

Attachment 3
Protocol for Lance Burner Installation

As required by this Consent Decree, Nucor will replace existing oxyburners with lance burners on one of the electric arc furnaces (EAFs) located at the Plymouth, Utah facility. This modification of the EAF is expected to reduce Nitrogen Oxide (NOx) emissions. This protocol presents the approach Nucor will use in evaluating the impact of lance burner technology on NOx and Carbon Monoxide (CO) emissions. Any provisions of this protocol, including schedule, may be modified by the written agreement of the United States and Nucor at any time.

A. Approach for Utah Facility

Before initiating any test program, Nucor will submit a detailed test plan to EPA for approval. The plan will include a description of the test methods to be used, a discussion of the test procedures, and a description of the sampling locations.

1. Baseline Testing

Because the Utah facility has two identical EAFs and the lance burners will be installed only on one EAF initially, it is not necessary to conduct baseline testing on the EAF to be modified before installing the lance burners. The second EAF, on which lance burners will not be installed, will be operated concurrently, and to the extent possible, using the same operating and process variables as the lance burner EAF. Nucor will monitor NOx, Carbon Dioxide (CO₂), Oxygen (O₂), and Oxygen (CO) emissions with continuous emissions monitors from the unmodified EAF and use these results as the baseline for the modified EAF. Nucor will also continuously monitor exhaust gas velocity and temperature and periodically monitor exhaust gas moisture content.

2. Evaluation of Impact of Lance Burners

After the lance burners have been installed, Nucor will begin testing to evaluate the impact of the lance burners on NOx and CO emissions. Nucor will use a continuous emissions monitoring system (CEMS) to monitor CO, NOx, CO₂, O₂, Sulfur Oxides (SOx), exhaust gas velocity, and temperature for the

modified EAF exhaust gas. Nucor will also periodically monitor the exhaust gas moisture content. If both EPA and Nucor agree that the data is representative or cannot be repeated on a comparative basis, the lance burner test will be considered complete.

3. Report to EPA

Nucor will prepare and submit to EPA a report that will include a discussion of the lance burner design, any problems encountered while using the lance burners, the impact of the lance burners on NOx and CO emissions, and the cost effectiveness of the lance burners based on the capital cost of the burners and associated modifications, the operating and maintenance costs of the system, and the control efficiency of the system. Nucor will submit a copy of all electronic data to EPA with the report.

The report will include Nucor's recommendation concerning installation of lance burners at its remaining mills. This recommendation will be based on the success, as defined in the consent decree, of the lance burner installation at Utah. Nucor will also consider the economic and technical feasibility of installing lance burners on all of its EAFs. One option is that Nucor may determine that lance burners are economically and technically feasible for some of its EAFs but not for others. EAF design, baseline NOx emission rates, or other factors could impact the economic and technical feasibility for any given EAF.

4. Schedule

Table 1 presents a schedule for the lance burner pilot study at the Utah facility.

TABLE 1. SCHEDULE FOR LANCE BURNER PILOT STUDY

ACTIVITY	PROJECTED DATE
Submit test plan to EPA	March 15, 2001
Lance burner installation	April 30, 2001
Evaluation test program	June 30, 2001

Report to EPA	August 31, 2001
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