



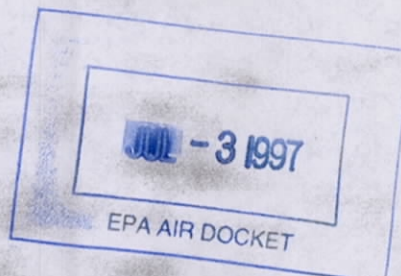
# RESEARCH TRIANGLE INSTITUTE

Center for Environmental Analysis

December 13, 1991

Mr. Jim Carson  
Senior Engineer  
Environmental Affairs  
Inland Steel Company  
3210 Watling Street 8-160  
East Chicago, Indiana 46312

Dear Mr. Carson:



Thank you for making arrangements for the U.S. EPA source test at Inland Steel Company Pickle Line No. 4 during December 17 through 19, 1991. I will represent Research Triangle Institute as a process observer and will be monitoring and recording pickle line and control device operating parameters during the test.

Based on information provided by Mr. Mike Mann of your company, I have prepared a process operating parameters recording sheet, which I will use during the test. A list of questions is also enclosed that will be used by EPA and RTI during the test to gather additional information. Please note that some of the questions may not apply to your facility and are subject to modification depending on the specific characteristics of your facility. I will take notes of your responses to these questions and would appreciate any written documents relevant to these questions. Finally, a confidential business information (CBI) clearance form will be used to identify which pieces of information collected on-site should be treated as CBI.

If you have any questions regarding this request, please call me at (919) 541-5942. Thank you and Mr. Mann for your assistance in providing this information.

Sincerely yours,

*Emery J. Kong*  
Emery J. Kong

Enclosures

cc: Mike Mann - Inland Steel Company  
Barry Jackson - Roy F. Weston, Inc.  
Jim Maysilles - EPA



12/13/91

## STEEL PICKLING OPERATION DATA

Note: Distinguish between estimated and measured values. Give the basis for the values reported in either case. If the information is unknown, state "Not known". If a question does not apply, state "Not applicable".

1. How many steel pickling process lines are at this plant? How are they identified? [If none, no further information is required.]
2. For each process line, what is the pickle liquor composition? [If the liquor does not contain hydrochloric acid (HCl) or hydrofluoric acid (HF), no further information is required.]

Please provide the following information for each process line identified in item 2 above that uses HCl or HF, unless the design and operation of multiple lines are virtually identical.

### Questions related to the pickling process:

3. Please provide a detailed description of the process line? (Please indicate if pickling is done in tanks or in a spray tower, the heating method for the pickling liquor, the contractor or fabricator of the line, and include design specifications and a plan or elevation drawings, if possible)
4. When was this process line first put into operation?
5. What are the process operating parameters (such as line speed, acid bath temperature, acid concentration, iron concentration, etc.)? Are they monitored by instrumentation? What is the typical range of readings for each operating parameter?

6. Describe any changes or modifications made and their associated costs, since pickling line start-up, that relate to emissions control. What are the impacts of the modifications on emissions? (Changes may include source reduction measures or process modifications that eliminate or reduce emissions at the source as well as control devices.)
7. If the process is batch or cyclic instead of continuous, describe the cycle and timing, including the addition of fresh acid and the removal of spent acid.
8. Indicate the following:  
Type of steel pickled (e.g. carbon, alloy, stainless):  
Product (e.g. strip, sheet, wire):  
Hot or cold rolled:  
Production rate of the line (tpy), design and actual:  
Line speed (fpm), design and actual:
9. Identify inhibiting agents added to the pickling liquor and their consumption rate.
10. Are the pickling tanks cleaned regularly? At what frequency? How is the waste sludge managed?
11. What is the acid consumption rate? How is the makeup acid added to the process? How is virgin acid supplied and stored? Are there any fugitive emission sources from the storage containers and handling and, if so, how are they controlled?
12. How is the spent pickling liquor managed and by whom? (Please describe spent acid storage, regeneration, recovery, recycling, off-site treatment, or disposal.) Are there any point or fugitive emission sources from these processes and how are they controlled? What other wastes are generated and how are they managed?
13. Describe the rinsing system and the subsequent use or treatment of the rinsing solution.



Questions related to the air pollution control system:

14. Please provide a detailed description of the emission control system and its operation. What pollutant(s) does it control? (Please include contractor/fabricator information, design specifications, cost information, and plan drawings, if possible.)
15. When was this control system first put into operation?
16. What are the process operating parameters (such as liquid and air flow rates, temperature, pressure drop, etc.) for the emission control devices? Are they monitored by instrumentation? What is the typical range of readings for each operating parameter? (If the following parameters do not apply to your situation, please supply equivalent information on a separate sheet of paper.)

Operating schedule (hour/day/week):

Fan Type and speed (rpm):

Gas flow rate (acfm), temperature (°F):

Liquid flow rate (gpm), temperature (°F):

Pressure drop across scrubber (inches of water):

At what points the pressure drop is measured:

Inlet scrubbing liquor pH:

Outlet liquor pH:

Scrubber cross-sectional area (ft<sup>2</sup>):

Scrubber packing height (ft):

Type of packing medium and size:

or number and type of plates:

Describe demister section; including type, height, density, etc.:

HCl or HF content in inlet and outlet gas streams:

Design control efficiency:

17. What is the scrubbing liquid, composition, and mode of preparation (continuous or batch):
18. Is pH in the scrubbing liquid maintained and, if so, how is it maintained?
19. What is the subsequent treatment of the scrubbing liquid?
20. Please provide information on the stack as follows: (height, diameter, material of construction, flow rate, temperature, etc.)
21. Has the emission control device been tested to determine its removal efficiency? What pollutants were tested?
22. Are emission data available? If they are available, please provide a copy of the data or test reports and descriptions of the test method(s).
23. Are there any wastes generated by the emission control system and, if so, how are they managed?
24. Describe any major modifications to the control system and the associated costs since its original installation. What are the impacts of the modifications on emissions?
25. Have you experienced any problems with the operation and maintenance of the emission control system? If so, please describe.





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Office of Air Quality Planning and Standards  
Research Triangle Park, North Carolina 27711

TO WHOM IT MAY CONCERN:

I have reviewed the attached "Steel Pickling Operation Data" sheets and the records of operating parameters for the source test conducted by the U.S. EPA at Inland Steel Company, East Chicago, Indiana, during December 17 through December 19, 1991. The Inland Steel Company considers the process information to be:

- \_\_\_\_\_ nonconfidential in its entirety;
- \_\_\_\_\_ confidential in its entirety;
- \_\_\_\_\_ partially confidential (the portions that are considered to be confidential have been noted on the attached copy of the data sheets).

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**PROCESS OPERATING PARAMETERS RECORDING SHEET**  
**FOR SOURCE TEST AT INLAND STEEL COMPANY**  
**EAST CHICAGO, INDIANA**  
**December 17-19, 1991**

(Indicate appropriate units)

P. 1

	Test 1	Test 2	Test 3
Date/Time			
A. Pickling line	#4	#4	#4
1. Type of steel treated			
2. Speed of line			
3. Bath temp. Tank 1 Tank 2 Tank 3 Tank 4			
4. Solution temp. Before heat exch. After heat exch.			
5. Acid conc. at Tank 4			
6. Acid flow rate to Tank 3 to Tank 4			
7. Water flow rate to Tank 3 to Tank 4			
8. Drainage rate from Tank 1			
9. Level control at Tank 1			
10. Iron conc. at Tank 1			
11. Inhibitor Type Quantity	ACTIVOL	ACTIVOL	ACTIVOL
12. Weight loss factor			
13. Steam flow rate Heater 1 Heater 2 Heater 3			

**PROCESS OPERATING PARAMETERS RECORDING SHEET  
FOR SOURCE TEST AT INLAND STEEL COMPANY  
EAST CHICAGO, INDIANA  
December 17-19, 1991**

(Indicate appropriate units)

P. 2

	Test 1	Test 2	Test 3
B. Rinsing Tanks			
1. Chloride conc.			
2. Rinse water flow rate			
C. Packed Scrubber			
1. Water level			
2. Fan speed			
3. Gas flow rate			
4. Liquid flow rate In Out Recirculated			
5. Pressure drop			



Date Sent: 12/13/91

Time Sent: 10:24 am

## TELECOPIER MESSAGE

Research Triangle Institute  
P.O. Box 12194  
Research Triangle Park, NC 27709-2194  
U.S.A.

PRIORITY: URGENT!! \_\_\_\_\_ TODAY BY \_\_\_\_\_ TOMORROW BY \_\_\_\_\_

DATE: Dec. 13, 1991 RTI \_\_\_\_\_

TO: Mr. Jim Carson FROM: Emery J. Kong

Inland Steel Company

East Chicago, Indiana PHONE: (919) 541-5942

SUBJECT: Package for source test at

Inland Steel Company

TELEPHONE NO.: (219) 399-4516

FAX NUMBER: (219) 399-6039

RTI CHARGE NO.: 5225-03

INTERNATIONAL: ☐ DOMESTIC: ☒ # PAGES INCLUDING LEAD: 9

RTI FAX NUMBER: (919) 541-5945

Please notify me, immediately at the above telephone number if there is a problem with transmission of this fax or if you do not receive the correct number of pages.