

**51 Smart Avenue
Yonkers, New York 10704
(914) 423 - 1331
(914) 423 - 0913 Fax**

LETTER OF TRANSMITTAL

TO: AARCO Environmental
via e-mail

[illegible]

WE ARE SENDING YOU:

X

Attached Via email

Shop Drawings

[illegible]

X

For Approval

REMARKS:

Please review and approve so that I can

CC:

Signed

Timothy J. Maguire

14PSAMW402 specs72-177-105x215v
11/10/2010 4:06 PM

Alloy Machine Works, Inc. Well Screen

1-800-577-5068

WELL SCREEN SUBMITTAL DATA

CUSTOMER: Morris Industries
ATTN: George Berry
PROJECT: 14"PS

11/10/2010

Material	304SS		
Nominal Size	14 PS		356 mm
Estimated Well Depth	100 ft	<i>see drawing</i>	30 meters
Estimated Feet of Screen	7 ft	<i>Fig 4 attached</i>	2 meters
Slot Size	0.030 in		0.76 mm
Outside Diameter Approx.	14 in		356 mm
Inside Diameter Rod Base Screen	13.125 in		333 mm
Inside Diameter at Fittings Approx.	13.125 in		333 mm
Weight Per Foot Approx.	25.66 lbs.		11.6 kg
Wire Width	0.105 in		2.7 mm
Wire Height	0.215 in		5.5 mm
Collapse Strength Calculated*	113.41 PSI	<i>~ 13 FT</i>	7.972723 kg/sq.cm
Open Area	22.22 %	<i>total well depth</i>	22.22 %
Intake Area	117.23 sq.in./ft.	<i>hgs.</i>	2482 sq.cm./meter
Transmitting Capacity @ 0.1 ft/sec	35.34 GPM/ft.	<i>+ shickup.</i>	7.52 lps/meter
Support Rod Diameter	0.177 in		4.50 mm
Number of Support Rods	72		72
Cross Sectional Support Rod Area	1.7712 sq.in		11.43 sq.cm.
Design Yield Strength	30,000 PSI		2109 kg/sq.cm
Calculated Tensile Strength*	37,195 lbs.		16886.6208 kg
Maximum Recommended Hanging Weight*	18,597 lbs.		8443.038 kg
Critical Compression Load**	60,100 lbs.		27285.4 kg

* Many site conditions can affect the physical strength requirements for a successful screen installation. Contact Alloy Machine Works, Inc. With any questions.

** Rigid centralizers are recommended for all screen installations.

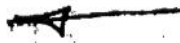
TABLE 2 DIMENSIONS AND WEIGHTS OF WELDED AND SEAMLESS WROUGHT STEEL PIPE (CONT'D)

Customary Units				Identification		SI Units			
NPS [Note (1)]	Outside Diameter, in.	Wall Thickness, in.	Plain End Weight, lb/ft	Standard (STD) Extra-Strong (XS) Double Extra-Strong (XXS)	Schedule No.	DN [Note (2)]	Outside Diameter, mm	Wall Thickness, mm	Plain End Mass, kg/m
12	12.750	0.625	80.93	...	...	300	323.8	15.88	120.62
12	12.750	0.688	88.63	...	80	300	323.8	17.48	132.08
12	12.750	0.750	98.12	...	...	300	323.8	19.05	143.21
12	12.750	0.812	103.53	...	...	300	323.8	20.62	154.21
12	12.750	0.844	107.32	...	100	300	323.8	21.44	159.91
12	12.750	0.875	110.97	...	...	300	323.8	22.23	165.37
12	12.750	0.938	118.33	...	...	300	323.8	23.83	176.33
12	12.750	1.000	126.49	XXS	120	300	323.8	25.40	186.97
12	12.750	1.062	132.57	...	...	300	323.8	26.97	197.48
12	12.750	1.125	139.67	...	140	300	323.8	28.58	208.14
12	12.750	1.250	153.63	...	...	300	323.8	31.75	228.74
12	12.750	1.312	160.27	...	160	300	323.8	33.32	238.76
14	14.000	0.156	23.07	...	5	350	355.6	3.96	34.38
14	14.000	0.188	27.73	...	...	350	355.6	4.78	41.35
14	14.000	0.203	29.91	...	...	350	355.6	5.16	44.59
14	14.000	0.210	30.93	...	...	350	355.6	5.33	46.04
14	14.000	0.219	32.23	...	...	350	355.6	5.56	47.99
14	14.000	0.250	36.71	...	10	350	355.6	6.35	54.69
14	14.000	0.281	41.17	...	...	350	355.6	7.14	61.35
14	14.000	0.312	45.61	...	20	350	355.6	7.92	67.90
14	14.000	0.344	50.17	...	...	350	355.6	8.74	74.76
14	14.000	0.375	54.67	STD	30	350	355.6	9.53	81.33
14	14.0					350	355.6	10.31	87.79
14	14.0					350	355.6	11.13	94.55
14	14.0					350	355.6	11.91	100.94
14	14.0					350	355.6	12.70	107.39
14	14.0					350	355.6	14.27	120.11
14	14.0					350	355.6	15.09	126.71
14	14.0					350	355.6	16.66	133.03
14	14.0					350	355.6	17.48	145.75
14	14.0					350	355.6	19.05	158.10
14	14.0					350	355.6	20.62	170.33
14	14.0					350	355.6	22.23	182.75
14	14.0					350	355.6	23.83	194.96
14	14.0					350	355.6	25.40	206.93
14	14.0					350	355.6	26.97	218.57
14	14.0					350	355.6	27.79	224.65
14	14.0					350	355.6	28.58	230.48
14	14.0					350	355.6	31.75	253.56
14	14.0					350	355.6	35.71	281.70
14	14.000	2.000	256.32	...	...	350	355.6	50.80	381.83
14	14.000	2.125	269.50	...	...	350	355.6	53.98	401.50
14	14.000	2.200	277.25	...	...	350	355.6	55.88	413.01
14	14.000	2.500	307.06	...	...	350	355.6	63.50	457.40

14"

B

PIPE SPECIFICATIONS

Tenacity	Hydrostatic	Tensile Bond	Flattening	Wall Tolerance	OD Tolerance																					
NONE SPECIFIED	yes	NONE Specified	NONE Specified	Min. wall shall not be more than 12.5% under nominal wall	$\frac{1}{4}" - 1\frac{1}{2}" + 1/64"$ - 1/32" 2" & over — ± 1% of OD																					
<table><tr><th colspan="3">MIN. P.S.I.</th></tr><tr><th>GRADE</th><th>YIELD</th><th>TENSILE</th></tr><tr><td>CW</td><td>25,000</td><td>45,000</td></tr><tr><td>GR-A</td><td>30,000</td><td>48,000</td></tr><tr><td>GR-B</td><td>35,000</td><td>50,000</td></tr></table>	MIN. P.S.I.			GRADE	YIELD	TENSILE	CW	25,000	45,000	GR-A	30,000	48,000	GR-B	35,000	50,000	yes	Yes — 2" & under Std. & X-HY 90° to 12 times nom. diameter close rolling 180° to 8 times nom. diam.	Yes — over 2" nom. X-HY & lighter, CW 90° to 75% OD	Min. wall shall not be more than 12.5% under nom. wall	$\frac{1}{4}" - 1\frac{1}{2}" + 1/64"$ - 1/32" 2" & over — ± 1% of OD						
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MATCH 	yes	Not req'd. over 2" diameter, 90° to 12 times diam. Close rolling 180° to 8 times diameter.	Yes — for over 2" diameter	Min. wall shall not be more than 12.5% under nom. wall	$1/8" - 1\frac{1}{2}" + 1/64"$ - 1/32" 2" - 4" + 1/32" 5" - 8" + 1/16" 10" - 18" + 3/32" 18" & over — + 1/8" - 1/32"																					
	yes	NONE Specified	Yes — for all sizes to 25" OD	Min. wall shall not be more than 12.5% under nom. wall	For all sizes ± 1% of OD																					
	± Specified	NONE Specified	NONE Specified	Min. wall shall not be more than 12.5% under nom. wall. Surface defects no more than 25% deep	± 1% of OD																					
	yes	NONE Specified	Yes — for all sizes	Min. wall shall not be more than 12.5% under nom. wall	2" - 4" + 1/32" 5" - 8" + 1/16" - 1/32" 10" - 18" + 3/32" - 1/32" 18" & + 1/8" Over - 1/32"																					
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MIN. P.S.I.																										
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Specification and Size Range Where Indicated	Shape	Type	Grade	Chemistry																																																																																																																					
A-120 (has been withdrawn) NPS 1/2 - 18	Stk & Gals Welded & SMLS pipe for ordinary use — not intended for stress relieving, bending or high temperature service	CW ERW SMLS	NONE Specified	NONE Specified																																																																																																																					
A-53 NPS 1/2 - 26	Stk & Gals Welded & SMLS pipe suitable for welding and forming operations. CW not intended for flanging. Grade B not intended for stress relieving or severe cold forming. Pipe required for stress relieving should be specified on order.	CW - Type F ERW - Type E SMLS - Type B	CW - Type F ERW & SMLS GRADE A & B	<table><tr><th colspan="5">Composition, max %</th></tr><tr><th></th><th>Carbon</th><th>Manganese</th><th>Phosphorus</th><th>Sulfur</th></tr><tr><td colspan="5">Type B (electrode resistance welded)</td></tr><tr><td>Specified, electric furnace or ladle-refined:</td><td></td><td></td><td></td><td></td></tr><tr><td>Grade A</td><td>0.25</td><td>0.50</td><td>0.02</td><td>0.005</td></tr><tr><td>Grade B</td><td>0.25</td><td>1.00</td><td>0.02</td><td>0.005</td></tr><tr><td colspan="5">Type F (former welded pipe)</td></tr><tr><td>Specified, electric furnace or ladle-refined:</td><td></td><td></td><td></td><td></td></tr><tr><td>Grade A</td><td>0.25</td><td>0.50</td><td>0.02</td><td>0.005</td></tr><tr><td>Grade B</td><td>0.25</td><td>1.00</td><td>0.02</td><td>0.005</td></tr><tr><td colspan="5">Type F (former welded pipe)</td></tr><tr><td>Specified, electric furnace or ladle-refined:</td><td>0.25</td><td>1.00</td><td>0.02</td><td>0.005</td></tr><tr><td colspan="5">Ladle and Churn Limits</td></tr></table>	Composition, max %						Carbon	Manganese	Phosphorus	Sulfur	Type B (electrode resistance welded)					Specified, electric furnace or ladle-refined:					Grade A	0.25	0.50	0.02	0.005	Grade B	0.25	1.00	0.02	0.005	Type F (former welded pipe)					Specified, electric furnace or ladle-refined:					Grade A	0.25	0.50	0.02	0.005	Grade B	0.25	1.00	0.02	0.005	Type F (former welded pipe)					Specified, electric furnace or ladle-refined:	0.25	1.00	0.02	0.005	Ladle and Churn Limits																																																								
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A-108 NPS 1/2 - 26	SMLS for high temperature service. Suitable for bending, flanging and similar forming operations	SMLS Only	GRADES A, B, C																																																																																																																						
A-135 NPS 2 - 30	Electric resistance welded for conveying liquid, gas or vapor	ERW Only	GRADES A & B																																																																																																																						
A-382 NPS 2 - 34	ERW or SMLS for Pipe Piles	ERW SMLS DSAW	GRADES 1, 2, 3																																																																																																																						
A-330	SMLS & Welded Carbon & Alloy Steel pipe for low temperature service	SMLS ERW	1, 3, 4, 6, 7, 8, 9																																																																																																																						
A-336 NPS 1/2 - 26	SMLS Alloy Steel pipe for high temperature service	SMLS Only	P-1, P-2, P-6, P-8b, P-9a, P-9b, P-11, P-12, P-15, P-21, P-22, P-31	MATCH Our Pipe is "A-53" ABOVE (GRADE B) <table><tr><th>Grade</th><th>Unit</th><th>Carbon</th><th>Manganese</th><th>Phosphorus</th><th>Sulfur</th><th>Nickel</th><th>Copper</th><th>Aluminum</th></tr><tr><td>P1</td><td>K11002</td><td>0.10-0.25</td><td>0.30-0.50</td><td>0.005</td><td>0.005</td><td>0.10-0.25</td><td>0.00-0.05</td><td>0.00-0.05</td></tr><tr><td>P2</td><td>K11007</td><td>0.10-0.25</td><td>0.30-0.50</td><td>0.005</td><td>0.005</td><td>0.10-0.25</td><td>0.00-0.05</td><td>0.00-0.05</td></tr><tr><td>P6</td><td>K11004</td><td>0.10-0.25</td><td>0.30-0.50</td><td>0.005</td><td>0.005</td><td>0.10-0.25</td><td>0.00-0.05</td><td>0.00-0.05</td></tr><tr><td>P8b</td><td>K11005</td><td>0.10-0.25</td><td>0.30-0.50</td><td>0.005</td><td>0.005</td><td>0.10-0.25</td><td>0.00-0.05</td><td>0.00-0.05</td></tr><tr><td>P9a</td><td>K11006</td><td>0.10-0.25</td><td>0.30-0.50</td><td>0.005</td><td>0.005</td><td>0.10-0.25</td><td>0.00-0.05</td><td>0.00-0.05</td></tr><tr><td>P9b</td><td>K11007</td><td>0.10-0.25</td><td>0.30-0.50</td><td>0.005</td><td>0.005</td><td>0.10-0.25</td><td>0.00-0.05</td><td>0.00-0.05</td></tr><tr><td>P11</td><td>K11008</td><td>0.10-0.25</td><td>0.30-0.50</td><td>0.005</td><td>0.005</td><td>0.10-0.25</td><td>0.00-0.05</td><td>0.00-0.05</td></tr><tr><td>P12</td><td>K11009</td><td>0.10-0.25</td><td>0.30-0.50</td><td>0.005</td><td>0.005</td><td>0.10-0.25</td><td>0.00-0.05</td><td>0.00-0.05</td></tr><tr><td>P15</td><td>K11010</td><td>0.10-0.25</td><td>0.30-0.50</td><td>0.005</td><td>0.005</td><td>0.10-0.25</td><td>0.00-0.05</td><td>0.00-0.05</td></tr><tr><td>P21</td><td>K11011</td><td>0.10-0.25</td><td>0.30-0.50</td><td>0.005</td><td>0.005</td><td>0.10-0.25</td><td>0.00-0.05</td><td>0.00-0.05</td></tr><tr><td>P22</td><td>K11012</td><td>0.10-0.25</td><td>0.30-0.50</td><td>0.005</td><td>0.005</td><td>0.10-0.25</td><td>0.00-0.05</td><td>0.00-0.05</td></tr><tr><td>P31</td><td>K11013</td><td>0.10-0.25</td><td>0.30-0.50</td><td>0.005</td><td>0.005</td><td>0.10-0.25</td><td>0.00-0.05</td><td>0.00-0.05</td></tr></table> 8. Heat treatment established by procedures with Practices C 102 and SAZ, J 1005. Procedure for Heat Treating Metals and Alloys (ASTM). 9. Grade P11 shall have a minimum carbon of not less than 0.10 from the carbon content and not more than 0.25 % of a maximum carbon of 0.10 from the carbon content.	Grade	Unit	Carbon	Manganese	Phosphorus	Sulfur	Nickel	Copper	Aluminum	P1	K11002	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05	P2	K11007	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05	P6	K11004	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05	P8b	K11005	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05	P9a	K11006	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05	P9b	K11007	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05	P11	K11008	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05	P12	K11009	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05	P15	K11010	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05	P21	K11011	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05	P22	K11012	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05	P31	K11013	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05
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P6	K11004	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05																																																																																																																	
P8b	K11005	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05																																																																																																																	
P9a	K11006	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05																																																																																																																	
P9b	K11007	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05																																																																																																																	
P11	K11008	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05																																																																																																																	
P12	K11009	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05																																																																																																																	
P15	K11010	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05																																																																																																																	
P21	K11011	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05																																																																																																																	
P22	K11012	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05																																																																																																																	
P31	K11013	0.10-0.25	0.30-0.50	0.005	0.005	0.10-0.25	0.00-0.05	0.00-0.05																																																																																																																	
A-501 Square & Rectangular 1" - 10" Round 1" - 36"	Hot Formed Welded & SMLS Round, Square & Rectangular Tubing	SMLS WELDED	NONE Specified	<table><tr><th rowspan="2">Element</th><th colspan="2">Heat Analysis</th><th colspan="2">Product Analysis</th></tr><tr><th>C</th><th>MN</th><th>P</th><th>S</th></tr><tr><td>Carbon, max</td><td>0.25</td><td>0.50</td><td>0.02</td><td>0.005</td></tr><tr><td>Phosphorus, max</td><td>0.005</td><td>0.005</td><td>0.02</td><td>0.005</td></tr><tr><td>Sulfur, max</td><td>0.005</td><td>0.005</td><td>0.02</td><td>0.005</td></tr><tr><td>Copper, when copper steel is specified, max</td><td>0.25</td><td>0.10</td><td></td><td></td></tr></table>	Element	Heat Analysis		Product Analysis		C	MN	P	S	Carbon, max	0.25	0.50	0.02	0.005	Phosphorus, max	0.005	0.005	0.02	0.005	Sulfur, max	0.005	0.005	0.02	0.005	Copper, when copper steel is specified, max	0.25	0.10																																																																																										
Element	Heat Analysis		Product Analysis																																																																																																																						
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Copper, when copper steel is specified, max	0.25	0.10																																																																																																																							
A-507 NPS 1/2 - 10"	EW Pipe for Process lines suitable for severe forming involving flanging and close bending	ERW Only	NONE Specified	<table><tr><th colspan="2">% MAX</th><th colspan="2">% MAX</th></tr><tr><th>C</th><th>MN</th><th>P</th><th>S</th></tr><tr><td>0.18</td><td>0.27-0.35</td><td>0.02</td><td>0.005</td></tr></table>	% MAX		% MAX		C	MN	P	S	0.18	0.27-0.35	0.02	0.005																																																																																																									
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0.18	0.27-0.35	0.02	0.005																																																																																																																						
A-509 Type 1 NPS 6-18	SMLS & Welded Water Pipe Type 1 Drive Pipe	Type 1 SMLS or WELDED	Type 1 A or B	<table><tr><th colspan="2">% MAX</th><th colspan="2">% MAX</th></tr><tr><th>C</th><th>MN</th><th>P</th><th>S</th></tr><tr><td>0.25</td><td>0.50</td><td>0.02</td><td>0.005</td></tr></table>	% MAX		% MAX		C	MN	P	S	0.25	0.50	0.02	0.005																																																																																																									
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RICCI BROS.

Sand Co., Inc. Filter Sands

Effective	Typical
Size (mm)	Uniformity
0.35-0.45	1.6, 1.5, 1.4
0.40-0.50	1.5, 1.4
0.45-0.55	1.5, 1.4
0.55-0.65	1.6, 1.5
0.60-0.80	1.5
0.8-1.2	1.5
1.0-1.4	1.5

(Other sizes and uniformity are available - call or email for exact requirements)

Specific gravity (ASTM C128): >2.50, Acid Solubility (AWWA B100): < 5%, Hardness (Mohs Scale): 6-8, Sphericity and Roundness (API RP56): 0.6, Sodium Soundness (ASTM C88): <15%, Test for Clay (ASTM C40 or C117): plate 1 and 2, Unit Weight and Voids (ASTM C29): 100 lb/cu ft, Chemical analysis: SiO₂: 98-99; Al₂O₃: 0.03-0.3, Fe₂O₃: 0.03-0.3, Na₂O, K₂O, TiO₂, MnO₂, MgO: to 0.05.

Well Gravel

Slot Size-in.	Slot Size-mm.	Use This Grade
0.067	1.70	4 or Larger
0.045	1.18	3 or Larger
0.033	0.85	2 or Larger
0.023	0.60	1 or Larger
0.016	0.42	O or Larger
0.012	0.30	00N or Larger
0.010	0.25	00 or Larger

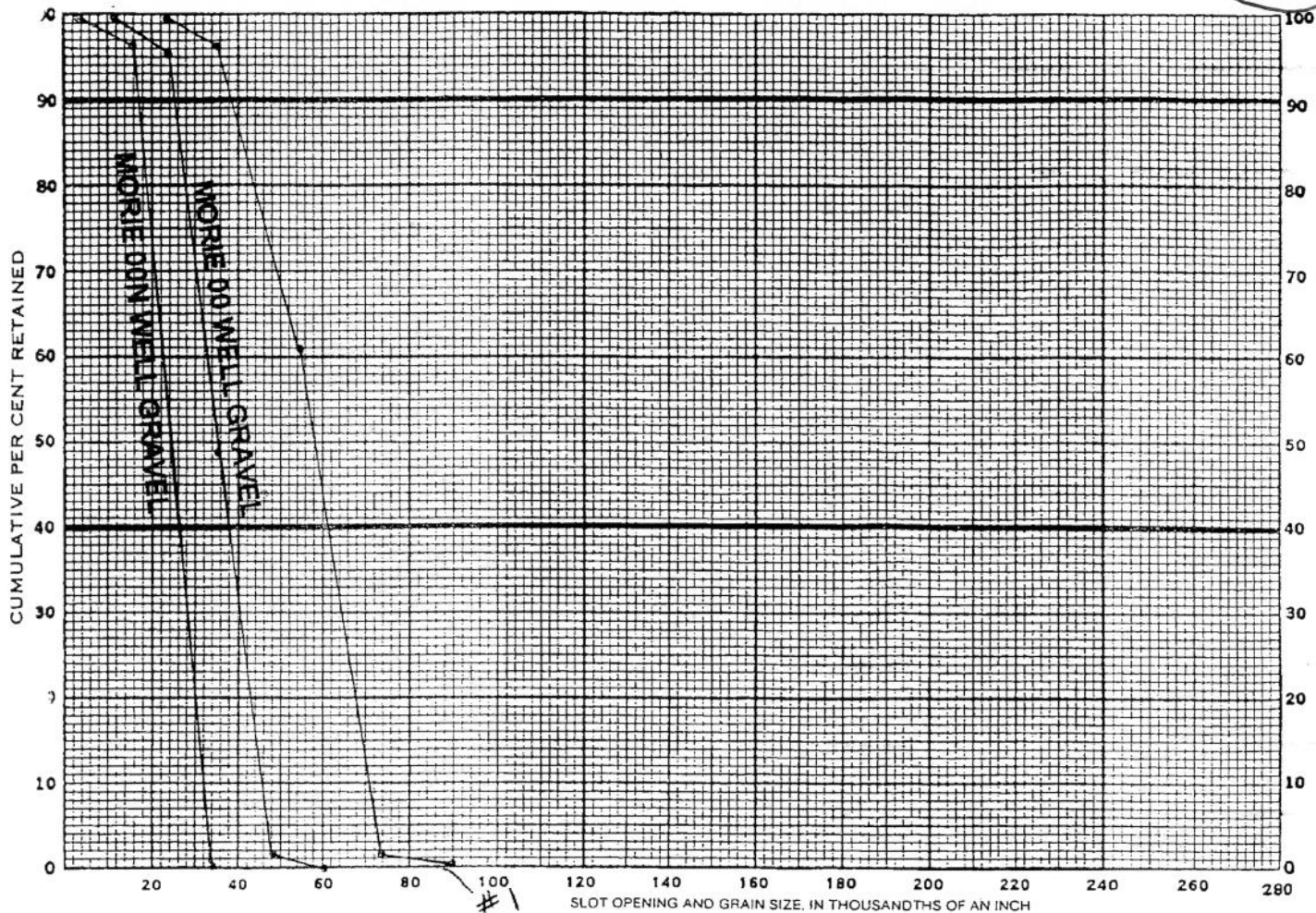
not
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one



MORIE SCREENINGS

NEW JERSEY WELL GRAVELS

"C"



SIEVE OPENING US SIEVE/INCHES	CUMULATIVE PER CENT RETAINED		
	#1	#0	#00N
1/2 .250			
4 .187			
6 .132			
8 .094			
12 .066	97.8	2.2	
16 .047	38.3	61.7	1.2
20 .033	2.6	97.4	48.0
30 .023	1.4	99.6	96.4
40 .016	1.1	99.9	99.7
50 .012	2	100.0	100.0
SCREEN SLOT	30	20	15

Notes: NO. 1 WELL GRAVEL
NO. 0 WELL GRAVEL
NO. 00N WELL GRAVEL

Morie filter media meets the requirements of NSF Standard 61 and is NSF listed.



SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF THE WELL SCREENS

THE MORIE COMPANY, INC.

MINERS OF INDUSTRIAL SAND AND GRAVEL

Main Office: 1201 N. High St., Millville, NJ 08332-2580
800/257-7034 • in N.J. 800/521-0485 • Fax # 609/327-4107

GEORGIA SILICA DIVISION
Junction City, GA 31812
404/269-3294 • Fax # 404/269-3191

ALABAMA SILICA DIVISION
Tuscaloosa, AL 35401
205/758-8353 • Fax # 205/758-2177

TENNESSEE SILICA DIVISION
Camden, TN 38320
901/584-8201 • Fax # 901/584-3272

