

DOCKETED

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February 9, 2018

Matt Richards
Malburg Generating Station
4963 Soto Street
Vernon, CA 90058

SIEMENS CONFIDENTIAL INFORMATION

Re: Malburg SGT800 Performance Upgrade

Dear Matt,

Siemens hereby confirms to Malburg Generation Station ("Malburg") that Siemens will install the Performance Enhancement kit, also called the A+ upgrade package, (the "Upgrade Package") on Malburg's existing SGT-800 turbines during the upcoming March 2018 Major Scheduled Outage. The upgrade will be broken out into two separate and distinct phases: 1:) Component Replacement during turbine overhaul/maintenance which will involve the installation of the functionally equivalent compressor and turbine blades and 2:) upgrade the turbine software to allow the replacement parts to utilize the performance increase.

1. Component Replacement: The upgraded components supplied with the Upgrade Package (the "Upgrade Package Components") consist of the following:

- First stage compressor blade 1 with a slightly opened profile
- Turbine blade 1 includes a new thermal barrier coating along with optimizing the placement and number of cooling holes which can reduce the metal temperature
- Turbine vane 1 cooling will be optimized
- Turbine vane 2 cooling will be optimized
- Minor modification to the turbine air cooling systems

2. Upgraded Software: The Upgrade Package, based on the exchanged components will potentially result in:

- Increased air mass flow
- Optimized cooling of the turbine section

The turbine inlet temperature is not increased and thus, there is no foreseeable impact on emissions other than the potential for a slight increase in fuel usage based on the Upgrade Package and upgraded software.

The Upgrade Package Components in Step 1 are functionally equivalent in design to the previously installed components. As such, the Upgrade Package Components can be installed, tuned and operated without the performance increase in a manner consistent with the existing turbine design and permitted limits. In other words, the turbines can be operated without fully utilizing the Upgrade Package Components until such time when the air quality permit allows, the turbines will maintain the following limits:

- Monthly fuel limit of 330 mmscf per turbine (upgrade raises this to 347.8 mmscf per turbine). Assumes 1018 mmbtu/scf.
- $\text{NO}_x = 2$ ppm corrected to (15% O_2)

- CO = 2 ppm corrected to (15% O₂), 7,633 Lbs/month
- VOC = 2 ppm corrected to (15% O₂), 3,236 Lbs/month

After the permit to construct is obtained, the final modifications of the turbine tuning and the additional software required to obtain the performance upgrade can only be installed by Siemens as the Malburg personnel will not have the technical capability or the software needed to complete upgraded and enhanced design.

Please contact me should you have any questions regarding this information transmittal.

Sincerely,

A handwritten signature in black ink, appearing to read "Stacie M. Carter". The signature is fluid and cursive, with the first name being the most prominent.

Stacie M. Carter
LTP Program Manager
Siemens Energy, Inc.

CC:

Siemens: Torrey Goodwin, Jon Ward, Sean Farrell

Heorot Power: Jim Nolan

Bicent Malburg: Douglas Halliday