

## 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 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 condensate tank reports. 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.

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 Non-attainment Area**

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
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.

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This table 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 Area**

Facility Name	Actual VOC Emissions- Tons/year
SUNCOR ENERGY - DENVER REFINERY	1,035
NOBLE ENERGY INC. BATTERY #91522400	*552
COORS BREWING CO VALLEY COMPLEX	491
COLORADO INTERSTATE GAS CO CHEYENNE STN	350
METAL CONTAINER CORP	*246
KERR-MCGEE FT LUPTON COMPRESSOR STATION	213
ANHEUSER BUSCH INC	*196
NOBLE ENERGY INC. BATTERY #11509500	191
DCP MIDSTREAM LP – ENTERPRISE	*174
NOBLE ENERGY INC. BATTERY #91460500	170
BP AMERICA PRODUCTION CO. WATTENBERG PLT	*169
CONOCOPHILLIPS PIPE LINE CO- DENVER TERM	155
ROCKY MOUNTAIN PIPELINE SYSTEM, LLC	*152
DCP MIDSTREAM, LP- MEWBOURN	*147
CEMEX, INC. - LYONS CEMENT PLANT	*147

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

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

Facility Name	Actual VOC Emissions- Tons/year
SUNCOR ENERGY - DENVER REFINERY	1,035
NOBLE ENERGY INC. BATTERY #91522400	*552
COORS BREWING CO VALLEY COMPLEX	491
COLORADO INTERSTATE GAS CO CHEYENNE STN	350
METAL CONTAINER CORP	*246
OAKDALE GAS PROCESSING - LA VETA GAS P	*241
ENCANA (WEST) - K29NE	229
KERR-MCGEE FT LUPTON COMPRESSOR STATION	213
HOLCIM (US) INC. PORTLAND PLANT	*213
CANYON GAS RESOURCES - N. DOUGLAS CREEK	*210
ANHEUSER BUSCH INC	*196
NOBLE ENERGY INC. BATTERY #11509500	191
MURFIN DRILLING CO INC	*190
DCP MIDSTREAM LP – ENTERPRISE	*174
DCP MIDSTREAM, LP-LADDER CREEK	173

\*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.

While health benefits are not quantified here, it is understood that reducing direct emissions of VOCs will reduce air toxics and other criteria pollutants. This will reduce the incidence of human health impacts caused by pulmonary, cardiovascular, respiratory, and nervous system disease. Because ozone damages

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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.