



**FROEHLING & ROBERTSON, INC.**  
 GEOTECHNICAL • ENVIRONMENTAL • MATERIALS  
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 "OVER ONE HUNDRED YEARS OF SERVICE"

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JUL-18-2003



July 14, 2003

**POTENTIAL ALKALI REACTIVITY REPORT**

**PROJECT NO.:** D60-404T  
**CONTROL NO.:** 60-02-85404  
**CLIENT:** Carolina Stalite  
 P.O. Box Drawer 1037  
 Salisbury, North Carolina 28145  
 Attn: Jody Wall  
**STANDARDS:** ASTM C 227-97a, Standard Test Method for Potential Alkali Reactivity of  
 Cement-Aggregate Combinations (Mortar Bar Method)  
 ASTM C 33 – 02a, Standard Specification for Concrete Aggregates

Dear Jody,

Froehling & Robertson, Inc. is pleased to submit the results for mortar bar testing performed on a Carolina Stalite aggregate sample and Portland cement, Type I/II. The test results are shown in the table below.

TEST AGE	AVERAGE LENGTH CHANGE, %
14 days	+0.001
1 Month	+0.005
2 Months	+0.007
3 Months	+0.010
4 Months	+0.011
5 Months	+0.012
6 Months	+0.013

Based on Appendix X1.3.2 of ASTM C 33, expansion is generally considered to be excessive if it exceeds 0.05 % at 3 months or 0.10 % at 6 months.

Should you have any questions about these test results or require additional testing please do not hesitate to contact either of the undersigned.

Respectfully Submitted,  
**FROEHLING & ROBERTSON, INC.**

*James L. Crenshaw, Jr.*  
 James L. Crenshaw, Jr.  
 Staff Geologist

*Robert A. Hill, III*  
 Robert A. Hill, III, P.E.  
 CMT Manager

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