MEMORANDUM

INTERMOUNTAIN POWER SERVICE CORPORATION

TO: George W. Cross

FROM: Dennis K. Killian

DATE: August 12, 2003

SUBJECT: Permitting for Over Fire Air

This memo discusses the overfire air (OFA) testing and permitting issues, obstacles, and time line.

Background

To help control nitrogen oxide emissions, overfire air was installed on Unit 1 during the last outage. IPSC obtained an experimental approval order permitting the installation and subsequent testing of the OFA system. We could not obtain a regular Approval Order for the OFA from the Utah Division of Air Quality without first obtaining test data on carbon monoxide (CO) emissions. Since OFA will cause CO emissions to increase more than 100 tons per year, the OFA installation is considered a major modification under Prevention of Significant Deterioration (PSD) rules of the Clean Air Act. As such, the air quality impacts of CO emissions must be modeled, and the operation of the boiler must meet Best Available Control Technology (BACT) standards to minimize CO emissions during OFA operation.

PSD Permitting

Our intent is to test OFA at several different operating configurations and boiler conditions. Specifically, IPSC is testing how CO emissions change at different OFA air flows and at different excess O2 levels. The results will be used to create a mathematical relationship between %OFA, %O2, NOx, and CO. CO emission rates could then be calculated at any time based upon the values of the other parameters. This methodology is an alternative to installing continuous emission monitors for CO.

Additionally, since CO increases are expected to be major, PSD permitting and State regulations require BACT for controlling CO. There are no add-on technologies for our type of boilers to control CO, so IPSC must develop "Best Combustion Practices" to optimize boiler operation while minimizing NOx and CO.

Once the test results are collected and compiled, the data and our boiler operating plan will be submitted to UDAQ for final approval of the OFA.

Timeline

There have been some issues regarding CO emissions at certain OFA configurations. Vendor guarantees are not being met, and ES is attempting to correct the problems. OFA malfunctions have been corrected, and ES intends to balance fuel and air flows between mills and burner levels to even out and decrease CO emissions. There is evidence that as much as 100 percent bias exists across some burners, mainly due to worn restrictors. It will take approximately a month to replace hardware required to balance fuel flows. Correction of fuel bias is expected to easily bring CO numbers into range. Maintenance has confirmed their goal to install all restrictors in Unit 1 by the end of August. It will take about another month to test and compile data. This means that CO and OFA operating data will be obtained and compiled by the end of September 2003.

The data will then be submitted to UDAQ, and if favorable, will be used to issue a permit. The permitting process involves an engineering review within UDAQ (one month), a public comment period (one month), an EPA review period (45 days), and a Title V Operating Permit Change (one month). So, we are expecting that at best, the most optimistic time frame for an Approval Order under this sequence could put the AO in hand by the next outage on Unit 2. Given our history with the UDAQ NSR section, we do not expect an expedient preference for our approval process, especially if there are complexities due to the test results.

Consequences and Alternatives

The experimental AO expires at the first of November. After that time, the OFA system must not be used, unless an extension to the experimental AO is issued. Since the purpose of the experimental AO was for permit testing, and the testing data will have been collected and submitted for purposes of permitting, it may be problematic to get an extension for other testing. However, if necessary, IPSC will request an extension nonetheless.

If the OFA system does not perform to vendor guarantees, then IPSC must make a decision whether to obtain permitting at higher CO numbers or at limited OFA operation. We believe it may not be credible for IPSC to attempt permitting for a CO emissions increase that is larger than the 6,000 ton decrease in NOx. We could, if needed, attempt to argue that this is BACT for a retrofit OFA system to our type of boiler. But we are seeing much

lower BACT levels throughout the country at other plants, thus substantially weakening our argument if indeed CO numbers do not

come into line. We have no reason to believe that the line balancing to the burners would still result in high CO, making the IPSC OFA emissions comparable to other plants.

Alternatively, IPSC could accept a permit limiting the operating parameters of the OFA system. This could include operating at or above 3 percent excess O2, below certain %OFA settings, or a limit on hours of overall OFA operation during the year. The consequence of this could negatively impact the use of certain fuels while trying to maintain WEPCO NOx limits.

Note that the pending permitting also includes changing out burners, ID fan components, DCS, clarifications of our existing permit, and extensions of the forced oxidation vents through the scrubber roof. So, it is imperative to have permitting completed by the next outage to have these additional items approved for installation.

Options

As described above, the permitting time line is very tight and does not allow for mistakes or unforseen problems (either at IPSC or UDAQ) in order to be completed by the Unit 2 outage.

Alternatively, IPSC could choose to permit the OFA now with limited operating conditions, and then try to continue OFA testing and tuning within the bounds of the existing experimental AO, or after it expires, under the new final AO conditions. Once that was complete and favorable data was obtained, we could then attempt to have the new AO re-modified to include a wider operating scenario. We question our ability to meet WEPCO requirements for NOx, or the ability to meet other permit limits with certain fuels, if there are too strict of operating conditions placed upon the OFA system. So this alternative, as a last resort, should be replaced with another permit as soon as OFA is perfected.

IPSC could otherwise choose to obtain a more immediate AO for the other conditions, ensuring that those could go forward, leaving OFA to follow the existing planned time line. This way, all other elements of our original notice of intent could receive approval in a more timely manner, leaving only OFA at risk of not being permitted for interim operation or for Unit 2 installation during the next outage.

Conclusions and Recommendations

We are on a critical path timewise for submitting and receiving the necessary permit for operation of several of the major

projects this coming spring. Proceeding without the required permitting for those projects is not an alternative.

Therefore, each IPSC department involved in the OFA issue is committed to see the OFA system and burners tuned and tested on a fast track. We appreciate the efforts of all involved groups in expediting the boiler testing process.

We recommend to proceed as ES has outlined, barring no unforseen complications. If a problem arises that impacts the timeliness of permitting for the spring outage, then one of the other options should be explored.

DKK/RJC:jmg

cc: Blaine Ipson
Jerry Hintze
Jon Finlinson
Dale Hurd