



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 Broadway
New York, NY 10007-1866

September 27, 2000

Mr. Robert L. Ewing
Project Manager
New York State Department
of Environmental Conservation
Division of Environmental Permits
50 Wolf Road
Albany, New York 12233-1750

Re: Prevention of Significant Deterioration of Air Quality (PSD)
Proposed Sithe Heritage Station Generating Facility, Scriba, New York

Dear Mr. Ewing:

The Region 2 Office of the U.S. Environmental Protection Agency (EPA) has reviewed the August 8, 2000 draft PSD permit prepared by the New York State Department of Environmental Conservation (NYSDEC) for the Heritage Power, L.L.C.'s proposed facility in Scriba, New York. Based on our review, we have determined that the permit applicant has not demonstrated that 2-4 ppm CO (or less) is not best available control technology (BACT) for this facility. Therefore, the proposed CO BACT emission concentration of 7.2 ppm at 15% O₂ and 45.1 lb/hr, achieved through efficient combustion techniques, cannot be considered BACT. (Please note that although the draft PSD permit lists the CO emission rate as 45.0 lb/hr and 7.0 ppmvd at 15% O₂, it is our understanding that the permit applicant has requested that the proposed limit reflect the actual permit application. NYSDEC has tentatively agreed to change the permitted emission rates to 45.1 lb/hr and 7.2 ppmvd at 15% O₂).

By way of background, Heritage Power, L.L.C. proposes to construct and operate a new combined-cycle electric generating facility consisting of two new General Electric (GE) Steam and Gas (STAG) 107H system combustion turbine generators, two heat recovery steam generators (without supplementary duct firing), two steam turbine generators, one auxiliary boiler and one emergency generator. The primary fuel will be natural gas with 0.05% low sulfur fuel oil as backup. The nominal electric generating capacity of the proposed facility will be approximately 800 megawatts. The proposed facility's current potential to emit for the pollutant CO is 399 tons/year (based on a 45.1 lb/hr CO emission rate per turbine or 395 tons/year for both turbines and approximately 4 tons/year from the auxiliary boiler and emergency generator). The applicant provided two cost analyses for the installation of a CO catalyst (based on an uncontrolled 42 lb CO/hr [6.7 ppm] to a post-controlled 6.29 lb CO/hr [1.0 ppm] with an 85% control efficiency). The first cost analysis, from Engelhard, has a cost per ton of CO removed of \$3,126. The second cost analysis, which includes the original Engelhard estimate plus the

estimated markup of \$439,000 for the Heat Recovery Steam Generator (HRSG) vendor and the Engineering, Procurement and Construction (EPC) contractor, has a cost per ton removed of \$3,708.

However, since the draft permit has a 45.1 lb/hr (7.2 ppm) CO emission limitation and not 42 lb/hr (6.7 ppm), EPA recalculated the above costs starting with 7.2 ppm down to 1.0 ppm. This yields costs of \$2,876 per ton of CO removed for the first cost analysis and \$3,412 per ton of CO removed for the markup cost analysis. EPA considers these two cost analyses (\$2,876 and \$3,412) to be an acceptable cost for BACT purposes. Therefore, EPA deems the installation of a CO catalyst to be BACT for this proposed facility since this will provide the CO emission concentration that will be similar to recent proposed/final CO BACT determinations.

Some of the recent PSD permits issued or under review have required or proposed the following CO limits with a CO catalyst:

1. Sithe Mystic Development (1550 MW), MA - 2 ppm CO
2. Cabot Power (350 MW), MA - 2.0 ppm CO
3. ANP Blackstone (580 MW), MA - 3.0 ppm CO
4. ANP Bellingham (580 MW), MA - 3.0 ppm CO
5. Dighton Power (170 MW), MA - 4.0 ppm CO
6. Mantua Creek (881 MW), NJ - 3.0 ppm CO
7. AES Red Oak (816 MW), NJ - 4.0 ppm CO
8. PDC- El Paso Milford LLC (540 MW), CT - 2.0 ppm CO
9. Lake Road Generating (792 MW), CT - 3.0 ppm CO
10. Calpine - Sutter Power (500 MW), CA - 4.0 ppm CO
11. High Desert Power Project (700 MW), CA - 4.0 ppm CO

Based on information that we have, it is not clear to us why Heritage Power, L.L.C cannot achieve the same level of CO control that these projects have.

It is GE's position that this new GE STAG 107H turbine is an inherently cleaner unit which achieves low emissions through pollution prevention. An August 30, 2000 letter addressed to me from Messrs. Joel Chalfin and Thomas O. Dreisbach, Jr. of GE Power Generation states, in pertinent part, that "...Heritage Power is the U.S. launch site for GE's next generation of turbine technology, which is referred to as the 7H." "...To achieve the 7H efficiency target while minimizing the environmental impacts requires the use of the proven combustion technology from GE's 'FA' class gas turbines." "GE's data collected to date on 7FA gas turbines has demonstrated that **every unit tested has emissions of ...CO measured below U.S. EPA Method 10 detection levels** [emphasis in the original]. Measured data from fourteen 7FA gas turbines ...document base load CO levels averaging well below 2 ppmvd @ 15% O₂. We expect the data shown to be representative of the 7H."

While EPA understands that the new GE STAG 107H model turbines have not been thoroughly field tested, EPA sees the following options available to GE to avoid the installation of a CO catalyst:

1. **80%-20% Option** - GE has stated that based on actual data collected from GE's existing 7FA gas turbines, GE expects the new 7H gas turbines to emit well below 2 ppm CO @ 15% O₂ during base load operations. Generally for CO, extreme ambient conditions concurrent with part load operations will make these turbines achieve a CO concentration of 7 ppm. For Heritage Power, according to GE, extreme ambient conditions are expected at -19°F and 100% relative humidity, which are experienced very infrequently at the site for this proposed facility. Based on these facts, as presented to us, it would not be unreasonable to require that during at least 80% of the time (7,008 hours/year) the facility should achieve a CO concentration of 3.0 ppm or less and during the remaining 20% of the time (1,752 hours/year) the facility should achieve a CO concentration of 7.2 ppm or less to account for extreme ambient conditions coupled with part load operations. Under this approach, the CO potential to emit from each of the two turbines would be approximately 105 tons/year and a recalculation of the CO BACT analysis would provide for a cost-per-ton removed of well over \$6,000 per ton. If this is the case, the installation of the CO catalyst would not be BACT.

2. **Innovative Control Technology Waiver for CO** - EPA regulations allow the installation of new technology that has not yet been proven under the auspices of the innovative control technology waiver. Innovative control technology means "any system of air pollution control that has not been adequately demonstrated in practice, but would have a substantial likelihood of achieving greater continuous emission reduction than any control system in current practice or of achieving at least comparable reductions at lower costs in terms of energy, economics, or nonair quality environmental impacts." In general, what this would mean in practice is that the applicant will be given a period of no more than three years to come into compliance with the BACT level determined at the time of the permit issuance. If the facility fails to achieve this level of BACT at the end of this period, the applicant is then committed to install the CO oxidation catalyst. Given the current stage of the permitting process for this project, if the applicant decides to pursue this waiver, EPA will work with NYSDEC on a timely manner to expedite the development of the permit conditions/approvals required for this waiver.

If you need to discuss this further, please contact me at (212) 637-4074 or Frank Jon at (212) 637-4085.

Sincerely,

/s/

Steven C. Riva, Chief
Permitting Section
Air Programs Branch

cc: John Higgins, NYSDEC - Albany
Reginald Parker, NYSDEC Region 7