

DRILL STEM TEST REPORT

Prepared For: **Apollo Operating, LLC**

1538 Wazee St Ste 200
Denver, CO 80202

ATTN: Randy Say

Rodwell #14-31

31-4s-51w Washington, CO

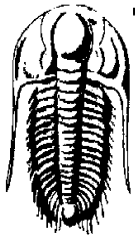
Start Date: 2017.08.12 @ 12:50:00

End Date: 2017.08.13 @ 01:48:45

Job Ticket #: 64211 DST #: 1

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2017.08.14 @ 10:54:51



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Apollo Operating, LLC

1538 Wazee St Ste 200
Denver, CO 80202

ATTN: Randy Say

31-4s-51w Washington, CO

Rodwell #14-31

Job Ticket: 64211

DST#: 1

Test Start: 2017.08.12 @ 12:50:00

GENERAL INFORMATION:

Formation: **Osage**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:53:15

Time Test Ended: 01:48:45

Test Type: Conventional Bottom Hole (Initial)

Tester: Bradley Walter

Unit No: 78

Interval: 7386.00 ft (KB) To 7452.00 ft (KB) (TVD)

Total Depth: 7452.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 4833.00 ft (KB)

4814.00 ft (CF)

KB to GR/CF: 19.00 ft

Serial #: 8845 Outside

Press@RunDepth: 37.09 psig @ 7387.00 ft (KB)

Start Date: 2017.08.12

End Date:

2017.08.13

Start Time: 12:50:05

End Time:

01:48:45

Capacity: 8000.00 psig

Last Calib.: 2017.08.13

Time On Btm: 2017.08.12 @ 18:52:45

Time Off Btm: 2017.08.12 @ 21:58:30

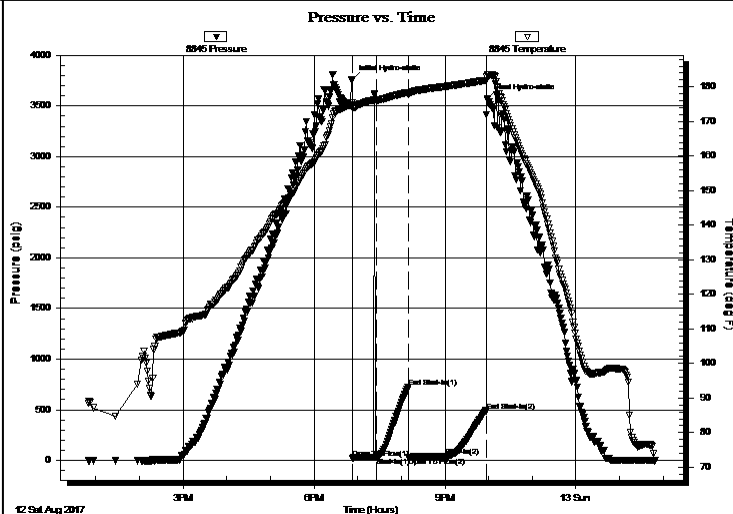
TEST COMMENT: IF: Surface blow, died @ 10 min. Flushed tool, no help.

IS: No return.

FF: No blow.

FS: No return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	3757.74	175.51	Initial Hydro-static
1	23.00	174.08	Open To Flow (1)
34	32.89	176.15	Shut-In(1)
77	725.81	178.42	End Shut-In(1)
77	31.41	177.76	Open To Flow (2)
128	37.09	180.13	Shut-In(2)
184	482.72	181.89	End Shut-In(2)
186	3575.30	183.61	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	Mud 100m	0.07

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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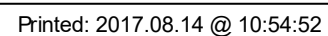


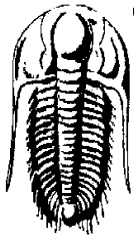
Test Start: 2017.08.12 @ 12:50:00

KB to GR/CF: 19.00 ft

Time Off Btm:

FSI: No return.





TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Apollo Operating, LLC

31-4s-51w Washington, CO

1538 Wazee St Ste 200
Denver, CO 80202

Rodwell #14-31

Job Ticket: 64211

DST#: 1

ATTN: Randy Say

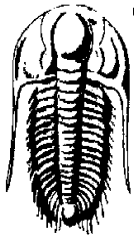
Test Start: 2017.08.12 @ 12:50:00

Tool Information

Drill Pipe:	Length:	6925.00 ft	Diameter:	3.80 inches	Volume:	97.14 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	Weight set on Packer:	30000.00 lb
Drill Collar:	Length:	455.00 ft	Diameter:	2.25 inches	Volume:	2.24 bbl	Weight to Pull Loose:	78000.00 lb
					Total Volume:	99.38 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		23.00 ft					String Weight: Initial	59000.00 lb
Depth to Top Packer:		7386.00 ft					Final	59000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		66.00 ft						
Tool Length:		95.00 ft						
Number of Packers:		2	Diameter:	6.75 inches				
Tool Comments:								

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			7358.00	
Shut In Tool	5.00			7363.00	
Sampler	2.00			7365.00	
Hydraulic tool	5.00			7370.00	
Jars	5.00			7375.00	
Safety Joint	2.00			7377.00	
Packer	5.00			7382.00	29.00 Bottom Of Top Packer
Packer	4.00			7386.00	
Stubb	1.00			7387.00	
Recorder	0.00	8365	Inside	7387.00	
Recorder	0.00	8845	Outside	7387.00	
Perforations	29.00			7416.00	
Change Over Sub	1.00			7417.00	
Drill Pipe	31.00			7448.00	
Change Over Sub	1.00			7449.00	
Bullnose	3.00			7452.00	66.00 Bottom Packers & Anchor
Total Tool Length:	95.00				



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DRILL STEM TEST REPORT

FLUID SUMMARY

Apollo Operating, LLC

31-4s-51w Washington, CO

1538 Wazee St Ste 200
Denver, CO 80202

Rodwell #14-31

Job Ticket: 64211

DST#: 1

ATTN: Randy Say

Test Start: 2017.08.12 @ 12:50:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 75.00 sec/qt

Cushion Volume:

bbl

Water Loss: 5.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	Mud 100m	0.074

Total Length: 15.00 ft Total Volume: 0.074 bbl

Num Fluid Samples: 0

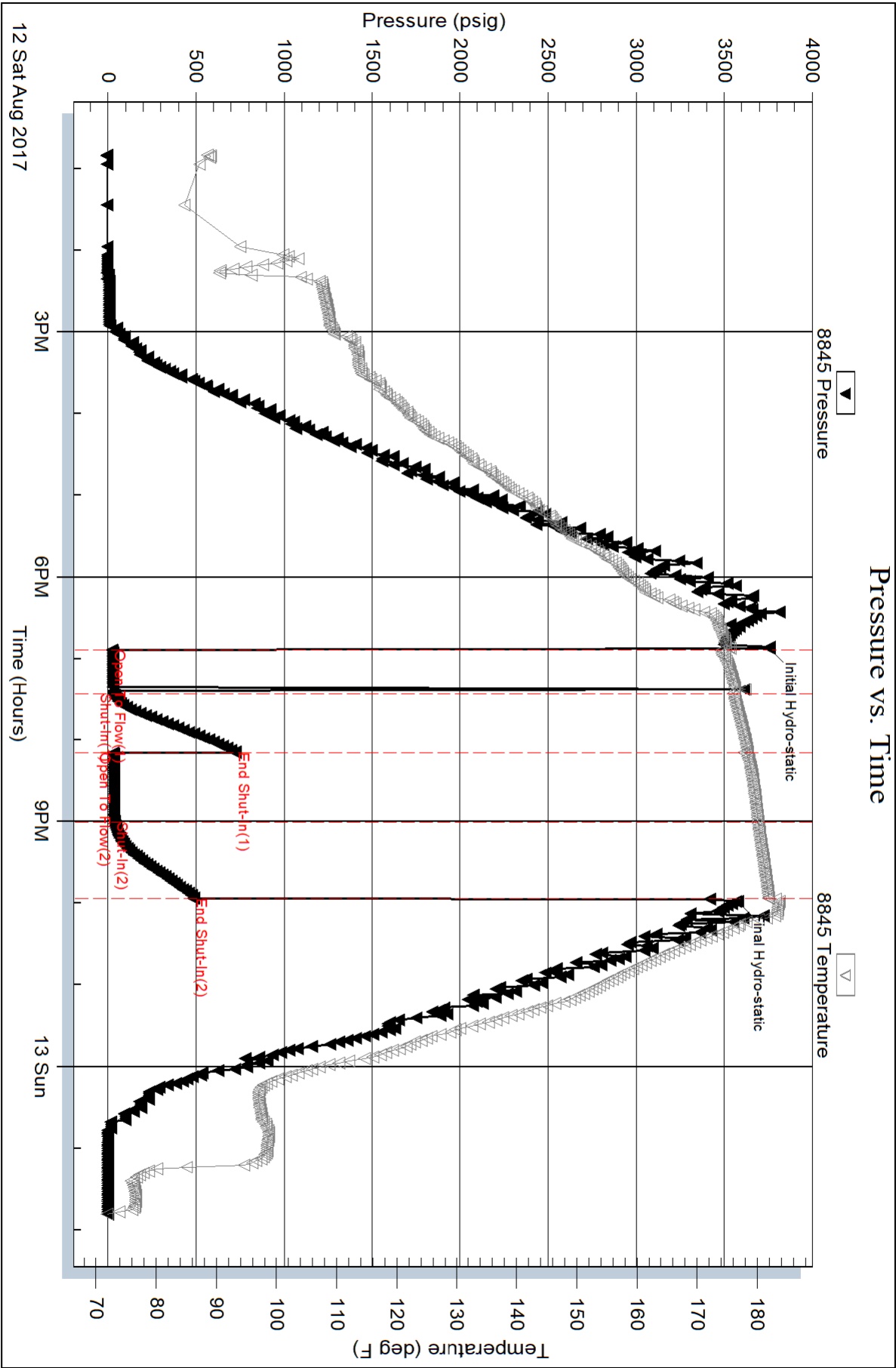
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Sampler 20psi Mud 100m



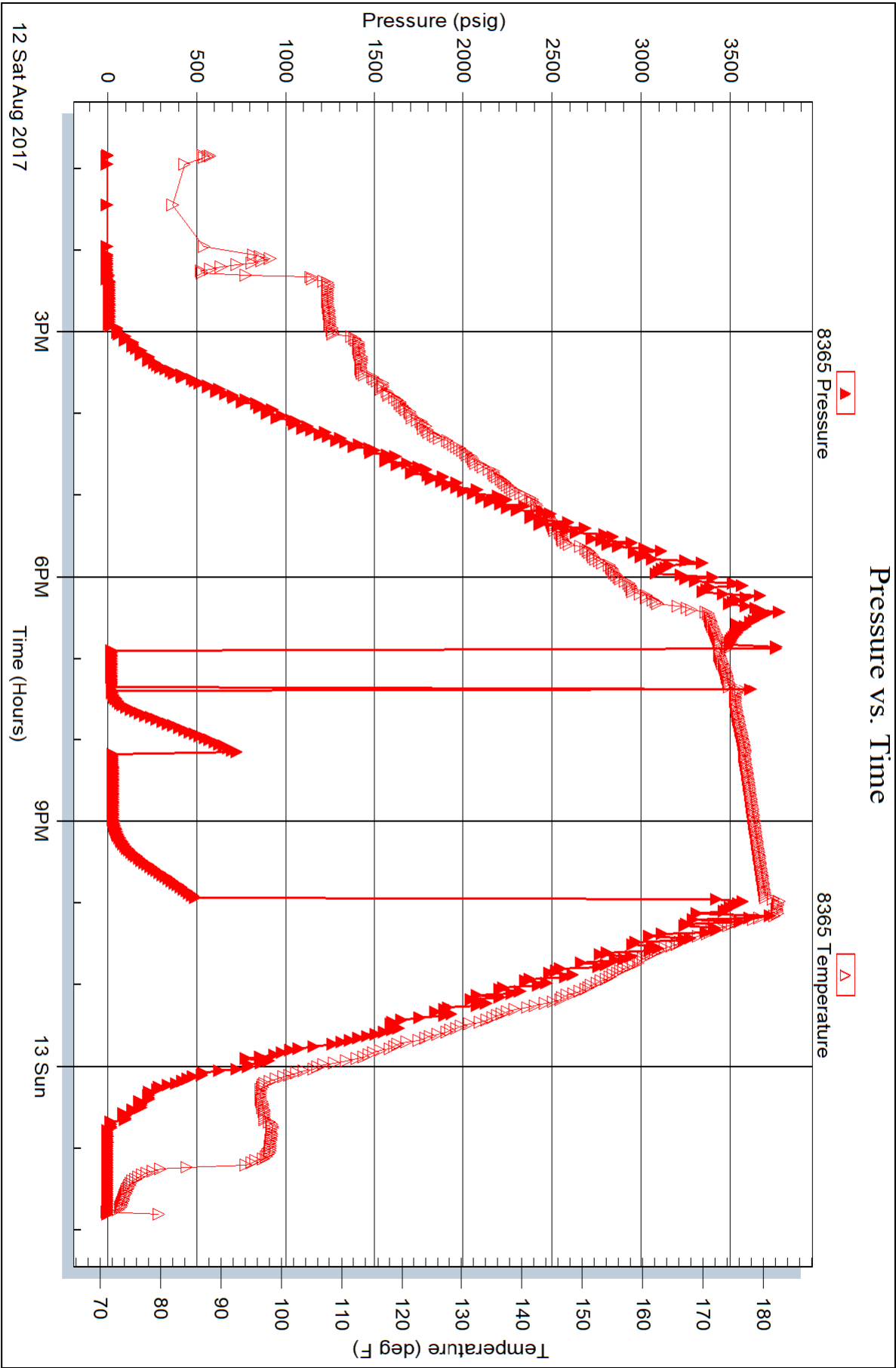
Serial #: 8365

Inside

Apollo Operating, LLC

Rodwell #14-31

DST Test Number: 1





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **64211**

Well Name & No. Rodwell 14-31 Test No. 1 Date 8/12/2017
 Company Apollo Operating, LLC Elevation 4833 KB 4814 GL
 Address 1538 Wazee St Ste 200 Denver, Co 80202
 Co. Rep / Geo. Randy Sae Rig WW 20
 Location: Sec. 31 Twp. 45 Rge. 51 W Co. Washington State Co

Interval Tested 7386-7452 Zone Tested Ozark
 Anchor Length 66' Drill Pipe Run 6925 Mud Wt. 9.3
 Top Packer Depth 7381 Drill Collars Run 455 Vis 75
 Bottom Packer Depth 7386 Wt. Pipe Run 0 WL 5.6
 Total Depth 7452 Chlorides 800 ppm System LCM 4#
 Blow Description IF Surface blow, died @ 10 min Fluske tool No Help.
ISI No return
FF No blow
FSI No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 15 BHT 182 Gravity — API RW — @ — F Chlorides — ppm

(A) Initial Hydrostatic <u>3758</u>	<input checked="" type="checkbox"/> Test <u>1850</u>	T-On Location <u>0845</u>
(B) First Initial Flow <u>23</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>1250</u>
(C) First Final Flow <u>33</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>1853</u>
(D) Initial Shut-In <u>726</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>2155</u>
(E) Second Initial Flow <u>31</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>0149 8/13</u>
(F) Second Final Flow <u>37</u>	<input checked="" type="checkbox"/> Mileage <u>456 RT</u> 304rt 228	Comments
(G) Final Shut-In <u>483</u>	<input checked="" type="checkbox"/> Sampler <u>250</u>	
(H) Final Hydrostatic <u>3575</u>	<input type="checkbox"/> Straddle	
	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input checked="" type="checkbox"/> Ruined Shale Packer <u>350</u>
	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Initial Open <u>30</u>	<input type="checkbox"/> Day Standby	Sub Total <u>350</u>
Initial Shut-In <u>45</u>	<input checked="" type="checkbox"/> Accessibility <u>150</u>	Total <u>3153</u>
Final Flow <u>45</u>	Sub Total <u>2803</u>	MP/DST Disc't
Final Shut-In <u>60</u>		

Approved By Robert R Day

Our Representative [Signature]

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