



# STRESS ENGINEERING SERVICES, INC.

Houston ♦ Cincinnati ♦ New Orleans ♦ Atlanta ♦ Chicago

13800 Westfair East Drive, Houston, Texas 77041-1101

Tel: (281) 955-2900 Fax: (281) 955-2638 Web Site: [www.stress.com](http://www.stress.com) E-mail: [info@stress.com](mailto:info@stress.com)

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Uma M. Mundie  
Brian S. Royer, P.E.  
Chad Searcy  
Obaidullah Syed  
Leo Vega  
Kevin Wang, Ph.D.

## ANALYSTS

Jorge Capeto  
Napoleon F. Douglas, Jr.  
David Renzi

February 28, 2005

PN172342

John Gammage  
Joe Scott  
WearSox  
9618 West Tidwell Rd.  
Houston, TX 77041

Dear Mr. Gammage and Mr. Scott

On Tuesday, Feb. 22, 2005, a 20 ft length of 5-7/8 plain end pipe with two WearSox applications, WearSox 30 and WearSox 64, at mid-length was delivered to Stress Engineering Services for resonant fatigue testing.

Twelve strain gages were applied to the test piece as indicated in Figure 1, attached. Strain gages were used to determine when pipe was cycled at the proper Build Rate.

WearSox requested that the pipe be subjected to cyclic loading corresponding to hole curvatures of 2, 3, 4, and 5 deg/100 ft. The following table shows the radius of curvature, pipe stress and microstrain associated with those curvatures. Table also shows number of cycles for each Build Rate. Tests were conducted on Feb. 24<sup>th</sup> and 25<sup>th</sup>, 2005.

Build Rate (deg/100 ft)	Radius of Curvature (ft)	Bending Stress (psi)	Microstrain (in./1 X 10 <sup>6</sup> in.)	Number Cycles	Cumulative
2	2865	±2563	±85.45	519,000	519,000
3	1910	±3845	±128.17	250,000	769,000
4	1432	±5127	±170.90	233,000	1,002,000
5	1146	±6409	±213.62	560,700	1,562,700

The attached photographs show the WearSox. Photograph 1 was taken during the test. Photographs 2, 3, 4 and 5 were taken after the tests.

## Test Results

There were no cracks, spalling or other defects to either WearSox application.

Jackie E. Smith P.E.  
Staff Consultant  
Stress Engineering Services  
13800 Westfair East Dr.  
Houston, TX 77041  
Tel: 281-955-2900