UNITED STATES DISTRICT COURT
DISTRICT OF SOUTH CAROLINA
FLORENCE DIVISION

UNITED STATES OF AMERICA, Plaintiff, the States of Arkansas, Nebraska, and Utah, Plaintiff-Intervenors V. NUCOR CORPORATION, Defendant.	)	CIVIL ACTION NO.

CONSENT DECREE

WHEREAS, Plaintiff, the United States of America (hereinafter "Plaintiff" or "the United States"), on behalf of the United States Environmental Protection Agency (hereinafter, "EPA") has filed a Complaint alleging that Defendant, Nucor Corporation (hereinafter, "Nucor" or "Defendant"), has violated and is in violation of the following environmental statutes and their implementing regulations at one or more of its steel manufacturing and fabrication facilities: the Clean Air Act (CAA"), 42 U.S.C. § 7401 et seq., the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6901 et seq., the Emergency Planning and Community Right-to-Know Act of 1986 ("EPCRA"), 42 U.S.C. § 11001 et seq., and the Clean Water Act ("CWA"), 33 U.S.C. § 1251 et seq.

WHEREAS, the purpose of this Consent Decree is to address environmental concerns which may be representative of compliance issues common throughout the steel mini-mill industry and to achieve comprehensive resolution of those issues in a progressive framework;

WHEREAS, this Consent Decree with Nucor is the first such comprehensive, multi-media settlement in the steel mini-mill industry;

WHEREAS, this effort has been undertaken as a potential model for addressing environmental compliance in the steel mini-mill industry in a technically rigorous and efficient manner;

WHEREAS, EPA issued to Nucor a Notice of Violation ("NOV") with respect to certain alleged Clean Air Act violations at its Hickman, Arkansas, facility on July 13, 2000;

WHEREAS, EPA and Nucor have executed an Administrative Order on Consent on September 27, 2000, pursuant to EPA's administrative authority under Section 7003(a) of RCRA, 42 U.S.C. § 6973(a), ordering Nucor to take action at its Norfolk, Nebraska facility to remedy contamination alleged to have resulted from its past and present handling, storage, transportation and/or disposal of K061 dust, a RCRA listed hazardous waste under 40

C.F.R. § 261.32, and to take all necessary and appropriate action to prevent future contamination by K061 dust.

WHEREAS, the United States further alleges that Nucor has similar RCRA violations and hazardous waste contamination at one or more additional facilities which may require similar corrective action and preventive measures pursuant to Section 3008(h) of the Resource Conservation and Recovery Act of 1980, as amended, 42 U.S.C. § 6928(h);

WHEREAS, the United States has alleged that Nucor has discharged pollutants to the waters of the United States without a permit in violation of Section 401 of the Clean Water Act, 33 U.S.C. § 1311, at one or more of its facilities;

WHEREAS, the United States has alleged that Nucor has violated its National Pollutant Discharge Elimination System ("NPDES") permits (33 U.S.C. §§ 1311, 1342 and 1344) at one or more of its facilities;

WHEREAS, the United States has alleged that Nucor has violated its Industrial Storm Water General Permits (33 U.S.C. §§ 1311, 1342 and 1344) at one or more of its facilities;

WHEREAS, the United States has alleged that Nucor has violated or is in violation of the Emergency Planning and

Community Right-To-Know Act of 1986 ("EPCRA"), 42 U.S.C. § 11001 et seq., at one or more of its facilities;

WHEREAS, Nucor has denied and continues to deny the violations alleged in the Complaint, the NOV and in EPA's RCRA Administrative Order;

WHEREAS, the States of Nebraska, Utah and Arkansas ("Plaintiff Intervenors"), have filed Complaints in Intervention alleging similar violations under applicable state law and have joined this settlement as signatories to this Consent Decree;

WHEREAS, the South Carolina Department of Health and Environmental Control shall execute this Consent Decree pursuant to state law Section 48-1-50 (Powers of Department);

WHEREAS, the States of Arkansas, Texas, and South Carolina shall designate "Project Coordinators," as defined in Section III, to oversee the requirements of Section VIII, RCRA Corrective Action;

WHEREAS, the United States and Nucor agree that settlement of this action is in the best interest of the parties and in the public interest, and that entry of this Consent Decree without further litigation is the most appropriate means of resolving this matter;

WHEREAS, the United States and Nucor consent to entry of this Consent Decree without trial of any issues.

NOW, THEREFORE, without any admission of fact or law, and without any admission of the violations alleged in the Complaint, the NOV, or EPA's Administrative Order, it is hereby ORDERED ON CONSENT AND DECREED as follows:

I. JURISDICTION AND VENUE

1. The Complaint states a claim upon which relief can be granted against Nucor under Sections 113 and 167 of the Clean Air Act, 42 U.S.C. §§ 7413 and 7477; 28 U.S.C. § 1355; Sections 301, 402 and 404 of the Clean Water Act, 33 U.S.C. §§ 1311, 1342 and 1344; Sections 3008 and 7003 of RCRA, 42 U.S.C. §§ 6928 and 6973; and Sections 312 and 313 of EPCRA, 42 U.S.C. §§ 11022 and 11023. This Court has jurisdiction of the subject matter herein and over the parties consenting hereto pursuant to 28 U.S.C. § 1345. Venue is proper under 28 U.S.C. § 1391(b) and (c). For purposes of this Consent Decree, Nucor consents to and will not contest the jurisdiction of this Court over this matter.

II. APPLICABILITY

2. The provisions of this Consent Decree apply to and are binding upon the United States, Plaintiff Intervenors and Nucor as well as Nucor's officers, employees, agents, successors and

assigns. In the event Nucor proposes to sell or transfer any of its real property or operations subject to this Consent Decree, it shall advise in writing such proposed purchaser or successor-in-interest of the existence of this Consent Decree, and shall send a copy of such written notification by certified mail, return receipt requested, to EPA before such sale or transfer, if possible, but no later than the closing date of such sale or transfer. Nucor shall provide a copy of this Consent Decree and applicable Consent Decree attachments to all vendors supplying pollution control technology systems or contractual services as required by this Consent Decree.

3. References to parties in this Consent Decree include the United States, Nucor, and the relevant States, as Plaintiff Intervenors. Where appropriate, the States will oversee the RCRA corrective action process and other regulatory permits and approvals in accordance with the provisions of this Consent Decree.

4. Notwithstanding any retention of contractors, subcontractors or agents to perform any work required under this Consent Decree, Nucor shall be responsible for ensuring that all work is performed in accordance with the requirements of this Consent Decree. In any action to enforce this Consent Decree, Nucor shall not assert as a defense the failure of its employees, servants, agents or contractors to take actions necessary to

comply with this Consent Decree, unless Nucor establishes that such a failure resulted from a Force Majeure event as defined in Section XIX (Force Majeure) of this Consent Decree.

III. DEFINITIONS

5. Except as otherwise provided in this Consent Decree, definitions for the terms presented herein shall be incorporated from the following statutes and their corresponding regulations: Clean Air Act, 42 U.S.C. § 7401 et seq.; Resource Conservation and Recovery Act of 1980, as amended, 42 U.S.C. § 6901 et seq.; the Emergency Planning and Community Right-to-Know Act of 1986, 42 U.S.C. § 11001 et seq.; the Clean Water Act, 33 U.S.C. § 1251 et seq.

6. The following definitions apply for the purposes of this Consent Decree:

a. "Economic Feasibility." As defined further in the attached protocols, pilot projects conducted pursuant to this agreement that are demonstrated to cost $5,000 or less per ton of reduced emissions are presumptively economically feasible. Pilot projects conducted pursuant to this agreement that are demonstrated to cost in excess of $10,000 per ton of reduced emissions are presumptively not economically feasible. Either of these presumptions may be offset by such considerations as cross-media and off-site environmental impacts and changes in

energy consumption as provided in Clean Air Act Section 169(3), 42 U.S.C. § 7479(3) ("Best Available Control Technology"). In all cases, economic feasibility shall be determined by calculating all costs associated with the installation and implementation of the control measure in question, including all costs associated with all process and plant modifications necessary to accommodate the control measure.

b. "Entry of the Consent Decree" shall mean entry with the Court after opportunity for public comment.

c. "Project Coordinator" shall mean, the EPA Regional Office or, in the case of facilities located in the States of Texas, Arkansas and South Carolina, the delegated state agency with the authority to oversee Nucor's performance of the requirements of Section VII, RCRA Corrective Action, under this Consent Decree.

d. "Representative Operations" shall mean a facility's usual or normal operations in terms of unit and process design, rate and type of production, and total emissions.

e. "Success," "Successful" or "Effective" shall mean, as further defined in the attached protocols, pilot projects conducted pursuant to this agreement that are shown to be technically and economically feasible.

IV. FACTUAL BACKGROUND

7. Nucor is a major manufacturer of steel and steel products and owns and operates eight (8) steel mini-mills in seven (7) states. Nucor and Yamato also operate the "Nucor-Yamato Steel" facility, a steel mini-mill in Arkansas, under a joint venture agreement. In addition, Nucor has several divisions associated with its manufacturing sites that include Nucor Cold Finish (3 sites); Nucor Fastener (1 site); Nucor Bearing Products (1 site); Nucor Building Systems (3 sites); and the Vulcraft Divisions (7 sites).

8. The steel mini-mills receive, melt and cast scrap steel and scrap substitutes into steel beams, shapes, bars, sheets, plate and products, or rolls, which are further processed into finished steel products. As a result of its operations, Nucor's mini-mills and fabrication operations generate significant amounts of certain criteria air pollutants: Carbon Monoxide ("CO"), Nitrogen Oxides ("NOx"), Sulfur Dioxide ("S02"), Volatile Organic Compounds ("VOCs"), and Particulate Matter ("PM"). Other pollutants include: water pollutants, including biochemical oxygen demand, oil and grease, total suspended solids and zinc, K061 dust, a RCRA hazardous waste, and other hazardous and solid wastes attendant to the steel manufacturing and fabrication processes.

9. Nucor owns and operates the following fourteen (14) steel manufacturing and fabrication facilities which are subject to the provisions of this Consent Decree:

Location	Operation
Berkeley/Huger, South Carolina	Steel mini-mill
Blytheville, Arkansas	Steel mini-mill
("Hickman Mill")	Steel mini-mill
Crawfordsville, Indiana	Steel mini-mill
Darlington, South Carolina	Steel mini-mill
Jewett, Texas	Steel mini-mill
Norfolk, Nebraska	
Armorel, Arkansas	Steel mini-mill
("Nucor-Yamato Steel")	Steel mini-mill
Plymouth, Utah	Steel fabrication
Brigham City, Utah (Vulcraft)	
Florence, South Carolina(Vulcraft)	Steel fabrication
Fort Payne, Alabama (Vulcraft)	Steel fabrication
Grapeland, Texas(Vulcraft)	Steel fabrication
Norfolk, Nebraska (Vulcraft)	Steel fabrication
St. Joe, Indiana (Vulcraft)	

V. CLEAN AIR ACT COMPLIANCE PROGRAM

A. Electric Arc Furnace ("EAF") Pollution Prevention("P2") Measures

10. Nucor shall initiate pilot studies of P2 measures at the EAF at Norfolk, Nebraska and at a second mini-mill to be identified by Nucor pursuant to the schedule in the attached protocol (Attachment 1), for the purpose of determining the impact of each on the reduction of NOx emissions from the seventeen (17) existing EAFs. Nucor stipulates that these mills are generally representative of Nucor EAF operations. The P2

pilots will be designed, constructed, operated and evaluated in accordance with the Electric Arc Furnace P2 Protocol, Attachment 1 to this Consent Decree. Nucor shall comply with the schedule for implementation of the P2 measures as set forth in Attachment 1.

11. If the pilots are successful, as defined in this Consent Decree and the attached P2 Protocol, to include components of technical and economic feasibility, Nucor shall implement the P2 measures at the pilot units and at all remaining EAFs at the remaining mills in accordance with the protocol and a schedule to be proposed by Nucor and approved by EPA pursuant to the P2 Protocol. If deemed successful, Nucor will continue to implement P2 measures for the term of the Consent Decree, but shall have the option of implementing other appropriate control measures upon EPA approval and provided they are found to be at least as effective in controlling emissions.

12. If the P2 pilot projects are not deemed to be successful, Nucor may discontinue their use at the pilot facilities and, in its final report under the protocol, shall include an assessment of other new technologies and practices that may be more effective and continue to explore new possible control measures as part of the ongoing Design for Environment ("DfE") component of its Environmental Management System ("EMS") as set forth in Section X.

13. Failure to implement the P2 pilot study in accordance with the Protocol will subject Nucor to stipulated penalties as set forth in Paragraph 177(c) to this Consent Decree.

B. EAF Pilot of Selective Non-Catalytic Reduction (SNCR)Technology

14. Nucor shall undertake a pilot study of Selective Non-Catalytic Reduction ("SNCR") technology for the control of NOx emissions from the EAF at Norfolk, Nebraska, and at a second mini-mill to be identified by Nucor pursuant to the schedule in the attached protocol, for the purpose of determining its impact on the reduction of NOx emissions from the EAFs. The second pilot may be omitted if Nucor and EPA, on the basis of the first test, both agree that further investigation is unnecessary or unwarranted. Nucor stipulates that these mills are generally representative of the seventeen (17) existing Nucor EAF operations. The SNCR pilots will be designed, constructed, operated and evaluated in accordance with the Electric Arc Furnace SNCR Protocol ("EAF SNCR Protocol"), Attachment 2 to this Consent Decree. Nucor shall comply with the schedule for implementation of the SNCR pilots as set forth in Attachment 2.

15. If the pilots are successful, as defined in this Consent Decree and the attached EAF SNCR Protocol to include components of technical and economic feasibility, Nucor shall install and implement the SNCR technology at the pilot units and at all of

the remaining mini-mills where technically and economically feasible in accordance with the protocol and a schedule to be proposed by Nucor within one hundred twenty (120) days after completion of the SNCR pilot projects, and will operate SNCR technology for the term of the Consent Decree. If deemed successful, Nucor will install and operate SNCR technology on any new EAFs that are constructed during the life of this Consent Decree and operate the technology through termination of the Consent Decree. Nucor shall have the option of implementing other appropriate control measures upon EPA approval and provided they are found to be at least as effective in controlling emissions.

16. If the SNCR pilot projects are not deemed to be successful, use of them at the pilot facilities may be discontinued and, in its final report under the protocol, Nucor shall include an assessment of other new technologies and practices that may prove more effective and continue to explore new possible control measures as part of the ongoing Design for Environment ("DfE") component of its Environmental Management System ("EMS").

17. Failure to implement the EAF SNCR pilot study in accordance with the Protocol will subject Nucor to stipulated penalties as set forth in Paragraph 177(d) to this Consent Decree.

C. Lance Burner Pilot Project

18. Nucor shall test "lance burner" equipment to determine its ability to reduce NOx emissions from EAFs. Nucor shall test the technology at the Nucor Steel mill in Plymouth, Utah. The lance burner pilot will be designed, constructed, operated and evaluated in accordance with the Lance Burner Protocol, Attachment 3 to this Consent Decree. Nucor shall comply with the schedule for implementation of the lance burner pilot as set forth in Attachment 3.

19. If the pilot is successful, as defined in this Consent Decree and Lance Burner Protocol to include components of technical and economic feasibility, Nucor shall install and implement the lance burner technology at the pilot unit and at the remaining mini-mills where it is technically and economically feasible in accordance with the protocol and the schedule set forth in Attachment 3. If deemed successful, Nucor will install lance burner technology, where appropriate, on any newly constructed EAFs prior to start-up. Nucor shall have the option of implementing other appropriate control measures upon EPA approval and provided they are found to be at least as effective in controlling emissions. If the Lance Burner pilot project is not deemed to be successful, use of them at the facility may be discontinued.

20. Failure to implement the lance burner pilot study in accordance with the Protocol will subject Nucor to stipulated penalties as set forth in Paragraph 177(e) to this Consent Decree.

D. Reheat Furnace Control Technology Pilot Projects

21. Nucor shall implement a pilot study of Reduced NOx Burner ("RNB") and Exhaust Gas Recirculation ("EGR") technology for the reduction and control of NOx emissions from Norfolk reheat furnace NN2. Nucor stipulates that the NN2 reheat furnace operation is generally representative of Nucor reheat furnace operations. The RNB/EGR pilot will be designed, constructed, operated and evaluated in accordance with the RNB/EGR Protocol, Attachment 4 to this Consent Decree. Nucor shall comply with the schedule for implementation of the RNB/EGR pilot as set forth in Attachment 4.

22. Failure to implement the RNB/EGR pilot study in accordance with the Protocol will subject Nucor to stipulated penalties as set forth in Paragraph 177(f)(i) to this Consent Decree.

E. Reheat Furnace Pilot Project for Selective Catalytic Reduction ("SCR") Technology

23. Nucor shall implement a pilot study of Selective Catalytic Reduction ("SCR") technology for the control of NOx emissions from two Reheat Furnaces, one existing/retrofit and one

new construction. The second pilot may be omitted if Nucor and EPA, on the basis of the first test, agree that further investigation is unnecessary or unwarranted. Nucor stipulates that the reheat furnaces selected for this pilot are generally representative of the 11 (eleven) existing Nucor reheat furnace operations and of proposed new construction of furnaces with the SCR technology as an integral part of the reheat furnace design. The SCR pilot will be designed, constructed, operated and evaluated in accordance with the Reheat Furnace SCR Protocol ("SCR Protocol"), Attachment 5 to this Consent Decree. Nucor shall comply with the schedule for implementation of the SCR pilot as set forth in Attachment 5.

24. Failure to implement the SCR pilot study in accordance with the Protocol will subject Nucor to stipulated penalties as set forth in Paragraph 177(g)(i) to this Consent Decree.

25. Upon completion of the RNB/EGR and SCR pilots, Nucor will perform a comparative evaluation of both technologies on the basis of technical and economic feasibility. Based on its comparative analysis, Nucor shall propose to EPA an analytical method for selecting the preferred method (either RNB/EGR or SCR) for control of NOx emissions from reheat furnaces, shall propose a selection pursuant to that method, and shall provide support for the method and proposal. Upon EPA's concurrence, Nucor shall implement and continue to operate the appropriate EPA-approved

technology at each reheat furnace. If Nucor constructs any new reheat furnaces at existing or newly-constructed facilities during the life of this Consent Decree, Nucor will install either RNB/EGR or SCR technology, as appropriate for each reheat furnace, on the newly-constructed reheat furnaces prior to start-up. Nucor shall have the option of implementing other appropriate control measures at the pilot unit or any other unit upon EPA approval and provided they are found to be at least as effective in controlling emissions from each reheat furnace.

26. Failure to conduct a comparative analysis of the RNB/EGR and SCR technologies or failing to install controls as appropriate on remaining reheat furnaces will subject Nucor to stipulated penalties as set forth in Paragraph 177(g)(i) of this Consent Decree.

F. Establishing Emission Limits for Pilot Units

27. After installation of the NOx controls and the permanent installation of CEMS in accordance with Attachment 7, for each pilot unit, Nucor shall implement a program of continuous emission monitoring of the melt shop baghouse outlet in accordance with Attachment 6.

28. Within thirty (30) days of completion of the emission monitoring in accordance with Attachment 6 to this Consent Decree, the Protocol for Establishing Emission Limits, Nucor

shall report emission monitoring results and propose for EPA approval the emission limits for that pilot unit, based on the initial emission monitoring results and any other available information.

29. Within one hundred twenty (120) days of EPA's approval of Nucor's proposed emission limits, Nucor shall begin operation of each pilot unit so that resulting emissions are consistently at or below the established emission limit.

30. Failure to conduct initial emission monitoring of pilot units, to report emission monitoring results to EPA, or failure to comply with the emission limits established under this Section will subject Nucor to stipulated penalties as set forth in Paragraph 177(h).

G. Initial Emissions Monitoring and Setting Emission Limits for Non-Pilot Units

31. Within ninety (90) days of full operation of controls, the permanent installation of CEMS in accordance with Attachment 7, and implementation of any applicable P2 measures at all non-pilot EAFs covered by this Consent Decree, Nucor shall implement a program of continuous emission monitoring of the melt shop baghouse outlet in accordance with Attachment 6.

32. Within thirty (30) days of completion of the emission monitoring in accordance with Attachment 6, Protocol for

Establishing Emission Limits, Nucor shall report emission monitoring results to EPA and propose for EPA approval the emission limits for that non-pilot unit, based on the initial emission monitoring results, and any other available information.

33. Within one hundred twenty (120) days of EPA's approval of Nucor's proposed emission limits, Nucor shall begin operation of the non-pilot unit so that resulting emissions are consistently at or below the established emission limit.

34. Failure to conduct initial emission monitoring of non-pilot units, to report emission monitoring results to EPA or failure to comply with the emission limits established under this Section will subject Nucor to stipulated penalties as set forth in Paragraph 177(i).

H. Construction and Operating Permits

35. For all pilot projects, Nucor shall, no later than ninety (90) days following entry of this Consent Decree, apply for all necessary construction and operating permits, as appropriate, for new construction activities scheduled as of that date. For other new construction or operating permits that are required in connection with the testing and installation of new control measures under this Consent Decree, Nucor will apply for new construction permits, operating permits, or waivers, as appropriate, as required by the applicable State Implementation

Plan ("SIP"). Where consistent with applicable State law and regulations, Nucor may, in a permit application, specify ranges of operating conditions and production practices so as to allow for production increases during the life of the permit, subject to the emission limits established under Sections V. F. and V.G.

36. Following the successful completion of each pilot project and in accordance with the phase-in schedule discussed in Section V. J., Nucor will apply the results to the non-pilot facilities indicated in this Agreement. For these facilities, Nucor will apply for new construction permits, or waivers, as appropriate, as required by the applicable SIP. Within one hundred twenty (120) days of completion of initial emission monitoring for all non-pilot units subject to this Consent Decree, Nucor shall seek to modify all operating permits and/or Title V permits, to modify emissions limits pursuant to the initial testing required under Section V. G., above. Where consistent with applicable State law and regulations, Nucor may, in a permit application, specify ranges of operating conditions and production practices so as to allow for production increases during the life of the permit, subject to the emission limits established under Sections V. F. and V.G.

37. Failure to apply for any permits or permit modifications as required by this Section shall subject Nucor to stipulated penalties as set forth in Paragraph 177(j).

I. Demonstration of Compliance

38. Nucor will demonstrate compliance with emission limits as required under Sections V.F. and V.G. (emission limits for Pilot and Non-Pilot units) by the use of Continuous Emissions Monitoring Systems ("CEMS") on all EAFs, and the use of parametric monitoring in accordance with the appropriate protocols for all reheat furnaces.

39. The CEMS pilot will be undertaken on the EAFs at Nucor Nebraska in accordance with the attached CEMS protocol (Attachment 7).

40. Upon completion of the CEMS pilot, Nucor and EPA will evaluate its success, as defined by the protocol and this Consent Decree.

41. If the CEMS pilot is determined to be successful, Nucor will install the CEMS at all remaining EAF facilities, on a schedule to be agreed upon by Nucor and EPA, with final installation no later than one hundred twenty (120) days and full, calibrated operation to occur within one hundred eighty (180) days of the installation of pollution control technology at each unit.

42. Concurrently with its installation of the CEMS pilot, Nucor will submit for EPA approval a proposal regarding

parametric monitoring to demonstrate compliance with NOx and CO emission limits for reheat furnaces.

43. Failure to implement the CEMS pilot in accordance with the protocol, failure to install CEMS, as appropriate, on remaining EAFs, and failure to submit a proposal for parametric monitoring for reheat furnaces will subject Nucor to stipulated penalties as set forth in Paragraph 177(k).

J. Phase-in Schedule for Non-Pilot Installations

44. Within ninety (90) days of completion of the EAF pilots, the Reheat pilots, and the CEMS pilot, Nucor shall propose a phase-in schedule for the implementation or installation of the appropriate technologies as required by Part V of the Clean Air Act Compliance Program. Provided, however, that Nucor shall immediately install controls when any reheat furnace has a modification, as defined by 40. C.F.R. § 52.21, which results in a significant increase in actual emissions of any criteria pollutant. Upon EPA approval, the schedule shall be adopted and incorporated as part of this Consent Decree

45. Nucor's failure to propose a phase-in schedule as required by this Section shall subject Nucor to stipulated penalties as set forth in Paragraph 177(l).

K. Steel Fabrication Facilities

46. This Section applies to the following Steel Fabrication facilities:

- Brigham City, Utah (Vulcraft)
- Florence, South Carolina (Vulcraft)
- Fort Payne, Alabama (Vulcraft)
- Grapeland, Texas (Vulcraft)
- Norfolk, Nebraska (Vulcraft)
- St. Joe, Indiana (Vulcraft)

47. Unless Nucor demonstrates that it has requisite controls for VOC emissions or does not require permits pursuant to this Section:

a. No later than one hundred sixty (160) days from the lodging of this Consent Decree, Nucor shall submit, for EPA approval, a proposal to control VOC emissions from all coating lines through a combination of pollution prevention, and/or other add-on control systems, and continue to pilot and develop low-VOC based solutions for all painting operations with the goal of converting completely to low-VOC based operations prior to the termination of the Consent Decree. Product quality and market limitations on the use of low-VOC based paint on Nucor products will be considered.

b. Within sixty (60) days of EPA approval of Nucor's proposal in Paragraph 47(a), Nucor shall submit a complete permit application for the Fort Payne, Alabama facility to the appropriate permitting authority to permit coating operations as

"major stationary source" pursuant to 40 C.F.R. § 52.21(b)(1)(i)(b). Within sixty (60) days of the completeness determination for the Fort Payne, Alabama application, Nucor shall submit for EPA approval a proposed schedule for permitting the remaining facilities.

c. Failure to comply with the permitting and VOC-control requirements of this Section will subject Nucor to stipulated penalties as set forth in Paragraph 177(m).

L. New Source Performance Standards

48. Nucor shall establish operating baselines as required by NSPS, Subpart AA, 40 C.F.R. § 60.274 or NSPS, Subpart AAa, 40 C.F.R. § 60.274(a) as applicable at the EAFs at each of the eight (8) mini-mills which are the subject of this Consent Decree. Nucor shall establish the required baselines within one hundred eighty (180) days of entry of this Consent Decree or as required by Paragraph 49. Nucor shall perform the baseline testing in accordance with the regulations, at representative conditions, and the conditions during the testing shall accurately reflect current operating parameters at each respective mini-mill. Nucor shall use the testing protocol in Attachment 8 to this Consent Decree, unless Nucor consults with EPA at least forty-five (45) days prior to conducting the required testing and EPA and Nucor jointly develop an alternate protocol.

49. For facilities that are piloting control technology at EAFs under the terms of this Consent Decree, where appropriate, Nucor shall re-establish baselines concurrently with the installation of the control technologies required by this Consent Decree. In the alternative to baseline testing required by this section, where Nucor has performed baseline testing, it may petition EPA for approval to use existing baseline data.

50. Failure to establish baselines as required by this Section will subject Nucor to stipulated penalties as set forth in Paragraph 177(n).

VI. CLEAN WATER ACT COMPLIANCE

A. First Flush Sampling

51. Nucor shall conduct eight (8) rounds of first flush storm water sampling at each of the mini-mills listed in Paragraph 9 of this Consent Decree. Sampling shall take place at all stormwater only outfalls sampled pursuant to either its stormwater, general or NPDES permit. In addition, Nucor shall identify other significant conveyances of stormwater and sample the outfalls of such conveyances as part of this sampling program.

52. Within forty-five (45) days of entry of this Consent Decree, Nucor shall submit to EPA for approval a Sampling Plan for each of the mini-mills listed in Paragraph 9. The Sampling

Plan shall include, but not be limited to, the specific location of the outfalls to be sampled, a detailed map with the location of the outfalls to be sampled clearly marked, and a sampling and laboratory quality assurance plan for the stormwater sampling program. Nucor shall begin implementation of the Sampling Plan during the first full calendar quarter following EPA's approval of the plan.

53. Nucor shall conduct the sampling, twice per quarter, to reflect seasonal changes, until eight (8) successful sampling events occur.

54. Nucor shall collect First Flush samples in the selected locations during the first thirty (30) minutes of a discharge resulting from a continuous rainfall event of greater than 0.1 inches in magnitude at the site. Discharge to ponds shall be sampled at the inlet to the pond. The storm event must be a least seventy-two (72) hours after the previously measurable storm event greater than 0.1 inches. The sample shall be collected mid-stream.

55. Nucor shall document in field notes the sample location, sampling method, date and time of sample collection, sample handling procedures, preservative used, and the name of the sampler or sampling device.

56. Nucor shall submit to EPA and the NPDES permitting authority a Sampling Report in accordance with Section XIV of this Consent Decree (General Recordkeeping and Reporting) with documentation of the sampling event, chain-of-custody, and analytical data. The Sampling Report shall include the name of the laboratory performing the analysis, the name of the analysis, the date of analysis, the analytical technique used, the detection limits, any NPDES permit excursions that are noted, hard copy of any electronic deliverables, the field notes prepared by the sample collector, and rain fall records documenting that the sampling event met the requirements of First Flush as set forth in Paragraphs 52 and 54.

57. Nucor shall analyze the following parameters using the specified methods: pH (40 C.F.R. Part 136, Method 150.1); Biochemical Oxygen Demand (Method 5210b, Standard Methods for the Examination of Water and Wastewater); Total Suspended Solids (Method 2540D, Standard Methods for the Examination of Water and Wastewater); Oil and Grease (40 C.F.R. Part 136, Method 413.1 or 1664); Volatile Organic Compounds (40 C.F.R. Part 136, Appendix A, Method 1624); Semi-volatile Organic Compounds (40 C.F.R. Part 136, Appendix A, Method 1625); Metals (40 C.F.R. Part 136, Appendix C, Method 200.7); Total Organic Carbon (SW-846, Method 9060).

58. Failure to submit a complete Sampling Plan, to conduct First Flush Sampling, to analyze all parameters as required in Paragraph 57 or, to submit a complete sampling report, shall subject Nucor to stipulated penalties as set forth in Paragraph 177(o).

59. Failure to comply with NPDES permit conditions shall subject Nucor to stipulated penalties as set forth in Paragraph 177(s).

B. Best Management Practices/Storm Water Pollution Prevention Plans

60. Within two hundred ten (210) days of entry of this Consent Decree, Nucor shall develop Best Management Practices("BMP") and Storm Water Pollution Prevention ("SWPP")Plans for each of the facilities listed in Paragraph 9 and provide the plans to EPA and to the appropriate state permitting authority for review and approval.

61. For facilities where BMP or SWPP Plans exist at the time of execution of this Consent Decree, Nucor shall revise the plans in accordance with this Section. Within two hundred ten (210) days of entry of this Consent Decree, Nucor shall provide EPA and the appropriate state permitting authority with the revised plans for review and approval.

62. Where a BMP/SWPPP is not included in a facility's individual NPDES permit, Nucor shall seek to include a provision requiring such a BMP/SWPPP in its permit.

63. Each BMP/SWPP Plan (hereafter "the plan(s)") shall, as appropriate, be consistent with the requirements set forth in the Final National Pollutant Discharge Elimination System Storm Water Multi-Sector Permit, 60 FR 50804 (September 29, 1995), and the guidelines set forth in EPA's Guidance Manual for Developing Best Management Practices, Office of Water, October 1993 (EPA 833-B-93-004)(BMP Guidance), as well as applicable state laws and regulations.

64. Within thirty (30) days of entry of this Consent Decree, Nucor shall modify its SWPP Plan for the Hickman facility to add SW-2 as an outfall Nucor will sample as part of compliance with its Storm Water General Permit, ARR00A000.

65. In addition to appropriate actions set forth in the Final Multi-Sector permit, and the BMP Guidance, Nucor shall include in the plan:

a. specific measures to prevent, to the maximum extent practicable, any water from coming into contact with K061 dust;

b. a requirement to inspect K061 processing and handling areas once per day while the EAF is in operation and after each load;

c. a list of all process equipment which is in contact with or close proximity to the contact water systems or which is located outside without secondary containment and which has the potential to discharge any contaminant, via a leak or rupture, in such a manner that it may come into contact with water that may be discharged off the site via an NPDES outfall, storm water outfall, or sheet flow. Process equipment does not include light mobile equipment;

d. a requirement to conduct inspections each calendar week of all listed equipment, memorialized in writing;

e. a requirement to properly store all co-products and scrap metal to prevent, to the maximum extent practicable, contamination of stormwater, and to contain contaminated runoff and control releases;

f. specific measures to control particulates from flowing off the co-products and scrap metal storage surfaces using structures that contain and capture settleable solids;

g. An evaluation of storage of materials within the level of a 100 year flood plain and whether the materials could be moved or additional protection measures could be implemented;

h. a detailed description of an investigation of all cross connections between stormwater piping (including, any other channelized conveyance) and process water piping, aimed at minimizing pollutant loading to either stormwater or process water discharges;

i. a list by functional description of all on-site contractors, a review of all stormwater impacts from operations of on-site contractors, and specific measures for mitigating any such impacts.

66. Nucor shall conduct a review of all effluent or stormwater discharge sampling standard operating procedures to assure compliance with 40 C.F.R. Part 136.

67. Failure to develop complete BMP and SWPP plans or to seek to modify Nucor's NPDES permits to require BMP Plans as required by this Section will subject Nucor to stipulated penalties as set forth in Paragraph 177(p).

C. Randomizing NPDES Sampling

68. Subject to applicable limitations in state permits, Nucor shall use a random date generator to select sampling days

for all NPDES sampling beginning with the first full calendar quarter following entry of the Consent Decree, except where sampling from outfills is dependent on storm water events. Provided, however, that Nucor shall be relieved of analyzing samples for those constituents where holding periods over non-business days would invalidate the samples, where sampling must be scheduled by the analyzing laboratory, and when facilities are not producing a discharge for sampling. The random sampling day selection process shall be memorialized in Nucor's NPDES standard operating procedures, any NPDES training materials, instructions or other materials used to instruct NPDES sample collectors on proper sampling procedures, and as a component of Nucor's EMS. The date generator shall be designed so that Nucor shall have no more than twenty-four (24) hours prior knowledge of the day of a sampling event.

69. Failure to conduct NPDES sampling on the dates identified by the random date generator as required by this Section will subject Nucor to stipulated penalties as set forth in Paragraph 177(q).

D. Biocide Monitoring

70. Within ninety (90) days of entry of this Consent Decree, Nucor shall submit a Biocide Discharge Monitoring Plan to EPA for its review and approval. The Biocide Discharge Monitoring Plan

shall provide for the monitoring of biocide concentrations in discharges from the facility for any biocide used at the facility within the three (3) preceding years by either (a) sampling twice per month for a period of two (2) years; or (b) a mass-balance calculation of the concentration of the biocide and monthly acute and quarterly chronic whole effluent toxicity testing for a period of two (2) years. The plan shall specify the sampling locations and sampling methodologies. Nucor shall commence monitoring within thirty (30) days of EPA's approval of the Biocide Discharge Monitoring Plan. Nucor shall incorporate the results of the biocide sampling in all its reports to EPA and the appropriate permitting authority. Nucor may identify areas where no biocides are thought to have been handled or discharged and, upon EPA's concurrence, such areas may not be included in the sampling plan. If no biocide "hit" occurs in a given area in the first several rounds of sampling, Nucor may petition the EPA to have that area removed from the sampling plan.

71. Failure to monitor and report the results of the testing and/or calculations required by this Section, will subject Nucor to stipulated penalties as set forth in Paragraph 177(r).

E. Measures at the Plymouth, Utah Facility

72. Nucor shall verify that the leak in the wall of the non-contact cooling basin has been repaired, and that a reliable,

long-term solution to avoid any further such leaks has been implemented.

73. Nucor shall develop Standard Operating Procedures for maintaining compliance with Total Dissolved Solids ("TDS") levels, and provide documentation to EPA of the TDS levels measured in any discharge from the facility. Documentation for this Section shall be sent to the State of Utah and EPA within thirty (30) days of the entry of this Consent Decree.

VII. RCRA COMPLIANCE

74. All documents submitted to EPA pursuant to this Section shall be reviewed and approved by EPA and/or the overseeing State in accordance with Section XII (Agency Approvals).

A. Injunctive Relief Related to Waste Management.

75. For each facility subject to this Consent Decree, Nucor shall comply, with respect to all waste generated after the lodging of the Decree, with all applicable RCRA generator requirements at 40 C.F.R. § 262.34 (40 C.F.R. Part 265 including § 265.16, and Subparts D and J) and 40 C.F.R. Part 268 pursuant to this Section.

76. No later than March 31, 2001, Nucor shall complete a RCRA facility compliance assessment and shall submit to EPA a certification, signed by a responsible official, setting forth

the facility's compliance status with the applicable hazardous waste generator requirements at 40 C.F.R. Part 262 with regard to its on-site management of K061 dust and other hazardous wastes currently generated at each of its steel mills and Vulcraft facilities. The certification shall be accompanied by a schedule for correction of any instances of noncompliance noted therein. Upon EPA approval of this plan and schedule, Nucor will complete the corrective action in accordance therewith and shall certify to EPA compliance upon completion. Failure to comply with the RCRA generator requirements in this Paragraph shall subject Nucor to stipulated penalties in accordance with Paragraph 177(t).

77. No later than January 31, 2001, Nucor shall either (a) submit to EPA information and analysis supporting a hazardous waste determination demonstrating that waste thinner and paint waste accumulations, including containers, at the Vulcraft facility in Brigham City are not hazardous wastes under RCRA, or (b) certify that the facility is in full compliance with 40 C.F.R. § 262.34 and applicable Part 265 provisions with regard to these satellite accumulation areas.

78. Within forty-five (45) days of the lodging of this Consent Decree, Nucor shall submit to EPA and the Utah Department of Environmental Quality ("UDEQ"), for review and approval, a personnel training program for the Vulcraft facility in Brigham City, Utah, that fully complies with the requirements of 40

C.F.R. § 265.16. In addition, within thirty (30) days of receipt of EPA's comments on the personnel training plan for the Nucor facility in Plymouth, Utah, Nucor shall submit to EPA, with a copy to UDEQ, a training plan which incorporates EPA's comments and is in compliance with 40 C.F.R. § 265.16.

79. Within thirty (30) days of the entry of this Consent Decree, Nucor shall submit to EPA, with a copy to UDEQ, a revised contingency plan for the Nucor facility in Plymouth, Utah, which reflects current facility conditions and complies with the requirements of 40 C.F.R. Part 265, Subpart D. The updated contingency plan shall be distributed to the local responders, and Nucor shall provide documentation to EPA and UDEQ demonstrating that the new plan has been distributed.

80. No later than January 31, 2001, Nucor shall submit documentation to EPA, with a copy to UDEQ that all containers of hazardous waste at the Nucor facility in Plymouth, Utah, are properly labeled, closed and managed in accordance with 40 C.F.R. § 262.34.

81. Nucor shall, immediately upon entry of this Consent Decree, cease storage and/or disposal of hazardous waste generated after the Consent Decree except in RCRA-permitted or exempt units, as applicable. Nucor shall, no later than March 31, 2001, submit to EPA a certification, signed by a responsible

official, stating that it is not storing and/or disposing of hazardous waste generated after entry of this Consent Decree except in RCRA-permitted or exempt units, as applicable, at each of its steel mills and Vulcraft facilities.

82. Nucor shall immediately upon entry of this Consent Decree, cease the placement of hazardous waste on the land without meeting the requirements at 40 C.F.R. Part 268. Nucor shall, no later than March 31, 2001, submit to EPA a certification, signed by a responsible official, stating that it is in compliance with the applicable land disposal restriction regulations at each of its steel mills and Vulcraft facilities with respect to hazardous waste generated after the entry of this Consent Decree.

83. As part of the RCRA K061 Dust BMP Plan required to be submitted in accordance with Paragraph 84, Nucor shall, in the State of Arkansas, comply with the requirements of 40 C.F.R. Part 265, Subpart J, with respect to the management of K061 dust in silos. At all other facilities Nucor may in the RCRA K061 Dust BMP Plan submitted in accordance with Paragraph 84 either: (a) submit certification to EPA that Nucor is in compliance with the requirements of 40 C.F.R. Part 265, Subpart J, with respect to the management of K061 dust in silos at each of its mini-mills, or (b) unless otherwise required under applicable state law,

submit to EPA a proposal for prevention of releases of K061 dust from the silos at each of its mini-mills..

84. Nucor shall, within one hundred twenty (120) days of the entry of this Consent Decree, submit to EPA a detailed description of all existing K061 dust management practices at all of its mini-mills for EPA review and approval. Nucor shall within one hundred fifty (150) days of entry of this Consent Decree, submit for EPA review and approval a RCRA K061 Dust BMP Plan for its management of K061 dust at the Norfolk, Nebraska facility. For the seven remaining mini-mills, Nucor shall submit for EPA review and approval, at sixty (60)-day increments thereafter, a RCRA K061 Dust BMP Plan for its management of K061 dust. All RCRA K061 Dust BMP Plans required by this Paragraph shall be completed within five hundred seventy (570) days after entry of the Consent Decree. These RCRA K061 Dust BMPs must address: all necessary construction and installation of K061 dust storage and transfer equipment to prevent to the maximum extent practicable, in accordance with good engineering practice, releases of K061 dust; construction of concrete pads under the current and planned baghouses or equally effective control measures to prevent releases into the environment; the periodic inspection of these pads or other control measures; the frequency for vacuuming these pads; the subsequent management of the collected dusts as hazardous waste; and a schedule for

implementation of the plan. The plans must also provide for collection and proper management of any rainwater which may collect on or run onto these controlled areas. Immediately upon approval of the BMPs by EPA, Nucor shall begin to implement the plan in accordance with any schedules contained therein.

85. As part of the RCRA K061 Dust BMP Plan required to be submitted in accordance with Paragraph 84, Nucor shall include a plan to EPA for an enclosed K061 dust transfer operation at each of its steel mills, using good engineering practices to prevent, to the maximum extent practicable, releases of K061 dust, and to facilitate the development of RCRA K061 Dust BMPs pursuant to paragraph 84.

86. All notices and certifications required by Section VI.A. (Injunctive Relief Related to Waste Management) shall be sent to: Robert Parrish, U.S. EPA Headquarters, 1200 Pennsylvania Ave., N.W, Mail Code 2248A, Washington DC 20460.

B. Closure at Nebraska

87. Nucor shall, no later than one hundred eighty (180) days from the lodging of this Consent Decree, submit to the Nebraska Department of Environmental Quality (NDEQ), for review and approval a closure plan which complies with the requirements of 40 C.F.R. Part 264, Subpart G, with a copy to EPA's Project Coordinator identified in Paragraph 147 below. The closure plan

shall address closure of the K061 disposal areas around former Baghouses A and C and the current NN3 Baghouse at the Norfolk, Nebraska facility. Nucor shall, upon approval of the closure plan by the NDEQ, initiate and complete all closure activities according to the schedules set forth in the approved closure plans.

88. Nucor shall, within sixty (60) days of completion of final closure at the Norfolk, Nebraska facility, submit to the NDEQ a certification that these hazardous waste management units for each facility have been closed in accordance with the specifications in the approved closure plans, with a copy to EPA's Project Coordinator identified in Paragraph 147 below. The certification must be signed by the owner or operator and by an independent registered professional engineer.

89. Nucor shall, within one hundred eighty (180) days from the lodging of this Consent Decree, submit to the NDEQ documentation of financial assurance for the closure cost estimates, pursuant to 40 C.F.R. Part 264, Subpart F, for closure of the areas of the soils around former Baghouses A and C and the current NN3 Baghouse.

VIII. RCRA Corrective Action

90. This Section (RCRA Corrective Action) applies to the following facilities:

Nucor, Darlington, SC	Nucor, Jewett, TX
Nucor, Berkeley, SC	Nucor, Norfolk, NE

Nucor, Crawfordsville, IN
Nucor, Blytheville, AR (Hickman Mill)
Nucor, Plymouth, UT
Nucor-Yamato, Armorel, AR

A. Work to be Performed

91. Nucor is hereby ordered to perform the acts specified in this Section, in the manner and by the dates specified herein. All work undertaken pursuant to this Consent Decree shall be performed in a manner consistent with: the Scopes of Work attached hereto as Attachments 10, 11, 12 and 13; all EPA or State approved RCRA Facility Assessment Workplans, Interim Measures Workplans, RCRA Facility Investigation Workplans, Corrective Measures Study Workplans, Corrective Measures Implementation Workplans, and any other relevant EPA or State approved Workplans; RCRA and other applicable Federal and State laws and their implementing regulations; and applicable EPA and State guidance documents.

92. Nucor is not required to duplicate any investigative or remedial work which has previously been performed at the facilities subject to this Consent Decree and which would satisfy the requirements of this Consent Decree to the designated Project Coordinator's satisfaction. Rather, Nucor will be required to reference, and where necessary provide copies of, the document or report which details the activities previously performed and the results of those activities. Nucor is required to do any and all additional work necessary to satisfy the requirements of this

Consent Decree to the designated Project Coordinator's satisfaction.

93. All work performed pursuant to Section VIII of this Consent Decree shall be under the direction and supervision of a professional engineer, hydrologist, geologist, or environmental scientist with expertise in hazardous waste cleanup. Nucor's contractor or consultant shall have the technical expertise sufficient to adequately perform all aspects of the work for which it is responsible. A team of independent consultants, proposed by Nucor and approved by EPA and managed by independent counsel, will oversee the work. A Project Oversight Director, approved by EPA, will be appointed by Nucor and will coordinate efforts of the independent consulting team. Within ten (10) days, after the entry of the Consent Decree, Nucor shall also designate a Primary Corporate-Wide Project Director. After approval of each workplan and within fifteen (15) days of retaining outside engineers, hydrologists, geologists, and/or environmental scientists and any other contractors or consultants and their personnel to be used in carrying out the terms of this Consent Decree, Nucor shall notify the designated EPA or State Project Coordinator(s) in writing, of the name, title, and qualifications of said professionals, consultants, and/or contractors. Nucor shall identify whether any contractor is on the List of Parties Excluded from Federal Procurement or

Non-Procurement Programs. EPA and the relevant States reserve the right to disapprove Nucor's contractor or consultant. If EPA or the State disapproves a contractor or consultant, then Nucor must, within thirty (30) days of receipt from EPA of written notice of disapproval, notify the designated Project Coordinator, in writing, of the name, title, and qualifications of any replacement. EPA's or the State's disapproval shall not be subject to review under Section XX, Dispute Resolution.

94. To facilitate effective communication during the corrective action process, Nucor's project managers and technical consultant shall periodically meet with appropriate EPA and/or state Project Coordinators and prior to submission of all work plans and reports required under this Section.

95. Within two hundred forty (240) days of entry of this Consent Decree, Nucor shall submit to EPA a comprehensive initial assessment and corrective action schedule, subject to EPA review and approval, for all mini-mills. This schedule will include a priority-based timeline for interim measures and further investigations. Based on review of the initial assessment and schedule, the Project Coordinator for each facility will notify Nucor of whether a RCRA Facility Assessment ("RFA"), RCRA Facility Investigation ("RFI"), and/or Stabilization Measure is necessary for that facility.

96. Due to the complexity of determining the potential presence and/or extent of contamination at all eight (8) mini-mills, Nucor and EPA recognize that a phased approach to facility assessment and investigations is necessary.

B. RCRA Facility Assessments

97. Within sixty (60) days, but no earlier than three hundred (300) days after the entry of the Consent Decree, after receiving written notice from the EPA or State Project Coordinator of the requirement to submit an RFA Workplan, Nucor shall submit to the respective designated Project Coordinator for review and approval an RFA Workplan meeting the requirements of the RFA Scope of Work (Attachment 10). Each RFA Workplan shall detail the methodology Nucor shall use to: (1) identify each of the solid waste management units ("SWMUs") and areas of concern ("AOCs") at the facilities; (2) identify and present all information regarding potential and actual releases of hazardous waste constituents from each SWMU and AOC; (3) present recommendations regarding the need for further investigation and any necessary interim measures at the facility.

98. Within thirty (30) days of receipt of the designated Project Coordinator's approval of Nucor's RFA Workplan, pursuant to Section XII (Agency Approvals) of this Consent Decree, Nucor shall begin to implement the approved RFA Workplan in accordance with the schedule contained herein and meeting the requirements

of the RFA Scope of Work (Attachment 10). Nucor shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RFA at the facility. Nucor shall also submit to the designated Project Coordinator an electronic copy of the approved RFA Workplan in Adobe Portable Document Format (PDF) on a CD-ROM that incorporates all changes and/or revisions that may be required for approval.

99. In accordance with the EPA or State approved RFA Workplan schedule, Nucor shall submit to the Project Coordinator for review and approval a draft RFA Report meeting the requirements of the RFA Scope of Work (Attachment 10).

100. Within thirty 30 days of receipt of the Project Coordinator's comments on the draft RFA Report, or within such longer period of time designated by the Project Coordinator, Nucor shall submit four copies of the final RFA Report completed in a manner consistent with the RFA Scope of Work contained in Attachment 10 and addressing the Project Coordinator's comments. Nucor shall also submit an electronic copy of the approved RFA Report in PDF format on a CD-ROM. The Project Coordinator will review this submittal in accordance with Section XII of this Consent Decree.

101. Following review of the RFA Report, the Project Coordinator will notify Nucor in writing whether a RCRA Facility Investigation (RFI) is necessary at the facility.

C. RCRA Facility Investigation ("RFI")

102. For the Norfolk, Nebraska facility with sixty (60) days, but no earlier than three hundred (300) days after entry of this Consent Decree; and for the remaining seven (7) mini-mill facilities, within sixty (60) days of written notice from the Project Coordinator, Nucor shall submit for the Project Coordinator's review and approval an RFI Workplan meeting the requirements of the RFI Scope of Work (Attachment 11).

103. The RFI Workplan shall detail the methodology Nucor shall use to: (1) characterize the potential pathways of contaminant migration; (2) characterize the source(s) of contamination; (3) define the degree and extent of contamination; (4) identify actual or potential receptors; and (5) support the development of alternatives from which a corrective measure will be selected by EPA or the State. A specific schedule for implementation of all of the above activities shall be included in the RFI Workplan. Specifically, the RFI Workplan shall include a sampling and analysis plan designed to provide the following information, if applicable:

(a) Determination of site-wide groundwater and surface water quality and distributions of dissolved hazardous wastes and hazardous constituents beneath the site;

(b) Determination of whether releases of hazardous waste or hazardous constituents to the groundwater are migrating beyond the facility boundaries. If so, the vertical and horizontal extent of those releases must be sufficiently defined to prepare an evaluation of contaminated groundwater;

(c) Determination of the vertical and horizontal extent of hazardous wastes and hazardous constituents in soils and sediments sufficient:

(1) to prepare a site-wide map of soil contamination; and

(2) to prepare an evaluation of the risks associated with exposure to contaminated soils and sediments or contaminated surface water; and

(d) Determination of the extent of hazardous wastes and hazardous constituents in soil gas(es) sufficient to prepare an evaluation of the risks associated with exposure to soil gas(es).

The RFI Workplan shall also include: (1) a Project Management Plan; (2) a Data Collection Quality Assurance Plan; (3) a Data Management Plan; (4) a Health and Safety Plan; (5) a Baseline Risk Assessment Plan; and (6) a Community Relations Plan, as specifically defined in Attachment 11.

104. Upon EPA or State approval of Nucor's RFI Workplans pursuant to Section XII (Agency Approvals) of this Consent Decree, Nucor shall conduct a Facility Investigation in accordance with the EPA- or State-approved RFI Workplan. Nucor shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RFI at the facility. Nucor shall also submit an electronic copy of the approved RFI Workplan in Adobe Portable Document Format ("PDF") on a CD-ROM that incorporates all changes and/or revisions that may be required for approval.

105. In accordance with the State or EPA-approved RFI Workplan schedule, Nucor shall submit to the Project Coordinator for review and approval a draft RFI Report meeting the requirements of the RFI Scope of Work (Attachment 11) ("RFI Report"). The report must specifically address (1) the nature, extent and distributions of dissolved hazardous wastes and hazardous constituents in groundwater and surface water; (2) the extent of hazardous wastes and hazardous constituents in soils and sediments; (3) the extent of hazardous wastes and hazardous

constituents in soil gas(es); and(4) a baseline risk assessment for exposure to contaminated soils, groundwater, surface water and soil gas.

106. Within sixty (60) days of receipt of the Project Coordinator's comments on the draft RFI Report, or within such longer period of time designated by the Project Coordinator, Nucor shall submit to EPA four (4) copies of the final RFI Report completed in a manner consistent with the RFI Scope of Work contained in Attachment 10 and addressing EPA's comments. Nucor shall also submit an electronic copy of the approved RFI Report in PDF format on a CD-ROM. EPA or the State will review this submittal in accordance with Section XII (Agency Approvals) of this Consent Decree.

107. Following review of the RFI Report, the Project Coordinator will notify Nucor in writing whether a RCRA Corrective Measures Study ("CMS")is necessary at the facility.

D. Corrective Measures Study ("CMS")

108. Within ninety (90) days following notification from the EPA or state Project Coordinator, Nucor shall submit its CMS Workplan. The CMS Workplan shall be written in accordance with the CMS Scope of Work in Attachment 12.

109. Upon approval by the Project Coordinator pursuant to Section XII (Agency Approvals) of this Consent Decree, Nucor

shall conduct the CMS in accordance with the approved Workplan and the requirements of the CMS Scope of Work (Attachment 12).

110. In accordance with the EPA- or state-approved Workplan schedule, Nucor shall submit to the Project Coordinator for review and approval a draft CMS Report meeting the requirements of the CMS Scope of Work (Attachment 12). The report shall provide a detailed description of the activities conducted by Nucor to fulfill the requirements of the CMS Scope of Work. The Project Coordinator will review this submittal in accordance with Section XII (Agency Approval) of this Consent Decree.

111. Within sixty (60) days of receipt of the Project Coordinator's comments on the draft CMS Report, Nucor shall submit to the Project Coordinator four (4) copies of the final CMS Report, completed in a manner consistent with the CMS Scope of Work and shall incorporate the Project Coordinator's comments. Nucor shall also submit an electronic copy of the approved CMS Report in PDF format on a CD-ROM. The Project Coordinator will review this submittal in accordance with Section XII (Agency Approval) of this Consent Decree.

112. In accordance with Section VIII. H. of this Consent Decree, EPA or the State Project Coordinator will provide the public with an opportunity to submit written and/or oral comments

and an opportunity for a public meeting regarding the proposed cleanup standards and remedy for the facility.

E. Corrective Measure Implementation ("CMI")

113. Within ninety (90) days of Nucor's receipt of notification of EPA's or the State's selection of the corrective measure(s), Nucor shall submit to the Project Coordinator a Corrective Measures Implementation Workplan ("CMI Workplan"). The CMI Workplan is subject to approval by EPA or the State Project Coordinator and shall be developed in a manner consistent with the CMI Scope of Work incorporated herein and contained in Attachment 13.

114. The CMI Workplan shall be designed to facilitate the design, construction, operation, maintenance, and monitoring of corrective measures at the facility. In accordance with Attachment 13 herein, the CMI Workplan shall also include the following sections:

- Program Management
- Public Involvement Plan
- Design Plans and Specifications
- Operation and Maintenance
- Cost Estimate
- Project Schedule
- Construction Quality Assurance
- Data Collection Quality Assurance
- Data Management.

115. Concurrent with the submission of a CMI Workplan, Nucor shall submit to the Project Coordinator a CMI Health and Safety Plan in accordance with Attachment 13.

116. EPA or the State will review the CMI Workplan and notify Nucor in writing of EPA's approval, approval with conditions, disapproval, or disapproval with comments in accordance with Section XII (Agency Approvals) of this Consent Decree.

117. Upon EPA's or the State's approval of Nucor's CMI Workplan pursuant to Section XII of this Consent Decree, Nucor shall implement the CMI in accordance with the EPA- or State-approved CMI Workplan. Nucor shall furnish all personnel, materials, and services necessary for, or incidental to, performing the CMI at the facility. Nucor shall also submit an electronic copy of the CMI Workplan in PDF format on a CD-ROM that incorporates all changes and/or revisions that may be required for approval.

118. Nucor shall submit a Corrective Measures Implementation Report to the Project Coordinator in accordance with the EPA- or State-approved CMI workplan schedule meeting the requirements of the CMI Scope of Work (Attachment 13). EPA or the State will review the report in accordance with Section XII (Agency Approval) of this Consent Decree. Nucor shall also submit an

electronic copy of the report in PDF format on a CD-ROM that incorporates all changes and/or revisions that may be required for approval.

119. Nucor shall submit a Corrective Measures Completion Report to the Project Coordinator within one hundred twenty (120) days of the completion of all remedial activities meeting the requirements of the CMI Scope of Work (Attachment 13). EPA or the State will review the report in accordance with Section XII of this Consent Decree. Nucor shall also submit an electronic copy of the report in PDF format on a CD-ROM that incorporates all changes and/or revisions that may be required for approval.

F. Interim Measures ("IM")

120. In the event Nucor identifies an immediate or potential threat to human health or the environment, Nucor shall notify the Project Coordinator verbally within forty-eight (48) hours of discovery and notify EPA or the relevant State in writing within ten (10) days of such discovery summarizing the immediacy and magnitude of the potential threat(s) to human health or the environment, or within such other time as agreed to by the EPA or the relevant States. Upon written request of EPA or the State, Nucor shall submit to EPA or the State an IM Workplan meeting the requirements of Paragraph 123 below. If EPA or the State determines that immediate action is required, the Project

Coordinator may verbally authorize Nucor to act prior to the Project Coordinator's receipt of the IM Workplan.

121. If EPA or the State identifies an immediate or potential threat to human health or the environment, EPA or the State will notify Nucor in writing. Within five (5) days of receiving written notification, Nucor shall submit to the Project Coordinator an IM Workplan that identifies interim measures which will mitigate the threat. If EPA or the State determines that immediate action is required, the Project Coordinator may verbally require Nucor to act prior to Nucor's receipt of written notification.

122. All IM Workplans shall ensure that the interim measures are designed to mitigate immediate or potential threat(s) to human health or the environment, and should be consistent with the objectives of, and contribute to the performance of, any long-term remedy which may be required at the facility.

123. The IM Workplan shall be written to include the components recommended in the RCRA Corrective Action Interim Measures Guidance document (EPA/530-SW-88-029, June 1988). The components shall include, when appropriate as determined by the Project Coordinator, the IM Objectives; a Health and Safety Plan; a Public Involvement Plan (Community Relations Plan); a Data Collection Quality Assurance Plan; a Data Management Plan; Design

Plans and Specifications; an Operation and Maintenance Plan; a Project Schedule; an IM Construction Quality Assurance Plan; and Reporting Requirements.

G. Stabilization Measures

124. Within sixty (60) days of agreement between Nucor and the designated EPA or State Project Coordinator that Stabilization Measures are appropriate at a mini-mill, Nucor shall submit to EPA or the state Project Coordinator a workplan detailing any corrective actions or other response measures necessary to control current environmental and human exposures to contaminants to within acceptable risk levels. Such measures shall be consistent with the objectives of, and contribute to the performance of, any long-term remedy which may be required at the facility. The workplan may include one or more of the components specified above in Paragraph 123, when appropriate, as determined by the EPA or state Project Coordinator.

125. Upon EPA or State Project Coordinator approval of Nucor's Stabilization Measures Workplan, pursuant to Section XII (Agency Approval) of this Consent Decree, Nucor shall implement the appropriate workplan in accordance with the schedules contained therein.

H. Public Participation

126. EPA or the State will provide the public with an opportunity to review and comment on the approved Corrective Measures Study Report and a description of the proposed corrective measure(s), including EPA's or the State's justification for proposing such corrective measure(s) (the "Statement of Basis").

127. Following the public comment period, EPA or the State will select the appropriate corrective measures for this facility.

128. EPA or the State will notify Nucor of the final corrective measure selected by EPA in the Final Decision and Response to Comments (RTC). The notification will include EPA's or the State's reasons for selecting the corrective measure.

I. Additional Work

129. EPA or the State may determine or Nucor may propose that certain tasks, including investigatory work, engineering evaluation, or procedure/methodology modifications, are necessary in addition to the tasks included in any EPA- or State-approved workplan, when such additional work is necessary to meet the purposes set forth in Attachment 13, CMI. In the event EPA or the State determines that additional work is necessary, EPA or the State will specify in writing the basis for its determination. Nucor may request the opportunity to meet or

confer with EPA or the State to discuss the additional work within fifteen (15) days after the receipt of such determination. If required by EPA or the State, Nucor shall submit for EPA or State approval a workplan for the additional work. Such workplan shall be submitted within ninety (90) days of receipt of the determination that additional work is necessary, or according to an alternative schedule established by EPA or the State. Upon approval of a workplan, Nucor shall implement the appropriate workplan in accordance with the schedule and provisions contained therein.

J. Quality Assurance

130. Nucor shall follow EPA guidance for sampling and analysis. Workplans shall contain quality assurance/quality control and chain of custody procedures for all sampling, monitoring, and analytical activities. Deviations from the approved Workplans must be approved by EPA or the State prior to implementation and must be documented, including the reasons for the deviations. Applicable guidance include, but are not limited to, "EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5)", "EPA Guidance for Quality Assurance Project Plans (EPA QA/G-5)" and such other applicable guidance identified by EPA or the State.

131. The name(s), addresses, and telephone numbers of the analytical laboratories Nucor proposes to use must be specified in the applicable Workplan(s).

132. All Workplans required under this Consent Decree shall include data quality objectives for each data collection activity to ensure that data of known and appropriate quality are obtained and that data are sufficient to support their intended use(s).

133. Nucor shall monitor the sampling and analysis activities to ensure that high quality data is obtained by its consultant or contract laboratories. Nucor shall ensure that laboratories used by Nucor for analysis perform such analysis

according to the latest approved edition of "Test Methods for Evaluating Solid Waste, (SW-846)," or other methods deemed satisfactory to EPA. If methods other than EPA methods are to be used, Nucor shall specify all such protocols in the applicable workplan. EPA or the State may reject any data that does not meet the requirements of the approved workplan or EPA analytical methods and may require re-sampling and additional analysis.

134. Nucor shall ensure that the laboratories it uses for analyses participate in a quality assurance/quality control program equivalent to that which is followed by EPA. Field laboratories shall follow a written QAPP approved by EPA as part of the RFI workplan required by Paragraph 103. EPA may conduct a performance and quality assurance/quality control audit of the laboratories chosen by Nucor before, during, or after sample analyses. Upon request by EPA or the State, Nucor shall have its laboratory perform analyses of samples provided by EPA or the State to demonstrate laboratory performance. If the audit reveals deficiencies in a laboratory's performance or quality assurance/quality control, re-sampling and additional analysis may be required.

135. Nucor shall validate all data prior to its submittal to the Project Coordinator. Data shall be validated in accordance with the EPA guidelines "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (EPA,

February 1994) and "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (EPA, February 1994), or alternative criteria provided in the approved workplan.

K. Sampling and Data/Document Availability

136. Nucor shall submit to EPA or the overseeing State, upon request, the results of all sampling or tests or other data generated by its agents, consultants, or contractors pursuant to this Consent Decree. Nucor shall submit all laboratory data (including field laboratory data) including QA/QC data in the electronic format required for data transfer by EPA's contract laboratory program.

137. Notwithstanding any other provisions of this Consent Decree, the United States retains all of its information gathering and inspection authorities and rights, including the right to bring enforcement actions, including criminal enforcement, related thereto, under RCRA, The Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601 et seq. ("CERCLA"), and any other applicable statutes or regulations.

138. Nucor shall notify the Project Coordinator in writing at least thirty (30) days before engaging in field activities identified by the workplans under this Consent Decree as requiring Project Coordinator oversight. If Nucor believes it

must commence emergency field activities without delay, Nucor may seek emergency telephone authorization from the Project Coordinator or, if the Project Coordinator is unavailable, his/her alternate, to commence such activities immediately. Nucor shall provide a letter to EPA or the State within five (5) days of this oral authorization and document the reason for the emergency field activity and the action taken to respond to that emergency. At the request of EPA, Nucor shall provide or allow EPA or the state or their authorized representative to take split or duplicate samples of all samples collected by Nucor pursuant to this Consent Decree. Similarly, at the request of Nucor, EPA or the State shall allow Nucor or its authorized representative(s) to take split or duplicate samples of all samples collected by EPA or the State under this Consent Decree.

139. Nucor may assert a business confidentiality claim covering all or part of any information submitted or obtained by EPA pursuant to this Consent Decree. Any assertion of confidentiality must be accompanied by information that satisfies the items listed in 40 C.F.R. § 2.204(e)(4) or such claim shall be deemed waived. Information determined by EPA to be confidential shall be disclosed only to the extent permitted by 40 C.F.R. Part 2. If no such confidentiality claim accompanies the information when it is submitted to or obtained by EPA, the information may be made available to the public by EPA without

further notice to Nucor. Nucor agrees not to assert any confidentiality claim with regard to any physical or analytical data.

L. Access

140. EPA or the State, their contractors, employees, and any EPA or State representatives are authorized to enter and freely move about the facilities subject to this Consent Decree for the purposes of, inter alia: interviewing facility personnel and contractors; inspecting records, operating logs, and contracts related to the facility; reviewing the progress of Nucor in carrying out the terms of this Consent Decree; conducting such tests, sampling, or monitoring as EPA deems necessary; using a camera, sound recording, or other documentary type equipment; and verifying the reports and data submitted to EPA or the State by Nucor. Nucor agrees to provide EPA or the State and their representatives access at all reasonable times to the facility and subject to Paragraph 141 below, to any other property to which access is required for implementation of this Consent Decree. Nucor shall permit such persons to inspect and copy all records, files, photographs, documents, including all sampling and monitoring data, that pertain to work undertaken pursuant to this Consent Decree, and that are within the possession or under the control of Nucor or its contractors or consultants.

141. To the extent that work being performed pursuant to this Consent Decree must be done beyond the facility property boundary, Nucor shall use its best efforts to obtain access agreements necessary to complete work required by this Consent Decree from the present owner(s) of such property within thirty (30) days of approval of any workplan for which access is required. "Best efforts" as used in this paragraph shall include, at a minimum, a certified letter from Nucor to the present owner(s) of such property requesting access agreement(s) to permit Nucor, EPA or the State and their authorized representatives to access such property, and the payment of reasonable sums of money in consideration of granting access. Any such access agreement shall provide for access by EPA or the State and their representatives. Nucor shall ensure that the Project Coordinator has a copy of any access agreement(s). In the event that agreements for access are not obtained within thirty (30) days of approval of any workplan for which access is required, Nucor shall notify EPA or the State in writing within fourteen (14) days thereafter of both the efforts undertaken to obtain access and the failure to obtain such agreements. EPA or the State may, at its discretion, assist Nucor in obtaining access. In the event EPA or the State obtains access, Nucor shall undertake EPA- or State-approved work on such property.

142. Nothing in this Section limits or otherwise affects EPA's or the State's right of access and entry pursuant to applicable law, including RCRA and CERCLA.

143. Nothing in this Section shall be construed to limit or otherwise affect Nucor's liability and obligation to perform corrective measures including corrective measures beyond the facility boundary, notwithstanding the lack of access.

M. Record Preservation

144. Nucor shall retain, during the pendency of this Consent Decree and for a minimum of six (6) years after its termination, all data, records, and documents now in its possession or control or which come into its possession which relate in any way to this Consent Decree or to hazardous waste management or disposal at the facilities listed in Paragraph 90. Nucor shall notify EPA or the State in writing ninety (90) days prior to the destruction of any such records, and shall provide EPA or the State with the opportunity to take possession of any such records. Such written notification shall reference the effective date, caption, and docket number of this Consent Decree and shall be addressed to either the State Project Coordinator or to:

Rob Parrish
U.S. EPA Headquarters
1200 Pennsylvania Ave., N.W
Mail Code 2248A
Washington DC 20460

145. Nucor further agrees that within thirty (30) days of retaining or employing any agent, consultant, or contractor for the purpose of carrying out the terms of this Consent Decree, Nucor will enter into an agreement with any such agents, consultants, or contractors whereby such agents, consultants, or contractors will be required to provide Nucor a copy of all documents produced pursuant to this Consent Decree.

146. All documents pertaining to this Consent Decree shall be stored by Nucor in a centralized location at the facility to afford ease of access by EPA or the State and their representatives.

N. Notification and Document Certification

147. Unless otherwise specified, all reports, correspondence, notices, or other submittals relating to or required under this Consent Decree shall be in writing and shall be sent to the following Project Coordinators:

Nucor, Norfolk, Nebraska:

Ken Herstowski, ARTD/RCAP
U.S. EPA, Region 7
901 N. 5th St.
Kansas City, Kansas 66101
Telephone (913) 551-7631
Fax (913) 551-7947
Email herstowski.ken@epa.gov

Nucor, Crawfordsville, Indiana:

Joe Boyle
U.S. EPA, Region 5, DRE-9J
77 West Jackson Blvd.
Chicago, Illinois 60604-3507
Telephone (312) 886-4434
Fax (?)
E-mail boyle.joseph@epa.gov

Nucor, Jewett, Texas:

Ata-Ur-Rahman, PhD, Manager
Texas Natural Resource Conservation Commission
P.O. Box 13087
Austin, Texas 78711-3087
Telephone (512) 239-2276
Fax (512) 239-2346
E-mail arahman@tnrcc.state.tx.us

Nucor-Yamato, Armorel, Arkansas and Hickman Mill, Blytheville, Arkansas:

Chris Hemann
Arkansas Department of Environmental Quality
Box 8913
Little Rock, Arkansas
Telephone (501) 682-0856
Fax (501) 682-0565
e-mail: Hynum@adeq.state.AR.US

Nucor, Darlington, South Carolina and Nucor, Berkeley/Huger, South Carolina:

John Litton, Director
Division of Waste Management
S.C. Department of Health and Environmental Control
2600 Bull St.
Columbia, SC 29201
Tel: (803) 869-4172
Fax: (803) 869-4002
email: litton@columbia34.dhec.state.sc.us

Nucor, Plymouth, Utah:

Janice Pearson
Technical Enforcement Program (8ENF-T)
USEPA Region 8
999 18th St., Suite 500
Denver, CO 80202-2466
Tel: (303) 312-6354
Fax: (303) 312-6409
email: pearsonjanice@epa.gov

148. EPA or a State may change its designated Project Coordinator at any time by providing written notice to Nucor.

149. The absence of the Project Coordinator from the facility shall not be cause for the stoppage of work.

150. Within ten (10) days of the entry of this Consent Decree, Nucor shall notify EPA in writing of the identity of its eight (8) on-site Project Coordinator(s) by providing the Project Coordinator's name, title, company affiliation (if not an employee of Nucor), mailing address, telephone number, fax number and e-mail address, if any. Nucor's Project Coordinator shall be responsible for overseeing the implementation of this Consent Decree and for designating a person to act in his/her absence. All communications directed to Nucor's designated Project Coordinator shall be deemed received by Nucor. Nucor may change its designated Project Coordinator by providing written notice to EPA or the State as to the new Project Coordinator's name, title, company affiliation (if not an employee of Nucor), mailing

address, telephone number, fax number and e-mail address, if any, at least five (5) days prior to making the change.

151. Three copies of all documents submitted pursuant to this Consent Decree shall be hand delivered, sent by certified mail, return receipt requested, or by overnight express mail to the Project Coordinator or to other addressees designated.

152. Any report or other document submitted by Nucor pursuant to this Consent Decree which makes any representation concerning Nucor's compliance or noncompliance with any requirement of this Consent Decree shall be certified by a responsible corporate officer of Nucor or a duly authorized representative. A responsible corporate officer means: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation.

153. The certification required by Paragraph 152 above shall be in the following form:

> "I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to evaluate the information submitted. I certify that the information contained in or accompanying this submittal is true, accurate, and complete. As to those identified portion(s) of this submittal for which I cannot personally verify the accuracy, I certify that this submittal and all attachments were prepared in accordance with procedures designed to assure that qualified

personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those directly responsible for gathering the information, or the immediate supervisor of such person(s), the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature:_____

Name: _____

Title: _____

Date: _____

N. Financial Responsibility

154. At the time of the RFI Workplan submittal(s), Nucor shall submit to EPA or the State: (i) a cost estimate for implementation of the corrective action work required under this Consent Decree, which shall include direct and indirect capital costs, operation and maintenance costs and any other costs attributable to the implementation of the corrective action requirements of this Consent Decree; and (ii) documentation of financial assurance in an amount equal to the cost estimate described above, to guarantee completion of the work required pursuant to this Consent Decree. Such financial assurance shall be in any one or a combination of the following, and shall be consistent with the provisions of this Consent Decree and 40 C.F.R. Part 265, Subpart H:

a. A performance or surety bond;
b. A letter of credit;
c. A trust fund; or
d. A financial test or corporate guarantee from a parent, sibling or higher tier parent corporation.

155. If at any time EPA or the State determines that Nucor has defaulted in its responsibilities with regard to this Consent Decree, EPA or the State may undertake to complete the tasks set forth in this Consent Decree, utilizing the proceeds of the foregoing financial assurance, unless Nucor used the financial test without EPA or State objection as the means of providing financial assurance.

O. Indemnification

156. Nucor agrees to indemnify and save and hold harmless the United States Government, the participating States, their agencies, departments, agents, and employees, from any and all claims or causes of action arising from or on account of acts or omissions of Nucor or its officers, employees, agents, independent contractors, receivers, trustees, and assigns in carrying out activities required by this Consent Decree. This indemnification shall not be construed in any way as affecting or limiting the rights or obligations of Nucor or the United States or States under their various contracts.

IX. EPCRA COMPLIANCE CERTIFICATION

157. Within one hundred twenty (120) days of the entry of this Consent Decree, Nucor shall provide EPA with certification of compliance with all applicable EPCRA requirements at the Hickman, Arkansas mini-mill. The certification shall be signed by a responsible corporate officer. If Nucor has not achieved compliance with all EPCRA requirements within one hundred twenty (120) days of entry of the Consent Decree, Nucor shall certify to the areas of compliance, identify all areas of non-compliance, and provide EPA with a schedule for achieving full compliance. Once Nucor achieves full compliance, Nucor will send EPA a supplemental certification of compliance that verifies full compliance. Within one hundred twenty (120) days of Nucor's completion of its compliance audits pursuant to Section XI of this Consent Decree, it shall certify compliance as required by this paragraph for the remaining facilities.

X. ENVIRONMENTAL MANAGEMENT SYSTEM ("EMS")

158. Nucor shall develop and implement a corporate-wide Environmental Management Plan for the facilities identified in Paragraph 9 of this Consent Decree in accordance with Attachments 14, 15, and 16.

XI. COMPLIANCE AUDITS

159. Nucor shall establish as part of its EMS a comprehensive Environmental Compliance Management System, which will include conducting a comprehensive review of the compliance status, programs and practices of the facilities identified in Paragraph 9, to address and correct any instances of non-compliance. The ECMS program is set out in Attachment 16.

XII. AGENCY APPROVALS

160. This Section sets forth the procedures to be used for EPA or State review, comment and approval of plans or other documents as required pursuant to this Consent Decree.

161. For all plans, reports (other than progress reports), schedules, specifications, manuals, or other documents (hereinafter collectively referenced as "submittal(s)") submitted pursuant to this Consent Decree, EPA or the State will either approve the submittal or disapprove the submittal and provide comments. If EPA or the State disapproves a submittal and provides comments, Nucor shall revise the submittal to incorporate the comments and resubmit the revised submittal within 14 days of receipt of the comments. If the revised submittal does not incorporate EPA or State comments, EPA or the State may, in its sole discretion, unilaterally modify the submittal and provide Nucor with the modified submittal, which,

subject to Section XX (Dispute Resolution), will be considered the EPA- or State-approved final submittal.

162. Once approved, all submittals required by this Consent Decree shall be fully incorporated into and made an enforceable part of this Consent Decree.

163. Upon receipt of EPA's or the State's written approval of a submittal, Nucor shall commence work and implement any approved activities in the submittal, where applicable, in accordance with the schedule and provisions contained therein.

164. Verbal advice, suggestions, or comments given by EPA or State representatives will not constitute an official approval, nor shall any oral approval or oral assurance of approval be considered binding.

165. "Acceptable" shall mean that the quality of submittals or completed work is sufficient to warrant EPA review in order to determine whether the submittal or work meets the terms and conditions of this Consent Decree, including Attachments, scopes of work, approved work plans and/or EPA's written comments and guidance documents. Acceptability of submittals or work, however, does not necessarily imply that they will be approveable. Approval by EPA of submittals or work establishes that those submittals were prepared, or work was completed, in a manner acceptable to EPA.

166. Nucor's submittals must be both acceptable to EPA and timely in order to be in compliance with the terms and conditions of this Consent Decree.

XIII. SUPPLEMENTAL ENVIRONMENTAL PROJECTS

167. Nucor shall implement the following Supplemental Environmental Projects ("SEPs") with an aggregate after-tax net present cost of at least $4 million in accordance with Attachment 17 to this Consent Decree:

1. Continuous Emissions Monitoring. Nucor shall spend at least $2 million on the installation, calibration and operation of Continuous Emission Monitoring Systems on its EAFs to assure continuous compliance with the emission limits established under this Consent Decree and to allow Nucor to quickly determine the need for maintenance or adjustment of the control technology systems.

2. Community Based SEPS. Nucor shall spend at least $2 million on three (3) or more of the following SEPs in the communities at or near Nucor facilities:

   (a) Wind mill power generation;

   (b) Scrap recycling days;

   (c) Creation of wetland "buffer zones";

   (d) Emergency equipment donations;

   (e) Sanitary sewer line expansion;

   (f) Community facility asbestos abatement projects; and

   (g) Up to $50,000 for community-based recycling education projects.

168. Nucor agrees that in any public statements regarding the funding of these SEPS, Nucor must clearly indicate that these projects are being undertaken as part of the settlement of an enforcement action for alleged environmental violations. Nucor shall not be able to use or rely on the emission reductions generated as a result of its performance of the SEPs in any federal or state emission averaging, banking, trading, or similar emission compliance program.

169. Failure to implement the SEPs as required by this Section or failure to provide EPA with a quarterly report or Project Completion Report as required by Attachment 17 to this Consent Decree shall subject Nucor to stipulated penalties as set forth in Paragraph 177(w).

XIV. GENERAL RECORDKEEPING AND REPORTING

170. Beginning with Nucor's first full fiscal calendar quarter after entry of this Consent Decree, Nucor shall submit a calendar quarterly progress report to EPA within thirty (30) days after the end of each of Nucor's fiscal calendar quarters during the life of this Consent Decree. This report shall contain the following:

a. For RCRA reporting, following the effective date of this Consent Decree, and throughout the period during which this Consent Decree is effective, Nucor shall provide the Project

Coordinator with quarterly progress reports. The progress reports shall include the following information:

(i) A description of the activities completed during the reporting period pursuant to Section VIII;

(ii) Summaries of all findings;

(iii) Summaries of all EPA- or State-approved changes made to the RFI or CMS during the reporting period;

(iv) Summaries of all contacts, during the reporting period, with representatives of the local community, public interest groups or State government concerning activities at the site;

(v) Summaries of all problems or potential problems encountered during the reporting period;

(vi) Actions being taken to rectify problems encountered;

(vii) Changes in Project Coordinator, principal contractor, laboratory, and/or consultant during the reporting period;

(viii) Projected work for the next reporting period; and

(ix) Other relevant documentation, including, but not limited to copies of laboratory/monitoring data received and/or generated during the reporting period.

b. For implementation of the requirements of Sections V, VI, VIII (Compliance Programs) above;

(i) a summary of the emissions data as required by Sections V. F. V. G. of this Consent Decree for the calendar quarter;

(ii) a description of any problems anticipated with respect to meeting the Compliance Programs of Sections V, VI, VII of this Consent Decree;

(iii) a description of all SEP implementation activity in accordance with Section XIII this Consent Decree.

171. The calendar quarterly report shall be certified by the corporate officer responsible for environmental management and compliance for Nucor Corporation, as follows:

> "I certify under penalty of law that this information was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my directions and my inquiry of the person(s) who manage the system, or the person(s) directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete."

172. Failure to report as required by this Paragraph shall subject Nucor to stipulated penalties as set forth in Paragraph 182.

XV. SELF-MONITORING

173. Within one hundred (100) days of entry of this Consent Decree, Nucor shall develop and commence implementation of a

program for monitoring and documenting its compliance with the terms of this Consent Decree. Failure of Nucor to develop a self-monitoring program and to conduct the required self-monitoring in accordance with this Paragraph will subject Nucor to stipulated penalties as provided in Paragraph 177(b).

XVI. CIVIL PENALTY

174. Within thirty (30) calendar days of entry of this Consent Decree, Nucor shall pay to the United States a civil penalty of $9 million dollars ($9,000,000) as follows: Nucor shall pay to the United States a civil penalty in the amount of $7,500,000. Of this total amount paid to the United States, $2 million shall be in settlement of the United States claims related to allegations of CAA violations at Nucor's facility in Fort Payne, Alabama. Nucor shall pay the balance of the civil penalty amount to the Plaintiff-Interveners as follows: Nucor shall pay $500,000 to Plaintiff-Intervener, the State of Arkansas, which amount includes payment of $154,075 in settlement for RCRA claims under a Consent Administrative Order, "In the Matter of: Nucor Steel, P.O. Box 30, Armorel, Arkansas 7230, EPA ID No. ARD98327843." Nucor shall pay $500,000 to Plaintiff-Intervenor, the State of Nebraska, and $500,000 to Plaintiff-Intervenor, the State of Utah.

a. The monies owed to the United States shall be paid by Electronic Funds Transfer ("EFT") to the United States Department of Justice, in accordance with current EFT procedures, referencing the USAO File Number and DOJ Case Number 90-5-2-1-06407/1, and the civil action case name and case number of the District of South Carolina. The costs of such EFT shall be Nucor's responsibility. Payment shall be made in accordance with instructions provided to Nucor by the Financial Litigation Unit of the U.S. Attorney's Office in the District of South Carolina. Any funds received after 11:00 a.m. (EST) shall be credited on the next business day. Nucor shall provide notice of payment, referencing the USAO File Number and DOJ Case Number 90-5-2-1-06407/1, and the civil action case name and case number, to the Department of Justice and to EPA, as provided in Paragraph 212 (Notice).

b. The monies owed to Plaintiff-Intervener, the State of Arkansas shall be made payable to the Arkansas Department of Environmental Quality, via overnight mail delivery, to William Eckert, Chief, Legal Division, P.O. Box 8913, Little Rock, Arkansas 72219.

c. The monies owed to Plaintiff-Intervener, the State of Nebraska, shall be paid in the form of two (2) checks payable in equal amounts to the District Court of Madison County and the District Court of Stanton County, Nebraska, and mailed to William

L. Howland, Assistant Attorney General, 2115 State Capitol Building, Lincoln, NE. 68509.

d. The monies owed to the Plaintiff-Intervener, the State of Utah, shall be paid to the Utah Department of Environmental Quality/Hazardous Substances Mitigation Fund, in care of Dianne R. Nielson, Executive Director, Utah Department of Environmental Quality, 168 North 1950 West, Salt Lake City, Utah 84114-4850.

175. Upon entry of this Decree, this Decree shall constitute an enforceable judgment for purposes of post-judgment collection in accordance with Rule 69 of the Federal Rules of Civil Procedure, the Federal Debt Collection Procedure Act, 28 U.S.C. 3001-3308, and other applicable federal authority. The United States shall be deemed a judgment creditor for purposes of collection of any unpaid amounts of the civil and stipulated penalties and interest.

176. No amount of the civil penalty to be paid by Nucor shall be used to reduce its federal or state tax obligations.

XVII. STIPULATED PENALTIES

177. Nucor shall pay stipulated penalties to the United States for each failure by Nucor to comply with the terms of this

Consent Decree, provided, however, that the United States may elect to bring an action for contempt in lieu of seeking stipulated penalties for violations of this Consent Decree. The stipulated penalties will be calculated in the following amounts:

a. Section XVI - Requirement to pay a Civil Penalty and to Escrow Stipulated Penalties.

(i) For failure to pay the civil penalty as specified in Part XIII of this Consent Decree, Nucor shall pay an additional $30,000 for each day that the payment is delayed plus interest on the amount overdue at the rate specified in 31 U.S.C. § 3717.

(ii). For failure to escrow stipulated penalties as required by Paragraph 183, $4,000 per day.

b. Section XV - Requirement to Develop a Self-Monitoring Program. For failure to develop an self-monitoring program as required by Section XIII, per day:

lst through 30th day after deadline - $800
31st through 60th day after deadline - $1600
Beyond 60th day - $3000

c. Section V. A. - Requirements related to the P2 study. For failure to meet the deadlines set forth in Attachment 1 of this consent decree, per unit, per day:

1st through 30th day after deadline - $1,500
31st through 60th day after deadline - $3,200
Beyond 60th day - $6,800 per day;

d. Section V. B. - EAF SNCR pilot study and EAF installation at Norfolk, Nebraska facility:

(i) For failure to meet the Norfolk, Nebraska EAF SNCR pilot study deadlines as set forth in Attachment 2 to this consent decree:

1st through 30th day after deadline - $1,500
31st through 60th day after deadline - $3,200
Beyond 60th day - $6,800 per day;

(ii) For failure to install the SNCR system at Norfolk, Nebraska on or before the deadline set forth in Attachment 2 to this consent decree:

1st through 30th day after deadline - $1,500
31st through 60th day after deadline - $3,200
Beyond 60th day - $6,800 per day;

e. Section V. C. - Lance Burner Pilot for the Plymouth, Utah facility. For failure to meet the deadlines set forth in Attachment 3 of this consent decree:

1st through 30th day after deadline - $1,500

31st through 60th day after deadline - $3,200

Beyond 60th day - $6,800 per day;

f. Section V. D. - Reheat Furnace Control Technology Pilot Projects:

(i) RNB/EGR Pilot at the Norfolk, Nebraska facility. For failure to meet the deadlines set forth in Attachment 4 of this consent decree:

1st through 30th day after deadline - $1,500

31st through 60th day after deadline - $3,200

Beyond 60th day - $6,800 per day;

g. Section V. E. - Reheat Furnace Pilot Project of SCR Catalytic Reduction (SCR) Technology;

(i) SCR Pilot. For failure to meet the deadlines set forth in Attachment 5 of this Consent Decree or failure to conduct a comparative analysis or failure to install controls:

1st through 30th day after deadline - $1,500
31st through 60th day after deadline - $3,200
Beyond 60th day - $6,800 per day;

h. Section V. F. - Establishing Emission Limits for Pilot Units:

(i) For failure to conduct initial emission monitoring of pilot units, to report emission monitoring results within thirty (30) days of completion of emission monitoring, or to propose emission limits in accordance with Attachment 6:

1st through 30th day after deadline - $1,500
31st through 60th day after deadline - $3,200
Beyond 60th day - $6,800 per day;

(ii) For failure to meet any emission limit for pilot facilities to be established pursuant to Section V. F. of this Consent Decree per violation:

$1,200 for every excursion over the established mission limit but less than 5% over the limit;

$3,000 for every excursion over 5% but less than 10% of the established emission limit;

$10,000 for every excursion over 10% but less than 20% of the established emission limit;

1.2 times the value established in the applicable section of the EPA Stationary Source Civil Penalty Policy for every excursion more than 20% over the established emission limit.

i. Section V. G. - Emission Limits for Non-Pilot Units:

(i) For failure to conduct initial emission monitoring of non-pilot units, to report emission monitoring results within thirty (30) days of completion of emission monitoring, or to propose emission limits in accordance with Attachment 6:

1st through 30th day after deadline - $1,500
31st through 60th day after deadline - $3,200
Beyond 60th day - $6,800 per day;

(ii) For failure to meet any emission limit for non-pilot facilities to be established pursuant to Section V. G. of this Consent Decree per violation:

$1,200 for every excursion over the established emission limit but less than 5% over the limit;

$3,000 for every excursion over 5% but less than 10% of the established emission limit;

$10,000 for every excursion over 10% but less than 20% of the established emission limit;

1.2 times the value established on the applicable section of the EPA Stationary Source Civil Penalty Policy for every excursion more than 20% over the established emission limit.

j. Section V. H. - Construction and Operating Permit:

(i) For failure to meet the deadlines regarding construction and operating permits at pilot and non-pilot facilities as set forth in Section V.H. of this Consent Decree per day, per unit:

1st through 30th day after deadline - $10,000

31st through 60th day after deadline - $15,000
Beyond 60th day - $20,000 per day.

k. Section V. I. - Demonstration of Compliance:

(i) For failure to meet any deadlines in the CEMS pilot, Attachment 7 to this Consent Decree per deadline:

1st through 30th day after deadline - $1,500
31st through 60th day after deadline - $3,200
Beyond 60th day - $6,800 per day.

l. Section V. J. - Phase-in Schedule for Non-Pilot Installations:

(i) For failure to propose a phase-in schedule or to install controls as required in accordance with the proposed schedule.

1st through 30th day after deadline - $3,000
31st through 60th day after deadline - $4,500
Beyond 60th day - $6,000 per day;

m. Section V. K. - Steel Fabrication Facilities:

(i) For failure to submit a proposal for EPA approval to control VOC emissions from all coating lines through a combination of pollution prevention, low-VOC based coatings and other add-on control systems, per facility, per day:

1st through 30th day after deadline - $3,000
31st through 60th day after deadline - $4,500
Beyond 60th day - $6,000 per day;

(ii) For failure, to submit PSD permit applications to the appropriate permitting authorities by the deadlines specified for the fabrication facilities, to permit the coating operations as "major stationary source(s)" pursuant to 40 C.F.R. § 52.21 (b)(1)(i)(b):

1st through 30th day after deadline - $1,500
31st through 60th day after deadline - $3,200
Beyond 60th day - $6,800 per day;

n. Section V.L. - New Source Performance Standards.

(i) For failure to establish operating baselines, per facility, per day:

1st through 30th day after deadline - $1,500
31st through 60th day after deadline - $3,200
Beyond 60th day - $6,800 per day;

o. Section VI. A. - First Flush Sampling.

(i) For failure to submit the sampling plan within forty-five (45) days of the entry of this Consent Decree, per day, per facility:

1st through 30th day after deadline - $2,000
31st through 60th day after deadline - $5,000
Beyond 60th day - $10,000 per day;

(ii) For failure to collect a first flush sample or failure to collect a first flush sample in compliance with the time frames set forth in Section VI. A. of this Consent Decree, for each missed or late sample $5,000;

(iii) For failure to submit a complete sampling report pursuant to Section VI. A. of this Consent

decree, Nucor shall pay a stipulated penalty of $2,000 per report;

p. Section VI. B. - Best Management Practices/Storm Water Pollution Prevention Plans.

(i) For failure to develop BMP and SWPP plans at the facilities listed in Paragraph 9 of this Consent Decree within the deadlines, per day, per facility:

1st through 30th day after deadline - $2,000
31st through 60th day after deadline - $5,000
Beyond 60th day - $10,000 per day;

(ii) For failure to revise existing BMP and SWPP plans at the facilities listed in paragraph 8 of this Consent Decree, per day, per facility:

1st through 30th day after deadline - $2,000
31st through 60th day after deadline - $5,000
Beyond 60th day - $10,000 per day;

(iii) For failure to seek the permit modifications related to BMP/SWPP plans within the deadlines, per day, per facility:

1st through 30th day after deadline - $2,000

31st through 60th day after deadline - $5,000

Beyond 60th day - $10,000 per day;

(iv) For failure to modify the SWPP plan for the Hickman, Arkansas facility, per day:

1st through 30th day after deadline - $2,000

31st through 60th day after deadline - $5,000

Beyond 60th day - $10,000 per day;

q. Section VI. C. - Randomizing NPDES Sampling. For failure to meet the deadlines set forth in Paragraph 68 above for initiation of randomized NPDES sampling Nucor shall pay a $5,000 stipulated penalty and Nucor shall pay a $10,000 stipulated penalty for each DMR monitoring period during which all NPDES sampling events are not chosen at random;

r. Section VI. D. - Biocide Monitoring. Nucor shall pay a stipulated penalty per facility of $5,000 for any month in which the required biocide or WET sampling are not successfully completed;

s. NPDES Excursions.

(i) For failure to meet any discharge limitation in any NPDES permit (including any interim limits) per violation:

$5,000 for every excursion over the permit limit but less than 20% over the limit;

$7,500 for every excursion over 20% but less than 50% over the limit;

$15,000 for every excursion over 50% but less than 100% over the limit;

$ 20,000 for every excursion over 100% over the limit.

(ii) $10,000 for every monitoring violation.

(iii) $5,000 for every reporting violation.

t. Section VII. A. RCRA Compliance Injunctive Relief Related to Waste Management:

(i) for failure to meet the deadline for submitting a certification of compliance or failure to comply with all applicable RCRA generator requirements under Paragraphs 75 and 76, after March 31, 2001, for failure to certify

compliance with the requirements of Paragraph 81 or to comply, after March 31, 2001:

1st through 30th day after deadline - $5,000
31st through 60th day after deadline - $10,000
Beyond 60th day - $20,000 per day;

(ii) for failure to comply with the deadlines set forth in paragraph 77 in regard to a demonstration that waste thinner, and paint waste accumulations, including containers, are not hazardous wastes under RCRA or to certify compliance with 40 C.F.R. § 262.34 and applicable Part 265 provisions at the Vulcraft facility in Brigham City, Utah:

1st through 30th day after deadline - $5,000
31st through 60th day after deadline - $10,000
Beyond 60th day - $20,000 per day;

(iii) For failure to submit to EPA and the UDEQ, for review and approval, a personnel training program for the Vulcraft facility in Brigham City, Utah, that fully complies with the requirements of 40 C.F.R. § 265.16 within forty-five thirty (45) days of the lodging of this Consent Decree, and

for failure to incorporate any EPA and UDEQ comments to the program within forty-five (45) days of receiving such comments:

1st through 30th day after deadline - $5,000
31st through 60th day after deadline - $10,000
Beyond 60th day - $20,000 per day;

(iv) for failure to submit to EPA and UDEQ a revised contingency plan for the Nucor facility in Plymouth, Utah, which reflects current facility conditions and complies with the requirements of 40 C.F.R. Part 265, Subpart D within thirty (30) days of the entry of this Consent Decree:

1st through 30th day after deadline - $5,000
31st through 60th day after deadline - $10,000
Beyond 60th day - $20,000 per day;

(v) For failure to submit documentation to EPA and UDEQ that all containers of hazardous waste at the Nucor facility in Plymouth, Utah, are properly labeled, closed and managed in accordance with 40 C.F.R. § 262.34 by January 31, 2001:

1st through 30th day after deadline - $5,000
31st through 60th day after deadline - $10,000
Beyond 60th day - $20,000 per day;

(vi) For failure to submit to EPA certification, signed by a responsible official, stating that it is not storing and/or disposing of hazardous waste currently generated except in RCRA-permitted or RCRA-exempt units by March 31, 2001:

1st through 30th day after deadline - $5,000
31st through 60th day after deadline - $10,000
Beyond 60th day - $20,000 per day;

(vii) For failure to submit to EPA a certification, signed by a responsible official, stating that it is in compliance with the applicable land disposal restriction regulations (40 C.F.R. Part 268) at each of its steel mills and Vulcraft facilities with respect to hazardous waste generated after entry of this Consent Decree by March 31, 2001:

1st through 30th day after deadline - $5,000
31st through 60th day after deadline - $10,000

Beyond 60th day - $20,000 per day;

(viii) For failure to comply in the State of Arkansas with 40 C.F.R. Part 265, Subpart J with respect to management of KO61 dust in silos, or at the remaining facility to comply with the deadlines for two alternatives regarding prevention of K061 releases from silos set forth in paragraph 83:

1st through 30th day after deadline - $5,000
31st through 60th day after deadline - $10,000
Beyond 60th day - $20,000 per day;

(ix) For failure to meet the deadlines for developing a BMP Plan for its management of K061 dust at each of its steel mills pursuant to the requirements set forth in paragraph 84 and 85:

1st through 30th day after deadline - $5,000
31st through 60th day after deadline - $10,000
Beyond 60th day - $20,000 per day;

(x) For failure to submit a plan to EPA for an enclosed K061 dust transfer operation at each of

its steel mills to prevent, to the maximum extent practicable, releases of K061 dust pursuant to Paragraph 84:

1st through 30th day after deadline - $5,000
31st through 60th day after deadline - $10,000
Beyond 60th day - $20,000 per day;

u. Section VII. B - Closure:

(i) for failure to submit to NDEQ and EPA the closure plan, as described in Paragraph 87 above within one hundred eighty (180) days of the entry of this Consent Decree:

1st through 30th day after deadline - $5,000
31st through 60th day after deadline - $10,000
Beyond 60th day - $20,000 per day;

(ii) For failure to submit to NDEQ and EPA within sixty (60) days of completion of final closure at the Norfolk, Nebraska facility a certification that the hazardous waste management units described in paragraph 88 have been closed in accordance with the specifications in the approved closure plans:

1st through 30th day after deadline - $5,000
31st through 60th day after deadline - $10,000
Beyond 60th day - $20,000 per day;

(iii) For failure to submit to the NDEQ documentation of financial assurance for the closure cost estimates, pursuant to 40 C.F.R. Part 264, Subpart F, for closure of the areas of the soils around former Baghouses A and C and the current NN3 Baghouse within one hundred eighty (180) days from the entry of this Consent Decree:

1st through 30th day after deadline - $5,000
31st through 60th day after deadline - $10,000
Beyond 60th day - $20,000 per day;

v. Section VIII -- RCRA Corrective Action --

(i) Unless there has been a written notice from the Project Coordinator changing a compliance date, a written modification from the Project Coordinator of an approved workplan condition, or excusable delay as defined in Section XIX, Force Majeure, if Nucor fails to comply with the terms and conditions set forth in this Consent Decree in the time or manner specified herein, Nucor shall

pay stipulated penalties as set forth below. Compliance by Nucor shall include completion of an activity under this Consent Decree or a plan approved under this Consent Decree or completion of any other requirement of this Consent Decree in an acceptable manner and within the specified time schedules in and approved under this Consent Decree.

(ii) For failure to submit any RFI or RPA Workplan required by Paragraph 103, any RFI or RFA Report required by Paragraphs 105 and 106, any CMS Report required by Paragraph 110, or the CMI Workplan required by Paragraph 113, Nucor shall pay $2000 per day for the first seven days of such violation, $5000 per day for the eighth through twenty-first days of such violation, and $8000 per day for the twenty-second day and each day of such violation, thereafter.

(iii) For failure to complete any work required by Paragraphs 117 (Corrective Measures Implementation), 120 (Interim Measures) or 129 (Additional Work), Nucor shall pay: $1,500 per day for the first seven days of such violation, $3,000

per day for the eighth through twenty-first days of such violation, and $5000 per day for the twenty-second day and each day of such violation, thereafter.

w. Section XIII - SEPs

(i) For failure to meet all deadlines for implementation of SEPs as set forth in Attachment 17:

1st through 30th day after deadline - $5,000
31st through 60th day after deadline - $10,000
Beyond 60th day - $20,000

178. Penalties shall begin to accrue on the day after complete performance is due or the day a violation occurs, and shall continue to accrue through the date of completion of performance or the date of correction of the violation. Nothing herein shall prevent the simultaneous accrual of separate stipulated penalties for separate violations of this Consent Decree. Penalties shall accrue regardless of whether EPA or the State has notified Nucor of a violation.

179. All penalties owed to the United States under this Section shall be due and payable within thirty (30) days of

Nucor's receipt from EPA or the State of a written demand for payment of the penalties, unless Nucor invokes the dispute resolution procedures under Section XX, Dispute Resolution. Such a written demand will describe the violation and will indicate the amount of penalties due.

180. Interest shall begin to accrue on any unpaid stipulated penalty balance beginning on the thirty-first day after Nucor's receipt of EPA's or the State's demand letter. Interest shall accrue at the Current Value of Funds Rate established by the Secretary of the Treasury. Pursuant to 31 U.S.C. Section 3717, an additional penalty of 6% per annum on any unpaid principal shall be assessed for any stipulated penalty payment which is overdue for ninety (90) or more days.

181. Unless there has been a written notice from the Project Coordinator changing a compliance date, a written modification from the Project Coordinator of an approved workplan condition, or excusable delay as defined in Section XIX, Force Majeure and Excusable Delay, if Nucor fails to comply with the terms and conditions set forth in this Consent Decree in the time or manner specified herein, Nucor shall pay stipulated penalties as set forth below. Compliance by Nucor shall include completion of an activity under this Consent Decree or a plan approved under this Consent Decree or completion of any other requirement of this

Consent Decree in an acceptable manner and within the specified time schedules in and approved under this Consent Decree.

182. For failure to submit written quarterly progress reports in accordance with the requirements of Paragraph 170, Nucor shall pay: $750 per day for the first seven (7) days of such violation, $1000 per day for the eighth through twenty-first days of such violation, and $2000 per day for the twenty-second day and each day of such violation, thereafter;

a. Penalties shall begin to accrue on the day after complete performance is due or the day a violation occurs, and shall continue to accrue through the date of completion of performance or the date of correction of the violation. Nothing herein shall prevent the simultaneous accrual of separate stipulated penalties for separate violations of this Consent Decree. Penalties shall accrue regardless of whether EPA or the State has notified Nucor of a violation.

183. Should Nucor dispute its obligation to pay part or all of a stipulated penalty, it may avoid the imposition of the stipulated penalty for failure to pay a penalty due to the United States, by placing the disputed amount demanded by the United States, not to exceed $50,500 for any given event or related series of events at any one facility, in a commercial escrow account pending resolution of the matter and by invoking the

Dispute Resolution provisions of Section XX within the time provided in this Paragraph for payment of stipulated penalties. If the dispute is thereafter resolved in Defendant's favor, the escrowed amount plus accrued interest shall be returned to the Defendant, otherwise the United States shall be entitled to the escrowed amount that was determined to be due by the Court plus the interest that has accrued on such amount, with the balance, if any, returned to the Defendant.

184. The United States reserves the right to pursue any other remedies to which it is entitled, including, but not limited to, additional injunctive relief for Defendant's violations of this Consent Decree. Nothing in this Consent Decree shall prevent the United States from pursuing a contempt action against Nucor and requesting that the Court order specific performance of the terms of the Decree.

185. The United States will not seek stipulated penalties and civil penalties for the same violation of the Consent Decree.

XVIII. RIGHT OF ENTRY

186. Any authorized representative of EPA or an appropriate state agency, including independent contractors, upon presentation of credentials, shall have a right of entry upon the premises of Nucor's facilities identified herein at any reasonable time for the purpose of monitoring compliance with the

provisions of this Consent Decree, including inspecting plant equipment and inspecting and copying all records maintained by Nucor as required by the Consent Decree. Reasonable time periods for monitoring and inspection shall be considered in light of existing operational and equipment status, including scheduled production shutdowns. The United States, states and their authorized representatives shall make every effort to comply with facility safety directives and to cooperate with Nucor in establishing reasonable requests for copying and other use of Nucor's facilities and personnel. Nothing in this Consent Decree shall limit the authority of EPA to conduct tests and inspections under Section 114 of the CAA, 42 U.S.C. § 7414 or any other applicable statutory or regulatory provision.

XIX. FORCE MAJEURE

187. If any event occurs which causes or may cause a delay or impediment to performance in complying with any provision of this Consent Decree, Nucor shall notify the United States in writing as soon as practicable, but in any event within ten (10) business days of when Nucor first knew of the event or should have known of the event by the exercise of due diligence. In this notice Nucor shall specifically reference this Paragraph of this Consent Decree and describe the anticipated length of time the delay may persist, the cause or causes of the delay, and the measures taken or to be taken by Nucor to prevent or minimize the

delay and the schedule by which those measures will be implemented. Nucor shall adopt all necessary measures to avoid or minimize such delays.

188. Failure by Nucor to comply with the notice requirements of Paragraph 187 as specified above shall render this Section voidable by the United States as to the specific event for which the Nucor has failed to comply with such notice requirement, and, if voided, is of no effect as to the particular event involved.

189. The United States shall notify the Nucor in writing regarding Nucor's claim of a delay or impediment to performance within thirty (30) days of receipt of the Force Majeure notice provided under Paragraph 187. If the United States agrees that the delay or impediment to performance has been or will be caused by circumstances beyond the control of Nucor, including any entity controlled by Nucor, and that Nucor could not have prevented the delay by the exercise of due diligence, Nucor and the United States shall stipulate to an extension of the required deadline(s) for all requirement(s) affected by the delay by a period equivalent to the delay actually caused by such circumstances. Such stipulation may, at the option of the United States and Nucor, be filed as a modification to this Consent Decree pursuant to the modification procedures established in this Consent Decree. Nucor shall not be liable for stipulated penalties for the period of any such delay.

190. If the United States does not accept Nucor's claim of a delay or impediment to performance, Nucor must submit the matter to this Court for resolution to avoid payment of stipulated penalties, by filing a petition for determination with this Court. Once Nucor has submitted this matter to this Court, the United States shall have twenty (20) business days to file its response to said petition. If Nucor submits the matter to this Court for resolution and the Court determines that the delay or impediment to performance has been or will be caused by circumstances beyond the control of Nucor, including any entity controlled by Nucor, and that Nucor could not have prevented the delay by the exercise of due diligence, Nucor shall be excused as to that event(s) and delay (including stipulated penalties), for a period of time equivalent to the delay caused by such circumstances.

191. Nucor shall bear the burden of proving that any delay of any requirement(s) of this Consent Decree was caused by or will be caused by circumstances beyond its control, including any entity controlled by it, and that Nucor could not have prevented the delay by the exercise of due diligence. Nucor shall also bear the burden of proving the duration and extent of any delay(s) attributable to such circumstances. An extension of one compliance date based on a particular event may, but does not

necessarily, result in an extension of a subsequent compliance date or dates.

192. Unanticipated or increased costs or expenses associated with the performance of Nucor's obligations under this Consent Decree shall not constitute circumstances beyond the control of Nucor, or serve as a basis for an extension of time under this Section. However, failure of a permitting authority to issue a necessary permit in a timely fashion is an event of Force Majeure where the failure of the permitting authority to act is beyond the control of Nucor and Nucor has taken all steps available to it to obtain the necessary permit including but not limited to:

a. submitting a complete permit application;

b. responding to requests for additional information by the permitting authority in a timely fashion;

c. accepting lawful permit terms and conditions; and

d. prosecuting appeals of any unlawful terms and conditions imposed by the permitting authority in an expeditious fashion.

193. Notwithstanding any other provision of this Consent Decree, this Court shall not draw any inferences nor establish any presumptions adverse to either party as a result of Nucor

delivering a notice of Force Majeure or Nucor's or the United States' inability to reach agreement.

194. As part of the resolution of any matter submitted to this Court under this Section, Nucor and the United States by agreement, or this Court, by order, may in appropriate circumstances extend or modify the schedule for completion of work under this Consent Decree to account for the delay in the work that occurred as a result of any delay or impediment to performance agreed to by the United States or approved by this Court. Nucor shall be liable for stipulated penalties for its failure thereafter to complete the work in accordance with the extended or modified schedule.

195. In the event that during the life of this Consent Decree, Nucor would not otherwise be required to perform any of the obligations herein due to changes in applicable Federal law or EPA regulations, Nucor may petition the Court for relief from any such requirements, in accordance with Rule 60 of the Federal Rules of Civil Procedures ("F.R.Civ.P"). However, this provision is not applicable to the requirements to complete the supplemental environmental projects referred to in Section XII of this Consent Decree or conduct the P2, EGR/RNB, SCR and SNCR pilot demonstration projects pursuant to this Consent Decree.

XX. DISPUTE RESOLUTION

196. The dispute resolution procedure provided by this Section shall be available to resolve all disputes arising under this Consent Decree, except as otherwise provided in Section XIX regarding Force Majeure, provided that the party making such application has made a good faith attempt to resolve the matter with the other party.

197. The dispute resolution procedure required herein shall be invoked upon the giving of written notice by one of the parties to this Consent Decree to another advising of a dispute pursuant to this Section. The notice shall describe the nature of the dispute, and shall state the noticing party's position with regard to such dispute. The party receiving such a notice shall acknowledge receipt of the notice and the parties shall expeditiously schedule a meeting to discuss the dispute informally not later than fourteen (14) days from the receipt of such notice.

198. Disputes submitted to dispute resolution shall, in the first instance, be the subject of informal negotiations between the parties. Such informal negotiation process is to be defined by the parties and may include a decision by a panel of chosen experts and/or representatives, facilitation or mediation. Such period of informal negotiations shall not extend beyond sixty (60) calendar days from the date of the first meeting between representatives of the United States and the Defendant, unless

the parties' representatives agree to shorten or extend this period.

199. In the event that the United States (or "the State" if it is acting as the Project Coordinator) and Nucor are unable to reach agreement during such informal negotiation period, the United States shall provide the Defendant with a written summary of its position regarding the dispute. The position advanced by the United States (or the State) shall be considered binding unless, within forty-five (45) calendar days of the Defendant's receipt of the written summary of the United States' (or the State's) position, the Defendant files with this Court a petition which describes the nature of the dispute. The United States (or the State) shall respond to the petition within forty-five (45) calendar days of filing.

200. Where the nature of the dispute is such that a more timely resolution of the issue is required, the time periods set out in this Section may be shortened upon motion of one of the parties to the dispute.

201. Notwithstanding any other provision of this Consent Decree, in dispute resolution, this Court shall not draw any inferences nor establish any presumptions adverse to either party as a result of invocation of this Section or the parties' inability to reach agreement. In resolving the dispute between

the parties, the position of the United States shall be upheld unless Nucor demonstrates that it is not based on substantial evidence appearing in the Record of Decision on the matter.

202. As part of the resolution of any dispute submitted to dispute resolution, the parties, by agreement, or this Court, by order, may, in appropriate circumstances, extend or modify the schedule for completion of work under this Consent Decree to account for the delay in the work that occurred as a result of dispute resolution. Defendant shall be liable for stipulated penalties for its failure thereafter to complete the work in accordance with the extended or modified schedule.

XXI. EFFECT OF SETTLEMENT

203. This Consent Decree constitutes full settlement of and, upon Nucor's performance of the requirements herein, shall resolve all civil liability of the Defendant to the United States for the CAA, RCRA, EPCRA, and CWA violations alleged in the United States' Complaint. This Consent Decree constitutes a compliance schedule with respect to the violations alleged in the United States' complaint under the above-referenced laws.

204. The EAF and reheat furnaces identified in Paragraph 9 of this Consent Decree are on a Schedule for Compliance with applicable PSD requirements of the CAA for the life of this Consent Decree.

205. This Consent Decree is not a permit; compliance with its terms does not guarantee compliance with any applicable federal, state or local laws or regulations. Nothing in this Consent Decree shall be construed to be a ruling on, or determination of, any issue related to any federal, state or local permit.

XXII. GENERAL PROVISIONS

206. Other Laws. Except as specifically provided by this Consent Decree, nothing in this Consent Decree shall relieve Defendant of its obligation to comply with all applicable federal, state and local laws and regulations. Subject to Paragraph 185, 203 and 204, nothing contained in this Consent Decree shall be construed to prevent, alter or limit the United States' rights to seek or obtain other remedies or sanctions available under other federal, state or local statutes or regulations, by virtue of Defendant's violation of this Consent Decree or of the statutes and regulations upon which this Consent Decree is based, or for Defendant's violations of any applicable provision of law, other than the specific matters resolved

herein. This shall include the United States' right to invoke the authority of the Court to order Nucor's compliance with this Consent Decree in a subsequent contempt action.

207. For compliance certifications required by this Consent Decree, Nucor's certification shall be in the manner pursuant to this Consent Decree.

208. Effect of EPA Guidance. For purposes of this Consent Decree, references to specific guidance documents or guidance generally are not intended to change the applicability, legal force or effect of such guidance.

209. Costs. Each party to this action shall bear its own costs and attorneys' fees.

210. Public Documents. All information and documents submitted by the Defendant to the United States pursuant to this Consent Decree shall be subject to public inspection, unless subject to legal privileges or protection or identified and supported as business confidential by the Defendant in accordance with 40 C.F.R. Part 2.

211. Public Comments. The parties agree and acknowledge that final approval by the United States and entry of this Consent Decree is subject to the requirements of 28 C.F.R. § 50.7, which provides for notice of the entry of this Consent

Decree in the Federal Register, an opportunity for public comment, and consideration of any comments.

212. Notice. Unless otherwise provided herein, notifications to or communications with the United States or the Defendant shall be deemed submitted on the date they are postmarked and sent either by overnight receipt mail service or by certified or registered mail, return receipt requested. Except as otherwise provided herein, when written notification to or communication with the United States, EPA, or the Defendant is required by the terms of this Consent Decree, it shall be addressed as follows:

As to the United States:

Chief
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, DC 20044-7611

United States Attorney
District of South Carolina
1st Union Bldg.
1441 Main Street
Suite 500
Columbia, S.C. 29201

As to EPA, with copies to the appropriate Regional Office:

Director, Multimedia Enforcement Director
U.S. Environmental Protection Agency
Office of Regulatory Enforcement
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

As to Nucor Corporation:

General Manager -- Environmental Affairs
Nucor Corporation
2100 Rexford Rd.
Charlotte, NC 28211

As to the State of Arkansas:

Richard A. Weiss
Interim Director
Arkansas Department of Environmental Quality
P.O. Box 8913
Little Rock, Arkansas 72219-8913

As to the State of Nebraska:

Mike Linder
Director, Nebraska Department of Environmental Quality
Suite 400
The Atrium
1200 N Street
P.O. Box 98922
Lincoln, Nebraska 68509-8922

As to Utah:

Fred G. Nelson
Assistant Attorney General
State of Utah
160 East 300 South, 5th Floor
Salt Lake City, Utah 84114-0873

Dianne R. Nielson
Executive Director
Utah Department of Environmental Quality
168 North 1690 West
Salt Lake City, Utah 84114-4850

213. All EPA approvals or comments required under this Decree shall come from:

Mark Pollins
Associate Director
Multimedia Enforcement Division
U.S. Environmental Protection Agency
Office of Regulatory Enforcement
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

214. Any party may change either the notice recipient or the address for providing notices to it by serving all other parties with a notice setting forth such new notice recipient or address.

215. The information required to be maintained or submitted pursuant to this Consent Decree is not subject to the Paperwork Reduction Act of 1980, 44 U.S.C. §§ 3501 et seq.

216. The undersigned representative of each Party to this Consent Decree certifies that he or she is duly authorized by the Party whom he or she represents to enter into the terms and bind that Party to them.

217. Modifications. Except as otherwise allowed by law, there shall be no modification of this Consent Decree without written approval by the United States and Nucor, and, if required, approval of such modification by the Court. Nucor and EPA recognize that the pilot projects prescribed by this Agreement are technically rigorous and subject to a broad range of variables that may render pilot control measures technologically infeasible and warrant alternative schedules for

pilot project implementation. Should the requirements of the pilot projects prove infeasible or improvident due to technical limitations or other considerations, Nucor and EPA agree to cooperate to modify the Consent Decree to provide for alternative pilot control measures and revise pilot implementation schedules.

218. Continuing Jurisdiction. The Court retains jurisdiction of this case after entry of this Consent Decree to enforce compliance with the terms and conditions of this Consent Decree and to take any action necessary or appropriate for its interpretation, construction, execution, or modification. During the term of this Consent Decree, any party may apply to the Court for any relief necessary to construe or effectuate this Consent Decree.

219. Consultation and Variances. Nucor and the United States acknowledge that the objectives and obligations specified in this Consent Decree may, from time to time during the term of the Decree be significantly altered or impacted by changes in circumstances and advances in knowledge or technology. To assure that the compliance approaches specified herein are sufficiently flexible to accommodate and take advantage of the changes, Nucor and the United States will continuously consult concerning technical development and may agree upon variances where appropriate to efficiently achieve the objectives of this Consent Decree.

220. This Consent Decree constitutes the final, complete and exclusive agreement and understanding among the parties with respect to the settlement embodied in this Consent Decree. The parties acknowledge that there are no representations, agreements or understandings relating to the settlement other than those expressly contained in this Consent Decree. Protocols are attached to and incorporated by reference into this Consent Decree.

221. Severability and Construction. In the event that (i) any provision or authority of this Consent Decree or the application of this Consent Decree to any party or circumstance is held by any judicial or administrative authority to be invalid, or (ii) any judicial or administrative authority finds that Nucor has sufficient cause not to comply with one or more provisions of this Consent Decree, then, such provisions and any other provisions conditioned thereon, shall be held invalid and all other provisions of this Consent Decree shall remain in full force and effect, and Nucor's obligation to comply with all other provisions of this Consent Decree shall not be affected thereby. In the event that any provision of the Attachments are in conflict with the Consent Decree, the language of the Consent Decree shall govern.

XXIII. TERMINATION

222. This Consent Decree shall be subject to termination upon motion by either party after the Defendant satisfies all requirements of this Consent Decree. The requirements for termination include payment of all penalties for which demand has been made, including stipulated penalties, that may be due to the United States under this Consent Decree, installation of successful control technology systems for pilot and nonpilot units as specified herein, EPA's receipt of the first quarterly progress report following Nucor's compliance for at least one year with all requirements herein. At such time, if the Defendant believes that it is in compliance with the requirements of this Consent Decree and the permits specified herein, and has paid the civil penalty and any stipulated penalties required by this Consent Decree, then the Defendant shall so certify to the United States, and unless the United States objects in writing with specific reasons within sixty (60) days of receipt of the certification, the Court shall order that this Consent Decree be terminated on Defendant's motion. If the United States so objects to the Defendant's certification, then the matter shall be submitted to the Court for resolution under Section XX (Dispute Resolution) of this Consent Decree. In such case, the Defendant shall bear the burden of proving that this Consent Decree should be terminated.

So entered in accordance with the foregoing this _____ day of _____, 200___.

_____

United States District Court Judge
for the District of South Carolina

FOR PLAINTIFF, UNITED STATES OF AMERICA:

_____ Date_____

Lois J. Schiffer
Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice
10th & Pennsylvania Avenue, N.W.
Washington, DC 20530

_____ Date _____

Dianne M. Shawley
Senior Attorney
Environment and Natural Resources Division
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1425 New York Avenue, N.W.
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_____ Date _____

J. RENE JOSEY
United States Attorney
District of South Carolina

By: _____

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Assistant United States Attorney
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Bar Number -
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FOR U.S. ENVIRONMENTAL PROTECTION AGENCY:

_____ Date _____

Steven A. Herman
Assistant Administrator
Office of Enforcement and Compliance
Assurance
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

FOR U.S. ENVIRONMENTAL PROTECTION AGENCY:

_____ Date _____

Mark Pollins
Associate Director
Multimedia Enforcement Division
U.S. Environmental Protection Agency
Office of Regulatory Enforcement
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

FOR THE STATE OF ARKANSAS:

_____ Date _____

Charles L. Moulton
Assistant Attorney General
Utility/Environmental Division
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FOR THE STATE OF NEBRASKA:

_____ Date _____

William L. Howland #11941
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2115 State Capitol Building
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FOR THE STATE OF UTAH:

_____ Date _____

Fred G. Nelson
Assistant Attorney General
State of Utah
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FOR DEFENDANT, NUCOR CORPORATION:

_____ Date_____

Daniel R. DiMicco
President and Chief Executive Officer
Nucor Corporation
2100 Rexford Road
Charlotte, NC 28211

_____ Date_____

J. Gordon Arbuckle
Patton Boggs L.L.P.
2550 M Street, N.W.
Washington, DC 20037
Counsel for Nucor Corporation
Doc. 114219

Attachment 1

Protocol for Piloting the Evaluation and Implementation of Process Modifications on an Electric Arc Furnace

As required by this Consent Decree, Nucor will evaluate and implement process modifications at its Norfolk facility. The modifications are aimed at reducing Nitrogen Oxide (NOx) emissions from the electric arc furnace. This protocol sets forth the process modifications that Nucor will evaluate and the approach Nucor will use to evaluate the impact of these modifications. 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 Norfolk Facility

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

1. Baseline testing - Nucor shall use continuous emissions monitors (CEMs) to monitor and record Carbon Monoxide (CO), NOx, Sulfur Oxides (SOx), Oxygen (O2), Carbon Dioxide (CO2), velocity, and temperature for a period of 30 days. During this time, Nucor will also periodically monitor the exhaust gas moisture content. The data collected during this baseline testing period will provide information on the impact of typical operating and process variables on emissions. The data will also be used to identify a "worst case" combination of operating variables (i.e. the combination of operating variables that results in the highest rate of NOx emissions) which will be used in evaluating the process modifications (see below). Nucor and EPA will meet at the conclusion of the baseline testing to determine the conditions that should be used for next phase of the process, that is, evaluation of the process modifications.

2. Evaluation of Process Modifications - Nucor will evaluate the impact of the following process modifications on NOx and CO emissions:

- Replace carrier gas in carbon injectors
- Reduce roof ring gap
- Keep slag door closed when possible
- Improve foamy slag practice
- Run heats with single charge

Each of these process modifications will be implemented individually on heats that represent the worst case conditions established in the baseline testing. During each heat, Nucor will use the CEMs to monitor and record CO, CO2, O2, NOx, and SOx emissions. Nucor will also monitor and record the exhaust gas velocity and temperature and 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 specific process modification test will be considered complete.

Nucor will implement all process modifications that are deemed to be economically and technically feasible as defined in the Consent Decree.

3. Report to EPA - Nucor will prepare a report for EPA that will include a discussion of the results, the process modifications that were implemented and tested at the facility, any problems encountered in implementing the process modifications, and the impact of the process modifications on NOx and CO emissions. Nucor will also include a discussion on the merits of conducting a pilot study at a second Nucor facility based on the effectiveness of the Norfolk pilot study in reducing emissions. Nucor will also include a recommendation for a second pilot facility and a schedule for implementing the second pilot study.

4. Schedule for Norfolk pilot

Table 1 presents a schedule for the process modifications evaluation and implementation pilot at the Norfolk facility.

TABLE 1. PROCESS MODIFICATIONS PILOT SCHEDULE

ACTIVITY	PROJECTED DATE
Submit test plan to EPA	March 15, 2001
Baseline testing	May 15, 2001
Evaluation testing	July 15 - September 15, 2001
Report to EPA	November 15, 2001

B. Second Pilot Study

Prior to beginning the second pilot study, Nucor will conduct a preliminary technical and economic feasibility determination to identify those process modifications that will also be evaluated for the second pilot program. This preliminary evaluation will be based on data collected at the Norfolk facility including information on emissions reductions and problems encountered in implementing the modifications. It will also include an estimated cost for installing the modification at the second pilot facility.

In addition to the process modifications identified for the Norfolk facility, there are other process modifications that Nucor has identified that may reduce NOx emissions. These modifications were not applicable to the Norfolk facility, but they may be applicable to the second pilot facility. These modifications include:

- Reduce furnace elbow gap
- Plug gaps in water-cooled panels
- Gravity feed carbon and lime
- Reduce power-on time
- Improve seal on slag door

Nucor will review these additional modifications to determine if they are applicable to the second pilot facility. Nucor will then include the applicable modifications in the evaluation and implementation program.

Prior to beginning the second pilot program, Nucor will submit a brief report to EPA that will include a discussion of the process modifications that will be implemented during the pilot and how those process modifications were selected, an overview of the approach that will be used for implementing the pilot, and a proposed schedule for the pilot.

Following completion of the second pilot, Nucor will prepare and submit to EPA a report that will include a discussion of the results, the process modifications that were evaluated and implemented at the facility, any problems encountered in implementing the process modifications, and the impact of the process modifications on NOx and CO emissions. The report will also include a discussion of Nucor's recommendation concerning implementing the process modifications at its remaining steel mills. This recommendation will be based on an evaluation of the economic and technical feasibility of implementing the process modifications at the two pilot facilities. If Nucor does not

believe the process modifications were successful, as defined by the consent decree, then the report will also include an evaluation of other potential alternatives for reducing NOx emissions.

Attachment 2
Protocol for Piloting the Design and Operation of Selective Noncatalytic Reduction (SNCR) on an Electric Arc Furnace

As required by this Consent Decree, Nucor will evaluate the use of Selective Noncatalytic Reduction (SNCR) to reduce Nitrogen Oxide (NOx) emissions from an electric arc furnace (EAF). This protocol sets forth the approach Nucor will use to evaluate the effectiveness of SNCR. Any provisions of this protocol, including schedule, may be modified by written agreement of the United States and Nucor at any time.

A. Approach for Norfolk Facility

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

1. Feasibility Evaluation

Nucor and EPA will meet with SNCR vendors to determine the feasibility of installing and operating an SNCR system on the Norfolk twin shell furnace. Nucor will provide the vendors with information on the process and exhaust gas characteristics of the Norfolk EAF. Because Nucor has only limited information on the temperature profile of the exhaust gas, and this is a critical parameter in the design of an SNCR system; Nucor will develop a temperature profile for the EAF exhaust during this phase of the project. The temperature profile and other exhaust gas parameters and characteristics will be used by the vendor to develop a preliminary assessment of the estimated control efficiency for the SNCR system, an estimated value for ammonia slip, and the estimated cost of installing and operating the system. If Nucor and EPA agree, based on this preliminary assessment, that SNCR is a feasible technology for pilot installation and operation on an EAF, the vendor will provide a final design for the SNCR system.

2. Baseline Testing

Nucor shall use continuous emissions monitors (CEMS) to monitor and record Carbon Monoxide (CO), NOx, Sulfur Oxides (SOx), Oxygen (O2), Carbon Dioxide (CO2), ammonia, exhaust gas velocity, and temperature for a period of 30 days prior to installing the SNCR system. Nucor will also periodically monitor the exhaust gas moisture content.

3. Evaluation of SNCR Performance

After the SNCR system is operational, Nucor will begin testing to determine the control efficiency achievable by SNCR. Nucor will use CEMS to monitor and record CO, CO2, NOx, O2, Sox, velocity and temperature. Nucor will also periodically monitor the exhaust gas moisture content. Because the operation of a SNCR system has the potential to generate significant ammonia emissions, Nucor will also use a CEM to monitor ammonia during this performance evaluation period. If both EPA and Nucor agree that the data is representative or cannot be repeated on a comparative basis, the SNCR test will be considered complete.

4. Report to EPA

Nucor will prepare and submit to EPA a report that will include a discussion of the SNCR system design, any problems encountered during SNCR operation, the NOx control efficiency of the SNCR system, the impact of the SNCR system on CO emissions, the impact of the SNCR system on ammonia emissions, and the cost effectiveness of the SNCR system based on the final capital cost of the system, the operating and maintenance costs of the system during testing, and the control efficiency of the system. Nucor will evaluate these factors in determining the success, as defined in the Consent Decree, of the SNCR pilot and include a recommendation as to whether a second pilot study should be conducted. Nucor will submit a copy of all electronic data to EPA with the report.

5. Schedule for Norfolk facility

Table 1 presents a schedule for the SNCR pilot study at the Norfolk facility.

TABLE 1. SCHEDULE FOR SNCR PILOT STUDY AT NORFOLK

ACTIVITY	PROJECTED DATA
Feasibility Evaluation	January 1 - March 15, 2001
Submit test plan	March 15, 2000
Baseline Testing	May 15, 2001
Evaluation Testing	November 15, 2001
Report to EPA	January 31, 2002

B. Second Pilot Study

If the SNCR system proves to be economically and technically feasible based on the results at the Norfolk facility, Nucor will select a second facility for piloting this technology. Prior to beginning the second pilot study, Nucor will provide EPA with a brief report that summarizes the rationale for selecting the second facility, presents an overview of the approach that will be used for implementing the pilot study, and presents a proposed schedule for the pilot.

Following completion of the second SNCR pilot study, Nucor will prepare and submit to EPA a report that will include a discussion of the SNCR system design, any problems encountered during the SNCR operation, the NOx control efficiency of the SNCR system, the impact of the SNCR system on CO emissions, the impact of the SNCR system on ammonia emissions, and the cost effectiveness of the SNCR system. The report will also include Nucor's recommendation concerning installation of the SNCR system at its remaining mills. This recommendation will be based on an evaluation of the success of the SNCR systems at the two pilot facilities. Nucor will also consider the economic and technical feasibility of installing SNCR on each of its remaining mills. One option is that Nucor will determine that SNCR may be economically and technically feasible at some of their remaining mills but not at others. Facility specific factors such as baseline emissions, temperature profiles, and ductwork configurations could impact the economic and technical feasibility at any given facility. If Nucor does not believe the SNCR pilot studies were successful, as defined by the consent decree, then the report will also include an evaluation of other potential alternatives for reducing NOx emissions at Nucor facilities.

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

Attachment 4

Protocol for Evaluating Exhaust Gas Recirculation and Reduced Nox Burners on a Reheat Furnace

As required by this Consent Decree, Nucor will evaluate the use of exhaust gas recirculation and reduced NOx burners (EGR/RNB) on the new NN2 reheat furnace to be installed at their Norfolk facility. EGR/RNB is expected to significantly reduce Nitrogen Oxide (NOx) emissions from reheat furnaces. This protocol presents the approach Nucor will use for this pilot study. 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 Norfolk Facility

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

1. Initial Testing

The NN2 reheat furnace is a new furnace that will be installed with EGR and RNB. After installation and optimization of the furnace, Nucor will monitor emissions from the furnace for a period of 5 days with the EGR system bypassed. This will provide EPA with a NOx emissions value for the furnace when it is operated with reduced NOx burners. During the test period, Nucor will monitor and record NOx, Carbon Monoxide (CO), Carbon Dioxide (CO2), Oxygen (O2), and Sulfur Dioxide (SO2) emissions from the furnace. Nucor will also determine the exhaust gas temperature, velocity of the furnace exhaust gas, the molecular weight of the exhaust gas, and the moisture content of the exhaust gas in accordance with EPA methods 2, 3A, and 4.

2. Evaluation of EGR/RNB

After the initial testing period, Nucor will begin evaluating the impact of the EGR/RNB system on NOx emissions. Nucor will use continuous emissions monitors to monitor and NOx, CO, CO2, O2, and Sulfur Oxide (SOx) emissions from the furnace. Nucor will monitor emissions at the maximum exhaust gas flow rate for the furnace, an intermediate flow rate, and the minimum flow rate of the furnace. This will allow Nucor to determine the effectiveness of the EGR/RNB system under a range of operating conditions. Nucor will also determine the exhaust gas

temperature, the velocity of the furnace exhaust gas, the molecular weight of the exhaust gas, and the moisture of the exhaust gas in accordance with EPA methods 2, 3A, and 4.

3. Report to EPA

Nucor will prepare a report for EPA that will include the results of the evaluation test program, any problems encountered in operating the furnace that might be associated with the EGR/RNB system, and the cost effectiveness of the EGR/RNB system based on the results of the evaluation test, the capital cost of the system, and actual operation and maintenance costs of the system. Nucor will submit a copy of all electronic data with the report.

4. Schedule

Table 1 presents the schedule for the EGR/RNB pilot study at the Norfolk facility.

TABLE 1. SCHEDULE FOR EGR/RNB PILOT STUDY AT NORFOLK

ACTIVITY	PROJECTED DATE
Begin Installation of reheat furnace	3 months after permit issuance
Submit test plan to EPA	30 days before testing begins
Evaluation testing of EGR/RNB system	45 days after full operation commences
Report to EPA	60 days after testing completed

B. Evaluation of Control Technologies for Other Nucor Reheat Furnaces

Nucor has committed to installing either EGR/RNB or selective catalytic reduction (SCR) on its remaining reheat furnaces. In conjunction with the EGR/RNB pilot study at the Norfolk facility, Nucor is also conducting a SCR pilot study on a reheat furnace at its facility located in Darlington, South Carolina and on another reheat furnace to be identified later. At the conclusion of these pilot studies, Nucor will prepare a report for EPA that presents a comparison of these two technologies. The comparison will include an analysis of the NOx control efficiency of each technology, the cost effectiveness of each technology, and an

analysis of other environmental and energy impacts associated with each technology.

Nucor will include in the report a discussion of the factors that should be considered in selecting the most appropriate technology for a given furnace. These factors are expected to include furnace design, burner design, baseline NOx emissions, configuration of the rolling mill, and the relative amounts of time the furnace is operated at maximum and minimum flow rates.

Attachment 5
Protocol for Evaluating Selective Catalytic Reduction on a Reheat Furnace

As required by the Consent Decree, Nucor will evaluate the use of selective catalytic reduction (SCR) on a new reheat furnace to be installed at its Darlington, South Carolina facility. SCR is expected to significantly reduce NOx emissions from reheat furnaces. This protocol presents the approach Nucor will use for this pilot study. Any provisions of this protocol, including schedule, may be modified by agreement of the United States and Nucor at any time.

A. Approach for Darlington Facility

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

1. Design and Installation of SCR System

Nucor will meet with SCR vendors to discuss the design of the SCR system. Nucor will provide the vendors with specifications for the Darlington reheat furnace, including exhaust gas flow rates, exhaust gas temperatures, and predicted exhaust gas Nitrogen Oxide (NOx) concentrations. Nucor will develop a request for quotation that will include a design for the SCR system, a price quote for the system, guaranteed NOx removal efficiencies, and guaranteed ammonia slip values.

Nucor will select the final design of the SCR system and the SCR system vendor. Nucor will work with the vendor to install the SCR system. Nucor will then operate the reheat furnace with the SCR system for sufficient period of time to optimize the reheat furnace operation and SCR system performance.

2. Baseline Testing

After optimizing the furnace, Nucor will conduct baseline testing of the reheat furnace. During the baseline test, the SCR system will not be operational. Nucor will monitor and record NOx, Carbon Monoxide (CO), Oxygen (O2), Carbon Dioxide (CO2), and Sulfur Oxide (SOx) emissions from the furnace for a period of 5 days for the baseline test. Nucor will also determine gas temperature, the velocity of the exhaust gas, the molecular

weight of the exhaust gas, and the moisture content of the exhaust gas in accordance with EPA methods 2, 3A, and 4.

3. Evaluation of SCR System

Following the baseline testing, Nucor will begin evaluating the impact of the SCR system on NOx emissions. Nucor will use continuous emission monitors to monitor and record NOx, CO, O2, CO2, and SOx emissions. Nucor will also use a CEMS to monitor ammonia emissions. Nucor will monitor emissions at the maximum exhaust gas flow rate for the furnace, at an intermediate flow rate, and at the minimum flow rate for the furnace. This will allow Nucor to determine the effectiveness of the SCR system under a range of operating conditions. Nucor will also determine the exhaust gas temperature, velocity of the furnace exhaust gas, the molecular weight of the exhaust gas, and the moisture content of the exhaust gas in accordance with EPA methods 2, 3A, and 4. If both Nucor and EPA agree that the data is representative or cannot be repeated on a comparative basis, the specific test will be considered complete.

4. Report to EPA

Nucor will prepare a report for EPA that will include the results of the evaluation test program, any problems encountered in operating the furnace that might be associated with the SCR system, and the cost effectiveness of the SCR system based on the results of the evaluation test, the capital cost of the system, and actual operation and maintenance costs of the system. Nucor will submit a copy of all electronic data to EPA with the report.

5. Schedule

Table 1 presents the schedule for the SCR pilot study at the Darlington facility.

TABLE 1. SCHEDULE FOR SCR PILOT STUDY AT DARLINGTON

ACTIVITY	PROJECTED DATE
Design of reheat furnace	6 months after permit approval
Fabrication of reheat furnace	18 months after permit approval
Installation of reheat furnace	24 months after permit approval
Submit test plan to EPA	At least 30 days before testing begins
Evaluation testing of SCR	45 days after full operation commences
Report to EPA	60 days after testing completed

B. Second Pilot Study

If Nucor and EPA agree that SCR is economically and technically feasible based on the pilot study at Darlington, Nucor will conduct a second SCR pilot study on an existing reheat furnace. Nucor will include a recommendation for the site for the second pilot study in its report to EPA on the Darlington pilot study. Nucor will also include a schedule for implementing the second pilot study in the report.

C. Evaluation of Control Technologies for Other Nucor Reheat Furnaces

Nucor has committed to installing either exhaust gas recirculation with reduced NOx burners (EGR/RNB) or SCR on their remaining reheat furnaces. In conjunction with the SCR pilot study at the Darlington facility and on a second reheat furnace, Nucor is also conducting an EGR/RNB pilot study on a reheat furnace at its facility located in Norfolk, Nebraska. At the conclusion of these pilot studies, Nucor will prepare a report for EPA that presents a comparison of the two technologies. The comparison will include an analysis of the NOx control efficiency of each technology, the cost effectiveness of each technology, and an analysis of other environmental and energy impacts associated with each technology.

Nucor will include in the report a discussion of the factors that should be considered in selecting the most appropriate technology for a given furnace. These factors are expected to include furnace design, burner design, baseline NOx emissions,

configuration of the rolling mill, and the relative amounts of time the furnace is operated at maximum and minimum flow rates.

Attachment 6
Protocol for Establishing Emission Limits for Electric Arc Furnaces and Heat Furnaces

As required by this Consent Decree, Nucor will be implementing process modifications and/or installing selective noncatalytic reduction (SNCR) on its electric arc furnaces (EAFs) to reduce Nitrogen Oxide (NOx) emissions. Nucor will also be installing selective catalytic reduction (SCR) or exhaust gas recirculation with reduced NOx burners (EGR/RNB) on its reheat furnaces to reduce NOx emissions. It is anticipated that these technologies will result in lower NOx emission limits for these sources. This protocol presents the approach for determining those emission limits after implementation of the applicable technologies. Any provisions of this protocol, including schedule, may be modified by written agreement of the United States and Nucor at any time.

A. Establishing Emission Limits for Electric Arc Furnaces

Following implementation of the process modifications and/or installation of Selective Noncatalytic Reduction (SNCR) at the facility, Nucor will establish an appropriate NOx emission limit for the EAFs. Nucor will monitor NOx emissions with a continuous emission monitor for a period of at least 90 days after the evaluation testing programs (see Attachments 1 and 2) have been completed. At the end of this 90 day period, Nucor may petition EPA to extend the monitoring period if the facility does not believe it has collected sufficient data to establish an emission limit that is representative of the facility's operations.

Following the completion of the monitoring period, Nucor will submit a proposed NOx emission limit to EPA for review. Nucor will also submit supporting data and calculations, including a copy of all electronic data. Following EPA and Nucor agreement on the emission limit, Nucor will submit a permit application to the appropriate agency with the proposed emission limit.

B. Establishing Emission Limits for Reheat Furnaces

Following installation of SCR or EGR/RNB on a reheat furnace, Nucor will establish an appropriate emission limit for that furnace. Nucor will monitor NOx emissions with a continuous emissions monitor for a period of at least 10 days after the evaluation test programs (see Attachments 4 and 5) have been completed. At the end of this 10 day period, Nucor may petition EPA to extend the monitoring period if the facility does not believe they have collected sufficient data to establish an

emission limit that is representative of the facility's operations.

During this monitoring period, Nucor will also monitor all furnace and control technology parameters to identify those parameters that may be used in a parametric monitoring program for compliance demonstration purposes.

Following the completion of the monitoring period, Nucor will submit a proposed NOx emission limit to EPA for review. Nucor will also submit supporting data, including a copy of all electronic data, and calculations. Nucor will also include a parametric monitoring proposal based on the information collected during the monitoring period. Following EPA and Nucor agreement upon the emission limit, Nucor will submit a permit application to the appropriate agency with the proposed emission limit.

Attachment 7
Protocol for Piloting Continuous Emissions Monitoring System

As required by this Consent Decree, Nucor will install a continuous emissions monitoring system (CEMS) at each of its steel production facilities. Nucor has agreed to install CEMS as a supplemental environmental project and as part of its Clean Air Act Compliance Program. The first CEMS installation will be at Nucor's facility located in Norfolk, Nebraska. This protocol presents Nucor's proposed approach for the CEMS installation at Norfolk. Any provisions of this protocol, including schedule, may be modified by the written agreement of the United States and Nucor at any time.

A. Norfolk System Design and Operation

Nucor will undertake a pilot study of a continuous emissions monitoring system for significant and appropriate emission parameters, to include Nitrogen Oxides (NOx), Carbon Monoxide (CO), Sulfur Oxides (SOx), Oxygen (O2), and velocity at the Norfolk electric arc furnace (EAF). The CEMS will be designed to meet the performance specifications included in Appendix B of 40 CFR 60. The system will be operated in accordance with the quality assurance and quality control specifications presented in Appendix F of 40 CFR 60.

B. Report to EPA

Following installation and operation of the CEMS at the Norfolk facility, Nucor will prepare and submit to EPA a report summarizing the issues encountered in designing, installing and operating the CEMS. The report will include a discussion of the Norfolk CEMS design, the cost of installing and operating the CEMS, and problems encountered in installing and operating the CEMS. The report will also include a proposed approach for designing and installing CEMS for the remaining Nucor steel mills. Because of differences in EAF designs, ductwork configurations, and baghouse designs, each CEMS installation is expected to be unique to a given facility. The report will also include a schedule for installation of CEMS at the remaining mills.

C. Schedule

Table 1 presents the schedule for the Norfolk facility.

TABLE 1. SCHEDULE FOR CEMS INSTALLATION AT NORFOLK

Activity	Projected Date
Complete preliminary design of CEMS	April 15, 2001
CEMS Installation Complete	August 30, 2001
CEMS Troubleshooting and Optimization	March 15, 2002
Report to EPA	May 1, 2002

Attachment 8
Suggested Testing Protocol for Establishing Baseline Values Required by NSPS Subpart AAa[1]

This protocol outlines the specific requirements that should be met when Nucor establishes baseline values as required by New Source Performance Standards (NSPS), Subpart AA, 40 C.F.R. § 60.274 and NSPS Subpart AAa, 40 C.F.R. § 60.274a. The requirements for testing herein are not meant to be all-inclusive, and do not relieve Nucor of its obligations to consult the regulations and to comply with any provision applicable to the facility:

(28) Nucor must furnish EPA with a written report of the performance testing to determine compliance with the particulate matter standards in § 60.272a(a)(1). The report must contain the information which is specified in § 60.276a(f). The information which is specified in § 60.276a(f)(6) is also specified in § 60.274a(h);

(29) Nucor must submit the information for furnace static pressure and volumetric flow rate which is specified in § 60.275a(f). This information must be obtained during the particulate matter runs. If the Reference Method 9 observations for shop opacity are used to determine compliance with the standard in § 60.272a(a)(3) during the particulate matter runs, this information must be submitted for the periods of observation of the shop opacity;

(30) Nucor must conduct three (3) runs to determine compliance with the standard for particulate matter in § 60.272a(a)(1). Reference Method 5D, a sampling time of at least four (4) hours per run, and a sample volume of at least 160 dscf, are specified in § 60.275(e)[1];

(31) The minimum total time for visible emission ("VE") observations is three (3) hours (thirty (30, six (6)-minute-averages). Pursuant to § 60.275a(e)(4), test runs shall be conducted concurrently to demonstrate compliance with § 60.272a(a)(1), (2), and (3), unless inclement weather interferes. Therefore, VE observations using Reference Method 9 to determine compliance of the melt shop emissions with the opacity standard in § 60.272a(a)(3) and the control device emissions with the opacity standard

[1] Facilities subject to NSPS, Subpart AA, should cross check monitoring requirements with 40 C.F.R. 60.274.

in § 60.272a(a)(2) should be conducted for a minimum of three (3), sixty (60)-minute observation periods;

(32) Nucor should record a fifteen (15)-minute average and establish a baseline for fifteen (15)-minute averages for furnace static pressure if meltshop opacity observations are not recorded in accordance with 60.272a(a)(3); and

(33) If the volumetric flow rates are recorded by Continuous Emission Rate Monitoring Systems (CERMS), paragraph (h) of º 60.13 of NSPS Subpart A, requires that the CERMS flow data must be reduced to 1-hour averages. An averaging time for the baseline value for flow through each separately ducted hood is not specified in NSPS Subpart AAa. As such, compliance with standard for shop opacity in § 60.272a(a)(3) is determined by a six (6)-minute average; whereas a one (1)-hour average is specified for the CERMS flow data in § 60.13(h). Therefore, each baseline value for the CERMS flow should be an 1-hour average. Each baseline value for CERMS flow should be established at a value which is less than the average reference method flow during the three (3) runs of the compliance tests for particulate matter. Nucor can, perhaps, use the data from relative accuracy tests to determine and justify the amount by which the baseline value for CERMS flow should be less than the average reference method flow during the compliance tests.

(34) Before conducting the tests. Nucor should review with its contractor performing the tests the procedure for calculating isokinetic variation for Reference Method 5D. EPA can not accept results for particulate matter testing, and consequently the baseline values for furnace static pressure and volumetric flow rate, if the correctly calculated isokinetic variation is not within the specified range of 90% to 110%.

Attachment 9

[RESERVED]

Attachment 10
STATEMENT OF WORK FOR A RCRA FACILITY ASSESSMENT

VIII. PURPOSE

A. Purpose - The purpose of the RCRA Facility Assessment (RFA) is to compile existing information and to fill in any data gaps to determine whether past or present handling, storage, treatment, transportation or disposal of any solid waste and/or hazardous waste could result or may have resulted in releases to media that have the potential to threaten human health and/or the environment.

B. Scope - the RFA consists of the following Tasks:

1. RFA Workplan

2. Preliminary Assessment Report

3. Sampling Visit

4. RFA Report

II. RFA WORKPLAN - The RFA Workplan shall contain the following elements:

A. Introduction/Purpose:

The RFA is the first step in the corrective action program. The purpose of the RFA is to obtain facility-specific information as follows:

1. Identify and gather information on releases or potential releases from the facility;

2. Evaluate and identify regulated units, Solid Waste Management Units (SWMUs), and other Areas of Concern (AOCs) for releases to all media;

3. Make preliminary determinations regarding potential or known releases of concern and the need for further actions and interim measures at the facility; and

4. Screen from further investigation those regulated units and SWMUs which do not pose a threat to human health or the environment.

B. Plan for Conducting the Preliminary Review:

1. In conducting a Preliminary Review (PR), the Respondent shall collect all pertinent information regarding the facility from at least the following State and EPA programs:

   a. RCRA

   b. Superfund

   c. Air

   d. TSCA

   e. Water

2. It will be necessary to make prior arrangements with each agency to review files, if any, for the facility. In general, at least one (1) week's notice is usually required in order to make the necessary arrangements with staff to ensure that all files that may be under staff review are returned to the file area. It is the Respondent's responsibility to ensure that all necessary arrangements are made with the appropriate file clerk for each entity to review the aforementioned files.

3. Information shall also be collected from the United States Geological Survey (USGS).

4. Information shall also be collected from the US Fish and Wildlife and State wildlife offices in regard to the Endangered Species Act.

C. During the PR, the Respondent shall determine to the extent possible:

1. All known or possible SWMUs and identify them regardless of whether the SWMUs (old, new or existing) at the facility are currently, had been, or may be releasing hazardous constituents to the environment;

2. Whether or not there are SWMUs (old, new or existing) at the facility that are or may be releasing hazardous constituents to the

environment including the extent of those releases;

3. The need for immediate corrective measures and the status of any prior corrective measures at this facility;

4. The focus of additional site investigation if needed;

5. The identification of wells within one mile of the facility and any information on these wells including depth, date of construction, type and purpose of construction and any analytical data; and,

6. The need for a health assessment both on-site and off-site.

D. Plan for Conducting the Visual Site Inspection:

The Respondent shall perform a Visual Site Inspection (VSI) to verify existing SWMUs/AOCs and to observe and document any additional SWMUs/AOCs and/or releases. The purpose of the VSI is to:

1. Identify all SWMUs/AOCs that pose no problem to human health or the environment;

2. Identify all SWMUs/AOCs which may present a threat to human health or the environment;

3. Gather evidence of releases sufficient to compel the owner/operator to conduct additional investigation;

4. Prioritize SWMUs/AOCs for further investigation; and

5. Identify the scope of subsequent investigations or, if needed, immediate corrective actions.

The Respondent shall coordinate the VSI agenda with the Project Coordinator at least thirty (30) days before performing the VSI. The VSI shall be conducted in accordance with Chapters Three and Five through Nine of the RFA Guidance.

E. Plan for Conducting the Sampling Visit.

If there are data gaps where a release cannot be determined, the Respondent shall develop and submit to the Project Coordinator a site-specific Sampling Plan for the Sampling Visit (SV). Upon approval of the Sampling Plan, Respondent shall implement the plan.

III. Preliminary Assessment (PA) Report - Upon completion of the PR and VSI the Respondent shall develop a Preliminary Assessment (PA) report incorporating the results of the PR and VSI efforts. The PA report shall contain all items set forth in the RFA Guidance including, but not limited to, the completed attached checklist, a detailed map of the facility with all well locations, list of all SWMUs and AOCs (regardless of release potential), description of each well (if known), photographic log, photographs, site geology, etc. The PA Report will make recommendations as to whether or not additional sampling is necessary to confirm or deny the release of any hazardous waste or hazardous constituents from any particular SWMU at the facility. In developing the PA Report, the Respondent shall provide strong supportable evidence for a decision either for or against additional sampling to fill data gaps at the facility. The PA Report shall include the following:

A. All existing data that is pertinent to accomplishing the objective of identifying all potential existing and closed solid waste management units(SWMUs), areas of concern (AOCs) and releases.

B. The data collected during the PR, including, at a minimum:

1. The former and current land use(s) within the facility boundaries and adjacent to the facility;

2. The former and current owner(s) and/or operator(s);

3. Former and current activities conducted, products produced, and processes conducted on-site;

4. Types and quantities of hazardous substances used on- site (sources of this information include manifests, inspections, MSDS, etc.);

5. Types and quantities of hazardous wastes generated at the facility;

6. Former and current waste handling and disposal practices;

7. The location of all past and present SWMUs at the facility, their dates of operation, wastes managed in each SWMU, construction details, and actual or potential releases of hazardous waste or hazardous constituents from each SWMU; The description of each SWMU and AOC in the PA Report shall include, but not be limited to:

   a. Name of SWMU or AOC;

   b. Description of SWMU/AOC (including the location, construction details, physical description, etc.);

   c. Start-up and closure dates of operation;

   d. Waste managed;

   e. Release controls;

   f. Release history; and

   g. Photographs (including any in existence prior to the VSI).

8. The location of all releases or potential releases of hazardous waste or hazardous constituents from AOCs, the date of release, and the volume of material released;

9. Status and types of permits obtained by the facility;

10. Any existing analytical data for all media (soil, sediment, groundwater, air, surface water, and subsurface gas);

11. Any wells at the facility;

12. Depth to groundwater and direction of groundwater flow at the facility;

13. Identification and a description of all wells within a one (1)-mile radius of the facility boundaries. The description of each well shall include the depth of the well, the date of construction, the type and purpose of

construction, and presentation of any analytical data obtained from each well;

14. The uses of groundwater within a one (1)-mile radius of the facility boundaries;

15. The nearest downgradient surface water body;

16. Direction of surface water flow at the facility and uses of surface water within five (5) downgradient miles of the facility;

17. Endangered, threatened, or migratory species and critical habitats found in the area of the facility;

18. Predominant wind direction; and

19. Location of nearest residences, schools, and any sensitive populations.

The Project Coordinator will review the PA report and its recommendations. If supportable data of any release at the facility exists and leaves no data gaps, then upon the Project Coordinator's approval of the PA report, the Respondent shall proceed to develop the final RFA report including the incorporation of any Project Coordinator comments on the PA Report. If there are data gaps, then Respondent shall conduct a Sampling Visit (SV). Respondent must submit to the Project Coordinator for review and approval a Sampling Plan before conducting the SV.

IV. Sampling Plan - Respondent shall submit to the Project Coordinator a draft site-specific Sampling Plan as described in Chapter Four of the RFA Guidance. The Sampling Plan shall include a QAPP prepared in accordance with EPA guidance. Respondent shall conduct the Sampling Visit in accordance with the approved Sampling Plan and Chapter Four through Nine of the RFA Guidance. Respondent shall coordinate the visit with the Project Coordinator at least thirty (30) days prior to the date of the SV.

V. RFA Report - Respondent shall submit to the Project Coordinator a draft RFA Report incorporating the PR, VSI, and results of the SV. Respondent shall include, as appendices to the draft report, any supporting materials including, but not limited to, checklists, field notes, forms, letters, data, etc. The draft RFA report should be substituted for the PA report if no SV is conducted.

CHECKLIST AND SIGNATURE PAGE

_____ Completed in accordance with EPA Guidance
_____ Aerial photographs reviewed and information from them is incorporated into the submittal
_____ Historical operations and waste management practices investigated and incorporated into the submittal
_____ Summary/Table of Regulatory History that supports evidence of a release or potential release
_____ Figure illustrating surrounding land use
_____ Figure identifying each SWMU/AOC

_____ Figure illustrating surface water flow on- and off-site
_____ Figure illustrating groundwater flow direction
_____ Depth of groundwater stated
_____ Public and private wells identified within a one-mile radius of the facility
_____ Groundwater use within a one-mile radius of the facility
_____ SWMU/AOC summary table
_____ All statements, ideas, and recommendations substantiated with references
_____ Summary table of groundwater analytical data
_____ Summary table of soil analytical data including background analytical data
_____ Figure identifying sampling locations and sample identification numbers

Attachment 11
SCOPE OF WORK FOR A RCRA FACILITY INVESTIGATION (RFI)

I. PURPOSE

A. Purpose - The purpose of the RFI is to determine the nature and extent of releases of hazardous waste or constituents from regulated units, solid waste management units, and other source areas such as areas of concern at the Facility and to gather all necessary data to support the Corrective Measures Study.

B. Scope - the RFI consists of the following tasks:

S. RFI Workplan

2. Facility Investigation

3. Facility Investigation Analysis and RFI Report

4. Laboratory and Bench-Scale Studies

— Periodic Reports

II. RFI Workplan - The RFI Workplan(s) shall include the following:

A. Project Management Plan - The Project Management Plan shall include a discussion of the technical approach, schedules, budget, and personnel. The Project Management Plan shall also include a description of qualifications of personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the RFI, and include a detailed schedule for conducting the RFI.

2. Data Collection Quality Assurance Plan - The Data Collection Quality Assurance Plan ("DCQAP") shall document all monitoring procedures: sampling, field measurements and sample analysis to be performed during the investigation to characterize the environmental setting, source area(s), and contamination in the source area(s), so as to ensure that all information and data and resulting decisions are technically sound, statistically valid, and properly documented. A source area may consist of a single SWMU or AOC; or a group of SWMUs and AOCs which are investigated together due to their proximity, design or other common characteristic.

1. Data Collection Strategy - The strategy section of the Data Collection Quality Assurance Plan shall include but not be limited to the following

a. Description of the data quality objectives based upon the intended uses for the data, and the necessary level of precision and accuracy for these intended uses;

b. Description of methods and procedures to be used to assess the precision, accuracy and completeness of the measurement data;

c. Description of the rationale used to assure that the data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition or an environmental condition. Examples of factors which shall be considered and discussed include:

1. Environmental conditions at the time of sampling;

2. Number of sampling points;

(iii) Representativeness of selected media; and

(iv) Representativeness of selected analytical parameters.

d. Description of the locations, including their depiction on Facility map(s), of the sampling points. Include in the description any physical features that support the proposed sampling point location.

e. Description of the measures to be taken to assure that the following data sets generated after the effective date of this Order can be compared to each other:

(i) RFI data generated by the Respondent over some time period;

(ii) RFI data generated by an outside laboratory or consultant versus data generated by the Respondent;

(iii) Data generated by multiple consultants or laboratories; and

(iv) Data generated by an outside consultant or laboratory over some time period.

f. Details relating to the schedule and information to be provided in quality assurance reports. The reports should include but not be limited to:

(i) Periodic assessment of measurement data accuracy, precision, and completeness;

(ii) Results of performance audits

(iii)Results of system audits;

(iv) Significant quality assurance problems and recommended solutions; and

(v) Resolutions of previously stated problems.

g. Description of how the data will be determined to have met the data quality objectives in a, above.

2. Sampling - The sampling section of the Data Collection Quality Assurance Plan shall discuss:

a. Selecting appropriate sampling locations, depths, etc.;

a. Providing a statistically sufficient number of sampling sites, such that a statistically valid comparison can be made between samples;

c. Measuring all necessary ancillary data;

d. Determining conditions under which sampling should be conducted;

e. Determining which media are to be sampled (e.g. groundwater, air, soil, sediment, etc.);

f. Determining which parameters are to be measured and where;

g. Selecting the frequency of sampling and length of sampling period;

h. Selecting the types of sample (e.g., composites vs. grabs) and number of samples to be collected;

i. Measures to be taken to prevent contamination of the sampling equipment and cross contamination between sampling points;

j. Documenting field sampling operations and procedures, including:

(i) Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters, and adsorbing reagents);

(ii) Procedures and forms for recording the exact location and specific considerations associated with sample acquisition;

(iii) Documentation of specific sample preservation methods;

(iv) Calibration of field devices;

(v) Collection of replicate samples

(vi) Submission of field -biased blanks, where appropriate;

(vii) Potential interferences present at the Facility;

(viii) Construction materials and techniques, associated with monitoring wells and piezometers;

(ix) Field equipment listing and sample containers;

(x) Sampling order; and

(xi) Decontamination procedures.

k. Selecting appropriate sample containers;

l. Sample preservation; and

m. Chain-of-custody, including:

(i) Standardized field tracking and reporting forms to establish sample custody in the field prior to and during shipment; and

(ii) Pre -prepared forms containing information necessary for effective sample tracking.

3. Field Measurements - The Field Measurements section of the Data Collection Quality Assurance Plan shall discuss:

a. Selecting appropriate field measurement locations, depths, etc.;

b. Providing a statistically sufficient number of field measurements;

c. Measuring all necessary ancillary data;

d. Determining conditions under which field measurements should be conducted;

e. Determining which media are to be addressed by appropriate field measurements (e.g., groundwater, soil, sediment, etc.);

f. Determining which parameters are to be measured and where;

g. Selecting the frequency of field measurements and length of field measurement period; and

h. Documenting field measurement operations and procedures, including:

(i) Procedures and forms for recording raw data and the exact location, time, and facility-specific considerations associated with the data acquisition

(ii) Calibration of field devices;

(iii) Collection of replicate measurements;

(iv) Submission of field -biased blanks, where appropriate;

(v) Potential interferences present at the Facility;

(vi) Construction materials and techniques associated with monitoring wells and piezometers used to collect field data;

(vii) Field equipment listing;

(viii) Order in which field measurements were made; and

(ix) Decontamination procedures.

4. Sample Analysis - The Sample Analysis section of the Data Collection Quality Assurance Plan shall specify the following:

a. Chain-of-custody procedures, including:

(i) Definition of a responsible party to act as sample custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipments, and verify the data entered onto the sample custody records;

(ii) Provision for a laboratory sample custody log consisting of serially numbered standard lab -tracking report sheets; and

(iii) Specification of laboratory sample custody procedures for sample handling, storage, and dispersion for analysis.

b. Sample storage procedures and storage times;

c. Sample preparation methods;

d. Analytical procedures, including:

(i) Scope and application of the procedure;

(ii) Sample matrix;

(iii) Potential interferences;

(iv) Precision and accuracy of the methodology; and

(v) Method detection limits.

e. Calibration procedures and frequency;

f. Data reduction, validation and reporting;

g. Internal quality control checks, laboratory performance and system audits and frequency, including:

(i) Method blank(s);

(ii) Laboratory control sample(s);

(iii) Calibration check sample(s);

(iv) Replicate sample(s);

(v) Matrix-spiked sample(s);

(vi) "Blind" quality control sample(s);

(vii) Control charts;

(viii) Surrogate samples;

(ix) Zero and span gases;

(x) Reagent quality control checks;

(xi) Preventative maintenance procedures and schedules;

(xii) Corrective action (for laboratory problems); and

(xiii) Sample turnaround time

C. Data Management Plan - The Data Management Plan shall document and track investigation data and results. This plan shall identify and set up data documentation materials and procedures, project file requirements,

and project related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigation in the Facility Investigation Analysis and RFI Report .

1. Data Record - The data record shall include the following:

    a. Unique sample or field measurement code;

    b. Sampling or field measurement location and sample or measurement type;

    c. Sampling or field measurement raw data;

    d. Laboratory analysis ID number;

    e. Property or component measured; and

    f. Results of analysis (e.g., concentration).

2. Tabular Displays - The following data shall be presented in tabular displays:

    a. Unsorted (raw) data;

    b. Results for each medium, or for each constituent monitored;

    c. Data reduction for statistical analysis;

    d. Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and

    e. Summary data.

3. Graphical Displays - The following data shall be presented in geographical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.);

    a. Display sampling location and sampling grids;

    b. Indicate boundaries of sampling area and areas where more data are required;

c. Display levels of contamination at each sampling location;

d. Display geographical extent of contamination;

e. Display contamination levels, averages, and maxima;

f. Illustrate changes in concentration in relation to distance from the source, time, depth or other parameters; and

g. Indicate features affecting intramedia transport and show potential receptors.

4. Previously generated data - Previously generated data are not to be excluded from the RFI merely because they were not collected using the procedures and techniques described in the RFI Workplan. However, the data management plan shall describe how previously generated data will be evaluated against the data quality objectives for the RFI and qualified for the RFI report. The data management plan shall also describe the documentation to be included in the RFI report for such evaluation and qualification of previously generated data.

D. Health and Safety Plan - The Respondent shall prepare a Health and Safety Plan. The Health and Safety Plan is subject to review and comment, but not approval, by EPA.

1. Major elements of the Health and Safety Plan shall include:

a. Facility description including availability of resources such as roads, water supply, electricity and telephone service;

b. Description of the known hazards and evaluation of the risks associated with the incident and with each activity conducted;

c. A listing of key personnel and alternates responsible for site safety, response operations, and for protection of public health;

d. Delineation of work areas;

e. Description of levels of protection to be worn by personnel in work areas;

f. Establishment of procedures to control site access;

g. Description of decontamination procedure for personnel and equipment;

h. Establishment of site emergency procedures;

i. Emergency medical care for injuries and toxicological problems;

j. Description of requirements for an environmental surveillance program;

k. Routine and special training required for responders; and

2. Establishment of procedures for protecting workers from weather-related problems.

3. The facility Health and Safety Plan shall be consistent with:

a. NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985);

b. EPA Order 1440.1 - Respiratory Protection;

c. EPA Order 1440.3 - Health and Safety Requirements for Employees Engaged in Field Activities;

d. Facility Contingency Plan;

e. EPA Standard Operating Safety Guide (1984);

f. OSHA regulations particularly in 29 CFR 1910 and 1926;

g. State and local regulations; and

h. Other EPA guidance as provided.

E. Community Relations Plan - The Respondent shall prepare a plan for the dissemination of information to the public regarding investigation activities and results.

III. Facility Investigation - The Facility Investigation for the RFI shall include those investigations necessary to: characterize the Facility (Environmental Setting); define the source area(Source Characterization); define the degree and extent of contamination in source areas (Contamination Characterization); and identify actual or potential receptors of source area contamination. A source area may consist of a single SWMU or AOC; or a group of SWMUs and AOCs which are investigated together due to their proximity, design or other common characteristic. The investigations should result in data of adequate technical quality to support the development and evaluation of a corrective measure alternative or alternatives during the Corrective Measures Study. All sampling and analyses shall be conducted in accordance with the Data Collection Quality Assurance Plan. All sampling locations shall be documented in a log and identified on a detailed site map.

A. Environmental Setting - The Facility Investigation of RFI shall collect information to supplement and verify existing information on the environmental setting at the Facility and characterize the following:

1. Hydrogeology - The RFI shall evaluate hydrogeologic conditions at the Facility and provide the following information:

a. A description of the regional and facility specific geologic and hydrogeologic characteristics affecting groundwater flow beneath the Facility, including:

(i) Regional and facility specific stratigraphy: description of strike and dip, identification of stratigraphic contacts;

(ii) Structural geology: description of local and regional structural features (e.g. folding, faulting, tilting, jointing, etc.);

(iii) Depositional history;

(iv) Identification and characterization of areas and amounts of recharge and discharge;

(v) Regional and facility specific ground water flow patterns; and

(vi) Characterize seasonal variations in the ground water flow regime.

b. An analysis of any topographic features that might influence the ground water flow system.

c. Based on field data, test, and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways at the Facility (i.e., the aquifers and any intervening saturated and unsaturated units), including:

(i) Hydraulic conductivity and porosity (total and effective);

(ii) Lithology, grain size, sorting, degree of cementation;

(iii) An interpretation of hydraulic interconnections between saturated zones; and

(iv) The attenuation capacity and mechanisms of the natural earth materials (i.e., ion exchange capacity, organic carbon content, mineral content, etc.).

d. Based on field studies and cores, structural geology and hydrogeologic cross-sections showing the extent (depth, thickness, lateral extent) of hydrogeologic units which may be part of the migration pathways identifying:

(i) Sand and gravel deposits in unconsolidated deposits;

(ii) Zones of fracturing or channeling in consolidated or unconsolidated deposits;

(iii) Zones of higher or lower permeability that might direct and restrict the flow of contaminants;

(iv) The uppermost aquifer: geologic formation, group of formations, or part of a formation capable of yielding a significant amount of ground water to wells or springs; and

(v) Water-bearing zones above the first confining layer that may serve as a pathway for contaminant migration including perched zones of saturation.

e. Based on data obtained from groundwater monitoring wells and piezometers installed upgradient and downgradient of the potential contaminant source, a representative description of water level or fluid pressure monitoring including:

(i) Water level contour and/or potentiometric maps;

(ii) Hydrologic cross-sections showing vertical gradients;

(iii) The flow system, including the vertical and horizontal components of flow; and

(iv) Any temporal changes in hydraulic gradients, (e.g., seasonal influences).

f. A description of man-made influences that may affect the hydrogeology of the site, identifying:

(i) Active and inactive local water-supply and production wells with an approximate schedule of pumping; and

(ii) Man-made hydraulic structures (pipelines, French drains, ditches, unlined ponds, septic tanks, NPDES outfalls, retention areas, etc.).

2. Soils - The RFI shall characterize the soil and rock units above the water table in the vicinity of the contaminant release(s). Such characterization may include but not be limited to, the following information:

a. SCS soil classification;

b. Surface soil distribution;

c. Soil profile, including ASTM classification of soils;

d. Transects of soil stratigraphy;

e. Hydraulic conductivity (saturated and unsaturated);

f. Relative permeability;

g. Bulk density;

h. Porosity;

i. Soil sorptive capacity;

j. Cation exchange capacity (CEC);

k. Soil organic content;

l. Soil pH;

m. Particle size and distribution;

n. Depth of water table;

o. Moisture content;

p. Effect of stratification on unsaturated flow;

q. Infiltration;

r. Evapotranspiration;

s. Storage capacity;

t. Vertical flow rate; and

u. Mineral content.

3. Surface Water and Sediment - The RFI shall characterize the surface water bodies in the vicinity of the Facility. Such characterization shall include, but not be limited to, the following activities and information:

   a. Description of the temporal and permanent surface-water bodies including:

      (i) For impoundments: location, elevation, surface area, depth, volume, freeboard, and purpose of the impoundment.

(ii) For streams, ditches, drains, swamps and channels: location, elevation, flow, velocity, depth, width, seasonal fluctuations, and flooding tendencies (i.e., 100 year event);

(iii) Drainage patterns; and

(iv) Evapotranspiration.

b. Description of the chemistry of the natural surface water and sediments. This includes determining the pH, total dissolved solids, total suspended solids, biological oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients, chemical oxygen demand, total organic carbon, specific contamination concentrations, etc.

c. Description of sediment characteristics including:

(i) Deposition area;

(ii) Thickness profile; and

(iii) Physical and chemical parameters (e.g., grain size, density, organic carbon content, ion exchange capacity, pH, etc.).

4. Air - The Facility Investigation of the RFI shall characterize the climate in the vicinity of the Facility. Such information shall include, but not be limited to:

a. A description of the following parameters:

(i) Annual and monthly rainfall averages;

(ii) Monthly temperature averages and extremes;

(iii) Wind speed and direction;

(iv) Relative humidity/dew point;

(v) Atmospheric pressure;

(vi) Evaporation data;

(vii) Development of inversions; and

(viii) Climate extremes that have been known to occur in the vicinity of the Facility, including frequency of occurrence.

B. Source Characterization - The Facility Investigation of the RFI shall collect analytical data to adequately characterize contamination from each source area for the wastes and the areas where wastes have been placed, collected or removed therein including: type; quantity; physical form; disposition; and any facility characteristics which may affect their release. A source area may consist of a single SWMU or AOC; or a group of SWMUs and AOCs which are investigated together due to their proximity, design or other common characteristic. This shall include quantification of the following specific characteristics, at each source area:

1. Source Area Characteristics:

a. Location of unit(s)/disposal(s) in the source area;

b. Type of unit(s)/disposal(s) in the source area;

c. Design features of unit(s)/disposal(s) in the source area;

d. Operating practices (past and present)of unit(s)/disposal(s) in the source area;

e. Period of operation of unit(s)/disposal(s) in the source area;

f. Age of unit(s)/disposal(s) in the source area;

g. General physical condition of unit(s)/disposal(s) in the source area; and

h. Method used to close the unit(s)/disposal(s) in the source area.

2. Waste Characteristics:

a. Type of waste placed in the unit(s)/disposal(s) in the source area;

(i) Hazardous waste classification, e.g. ignitable, corrosive, toxicity characteristic (TCLP) listing;

(ii) Quantity of waste per unit or disposal area; and

(iii) Chemical composition.

b. Physical and chemical characteristics;

(i) Physical form (solid, liquid, gas);

(ii) Physical description (e.g. powder, oily sludge);

(iii) Temperature;

(iv) pH;

(v) General chemical class (e.g., acid, base, solvent);

(vi) Molecular weight;

(vii) Density;

(viii) Boiling point;

(ix) Viscosity;

(x) Solubility in water;

(xi) Cohesiveness of the waste;

(xii) Vapor pressure; and

(xiii) Flash point.

c. Migration and dispersal characteristics of the waste;

(i) Sorption;

(ii) Biodegrability, biotransformation;

(iii) Photodegradation rates;

(iv) Hydrolysis rates; and

(v) Chemical transformation, particularly decomposition products.

C. Contamination Characterization - The Facility Investigation of the RFI shall collect analytical data on groundwater, soils, surface water, and sediment contamination in the vicinity of the Facility. This data shall be sufficient to define the extent, origin, direction, and rate of movement of contaminant plumes on-site and off-site. Data shall include time and location of sampling, media sampled, concentrations found, conditions during sampling, and the identity of the individuals performing the sampling and analysis. The Facility Investigation of the RFI shall address the following types of contamination at the Facility:

1. Groundwater Contamination - A Groundwater Investigation to characterize any plumes of contamination at the Facility. This investigation at a minimum will provide the following information:

   a. A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the Facility;

   b. The horizontal and vertical direction of contamination movement;

   c. The velocity of contaminant movement;

   d. The horizontal and vertical concentration profiles of 40 C.F.R. Part 261, Appendix VIII constituents in the plume(s) which are reasonably expected to be present in any hazardous waste or hazardous waste constituents managed at the Facility. The Appendix VIII constituents to be profiled must include potential degradation products;

   e. An evaluation of factors influencing the plume movement; and

   f. An extrapolation of future contaminant movement.

2. Soil Contamination - An investigation to characterize the contamination of soil and rock

units above the water table in the vicinity of the contaminant release. The investigation shall provide the following information:

a. A description of the horizontal and vertical extent of contamination;

b. A description of contaminant and soil chemical properties within the contaminant source area and plume, including contaminant concentration, solubility, speciation, adsorption, leachability, exchange capacity, biodegrability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation.

c. Specific contaminant concentrations;

d. The velocity and direction of contaminant movement; and

e. An extrapolation of future contaminant movement.

3. Surface Water and Sediment Contamination - An investigation to characterize contamination in surface water bodies in the area of the Facility resulting from contaminant releases at the Facility. The investigation shall include, but not be limited to, the following information:

a. A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the Facility, and the extent of contamination in underlying sediments;

b. The horizontal and vertical direction of contaminant movement;

c. The contaminant velocity;

d. An evaluation of the physical, biological and chemical factors influencing contaminant movement;

e. An extrapolation of future contaminant movement; and

f. A description of the chemistry of the contaminated surface waters and sediments, including pH, total dissolved solids, specific contaminant concentrations, etc.

The Respondent shall document the procedures used in making the above determinations.

D. Potential Receptors - The Facility Investigation of the RFI shall collect data describing the human populations and environmental systems that are susceptible to contaminant exposure from the Facility. The following characteristics shall be identified:

1. Current local uses and possible future uses of ground-water:

a. Type of use (e.g., drinking water source, municipal or residential, agricultural, domestic/non-potable, and industrial); and

b. Location of groundwater users including wells and discharge areas.

2. Current local uses and possible future uses of surface waters draining the Facility:

a. Domestic and municipal (e.g., potable and lawn/gardening watering);

b. Recreational (e.g., swimming, fishing);

c. Agricultural;

d. Industrial; and

e. Environmental (e.g., fish and wildlife propagation).

3. Human use of or access to the Facility and adjacent lands, including:

a. Recreation;

b. Hunting;

c. Residential;

d. Commercial; and

e. Zoning.

4. A brief description of the biota in surface water bodies on, adjacent to, or affected by the Facility.

5. A brief description of the ecology overlying and adjacent to the Facility.

6. A brief description of any endangered or threatened species at or near the Facility.

7. A description of any endangered or threatened species near the Facility.

IV. Facility Investigation Analysis and RFI Report ("RFI Report") - A RFI Report shall be submitted for the facility. The RFI Report may be submitted separately for one or more operable units. Each report submitted shall include all information necessary to support the determination of the nature and extent of releases of hazardous waste or constituents from each source area and to support the Corrective Measures Study for the respective operable unit(s). A source area may consist of a single SWMU or AOC; or a group of SWMUs and AOCs which are investigated together due to their proximity, design or other common characteristic. The RFI Report shall include analyses and summary of all facility investigations and their results. The objective of this task shall be to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination in the source area(s), the potential threat to human health and/or the environment from that contamination, and to support the Corrective Measures Study.

The RFI Report shall contain a history and description of ownership and operation, solid and hazardous waste generation, treatment, storage and disposal activities at the Facility at each source area. Specifically, it shall provide;

1. Approximate dates and periods of past product and waste spills, identification of the materials spilled, the amount spilled, the location where spilled, and a description of the response actions conducted (local, state, or federal response units or private parties), including any inspection reports or technical reports generated as a result of the response; and

2. Maps depicting the following:

   a. General geographic location;

   b. Property lines, with the owners of all adjacent property clearly indicated;

   c. Topography (with a contour interval sufficient to depict the following features), and surface drainage depicting all waterways, wetlands, floodplains, recharge areas, water features, drainage patterns, and surface-water containment areas within a two mile radius of the Facility;

   d. All tanks, buildings, utilities, paved areas and other physical and structural features of the Facility, as well as easements and rights-of-way held by persons other than Respondent at the Facility;

   e. All source areas investigated showing SWMUs and AOCs including hazardous waste management units used for treatment, storage or disposal at the Facility, including both those areas which are currently in use and those used in the past;

   f. All underground tanks and pipes at the Facility used for product, water or waste, including both those tanks and pipes which are currently being used and those used in the past;

   g. Surrounding land uses (i.e., the manner in which the land is currently being used, such as whether the land is used for residential, commercial, agricultural, recreational purposes); and

   h. The location of all production and groundwater monitoring wells, municipal and residential groundwater wells within a two mile radius of the Facility. The location of all such wells shall be clearly identified on the map and information provided as to the elevations of the ground level at the well and the top of the casing. All maps shall be of consistent scale and include the following:

(i) map scale and date;

(ii) surface water, including intermittent streams;

(iii) orientation of map (north arrow);

(iv) legal boundaries of the hazardous waste management facility;

(v) access control (fences, gates); and

(vi) location of operations units within the hazardous waste management facility site, where hazardous waste is (or will be) treated, stored or disposed (including equipment cleanup areas). All maps will be of sufficient detail and accuracy to locate and report all current and future work performed at the Facility.

B. Data Analysis - The RFI Report shall include an analysis of all facility investigation data to document the type and extent, both horizontal and vertical, of contamination in environmental media from each source area at the Facility including any identifiable hot spots or sources of contamination and their migration pathways. A source area may consist of a single SWMU or AOC; or a group of SWMUs and AOCs which are investigated together due to their proximity, design or other common characteristic. The RFI Report shall include a description of the extent of contamination (qualitative/quantitative) in relation to background levels indicative of the area where the facility is located, as well as indicate the level of certainty of its conclusions. The RFI Report shall include the following graphical data presentations (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross -sectional plots or transects, three dimensional graphs, etc.). The RFI Report shall include an analysis of all data included to determine the rate and extent of contaminants meets the data quality objectives of the RFI. The RFI Report shall include an analysis of all data to be used in the CMS also meet the data quality objectives of the RFI. It shall also:

1. Display sampling locations and sampling grids;

2. Indicate boundaries of sampling area and areas where more data are required;

3. Display levels of contamination at each sampling location;

4. Display geographically the extent of contamination;

5. Display contamination levels, averages, and maxima;

6. Illustrate changes in concentration in relation to distance from the source, time, depth or other parameters; and

7. Indicate features affecting intramedia transport and show potential receptors.

C. Protection Standards - The RFI Report shall identify all relevant and applicable standards for the protection of human health and the environment (e.g., National Ambient Air Quality Standards, Federally -approved state water quality standards, etc.).

V. Laboratory and Bench Scale Studies - The Respondent shall conduct laboratory and/or bench scale studies to determine the applicability of a corrective measure technology or technologies to facility conditions. The Respondent shall analyze the technologies, based on literature review, vendor contacts, and past experience to determine the testing requirements.

The Respondent shall develop a testing plan identifying the type(s) and goal(s) of the study(ies), the level of effort needed, and the procedures to be used for data management and interpretation.

Upon completion of the testing, the Respondent shall evaluate the testing results to assess the technology or technologies with respect to the site -specific questions identified in the test plan.

The Respondent shall include in the RFI Report a summary of the testing program and its results, both positive and negative.

VI. Periodic Reports

Periodic Reports will be submitted as required by the Order.

Attachment 12

SCOPE OF WORK FOR A CORRECTIVE MEASURES STUDY (CMS)

I. PURPOSE

The purpose of the Corrective Measure Study (CMS) is to develop and evaluate the corrective action alternative or alternatives and to recommend the corrective measure or measures to be taken at Respondent's facility. The Respondent will furnish the personnel, materials, and services necessary to prepare the corrective measure study, except as otherwise specified.

A. SCOPE - The Corrective Measure Study consists of the following tasks:

1. Evaluation of the Corrective Measure Alternative or Alternatives

2. Justification and Recommendation of the Corrective Measure or Measures

3. CMS Report

4. Periodic Reports

II. Evaluation of the Corrective Measure Alternative or Alternatives

The following criteria shall be used to evaluate each corrective measure alternative and its components that are evaluated for the CMS Report based on technical, environmental, human health and institutional concerns. The evaluation shall also include a cost estimate for each corrective measure.

A. Technical, Environmental, Human Health, and Institutional Factors

1. Technical

a. Performance - The Respondent shall evaluate performance based on the effectiveness and useful life of the corrective measure:

(i) Effectiveness shall be evaluated in terms of ability to perform intended functions, such as containment, diversion, removal, destruction, or

treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance criteria. Any specific waste or site characteristics which could potentially impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and,

(ii) Useful life is defined as the length of time the level of effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. Resource availability in the future life of the technology, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.

b. Reliability - The reliability of each corrective measure shall be evaluated including its operation and maintenance requirements and its demonstrated reliability:

(i) Operations and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straightforward operation and maintenance. The availability of labor and materials to meet these requirements shall also be considered; and

(ii) Demonstrated and expected reliability is a way of measuring the risk and effect of failure. The Respondent should evaluate whether the technologies have

been used effectively under analogous conditions; whether the combination of technologies have been used together effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes at the site.

c. Implementability - The Respondent shall evaluate the implementability of each corrective measure including the relative ease of installation (constructability) and the time required to achieve a given level of response:

(i) Constructability is determined by the conditions both internal and external to the facility conditions and include such items as location of underground utilities, depth to the water table, heterogeneity of subsurface materials, and location of the facility (i.e., remote location vs. congested urban area). The Respondent shall evaluate what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities; and

(ii) Time has two components that shall be addressed: the time it takes to implement a corrective measure and the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.

d. Safety - The Respondent shall evaluate each corrective measure alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well as those workers during implementation. Factors to consider are fire, explosion, and exposure to hazardous substances.

2. Environmental - The Respondent shall conduct an environmental assessment for each alternative focusing on the facility conditions and pathways of contamination actually addressed by each alternative. The environmental assessment for each alternative shall include, at a minimum, an evaluation of: the short- and long-term beneficial and adverse effects on environmentally sensitive areas and an analysis of measures to mitigate adverse effects.

3. Human Health - The Respondent shall assess each alternative in terms of the extent to which it mitigates short- and long-term potential exposure to any residual contamination and protects human health both during and after implementation of the corrective measure. The assessment shall consider the levels and characterizations of contaminants on-site, potential exposure routes, and potentially affected populations. Each alternative shall be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines acceptable to EPA.

4. Institutional - The Respondent shall assess relevant institutional needs for each alternative, including the effects of Federal, state and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative.

5. Other - The Respondent may evaluate such other factors as may be relevant in the selection of the corrective measure(s), if any, for the facility.

B. Cost Estimate

The Respondent shall develop an estimate of the cost of each corrective measure alternative (and for each phase or segment of the alternative). The cost estimate shall include both capital and operation and maintenance costs.

C. Capital costs consist of direct (construction) and indirect (nonconstruction and overhead) costs.

a. Direct capital costs include:

(i) Construction costs, i.e., costs of materials, labor, and equipment required to install the corrective measure;

(ii) Equipment costs, i.e., costs of treatment, containment, disposal and/or service equipment necessary to implement the corrective action;

(iii) Land and site development costs, i.e., expenses associated with the purchase of land and development of existing property; and

(iv) Buildings and services costs, i.e., costs of process and nonprocess buildings, utility connections, purchased services, and disposal costs.

b. Indirect capital costs include:

(i) Engineering expenses, i.e., costs of administration, design, construction supervision, drafting, and testing of corrective measure alternatives;

(ii) Legal fees and license or permit costs, i.e., administrative and technical costs necessary to obtain licenses and permits for installation and operation;

(iii) Startup and shakedown costs, i.e., costs incurred during corrective measure startup; and

(iv) Contingency allowances, i.e., funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strikes, and inadequate facility characterization.

2. Operation and Maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure.

The Respondent shall consider the following operation and maintenance cost components:

a. Operating labor costs, i.e., wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operations;

b. Maintenance materials and labor costs, i.e., costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;

c. Auxiliary materials and energy, i.e., costs of such items as chemicals and electricity for treatment plant operations, water, sewer service, and fuel;

d. Purchased services, i.e., sampling costs, laboratory fees, and professional fees for which the need can be predicted;

e. Disposal and treatment costs, i.e., costs of transporting, treating, and disposing of waste materials, such as treatment plant residues, generated during operations;

f. Administrative costs, i.e., costs associated with administration of corrective measure operation and maintenance not included under other categories;

g. Insurance, taxes, and licensing costs, i.e., costs of such items as liability and sudden accidental insurance; real estate taxes on purchased land or rights-of-way, licensing fees for certain technologies, and permit renewal and reporting costs;

h. Maintenance reserve and contingency funds, i.e., annual payments into escrow funds to cover (1) costs of anticipated replacement or rebuilding of equipment and (2) any large unanticipated operation and maintenance costs; and

i. Other costs, i.e., items that do not fit any of the above categories.

III. Justification and Recommendation of the Corrective Measure or Measures

The CMS Report shall include Respondent's recommendation, with justification, of the appropriate corrective measure alternative based upon the evaluation of the remedial alternatives. This recommendation shall include summary tables which allow comparisons of the alternative or alternatives to be easily understood. Tradeoffs among health risks, environmental effects, and other pertinent factors shall be highlighted.

IV. CMS Report

The CMS Report shall present the results of the evaluation of the corrective measure alternatives and of the justification and recommendation of the corrective measure(s) and include the recommended corrective measure alternative. The CMS Report shall include:

A. The CMS Report shall contain an update to the information describing the current conditions at the facility and the known nature and extent of contamination as documented by the RFI Report. It shall also include a facility-specific statement of the purpose for the response measures, based on the results of the RFI. The statement of purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.

B. The CMS Report shall include a statement of the corrective action objectives and an explanation of the basis for these objectives in terms of the following criteria:

1. Public health and environmental protection;

2. Information gathered during the RFI;

3. EPA Guidance; and

4. The requirements of any applicable Federal statutes.

At a minimum, all corrective actions concerning groundwater releases from regulated units must be consistent with, and as stringent as, those required under 40 C.F.R. 264.100.

C. The CMS Report shall include the initial screening of corrective measure technologies used to eliminate those technologies which have severe limitations for a given set of waste and site-specific conditions or which have inherent technology limitations. The CMS Report shall include a detailed description of how each of these technologies compare with the criteria set forth below and shall identify those technologies that, based on these criteria, are infeasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that would not achieve the corrective measure objective within a reasonable time period. The criteria are as follows:

1. Site Characteristics-- Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies the use of which are clearly precluded by site characteristics should be eliminated from further consideration.

2. Waste Characteristics-- Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by these waste characteristics should be eliminated from consideration.

3. Technology Limitations-- During the screening process, the level of technology development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to a point where they can be implemented in the field without extensive technology transfer or development.

D. The CMS Report shall include a detailed description of how Respondent used good engineering practice to develop the corrective measure alternative or alternatives based on the corrective action objectives and analysis. Technologies can be combined to form the overall corrective action alternative or alternatives. The alternative or alternatives developed should represent a workable number of option(s) that each appear to adequately address all site problems and corrective action objectives. Each alternative may

consist of an individual technology or a combination of technologies.

E. The CMS Report shall set forth in detail the evaluation of corrective action alternatives using the factors set forth in Task V, Evaluation of the Corrective Measure Alternative or Alternatives, below.

F. The CMS Report shall include the corrective measures objectives developed in accordance with paragraph B above.

G. A description of the screening of corrective measures technologies conducted pursuant to paragraph C above, including the following:

1. Review of Facility data that may limit or promote the use of certain technologies;

2. Identification of waste characteristics that limit the effectiveness or feasibility of technologies; and

3. Identification of the level of technology development, performance record, and inherent construction, operation and maintenance problems for each technology considered.

H. A description of the recommended corrective measure or measures meeting the requirements set forth in Task VI, including:

1. Description of the corrective measure or measures and rationale for selection;

2. Performance expectations;

3. Preliminary design criteria and rationale;

4. General operation and maintenance requirements; and

5. Long-term monitoring requirements.

I. A summary of the RFI and impact on the selected corrective measure or measures;

1. Field studies (groundwater, surface water, soil, air); and

2. Laboratory studies (bench scale, pilot scale).

J. Design and Implementation Precautions;

1. Special technical problems;

2. Additional engineering data required;

3. Permits and regulatory requirements;

4. Access, easements, right-of-way;

5. Health and safety requirements; and

6. Community relations activities.

K. Cost Estimates and Schedules;

1. Capital cost estimates;

2. Operation and maintenance cost estimate; and

3. Project schedule (design, construction, operation).

V. Periodic Reports

Periodic Reports will be submitted as required by the Order.

Attachment 13
SCOPE OF WORK FOR CORRECTIVE MEASURES IMPLEMENTATION (CMI)

I. INTRODUCTION - Based on the outcome of the Corrective Measures Study (CMS), the Respondent is responsible for the design, construction. implementation, and continued performance monitoring of a corrective action at the Facility. The selected corrective action must be implemented and maintained until the corrective action objectives and the conditions of the Order for Termination and Satisfaction have been met.

A. Purpose - The purpose of the Corrective Measures Implementation (CMI) is to operate, maintain and monitor the performance of the corrective measure selected by EPA for implementation by Respondent at the Facility.

B. Scope - Submittals required for the CMI include:

1. CMI Workplan
2. Operation and Maintenance (O & M) Plan
3. Corrective Measures Implementation Report
4. Corrective Measure Completion Report (CMCR)
5. Progress Reports.

II. CMI WORKPLAN - The CMI Work Plan shall contain the following elements:

A. Introduction/Purpose - Describe the purpose of the document and provide a summary description of the project. Elements of this description shall include:

1. Summary of the corrective action objectives;
2. Description of the corrective measure or measures and rationale for selection;
3. Performance expectations;
4. Preliminary design criteria and rationale;
5. General operation and maintenance requirements;

6. Long term monitoring requirements;

7. Design and implementation precautions to include but not limited to:

   a. Special technical problems;

   b. Additional engineering data required;

   c. Permits and regulatory requirements; and

   d. Access, easements, right-of-way.

8. Cost estimates, including the capital and O & M costs.

B. Project Management Plan - Describe the construction management approach including levels of personnel authority and responsibility (including an organization chart), lines of communication and the qualifications of key personnel who will direct the corrective measure construction effort and provide construction quality assurance/quality control (including contractor personnel).

C. Project Schedule - The project schedule must include timing for key elements of the bidding process, timing for initiation and completion of all major corrective measure construction tasks, and specify when the Construction Implementation Report is to be submitted to EPA.

D. Construction Quality Assurance/Quality Control Plan - The purpose of construction quality assurance is to ensure, with a reasonable degree of certainty, that a completed corrective measure will meet or exceed all design criteria, plans, and specifications. The CMI Work Plan must include a Construction Quality Assurance Plan to be implemented by Respondent.

E. Waste Management Procedures - Describe the wastes generated by construction of the corrective measure and how they will be managed.

F. Contingency Procedures - General contingency procedures to be described in the text of the CMI Work Plan include the following:

1. Changes to the design and/or specifications may be needed during construction to address unforeseen problems encountered in the field. Procedures to address such circumstances, including notification of EPA, must be included;

2. The CMI Work Plan must specify that, in the event of a construction emergency (e.g., fire, earthwork failure, etc.), Respondent shall orally notify EPA within 24 hours of the event and will notify EPA in writing within 72 hours of the event. The written notification must, at a minimum, specify what happened, what response action is being taken and/or is planned, and any potential impacts on human health and/or the environment;

3. Procedures to be implemented if unforeseen events prevent corrective measure construction; and

4. List of all emergency contacts (including Phone numbers).

G. Data Management and Documentation Requirements - The O&M Plan shall specify that Respondent collect and maintain the following information:

1. Progress Report Information;

2. Monitoring and laboratory data;

3. Records of operating costs; and

4. Personnel, maintenance and inspection records.

This data and information should be used to prepare Progress Reports and the Corrective Measure Completion Report (CMCR).

H. Quality Assurance Project Plan\Sampling and Analysis Plan - Sampling and monitoring activities may be needed for effective operation and maintenance of the corrective measure. To ensure that all information, data and resulting decisions are technically sound, statistically valid, and properly documented, Respondent shall prepare a Quality Assurance Project Plan (QAPP)/Sampling and Analysis Plan (SAP) to document all monitoring procedures, sampling, field measurements and sample analyses performed during these activities. Respondent shall use EPA-approved

procedures described in the EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations (EPA QA/R-5).

I. **Health and Safety Plan** - Respondent shall submit to EPA a Health and Safety Plan for all field activity, although it does not require review and approval by EPA. The Health and Safety Plan shall be developed as a stand alone document but may be submitted with the CMI Workplan. The Health and Safety Plan must, at a minimum, comply with all applicable Occupational Safety and Health Act (OSHA) requirements.

III. OPERATION & MAINTENANCE PLAN

Respondent shall prepare an O&M Plan that outlines procedures for performing operations, long-term maintenance and monitoring of the corrective measure.
The O&M plan shall, at a minimum, include the following elements:

A. **Introduction/Purpose** - Describe the purpose of the document and provide a summary description of the project.

B. **Corrective Action Objectives** - Discuss the corrective action objectives including applicable media cleanup standards.

C. **Project Management** - Describe the management approach including levels of personnel authority and responsibility (including an organizational chart), lines of communication and the qualifications of key personnel who will operate and maintain the corrective measures (including contractor personnel).

D. **System Description** - Describe the corrective measure and identify significant equipment, as applicable. Provide schematics or process diagrams to illustrate system design and operation.

E. **Personnel Training** - Describe the training process for O&M personnel, as applicable. Respondent shall prepare, and include in the technical specifications governing treatment systems, the contractor requirements for providing: appropriate service visits by experienced personnel to supervise the installation, adjustment, start-up and operation of the treatment systems, and training covering appropriate operational

procedures once the start-up has been successfully accomplished.

F. Start-Up Procedures - Describe all applicable system start-up procedures including any operational testing.

G. Operation and Maintenance Procedures - Describe normal operation and maintenance procedures including:

1. A description of tasks for operation;

2. A description of tasks for maintenance;

3. A description of prescribed treatment or operation conditions; and

4. A schedule showing the frequency of each O&M task.

H. Replacement Schedule for Equipment and Installed Components.

I. Waste Management Practices - Describe any wastes which may be generated by operation of the corrective measure and how they will be managed.

J. Corrective Measure Completion Criteria - Describe the process and criteria for determining when corrective measures have achieved corrective action objectives. Also describe the process and criteria for determining when maintenance and monitoring may cease. Satisfaction of the completion criteria will trigger preparation and submittal of the CMCR.

K. Contingency Procedures - Describe, as applicable, the following types of contingency procedures necessary to ensure system operation in a manner protective of human health and the environment:

1. Procedures to address system breakdowns and operational problems including a list of redundant and emergency back-up equipment and procedures;

2. Alternate procedures to be implemented if the corrective measure suffers complete failure. The alternate procedures must be able to prevent release or threatened releases of hazardous wastes or constituents which may endanger human health or the environment or exceed media cleanup standards;

3. The O&M Plan shall specify that, in the event of a major breakdown and/or the complete failure of the corrective measure, Respondent shall orally notify EPA within 24 hours of the event and will notify EPA in writing within 72 hours of the event. Written notification must, at a minimum, specify what happened, what response action is being taken and/or is planned, and any potential impacts on human health and/or the environment; and

4. Procedures to be implemented in the event that the corrective measure is experiencing major operational problems, is not performing to design specifications and/or will not achieve the cleanup goals in the expected time frame.

If contingencies require modification of the corrective measure in a substantive fashion which also requires physical alteration of the monitoring or remediation equipment, a Construction Work Plan shall be submitted by Respondent upon receipt of a written request for the submittal from EPA. The Construction Workplan shall provide all information necessary to describe the proposed modification to the corrective measure and provide justification for the necessity of the proposed activities to the overall corrective measure effectiveness.

IV. CORRECTIVE MEASURES IMPLEMENTATION REPORT

The purpose of the CMI Report is to document the construction and implementation of the corrective measure at the Facility. Following completion of the activities directed by the approved Construction Workplan, Respondent shall submit a Construction Completion Report which shall consist of the following:

A. Purpose;

B. Synopsis of the corrective measure, design criteria, and certification that the corrective measure was constructed in accordance with the Final Plans and Specifications;

C. Explanation and description of any modifications to the Final CMI Work Plans and Specifications and why these were necessary for the project;

D. Results of any operational testing and/or monitoring, indicating how initial operation of the corrective measure compares to the design criteria;

E. Summary of significant activities that occurred during construction. Include a discussion of problems encountered and how they were addressed;

F. Summary of all inspection findings (including copies of key inspection documents in appendices); and

G. As built drawings or photographs.

V. CORRECTIVE MEASURES COMPLETION REPORT

A. Respondent shall prepare a CMCR when Respondent believes that the corrective measure completion criteria have been satisfied. The purpose of the CMCR is to fully document how the corrective action objectives and corrective measure completion criteria have been satisfied, and to justify why the corrective measure and/or monitoring may cease. The CMCR shall, at a minimum, include the following elements:

1. Synopsis of the corrective measure;

2. Corrective Measure Completion Criteria: Describe the process and criteria for determining when the corrective measure and maintenance and monitoring may cease. Corrective measure completion criteria were given in the EPA-approved O&M Plan;

3. Demonstration that the completion criteria have been met. Include results of testing and/or monitoring, indicating how operation of the corrective measure compares to the completion criteria;

4. Summary of work accomplishments (e.g., performance levels achieved, total hours of treatment operation, total treated and/or excavated volumes, nature and volume of wastes generated, etc.);

5. Summary of significant activities that occurred during operations. Include a discussion of problems encountered and how they were addressed;

6. Summary of inspection findings (including copies of key inspection documents in appendices); and

7. Summary of total operation and maintenance costs.

VI. PROGRESS REPORTS

Respondent shall provide at a minimum quarterly progress reports on the design, construction, implementation, and operation of the corrective measure at the Facility. Quarterly Progress Reports shall contain the following information to allow the EPA to monitor the progress of the cleanup.

A. A description and estimate of the percentage of the corrective measure construction completed.

B. A description of significant activities (e.g., sampling events, inspections, etc.) and work completed/work accomplishments (e.g., performance levels achieved, hours of treatment operation, treated and/or excavated volumes, concentration of contaminants in treated and/or excavated volumes, nature and volume of wastes generated, etc.) during the reporting period;

C. Summaries of all changes made in the corrective measure construction during the reporting period;

D. Summary of system effectiveness. Provide a comparison of system operation to predicted performance levels (applicable only during operation of the corrective measure);

E. Summaries of all contacts with representatives of the local community, public interest groups Federal or State government during the reporting period;

F. Summaries of all findings (including any inspection results);

G. Summaries of all problems or potential problems encountered during the reporting period;

H. Actions being taken and/or planned to rectify problems;

I. Changes in personnel during the reporting period;

J. Projected work for the next reporting period; and

K. The results of any sampling tests and/or other data generated during the reporting period, as well as

copies of the raw data, field logs, etc. which were used to compile those results.

L. Following completion of the corrective measure construction, at the EPA's discretion, it may reduce the frequency of progress reporting to semi-annual or annual reports only. The frequency of reporting shall be proposed in the O & M Plan, and approved by letter from the EPA to the facility.

Attachment 14
Environmental Management System (EMS) /
Environmental Compliance Management System (ECMS)
Implementation Protocol

Nucor will develop and implement an Environmental Management System/Environmental Compliance Management System (EMS/ECMS) that meets the criteria and schedule set out below.

A. Definitions

(These definitions apply only to the EMS provision of this Consent Decree.)

"Action Plan" shall mean a comprehensive plan for bringing each facility covered by this Consent Decree into full conformance with the EMS provisions specified in this Section and fully addressing all Audit Findings identified in the Audit Report.

"Audit Finding" means a written summary of all instances of significant non-conformance with the comprehensive EMS developed pursuant to this Section noted during the EMS Audit, and all significant areas of concern identified during the course of the audit that, in the Consultant Auditor's judgement, merits further review or evaluation for potential EMS, environmental, or regulatory impacts.

"Audit Report" means a report setting forth the Audit Findings resulting from the audit of a facility by the Consultant Auditor, which meets all of the requirements set forth in this Section.

"Consultant Auditor" means the independent third-party hired by Nucor and approved by EPA to conduct EMS Audits at Nucor Facilities, as required by this Section, and who meets the requirements set forth in Paragraph 11.

"Corrective Measures" means those measures or actions appropriate to bring the facility into full conformance with the comprehensive EMS required by this Section.

"EMS Audit" means an audit of the EMS at a Nucor facility to determine whether it conforms to (a) the "NEIC Compliance-Focused Environmental Management System Elements" contained in Attachment 15, and (b) Nucor's own specifications for the EMS as contained in the facility's EMS Manual. Nucor may demonstrate through a matrix that each of the "Environmental Management System

Elements" in the Attachment correlate to an element of the Nucor EMS.

"EMS Development Plan" means a facility-specific plan for developing the EMS at each Nucor facility, including a plan for developing documents and a schedule for implementing tasks, with cross-references to the "EMS Elements" contained in Attachment 15.

"EMS Manual" means a paper and/or electronic compilation of documentation and information for each facility's comprehensive EMS; the Manual may include a computer based integrated information system.

"Environmental Requirements" means all applicable Federal, State, and local environmental statutes and regulations, including permits and enforceable agreements between Nucor and the respective environmental regulatory agency(ies).

"Initial Auditor(s)" means individual(s) meeting the requirements of Paragraph 5 below, who are selected and/or contracted to perform the Initial EMS Review and Evaluation.

"Initial Review and Evaluation" means an initial audit and assessment of current environmental management practices to identify and assess potential gaps between current practices and at least the key EMS elements listed in Attachment 15.

"On-Site Contractor" to be covered by the program includes any contractor who has operations located at the facility or who provides services at the facility (for example, asbestos removal, demolition, painting, waste handling, and construction) which may be associated with significant environmental impacts.

B. Environmental Management System Requirements

1. Within 90 days of entry of this Consent Decree, Nucor shall develop an EMS Implementation Plan and submit the plan to EPA for review and approval pursuant to Section XII (Agency Approval). The EMS Implementation Plan shall identify individuals (by position) who are responsible for EMS implementation at corporate and facility levels and their respective responsibilities and authorities. The plan shall also contain an implementation schedule with milestones for each Nucor facility covered. At a minimum, the milestones shall cover:

a. Completion of an Initial Review and Evaluation of the current environmental management practices at each Nucor;

b. Completion of initial plans for development of implementing documents and tasks (hereafter, EMS Development Plan) for each Nucor facility; and

c. A schedule for completing all EMS Development Plan work and tasks at each Nucor facility within 36 months after this Consent Decree is lodged.

2. Within 12 months of entry of this Consent Decree, Nucor shall develop and implement (through the first internal review and validation cycle) an EMS as a pilot at its facility in Berkeley/Hugar, South Carolina, and the Vulcraft facility at Norfolk, Nebraska. Nucor agrees that the Berkeley mill is generally representative of all Nucor EAF operations and that the Vulcraft facility in Norfolk, Nebraska, is generally representative of all Vulcraft plants so that the results of these pilots will have company-wide applicability. The purpose of each EMS shall be to promote compliance with all environmental requirements and enhance environmental performance. Each EMS shall, at a minimum, cover the key elements listed in Attachment 15 (NEIC Compliance-Focused Environmental Management System Elements).

3. Within 16 months after entry of this Consent Decree, Nucor will hold a workshop for appropriate personnel and managers from all facilities covered by this Consent Decree to share the experiences of the pilot EMSs and to enable more efficient implementation at the other steel mills and Vulcraft facilities.

4. Within 36 months of entry of this Consent Decree, Nucor shall implement a comprehensive EMS for each of the remaining Nucor facilities covered by this Consent Decree in accordance with each EMS Development Plan. The purpose of each EMS shall be to promote compliance with all environmental requirements and enhance environmental performance. Shall be developed as described in the following paragraphs.

5. In accordance with the schedule established in the approved EMS Implementation Plan, Nucor shall conduct an Initial Review and Evaluation of current environmental management practices at each Nucor facility. A team of at least three (3) Initial Auditors shall conduct each initial Review and Evaluation. At least one auditor on the team will possess the education and experience qualifications for environmental auditors set out in ISO 14012. The team of Initial Auditors will also include one or more other reviewers qualified on the basis of technical or regulatory expertise to adequately evaluate the EMS. The following information concerning the team shall be included in the EMS Implementation Plan: (a) the name, affiliation and address of the Initial Auditor(s) selected by

Nucor to conduct the Initial EMS Review and Evaluation; (b) evidence that one or more Initial Auditor(s) satisfies the qualification requirements of ISO 14012 (First edition, 1996-10-01); and (c) that the team conducting the Initial EMS Review and Evaluation, in composite, has a working process knowledge of the Nucor facility being audited or similar operations and has a working knowledge of applicable Federal and State environmental requirements. The results of the Initial Review and Evaluation shall be documented in a report prepared by the Initial Auditors and provided to Nucor and, at the Agency's request, to EPA.

6. Within 18 months after entry of the Consent Decree, Nucor shall prepare an EMS Development Plan for each facility, based on information gathered during the Initial Review and Evaluation and other pertinent information. Each EMS Development Plan shall follow a consistent format. Nucor shall submit each Development Plan to EPA within 30 days of its completion, and the Agency may submit any comments to be considered by Nucor within 60 days of receipt. The submittal shall be in both paper hard copy and a mutually agreeable electronic format.

7. Within 21 months after entry of this Consent Decree, Nucor shall begin to implement the EMS Development Plans at all Nucor facilities covered by the Consent Decree in accordance with the EMS Implementation Plan.

8. Within 24 months after entry of this Consent Decree, Nucor shall complete an EMS Manual for each facility covered by the Consent Decree. Each EMS Manual shall describe respective management systems, subsystems, and tasks in detail and shall be organized to clearly address the key elements of the Nucor EMS, which are correlated to the EMS elements listed in Attachment 10. Each manual shall describe how each of the activities and programs correlating to the elements in Attachment 15 is: (a) established as a formal system, subsystem or task; (b) integrated into ongoing department operations; and (c) continuously evaluated and improved.

9. In accordance with the schedule contained in the EMS Implementation Plan, but not later than 36 months after this Decree is entered with the Court, Nucor shall complete all work and tasks identified in the EMS Development Plans and implement comprehensive EMSs at all Nucor Facilities covered by this Consent Decree.

C. EMS Audit Program Requirements

10. Nucor shall develop and implement a two-year EMS Audit program to assess whether an effective EMS has been implemented

at each Nucor facility covered by this Consent Decree. This audit program shall commence within 36 months of the entry of this Consent Decree, but no later than January 1, 2004, and all audits shall be completed by December 31, 2005.

11. Within 30 months of the entry of this Consent Decree, Nucor shall propose the names of at least one qualified independent auditing firm for EPA approval as the EMS Consultant Auditor team for Nucor facilities. A team of at least three Auditors shall conduct each EMS Audit. To be qualified, each audit team must meet the following criteria: (a) the auditors cannot have been involved in the Initial EMS Review and Evaluation; (b) at least the lead auditor must meet the qualification requirements of ISO 14012 (First edition, 1996-10-01); (c) the audit team in composite must have expertise and competence in the applicable regulatory programs under Federal and State environmental laws; (d) no audit team member may directly own any stock in Nucor or in any parent or subsidiary organization; (e) no audit team member may have any other direct financial stake in the outcome of the EMS Audit conducted pursuant to this Consent Decree; and (f) each audit team member must be capable of exercising the same independent judgment and discipline that a certified public accounting firm would be expected to exercise in auditing a publicly held corporation. The Consultant Auditor team shall be paid by Nucor in an amount sufficient to fully carry out the provisions of this Consent Decree. If Nucor has any other contractual relationship or potential conflict of interest with the Consultant Auditor team, Nucor shall disclose to EPA such past or existing contractual relationships or conflict. EPA shall notify Nucor in writing of its approval or disapproval as expeditiously as possible.

12. If EPA determines that the proposed Consultant Auditor team does not meet the qualifications, or that past or existing relationships with the Consultant Auditor team would affect any Consultant Auditor's ability to exercise the independent judgment and discipline required to conduct the EMS Audit, such Consultant Auditor shall be disapproved and Nucor shall propose another Consultant Auditor within 30 days of Nucor's receipt of EPA's determination.

13. Nucor shall identify any and all site-specific safety precautions and/or training requirements for the Consultant Auditors, and shall ensure that the precautions are taken and requirements are met prior to conducting EMS Audits of Nucor facilities.

14. Nucor shall require a Consultant Auditor team to conduct an EMS Audit at each Nucor facility to evaluate the adequacy of

EMS implementation, from top management down, throughout each major organizational unit at the facility, and to identify where further improvements should be made to the EMS. Each EMS Audit shall be conducted in accordance with ISO 14011 (First edition, 1996-10-01), using ISO 14010 (First edition, 1996-10-01) as supplemental guidance. Each audit team shall designate a qualified Lead Auditor. The Consultant Auditor team shall assess conformance with the EMS Manual and shall determine the following:

a. Whether there is a defined system, subsystem, program, or planned task for each EMS element listed in Attachment 15;

b. To what extent the system, subsystem, program, or task has been implemented, and is being maintained;

c. Adequacy of each Operation's internal self-assessment procedures for programs and tasks composing the EMS;

d. Whether Nucor is effectively communicating environmental requirements to affected parts of the organization, contractors and on-site service providers;

e. Whether further improvements should be made to the EMS;

f. Whether there are observed deviations from Nucor's EMS requirements or procedures; and

g. Whether continuous improvement is occurring.

15. Nucor shall require the Consultant Auditor team to develop and follow an EMS Audit Plan for each EMS Audit conducted pursuant to this Consent Decree, which incorporates the requirements in the above paragraph.

16. Designated representatives from EPA and other environmental regulatory agencies shall be permitted to participate in the EMS Audit as observers. Nucor shall make timely notification to designated regulatory contacts regarding audit scheduling in order to make arrangements for observers to be present. One or more Nucor representatives with a comprehensive understanding of the EMS will accompany the audit team to assist the team in understanding how the EMS works and applies to specific operations and employees. Other Nucor representatives may also participate in the on-site audits as an observer(s), but may not interfere with the independent judgment of the Consultant Auditing team.

17. Within 60 days of the completion of the on-site portion of each EMS Audit, Nucor shall direct the Consultant Auditor team to develop and submit an Audit Report concurrently to Nucor and EPA. The Audit Report shall present the Audit Findings and shall, at a minimum, contain the following information:

a. Audit scope, including the period of time covered by the audit;

b. The date(s) the on-site portion of the audit was conducted;

c. Identification of audit team members;

d. Identification of Nucor representatives and regulatory agency personnel observing the audit;

e. The distribution for the EMS Audit Report;

f. A summary of the audit process, including any obstacles encountered;

g. Detailed Audit Findings, including the basis for each finding and each Area of Concern identified;

h. Identification of any Audit Findings corrected or Areas of Concern addressed during the audit, and a description of the corrective measures and when they were implemented; and

i. Certification by the Consultant Auditor that the EMS Audit was conducted in accordance with the provisions of this Decree.

18. If the Consultant Auditor team believes that additional time is needed to analyze available information or to gather additional information, Nucor may request that EPA grant the Consultant Auditor team such additional time as needed to prepare and submit the Audit Report. EPA's decision whether to grant additional time shall be final.

19. Follow-Up Corrective Measures. Upon receiving each Audit Report, Nucor shall conduct a root cause analysis of the significant Audit Findings, as appropriate, and investigate all significant areas of concern. Within 60 days of receiving the Audit Report for each facility, Nucor shall develop an Action Plan for fully addressing all significant areas of concern and expeditiously bringing the facility into full conformance with the EMS provisions of this Decree and the EMS Manual. The Action Plan shall include the result of any root cause analysis,

specific deliverables, responsibility assignments, and an implementation schedule. Nucor shall implement the Action Plan in accordance with the schedules set forth therein.

D. EMS Reporting

20. Nucor shall submit semi-annual progress reports to EPA summarizing progress made in developing and implementing EMSs at each Nucor facility covered by this Consent Decree. Progress reports shall be submitted to EPA within thirty (30) days after the last day of June and December of each calendar year commencing in 2001 until all required EMS activities are completed.

21. The progress reports, as appropriate, shall contain a summary of how EMSs are being developed and implemented in accordance with this Section and shall include the following information for each Nucor facility:

a. Estimated number of procedures that require documentation in the EMS;

b. Number of procedures that have been documented and the unit operation they cover; and

c. Description of other tasks or activities related to EMS implementation completed during the reporting period.

22. The progress reports shall also contain information on the EMS Audits required by this Section. The progress reports, as appropriate, shall contain an EMS Audit schedule for the next six-month reporting period, indicating the month during which the EMS Audit will be conducted at each Nucor facility. The schedule may be revised by Nucor provided the required EMS Audits are conducted in accordance with this Consent Decree. The progress report shall list the dates and locations at which required EMS Audits were conducted during the reporting period, the names and affiliations of personnel who conducted each audit, and the date the Action Plan was approved by Nucor management. The progress report, as appropriate, shall also contain a copy of the certification by the Consultant Auditor, from audit reports completed during the reporting period, that the required audits were conducted in accordance with the provisions of this Decree.

E. ENVIRONMENTAL METRICS

23. Nucor shall collect data on the Environmental Metrics listed below for each Nucor facility on an annual basis for the purpose of measuring the impacts of implementation of the EMS. Within 90 days after entry of this Consent Decree, Nucor shall

propose detailed monitoring parameters and reporting format to EPA for review and approval. Any revisions required by EPA shall be incorporated by Nucor within 14 days of final communication by EPA. Environmental Metrics will be developed for the following:

a. Spills and Accidental Releases

Number, contents and volume or mass of internally reported, documented chemical (including petroleum) spills and accidental releases, and whether they exceed a state or federal Reportable Quantity.

b. Permit Exceedances

Number of instances when actual compliance monitoring data results exceed reporting limits established in applicable state or federal permits or standards.

c. Toxic and Pollutant Releases

Using 1999 as a base year, TRI, emission (air) and discharge (wastewater) loading data will be normalized to annual throughput or production. Releases to land will be further analyzed to account separately for slag and other materials (e.g., non-hazardous solid waste going to landfills).

d. Hazardous Waste Generation

Utilizing data from Biennial Reports and Hazardous Waste Manifests, volumes of hazardous wastes generated will be normalized to annual throughput or production.

e. Recycling

Utilizing TRI data and production records, (e.g., in-process materials, solid wastes, hazardous wastes, process water, or storm water) recycling rates will be normalized to annual throughput or production.

f. Water and Energy Usage

Consumption of electricity, thermal energy (e.g., natural gas, petroleum, etc.) and fresh water, normalized to annual throughput or production and other factors (e.g., scrap grade).

F. EMS Reporting

24. Nucor shall submit semi-annual progress reports to EPA summarizing progress made in developing and implementing EMSs at each Nucor facility covered by this Decree. Progress reports shall be submitted to EPA within thirty (30) days after the last day of June and December of each calendar year commencing in 2001 until all required EMS activities are completed.

25. The progress reports, as appropriate, shall contain a summary of how EMSs are being developed and implemented in accordance with this Section and shall include the following information for each Nucor facility:

a. Estimated number of procedures that require documentation in the EMS;

b. Number of such procedures that have been documented and the unit operations they cover; and

c. Description of other tasks or activities related to EMS implementation completed during the reporting period.

26. The progress reports shall also contain information on the EMS Audits required by this Section. The progress reports, as appropriate, shall contain an EMS Audit schedule for the next six-month reporting period, indicating the month during which the EMS Audit will be conducted at each Nucor facility. The schedule may be revised by Nucor provided the required EMS Audits are conducted in accordance with this Consent Decree. The progress report shall list the dates and locations at which required EMS Audits were conducted during the reporting period, the names and affiliations of personnel who conducted each audit, and the date the Action Plan was approved by Nucor management. The progress report, as appropriate, shall also contain a copy of the certification by the Consultant Auditor, from audit reports completed during the reporting period, that the required audits were conducted in accordance with the provisions of this Decree.

27. The progress reports due within 30 days after the end of June, as appropriate, shall include the data or summaries of the data collected during the previous calendar year for the Environmental Metrics, as required by this Section.

Attachment 14-A
Design for Environment
General Analytical Protocol

A. Introduction

Presented below is a protocol for the Design for Environment (DfE) program by which the Company will assure that all material changes in equipment or operations are implemented, based on appropriate analysis and consideration of the implications of design and technology selections as they relate to environmental and natural resource impacts, so as to optimize performance from that perspective.

B. Objectives

The DfE program is a systematic way of assuring that whenever there is a material alteration of a production unit or system, that the alteration is designed taking into account the significant environmental and natural resource aspects and impacts involved, the technically and economically feasible alternative approaches that are available or that may be designed, the product quality that the Company must maintain and other significant production and market-response factors.

The result of this multiple-factor analysis will be production processes, control technologies, and/or work practices that achieve an optimal balance of production, quality and environmental control that also meets the requirements of regulation and relevant markets.

C. Approach

The DfE program will focus on designing steel mini-mill production processes to maximize recycling efficiency while minimizing their potential adverse environmental impacts. The DfE program will also take into account upstream and downstream environmental effects.

While the DfE program could operate as a stand-alone program, the Nucor DfE program, in conjunction with the Operate for Environment (OfE) program, will serve as the technical foundation for the Nucor Environmental Management System (EMS). The DfE component of the Nucor EMS will enhance the ability of the EMS over time to mitigate impacts with technology that presently may not be viable but, in the future may become viable.

The evaluation of "reasonable" alternatives will be a key element of the DfE approach. Some alternatives can be eliminated at an early level of review as clearly failing to meet threshold feasibility criteria (such as relocating a facility outside of the target market instead of using a different site within the target market). The "reasonable" alternatives will be evaluated more closely for economic feasibility, technical feasibility, operational performance, operational feasibility and environmental performance.

Like other broadly applicable analytical tools -- such as life-cycle analysis, cost-benefit analysis, and risk assessment -- at its core, the DfE approach is a common-sense conceptual paradigm, that needs to be adapted to the demands of the issue at hand. A "coarse screen" level of analysis is appropriate for lower impact changes; a more detailed inquiry would be appropriate for changes that may involve significant impacts. The first principle in maximizing the usefulness of the DfE approach is to set and maintain the appropriate level of analysis.

D. Who performs the analysis

The DfE analysis will be conducted by Nucor technical and operations experts in conjunction with external experts as appropriate. As part of the EMS, the DfE approach assures that units are upgraded when physical changes occur.

E. Steps in DfE Analysis

As indicated above, the level of detail in the DfE factor-analysis will be proportionate to the potential environmental impact associated with the planned change. The analysis includes the following steps:

1. Determine whether the action in question meets the "significance" threshold for initiating the DfE analysis. The threshold may be defined in terms of investment dollars, expected change in emissions, or other relevant regulatory and operational variables. This approach will be consistent with the Nucor EMS approach to evaluating significant environmental aspects and impacts.

2. Define the objective of the project and the scope of the unit operation to be considered.

3. Review available options for meeting the objective within the scope of the unit operation to be considered. Options include:

    a. Technology in use in the industry;
    b. Practices in use in the industry;
    c. Substitute materials available;
    d. Technology in use in other industries that could be adapted to use in mini-mills;
    e. Practices in use in other industries that could be adapted to use in mini-mills;
    f. Potential for implementation of developing technology as appropriate; and

g. Demonstration projects to test technologies and/or practices that may be effective.

4. Determine the optimum approach to achieve objectives - operational and environmental. This may involve conducting a project/feasibility analysis (to be done by internal or external technical personnel) to assess options, develop recommendations, or evaluate a decision. For new equipment and modernization of existing equipment, the DfE factor analysis will include the following technical, economic and regulatory considerations:

a. Overall effectiveness in reducing environmental impacts (on site and off site emissions per ton)

b. Efficiency of control (energy or other resource consumed per unit of emissions reduction)

c. Reliability/availability of control (impact or down-time, start-up, shut-down, etc.)

d. Capital cost

e. Impact on production

f. Impact on product quality

g. Impact on recycling efficiency

h. Impact on pollution prevention efficiency

i. Impact on disposal cost

j. Impact on near-term and long-term scheduling and options

k. Regulatory implications

l. Market location and viability

m. Employee health and safety issues

n. Other aspects & impacts peculiar to circumstances

5. Analysis of these factors may be performed in accordance with an algorithm such as the following:

Identify Impact
What Affects the Impact?

Equipment	Raw Materials	Operating Practice	Physical Layout	Control Technology
Other Types	What is available	Need new procedure	Can something be changed?	Evaluate all types
Evaluate Each "Reasonable" Alternative				
Implement Appropriate Alternatives				

6. Select a vendor. The company may issue an Request for Proposal (RFP)/Request for Quote (RFQ). The RFP/RFQ may contain target criteria with respect to environmental performance when appropriate.

7. Consult with EPA. Nucor will consult with EPA on changes that, as a discrete modification, would result in an increase in Potential To Emit (PTE) that would trigger New Source Review (NSR)/Prevention of Significant Deterioration (PSD)/Best Available Control Technology (BACT) review.

G. Implement conclusions.

The final stage of the DfE analysis will include implementation of the those findings that are appropriate in light of the analysis. For major DfE analyses, Nucor will produce a report of the analysis, the alternatives implemented.

H. Integrate with Operate for Environment (OfE) program.

As part of the OfE module of its EMS, Nucor will develop and implement operating procedures as appropriate for the equipment or systems put in place through the DfE program to see that objectives are achieved.

I. Reporting.

1. External reporting. The Company will notify the relevant permitting authority of material changes made in accordance with legal requirements so that the agencies are informed of current operating scenarios. Administrative permit amendments may be appropriate in some instances.

2. Internal reporting. Facilities will provide results of DfE analysis to the Corporate Environmental General Manager for review and approval and for posting on the Company intranet for reference by other facilities as appropriate.

J. Environmental Performance Reporting.

Divisions will evaluate environmental performance of operational changes determined through the DfE process and will include results with the DfE analysis as an amendment. Reporting may also be required to the relevant Agencies.

Attachment 15
NEIC Compliance-Focused
Environmental Management System Elements

A. Environmental Policy

This policy, upon which the Environmental Management System (EMS) is based, must clearly communicate management commitment to achieving compliance with applicable federal, state, and local environmental statutes, regulations, enforceable agreements, and permits (hereafter, "environmental requirements") and continuous improvement in environmental performance. The policy should also state management's intent to provide adequate personnel and other resources for the EMS.

B. Organization, Personnel, and Oversight of EMS

1. Describes, organizationally, how the EMS is implemented and maintained.

2. Includes organization charts that identify units, line management, and other individuals having environmental performance and regulatory compliance responsibilities.

3. Identifies and defines duties, roles, responsibilities, and authorities of key environmental program personnel in implementing and sustaining the EMS (e.g., could include position descriptions and performance standards for all environmental department personnel, and excerpts from others having specific environmental program and regulatory compliance responsibilities).

4. Includes ongoing means of communicating environmental issues and information to all organization personnel, on-site service providers, and contractors, and for receiving and addressing their concerns.

C. Accountability and Responsibility

1. Specifies accountability and responsibilities of organization's management, on-site service providers, and contractors for environmental protection practices, assuring compliance, required reporting to regulatory agencies, and corrective actions implemented in their area(s) of responsibility.

2. Describes incentive programs for managers and employees to perform in accordance with compliance policies, standards and procedures.

3. Describes potential consequences for departure from specified operating procedures, including liability for civil/administrative penalties imposed as a result of noncompliance.

D. Environmental Requirements

1. Describes process for identifying, interpreting, and effectively communicating environmental requirements to affected organization personnel, on-site service providers, and contractors, and ensuring that facility activities conform to those requirements. Specifies procedures for prospectively identifying and obtaining information about changes and proposed changes in environmental requirements, and incorporating those changes into the EMS.

2. Establishes and describes processes to ensure communication with regulatory agencies regarding environmental requirements and regulatory compliance.

E. Assessment, Prevention, and Control

1. Identifies an ongoing process for assessing operations, for the purposes of preventing and controlling releases, ensuring environmental protection, and maintaining compliance with statutory and regulatory requirements. This section shall describe monitoring and measurements, as appropriate, to ensure sustained compliance. It shall also include identifying operations and waste streams where equipment malfunctions and deterioration, operator errors, and discharges or emissions may be causing, or may lead to: (1) releases of hazardous waste or other pollutants to the environment, (2) a threat to human health or the environment, or (3) violations of environmental requirements.

2. Describes process for identifying operations and activities where documented standard operating practices (SOPs) are needed to prevent potential violations or pollutant releases, and defines a uniform process for developing, approving and implementing the SOPs.

3. Describes a system for conducting and documenting routine, objective, self-inspections by department supervisors and trained staff, especially at locations identified by the process described in E.1. above.

4. Describes process for ensuring input of environmental requirements (or concerns) in planning, design, and operation of ongoing, new, and/or changing buildings, processes, maintenance activities, and products.

F. Environmental Incident and Noncompliance Investigations

1. Describes standard procedures and requirements for internal and external reporting of potential violations and release incidents.

2. Establishes procedures for investigation, and prompt and appropriate correction of potential violations. The investigation process includes root-cause analysis of identified problems to aid in developing the corrective actions.

3. Describes a system for development, tracking, and effectiveness verification of corrective and preventative actions.

4. Each of these procedures shall specify self-testing of such procedures, where practicable.

G. Environmental Training, Awareness, and Competence

1. Identifies specific education and training required for organization personnel, as well as process for documenting training provided.

2. Describes program to ensure that organization employees are aware of its environmental policies and procedures, environmental requirements, and their roles and responsibilities within the environmental management system.

3. Describes program for ensuring that personnel responsible for meeting and maintaining compliance with environmental requirements are competent on the basis of appropriate education, training, and/or experience.

H. Environmental Planning and Organizational Decision-Making

1. Describes how environmental planning will be integrated into organizational decision-making, including plans and decisions on capital improvements, product and process design, training programs, and maintenance activities.

2. Requires establishing written targets, objectives, and action plans by at least each operating organizational sub-unit with environmental responsibilities, as appropriate, including

those for contractor operations conducted at the facility, and how specified actions will be tracked and progress reported. Targets and objectives must include achieving and maintaining compliance with all environmental requirements.

I. Maintenance of Records and Documentation

1. Identifies the types of records developed in support of the EMS (including audits and reviews), who maintains them and where, and protocols for responding to inquiries and requests for release of information.

2. Specifies the data management systems for any internal waste tracking, environmental data, and hazardous waste determinations.

J. Pollution Prevention Program

Describes an internal program for preventing, reducing, recycling, reusing, and minimizing waste and emissions, including procedures to encourage material substitutions. Also includes mechanisms for identifying candidate materials to be addressed by program and tracking progress.

K. Continuing Program Evaluation and Improvement

1. Describes program for periodic (at least annually) evaluation of the EMS, including incorporating the results of the assessment into program improvements, revisions to the manual, and communicating findings and action plans to affected employees, on-site service providers, and contractors.

2. Describes a program for ongoing evaluation of facility compliance with environmental requirements, and should specify periodic compliance audits by an independent auditor(s). Audit results are reported to upper management and potential violations are addressed through the process described in Section F above.

L. Public Involvement/Community Outreach

Describes a program for ongoing community education and involvement in the environmental aspects of the organization's operations and general environmental awareness.

Attachment 16
Environmental Compliance Management System (ECMS)

A. Program Outline

Nucor will implement an Environmental Compliance Management System (ECMS) taking into account the components outlined below.

1. Training
2. Compliance identification
3. Compliance monitoring
4. Preventive and corrective action
5. Management of change
6. Compliance audit and verification
7. Review and evaluation

B. Training Component

The ECMS Training component is both similar to and different from general Environmental Management System (EMS) training. While general EMS training is directed at gaining familiarity with Nucor operations, the Nucor EMS, and general job functions, ECMS training is directed specifically at compliance obligations. The following training is envisioned as occurring as part of either ECMS or broader EMS training (in which case the ECMS specific training could be dropped).

1. Initial Staff Training
2. Annual Refresher Training
3. Supplemental Training

C. Compliance Identification Component

The Compliance Identification component is focused at identifying applicable and future applicable regulatory requirements affecting Nucor Corporation facilities, processes and equipment. The Compliance Identification component consists of the following elements:

1. Provision of regulations.

2. Access to Technical and Legal Resources.

3. Identification of Specific Environmental Requirements.

4. Compliance Calendaring.

5. Regulatory Development.

6. Issue Response.

D. Compliance Monitoring Component

The Compliance Monitoring component of the ECMS is directed at identifying and monitoring compliance indicators to assure compliance with applicable regulatory requirements. The Compliance Monitoring component should consist of the following tasks, computerized (if possible to reduce workload):

1. Periodic Filing Confirmation.
   a. Air Quality Compliance:
   b. Water Quality Compliance:
   c. Solid, Special, Used Oil, Universal and Hazardous Waste Compliance
   d. Community Right-to-Know Reports

2. Deviation and Violation Reporting

3. Periodic Summary Reporting.

4. Periodic Compliance Report.

E. Preventive and Corrective Action Component

The Preventive and Corrective Action component is a critical element that takes the information gathered in the Compliance Monitoring component and translates it into proactive and reactive actions to ensure continued environmental compliance.

1. Facility Preventive Action
   a. Trigger.
   b. Action.
   c. Reporting.

2. Facility Corrective Action

a. Triggers.
b. Action.
c. Reporting.

3. Corporate Preventive Action.
   a. Triggers.
   b. Action.
   c. Reporting.

4. Corporate Corrective Action
   a. Triggers.
   b. Action.
   c. Reporting.

F. Management of Change Component

This component of the ECMS is designed to work with the management of change component of the EMS, within which it may be subsumed.

1. Review Trigger.

2. Pre-Change Review -- Initial Assessment.

3. Pre-Change Review -- Compliance Assessment.

4. Pre-Change Review -- Permitting.

5. Pre-Change Review -- Compliance Verification.

6. Routine Changes.

G. Compliance Audit and Evaluation Component

The Compliance Audit and Evaluation component serves as an independent check upon the functioning of the ECMS. The environmental compliance status of each facility will be reviewed, problems detected, and corrective measures implemented to address any deficiencies identified. The Audit and Evaluation component shall also evaluate how deficiencies occurred and whether revisions are needed to the ECMS or EMS to prevent future lapses or problems.

1. Audit Frequency.

2. Audit Team. The audit team for the different facilities shall be comprised as follows:
   a. Steel divisions.
   b. Vulcraft divisions.

3. Audit Cycle Preparation.
   a. Audit objectives.
   b. Pre-Audit preparation.
   c. Audit Schedule.

4. Audit Process.
   a. Preaudit.
   b. Preaudit Questionnaire.
   c. On-Site Audit.
   d. Interim Audit Report.
   e. Draft Audit Reports.
   f. Final Audit Report.
   g. Followup actions.
   h. Close Out Report.
   i. Close Out Report Follow up.

5. Audit Report Format. The audit report shall consist of the following sections:
   a. Executive Summary.
   b. Scope and Objectives.
   c. Detailed Evaluation.
   d. Summary (of action items and recommendations)

H. Review and Evaluation Component

1. Audit Cycle Midpoint Evaluation.

2. Audit Cycle Completion Review and Evaluation.
   a. Identify common problems and weaknesses.
   b. Prepare recommendations on ECMS and EMS enhancement.
   c. Audit cycle recommendations.

3. Management Review
   a. Semiannual Reporting.
   b. Audit Cycle Midpoint Report.
   c. Audit Cycle Completion Report.

Attachment 17
Supplemental Environmental Projects (SEPs)

A. General Conditions

1. These Supplemental Environmental Projects (SEPs) will include a schedule for development and implementation and will proceed independently, according to the planned schedule. Nucor agrees to report to EPA on a quarterly basis on the progress of its implementation of these SEPs in accordance with Section XIV of this Consent Decree (Recordkeeping and Reporting). However, Nucor agrees that it will report as soon as practicable any information obtained during development or implementation of any of these SEPs which would materially affect the success of each SEP.

2. As a component of this SEP, Nucor shall provide EPA with a summary of its continuous emissions monitoring system (CEMS) data as part of its quarterly report, unless otherwise required herein, and as required by the various provisions of this Consent Decree, accordance with Section XIV.

3. Nucor may submit a request to EPA for approval of any proposed changes to these approved SEPs, and EPA shall have fifteen (15) business days to respond to the request. Resolution of any disputes arising in the context of Nucor's SEP implementation will be handled in accordance with Section XX (Dispute Resolution) of this Consent Decree.

4. In the first quarterly report following completion of each SEP, Nucor shall submit to EPA for approval a report containing the following information:

a. a narrative description of the development and/or implementation of the SEP;

b. a certification that the SEP was installed and/or operated as required by Paragraph C(3) of this Attachment;

c. a certification that the SEP has been completed in accordance with the plans set forth in Sections B and C below, or as modified with EPA approval.

5. Each SEP must be implemented in conformance with all federal, state and local laws.

B. Continuous Emissions Monitoring Systems(CEMS) Installation and Operation

1. Within 30 days of commencement of full-time operations of the control technology system required by this Consent Decree, but in no event later than three (3) months from startup and shake-down, Nucor shall install, certify and quality assure in accordance with Appendix F, 40 CFR Part 60, and shall thereafter operate CEM on each unit subject to this Consent Decree.

2. The CEMS shall monitor the following pollutants, unless otherwise required by this Consent Decree: Nitrogen Oxides (NOx), Carbon Monoxide (CO), as well as water content and flow rate.

3. Nucor shall continue to operate these controls through the termination of this Consent Decree.

4. Where appropriate, Nucor shall incorporate the performance requirements for operation of these CEMS into each facility's Title V permit at the time it applies for its Title V permit or requests a modification to an existing Title V permit.

C. Community Based SEPs:

1. Within 120 days of entry of this Consent Decree, Nucor shall provide EPA with its proposed schedule for implementation of the community-based SEPs. The SEPs shall include at least three (3) of the following projects:

a. Wind mill power generation;

b. Solid waste recycling days;

c. Creation of wetland "buffer zones";

d. Emergency equipment donations;

e. Sanitary sewer line expansion;

f. Community facility asbestos abatement projects; or

g. Up to $50,000 for community-based recycling education projects.

2. Upon EPA's approval of the proposed SEPs, Nucor shall provide notification to the appropriate state and local governments.

3. Nucor shall provide EPA with certification that each of the proposed community-based SEPs has been completed in accordance with the approved schedule.