

**Workgroup Recommendations and Other Potential Control Measures**  
**Stationary Combustion Sources Workgroup**

**SCS004B – Flares in a Petroleum Refinery**

Control Measure Summary	Emissions (tons/year) in NJ State*	
<b>2002 existing measure:</b> NSPS Subpart J, N.J.A.C. 7:27-16.13	VOC in 2002	515
	SO <sub>2</sub> in 2002	332
	NO <sub>x</sub> in 2002	135
<p><b>Candidate Measure 1:</b> Flare Gas Recovery System (FGR)</p> <p><b>Emission Reductions:</b> VOC and HAPs as well as NO<sub>x</sub> &amp; SO<sub>x</sub>. Percent emission reductions depend upon percent of flare gas recovered.</p> <p><b>Control Cost*:</b> Overall cost effectiveness:                      (a) \$5524 to \$8620 per ton of SO<sub>2</sub> removed.                      (b) \$4527 to \$7063 per ton of NO<sub>x</sub> removed.                      (c) \$4527 to \$7063 per ton of VOC removed.</p> <p><b>Timing of Implementation:</b> Year 2009</p> <p><b>Implementation Area:</b> New Jersey</p>	<p align="center"><b>VOC</b></p> 2002 Base: 515 Reduction: <u>-283</u> 2009 Remaining: 232	
	<p align="center"><b>NO<sub>x</sub></b></p> 2002 Base: 135 Reduction: <u>-48</u> 2009 Remaining: 87	
	<p align="center"><b>SO<sub>2</sub></b></p> 2002 Base: 332 Reduction: <u>-163</u> 2009 Remaining: 169	

**Policy Recommendation of State/Workgroup Lead:** Flare Gas Recovery (FGR) system is recommended to achieve reduction in VOC emissions and HAP emissions, as well as NO<sub>x</sub> & SO<sub>x</sub> emissions.

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**Brief Rationale for Recommended Strategy:** Beside major reduction in emissions, the FGR system allows cost savings because the recovered gases can be used as fuel or process feedstock. Cost savings due to recovery can be \$300,000 per year to \$1,000,000 per year; consequently, the annual cost can be low and the capital cost can be recovered in 3 to 7 years depending upon the facility and FGR system. The State of California has developed a specific rule for FGR system.

\* - Data based on the Draft Technical Support Document for “Assessment of Control Technology Options for Petroleum Refineries in the Mid-Atlantic Region” by Mid-Atlantic Regional Air Management Association (MARAMA). NJDEP is working with other MARAMA States to further develop the regulatory strategy for this source category for the region. Further details on the MARAMA efforts can be found at [www.marama.org](http://www.marama.org).