

February 18, 2020

REPORT OF: Compression Testing

REPORT TO: Shumard Corporation
Attn: Ed Rau
2417 Weaver Street
Fort Worth, TX 76117

DATE APPROVED: February 6, 2020

IDENTIFICATION: 12 ea. 30" Hobas pipes client identified as Hobas 46 (A1-A3), Hobas 46
Repaired (A4-A6), Hobas 72 (B1-B3), and Hobas (B4-B6)

PROCEDURES:

Compression testing was performed per ASTM C497-19a using an Instronet Digital Acquisition System i400: iNet-430 in conjunction with a 100Kip Interface Load Cell Model 1232AF-100K S/N:338236A.



Figure 1: Test Set-Up

RESULTS: *Next Page*

Lab No. 38252, Revision 1 (2.28.2020)

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Compression Tests –

Sample ID	Initial Dia. (in)	Dia. at Peak Load (in)	Max Deflection (in)	% Max Deflection	Peak Load (lbf)
A-1	30.650	21.809	8.841	28.8	8,677
A-2	30.575	21.608	8.967	29.3	10,086
A-3	30.585	21.823	8.762	28.6	10,083
Average	30.603	21.747	8.857	28.9	9,615
Std. Dev.	0.041	0.120	0.103	0.3	813
A-4	29.675	22.350	7.325	24.7	18,015
A-5	29.686	22.526	7.160	24.1	19,144
A-6	29.597	22.214	7.383	24.9	24,778
Average	29.653	22.363	7.289	24.6	20,646
Std. Dev.	0.049	0.156	0.116	0.4	3,623
B-1	30.399	24.156	6.243	20.5	15,215
B-2	30.354	24.366	5.988	19.7	14,154
B-3	30.396	24.625	5.771	19.0	13,114
Average	30.383	24.382	6.001	19.8	14,161
Std. Dev.	0.025	0.235	0.236	0.8	1,051
B-4	29.431	23.890	5.541	18.8	25,762
B-5	29.182	23.744	5.438	18.6	22,528
B-6	29.351	23.608	5.743	19.6	23,525
Average	29.321	23.747	5.574	19.0	23,938
Std. Dev.	0.127	0.141	0.155	0.5	1,656

These results are based on the tests performed and are subject to change upon the receipt of new or additional information.

Respectfully submitted,

METALLURGICAL ENGINEERING SERVICES, INC.
Firm Registration No. F-2674



Daniel A. Stolk, PE, CWI
Principle Engineer

Purchase Order No. 20-0204