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South Pierce, Florida Plant

Report to: **James Dougherty**

cc: **Gregg Lentz and Ben Dulban**

Report of: **Ultrasonic Thickness of North and South Stacks and Numbers 1, 2, 3, and 4 Scrubbers**

Date: **March 29, 2006**

Inspector: **Susan Pierce NDE Level II**

Work Order: **N/A**

Gentlemen:
As requested by Jim Dougherty of Mosaic, South Pierce facility a level II technician certified in accordance with Acuren procedures, which meet or exceed ASNT-TC-1A was present on the job site to perform an Ultrasonic thickness testing in accordance with project plans and specification on the North and South Stacks and Numbers 1, 2, 3, and 4 Scrubbers.

Test Results:
Ultrasonic Thickness Survey was performed utilizing a Krautkramer DMS 2, serial number 0106DV, KBA 560 transducer, serial number L13155 and step wedge, serial number LII-128 calibrated prior to and after completing the examination.

The ultrasonic thickness readings were obtained at four quadrants, North, South, East, and West, as directed by Mosaic personnel. Thickness readings were obtained approximately 3-inches from each weld seam and at the center of the plate on each shell course in accessible areas.

The readings on the South and North stacks ranged from 0.224-inches to 0.302-inches. The visual assessment was limited due to heavy product buildup; however, there were signs of paint blistering, and active corrosion noted.

The readings on the Number 1 Scrubber ranged from 0.200-inches to 0.297-inches. The visual assessment was limited due to heavy product buildup on the external surface. There were signs of active corrosion with the worse case being on the shell course in the areas of the spargers, with three areas of through wall corrosion noted. Also it appears that the sparger nozzle connections have deteriorated and have been repaired with an epoxy type substance.

The readings on the Number 2 Scrubber ranged from 0.112-inches to 0.314-inches. The visual assessment was limited due to heavy product buildup on the external surface. There were signs of active corrosion with the worse case being on the shell course in the areas of the spargers, with six areas of through wall corrosion noted. Also it appears that the sparger nozzle connections have deteriorated and have been repaired with an epoxy type substance.

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The readings on the Number 3 Scrubber ranged from 0.221-inches to 0.288-inches. The visual assessment was limited due to heavy product buildup on the external surface. There were signs of active corrosion with the worse case being on the shell course in the areas of the spargers, with one area of through wall corrosion noted. Also it appears that the sparger nozzle connections have deteriorated and have been repaired with an epoxy type substance.

Scrubber number 4 readings ranged from 0.172-inches to 0.268-inches. The visual assessment was limited due to heavy product buildup on the external surface; however there were signs of active corrosion noted. Also it appears that the sparger nozzle connections have deteriorated and have been repaired with an epoxy type substance. There is an area that is warped on the North East side on the 1st shell course approximately 2 ½ feet in length and 1 foot in width.

All readings obtained, with locations and readings around holes are shown on the attached sketches.

Recommendations:
An internal assessment should be performed to determine the condition of the rubber lining. The areas of the through wall corrosion are where the rubber lining has failed. Also the sparger nozzles should be repaired in accordance with original design.

No original or as constructed drawings were presented to the examiner at the time of the examination so no further conclusion can be made about the wear rate, remaining life of the tank and the time to the next scheduled inspection. If these drawings or if previous inspection data exist, we could provide more detailed information on the condition of this tank.

Note: These recommendations were made by the examiner at the time of the examination and are not to be considered all-inclusive; this report has not been review by a professional engineer.

Limitations:
Due to product buildup on the Stacks and Scrubbers, readings and visual assessment could not be obtained in some areas.

If you have any questions concerning the information contained in this report, or if I may be of further assistance, please do not hesitate to contact me.

Susan Pierce - NDE Level II
Examiner
Acuren
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South Stack

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Number 1 Scrubber

Reading taken every 6-inches, until readings reached 0.200
.229
.226
3
.221
.228
Stairs
Stairs
.240
.228
.237
.220
.228
.224
.234
.234
.247
.247
.217
.112
.176
.216
.112
.210
.160
.213
.213
.176
.208
.143
.222
.232
.236
.212
N/R
.217
.229
.269
.227
.253
.263
.298
.240
.255
.271
.300
.314
.284
.269

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Number 2 Scrubber

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Number 2 Scrubber

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North Stack

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Number 3 Scrubber

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Number 4 Scrubber

E	N	W	S
.265			
.262			
.262			
.233	.241	.233	.239
.231	.231	.231	.230
.230	.222	.225	.222
Platform			
.239	.229	.240	
.234	.216	.238	
.230	.246	.248	
.255	.257	.268	
.232	.243	.172	
.232	.228	.216	
.240	.240	.229	.219
.233	.227	.181	.217
.207	.223	.195	.199
	.234	.222	
.208	.230	.224	.234
.260	.251	.263	.260
.263	.263	.265	.267
.240	.234	.202	.220

Warping
Approximately
2 ½ feet in length
1 foot in width.

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Photo 1: Overall view of South stack and number 1 and 2 scrubbers

Photo 2: Overall view of North stack and number 3 and 4 scrubbers

Photo 3: Typical picture of holes in scrubber number 1

Photo 4: Typical picture of hole in scrubber number 2