

# SOR TESTING LABORATORIES, INC.

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Client:	Ralph Clayton & Sons (Great Eastern Technologies)				
Project:	Information of Client (P.O. #10032070)				
Subject:	Long Term Corrosivity Testing of Reinforcing Steel in Concrete				
Job No.:	08-48	Report No.:	08-4071	Date:	12/10/2008

We present herewith laboratory test results of three concrete specimens sent to us by the client. Each concrete specimen had a Size #4 rebar in it. It is our understanding that the concrete specimens had the following properties:

- Compressive Strength: 4000 psi
- Cement Content: 564 lbs/cu. yard
- Age of Concrete: 2 years
- Rebar Size: #4
- Admixture Used: Chemstrong – CF

As requested, the concrete samples received were tested for the following properties:

- Corrosivity of rebar by Half-Cell Potential Method (ASTM- C876).
- Chloride Content of the concrete (ASTM- C1218).
- Chemstrong – CF Content of the concrete (ASTM- C494).

**TEST RESULTS**1. Corrosivity Tests

Specimen No.	No. of Readings	Half-Cell Readings Average, Volts (*)
1	6	-0.105
2	6	-0.130
3	6	-0.121

(\*) Interpretation of the results as per ASTM- C876, Appendix.

X1.1.1 If potentials over an area are more positive than -0.20 V CSE, there is a greater than 90% probability that no reinforcing steel corrosion is occurring in that area at the time of measurement.

X1.1.2 If potentials over an area are in the range of -0.20 to -0.35 V CSE, corrosion activity of the reinforcing steel in that area is uncertain.

X1.1.3 If potentials over an area are more negative than -0.35 V CSE, there is a greater than 90% probability that reinforcing steel corrosion is occurring in that area at the time of measurement.

2. Chloride Contents

Specimen No.	Chloride (Cl) Contents	
	mg/kg	lbs/cu. yard (*)
1	15	0.06
2	17	0.06
3	14	0.05

(\*)

- The cement content of the concrete was 564 lbs/cu. yard.
- The unit weight of the concrete was 3915 lbs/cu. yard.

(\*\*) The average of Chemstrong – CF corresponds to 31.3 oz/100 lbs of cement.

**CONCLUSIONS**

Based on these test results, the following conclusions were drawn:

1. The Half-Cell Potential Test results indicated that no corrosion of reinforcing steel is occurring.

It is our understanding that the reinforced concrete tested was approximately 2 years old.

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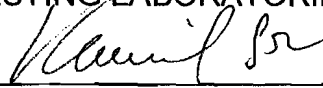
Report No.08-4071

Page 3

2. Chemical analysis of the concrete indicated that the average Chloride (Cl) ion content of the concrete was 0.06 lbs/cu. yard which is considered very low. In general, Chloride Contents in excess of 1.0 lb/cu. yard of concrete are considered excessive and causes corrosion of steel.
3. Chemical analysis of the concrete samples indicated the presence of Chemstrong – CF at the rate of 31.3 oz/100 lbs of cement.

Very truly yours,

SOR TESTING LABORATORIES, INC.



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Kamil Sor, Ph.D.

President

KS/ls

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