	Bulk	Bulk	
		Process Unit ID	P-1			
		Stripped Resin Stream ID	S-1			
		Stripping Type	Continuous	Continuous	Continuous	
		Annual Production	476,390,000	447,348,640	551,155,000	
		Inlet Stream Flow, liters/min	1930	0.02704	130	For CTLC and Model - sum of stripper outlet and uncontrolled streams
A. Parameters		(Inputs and Example Calculation)				
1. Stripper inlet flow rate, ℓpm (Q)		500	1930	0	130	
2. Annual operating hours, hr/yr (H)		8400	8400	8400	8400	
3. Steam to Feed Ratio, kg / ℓ (S)		0.096	0.060	0.060	0.060	
4. Electricity use, kWhr/day (EU)		260	260	260	260	
5. Operating labor rate, $/hr (LR) [2]		$34.60	$34.60	$34.60	$34.60	
6. Electricity cost, $/kWh (EC) [3]		$0.07	$0.07	$0.07	$0.07	
7. Water cost, $/1,000 gal (WC) [4]		$0.20	$0.20	$0.20	$0.20	
8. Steam cost, $/1,000 lb (SC) [4]		$4.65	$4.65	$4.65	$4.65	
9. Capital recovery factor	= [i x (1 + i)^a] / [(1 + i)^a - 1], where i = interest rate, a = equipment life					
a. Equipment CRF, 20-yr life, 7% interest		0.09439	0.09439	0.09439	0.09439	
10. Cost index						
a. 2010		641.1	641.1	641.1	641.1	
b. 1989		356.0	356.0	356.0	356.0	
B. Total Capital Investment						
1. $	= 0.3731 x Q^0.267 x 10^6	$0				estimated total capital provided by facility
2. $ / ℓpm	= $ / Q	$0				
C. Direct Annual Operating Costs, $/yr						
1. Electricity	= EU / (24 hr/day) x H x EC	$6,079	$6,079	$6,079	$6,079	
2. Steam	= Q x S x (2.2 lb/kg) x (60 min/hr) x H x SC / 1000	$247,484	$596,994	$8	$40,154	
3. Water	= Q x (5220 liters water-min / liters feed-day) x (1 day / 24 hr) x H x (0.264 gal/liter) x WC / 1000	$0	$186,159	$3	$12,521	
4. Operating labor	= (1 hr/shift) x (1 shift/8 hr) x H x LR	$36,330	$0	$0	$0	
5. Supervisory labor	= 0.15 x (operating labor)	$5,450	$0	$0	$0	
6. Maintenance labor	= (0.5 hr/shift) x (1 shift/8 hr) x H x (LR x 1.1)	$19,982	$0	$0	$0	
7. Maintenance materials	= 0.02 x TCI	$0	$0	$0	$0	
D. Indirect Annual Costs, $/yr						
1. Overhead	= 0.6 x (labor + maintenance materials)	$37,057	$0	$0	$0	
2. Property taxes, insurance, and administration	= 0.04 x TCI	$0	$0	$0	$0	
3. Capital recovery	= Equipment CRF x TCI	$0	$0	$0	$0	
F. Include in Annual Cost?			yes	yes	yes	
F. Total Annual Cost						
1. $/yr	= Direct Annual Costs + Indirect Annual Costs - Recovery Credit	$352,381	**$789,232**	**$6,090**	**$58,754**	

Sources:
1. Cost equations: HON BID, Vol 1-b and 1-c, Nov 1992 (EPA-453/D-92-016c)
2. Operating labor rate: Bureau of Labor Statistics, Occupational Employment Statistics, May 2008 National Industry-Specific Occupational Employment and Wage Estimates
3. Electricity cost: Energy Information Administration. Average Industrial Retail Price of Electricity: October 2009.
4. Water cost and steam cost: Air Compliance Advisor, version 7.5.
5. ICIS, http://www.icis.com/v2/chemicals/9076567/vinyl-chloride/pricing.html, October 20, 2010. (Avg. $690/tonne = $0.313/lb)

Wastewater - Steam Stripper Costing

Steam Stripper - PVC Resin - Cost Analysis - VC and TOH

Parameters/Costs	Equation	Company	Westlake Chemical Corporation	Certain Teed Lake Charles	OxyVinyls Deer Park	
		Facility	Westlake Geismar			
		Process Type	Suspension	Bulk	Suspension	
		Process Type Std	Suspension	Bulk	Suspension	
		Process Unit ID	P-1			
		Stripped Resin Stream ID	S-1			
		Stripping Type	Continuous	Continuous	Continuous	
		Annual Production	476,390,000	447,348,640	551,155,000	
		Inlet Stream Flow, liters/min	1930	448	1280	
A. Parameters		(Inputs and Example Calculation)				
1. Stripper inlet flow rate, ℓpm (Q)		500	1930	448	1280	
2. Annual operating hours, hr/yr (H)		8400	8400	8400	8400	
3. Steam to Feed Ratio, kg / ℓ (S)		0.096	0.060	0.060	0.060	
4. Electricity use, kWhr/day (EU)		260	260	260	260	
5. Operating labor rate, $/hr (LR) [2]		$34.60	$34.60	$34.60	$34.60	
6. Electricity cost, $/kWh (EC) [3]		$0.07	$0.07	$0.07	$0.07	
7. Water cost, $/1,000 gal (WC) [4]		$0.20	$0.20	$0.20	$0.20	
8. Steam cost, $/1,000 lb (SC) [4]		$4.65	$4.65	$4.65	$4.65	
9. Capital recovery factor	= [i x (1 + i)^a] / [(1 + i)^a - 1], where i = interest rate, a = equipment life					
a. Equipment CRF, 20-yr life, 7% interest		0.09439	0.09439	0.09439	0.09439	
10. Cost index						
a. 2010		641.1	641.1	641.1	641.1	
b. 1989		356.0	356.0	356.0	356.0	
B. Total Capital Investment						
1. $	= 0.3731 x Q^0.267 x 10^6	$0	**$10,000,000**	**$4,162,340**	**$7,816,538**	
2. $ / ℓpm	= $ / Q	$0	$5,182	$9,295	$6,107	
C. Direct Annual Operating Costs, $/yr						
1. Electricity	= EU / (24 hr/day) x H x EC	$6,079	$0	$0	$0	
2. Steam	= Q x S x (2.2 lb/kg) x (60 min/hr) x H x SC / 1000	$247,484	$0	$138,518	$355,815	Difference in cost due to controlling previously uncontrolled streams
3. Water	= Q x (5220 liters water-min / liters feed-day) x (1 day / 24 hr) x H x (0.264 gal/liter) x WC / 1000	$0	$0	$43,194	$110,953	
4. Operating labor	= (1 hr/shift) x (1 shift/8 hr) x H x LR	$36,330	$0	$0	$0	
5. Supervisory labor	= 0.15 x (operating labor)	$5,450	$0	$0	$0	
6. Maintenance labor	= (0.5 hr/shift) x (1 shift/8 hr) x H x (LR x 1.1)	$19,982	$0	$0	$0	
7. Maintenance materials	= 0.02 x TCI	$0	$0	$0	$0	
D. Indirect Annual Costs, $/yr						
1. Overhead	= 0.6 x (labor + maintenance materials)	$37,057	$0	$0	$0	
2. Property taxes, insurance, and administration	= 0.04 x TCI	$0	$0	$0	$0	
3. Capital recovery	= Equipment CRF x TCI	$0	$943,929	$392,895	$737,826	
F. Include in Annual Cost?			yes	yes	yes	
F. Total Annual Cost						
1. $/yr	= Direct Annual Costs + Indirect Annual Costs - Recovery Credit	$352,381	**$943,929**	**$574,607**	**$1,204,593**	

Sources:
1. Cost equations: HON BID, Vol 1-b and 1-c, Nov 1992 (EPA-453/D-92-016c)
2. Operating labor rate: Bureau of Labor Statistics, Occupational Employment Statistics, May 2008 National Industry-Specific Occupational Employment and Wage Estimates
3. Electricity cost: Energy Information Administration. Average Industrial Retail Price of Electricity: October 2009.
4. Water cost and steam cost: Air Compliance Advisor, version 7.5.
5. ICIS, http://www.icis.com/v2/chemicals/9076567/vinyl-chloride/pricing.html, October 20, 2010. (Avg. $690/tonne = $0.313/lb)

Cost of Piping Additional Steams to Wastewater Stripper Feed Tank

Wastewater Flow (GPM)	5.00E+01	
Wastewater Flow (m^3/sec)	3.15E-03	
Fluid Density (kg/m^3)	9.83E+02	
Optimum Pipe Diameter (m)	6.66E-02	
Optimum Pipe Diameter (inches)	2.62E+00	
Caluclated (Rounded) Pipe Diameter (inches)	3.00E+00	
Estimated Pipe Cost (304 Stainless)* (Jan. 2002 Dollars) $/linear foot	**5.00E+01**	<-----
Estimated Pipe Cost (Carbon Steel)* (Jan. 2002 Dollars) $/linear foot	**3.30E+00**	
Pump and Pumping Cost		
Pump cost (w/o motor)†	3.00E+03	1000 gpm, 20 ft, general purpose centrifugal
Power Output (kW) (brake power)	1.13E+01	
Pump motor cost§	2.00E+03	Alternating Current, Explosion proof (~13 kW)
Motor Efficiency‡	8.70E-01	~11.25 bkW
Power requirement † (kW)	1.29E+01	
Operating hours per year (Hrs)	8.40E+03	
Electricity Cost ($/kWh)	7.00E-02	
Electricity Cost per year ($/yr)	**7.60E+03**	
Total Capital Investment		
Assumed length of pipe run (ft)	5.00E+02	
Purchased cost of pipe (Stainless Steel)	2.50E+04	
Purchased cost of pump	3.00E+03	
Purchased cost of motor	2.00E+03	
Equipment Cost	3.00E+04	
Installation Factor** (Ratio of total cost for fittings and installation to the purchase cost for the new pipe)	1.40E+00	
Installation Cost (includes pump and moto)	4.20E+04	
Tax and Freight Factor††	8.00E-02	
Tax and Freight Cost	2.40E+03	
Total Capital Investment (Jan. 2002)	7.44E+04	
CE - July 02 (Pipes, Valves, and Fittings)	5.64E+02	
CE - Feb 2010 (Pipes, Valves, and Fittings)	7.96E+02	
Total Capital Investment (Feb. 2010)	**1.05E+05**	
Annual Cost		
Annual interest rate (fraction):	7.00E-02	
System life (years):	2.00E+01	
Capital recovery factor:	9.44E-02	
Taxes, Insurance, Admin Factor	4.00E-02	
Electricity	7.60E+03	
Taxes Insurance, Administrative	4.20E+03	
Capital Recovery	9.92E+03	
Total Annual Cost ($/yr)	**1.18E+04**	does not incl. capital recovery

* From Figure 12-4 Peters, Timmerhaus, & West. Plant Design and Economics for Chemical Engineers
** pg. 404 Peters, Timmerhaus, & West. Plant Design and Economics for Chemical Engineers
† Estimated from Figure 12-19 Peters, Timmerhaus, & West. Plant Design and Economics for Chemical Engineers
§ Estimated from Figure 12-24 Peters, Timmerhaus, & West. Plant Design and Economics for Chemical Engineers
‡ Estimated from Figure 12-18 Peters, Timmerhaus, & West. Plant Design and Economics for Chemical Engineers
†† - Eqn. 10.39 pg. 10-49 OAQPS Control Cost Manual Fifth Edition Feb. 1996
pg. 10-51 OAQPS Cost Control Manual (Ductwork)

Pipe Cost $/Linear Foot

Diameter	304/L. Stainless (Sch 40)	Carbon Steel (Sch 40)
1.00E+00	1.70E+01	9.00E-01
2.00E+00	3.10E+01	2.10E+00
3.00E+00	5.00E+01	3.30E+00
4.00E+00	7.00E+01	5.80E+00
5.00E+00	9.00E+01	7.50E+00
6.00E+00	1.20E+02	1.00E+01
7.00E+00	1.60E+02	1.30E+01
8.00E+00	1.90E+02	1.70E+01
9.00E+00	2.10E+02	1.90E+01
1.00E+01	2.30E+02	2.00E+01

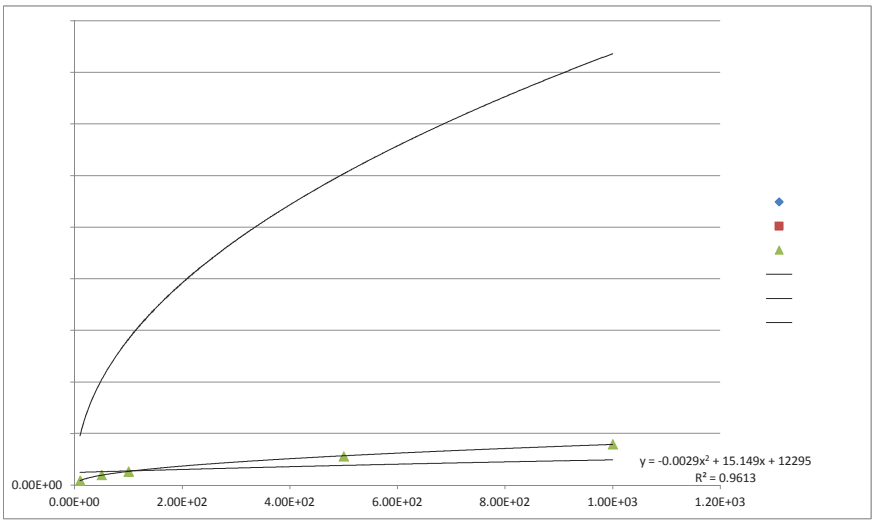
* From Figure 12-4 Peters, Timmerhaus, & West. Plant Design and Economics for Chemical Engineers

Cost of Piping Additional Steams to Wastewater Stripper Feed Tank

Assumptions
Assume Hard pipe wastewater flow to Stripper Feed Tank
Assume all piped flow is turbulent
Assume water temperature of 140F
Optimum Pipe Diameter Calculation Eq. (12-15) Peters, Timmerhaus, & West pg. 501
Where:
Di,opt=optimum pipe diameter in meters
m_v=volumetric flow rate (m^3/sec)
p=fluid density kg/m^3

Assumed 20 ft of head

GPM	TCI	TAC	CR	
1.00E+01	4.73E+04	1.40E+04	4.47E+03	1.84E+04
5.00E+01	1.05E+05	1.18E+04	9.92E+03	2.17E+04
1.00E+02	1.40E+05	1.32E+04	1.32E+04	2.64E+04
5.00E+02	2.98E+05	1.95E+04	2.81E+04	4.76E+04
1.00E+03	4.20E+05	2.44E+04	3.97E+04	6.41E+04



Wastewater Testing and Monitoring Cost Algorithm

Wastewater Sampling and Monitoring				
Cost of US EPA Method 8260B	$201	$400	$301	*National Environmental Methods Index Website https://www.nemi.gov/apex/f?p=237:38:951365369293524::::P38_METHOD_ID
Cost of US EPA Method 305			$190	http://analyticallaboratories.com/page.cfm?pageid=90 (Cost of Volatile Organics)
Cost of US EPA Method 107			$0	Assume no cost since facilities are presumably already testing VC (Based on VI submitted data).

Number of Initial Test Runs		1.00
Number of Strippers		1.00
Number of Continuous Test Runs		1.00
Number of Continuous Tests per Year	Monthly Testing	12.00

	Initial Uncontrolled Stream Testing					Stripper Outlet Testing						Total Initial Cost ($)
						Initial			Continuous			
	Number of Uncontrolled Streams (As reported in survey data)	Number of Uncontrolled Streams with average for missing data	Non-VC HAP	MeOH	VC	VC	Total Non-VC HAP	MeOH	VC	Total Non-VC HAP	MeOH	
CTLC/OVDP/Model Facility	1	1	$300.50	$190.00	$0.00	$0.00	$300.50	$190.00	$0.00	$3,606.00	$2,280.00	$981.00

FacilityName	Number of Wastewater streams
Formosa Plastics Corporation Baton R	1
Georgia Gulf Chemicals Aberdeen Fac	1
Lake Charles Polymer Plant	1
OxyVinyls Deer Park	1
OxyVinyls Pasadena	7
PolyOne Henry	6
Shintech Addis	3
Shintech Freeport	1
Shintech Plaquemine	2
Union Carbide Texas City	6
Westlake Calvert City	1
Westlake Geismar	2
Average	3

ATTACHMENT E- WASTEWATER ANALYSIS
02/09/2012

:7041

Total Annualized Cost
$6,376.50

Attachment F

GACT Analysis for Heat Exchange Systems

ATTACHMENT F- HEAT EXCHANGER ANALYSIS
02/09/2012

Heat Exchange Systems - Summary of Clarification Data Submitted to EPA

Company	Facility	CT #	Flow Rate (gpm)	Pollutant Measured	Leak Action Level	Units	Monitoring Frequency	Monitoring Method	Note(s)
CertainTeed	Lake Charles	1	10,000	Vinyl chloride			Weekly	Water sampling - GC headspace	
		2	5,000	Vinyl chloride			Weekly	Water sampling - GC headspace	
Dow	Midland	1	16,500	Vinyl chloride	10000	ppbw	Quarterly	Method 415.1	
Formosa	Baton Rouge	1	48,000	Vinyl chloride	10	ppbw	Daily	Method 601	
Formosa	Delaware City	1	6,000						[no data]
		2	3,000						[no data]
Formosa	Point Comfort		158700						
Georgia Gulf	Aberdeen	1	13,500	Vinyl chloride	250	ppbw	Quarterly	Method 107	
		2	18,000	Vinyl chloride	250	ppbw	Quarterly	Method 107	
		3	18,000	Vinyl chloride	250	ppbw	Quarterly	Method 107	
Georgia Gulf	Plaquemine	1	40,000						[cw pressure > process pressure]
		2	22,300						[cw pressure > process pressure]
		3	1,181						[no heat exchangers]
		4	11,000						[utility system]
OxyVinyls	Deer Park	1	8,400	Vinyl chloride	5000	ppbw	Monthly	Method 107	
		2	1,200	Vinyl chloride	5000	ppbw	Monthly	Method 107	
OxyVinyls	Pasadena	1	9,000	Vinyl chloride	50	ppbw	Monthly	Method 107	
		2	11,600	Vinyl chloride	50	ppbw	Monthly	Method 107	
OxyVinyls	Pedricktown	1	13,333	Vinyl chloride	1000	ppbv	Continuous	Similar to M106 and M21	[continuous monitoring of air above cooling tower]
PolyOne	Henry		39000						
PolyOne	Pedricktown	1	1,900						
		2	1,850						
Shintech	Addis		449						
Shintech	Freeport		360						
Shintech	Plaquemine		433						
Westlake	Calvert City	1	23,000						[no data]
Westlake	Geismar	1	10,653	Vinyl chloride	50	ppbw	Yearly	Method 107	

Calculated Emissions, Reductions, and Costs

OVP Conc (ppbw)	5.93		
% of LAL	12%		
Avg LAL (ppbw)	1363	Based on M107 only	
Avg Conc (ppbw)	162		
LAL (ppbw)	50	Cost per Repair ($/tower/yr)	4300
DOR LAL (ppbw)	800		
DOR Period (days)	120		
Repairs per yr	1		

REPORTED EMISSIONS FROM SURVEY	VC Conc	LAL	BASELINE EMISSIONS	EMISSION REDUCTIONS	REPAIR COSTS
VC (tpy)	(ppbw)	(ppbw)	VC (tpy)	VC (tpy)	($/yr)
	1.62E+02	1.36E+03	3.54E+00	2.45E+00	4.30E+03
	1.62E+02	1.36E+03	1.77E+00	1.22E+00	4.30E+03
	1.19E+03	1.00E+04	4.29E+01	4.11E+01	4.30E+03
	1.19E+00	1.00E+01	1.25E-01	0.00E+00	4.30E+03
	1.62E+02	1.36E+03	2.13E+00	1.47E+00	4.30E+03
	1.62E+02	1.36E+03	1.06E+00	7.34E-01	4.30E+03
	1.62E+02	1.36E+03	5.62E+01	3.88E+01	4.30E+03
	2.97E+01	2.50E+02	8.78E-01	0.00E+00	4.30E+03
	2.97E+01	2.50E+02	1.17E+00	0.00E+00	4.30E+03
	2.97E+01	2.50E+02	1.17E+00	0.00E+00	4.30E+03
					4.30E+03
					4.30E+03
					4.30E+03
					4.30E+03
	5.93E+02	5.00E+03	1.09E+01	1.00E+01	4.30E+03
	5.93E+02	5.00E+03	1.56E+00	1.43E+00	4.30E+03
9.40E-02	5.93E+00	5.00E+01	9.40E-02	0.00E+00	4.30E+03
1.81E-01	5.93E+00	5.00E+01	1.81E-01	0.00E+00	4.30E+03
	1.19E+02	1.00E+03	3.47E+00	2.01E+00	4.30E+03
	1.62E+02	1.36E+03	1.38E+01	9.54E+00	4.30E+03
	1.62E+02	1.36E+03	6.73E-01	4.65E-01	4.30E+03
	1.62E+02	1.36E+03	6.55E-01	4.53E-01	4.30E+03
	1.62E+02	1.36E+03	1.59E-01	1.10E-01	4.30E+03
	1.62E+02	1.36E+03	1.28E-01	8.81E-02	4.30E+03
	1.62E+02	1.36E+03	1.53E-01	1.06E-01	4.30E+03
	1.62E+02	1.36E+03	8.15E+00	5.63E+00	4.30E+03
	5.93E+00	5.00E+01	1.39E-01	0.00E+00	4.30E+03
			1.51E+02	**1.16E+02**	**1.16E+05**

ATTACHMENT F- HEAT EXCHANGER ANALYSIS
02/09/2012

Calculated Emissions, Reductions, and Costs

			MACT Floor Costs								Baseline Emissions and MACT Floor Emissions Reductions							
			MACT Floor Capital Cost ($)		MACT Floor - Annual Costs ($/yr)				Total Capital Cost	Total Annual Cost	Baseline Emissions (TPY)				MACT Floor Emissions Reductions (TPY)			
			Control Equip	T&M	Control Equip		T&M		$	$/yr	VCM	HCl	D/F	TOH	VCM	HCl	D/F	TOH
			Control Equip Capital Cost ($)	Testing and Monitoring Equip Capital Cost ($)	Control Equip Annualized Capital Cost ($/yr)	Control Equipmen Annual Cost ($/yr)	Testing and Monitoring Equip Annualized Initial Cost ($/yr)	Testing and Monitoring Annual Cost ($/yr)	Total Capital Cost ($)	Total Annualized Cost ($/yr)	Baseline - VCM (TPY)	Baseline - HCl (TPY)	Baseline - D/F (TPY)	Baseline - TOH (TPY)	Reduction - VCM - (TPY)	Reduction - HCl (TPY)	Reduction - D/F (TPY)	Reduction - TOH (TPY)
Certain Teed - Lake Charles	Area Source	Bulk								8.60E+03	5.31E+00			5.31E+00	3.67E+00			3.67E+00
PolyOne - Henry	PVC - Only	Suspension, Dispersion, Suspension Blending								4.30E+03	1.38E+01			1.38E+01	9.54E+00			9.54E+00
PolyOne - Pedricktown	PVC - Only	Dispersion								8.60E+03	1.33E+00			1.33E+00	9.18E-01			9.18E-01
Formosa - Delaware City	PVC - Only	Dispersion, Copolymer (VACO-D)								8.60E+03	3.19E+00			3.19E+00	2.20E+00			2.20E+00
Dow - Midland	PVC - Combined	Copolymer (VDCO-S)								4.30E+03	4.29E+01			4.29E+01	4.11E+01			4.11E+01
Formosa - Baton Rouge	PVC - Combined	Suspension								4.30E+03	1.25E-01			1.25E-01	0.00E+00			0.00E+00
Formosa - Point Comfort	PVC - Combined	Suspension								4.30E+03	5.62E+01			5.62E+01	3.88E+01			3.88E+01
Georgia Gulf - Aberdeen	PVC - Only	Suspension								1.29E+04	3.22E+00			3.22E+00	0.00E+00			0.00E+00
Georgia Gulf - Plaquemine	PVC - Combined	Suspension								1.72E+04	0.00E+00			0.00E+00	0.00E+00			0.00E+00
OxyVinyls - Deer Park	PVC - Combined	Suspension								8.60E+03	1.25E+01			1.25E+01	1.14E+01			1.14E+01
OxyVinyls - Pasadena	PVC - Only	Suspension								8.60E+03	2.75E-01			2.75E-01	0.00E+00			0.00E+00
OxyVinyls - Pedricktown	PVC - Only	Suspension								4.30E+03	3.47E+00			3.47E+00	2.01E+00			2.01E+00
Shintech - Addis	PVC - Only	Suspension								4.30E+03	1.59E-01			1.59E-01	1.10E-01			1.10E-01
Shintech - Freeport	PVC - Only	Suspension								4.30E+03	1.28E-01			1.28E-01	8.81E-02			8.81E-02
Shintech - Plaquemine	PVC - Combined	Suspension								4.30E+03	1.53E-01			1.53E-01	1.06E-01			1.06E-01
Westlake - Calvert City	PVC - Combined	Suspension								4.30E+03	8.15E+00			8.15E+00	5.63E+00			5.63E+00
Westlake - Geismar	PVC - Combined	Suspension								4.30E+03	1.39E-01			1.39E-01	0.00E+00			0.00E+00

Attachment G

GACT Analysis for Equipment Leaks

Equipment Leaks Summary & Costs

RTI Equipment Leaks Options Cost Summary

Component	Capital Costs	Annualized Capital Costs	Annual Costs	Total Annualized Costs
Pumps - Option 1	2.23E+03	3.65E+02	7.85E+01	4.43E+02
Valves - Option 1	4.53E+03	6.43E+02	2.39E+02	8.82E+02
Connectors - Option 1	5.75E+04	8.16E+03	6.18E+03	1.43E+04
Total	6.42E+04	9.17E+03	6.50E+03	1.57E+04

Cost Summary for PRD Monitoring Systems

Source Type	PRD Monitoring Costs	
	EPA	
CTLC	1.13E+05	1.61E+04

Cost Summary for Equipment Leaks

Company	LDAR Program[1]	(A) PRV Monitoring System Capital Cost ($)	(B) Capital Cost Increase of LDAR ($)	(C) Initial Record Keeping and Reporting	(D) TCI ($) C=A+B+C	(E) Annualized Capital Cost Increase of LDAR	(F) Annual Increase in LDAR Cost	(G) Total Annualized Increase LDAR Cost G=E+F	(H) Annualize Capital Cost of PRV Monitoring System ($)	(I) Annual Record Keeping and Reporting	(J) TAC ($) J=G+H+I	Baseline Emission[2] (Tons/yr)	Estimated Emission Reductions (Tons/yr)
Certain Teed - Lake Charles	40CFR61 V	1.13E+05	6.42E+04	2.62E+03	1.80E+05	9.17E+03	6.50E+03	1.57E+04	1.61E+04	4.49E+03	3.63E+04	1.00E+01	4.64E+00
OxyVinyls Deer Park	40CFR61 V	1.13E+05	6.42E+04	2.62E+03	1.80E+05	9.17E+03	6.50E+03	1.57E+04	1.61E+04	4.49E+03	3.63E+04	1.00E+01	4.64E+00
New Source Model	40CFR61 V	1.13E+05	6.42E+04	2.62E+03	1.80E+05	9.17E+03	6.50E+03	1.57E+04	1.61E+04	4.49E+03	3.63E+04	1.00E+01	4.64E+00

ATTACHMENT G- EQUIPMENT LEAKS ANALYSIS
02/09/2012

Equipment Leaks Emissions

Type of Component	Number of Components[1]	SubpartV Emission Factor (kg/hr/equipment)	Subpart UU Emission Factor (kr/hr/equipment)	Subpart V Emissions (Tons/yr)	Subpart UU Emissions (Tons/yr)	Emission Reduction (Tons/yr)
Pump Seals						
* Light-liquid service	15	2.51E-03	6.95E-04	3.49E-01	9.65E-02	2.52E-01
* Heavy-liquid service	0					
Valves						
* Gas/vapor service	762	3.52E-04	2.03E-04	2.48E+00	1.43E+00	1.05E+00
* Light-liquid service	153	3.90E-04	2.32E-04	5.53E-01	3.29E-01	2.24E-01
* Heavy-liquid service	0					
Connectors						
* Flanges - gas/vapor	0	3.07E-04	3.07E-04	0.00E+00	0.00E+00	0.00E+00
* Flanges - light liquid	2,322	3.07E-04	1.62E-04	6.60E+00	3.48E+00	3.12E+00
* Flanges -heavy liquid	0					
Agitators						
* Light-liquid service	0	2.51E-03	2.51E-03	0.00E+00	0.00E+00	0.00E+00
* Heavy-liquid service	0					
Pressure Relief Devices						
* Disks	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
* Disk holders, valves,etc.	2	NA	NA			
Open-ended Valves	33	3.33E-05	3.33E-05	1.02E-02	1.02E-02	0.00E+00
Sampling Connections	8	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Compressor Vent	0	2.28E-02	2.28E-02	0.00E+00	0.00E+00	0.00E+00
Facility Total				**1.00E+01**	**5.35E+00**	**4.64E+00**

Equipment Counts from "Testing-Inspections-Environmental" "Re: Stratified data for 2008 monitoring" Bruce Brocka, Certain Teed Corp. Note that Flanges/Connectors were not Gas/Vapor or Light Liquid Specified - Assumed Light Liquid.

Equipment Leaks Subpart V Cost (Based on CTLC Equipment Counts)

		Type of Component	Number of Components	Initial Monitoring Fee or Unit Cost ($/comp)	Initial LDAR Costs ($/yr) (Capital)	Initial LDAR Admin. Costs	Frequency of Monitoring (times/yr)	Subsequent Monitoring Fee ($/comp) or Charge (%)	Annual Monitoring Costs ($/yr)	Annual Maintenance Costs ($/yr)	Initial Leak Frequency (%)	Initial Number of Leaks	Subsequent Leak Frequency (%)	Annual Number of Leaks	Percent Repaired OnLine	Repair Time (hours)	Labor Charge ($/hr)	Annual OnLine Leak Repair Cost ($/yr)	Percent Requiring Further Repair	Repair Time (hours)	Labor Charge ($/hr)	Annual Offline Leak Repair Cost ($/yr)	Monitoring to Verify Repair ($)	Annual Admin. Cost ($/yr)	Annual Misc. Charges ($/yr)
Model 2		**Pump Seals**																							
		* Light-liquid service	1.50E+01	2.38E+01	7.42E+02		1.20E+01	1.50E+00	5.80E+02	1.16E+02	2.42E+00	3.63E-01	2.29E-01	4.11E-01	1.00E+02	######	######	4.36E+02	0.00E+00	######	6.62E+01	0.00E+00	6.17E-01		9.31E+01
		* Heavy-liquid service	0.00E+00	1.10E+00	0.00E+00																				
		Valves																							
		* Gas/vapor service	7.62E+02	2.38E+01	1.83E+04		2.00E+00	1.50E+00	2.29E+03		3.34E-01	2.55E+00	3.34E-01	5.09E+00	7.50E+01	######	######	4.22E+01	2.50E+01	######	6.62E+01	3.37E+02	7.64E+00		
		* Light-liquid service	1.53E+02	2.38E+01	3.68E+03		2.00E+00	1.50E+00	4.59E+02		3.34E-01	5.11E-01	3.34E-01	1.02E+00	7.50E+01	######	######	8.48E+00	2.50E+01	######	6.62E+01	6.77E+01	1.53E+00		
		* Heavy-liquid service	0.00E+00	1.10E+00	0.00E+00																				
		Connectors																							
		* Flanges - gas/vapor	0.00E+00	1.10E+00	0.00E+00																				
		* Flanges - light liquid	2.32E+03	1.10E+00	2.56E+03																				
		* Flanges -heavy liquid	0.00E+00	1.10E+00	0.00E+00																				
		Agitators																							
		* Light-liquid service	0.00E+00	2.38E+01	0.00E+00		1.20E+01	1.50E+00	0.00E+00	0.00E+00	2.42E+00	0.00E+00	2.29E-01	0.00E+00	1.00E+02	######	######	0.00E+00	0.00E+00	######	6.62E+01	0.00E+00	0.00E+00		0.00E+00
		* Heavy-liquid service	0.00E+00	1.10E+00	0.00E+00																				
		Pressure Relief Devices																							
		* Disks	2.00E+00	1.22E+02	2.44E+02		0.00E+00	2.00E+00	0.00E+00	4.88E+00															9.77E+00
		* Disk holders, valves,etc.	2.00E+00	6.37E+03	1.27E+04			5.00E+00		6.37E+02															5.10E+02
		Open-ended Valves	3.30E+01	1.41E+02	4.65E+03			5.00E+00		2.33E+02															1.86E+02
		Sampling Connections	8.00E+00	6.88E+02	5.50E+03			5.00E+00		2.75E+02															2.20E+02
		Compressor Vent	0.00E+00	1.05E+04	0.00E+00			5.00E+00		0.00E+00															0.00E+00
		Replacement Pump Seals	1.50E+01	2.83E+02	1.03E+02																				
		Monitoring Instrument	1.00E+00	1.08E+04	1.08E+04																				
		Data Collection System	1.00E+00	1.45E+04	1.45E+04																				
			hr/activity	$/hr																					
		Administrative and Reports	2.50E+02	9.27E+01																				2.32E+04	
		Planning and Training	3.20E+02	9.27E+01		2.97E+04																			
		TOTALS			7.39E+04	2.97E+04			3.33E+03	1.27E+03								4.87E+02				4.05E+02	1.77E+01	2.32E+04	1.02E+03

Capital Costs	103,539	
Capital Rec. Fac for Pump Seals and Rupture Disks	0.244	
Capital Rec. Fac for All other Equipment	0.142	
Annualized Capital Costs	14,738	
Annual Expenses	29,700	
Annual Fixed Costs ($/yr)	103,049	44,438
Annual Variable Costs ($/yr)	26,861	

Equipment Leaks Pumps Option 1 Cost (Based on CTLC Equipment Counts)

		Type of Component	Number of Components	Initial Monitoring Fee or Unit Cost ($/comp)	Initial LDAR Costs ($/yr) (Capital)	Initial LDAR Admin. Costs	Frequency of Monitoring (times/yr)	Subsequent Monitoring Fee ($/comp) or Charge (%)	Annual Monitoring Costs ($/yr)	Annual Maintenance Costs ($/yr)	Initial Leak Frequency (%)	Initial Number of Leaks	Subsequent Leak Frequency (%)	Annual Number of Leaks	Percent Repaired OnLine	Repair Time (hours)	Labor Charge ($/hr)	Annual OnLine Leak Repair Cost ($/yr)	Percent Requiring Further Repair	Repair Time (hours)	Labor Charge ($/hr)	Annual Offline Leak Repair Cost ($/yr)	Monitoring to Verify Repair ($)	Annual Admin. Cost ($/yr)	Annual Misc. Charges ($/yr)
Model 2		**Pump Seals**																							
		* Light-liquid service	1.50E+01	0.00E+00	2.15E+03		1.20E+01	1.50E+00	1.55E+03	1.30E+02	1.35E+01	2.02E+00	2.56E-01	4.61E-01	1.00E+02	######	######	4.89E+02	0.00E+00	######	6.62E+01	0.00E+00	6.92E-01		1.04E+02
		* Heavy-liquid service	0.00E+00	0.00E+00	0.00E+00																				
		Replacement Pump Seals	4.00E+01	2.83E+02	5.72E+02																				
			hr/activity	$/hr																					
		Administrative and Reports	0.00E+00	9.27E+01																				0.00E+00	
		Planning and Training	0.00E+00	9.27E+01		0.00E+00																			
		TOTALS			2.72E+03	0.00E+00			1.55E+03	1.30E+02								4.89E+02				0.00E+00	1.85E+00	0.00E+00	1.04E+02

Capital Costs	2.72E+03
Capital Rec. Fac for Pump Seals and Rupture Disks	2.44E-01
Capital Rec. Fac for All other Equipment	1.42E-01
Annualized Capital Costs	4.44E+02
Annual Expenses	2.27E+03

Baseline Monitoring

		Type of Component	Number of Components	Initial Monitoring Fee or Unit Cost ($/comp)	Initial LDAR Costs ($/yr) (Capital)	Initial LDAR Admin. Costs	Frequency of Monitoring (times/yr)	Subsequent Monitoring Fee ($/comp) or Charge (%)	Annual Monitoring Costs ($/yr)	Annual Maintenance Costs ($/yr)	Initial Leak Frequency (%)	Initial Number of Leaks	Subsequent Leak Frequency (%)	Annual Number of Leaks	Percent Repaired OnLine	Repair Time (hours)	Labor Charge ($/hr)	Annual OnLine Leak Repair Cost ($/yr)	Percent Requiring Further Repair	Repair Time (hours)	Labor Charge ($/hr)	Annual Offline Leak Repair Cost ($/yr)	Monitoring to Verify Repair ($)	Annual Admin. Cost ($/yr)	Annual Misc. Charges ($/yr)
Model 2		**Pump Seals**																							
		* Light-liquid service	1.50E+01	0.00E+00	3.85E+02		1.20E+01	1.50E+00	1.55E+03	1.16E+02	2.42E+00	3.63E-01	2.29E-01	4.11E-01	1.00E+02	######	######	4.36E+02	0.00E+00	######	6.62E+01	0.00E+00	6.17E-01		9.31E+01
		* Heavy-liquid service	0.00E+00	0.00E+00	0.00E+00																				
		Replacement Pump Seals	4.00E+01	2.83E+02	1.03E+02																				
			hr/activity	$/hr																					
		Administrative and Reports	0.00E+00	9.27E+01																				0.00E+00	
		Planning and Training	0.00E+00	9.27E+01		0.00E+00																			
		TOTALS			4.88E+02	0.00E+00			1.55E+03	1.16E+02								4.36E+02				0.00E+00	1.85E+00	0.00E+00	9.31E+01

	Monitoring	Repair
Capital Costs		4.88E+02
Capital Rec. Fac for Pump Seals and Rupture Disks		2.44E-01
Capital Rec. Fac for All other Equipment		1.42E-01
Annualized Capital Costs		7.98E+01
Annual Expenses	1.55E+03	5.52E+02

Incremental Capital Costs	**2.23E+03**
Incremental Annual Costs	**4.43E+02**

Equipment Leaks Valves Option 1 Cost (Based on CTLC Equipment Counts)

		Type of Component	Number of Components	Initial Monitoring Fee or Unit Cost ($/comp)	Initial LDAR Costs ($/yr) (Capital)	Initial LDAR Admin. Costs	Frequency of Monitoring (times/yr)	Subsequent Monitoring Fee ($/comp) or Charge (%)	Annual Monitoring Costs ($/yr)	Annual Maintenance Costs ($/yr)	Initial Leak Frequency (%)	Initial Number of Leaks	Subsequent Leak Frequency (%)	Annual Number of Leaks	Percent Repaired OnLine	Repair Time (hours)	Labor Charge ($/hr)	Annual OnLine Leak Repair Cost ($/yr)	Percent Requiring Further Repair	Repair Time (hours)	Labor Charge ($/hr)	Annual Offline Leak Repair Cost ($/yr)	Monitoring to Verify Repair ($)	Annual Admin. Cost ($/yr)	Annual Misc. Charges ($/yr)
Model 2		**Valves**																								
		* Gas/vapor service	7.62E+02	0.00E+00	4.20E+03		2.00E+00	1.50E+00	2.29E+03		7.24E+00	5.52E+01	5.06E-01	7.71E+00	7.50E+01	1.67E-01	6.62E+01	6.40E+01	2.50E+01	4.00E+00	6.62E+01	5.11E+02	1.16E+01		
		* Light-liquid service	1.53E+02	0.00E+00	5.63E+02		2.00E+00	1.50E+00	4.59E+02		4.84E+00	7.41E+00	5.06E-01	1.55E+00	7.50E+01	1.67E-01	6.62E+01	1.28E+01	2.50E+01	4.00E+00	6.62E+01	1.03E+02	2.32E+00		
		* Heavy-liquid service	0.00E+00	0.00E+00	0.00E+00																					
			hr/activity	$/hr																						
		Administrative and Reports	0.00E+00	9.27E+01																				0.00E+00		
		Planning and Training	0.00E+00	9.27E+01		0.00E+00																				
		TOTALS			4.76E+03	0.00E+00			2.75E+03	0.00E+00								7.68E+01				6.13E+02	1.39E+01	0.00E+00	0.00E+00

Capital Costs	4.76E+03
Capital Rec. Fac for Pump Seals and Rupture Disks	2.44E-01
Capital Rec. Fac for All other Equipment	1.42E-01
Annualized Capital Costs	6.76E+02
Annual Expenses	3.45E+03

Baseline Monitoring

		Type of Component	Number of Components	Initial Monitoring Fee or Unit Cost ($/comp)	Initial LDAR Costs ($/yr) (Capital)	Initial LDAR Admin. Costs	Frequency of Monitoring (times/yr)	Subsequent Monitoring Fee ($/comp) or Charge (%)	Annual Monitoring Costs ($/yr)	Annual Maintenance Costs ($/yr)	Initial Leak Frequency (%)	Initial Number of Leaks	Subsequent Leak Frequency (%)	Annual Number of Leaks	Percent Repaired OnLine	Repair Time (hours)	Labor Charge ($/hr)	Annual OnLine Leak Repair Cost ($/yr)	Percent Requiring Further Repair	Repair Time (hours)	Labor Charge ($/hr)	Annual Offline Leak Repair Cost ($/yr)	Monitoring to Verify Repair ($)	Annual Admin. Cost ($/yr)	Annual Misc. Charges ($/yr)
Model 2		**Valves**																								
		* Gas/vapor service	7.62E+02	0.00E+00	1.94E+02		2.00E+00	1.50E+00	2.29E+03		3.34E-01	2.55E+00	3.34E-01	5.09E+00	7.50E+01	1.67E-01	6.62E+01	4.22E+01	2.50E+01	4.00E+00	6.62E+01	3.37E+02	7.64E+00		
		* Light-liquid service	1.53E+02	0.00E+00	3.89E+01		2.00E+00	1.50E+00	4.59E+02		3.34E-01	5.11E-01	3.34E-01	1.02E+00	7.50E+01	1.67E-01	6.62E+01	8.48E+00	2.50E+01	4.00E+00	6.62E+01	6.77E+01	1.53E+00		
		* Heavy-liquid service	0.00E+00	0.00E+00	0.00E+00																					
			hr/activity	$/hr																						
		Administrative and Reports	0.00E+00	9.27E+01																				0.00E+00		
		Planning and Training	0.00E+00	9.27E+01		0.00E+00																				
		TOTALS			2.32E+02	0.00E+00			2.75E+03	0.00E+00								5.07E+01				4.05E+02	9.17E+00	0.00E+00	0.00E+00

Capital Costs	2.32E+02
Capital Rec. Fac for Pump Seals and Rupture Disks	2.44E-01
Capital Rec. Fac for All other Equipment	1.42E-01
Annualized Capital Costs	3.30E+01
Annual Expenses	3.21E+03

Incremental Capital Costs	**4.53E+03**
Incremental Annual Costs	**8.82E+02**

Equipment Leaks Connectors Option 1 Cost (Based on CTLC Equipment Counts)

		Type of Component	Number of Components	Initial Monitoring Fee or Unit Cost ($/comp)	Initial LDAR Costs ($/yr) (Capital)	Initial LDAR Admin. Costs	Frequency of Monitoring (times/yr)	Subsequent Monitoring Fee ($/comp) or Charge (%)	Annual Monitoring Costs ($/yr)	Annual Maintenance Costs ($/yr)	Initial Leak Frequency (%)	Initial Number of Leaks	Subsequent Leak Frequency (%)	Annual Number of Leaks	Percent Repaired OnLine	Repair Time (hours)	Labor Charge ($/hr)	Annual OnLine Leak Repair Cost ($/yr)	Percent Requiring Further Repair	Repair Time (hours)	Labor Charge ($/hr)	Annual Offline Leak Repair Cost ($/yr)	Monitoring to Verify Repair ($)	Annual Admin. Cost ($/yr)	Annual Misc. Charges ($/yr)
Model 2		**Connectors**																								
		* Flanges - gas/vapor	0.00E+00	2.38E+01	0.00E+00		2.00E-01	2.50E+00	0.00E+00		3.60E-01	0.00E+00	3.60E-01	0.00E+00	7.50E+01	1.67E-01	6.62E+01	0.00E+00	2.50E+01	2.00E+00	6.62E+01	0.00E+00	0.00E+00		
		* Flanges - light liquid	2.32E+03	2.38E+01	5.56E+04		2.50E-01	2.50E+00	1.45E+03		3.60E-01	8.36E+00	3.60E-01	2.09E+00	7.50E+01	1.67E-01	6.62E+01	1.73E+01	2.50E+01	2.00E+00	6.62E+01	6.92E+01	5.22E+00		
		* Flanges -heavy liquid	0.00E+00	0.00E+00	0.00E+00																					
			hr/activity	$/hr																						
		Administrative and Reports	5.00E+01	9.27E+01																				4.64E+03		
		Planning and Training	2.00E+01	9.27E+01		1.85E+03																				
									1.45E+03	0.00E+00								1.73E+01				6.92E+01	5.22E+00	0.00E+00	0.00E+00
		TOTALS			5.56E+04	1.85E+03			1.45E+03	0.00E+00								1.73E+01				6.92E+01	5.22E+00	4.64E+03	0.00E+00

Capital Costs	**5.75E+04**
Capital Rec. Fac for Pump Seals and Rupture Disks	2.44E-01
Capital Rec. Fac for All other Equipment	1.42E-01
Annualized Capital Costs	**8.16E+03**
Annual Expenses	**6.18E+03**

Attachment H

GACT Analysis for Other Emission Sources

Other Emission Sources

Calculated GACT Baseline

Emission Source	Existing Source	New Source	Notes
Reactor Openings	Subpart F	Subpart F	
Gas Holders	No Control	No Control	No Gas Holders at Existing Area Sources

Existing and New Source GACT Summary for Other Emission Sources

Emission Source	Existing Source GACT Limit	Option 1 Limit (Existing Source Requirements)	Emissions Reductions as a Result of Option 1 Complaince (tons/yr)
Reactor Openings	Subpart F	Subpart F	-
Gas Holders	No Control	Floating Objects	6.16E-01

GACT Analysis - OES - New and Existing Area Sources

Cost Component	CTLC	OVDP	Model New Facility
Initial Costs			
Control Equipment Capital Cost			5.00E+03
Initial Record Keeping and Re	1.10E+03	1.10E+03	1.10E+03
Total Initial Costs	**1.10E+03**	**1.10E+03**	**6.10E+03**
Annual Costs			
Annualized Capital Cost			9.28E+02
Annual Equipment Cost			5.50E+02
Annual Record Keeping and R	1.55E+03	1.55E+03	1.55E+03
Total Annual Cost	**1.55E+03**	**1.55E+03**	**3.03E+03**

Other Emission Sources - Reactor Opening Emissions

Company	Facility	Process	Equipment	Total 2008 Emissions (lbs)		
				Total VOC	Vinyl Chloride	Methanol
CertainTeed	Lake Charles	B	Reactor Openings		6.69E+01	
Dow	Midland	S				
Dow (Union Carbide)	Texas City	SL	Filter Openings			8.81E-01
Formosa	Baton Rouge	S	Filter Openings	1.03E+02	1.03E+02	
Formosa	Baton Rouge	S	Reactor Openings	8.62E+01	8.62E+01	
Formosa	Baton Rouge	S	Vessel Openings	1.03E+02	1.03E+02	
Formosa	Deleware City	D	Reactor Openings			
Formosa	Point Comfort - PVC Unit	S	Filter Openings	1.60E-01	1.60E-01	
Formosa	Point Comfort - PVC Unit	S	Reactor Openings	2.13E+02	2.13E+02	
Formosa	Point Comfort - PVC Unit	S	Stripping Column	1.90E+00	1.90E+00	
Formosa	Point Comfort - PVC Unit	S	Vessel Openings	9.96E+00	9.96E+00	
Georgia Gulf	Aberdeen	S	Vessel Openings			
Georgia Gulf	Plaquemine	S	Reactor Openings			
OxyVinyls	Deer Park	S	Filter Openings	5.50E-03		
OxyVinyls	Deer Park	S	Foam Trap	5.70E-02		
OxyVinyls	Deer Park	S	Reactor Openings	3.03E+01		
OxyVinyls	Deer Park	S	Stripping Column	3.04E-01		
OxyVinyls	Deer Park	S	Vessel Openings	1.01E+00		
OxyVinyls	Deer Park	S	Waste Water Stripper	0.00E+00		
OxyVinyls	Pasadena	S	Condensers	1.90E-01		
OxyVinyls	Pasadena	S	Filter Openings	4.70E-02		
OxyVinyls	Pasadena	S	Reactor Openings	8.23E+00		
OxyVinyls	Pasadena	S	Vessel Openings	2.61E+01	1.00E-02	
OxyVinyls	Pasadena	S	Wash Columns	8.60E-01		
OxyVinyls	Pedricktown	S	Filter Openings			
OxyVinyls	Pedricktown	S	Reactor Openings	4.89E+00	4.89E+00	
OxyVinyls	Pedricktown	S	Recovery Separators			
OxyVinyls	Pedricktown	S	Stripping Column	4.89E+00	4.89E+00	
OxyVinyls	Pedricktown	S	Vessel Openings			
PolyOne	Henry	S, D	Reactor Openings			
PolyOne	Pedricktown	D	Reactor Openings	7.69E+03	5.49E+05	
PolyOne	Pedricktown	D	Vessel Openings	3.58E-02	3.58E-02	
Shintech	Addis	S	Reactor Openings	1.33E+01	1.33E+01	
Shintech	Freeport	S	Reactor Openings		3.90E+02	
Shintech	Freeport	S	Storage Sphere		5.11E+00	
Shintech	Plaquemine	S	Reactor Openings	5.00E+02	5.00E+02	
Westlake	Calvert City	S	Reactor Openings	1.78E+02	1.78E+02	
Westlake	Calvert City	S	Stripping Column	2.72E+00	2.72E+00	
Westlake	Calvert City	S	Vessel Openings	3.00E-03	3.00E-03	
Westlake	Geismar	S	Reactor Openings	1.05E+02	1.05E+02	

Total 2008 Emissions (lbs)			
Total VOC	Vinyl Chloride	Methanol	Total Organic HAP
0.00E+00	6.69E+01	0.00E+00	6.69E+01
0.00E+00	6.69E+01	0.00E+00	6.69E+01
0.00E+00	6.69E+01	8.81E-01	6.78E+01
1.03E+02	1.03E+02	0.00E+00	1.03E+02
8.62E+01	8.62E+01	0.00E+00	8.62E+01
1.03E+02	1.03E+02	0.00E+00	1.03E+02
0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.60E-01	1.60E-01	0.00E+00	1.60E-01
2.13E+02	2.13E+02	0.00E+00	2.13E+02
1.90E+00	1.90E+00	0.00E+00	1.90E+00
9.96E+00	9.96E+00	0.00E+00	9.96E+00
0.00E+00	6.69E+01	0.00E+00	6.69E+01
0.00E+00	6.69E+01	0.00E+00	6.69E+01
5.50E-03	6.69E+01	0.00E+00	6.69E+01
5.70E-02	6.69E+01	0.00E+00	6.69E+01
3.03E+01	6.69E+01	0.00E+00	6.69E+01
3.04E-01	6.69E+01	0.00E+00	6.69E+01
1.01E+00	6.69E+01	0.00E+00	6.69E+01
0.00E+00	6.69E+01	0.00E+00	6.69E+01
1.90E-01	6.69E+01	0.00E+00	6.69E+01
4.70E-02	6.69E+01	0.00E+00	6.69E+01
8.23E+00	6.69E+01	0.00E+00	6.69E+01
2.61E+01	1.00E-02	0.00E+00	1.00E-02
8.60E-01	6.69E+01	0.00E+00	6.69E+01
0.00E+00	6.69E+01	0.00E+00	6.69E+01
4.89E+00	4.89E+00	0.00E+00	4.89E+00
0.00E+00	6.69E+01	0.00E+00	6.69E+01
4.89E+00	4.89E+00	0.00E+00	4.89E+00
0.00E+00	6.69E+01	0.00E+00	6.69E+01
0.00E+00	6.69E+01	0.00E+00	6.69E+01
4.00E-02	4.00E-02	0.00E+00	4.00E-02
3.58E-02	3.58E-02	0.00E+00	3.58E-02
1.33E+01	1.33E+01	0.00E+00	1.33E+01
0.00E+00	3.90E+02	0.00E+00	3.90E+02
0.00E+00	5.11E+00	0.00E+00	5.11E+00
5.00E+02	5.00E+02	0.00E+00	5.00E+02
1.78E+02	1.78E+02	0.00E+00	1.78E+02
2.72E+00	2.72E+00	0.00E+00	2.72E+00
3.00E-03	3.00E-03	0.00E+00	3.00E-03
1.05E+02	1.05E+02	0.00E+00	1.05E+02

Company	Facility	Process	VC (tpy)	TOH (TPY)
CertainTeed	Lake Charles	B	3.35E-02	3.35E-02
Dow	Midland	S	3.35E-02	3.35E-02
Dow (Union Carbide)	Texas City	SL	3.35E-02	3.39E-02
Formosa	Baton Rouge	S	5.13E-02	5.13E-02
Formosa	Baton Rouge	S	4.31E-02	4.31E-02
Formosa	Baton Rouge	S	5.13E-02	5.13E-02
Formosa	Deleware City	D	0.00E+00	0.00E+00
Formosa	Point Comfort - PVC Unit	S	8.00E-05	8.00E-05
Formosa	Point Comfort - PVC Unit	S	1.07E-01	1.07E-01
Formosa	Point Comfort - PVC Unit	S	9.50E-04	9.50E-04
Formosa	Point Comfort - PVC Unit	S	4.98E-03	4.98E-03
Georgia Gulf	Aberdeen	S	3.35E-02	3.35E-02
Georgia Gulf	Plaquemine	S	3.35E-02	3.35E-02
OxyVinyls	Deer Park	S	3.35E-02	3.35E-02
OxyVinyls	Deer Park	S	3.35E-02	3.35E-02
OxyVinyls	Deer Park	S	3.35E-02	3.35E-02
OxyVinyls	Deer Park	S	3.35E-02	3.35E-02
OxyVinyls	Deer Park	S	3.35E-02	3.35E-02
OxyVinyls	Pasadena	S	3.35E-02	3.35E-02
OxyVinyls	Pasadena	S	3.35E-02	3.35E-02
OxyVinyls	Pasadena	S	3.35E-02	3.35E-02
OxyVinyls	Pasadena	S	5.00E-06	5.00E-06
OxyVinyls	Pasadena	S	3.35E-02	3.35E-02
OxyVinyls	Pedricktown	S	3.35E-02	3.35E-02
OxyVinyls	Pedricktown	S	2.45E-03	2.45E-03
OxyVinyls	Pedricktown	S	3.35E-02	3.35E-02
OxyVinyls	Pedricktown	S	2.45E-03	2.45E-03
OxyVinyls	Pedricktown	S	3.35E-02	3.35E-02
PolyOne	Henry	S, D	3.35E-02	3.35E-02
PolyOne	Pedricktown	D	2.00E-05	2.00E-05
PolyOne	Pedricktown	D	1.79E-05	1.79E-05
Shintech	Addis	S	6.65E-03	6.65E-03
Shintech	Freeport	S	1.95E-01	1.95E-01
Shintech	Freeport	S	2.56E-03	2.56E-03
Shintech	Plaquemine	S	2.50E-01	2.50E-01
Westlake	Calvert City	S	8.88E-02	8.88E-02
Westlake	Calvert City	S	1.36E-03	1.36E-03
Westlake	Calvert City	S	1.50E-06	1.50E-06
Westlake	Geismar	S	5.25E-02	5.25E-02

* Excluded: compressors, pumps, exchangers.
** PolyOne included with dispersion.
*** Dow - Midland added; no emissions reported from equipment openings.

Average of Reported Emissions >0 lb/yr

Bulk	0.00E+00	6.69E+01	0.00E+00
Dispersion	3.58E-02	3.58E-02	0.00E+00
All Other	5.57E+01	1.01E+02	8.81E-01

Reported values from PolyOne - Pedricktown excluded.

Bulk	0.00E+00	3.35E-02	0.00E+00	3.35E-02
Dispersion	3.79E-05	3.35E-02	0.00E+00	3.35E-02
All Other	6.96E-01	1.40E+00	0.00E+00	1.40E+00
TOTAL	6.96E-01	**1.46E+00**	0.00E+00	**1.46E+00**

Average value applied to PolyOne - Pedricktown
0.6960

Other Emission Sources - Gas Holders

Facility	Number of Gas Holders	Total Initial Cost	Annualized Capital Cost	Annual Equipment Cost	Total Annualized Cost	Emission Reduction (TPY)
New Model Area Source	1	5.00E+03	9.28E+02	5.50E+02	1.48E+03	6.16E-01

Public Comment Data

15 gas holders at 7 locations[1]		
Total annual fugitive emissions[1]	A small gas holder's estimated fugitive emissions are approximately 0.88 tons per year VCM, while larger gas holder could emit 3.3. (Average = 2.09 TPY)	
Floating Object installed Cost[2]	$5,000	per gas holder
Estimated emission reduction from floating objects[2]	70%	
Westlake Geismar cost of mats (does not include installation)[2]	$3,000	

Option 1 Limit (Existing Source Requirements)

Table B.2 Total Capital Investment and Total Annualized Cost Estimate: Flow Indicator - Gas Phase

Component	Equation	Cost ($)
Capital and Other Initial Costs		
Total Capital Investment ($2011)	TCI	**5.00E+03**
Annualized Costs		
Maintenance and repairs[3]	O&M=.07*TCI	3.50E+02
Taxes, Insurance[3]	TI=0.04*TCI	2.00E+02
Interest Rate[3]	i	7.00E-02
Equipment Life[3] (years)	n	7.00E+00
Capital Recovery Factor[4]	$CRF=(i*(1+i)^n)/((1+i)^n-1)$	1.86E-01
Capital Recovery[4]	CR=CFR*TCI	9.28E+02
Total Annualized Costs ($/yr) ($2011)	TAC=O&M+TI+CR	**1.48E+03**

		LOW	HIGH
Area Source VCM Removed (ton/yr)	(ton per gas holder)*(%Reduction)	**6.16E-01**	**2.31E+00**

References

1 - Comments Of The Vinyl Institute, Inc., PVC Mact Working Group. Docket ID No. EPA-HQ-OAR-2002-0037
2 - Krock, Richard P. Memorandum to Ms. Jodi Howard. "Vinyl Institute Response to EPA Request for Additional Information on Work Practices for Gasholders at PVC Resin Manufacturing Facilities." September 22, 2011
3 - Peters, Timmerhaus, and West. "Plant Design and Economics for Chemical Engineers." Fifth Edition. McGraw Hill. New York, NY. 2003. pg. 268
4 - U.S. EPA. "Air Pollution Control Cost Manual." Sixth Edition (EPA/452/B-02-001). January 2002 pg 2-21

Attachment I

Recordkeeping and Reporting Cost Estimation for Area Sources

ATTACHMENT I: RECORDKEEPING AND REPORTING COST ESTIMATION FOR AREA SOURCES

02/09/12

Record Keeping and Reporting Burden By Emission Point						
Emission Point	Initial Cost ($)	Initial Notes	Annual Cost ($/yr)			Annual Notes
			Yr 1	Yr 2	Yr 3	
Resins	$2,639	a,b,d	$2,393	$6,806.13	$6,806.13	e,f,g
Process Vents	$9,927	a,b,c,d	$0	$4,500.12	$4,500.12	e,f,g
Wastewater	$3,074	a,b,d	$2,393	$7,023.67	$7,023.67	e,f,g
Equipment Leaks	$2,639	a,b,d	$2,611	$8,981.60	$8,981.60	e,f,g,h
Storage Vessels	$2,204	a,d	$0	$3,107.82	$3,107.82	e,f,g
Heat Exchange Systems	$2,204	a,b,d	$5,221	$8,328.96	$8,328.96	e,f,g
Other Sources	$2,204	a,d	$0	$3,107.82	$3,107.82	e,f,g
Total	**$24,892**		**$12,617.75**	**$41,856.12**	**$41,856.12**	

a	Labor/Non Labor Costs to "Read/Understand Rule Requirements" divided by 7 emission points
b	Initial Performance Test/Sampling/Report
c	Establishment of operating parameters and monitoring plan
d	Report preparation for item 3.E.1-6 divided by 7 emission points
e	Periodic sampling/testing/and monitoring (not applicable for process vents in year 1)
f	Years 2 and 3 include items 3.E.5 and 3.E.6 divided by 7 emission points
g	In year 2 and 3, recordkeeping items under 4.D are included
h	includes annual labor cost for PRD monitoring system

Attachment J

Storage Vessel Information Provided in Facility Survey

Storage - Baseline Emissions

Baseline Emissions Analysis for Storage Tanks

Company	Facility	Process	Reported Emissions, lb/yr			Baseline Emissions, lb/yr			Baseline Emissions, tons/yr		
			Total VOC	Total Organic HAP	Vinyl Chloride	Total VOC	Total Organic HAP	Vinyl Chloride	Total VOC	Total Organic HAP	Vinyl Chloride
CertainTeed	Lake Charles	B	2.00E-01	2.00E-01		2.00E-01	2.00E-01	0.00E+00		1.00E-04	0.00E+00
Formosa	Delaware City	D	7.06E+02	7.06E+02		7.06E+02	7.06E+02	0.00E+00		3.53E-01	0.00E+00
PolyOne	Henry	D				7.06E+02	7.06E+02	0.00E+00		3.53E-01	0.00E+00
PolyOne	Pedricktown	D				7.06E+02	7.06E+02	0.00E+00		3.53E-01	0.00E+00
Dow	Midland	S	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
Dow (Union Carbide)	Texas City	SL	7.20E+02	7.20E+02		7.20E+02	7.20E+02	6.72E+02		3.60E-01	3.36E-01
Formosa	Baton Rouge	S	2.01E+03	2.44E+03		2.01E+03	2.44E+03	6.72E+02		1.22E+00	3.36E-01
Formosa	Point Comfort - PVC	S	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00
Georgia Gulf	Aberdeen	S				1.02E+03	9.85E+02	6.72E+02		4.92E-01	3.36E-01
Georgia Gulf	Plaquemine	S				1.02E+03	9.85E+02	6.72E+02		4.92E-01	3.36E-01
OxyVinyls	Deer Park	S				1.02E+03	9.85E+02	6.72E+02		4.92E-01	3.36E-01
OxyVinyls	Pasadena	S				1.02E+03	9.85E+02	6.72E+02		4.92E-01	3.36E-01
OxyVinyls	Pedricktown	S				1.02E+03	9.85E+02	6.72E+02		4.92E-01	3.36E-01
Shintech	Addis	S	2.58E+03	2.12E+03	1.80E+03	2.58E+03	2.12E+03	1.80E+03		1.06E+00	8.99E-01
Shintech	Freeport	S	1.31E+03	4.03E+02		1.31E+03	4.03E+02	6.72E+02		2.02E-01	3.36E-01
Shintech	Plaquemine	S	4.20E+02	1.80E+02	1.80E+02	4.20E+02	1.80E+02	1.80E+02		9.02E-02	9.02E-02
Westlake	Calvert City	S	9.60E-02	0.00E+00		9.60E-02	0.00E+00	6.72E+02		0.00E+00	3.36E-01
Westlake	Geismar	S	7.36E+01	4.65E+01	3.94E+01	7.36E+01	4.65E+01	3.94E+01		2.32E-02	1.97E-02

Average of Reported Emissions >0 lb/yr

Bulk	2.00E-01	2.00E-01	0.00E+00
Dispersion	7.06E+02	7.06E+02	0.00E+00
All Other	1.02E+03	9.85E+02	6.72E+02

Totals in Tons per Year

Bulk	1.00E-04	1.00E-04	0.00E+00		
Dispersion	1.06E+00	1.06E+00	0.00E+00		
All Other	5.74E+00	5.06E+00	3.70E+00		
TOTAL	**6.80E+00**	**6.12E+00**	**3.70E+00**	6.12E+00	3.70E+00

* PolyOne - Henry included in dispersion category.

** Average of reported emissions grater than zero for each category applied to facilities in that category that did not report emissions.

*** Certain Teed did not report a value for Vinyl Chloride - Since there are no other bulk facilities, a value of zero was assumed