Evaluation Report of Rust Grip Test Samples
Hwy. 190
Mississippi River Bridge
Located in Baton Rouge, LA

Prepared For:

Superior Products International
Mr. Howard Kindig
8740 Bayside
Baton Rouge, LA 70806

Prepared By:

CorrTech Inc.
25 South Street
Hopkinton MA 01748
CorrTech, Inc. Job No. 5223

September 2007

STATEMENT OF LIMITATION

The conclusions presented in this document are based on the services described and not on tasks or procedures beyond the scope of the described procedures or the time and budgetary constraints imposed by the contract limitations.

CorrTech, Inc. has performed this assessment in a professional manner using that degree of skill and care exercised for similar projects under similar conditions by reputable and competent consultants, and in accordance with the procedures established within CorrTech's quality assurance, quality control protocol.

CorrTech, Inc. shall not be responsible for conditions or consequences arising from relevant facts that were concealed, withheld or not fully disclosed at the time the evaluation was performed.

Report Prepared by Ramon Pelaez, Project Manager
NACE CCI 5975
September 2007

Report Reviewed by Scott Paul, PE
NACE Corrosion Specialist No. 4163
September 2007

Report Reviewed by Henry Flanagan, PE
Certified Coatings Inspector 10344
September 2007

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Introduction

Superior Products International retained the services of CorrTech Inc. for professional corrosion engineering services to evaluate the performance of the Rust Grip Coating System. The coating system had been applied to the structural steel support members on the west approach of Louisiana Hwy. 190 over the Mississippi River Bridge located in Port Allen, Louisiana. The evaluation was performed in accordance with the following standards:

ASTM D 610-01 Standard Method for Evaluating Degree of Rusting on Painted Steel Surfaces.

ASTM D 714-02 Standard Test Method for Evaluating Degree of Blistering of Paints.

ASTM D 1654-05 Standard Test Method for Evaluation of Painted or Coated Specimens Subject to Corrosive Environments

ASTM D G 20-88 (Reapproved 2002) Standard Test Method for Chemical Resistance of Pipeline Coatings.

Background

The bridge is located in a coastal area and in the vicinity (within 500 ft) of Exxon Refinery, Formosa Plastics, Kaiser Aluminum, and Chemicals and several other industries. This environment is considered corrosive.

The Louisiana Department of Transportation designated the test locations to be coated; the areas were previously coated with a 16 mil DFT three coat lead based system.

The existing lead based coating system was 25 years old and in poor condition. The Rust Grip coating was applied at a total of 4 mills DFT. No surface preparation was performed for the application. The Rust Grip coating was applied on November 10th 2006.

Field Inspection Results

Field inspection was performed by Mr. Henry. P. Flanagan P.E NACE Certified Coatings Inspector # 10344. The inspection was performed on November 24, 2006.

Ffield inspection consisted of visual inspection of the areas coated and scribing (ASTM D 1654-05) designated areas for inspection at a later date. The scribed areas were inspected on September 23, 2007 by Mr. Ramon E. Pelaez NACE Certified Inspector # 5975.

ASTM D 610-01 Standard Method for Evaluating Degree of Rusting on Painted Steel Surfaces. This test method covers the evaluation of the degree of rusting on painted steel surfaces.

ASTM 610-01 results:

		Visual Examples		
Rust Grade	Percent of Surface Rusted	Spot (s)	General (G)	Pinpoint (P)
9	Greater than 0.01 percent and up to 0.03 percent	9-S	9-G	9-P

ASTM D 714-02 Standard Test Method for Evaluating Degree of Blistering of Paints. This test method employs photographic reference standards to evaluate the degree of blistering that may develop when paint systems are subjected to conditions which will cause blistering,

The degree of blistering is categorized by size and frequency:

Size- Reference standards have been selected for four steps as to size on a numerical scale from 10 to 0, in which No. 10 represent no blistering

Frequency- Reference standards have been selected for four steps in frequency at each step in size, designated as follows:

Dense (D) Medium dense, (MD) Medium, (M) and Few. (F)

ASTM D 714-02 results:

Scale	Visual Inspection
10	No blistering

ASTM D 1654-05 Standard Test Method for Evaluation of Painted or Coated Specimens Subject to Corrosive Environments. This test method covers the treatment of previously painted or coated specimens for accelerated and atmospheric exposure tests and their subsequent evaluation in respect to corrosion, loss of adhesion at the scribe mar, or other film failure.

ASTM D 1654-05 results:

Rating of Failure at Scribe (Procedure A)		
Representative Mean Creepage From Scribe		
Millimeters	Inches (Approximate)	Rating Number
Zero	0	10

Laboratory Test Results

ASTM D G 20-88 (Reapproved 2002) Standard Test Method for Chemical Resistance of Pipeline Coatings.

This test method is intended for evaluating the resistance of pipe coating materials when exposed to various concentrations of reagents suspected of soil contaminants. This test evaluates the relative merits of pipe-coating materials in specific environments. The choice of reagents, concentrations, duration of immersion, temperature of test and properties to be reported are necessarily arbitrary and should be chosen to reflect conditions known to exist along the pipe line right of way.

ASTM D G 20-88 (Reapproved 2002) results:

It is considered that Rust Grip is suitable coating for the coating of bare or previously coated bridge structures for corrosion protection. See Appendix III for supporting documentation.

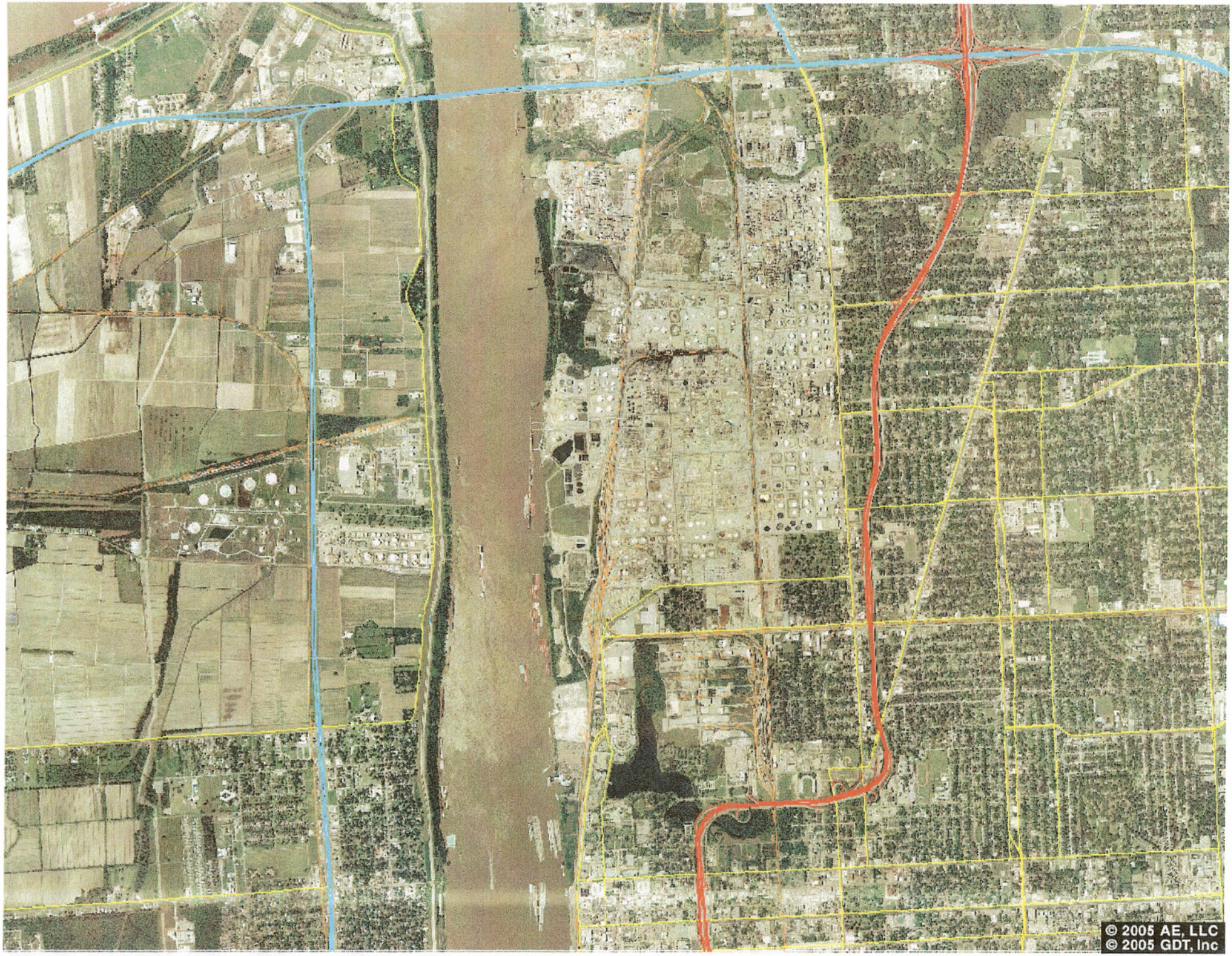
Conclusions

Based on the field inspection and laboratory testing, Rust Grip is deemed a suitable coating for the protection of steel superstructures coated with lead based coating system in fair to poor condition as long as the substrate is prepared properly and the coating system is mixed and applied in strict accordance with manufacturers recommendations.

APPENDIX I

Bridge Geographical Location


0 1 2 3 4 5 Miles
A
B
91°10'
BARNETT RD
ALSEN OIL FIELD
Deerford
McHugh
Irene
BAKER
Brown Heights
Puckett
Central
Tanglewood
Alsen
Affords
WEST BATON ROUGE
EAST BATON ROUGE
PROFIT ISLAND
MISSISSIPPI RIVER
Chambertin
Devalls
Bolivar Point
Thomas Point
North Maryland
Maryland
Howell
Scotlandville
Zion City
BATON ROUGE
Greendale
Comite
Boudreaux Spur
Kleindale
Belmont
Lobdell
Westover
Anchorage
Laleune
Kahns
Sunrise
PORT ALLEN
Stevenscale
Sharp
Castlewood
Goodwood
Broadmoor
Aubin
Jones
Inniswold
Nesser
Essen
Collegetown
College Hills
Hillside
Siegen
Foreman
Kleinpeter
Beaulieu
BRUSLY
Antonio
Cinclare
University
LOUISIANA STATE UNIV
Brusly Landing
Choctaw
Lukeville
Arlington
L S EXPERIMENTAL FARM
Duncan Point
ADDIS
Gardere
Longwood
St. Delphine
Chenango
Eliza
Manchac Point
Burtville
Staring
WEST BATON ROUGE
IBERVILLE
EAST BATON ROUGE
PLAQUEMINE
Morrisonville
Myrtle Grove
Plaquemine Point
Iberville (Bayou Paul Sta.)
Bayou Paul
Sunshine P.O.
Pecan Spur
Saymourville
MISSISSIPPI
McWilliams
Allemania
Willow Glen
HUNT CORRECTIONAL CENTER
ST GABRIEL OIL FIELD
IBERVILLE
ASCENSION
30°20'
30°20'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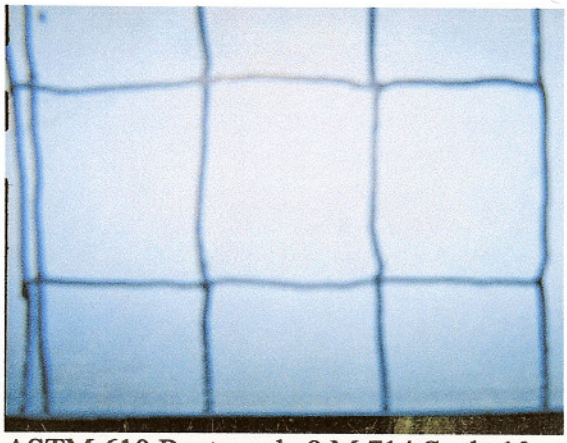
APPENDIX II

Photo Log

ASTM 610 Rust grade 9 M 714 Scale 10



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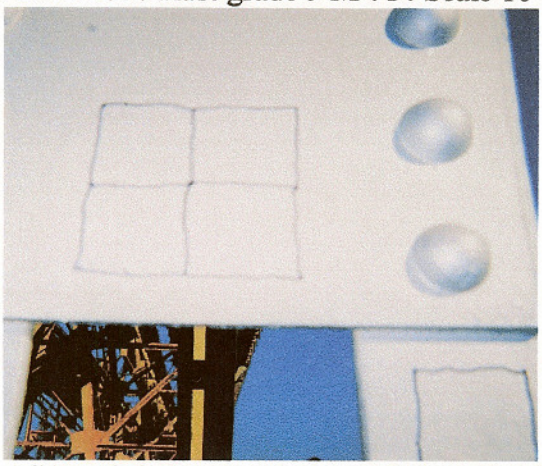

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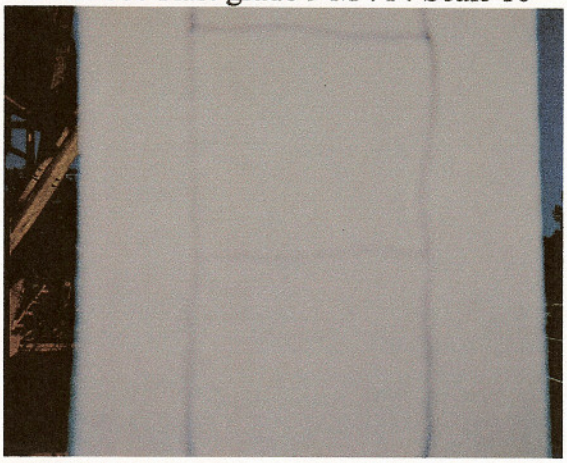

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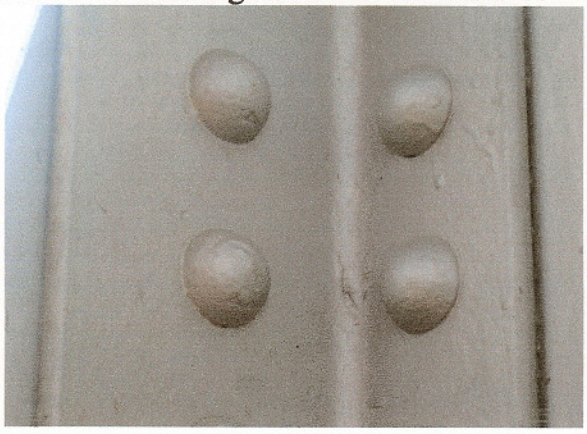

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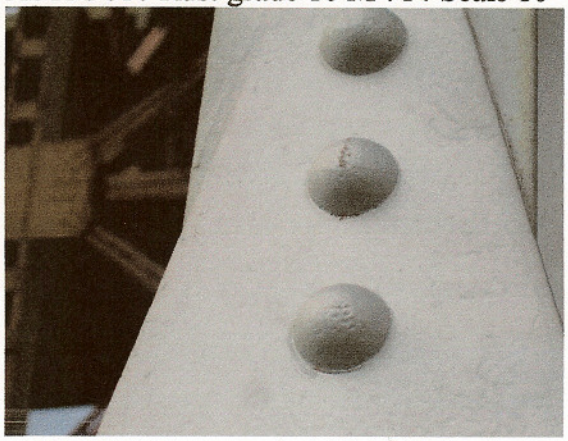


ASTM 610 Rust grade 10 M 714 Scale 10

ASTM 1654 No creepage from scribe

ASTM 1654 No creepage from scribe

APPENDIX III

ASTM G-20 Laboratory Report

PROJECTED 180 DAY ANALYSIS
BASED ON 90 DAY EXPOSURE TO
AMMONIA, UREA, & DIESEL FUEL
PER ASTM G20 TESTING
FOR SUPERIOR PRODUCTS
ON RUST GRIP
VTEC #100-2613
TESTED: MAY 17, 2007 - AUGUST 15, 2007

VTEC Laboratories Inc.

August 29, 2007

Client: Superior Products
10835 W. 78th Street
Shawnee, KS 66214

Scope:
This report contains the reference to the test method, preparation of sample, observation of material, test and post-test observation data test results.

Test Method:
The samples were immersed in three different chemicals: 5% Ammonia, 5% Urea, and Diesel Fuel. The samples were visual observed at 30, 60, and 90 days. The test method used was ASTM G20.

Disclaimer:
This is a factual report of the results obtained from the laboratory test of sample products. The results may be applied only to the products tested and should not be construed as applicable to other similar products of the manufacturer. The report is not a recommendation or disapprobation by VTEC Laboratories, Inc. of the material tested. While this report may be used for obtaining product acceptance, it may not be used in advertising.

Notice: VTEC Laboratories Inc. will not be liable for any loss or damage resulting from the use of the data in this report, in excess of the invoice. This report pertains to the sample tested only. Such report shall not be interpreted to be a warranty, either expressed or implied as to the suitability or fitness of said sample for such uses or applications, as the party contracting for the report may apply such sample.

Material Tested:

1) Manufacturer: Superior Products
2) Product Description: Rust Grip coating applied to 6" long, 2.4" diameter black iron pipe.
3) Color: Gray
4) Number of Specimens: 33 (18 with holidays, 15 without)
5) Material description: By Manufacturer and VTEC
6) Date of selection: April 2007
7) Temperature: 70~80ºF
8) Average Immersion Area: 45 in^2
9) Average Vapor Phase Area: 45 in^2

Test Results:

After 30 Days:

Sample #	Thk (mils)	Holiday	Chemical	Observations
1	8.4	Yes	5% Urea	Discoloration; rust around holiday; no softening, blistering, or loosening.
2	7.6	Yes	5% Urea	Discoloration; rust around holiday; no softening, blistering, or loosening.
19	12.2	No	5% Urea	Discoloration; no softening, blistering, or loosening.
20	9.9	No	5% Urea	Discoloration; no softening, blistering, or loosening.
7	5.5	Yes	5% Ammonia	Discoloration; blistering; no softening or loosening.
8	6.6	Yes	5% Ammonia	Discoloration; blistering; no softening or loosening.
24	8.1	No	5% Ammonia	Discoloration; blistering; no softening or loosening.
25	8.9	No	5% Ammonia	Discoloration; blistering; no softening or loosening.
13	8.0	Yes	Diesel	No change
14	7.6	Yes	Diesel	No change
29	10.1	No	Diesel	No change
30	6.6	No	Diesel	No change

After 60 Days:

Sample #	Thk (mils)	Holiday	Chemical	Observations
3	5.4	Yes	5% Urea	Discoloration; rust around holiday and some other spots on coating; no softening, blistering, or loosening.
4	7.2	Yes	5% Urea	Discoloration; rust around holiday; no softening, blistering, or loosening.
22	8.0	No	5% Urea	Discoloration; some rust spots, no Softening, blistering, or Loosening.
9	6.2	Yes	5% Ammonia	Discoloration; blistering; no softening or loosening.
10	6.7	Yes	5% Ammonia	Discoloration; blistering; no softening or loosening.
26	9.1	No	5% Ammonia	Discoloration; no softening, blistering, or loosening.
15	8.1	Yes	Diesel	No change
16	6.6	Yes	Diesel	No change
31	5.8	No	Diesel	No change

After 90 Days:

Sample #	Thk (mils)	Holiday	Chemical	Observations
5	8.0	Yes	5% Urea	Discoloration; rust around holidays; no softening, blistering, or loosening.
6	6.4	Yes	5% Urea	Discoloration; rust around holidays; no softening, blistering, or loosening.
22	8.0	No	5% Urea	Discoloration; some rust spots, no Softening, blistering, or Loosening.
23	7.5	No	5% Urea	Discoloration; no Softening, blistering, or Loosening.
11	6.4	Yes	5% Ammonia	Discoloration; blistering; no softening or loosening.
12	7.7	Yes	5% Ammonia	Discoloration; blistering; no softening or loosening.
27	7.5	No	5% Ammonia	Discoloration; no softening, blistering, or loosening.
28	10.1	No	5% Ammonia	Discoloration; no softening, blistering, or loosening.
17	7.4	Yes	Diesel	No change
18	7.1	Yes	Diesel	No change
32	6.3	No	Diesel	No change
33	7.7	No	Diesel	No change

Analysis:

After 90 days the sample change was not significant. It is projected that probably no additional changes will occur at the 180-day point since there were basically no additional changes between 30 and 90 days. The rubber stoppers on the diesel fuel samples swelled. See Photos

Neil Schultz
Executive Director

A. Rahim
Amirudin Rahim
Technical Director

Photos:

After 30 Days:

Sample #1 Exposed to 5% Urea

Sample #2 Exposed to 5% Urea

Sample #19 Exposed to 5% Urea

Sample #20 Exposed to 5% Urea

Sample #7 Exposed to 5% Ammonia

Sample #8 Exposed to 5% Ammonia

Sample #24 Exposed to 5% Ammonia

Sample #25 Exposed to 5% Ammonia

Sample #13 Exposed to Diesel

Sample #14 Exposed to Diesel

Sample #29 Exposed to Diesel

Sample #30 Exposed to Diesel

After 60 Days:

Sample #3 Exposed to 5% Urea

Sample #4 Exposed to 5% Urea

Sample #21 Exposed to 5% Urea

Sample #9 Exposed to 5% Ammonia

Sample #10 Exposed to 5% Ammonia

Sample #26 Exposed to 5% Ammonia

Sample #15 Exposed to Diesel

Sample #16 Exposed to Diesel

Sample #31 Exposed to Diesel

After 90 Days:

Sample #5 Exposed to 5% Urea

Sample #6 Exposed to 5% Urea

Sample #22 Exposed to 5% Urea

Sample #23 Exposed to 5% Urea

Sample #11 Exposed to 5% Ammonia

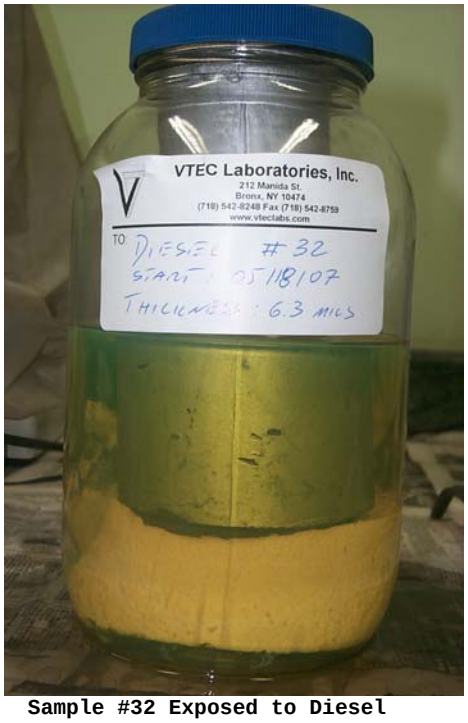
Sample #12 Exposed to 5% Ammonia

Sample #27 Exposed to 5% Ammonia

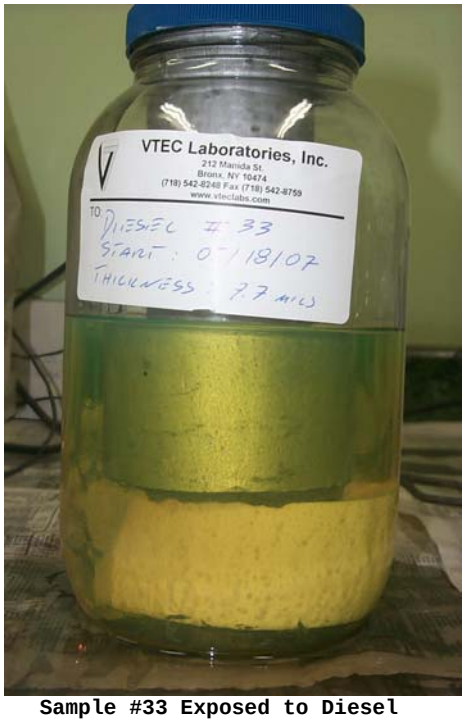
Sample #28 Exposed to 5% Ammonia

Sample #17 Exposed to Diesel

Sample #18 Exposed to Diesel



Sample #32 Exposed to Diesel



Sample #33 Exposed to Diesel