

## **I. INTRODUCTION**

Volume 2 contains a description of retrofit technologies and related issues in choosing and using them. This volume provides detailed background information to supplement the technology discussions in Volume 1. The information provided is designed to serve as a reference tool for air quality management and others, and to provide potential product users with a basic introduction to retrofit technologies and the current information available on their use.

As used in this volume, the “retrofit technologies” refer to both hardware- and fuel-based strategies, as well as operations-based strategies. The retrofit technologies are shown in Table 1-1.

*Table 1-1, Strategies for Reducing Emissions from Offroad Diesel Engines*

<p style="text-align: center;"><b><u>Technology-Based Strategies</u></b></p> <ul style="list-style-type: none"> <li>Diesel Oxidation Catalyst (DOC)</li> <li>Diesel Particulate Filter (DPF)</li> <li>Lean NO<sub>x</sub> Catalyst (LNC)</li> <li>Selective Catalytic Reduction (SCR)</li> <li>Selective Non-catalytic Reduction (SNCR)</li> <li>Low Pressure Exhaust Gas Recirculation (EGR)</li> <li>Closed Crankcase Ventilation (CCV) systems</li> <li>Engine Electronic Control Module (ECM) Reprogram</li> </ul>	<p style="text-align: center;"><b><u>Fuel-Based Strategies</u></b></p> <ul style="list-style-type: none"> <li>Ultra-low Sulfur Diesel (ULSD) Fuel</li> <li>Biodiesel</li> <li>Diesel Fuel Emulsions</li> <li>Diesel Fuel Additives</li> </ul> <p style="text-align: center;"><b><u>Operations-Based Strategies</u></b></p> <ul style="list-style-type: none"> <li>Idle Reduction</li> <li>Engine Repower</li> <li>Early Retirement of Equipment</li> <li>Engine Rebuild</li> <li>Engine Maintenance and Repair</li> </ul>
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The material contained in Volume 2 will be updated periodically as new information becomes available.