

## Identifying the Largest Facilities And Source Categories of VOCs

### Description of the issue

This strategy to reduce ambient ozone levels within the non-attainment area (NAA) considers changes that can be made by identifying the largest facilities and source categories of volatile organic compounds (VOCs). The Colorado Air Pollution Control Division (APCD), Stationary Source Program (SSP) is assessing the largest facilities and source categories reported to the APCD in the SSP inventory. This analysis will help the APCD consider potential VOC emissions reductions based on the percentage contribution of significant source categories and individual facilities to the total VOC emissions in the state. From here, the APCD can outline possible controls for these source categories and/or facilities that will obtain real, quantifiable reductions of VOCs. The main area of interest is the 8-hour non-attainment area, however VOC reductions from all stationary sources in the state of Colorado can help reduce ozone pollution, so a statewide inventory will also be analyzed.

The inventory analysis was conducted by evaluating the most current data - based on actual emissions - sources have reported to APCD in Air Pollutant Emission Notices (APENs) and six-month Regulation 7 condensate tank compliance reports. Data that was used for this analysis is actual emissions reported by the source, therefore the effects of future controls (required by regulation or voluntary) are not included. Sources should provide updated APENs to the Division if the APEN data on file is not accurate. The APCD is considering potential VOC emissions reductions from the highest emitting source categories and/or highest emitting facilities of VOC both in the NAA and/or statewide. For simplification purposes, only non-oil and gas stationary sources will be addressed in Table 2. Oil and Gas sources are being addressed through the Oil and Gas stakeholder process.

The following tables illustrate potential VOC emissions reductions being considered. “Table 1 – *Source Categories Greater Than One Ton of VOC/day in the Non-attainment Area*” summarizes source categories and associated VOC emissions contributions in the 8-hour Ozone Non-attainment Area.

**Table 1 –Source Categories Greater Than One Ton of VOC/day in the Ozone Non-attainment Area Based on 2006 Data**

Unit Description	Tons/year	Tons/day	Percentage	Count
Oil and Gas-Field Storage and Working Tanks (flash)	42,289	116	73%	4,558
Oil and Gas-Internal Combustion Engines - Natural Gas	1,983	5	3%	256
Gasoline Retail Operations - Stage I**	1,508	4	3%	1,720
Miscellaneous Volatile Organic Compound Evaporation	1,387	4	2%	678
Petroleum and Solvent Evaporation - Miscellaneous <i>Surface Coating</i>	980	3	2%	167
Petroleum Industry - Catalytic Cracking Units	656	2	1%	2
Surface Coating Application - General	542	1	1%	406
Miscellaneous Manufacturing Industries- Industrial Processes	507	1	1%	92
Beer Production	506	1	1%	28
Printing and Publishing-Petroleum and Solvent Evaporation	418	1	1%	171
Surface Coating Operations-Thinning Solvents	325	1	1%	191
Oil and Gas-Natural Gas Production	317	1	1%	31
Asphalt Concrete	303	1	1%	42
Oil and Gas-Fugitive Emissions	289	1	1%	19
Oil and Gas-Natural Gas Processing Facilities	261	1	0%	26
Surface Coating Operations-Metal Can Coating	258	1	0%	2
Bulk Plants	243	1	0%	76

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In Situ Venting/Venting of Soils	208	1	0%	64
Bulk Terminals	192	1	0%	54
Oil and Gas-Crude Oil Production	192	1	0%	26
Electric Generation-Internal Combustion Engines-Natural Gas	189	1	0%	26

\*\* Stage II Vapor Recovery will be addressed in a separate issue paper.

Table 1 represents 10% of the total source categories in the APCD inventory. All source categories less than 1 ton per year have been removed for simplification purposes, and percentages are rounded to whole numbers.

**Table 2 – Highest VOC Emitting Facilities in the 8-Hour Ozone Non-Attainment Area**

Updated with APEN query on March 3, 2008

Facility Name	Actual VOC Emissions-Tons/year	Potential Areas for Control
SUNCOR ENERGY - DENVER REFINERY	1,035	Actual emissions are estimated at 339 tpy as reported by the source. Emissions from storage tanks and fugitives could be controlled.
COORS BREWING CO VALLEY COMPLEX	494	Emissions from bottle and can filling line. VOCs could be routed to existing VOC duct and combusted.
COLORADO INTERSTATE GAS CO CHEYENNE STN	350	Possible controls in May 2008
METAL CONTAINER CORP	*246	Facility wide VOCs. Could install a thermal oxidizer, similar to Ball
KERR-MCGEE FT LUPTON COMPRESSOR STATION	213	Possible controls in May 2008
ANHEUSER BUSCH INC	*196	VOCs from filling line. Could install VOC ducts/collection system similar to Coors
BP AMERICA PRODUCTION CO. WATTENBERG PLT	195	Possible controls in May 2008
DCP MIDSTREAM LP – ENTERPRISE	*178	Possible controls in May 2008
NOBLE ENERGY INC. BATTERY #91460500	170	Possible controls in May 2008
CONOCOPHILLIPS PIPE LINE CO- DENVER TERM	155	Possible controls in May 2008
ROCKY MOUNTAIN PIPELINE SYSTEM, LLC	*152	Possible controls in May 2008
DCP MIDSTREAM, LP- MEWBOURN	*147	Possible controls in May 2008
CEMEX, INC. - LYONS CEMENT PLANT	*147	Actual emissions are estimated at much lower.
INSULFOAM LLC	145	Emissions from Expandable Polystyrene (EPS) bead use and off-gas. Could control with an afterburner during the process and carbon filter for storage off-gas emissions.
DCP MIDSTREAM, LP - PLATTEVILLE	141	Possible controls in May 2008

\*Facilities reported actual emissions and actual uncontrolled emissions are the same.

**Table 3 – Highest VOC Emitting Facilities in the State of Colorado**

Updated with APEN query on March 3, 2008

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Facility Name	Actual VOC Emissions-Tons/year	Potential Areas for Control
SUNCOR ENERGY - DENVER REFINERY	1,035	Actual emissions are estimated at 339 tpy as reported by the source. Emissions from storage tanks and fugitives could be controlled.
COORS BREWING CO VALLEY COMPLEX	491	Emissions from bottle and can filling line. VOCs could be routed to existing VOC duct and combusted.
COLORADO INTERSTATE GAS CO CHEYENNE STN	350	Possible controls in May 2008
OAKDALE GAS PROCESSING - LA VETA GAS P	*255	Possible controls in May 2008
METAL CONTAINER CORP	*246	Facility wide VOCs. Could install a thermal oxidizer, similar to Ball
HOLCIM (US) INC. PORTLAND PLANT	*214	Actual emissions are higher. Controls to be determined.
KERR-MCGEE FT LUPTON COMPRESSOR STATION	213	Possible controls in May 2008
ETC CANYON PIPELINE N. DOUGLAS CREEK	*210	Possible controls in May 2008
ENCANA OIL & GAS - HUNTER MESA	201	Possible controls in May 2008
ANHEUSER BUSCH INC	*196	VOCs from filling line. Could Install VOC ducts/collection system similar to Coors
BP AMERICA PRODUCTION CO. WATTENBERG PLT	195	Possible controls in May 2008
NOBLE ENERGY INC. BATTERY #11509500	191	Possible controls in May 2008
MURFIN DRILLING CO INC	*190	Possible controls in May 2008
DCP MIDSTREAM LP – ENTERPRISE	*174	Possible controls in May 2008
TRANE CO	172	Facility-wide emissions. Paintbooths/evaporators could be controlled by a thermal oxidizer.

\*Facilities reported actual emissions and actual uncontrolled emissions are the same.

**Air Quality, Health And Welfare Benefit**

This strategy could yield real, quantifiable reductions from facilities and source categories. For example, a thermal oxidizer has a control efficiency greater than 95%. The specific control efficiency for each individual source has not yet been determined.

While health benefits are not quantified here, it is understood that reducing direct emissions of VOCs will reduce ozone and some air toxics. This will reduce the incidence of human health impacts caused by ozone, such as pulmonary, cardiovascular, respiratory, and nervous system disease. Because ozone damages crops, forests, and other natural plant life, all would benefit if emissions are reduced. This strategy may also reduce emissions of methane, which contributes to climate change.

**Program Costs**

Costs associated with requiring controls for source categories and/or individual facilities have not yet been determined.

**Implementation and Administration**

This strategy has the potential to significantly increase the number of regulated sources, and has reporting, permitting, and/or compliance assurance impacts to the APCD.