17 DEC 1992

MEMORANDUM

Subject: Emission Test Request for USS-POSCO in Pittsburg, California

From: James U. Crowder, Chief
Industrial Studies Branch (MD-13)

To: Gilbert H. Wood, Chief
Emission Measurement Branch (MD-19)

This memorandum is to request that the Emission Measurement Branch conduct emissions tests at USS-POSCO, located in Pittsburg, California. Emissions tests are to be conducted across a packed scrubber used to control emissions from a continuous pickle line and across a separate venturi scrubber used to control emissions from an acid regeneration process.

Pollutants to be measured include hydrochloric acid, chlorine, and particulate matter, which are all obtainable through sampling with Draft EPA method 26A. Sampling at the inlet and outlet of the packed scrubber must be performed simultaneously, and sampling at the inlet and outlet of the venturi scrubber must be performed simultaneously; however, sampling of these two scrubbers can be conducted independently. Three sample runs are requested at each location.

Detailed information on the facility to be tested and a discussion of the emissions measurements required are presented in the attached source test request prepared by Research Triangle Institute (RTI). Questions regarding this request should be directed to Mr. James Maysilles (extension 1-3265).

Attachment

OAQPS/ISB:JMaysilles:MD-13:RTP,NC:(919)541-3265
(RTI/EKong/ECorbett/(919)990-8623:12-11-92)

RESEARCH TRIANGLE INSTITUTE

Center for Environmental Analysis

MEMORANDUM

Date: December 11, 1992

Subject: Recommendation for Emissions Tests at USS-POSCO, Pittsburg, California

Data Gathering for Standards of Performance for HCl Steel Pickling Processes

EPA Contract 68-D1-0118, WA 41
ESD Project 91/08B
RTI Project 5290-041

From: Emery J. Kong EJK

To: James Maysilles
ESD/ISB (MD-13)
U. S. Environmental Protection Agency
Research Triangle Park, NC 27711

I. Recommendations

1. Conduct simultaneous inlet and outlet emission tests for particulate matter (PM), hydrochloric acid (HCl), and chlorine (Cl_2) from a packed scrubber used to control emissions from a continuous pickling line at USS-POSCO, located in Pittsburg, California.

2. Conduct emission tests for PM, HCl, and Cl_2 from a venturi scrubber used to control emissions from an HCl regeneration process at USS-POSCO, located in Pittsburg, California.

II. HCl Steel Pickling Process

A. Basis for Selection

The USS-POSCO Pittsburg Plant has one continuous pickling line (PLTCM) built by Mannesmann Demag in 1988. The plant was selected for an emission test because its packed scrubber, which is used to control the acid emissions from the steel pickling operation, uses a neutralized water that has been adjusted to pH 8 with caustic solution as the recirculating scrubbing medium to

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enhance scrubber performance. Most scrubbers applied to the steel pickling processes use plain water or the rinse effluent from the pickling process as the scrubbing medium. A new source test is recommended to evaluate the impact of pH-adjusted scrubbing solution on the performance of the packed tower scrubber and to determine the need for pH-adjusted scrubbing solutions in future maximum available control technology (MACT) systems.

An emission test conducted by the company in 1989 recorded average inlet and outlet HCl concentrations of 405 ppmv and 13 ppmv, respectively. The corresponding mass emission rates were 7.6 lb/hr and 0.24 lb/hr, indicating a 97 percent reduction in HCl emissions across the packed tower scrubber. The earlier HCl emission tests were made using California Air Resources Board (CARB) Method 421. CARB Method 421 is different from Draft EPA Method 26A in that the absorbing solutions used in the impingers absorb both HCl and Cl_2 so that the test method does not distinguish Cl_2 from HCl. New emission tests using Draft EPA Method 26A, which provides independent measurements of HCl and Cl_2 are recommended. The basis for selecting the acid regeneration process for testing is presented in Section III.A.

B. Process Description

USS-POSCO has one continuous pickling line, designated as PLTCM. The pickling line has an uncoiler, a welder, looper cars underneath the pickling line, a leveler, three shallow pickling tanks, a six-stage rinse section, a blower, and a dryer. The pickling process is followed by a continuous cold reduction mill. The pickling line was built by Mannesmann Demag in 1988 to process hot rolled steel for tinning and galvanizing. The steel strip comes from Korea by ship or from the USS Fairfield plant in Alabama by train. The design capacity of the PLTCM pickling line is 1.4 million tons/yr. The maximum line speeds for the uncoiler and the wet section are 1,800 and 820 ft/min, respectively. The layout for the pickling line and the associated emission control system is shown in Figure 1.

Steel coil enters pickling tank 1 and progresses to pickling tanks 2 and 3. The pickling tanks are of a shallow proprietary design. Pickle liquor in each pickling tank is recirculated through a circulation tank and heated by external heat exchangers before returning to the same pickling tank. The circulation tanks also hold the pickle liquor whenever the line is down for maintenance. The pickle liquor does not cascade within the pickling tanks. It cascades from the No. 3 circulation tank through the No. 2 circulation tank to the No. 1 circulation tank outside the pickling line. Each circulation tank has a 16,000-gal capacity. Only a very small amount of pickle liquor is maintained within each pickling tank. Pickle liquor in each

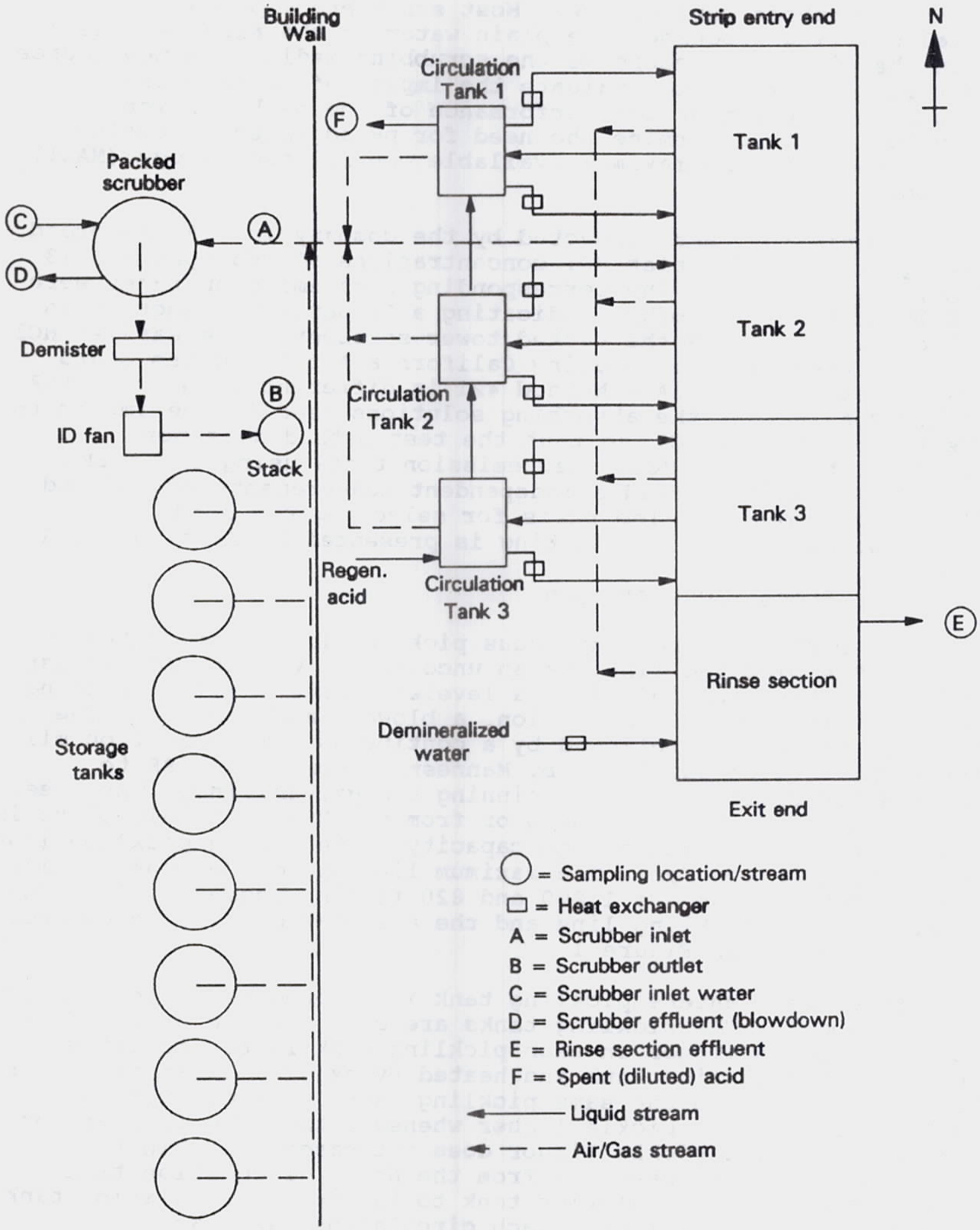

Figure 1. Layout and sampling locations for the continuous pickling line (PLTCM) at the USS-POSCO Pittsburg Plant

pickling tank is drained from the middle of the tank to the corresponding circulation tank, heated by external heat exchangers next to the circulation tank, then pumped back to both ends of the same pickling tank.

Following the No. 3 pickling tank is a six-stage cascade spray rinse. The rinse section contains cold and hot rinse stages. Rinse water in the hot rinse stages is heated by external carbon block exchangers. Demineralized water is used as the rinse solution, which is recirculated to the spray nozzles in each rinse stage. The rinse water cascades in stages from the exit end to the front end of the line. About 19 gallons per minute of demineralized water are used in the rinse section. The rinse effluent is stored in three 16,000-gal storage tanks and used as process water in the acid regeneration process.

Regenerated acid is added to the No. 3 circulation tank at about 30,000 gallons per day. Typical acid concentration in pickling tanks 1, 2, and 3 varies between 3 to 12 percent. Acid temperature is maintained above 150°F by a number of carbon block external heat exchangers. Spent (diluted) acid is drained from the No. 1 circulation tank to a tank farm outside the west wall of the pickling house. There are eight rubber-lined steel tanks in the tank farm. Each tank has a 16,000-gallon capacity. Two tanks are used for regenerated acid, two tanks are used for spent acid, three tanks are used for rinse water, and the remaining tank is used for either regenerated acid or spent acid. Virgin acid is purchased and stored in a separate location and used not only by the steel pickling operation, but also by other users in the plant.

All pickling tanks and rinse tanks are covered with sectional covers with water seals to prevent the acid fume from escaping from the pickling line. The acid fume is collected by ducts, two on each end of each tank, and sent to a common duct. Acid fumes from the circulation tanks and tank farm are also sent to the common duct, which leads to a packed scrubber. Acid fumes enter the scrubber near the base, flow upward through the packing material, then exit the scrubber. The vertical packed scrubber is 5 meters (16.4 ft) in height and 1.8 meters (5.8 ft) in diameter. The design efficiency for HCl is 99 percent. The packing is 3 meters (9.8 ft) high and consists of 3.5-inch plastic Jaeger Tri-packs. The scrubber is designed for a gas flow rate of 20,000 cubic meters per hour (11,740 cfm). Fifty cubic meters per hour (220 gpm) of neutralized scrubbing solution is recirculated within the scrubber. The makeup water is demineralized water and its addition rate is 1 gpm. Fifty percent NaOH solution is periodically added to the sump at the bottom of the scrubber as a neutralizing agent to maintain the scrubbing solution at pH 8. About 40 gallons of NaOH solution are used every day. The scrubber effluent, at 1 gpm, is treated in an onsite waste water treatment plant.

Exiting the scrubber, the gas enters a demister that is located between the scrubber and the induced-draft (ID) fan. The ID fan has a design gas flow rate of 15,000 cubic meters per hour (8,830 cfm). The treated gas is exhausted to the atmosphere through a stack, which is 2-1/2 ft in diameter and 80 ft in height and is constructed of polypropylene. There are two existing sampling ports on the stack half way between the ground floor and the top of the stack that can be accessed from an elevated walkway from the tank farm. Scrubber inlet sampling ports are located on the round horizontal intake about 3 ft before the scrubber.

The pickling line is monitored for the line speed, acid temperature in each pickling tank, cumulative acid flow rate, cumulative spent acid drainage rate, and acid and iron concentrations in each pickling tank. The packed tower scrubber sump is monitored for the pH. A pressure gauge is available to determine the pressure drop across the scrubber.

C. Test Program

Table 1 presents the sampling and analysis schedule for the requested test program for the packed scrubber. Sampling locations, identified in Figure 1, are the scrubber inlet (location A) and scrubber outlet (location B). A minimum of three sample runs is required at each sampling location. Simultaneous inlet and outlet sampling will be conducted.

All tests should be performed using Draft EPA Method 26A, which measures particulate matter, HCl, and chlorine emissions. Because of the relatively low HCl concentration (<20 ppm) in the scrubber exhaust, the sampling time and resulting gas volume collected must be sufficient to ensure an adequate sample that can provide reasonable precision and accuracy. Composite grab samples of the scrubber inlet water (location C), the scrubber effluent or blowdown (location D), rinse section effluent (location E), and spent acid (location F) are also to be collected during each sample run. The aqueous samples (samples C, D, and E) are to be measured for pH and temperature onsite, then are to be analyzed for pH, temperature, total dissolved solids, chloride content, and free HCl. In addition, the scrubber water samples (samples C and D) will be analyzed for alkalinity. The spent acid samples (sample F) will be measured for pH, temperature, and density onsite, then will be analyzed for pH, temperature, density, total dissolved solids, total iron, chloride content, and free HCl.

The pickling line process will be monitored during the test runs and the following information collected: type and rate of

TABLE 1. Test Program for the Continuous HCl Pickling Line at the USS-POSCO Pittsburg Plant

SOURCE SAMPLING AND ANALYSIS SCHEDULE				Contract Number: 68-D1-0118			Assignment Number: WA-41					
				Company Name: USS-POSCO Industries			Company Location: Pittsburg, California					
				Industry: Steel Pickling - HCl Process			Process: Continuous HCl pickling process			Control Equipment: Packed tower scrubber		
Sampling Points, Figure 1	Total No. of Samples	Sample Type	Sampling Method[a]	Sample Collected By	Minimum Sampling Time[b]	Minimum Volume Sampled[a]	Initial Analysis			Final Analysis		
							Type	Method[a]	By	Type	Method[a]	By
A,B[c]	3	PM	26A[d]	CTR[e]	2 hr	50 ft^3				PM	EPA Method 5, Section 4.3	CTR
		HCl	26A	CTR	2 hr	50 ft^3				Chloride	Ion chromatography (Method 9057)	CTR
		Cl_2	26A	CTR	2 hr	50 ft^3				Chloride	Ion chromatography (Method 9057)	CTR
A,B[c]	3	O_2	3 or 3A	CTR	2 hr	N/A	O_2, %	3 or 3A	CTR			
		CO_2	3 or 3A	CTR	2 hr	N/A	CO_2, %	3 or 3A	CTR			
		Moisture	4	CTR	2 hr	N/A	Moisture, %	4	CTR			
		Volumetric flow	2	CTR	2 hr	N/A	Flow, dscfm	2	CTR			
C,D,E[c]	f[f]	Scrubber water (inlet/outlet), and rinse section effluent	Tap Sampling (D-4057-8.3)[i]	CTR	grab	500 cc	pH and temperature	Standard Method 423	CTR	pH, temp	Standard Method 423	CTR
										TDS[g]	Standard Method 209B	CTR
										Alkalinity for C and D only	Standard Method 403	CTR
										Chloride[g]	Ion chromatography (Method 9057)	CTR
										HCl[g]	Titration with triethylamine (TEA) using methyl orange xylene cyanole as an indicator	
F[c]	f[f]	Spent acid	Tap Sampling (D-4057-8.3)[i]	CTR	grab	500 cc	pH, density, and Temperature		CTR	pH, temp., density, chloride, TDS, and HCl	Same as the above	CTR
										total iron[g]	SW-846, Method 6010[h] or titration with potassium dichromate using iron indicator	CTR

continued

Notes to Table 1:

[a] Methods are EPA unless indicated otherwise.

[b] Sampling time and gas volumes are for each test run; longer time and larger volume may be needed to improve sampling accuracy and precision for low outlet HCl concentration.

[c] Simultaneous sampling required.

[d] PM is to be collected on the cyclone and filter in the EPA Method 26A sampling train.

[e] CTR = Contractor.

[f] ASTM Method Procedures for Manual Sampling of Petroleum and Petroleum Products

[g] Composite grab samples into run composite for analysis.

[h] SW-846 Method, Inductively Coupled Plasma Atomic Emission Spectroscopy.

[i] Three grab samples per run.

A = scrubber inlet
B = scrubber outlet
C = scrubber inlet water
D = scrubber effluent (blowdown)
E = rinse section effluent
F = spent acid

steel coil treated, acid bath temperatures in the pickle tanks, virgin acid and spent acid concentrations, acid and iron concentrations in the pickle tanks, acid consumption rate, makeup water flow rate, spent acid drainage rate, rinse water flow rate, and pH of the rinse water.

The scrubber will be monitored during the test runs and the following information collected: pressure drop, scrubber inlet water flow rate, caustic solution addition rate, and scrubber blowdown flow rate.

D. Relationship of Test Data to Standards Development

The test program will characterize uncontrolled emissions from a continuous HCl pickling operation with external heat exchangers and will determine the performance capability of a packed scrubber using a neutralized water scrubbing solution that has been adjusted to pH 8 by caustic addition. This system is a MACT candidate system.

The test results will be used to evaluate the impact of caustic scrubbing solution on the performance of a packed scrubber and may assist in determining the need for caustic scrubbing solution in the MACT system.

III. HCl Regeneration Process

A. Basis for Selection

The USS-POSCO Pittsburg Plant operates a spray roasting acid regeneration process fabricated by Arus Andritz Ruthner in 1988. The acid regeneration process itself is similar to other spray roasting acid regeneration processes found in the industry. The only difference is that USS-POSCO uses a venturi scrubber, with neutralized water solution as the scrubbing medium, to control HCl emissions from the acid regeneration process and particulate emissions from the baghouses on two iron oxide storage bins. Other facilities use packed tower scrubbers to control acid emissions from the spray roasting process and baghouses to control particulate emissions from metal oxide storage bins. Based on RTI's current information, this venturi scrubber is the only one applied in the steel pickling industry to control HCl emissions from acid regeneration processes. A 1989 emission test using CARB Method 421 showed that HCl emissions from the venturi scrubber ranged from 0.19 ppm to 1.54 ppm at 16,500 dscfm or 0.017 lb/hr to 0.15 lb/hr of HCl. The test results indicated that this venturi scrubber using neutralized scrubbing solution was able to achieve low HCl emissions. However, the uncontrolled HCl and Cl_2 emissions of the acid regeneration process and the performance of the venturi scrubber were not determined in the

previous test. A new source test is recommended in order to determine the true efficiency of the venturi scrubber for HCl and Cl_2 emissions.

B. <u>Process Description</u>

The USS-POSCO, Pittsburg plant has a spray roasting acid regeneration process that was designed by Arus Andritz Ruthner. It started operation in May 1988. The design operating rate for the process is 38 gallons per minute of spent acid. Because the acid regeneration process has more capacity than the quantity of spent acid generated from the pickling operation, the acid regeneration process typically operates in an acid mode for a few days then switches to a water mode. Demineralized water instead of spent acid is sprayed into the roaster when operating in the water mode. The actual operating rate in the acid mode is less than 38 gpm of spent acid. The layout for the acid regeneration process and the associated emission control system is shown in Figure 2.

Spent acid from the storage tanks is brought into contact with the hot flue gas from the roaster in a venturi recuperator. The spent acid is concentrated by evaporation within the venturi recuperator, then the concentrated pickle liquor is mixed with ammonium chloride (to control NO_x formation) and injected into the roaster. The concentrated pickle liquor is injected into the top of the spray roaster, which is heated by three natural gas burners. Within the roaster, ferrous chloride laden droplets react with water and oxygen and oxidize to form iron oxide, which is discharged from the bottom of the roaster. The hot flue gas containing hydrochloric acid is pulled from the top of the roaster to two cyclones, where fine iron oxide is separated and discharged to the bottom of the roaster. Iron oxide is conveyed, under vacuum, to two storage bins each having 150 tons capacity. Iron oxide can be bagged into 1-ton bags or directly loaded to rail cars or hopper trucks.

The acid fume is pulled to the venturi recuperator where it contacts fresh spent acid to form concentrated pickle liquor. The acid fume then goes through the first packed absorber where it is sprayed with an absorbing solution to form the regenerated acid. The absorbing solution comes from the blowdown of a following packed absorber. The exhaust gas then goes to the second packed absorber where it is scrubbed with process water, which is the rinse effluent from the pickling line. About 25,000 to 30,000 gallons per day of process water and an additional 8 gpm of seal water for pumps are used in the absorber. Most of the process water is recirculated within the second packed absorber, while part of the process water is used in the first packed absorber as the absorbing solution.

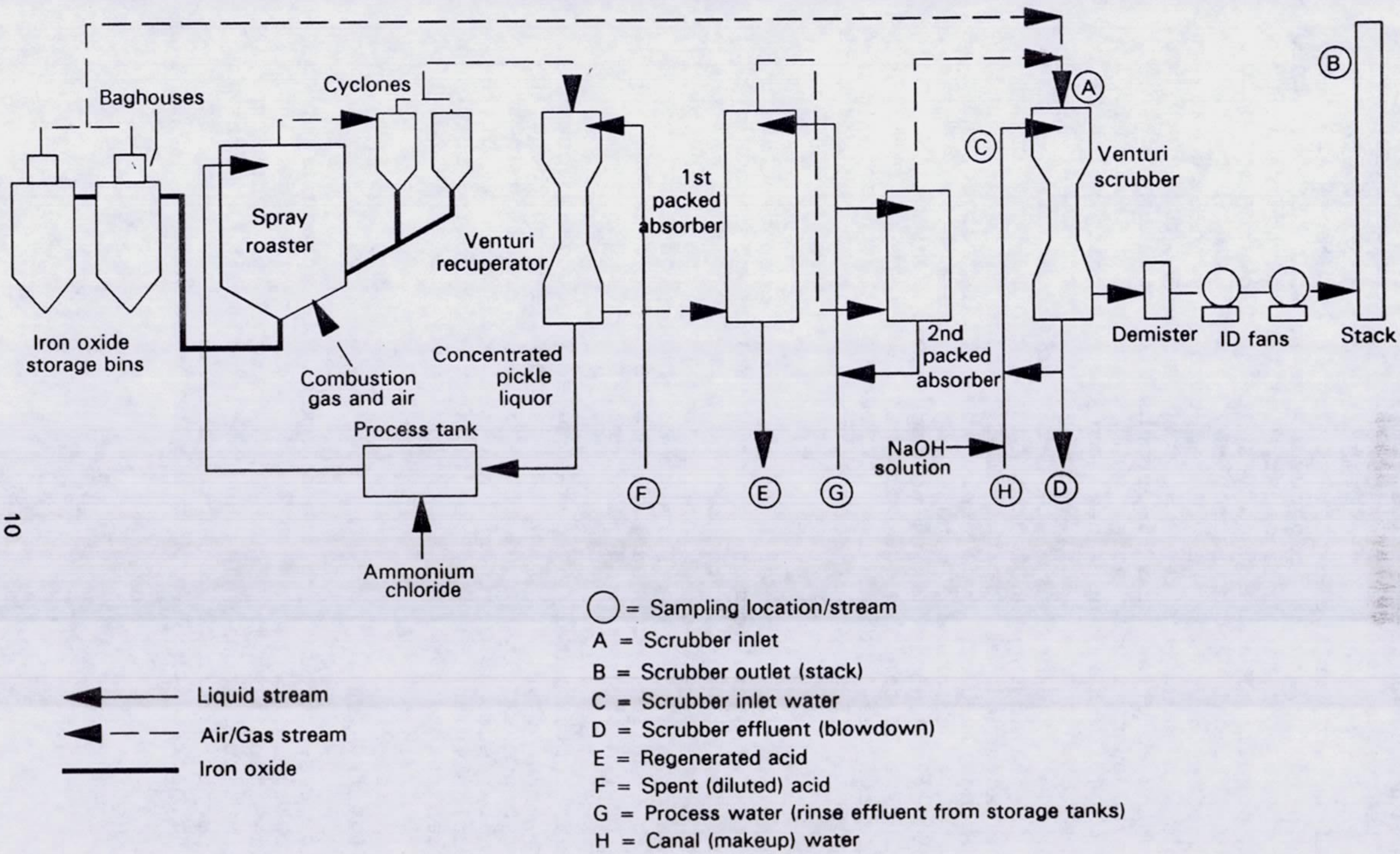

Figure 2. Layout and sampling locations for the acid regeneration process at the USS-POSCO Pittsburg Plant

A venturi scrubber treats exhaust gas from the second packed absorber and serves as a secondary control device for particulate emissions from two baghouses on the metal oxide storage bins. The design flow rate for the latter stream is between 4,120 and 5,890 cfm. The duct from the baghouses can be shut off but would upset the process operation and cause violation of the facility's air emission permit. The combined gas stream flows from top to bottom in the vertical venturi scrubber, which is 30 ft tall, 3 ft wide at the throat, and 8 ft wide at both ends. About 220 m^3/hr (969 gpm) of water are recirculated in the venturi scrubber as the scrubbing solution, and 50-percent NaOH solution is periodically added to the scrubber sump to maintain the scrubbing solution at pH 8. The makeup water for the scrubbing solution, at 15 gpm, is taken from a canal. The scrubber effluent, at 15 gpm, is treated at the onsite waste water treatment plant. The treated gas is pulled through a demister by two ID fans in series, then exhausted to a stack. The demister is a polypropylene baffle-plate type measuring 6 ft in height, 4 ft in width, and 1 ft in thickness in the flow direction. Two ID fans, each 250-hp, are placed in series to acquire the vacuum needed in the roaster. The ID fans have a combined flow rate of 19,600 scfm. The treated gas is discharged through a fiberglass-reinforced plastic (FRP) stack measuring 90 ft in height and 4 ft in diameter.

There are two sampling ports on the round scrubber inlet. These sampling ports are located downstream from the junctions of the acid fume vent line from the second packed absorber and the vent line from the baghouses. Inlet sampling ports can be accessed from an elevated platform to be erected on the floor. There are two sampling ports near the top of the stack that can be accessed from a stairway and platform.

There are approximately 30 parameters, including process temperatures, pressures, and flow rates, monitored on the acid regeneration process. The pH of the scrubbing solution in the venturi scrubber sump is monitored and the addition rate of the caustic solution is monitored to maintain the scrubbing solution at pH 8. The treated gas is also continuously monitored for NO_x emission.

C. <u>Test Program</u>

Table 2 presents the sampling and analysis schedule for the venturi scrubber in the requested test program. The sampling locations are identified in Figure 2. A minimum of three runs is required with simultaneous inlet and outlet sampling. Tests for the venturi scrubber can be conducted independently from the tests for the packed scrubber on the pickling line.

TABLE 2. Test Program for the Acid Regeneration Process at the USS-POSCO Pittsburg Plant

SOURCE SAMPLING AND ANALYSIS SCHEDULE				Contract Number: 68-D1-0118			Assignment Number: WA-41					
				Company Name: USS-POSCO Industries			Company Location: Pittsburg, California					
				Industry: Steel Pickling - HCl Process			Process: Spray roasting acid regeneration process			Control Equipment: Venturi scrubber		
Sampling Points, Figure 2	Total No. of Samples	Sample Type	Sampling Method[a]	Sample Collected By	Minimum Sampling Time[b]	Minimum Volume Sampled[c]	Initial Analysis Type	Initial Analysis Method[a]	Initial Analysis By	Final Analysis Type	Final Analysis Method[a]	Final Analysis By
A,B[c]	3	PM	26A[d]	CTR[e]	2 hr	50 ft³				PM	EPA Method 5, Section 4.3	CTR
		HCl	26A	CTR	2 hr	50 ft³				Chloride	Ion chromatography (Method 9057)	CTR
		Cl_2	26A	CTR	2 hr	50 ft³				Chloride	Ion chromatography (Method 9057)	CTR
A,B[c]	3	O_2	3 or 3A	CTR	2 hr	N/A	O_2, %	3 or 3A	CTR			
		CO_2	3 or 3A	CTR	2 hr	N/A	CO_2, %	3 or 3A	CTR			
		Moisture	4	CTR	2 hr	N/A	Moisture, %	4	CTR			
		Volumetric flow	2	CTR	2 hr	N/A	Flow, dscfm	2	CTR			
C,D,G,H[c]	f[i]	Scrubber water (inlet/outlet), process water, and canal (makeup) water	Tap Sampling (D-4057-8.3)[i]	CTR	grab	500 cc	pH and temperature	Standard Method 423	CTR	pH, temp	Standard Method 423	CTR
										TDS[g]	Standard Method 209B	CTR
										Alkalinity for C and D only	Standard Method 403	CTR
										Chloride[g]	Ion chromatography (Method 9057)	CTR
										HCl[g]	Titration with triethylamine (TEA) using methyl orange xylene cyanole as an indicator	CTR
E,F[c]	f[i]	Regenerated acid and spent acid	Tap Sampling (D-4057-8.3)[i]	CTR	grab	500 cc	pH, temperature, and density		CTR	pH, temp., density, TDS, chloride, and HCl	Same as the above	CTR
										total iron[g]	SW-846, Method 6010[h] or titration with potassium dichromate using iron indicator	CTR

continued

Notes to Table 2:

[a] Methods are EPA unless indicated otherwise.

[b] Sampling time and gas volumes are for each test run; longer time and larger volume may be needed to improve sampling accuracy and precision for low outlet HCl concentration.

[c] Simultaneous sampling required.

[d] PM is to be collected on the cyclone and filter in the EPA Method 26A sampling train.

[e] CTR = Contractor.

[f] ASTM Method Procedures for Manual Sampling of Petroleum and Petroleum Products

[g] Composite grab samples into run composite for analysis.

[h] SW-846 Method, Inductively Coupled Plasma Atomic Emission Spectroscopy.

[i] Three grab samples per run.

A = scrubber inlet
B = scrubber outlet
C = scrubber inlet water
D = scrubber effluent (blowdown)
E = regenerated acid
F = spent acid
G = process water
H = canal (makeup) water

All tests should be performed using Draft EPA Method 26A, which measures particulate matter, HCl, and chlorine emissions. Because of the relatively low HCl concentration (<10 ppm) in the scrubber exhaust, the sampling time and resulting gas volume collected must be sufficient to ensure an adequate sample that can provide reasonable precision and accuracy. Composite grab samples of scrubber inlet water (location C), scrubber effluent or blowdown (location D), regenerated acid (location E), spent acid (location F), process water (location G), and makeup canal water (location H) are also to be collected during each sample run. The aqueous samples (samples C, D, G, and H) are to be measured for pH and temperature onsite, then are to be analyzed for pH, temperature, total dissolved solids, chloride content, and free HCl. In addition, the scrubber water samples (samples C and D) will be analyzed for alkalinity. The acid samples (samples E and F) will be measured for pH, temperature, and density onsite, then will be analyzed for pH, temperature, density, total dissolved solids, total iron, chloride content, and free HCl.

The acid regeneration process will be monitored during the test runs and the following information collected: process temperatures and pressures, absorbing solution flow rate, regenerated acid flow rate, and process water flow rate.

The scrubber will be monitored during the test runs and the following information collected: pressure drop, scrubbing water pH and recirculation rate, makeup water flow rate, caustic solution addition rate, scrubber blowdown flow rate.

D. Relationship of Test Data to Standards Development

The test program will characterize uncontrolled emissions from a spray roasting acid regeneration process and will determine the performance capability of the venturi scrubber using caustic scrubbing solution (a MACT candidate system) to control these emissions. The results will be compared with those of a packed scrubber using plain scrubbing water that is typically found in other spray roasting acid regeneration processes. The test may determine the need for caustic scrubbing solution in the MACT system. Future cost analyses will compare the cost-effectiveness of using venturi and packed scrubbers for emission controls.

IV. Responsibility of RTI

Prior to testing, an RTI representative will maintain close coordination with the facility, ISB, EMB, and the testing contractor to ensure that any necessary preparations to accomplish sampling are arranged and completed. RTI will review the test plan to ensure that all sampling preparation are competed. RTI will review the test plan to ensure that overall objectives will be met and that the test procedures will be consistent with the EPA program objectives.

During the testing, a representative of RTI will monitor the pickling line, the acid regeneration process, and the scrubber operating parameters that indicate whether the systems are operating properly. Testing may occur only while the processes and the emission control devices are operating at normal conditions.

V. Coordination

Continued coordination will be required among the EMB project officer, the testing contractor, ISB personnel, and RTI personnel prior to and during the testing. To ensure that all necessary ductwork modifications are made at the facility and that the required test conditions can be achieved, coordination with the facility is also critical. The contact at the facility is Mr. Kelly McMahon, Senior Environmental Engineer, at (510)439-6537.