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**New Technology Research & Development Program
Grant Contract 582-5-70807-0017**

Task 1 Deliverable

The preparation of this report is based on work funded in part
by the State of Texas through a Grant from the
Texas Commission on Environmental Quality.

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Task #1 Demonstration Summary for EMD Tier II Loco 645E3B & 710G3A

Summary:

The following pictures represent an EMD 16-645E3B and 710G3A Tier II NOx engines, installed in GE owned locomotive platforms, tested at Southwest Research Institute in San Antonio, TX and rebuilt by General Electric Infrastructure Rail. Since GE does not own a switcher locomotive of this type, Southwest Research Institute has installed our engine(s) into General Electric's development locomotive platforms. The standard 16-645E3B & 710G3A engines contain the following components to make a GE Tier II NOx unit: special ring pack, special liners, optimized injectors, and re-phased cam segments. Testing is currently in process.

Photos provided by Southwest Research Institute

645E3B SD40 Test Locomotive at SwRI



Note: Photos before Tier II modifications do not exist because the locomotive is a GE test locomotive, not used in revenue service. Development Testing “Only”

Tier II NOx Components



645E3B LH1 Injector 84A215155BP



Re-Phased Cams 84E902327

710G3A SD60 Locomotive at SwRI



Note: Photos before Tier II modifications do not exist because the locomotive is a GE test locomotive, not used in revenue service. Development Testing “Only”

Tier II NOx Components

710G3A 5227000/LH1 Injector 84A215155EM



Re-Phased Cams 84E902331

Confidential Portion Begins Here