

## Emissions Benefits from Stage 1 Vapor Recovery at Retail Gas Stations

Stage 1 vapor recovery is a system designed to recover the fumes which escape when fuel is delivered to storage tanks at retail gasoline stations. The vapors are captured by a second hose as the fumes in the underground tank are displaced by the fuel being delivered, and are routed back to the delivery truck where they condense back into a liquid state. Based on the most current emissions inventory for gasoline fuel delivery in Ada and Canyon Counties, 1,108 tons per year of volatile organic compounds (VOC's) are emitted due to fuel delivery at retail gasoline stations. This represents almost 3% of all VOC emissions in the Treasure Valley, and about the same amount as emitted by all the stationary point sources combined (i.e. industry). If Stage 1 vapor recovery was to be installed at all these stations, VOC emissions would be reduced by 1,079 tons per year (a 97% reduction). This probably represents the greatest single source category for VOC reduction present in the Treasure Valley at this time, and would pay great benefits in reduced ozone and PM2.5 precursor compounds.

		Ada	Canyon
State annual gas sales (1000 gals)	6.02E+05		
State vehicle registration	4.19E+05		
County vehicle registration		2.79E+05	1.40E+05
% of state vehicle total		21	11
Apportioned county gas sales (1000 gals) <sup>1</sup>		1.26E+05	6.61E+04
Emission Factors	lb VOC/1000 gal		
splash filled underground tank	11.5		
vapor recovery filled tank <sup>2</sup>	0.3		
VOC emissions (tons) <sup>3</sup>			
splash filled		727	381
with vapor recovery		19	10
Emissions Reductions <sup>4</sup>		708	371
<b>TOTAL EMISSIONS REDUCTION</b>	<b>1,079 tons/year</b>		

Source: 2000 Emission Inventory, Idaho Department of Environmental Quality

1. (% of state vehicle total )(state annual gas sales)
2. assume 97% efficiency
3. (apportioned county gas sales)(emission factor)
4. (splash filled emissions – emissions with vapor recovery) for each county