



On September 19, 2011, at 7:12 AM, the CO2 scrubber discharge pump had to be shut off due to a failed coupler. The operators noticed the level increased rapidly, and upon inspection the coupler was found to be broken. In order to repair the pump, the water flow had to be shut off to prevent overflowing the scrubber. During the repair, the fermentation exhaust vented through the scrubber with no water flow. The water flow was stopped for 25 minutes while repairs were made. Excess emissions from this event are summarized in Table 1 below.

**Table 1 - Estimated Uncontrolled Fermentation Emissions  
 Fermentation Scrubber Pump Failure on September 19, 2011 at 7:12 AM.**

Water flow to the fermentation scrubber was lost at 7:12 AM and was restarted at 7:28 AM. During this time, the uncontrolled emissions from the fermentation tanks vented to the atmosphere through the scrubber by-pass stack. The estimate of uncontrolled emissions from this event is presented below.

Time 9/19/2011	Excess Emissions Duration (hrs)	Ferm. Tank #1		Ferm. Tank #2		Ferm Tank #3		Total VOM Uncontrolled (lbs)
		Tank Age (hrs)	VOM Uncontrolled (lbs)	Tank Age (hrs)	VOM Uncontrolled (lbs)	Tank Age (hrs)	VOM Uncontrolled (lbs)	
Fermentation Scrubber water supply was lost at 11:19								
09/19/11 7 - 8 AM	0.27	44.00	9.04	26.00	43.90	9.00	37.92	90.85
Fermentation Scrubber was placed back on line at approximately 7:28 AM (0.27-hr deviation)								
<b>Totals</b>	<b>0.27</b>							<b>90.85</b>

**Fermentation Process Emission Estimate**

Compound	Uncontrolled VOM Emissions by FTIR		Estimated Uncontrolled Fermentation Emissions	
	low flow Uncontrolled VOM <sup>a</sup> (lb/hr)	Percent of Total VOM by FTIR (%)		
			(lbs)	(tons)
Acetaldehyde	3.0000	0.8192%	0.7443	0.0004
Formaldehyde	0.3967	0.1083%	0.0984	0.0000
Acrolein	0.0000	0.0000%	0.0000	0.0000
Methanol	0.0200	0.0055%	0.0050	0.0000
<b>Total HAPs</b>	<b>3.4167</b>	<b>0.9330%</b>	<b>0.8477</b>	<b>0.0004</b>
<b>Total VOM (M25A)</b>	<b>366.20</b>		<b>90.85</b>	<b>0.0454</b>

a. Distribution of HAPs in VOM emissions based on uncontrolled emissions from August 2006 testing upstream of scrubber during low flow conditions.

**Table 2 - Estimated Total Uncontrolled VOM/HAP Emissions from Deviation Event  
 Fermentation Scrubber Pump Failure on September 19, 2011 at 7:12 AM.**

Compound	Estimated Uncontrolled VOM / HAP Emissions from Event	
	(lbs)	(tons)
Acetaldehyde (HAP)	0.74	0.0004
Formaldehyde (HAP)	0.10	0.0000
Acrolein (HAP)	0.00	0.0000
Methanol (HAP)	0.00	0.0000
<b>Total HAPs</b>	<b>0.85</b>	<b>0.0004</b>
<b>Total VOM (MSF)</b>	<b>90.85</b>	<b>0.0454</b>