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RESULTS OF NO-FLOW ROTARY DRILL BIT COMPARISON TESTING

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Abstract: This document describes the results of testing of a newer rotary sampling bit and sampler insert called the No-Flow System. This No-Flow System was tested side by side against the currently used rotary bit and sampler insert, called the Standard Sytem. The two systems were tested using several "hard to sample" granular non-hazardous simulants to determine which could provide greater sample recovery. The No-Flow System measurably outperformed the Standard System in each of the tested simulants.

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RESULTS OF NO-FLOW ROTARY DRILL BIT COMPARISON TESTING

HNF- 3557, Rev. 0

October 1998

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Engineering Testing Laboratory
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RESULTS OF NO-FLOW ROTARY DRILL BIT COMPARISON TESTING

1.0 INTRODUCTION

Side-by-side sample recovery comparison testing was done during September 1998 between the rotary drill bit currently used for field sampling operations and a newly designed rotary mode drill bit. The rotary drill bit currently used for core drilling operations on the Hanford site (Longyear Inc. P.N. 1001VD/8) and its corresponding sampler insert, herein called the "Standard System", allows a significant amount of nitrogen purge gas to enter the center sample core rather than be directed out only the purge gas holes on the cutting face of the bit. This misdirected purge gas flow can disturb a cored sample such that the quantity of a sample recovered could be significantly reduced in certain waste forms. The new bit (Longyear Inc. P.N. 1001VD/9) and its associated sampler insert design, herein called the "No-Flow System", incorporates a leak proof seal between the sampler insert and the inside surface of the drill bit. This leak-proof seal prevents the purge gas from directly entering the center sampler hole and should allow for better sample recovery and better sample integrity.

2.0 TEST OBJECTIVE

The testing described herein was intended to demonstrate improvements (if any) in sample recovery with the No-Flow System over the Standard System while sampling various "hard to recover" simulants.

3.0 TEST EQUIPMENT

3.1 CORE DRILLING MACHINE

The drilling machine used was a Longyear Model 34¹. This testing drill, in its basic form, is the same type of drill installed on the core sampling trucks for field operations.

The drilling machine is shown in Figure 1.

¹Longyear is a trademark of Longyear Incorporated

Figure 1 - Core Sampling Rig

3.2 ROTARY DRILL BITS AND INSERTS

Drill bits used for this testing were Longyear part numbers 100IVD/8 (standard rotary bit) and 100IVD/9 (No-Flow rotary bit). The bits have the same overall geometry except for the inside sampler sealing surface. The standard bit has three equally spaced pins on the inner bottom surface that the sampler rests on while the No-Flow bit has a circumferentially flat, downward and radially inwardly sloping surface that the sampler rests on. A rotating mechanism, called a "sampler insert," screws into the bottom of a rotary sampler assembly and rests on the inner bit sealing surface. Each style rotary bit mates up to its own unique sampler insert. The standard sampler insert has a flat rotating surface that rests on the three pins mounted inside the standard bit. The No-Flow insert has a downward sloping circular surface set at a slightly sharper angle than the inside bit surface. This provides a sharp-edged sealing surface. Figure 2 shows the geometry of the two systems. Both style bits are composed of the same material composition - a proprietary sintered bronze and tungsten mixture. Each bit tested had a unique serial number and passed a receipt inspection before being used.

Figure 2 - Standard & No-Flow Rotary Bits and Inserts

A photo of the standard RMCS (100IVD/8) rotary drill bit is shown in Figure 3. Figures 4 and 5 show photographs of the Standard and No-Flow inserts respectively. The photograph of the Standard insert is shown with the chevron seal while the No-Flow insert is shown without the seal installed. Note that the No-Flow insert would normally have a chevron seal fused to the insert for field sampling operations, but for this testing it was not used. This did not affect any tests results since the seal acts primarily as a fluid back-flow preventer which was not needed here since the simulants contained no free liquids.

Figure 3 - Standard RMCS (100IVD/8) Drill Bit

Figure 4 - Standard Rotary Insert

Figure 5 - No-Flow Rotary Insert

3.3 TEST SIMULANTS

Three nonhazardous materials were chosen as test simulants: sulfur Kmag [potassium magnesium sulfate – $K_2SO_4 \cdot 2(MgSO_4)$], urea (NH_2CONH_2) and common sand. The sand and the urea were tested both wet and dry. The Kmag was tested only dry since previous testing showed it too easy to sample when wet. The simulants were prepared as "wet" by adding water to a container already full of dry simulant until the simulant was saturated. The water was then allowed to completely drain out the bottom of the container a few minutes later. The dry simulant was used "as received" from the manufacturer/vendor. Wet and dry combinations of the three materials gave a total of five simulant combinations for testing.

Figures 6, 7 and 8 show samples of each of the simulants.

Figure 6 - Dry K-mag Simulant

Figure 7 - Dry Urea Simulant

Figure 8 - Dry Sand Simulant

3.4 DATA ACQUISITION SYSTEM

A data acquisition system (DAS) was used to record pertinent drilling parameters. These drilling parameters included: purge gas indicated flow rate, purge gas pressure, purge gas temperature, drill bit rpm, drill bit down force, drill bit depth, drill bit penetration rate and elapsed time. Each sensor providing information to the DAS was under a current laboratory calibration or was verified as accurate using NIST traceable secondary calibration sources (see Appendix A). Note that most equipment items associated with the Rotary Mode Core Sampling (RMCS) system uses the English system of units. This includes items such as sampler length, diameter, bit diameter, etc. Subsequently, many items recorded during testing and described in this test report are given in the English system for clarity.

4.0 TEST SEQUENCE

Each simulant tested was contained in a 24" tall by 16" diameter container with the simulant level set to at least 22" deep. The following list describes steps taken to perform a test.

- 1) A sampler, with the appropriate insert, was loaded into a standard core barrel that was then attached to the drill string mounted in the drill chuck of the drill machine.
- 2) The drill string/core barrel was then lowered until the bit face just touched the simulant surface.
- 3) The grapple assembly was then lowered down from an overhead crane hook, inside the drill string, onto the pintle rod, and secured to the drill frame. This depth became the zero point for the sampler and was electronically set as 0" on the data acquisition system.
- 4) Static downward force (750 lbs.) and purge gas (30 SCFM) was set.
- 5) The drill string/bit was then set to rotate at 55 RPM.
- 6) Downward travel and DAS recording were started simultaneously.
- 7) The drill was allowed to penetrate the simulant for 19 inches and then downward motion was stopped. The grapple assembly was then raised, which triggered the sampler valve - if it had not already automatically closed by passing the 19" travel point.
- 8) The sampler was removed from the core barrel and weighed after each test. The pretest weight was subtracted from the post test weight giving the total sample weight. This information was recorded in a controlled logbook (HNF-N-23-1)

5.0 TEST RESULTS

Of the five possible simulants, only three were found useful for comparison testing. Wet sand, dry urea, and dry K-mag gave measurable results. Five tests with each of the two bit/insert combinations were done in the wet sand simulant and six tests were done with each bit/insert combination in both the dry urea and dry K-mag. The other two simulants, dry sand and wet urea, gave such low recoveries with each bit/insert combination that recovery comparison was not measurable (i.e., one or two grams of simulant at most).

It was noticed during testing that the maximum down force developed was around 200 lbs - although the drill was preset to allow up to 750 lbs down force. The drill penetration rate was limited to approximately 140 inches/minute, in each of the simulants tested, by the capacity of the hydraulic system. More down force could have been developed by the simulant if the penetration rate were higher.

In addition, it was also noticed that with purge gas flowing and without bit rotation, the simulants would "fluidize" beneath the bit and the bit would penetrate fairly well. Without purge gas and likewise without bit rotation, the applied down force would increase rapidly as the bit was lowered - and 750 lbs would be developed within 4-6 inches, but the bit would not continue to penetrate. This information is pertinent in that it reveals the inadequacy of a Push-Mode Core Sampling system (which does not have the ability to use purge gas) for drilling in some, otherwise easy to sample, granular materials.

Table 1 shows the average recovery for each bit/insert combination in each of the three useful simulants. Three columns for each bit/insert combination describe the test results. The first column "Avg. Qty. Recovered" shows the mean average of all the tests runs in a particular simulant with a particular bit/insert. The second column "Percent of full sampler" shows what percentage of a full sampler the "Avg. Qty. Recovered" was. (Note that the recovery percentage is based on the mass of a 300 ml volume of the simulant.) The third column shows the consistency of the test results by showing the standard deviation of the specific group of tests. Raw test data from the data acquisition system is included in Appendix C.

Table 1 – Bit Recovery Comparison

	Standard System (P.N. 100IVD/8)			No-Flow System (P.N. 100IVD/9)		
	Avg. Qty. Recovered (grams)	Percent of full sampler	Standard Deviation (grams)	Avg. Qty. Recovered (grams)	Percent of full sampler	Standard Deviation (grams)
Dry K-mag	129.3	32.4	50	207.8	52.1	34
Dry Urea	55.7	24.6	7.1	98.6	43.5	11.2
Wet Sand	32.4	8.1	15.2	95.1	23.8	11.2

Notice in Table 1 that in each simulant the No-Flow bit demonstrated higher recovery and better consistency of test results. In terms of "Avg. Qty. Recovered," the No-Flow out-performed the Standard bit as follows:

- ◆ Dry Kmag - 61% better recovery
- ◆ Dry Urea - 77% better recovery
- ◆ Wet Sand - 194% better recovery

The chart in Figure 9 graphically represents the percent recovery (of a 300 ml sampler) for each test in the three simulants. In the chart the samples are shown with the highest recovery to the left for clarity. This is shown as Sample Number 1 although this is not necessarily the order in which the sample was taken during testing. Note that the No-Flow tests are shown as cylinders and the Standard tests are shown as rectangles. In addition, the simulant types are differentiated on the chart using unique surface textures.

Figure 9 - Sample Recovery Comparison: No-Flow vs. Standard System

Any effect the No-Flow bit might have on sample integrity (how well the core stayed intact and realistically represented a particular depth segment) was not measured since

incremental layering in the preparation of the simulant mixtures was not done. One could assume that sample integrity would improve with the No-Flow bit due to the geometry of the sealing surface and the subsequent redirected flow pattern.

6.0 CONCLUSIONS

The test results show that the No-Flow System outperforms the Standard System in each of three different simulants. Although these simulants may not perfectly replicate material found in Hanford waste tanks, they do represent hard-to-recover materials and differ from each other in several physical attributes - such as particle size, shape, density and water content:

For solid, easy-to-recover simulants, the Standard and No-Flow System would recover roughly equivalent samples since the purge air flow pattern would not disturb the solid core. Were the sample to break up during recovery, the No-Flow would perform better since it would have less tendency to disrupt the sample.

The No-Flow system forces all the available purge gas out the purge gas holes rather than allowing some to escape into the center sample hole area. This allows a higher velocity purge flow which should help scavenge the cuttings away from the bit face more effectively. Also, the purge holes are more likely to remain free of blockage since the path between the sample core and the purge path is closed. Examination of the drill bit after testing with the Standard System showed that in several instances the purge holes were either partially or completely blocked. Blocked purge holes decrease bit penetration efficiency since particles are not removed from the bit cutting zone.

7.0 REFERENCES

1. HNF, 1997, HNF-N-23-1, *Laboratory Logbook for Engineering Testing Notes*, Keith Witwer, Numatec Hanford Corporation, Richland, Washington.

APPENDIX A - EQUIPMENT CALIBRATION DATA

Equipment Calibration Data

Item	Hanford Std. Lab #	Range/Accuracy	Cal Expiration
Omega CL505A Temperature Calibrator	750-13-55-002	+/- 0.5 °C	6/15/99
Celesco PT101-40A - Depth Indicator	ETL Lab Cal	~24" +/- 1/16"	Cal/Accur chk as req'd
Toledo/Mett Mdl 8140 Platform Scale	750-66-01-004	0-2000lb(Cal) ± 2lb	12/21/98
Cole-Parmer Flowmeter	N/A	4-50 SCFM +/- 1 SCFM	1/23/99
Type K Thermocouple	ETL Lab Cal	0-300°C/±2°C	Cal/Accur chk as req'd
Purge Gas Pressure Gage	752-31-04-085	+/- 1 PSI	12/30/98

APPENDIX B - CONTROLLED LOGBOOK NOTES

NO FLOW VS STANDARD ROTARY INSERT/BIT RECOVERY COMPARISON TESTING.

9/26/78

- Test A10772

- Drilling into dry sand (common playground type) with standard Rotary Drill Bit 1001UD/8 SN 100772
- 750 lbf, 55 RPM, 30 SCFM

Result: Invalid result: due to sampler not being properly sealed in core barrel. Will rerun test w/ new core barrel.

- Test B10772

- Repeat of last test - drilling into dry sand w/ standard rotary bit (1001UD/8) SN 10772
- 750 lbf, 55 RPM, 30 SCFM

Result: Invalid results due to failure to close ball valve on end of sampler before raising drill string/sampler out of hole. Will repeat

- Test C10772

- Repeat of last test Drilling into dry sand w/ standard rotary bit (1001UD/8) SN 10772 (sampler #4)
- 750 lbf, 55 RPM, 30 SCFM

(* No plastic seal & no insert)

Result: Good test Total wt of sampler before test = 4553 grams

Total wt of sampler after test = 4553 grams
(w/ sand sample)

- Note that downforce registers little or nothing on flux scale during test. This is due to the nature of the dry sand being blown out of the way of the face of the drill bit which prevents any force being shown on the face of the bit.

- Test D10772

- Repeat of SN 10

- 750 lbf,

Result: Good

- Test ~~D10772~~

- Repeat of SN 1

- 750 lbf

- Result: Good

- Test E10772

- Drilling SN 1

- 750 lbf

Result: Good

Note: 1

- Test G10772

- Drilling rotary

- 750 lbf

Result: Good

85

Full Date
9/26/98

- Test D10772

- Repeat of last test Drilling into dry sand w/ standard rotary bit (1001UD/s)
SN10772 (sampler #2)
- 750 lbf, 55 RPM, 30 SCFM

* no pinhole rod &
no insert

Result: Good test. Total wt of sampler before* =
Total wt of sampler after = 4269.7 grams

7/27/98

- Test ~~D10772~~ E10772

- Repeat of last test. Drilling into dry sand w/ standard rotary bit (1001UD/s)
SN 10772 (sampler #3)
- 750 lbf, 55 RPM, 30 SCFM

* no pinhole rod &
no insert

- Result: Good test

Total wt of sampler before* = 4267.1
" " " " after = 4267.3

- Test F10772

- Drilling into dry urea pellets w/ standard rotary bit (1001UD/s)
SN 10772 (sampler #1)
- 750 lbf, 55 RPM, 30 SCFM

* wt of sampler w/ pinhole rod
& without insert

Result: Good Test. Sampler wt before* = 4410.0

" " after = 4471.8

Note: Like the sand, no denture registered on the floor scale (see Test C10772 note)

- Test G10772

- Drilling into dry urea pellets (Repeat of last test) using standard rotary bit (1001UD/s) SN10772 (sampler #2)
- 750 lbf, 55 RPM, 30 SCFM

Result: Good Test

Sampler wt before = 4433.6
" " after = 4569.5 KSW
→ 4487.7

86

- Test H10772

- Drilling into Dry Urea pellets w/ standard rotary bit (1001UD/8)
SN 10772 (Sampler #4)

- 750 lbf, 55 RPM, 30 SCFM

Result: ~~Good Test~~ ^{Bad Test}

Sampler wt before: 4717.5 grams
after 4717.5 grams

- stuck spring-release mechanism prevented ball valve from closing which allowed all of sample to fall out of sampler upon retrieval - will report.

- Test I10772

- Drilling into Dry K-Mag granules w/ standard rotary bit (1001UD/8)
(SN 10772) (Sampler #2)

- 750 lbf, 55 RPM, 30 SCFM

Result: Good Test

Sampler wt before test = 4433.6
" " after test = 4498.2

- Test J10772

- Repeat of 1st test. Drilling into dry K-Mag w/ standard rotary bit (1001UD/8)
SN 10772 (Sampler #4)

- 750 lbf, 55 RPM, 30 SCFM

Result: Good test

Sampler wt before: 4717.5 gr
" " after: 4861.9

- Test K10772

- Repeat last test. Drill into K-Mag w/ standard rotary bit (1001UD/8) SN 10772
using sampler #3

- 750 lbf, 55 RPM, 30 SCFM

Result: ~~Bad Test~~

Sampler wt before = N/G
" " after = N/G

Engaged drill string up before closing ball valve - will rerun test.

- Test L10772

- Repeat (1)
SN 10

- 750 lbf

Result: Good

- Test A-NF

- Drill into
ser #

- 750 lbf

Result: Good

- Test B-NF

- Drill into
ser #

- 750 lbf

Result: Good

- Test C-NF

- Repeat (1)
ser #

- 750 lbf

Result:

Test L10772

- Repeat last test Drill in K-Mag (Dig) w/ 1001UD/8 Bit

SN 10772 (sampler # 7)

- 750 lbf, 55 RPM, 30 SCFM

w/ w/ pinhole rod
w/ no insert

Result: Good Test

Wt. Sampler BEFORE = 4410 grams

" " After = 4583.9

Test A-NFI

- Drill into dry K-Mag w/ No Flow Insert & Rotary Drill Bit 1001UD/9
ser # NFI (Note: No serial no on bit from manufacturer
so a new serial no. was placed on inside of bit - NFI)

- 750 lbf, 55 RPM, 30 SCFM

- Using sampler # 5

No insert
w/ pinhole rod

Result: Good Test

Sampler wt before = 4619.6 grams

" " after = 4799.9

Test B-NFI

- Drill into dry K-Mag w/ No Flow Insert & Bit 1001UD/9 - Repeat of last
ser # NFI using sampler # 4 test

- 750 lbf, 55 RPM, 30 SCFM

Result: Good Test

Sampler wt before = 4717.5 grs

" " after = 4924.7

Test C-NFI

- Repeat last test Dry K-Mag w/ No Flow Insert & Bit 1001UD/9
SN NFI - Using Sampler # 2

- 750 lbf, 55 RPM, 30 SCFM

Result:

Sampler wt before = 4433.6

" " after = 4619.3

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Test D, NFI

John Smith
9/27/98

- Drill into dry Urea pellets w/ no flow rotary insert & bit 100 IUD/9
SN NFI - Using sampler #3

- 750 lb_F, 55 RPM, 30 SCFM

- Result: Good test

Sampler wt before = 4434.6 grams
" " after = 4529.1 grams

Test E - NFI

- Repeat last test Drill into Urea pellets w/ no flow rotary insert & bit
100 IUD/9 - SN NFI - Using 2

- 750 lb_F, 55 RPM, 30 SCFM

- Result: Good test

Sampler wt before = 4410 grams
" " after = 4509.6 grams

Test F NFI

- Repeat last test Drill into Urea w/ no flow insert & bit 100 IUD/9
SN - NFI - Using sampler #1

- 750 lb_F, 55 RPM, 30 SCFM

- Result: Good test

Sampler wt before = 4410 grams
" " after = 4527.3 grams

Test G - NFI

^{two} - Drilling into dry sand w/ no flow insert & rotary bit 100 IUD/9
SN - NFI Using sampler #4

- 750 lb_F, 55 RPM, 30 SCFM

- Result: Good test

Sampler wt before = 4717.5
" " after = 4717.5

Test H - NFI

- Repeat last test
SN

- 750 lb_F

- Result: C

Test I - NFI

- Repeat last test

- 750 lb_F

- Result: C

Test J - NFI

- Drill into
S

- 750 lb_F

Results:

89

Paul Spiller
7/27/98

- Test H NFI

- Repeat last test. Drilling dry sand. No-Flow insert & Bit 1001UD/9

SN NFI Sampler # 5

- 750 lbf, 55 RPM, 30 SCFM

- Result: Good test

sampler wt before 4619.6 grams

" " after 4620.6 grams

- Test I NFI

- Repeat. Drilling dry sand - No-Flow insert & Bit 1001UD/9 SN NFI
Using sampler # 3

- 750 lbf, 55 RPM, 30 SCFM

- Result: Good test

sampler wt before = 4434.6 grams

" " after = 4435.4 grams

- Test ^{KW} J M10772- Drill into dry urea pellets w/ standard rotary bit (1001UD/8)
SN 10772 (Sampler # 2)

- 750 lbf, 55 RPM, 30 SCFM

Results:

sampler wt before = 4433.6 grams

" " after = 4493.1

~~No Entry~~

90

Photos of simulants used

Dry
Granular
← Urea

Dry
Sulphur
← K-Mag
Crystals

Dry
← Coarse
Sand

Test: N

Drill in
bit
-750

Result: C

Test: 010

- Drill in
- Sample
-750

Result: C

Test: P

- Drill in
- Sample
-750

Result: G

Test: JNF

- Drill in
- Sample
-750

Result: OK
depth

91

Test: N10772

Drill into dry urea pellets w/ standard rotary
bit (100IJD/8) (Sampler # 3)
-750 lbf, 55 RPM, 30 SCFM

Result: Good Test

Sampler wt before 4619.6 grams
" " after 4665 "

Test: O10772

- Drill into dry urea pellets w/ standard rotary bit (100IJD/8)
- Sampler # 2
-750 lbf, 55 RPM, 30 SCFM

Result: Good Test

Sampler wt before 4434 grams
" " after 4484 "

Test: ~~A~~ P10772

- Drill into dry urea pellets w/ standard rotary bit (100IJD/8)
- Sampler # 4
-750 lbf, 55 RPM, 30 SCFM

Result: Good Test

Sampler wt before 4717.5 grams
" " after 4781 "

Test: J NFI

- Drill into dry urea pellets w/ No Flow bit + insert (100IJD/8)
- Sampler # 3
-750 lbf, 55 RPM, 30 SCFM

Result: ^{OK} ~~Good~~ test although computer file was not recorded (malfunction), and
depth of sample was a little short. Should probably not use this data.
Sampler wt before 4434.6 grams
" " after 4466 grams

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~~Test K NFI~~

- Drill into dry urea pellets using NO-Flow
Insert and bit 1001UD/9 Using sampler # 1
- 750 lbf, 55 RPM, 30 SCFM

- Result: Good Test Sampler wt ^{before} ~~after~~ test 4410
" " after " 4512

- Test L NFI

- Drill into dry urea pellets using NO-Flow INSERT & bit 1001UD/9
SN NFI Using sampler # 1
- 750 lbf, 55 RPM, 30 SCFM

- Result: Good test Sampler wt before test 4410 grams
" " after " 4505 grams

- Test M NFI

- Drill into dry urea pellets using NO-Flow insert & bit 1001UD/9
- 750 lbf, 55 RPM, 30 SCFM Using sampler # 3

- Result: Good test Sampler wt before 4434.6 grams
" " after 4518 "

- Test N NFI

- Drilling into dry K-Mag using NO-Flow insert & bit 1001UD/9
- 750 lbf, 55 RPM, 30 SCFM Using sampler # 2

- Result: Good test Sampler wt before 4434 grams
" " after 4621 grams

- Test O NFI

- Drilling into dry K-Mag using NO-Flow insert & bit 1001UD/9
SN NFI, Using sampler # 5

- Result: Good test Sampler wt before 4619.6 gr
" " after 4835 gr

~~Test P NFI~~
9/28/98

- Test P NFI

- Drilling
SN
- 750 lbf

Result: 6
Very good

- Test Q10772

- Drilling
- SN

- Result:
See note

- Test R1077

- Drilling
- SN 10

- Result: 2600

- Test: S1077

- Drilling in
insert
- SN 102

- Result: 28 G

* Note: A item
was suspected
after the K
back in 303
R1072 vs.
before test
before end

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Test P NFI

- Drilling into dry K-Mag using no-flow insert & bit 1001VD/9
 SN NFI, using Sampler #4
 - 750 lbf, 55 RPM, 30 SCFM

Result: Good test
 Very good recovery(?)

Sampler wt before 4717.5 grams
 " " after 4989 grams

- Test Q10772

- Drilling into dry K-Mag using standard rotary bit 1001VD/8
 - SN 10772, using Sampler #4; 750 lbf, 55 RPM, 30 SCFM

- Result: Good Test
 * See note below

Sampler wt before 4717.5 grams
 " " after 4904

- Test R 10772

- Drilling into dry K-mag using standard rotary bit 1001VD/8
 - SN 10772, using Sampler #5, 750 lbf, 55 RPM, 30 SCFM

- Result: Good Test - See Note below
 * Sampler wt before 4619.6 grams
 " " after 4696

- Test: S10772

- Drilling into dry Kmag using standard rotary bit (1001VD/8) and insert.
 - SN 10772, using Sampler #1 @ 750 lbf, 55 RPM, 30 SCFM

- Result: Good test - See Note *
 Sampler wt before 4410 g
 " " after 4540 g

* Note: A trend towards higher recovery was noticed after test Q10772. This was suspected to be caused by settling ^{of the fines} over time. Test R10772 was run after the K-mag mix was removed from the sample drum and then poured back in again. Notice the sharp drop in sample wt: 76 grams in test R10772 vs 186 grams in test Q10772. The process was repeated again before test S10772 - same phenomena. Will revise the Dry K-Mag before each run for consistency in the future.

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- Test T10772

- Drilling into Sulphur K-mag w/ standard rotary bit 1001UD/8
- SN 10772 Using sampler #2
- 750 lbf, 55 RPM, 30 SCFM

Result: Good Test

Sampler wt before 4434 gr
 " " after 4504 gr

- Test Q NFI

- Drilling into Sulphur K-mag w/ NO-FLOW INSERT & Bit - 1001UD/9
- SN NFI Using sampler #3
- 750 lbf, 55 RPM, 30 SCFM

Result: Good Test

Sampler wt before 4434.6 gr
 " " after 4578 gr

- Test R NFI

- Drilling in Wet urea w/ No Flow insert & Bit - 1001UD/9
- SN NFI Using sampler #2
- 750 lbf, 55 RPM, 30 SCFM

Result: Sampler Failure
(only short segment obtained)

Sampler wt before 4434 gr
 " " after 4442 gr

- Test S NFI

- Drilling in wet urea w/ No-Flow insert/bit - 1001UD/9
- SN NFI Using sampler #1
- 750 lbf, 55 RPM, 30 SCFM

Result: "Good" Test

Sampler wt before 4910 gr
 " " after 4490 gr

- Test T NFI

- Drilling in wet urea w/ No-Flow insert/bit - 1001UD/9
- Using sampler #2
- 750 lbf, 55 RPM, 30 SCFM

Result: Sampler Failure

Sampler wt before N/A gr
 " " after N/A gr

- Test U NFI

- Drilling
- Using 55
- 750 lbf, 55 RPM, 30 SCFM

Result: Good
sample. N
will use it.

- Test V NFI

- Drilling
- Using
- 750 lbf, 55 RPM, 30 SCFM

- Test U107

- Drill using
- 750 lbf, 55 RPM, 30 SCFM

Result: Sample
Failure - 1/2

- Test V107

- Repeat a
- 750 lbf, 55 RPM, 30 SCFM

Result: OK Test
Probably not a

- Test W107

- Drilling
- Sample
- 750 lbf, 55 RPM, 30 SCFM

Result:

- Test U - NFI

- Drilling in wet urea mix using NO-Flow bit/insert ^{insert 161} 1001VD/9
- Using Sampler #1
- 750 lbf, 55 RPM, 30 SCFM

- Result: good test but very small sample. May not be suitable simulant.
 will use standard bit to verify this on next test

Sampler wt before 4410 gr
 " " after 4433 gr

- Test V - NFI

- Drilling in wet urea mix using NO-Flow insert/bit 1001VD/9
- Using Sampler #1
- 750 lbf, 55 RPM, 30 SCFM

- Test U10772

- Drill using standard bit 1001VD/8 in wet urea mix
- 750 lbf, 55 RPM, 30 SCFM - Sampler #2

Result: Sampler/Crapple sample wt before 4434 gr
 Failure - Test No Good. " " after N/A gr

- Test V10772

- Repeat of last test: Drill using standard rotary bit 1001VD/8 in wet urea mix
- 750 lbf, 55 RPM, 30 SCFM - Sampler #5

Result: OK Test. Low volume sample.
 Probably not a good simulant.

Sampler wt before 4619 gr
 " " after 4641 gr

- Test W10772

- Drilling into wet sand using standard rotary bit/insert 1001VD/8
- Sampler #3
- 750 lbf, 55 RPM, 30 SCFM

- Result: Sampler wt before 4434 gr
 " " after 4446 gr

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~~Test~~ X10772

- Drilling into wet sand w/ standard rotary, 1001VD/8
- Using sampler #4
- 750 lbf, 55 RPM, 30 SCFM

Result: Good test

Sampler wt before 4717.5 grams
" " after 4759 grams

Δwt =

~~Test~~ Y10772

- Drilling into wet sand w/ standard rotary bit 1001VD/8
- Using sampler #1
- 750 lbf, 55 RPM, 30 SCFM

Result: Good Test

Sampler wt before 4410 gr
" " after 4462 gr

Δwt

~~Test~~ V NFI

- Drilling into wet sand w/ No-Flow BIT/insert 1001VD/9
- 750 lbf, 55 RPM, 30 SCFM - Using sampler #5

Result Good Test

Sampler wt before 4619 gr
" " after 4712 gr

~~Test~~ W NFI

- Drilling into wet sand w/ No-Flow BIT/insert 1001VD/9
- 750 lbf, 55 RPM, 30 SCFM - Using sampler #4

Result: Good Test

Sampler wt before 4717.5 gr
" " after 4821 gr

~~Test~~ X NFI

- Drilling into wet sand w/ No-Flow bit/insert 1001VD/9
- 750 lbf, 55 RPM, 30 SCFM - Using sampler #2

Result: Good Test

Sampler wt before 4434 gr
" " after 4531 gr

Δwt = gr

~~Test~~ Z10772
9/30/98
9/30/98

~~Test~~ Z10772

- Drilling into wet sand w/ standard rotary, 1001VD/8
- Using sampler #4
- 750 lbf, 55 RPM, 30 SCFM

Result: Good

~~Test~~ AA10772

- Drilling into wet sand w/ standard rotary bit 1001VD/8
- Using sampler #1

Result: Good

~~Test~~ Y NFI

- Drilling into wet sand w/ No-Flow BIT/insert 1001VD/9
- 750 lbf, 55 RPM, 30 SCFM - Using sampler #5

Result: Good

~~Test~~ Z NFI

- Drilling into wet sand w/ No-Flow BIT/insert 1001VD/9
- 750 lbf, 55 RPM, 30 SCFM - Using sampler #4

Result: Good

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- Test Z10772

- Drilling into wet sand w/ standard rotary bit 1001VD/8
- Using sampler #4
- 750 lbf, 55 RPM, 30 SCFM

- Result: Good Test

Sampler wt before 4717.5 gr
 " " after 4745 gr

 $\Delta wt = 27.5$

- Test AA10772

- Drilling into wet sand w/ standard rotary bit 1001VD/8
- Using sampler #5
- 750 lbf, 55 RPM, 30 SCFM

- Result: Good Test

Sampler wt before = 4619 gr
 " " after = 4648 gr

 $\Delta wt = 29 gr$

- Test Y NFI

- Drilling into wet sand w/ NO-FLOW rotary insert/bit - 1001VD/9
- Using sampler #1
- 750 lbf, 55 RPM, 30 SCFM

- Result: Good Test

Sampler wt before 4410 gr
 " " after 4515 gr

 $\Delta wt = 105 gr$

- Test Z NFI

- Drilling into wet sand w/ NO-FLOW rotary insert/bit 1001VD/9
- Using sampler #2
- 750 lbf, 55 RPM, 30 SCFM

- Result: Good Test

Sampler wt before 4434 gr
 " " after 4511 gr

 $\Delta wt = 77 gr$

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Test AA - NFI

- Drilling into slightly wet/crystallized Ures mix using No Flow 1001UD/9
Using Sampler #5
- 750 lbf, 55 RPM, 30 SCFM

- Result: Good Test but
poor recovery shows this
as being a poor simulant for
recovery comparison.

Sampler wt before 46.19 gr
" " after 46.34 gr

$\Delta wt = 15 \text{ gr}$

APPENDIX C - DAS RAW DATA FILES

100IVD/8_IN_DRY_SAND_SN_10772_750LB_55RPM_30SCFM_TO_COMPARE_W/NO_FLOW_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
05:28:10:34	20	-1.0	1.8	0.03	4	55.8	-0.28
05:28:11:33	20	21.4	59.0	0.43	4	55.8	-0.54
05:28:12:32	20	24.1	56.9	1.16	6	55.8	-0.54
05:28:13:31	20	24.1	56.5	1.98	7	55.1	13.28
05:28:14:35	20	24.1	56.4	2.74	7	55.1	13.28
05:28:15:34	20	24.1	56.3	3.55	7	54.7	14.36
05:28:16:33	20	23.9	56.2	4.26	7	54.7	14.36
05:28:17:38	20	23.9	56.2	5.06	7	54.7	13.15
05:28:18:36	20	23.9	56.1	5.88	7	54.6	13.85
05:28:19:35	20	23.9	56.1	6.58	7	54.6	13.85
05:28:20:34	20	23.9	56.1	7.41	7	54.6	14.40
05:28:21:33	20	23.9	56.1	8.14	8	54.6	14.40
05:28:22:37	20	23.9	56.1	8.90	8	54.7	12.42
05:28:23:36	20	23.9	56.0	9.69	9	54.7	12.42
05:28:24:35	20	24.1	55.9	10.39	8	54.7	10.37
05:28:25:34	20	24.1	55.9	11.18	12	54.6	10.37
05:28:26:33	20	24.1	55.9	11.95	8	54.6	14.46
05:28:27:37	20	24.1	55.9	12.70	8	54.7	14.46
05:28:28:36	20	24.1	55.9	13.52	9	54.7	14.81
05:28:29:35	20	24.1	55.9	14.27	9	54.8	14.81
05:28:30:39	20	24.1	55.9	15.01	9	54.8	14.58
05:28:31:38	20	24.1	55.8	15.81	11	54.8	14.58
05:28:32:37	20	24.1	55.8	16.53	11	54.8	14.48
05:28:33:36	20	24.1	55.8	17.30	9	54.8	14.48
05:28:34:35	20	24.3	55.8	18.06	11	54.9	15.02
05:28:35:39	20	24.1	55.8	18.79	9	54.9	15.02
05:28:36:38	20	24.3	55.8	19.55	9	54.9	16.51

100IVD/8_IN_DRY_SAND_SN_B10772_750LB_55RPM_30SCFM_TO_COMPARE_W/NO_FLOW_INSRT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
06:50:20:73	20	-1.0	1.8	0.03	-2	53.5	-0.09
06:50:21:72	20	14.6	57.3	0.31	-1	53.5	-0.49
06:50:22:71	20	24.9	56.3	1.11	1	54.4	-0.49
06:50:23:70	20	24.3	56.2	1.89	1	54.4	10.64
06:50:24:69	20	24.1	56.2	2.68	1	54.2	10.64
06:50:25:68	20	23.9	56.2	3.46	1	54.2	14.71
06:50:26:66	20	23.9	56.2	4.25	1	54.1	14.71
06:50:27:65	20	24.1	56.2	5.00	1	54.1	14.62
06:50:28:64	20	24.1	56.2	5.75	2	54.1	13.78
06:50:29:63	20	24.1	56.2	6.53	1	54.1	13.78
06:50:30:62	20	24.3	56.2	7.31	1	54.1	14.63
06:50:31:61	20	24.3	56.2	8.07	2	54.1	14.63
06:50:32:60	20	24.3	56.2	8.84	3	54.1	12.15
06:50:33:58	20	24.3	56.2	9.64	2	54.2	12.15
06:50:34:57	20	24.5	56.2	10.39	1	54.2	9.16
06:50:35:56	20	24.3	56.2	11.13	14	54.3	9.16
06:50:36:55	20	24.3	56.2	11.85	33	54.3	13.69
06:50:37:54	20	24.5	56.1	12.61	2	54.3	13.69
06:50:38:53	20	24.7	56.1	13.38	4	54.3	14.41
06:50:39:52	20	24.7	56.1	14.17	3	54.3	14.41
06:50:40:50	20	24.7	56.1	14.92	3	54.2	14.20
06:50:41:49	20	24.7	56.1	15.70	3	54.2	14.20
06:50:42:48	20	24.7	56.1	16.45	3	54.2	14.39
06:50:43:47	20	24.7	56.1	17.19	2	54.2	14.39
06:50:44:46	20	24.7	56.1	17.94	2	54.2	15.77
06:50:45:45	20	24.7	56.1	18.68	2	54.1	15.77
06:50:46:44	20	24.9	56.1	19.43	2	54.1	15.91

100IVD/8_IN_DRY_SAND_SN_C10772_750LB_55RPM_30SCFM_TO_COMPARE_W/NO_FLOW_INSRT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
07:07:10:81	20	-0.8	1.8	0.02	-2	55.5	-0.40
07:07:11:86	20	5.4	56.6	0.53	-2	55.7	1.51
07:07:12:90	20	21.4	55.9	1.35	-2	55.7	1.51
07:07:13:89	20	21.8	55.7	2.11	-2	55.1	14.71
07:07:14:88	20	21.6	55.6	2.90	-2	55.1	14.71
07:07:15:86	20	21.4	55.6	3.67	-2	54.7	14.35
07:07:16:85	20	21.6	55.5	4.43	-1	54.7	14.35
07:07:17:90	20	21.6	55.4	5.26	-1	54.7	12.61
07:07:18:89	20	21.6	55.1	6.03	-1	54.7	12.61
07:07:19:87	20	21.8	55.1	6.81	1	54.7	13.83
07:07:20:92	20	21.8	54.9	7.61	1	54.8	13.83
07:07:21:91	20	21.6	54.8	8.39	1	54.8	14.44
07:07:22:90	20	21.8	54.7	9.15	1	54.8	14.44
07:07:23:88	20	21.8	54.7	9.94	1	54.8	8.61
07:07:24:87	20	21.8	54.6	10.69	1	54.8	8.61
07:07:25:92	20	21.8	54.5	11.51	1	54.8	12.05
07:07:26:90	20	21.8	54.5	12.29	1	54.8	14.45
07:07:27:89	20	21.8	54.5	13.07	1	54.7	14.45
07:07:28:88	20	21.8	54.5	13.87	1	54.7	14.70
07:07:29:87	20	21.8	54.4	14.58	1	54.7	14.70
07:07:30:91	20	21.8	54.3	15.40	1	54.7	14.56
07:07:31:90	20	21.8	54.3	16.19	-1	54.7	14.56
07:07:32:89	20	21.8	54.2	16.92	1	54.7	14.49
07:07:33:94	20	22.0	54.2	17.73	1	54.7	14.49
07:07:34:92	20	21.8	54.2	18.48	1	54.8	16.46
07:07:35:91	20	22.0	54.1	19.21	1	54.8	16.46

100IVD/8_IN_DRY_SAND_SN_D10772_750LB_55RPM_30SCFM_TO_COMPARE_W/NO_FLOW_INSRT.

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
07:51:01:47	21	-0.6	1.7	0.09	2	55.6	-0.10
07:51:02:46	21	13.4	57.3	0.55	2	55.6	-0.38
07:51:03:45	21	22.9	55.8	1.32	3	55.6	-0.38
07:51:04:43	21	23.5	55.4	2.11	3	55.3	12.35
07:51:05:42	21	23.3	54.7	2.87	2	54.6	12.35
07:51:06:41	21	23.3	54.5	3.64	2	54.6	13.42
07:51:07:40	21	23.3	54.4	4.42	3	54.5	13.42
07:51:08:39	21	23.3	54.3	5.21	3	54.5	12.96
07:51:09:38	21	23.3	54.2	5.96	3	54.5	13.43
07:51:10:37	21	23.3	54.2	6.69	3	54.5	13.43
07:51:11:35	21	23.3	54.1	7.48	3	54.4	14.60
07:51:12:34	21	23.3	54.1	8.25	2	54.4	14.60
07:51:13:33	21	23.3	54.1	9.04	3	54.4	10.16
07:51:14:32	21	23.5	54.1	9.80	3	54.5	10.16
07:51:15:31	21	23.3	54.1	10.57	4	54.5	9.64
07:51:16:30	21	23.3	54.0	11.33	3	54.5	9.64
07:51:17:29	21	23.3	54.0	12.10	4	54.5	13.73
07:51:18:28	21	23.1	53.9	12.81	3	54.4	13.73
07:51:19:26	21	23.3	53.9	13.64	3	54.4	13.98
07:51:20:25	21	23.5	53.9	14.42	3	54.4	13.98
07:51:21:24	21	23.3	53.9	15.18	3	54.3	14.74
07:51:22:23	21	23.5	53.9	15.95	6	54.3	14.74
07:51:23:22	21	23.5	53.8	16.70	6	54.3	14.13
07:51:24:21	21	23.3	53.8	17.48	4	54.3	14.13
07:51:25:20	21	23.3	53.8	18.23	3	54.3	15.42
07:51:26:18	21	23.3	53.8	18.93	3	54.3	15.42

100IVD/8_IN_DRY_SAND_SN_E10772_750LB_55RPM_30SCFM_TO_COMPARE_W/NO_FLOW_INSRT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
05:19:06:09	19	-0.6	1.7	-0.05	-9	55.8	-0.26
05:19:07:08	20	22.0	56.0	0.42	-7	55.8	-0.26
05:19:08:12	20	24.3	54.1	1.23	-9	55.8	9.76
05:19:09:11	20	24.3	54.0	2.02	-10	55.1	9.76
05:19:10:10	19	24.1	53.8	2.76	-10	54.6	13.40
05:19:11:14	20	24.1	53.7	3.55	-9	54.6	13.40
05:19:12:13	19	24.3	53.6	4.33	-9	54.5	13.25
05:19:13:12	19	24.3	53.5	5.07	-9	54.5	13.25
05:19:14:11	20	24.3	53.5	5.86	-10	54.5	13.00
05:19:15:10	20	24.3	53.5	6.59	-9	54.5	13.00
05:19:16:14	20	24.3	53.5	7.37	-9	54.6	13.74
05:19:17:13	20	24.1	53.4	8.08	-9	54.6	13.74
05:19:18:12	19	24.1	53.4	8.83	-9	54.6	11.19
05:19:19:16	20	24.1	53.4	9.64	-9	54.5	11.19
05:19:20:15	19	23.9	53.4	10.40	-10	54.5	8.43
05:19:21:14	19	24.1	53.4	11.12	-10	54.5	8.43
05:19:22:13	19	24.1	53.4	11.91	-9	54.5	12.76
05:19:23:12	19	23.9	53.3	12.61	-9	54.5	12.76
05:19:24:16	19	23.9	53.3	13.42	-9	54.5	14.05
05:19:25:15	20	23.9	53.3	14.19	-9	54.6	14.05
05:19:26:14	19	23.9	53.3	14.90	-10	54.6	13.88
05:19:27:18	20	23.9	53.3	15.68	-9	54.6	13.66
05:19:28:17	19	23.9	53.3	16.46	-10	54.5	13.66
05:19:29:16	19	23.9	53.3	17.16	-9	54.5	13.80
05:19:30:15	19	23.9	53.3	17.95	-10	54.5	13.80
05:19:31:13	19	23.9	53.3	18.65	-9	54.5	14.98
05:19:32:18	19	24.1	53.3	19.38	-8	54.5	14.98

100IVD/8_IN_DRY_UREA_SN_F10772_750LB_55RPM_30SCFM_TO_COMPARE_W/NO_FLOW_INSRT

TIME	P_URG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
05:40:35:08	19	-0.6	1.8	-0.04	1	56.1	-0.45
05:40:36:07	20	-0.4	58.7	0.25	1	56.1	-0.40
05:40:37:06	20	23.7	54.2	1.03	0	56.1	-0.40
05:40:38:05	20	24.1	54.0	1.78	0	55.6	13.73
05:40:39:03	20	24.1	53.6	2.56	4	55.1	13.73
05:40:40:02	20	24.3	53.5	3.34	6	55.1	13.68
05:40:41:01	20	24.5	53.5	4.06	8	55.0	13.68
05:40:42:00	20	24.5	53.4	4.84	9	55.0	13.18
05:40:42:99	20	24.7	53.3	5.63	11	55.0	13.18
05:40:43:98	20	24.7	53.2	6.36	14	55.0	13.49
05:40:44:97	20	24.7	53.2	7.11	18	55.0	13.49
05:40:45:95	20	24.7	53.0	7.88	21	55.1	13.95
05:40:46:94	20	24.7	52.9	8.60	24	55.1	13.95
05:40:47:93	19	24.9	52.9	9.37	31	55.1	9.87
05:40:48:92	19	24.9	52.9	10.10	36	55.1	9.87
05:40:49:91	20	24.9	52.8	10.78	39	55.1	9.11
05:40:50:90	20	24.9	52.8	11.51	40	55.1	9.11
05:40:51:94	20	24.9	52.8	12.26	44	55.1	13.31
05:40:52:93	20	24.9	52.7	13.00	49	55.0	13.31
05:40:53:92	20	24.9	52.7	13.73	55	55.0	13.67
05:40:54:91	20	24.9	52.7	14.42	64	55.0	13.67
05:40:55:90	20	24.9	52.7	15.12	70	55.0	13.65
05:40:56:89	20	24.9	52.6	15.78	75	55.0	12.86
05:40:57:87	20	24.9	52.6	16.44	80	55.0	12.86
05:40:58:86	20	24.9	52.6	17.09	94	54.9	14.16
05:40:59:85	20	25.1	52.6	17.76	100	54.9	14.16
05:41:00:84	20	25.1	52.6	18.38	104	54.8	15.49
05:41:01:83	20	25.1	52.6	18.98	110	54.8	15.49

100IVD/8_IN_DRY_UREA_SN_G10772_750LB_55RPM_30SCFM_TO_COMPARE_W/NO_FLOW_INSRT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
05:53:33:87	20	-0.6	1.8	0.10	-1	53.9	-0.46
05:53:34:86	20	21.8	24.0	0.48	-2	54.9	-0.46
05:53:35:85	20	23.3	24.0	1.25	-1	54.9	5.05
05:53:36:89	20	23.5	24.0	2.02	1	55.0	5.05
05:53:37:88	20	23.5	23.9	2.84	1	54.6	13.10
05:53:38:87	20	23.7	23.9	3.62	5	54.6	13.10
05:53:39:91	20	23.9	23.8	4.41	8	54.5	13.49
05:53:40:90	20	23.9	23.8	5.21	9	54.6	13.49
05:53:41:89	20	23.9	23.8	5.96	10	54.6	12.75
05:53:42:88	20	24.1	23.8	6.75	14	54.5	13.55
05:53:43:86	20	24.1	23.8	7.51	18	54.6	13.55
05:53:44:91	20	24.3	23.6	8.28	21	54.6	10.81
05:53:45:90	20	24.3	23.6	9.13	25	54.7	10.81
05:53:46:89	20	24.3	23.5	9.84	30	54.6	8.67
05:53:47:87	20	24.3	23.5	10.63	36	54.6	8.67
05:53:48:86	20	24.3	23.3	11.37	37	54.6	12.55
05:53:49:91	20	24.3	23.3	12.10	44	54.6	12.55
05:53:50:90	20	24.3	23.0	12.85	46	54.6	13.69
05:53:51:88	20	24.3	22.9	13.59	56	54.5	13.69
05:53:52:87	20	24.3	22.8	14.30	60	54.5	13.63
05:53:53:86	20	24.3	22.8	15.00	72	54.5	13.63
05:53:54:90	20	24.3	22.7	15.71	82	54.5	13.21
05:53:55:89	20	24.5	22.6	16.42	91	54.5	13.21
05:53:56:88	20	24.3	22.5	17.07	109	54.5	13.61
05:53:57:93	20	24.3	22.4	17.71	124	54.6	13.61
05:53:58:91	20	24.7	22.3	18.31	141	54.6	14.49
05:53:59:90	20	24.5	22.1	18.88	150	54.6	14.49

100IVD/8_IN_DRY_UREA_SN_H10772_750LB_55RPM_30SCFM_TO_COMPARE_W/NO_FLOW_INSRT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
06:18:54:81	20	-0.6	1.7	0.05	-1	55.7	-0.04
06:18:55:80	20	15.4	70.0	0.55	-2	55.7	3.83
06:18:56:79	20	22.9	70.0	1.35	-1	55.7	3.83
06:18:57:78	20	22.9	70.0	2.14	0	55.3	13.28
06:18:58:76	20	22.9	70.0	2.90	3	54.8	13.28
06:18:59:75	20	23.1	70.0	3.68	5	54.8	13.85
06:19:00:74	20	23.1	70.0	4.46	8	54.7	13.85
06:19:01:73	20	23.5	70.0	5.22	10	54.6	13.39
06:19:02:72	20	23.5	70.0	6.02	14	54.6	13.39
06:19:03:71	20	23.5	70.0	6.75	15	54.7	13.25
06:19:04:70	20	23.5	70.0	7.53	19	54.8	13.25
06:19:05:69	20	23.5	70.0	8.30	23	54.8	12.61
06:19:06:67	20	23.5	70.0	9.06	26	54.8	12.61
06:19:07:66	20	23.5	70.0	9.83	34	54.8	8.53
06:19:08:65	20	23.7	70.0	10.55	39	54.8	8.53
06:19:09:64	20	23.5	70.0	11.28	44	54.8	11.34
06:19:10:63	20	23.5	70.0	12.02	46	54.8	11.34
06:19:11:62	20	23.7	70.0	12.73	55	54.8	13.17
06:19:12:61	20	23.7	70.0	13.44	65	54.8	13.17
06:19:13:59	20	23.7	70.0	14.16	71	54.8	13.49
06:19:14:58	20	23.7	70.0	14.83	84	54.8	13.49
06:19:15:57	20	23.7	70.0	15.49	100	54.9	13.58
06:19:16:56	20	23.7	70.0	16.13	117	54.9	13.58
06:19:17:55	20	23.7	70.0	16.75	129	54.9	13.56
06:19:18:54	20	23.7	70.0	17.39	135	54.9	13.56
06:19:19:53	20	23.9	70.0	17.99	148	54.8	13.52
06:19:20:52	20	23.7	70.0	18.55	157	54.8	13.52
06:19:21:50	20	23.9	70.0	19.07	161	54.8	15.25

100IVD/8_IN_DRY_KMAG_SN_I10772_750LB_55RPM_30SCFM_TO_COMPARE_W/NO_FLOW_INSRT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
08:02:13:65	20	-0.6	70.0	0.04	-1	55.6	-0.52
08:02:14:58	20	9.1	70.0	0.49	-1	55.6	3.45
08:02:15:57	20	23.1	70.0	1.25	0	55.6	3.45
08:02:16:56	20	22.9	53.9	2.04	0	55.1	13.38
08:02:17:55	20	23.1	53.9	2.84	5	54.5	13.38
08:02:18:53	20	23.1	53.9	3.61	15	54.5	13.83
08:02:19:52	20	23.3	53.9	4.34	19	54.4	13.83
08:02:20:51	20	23.7	53.9	5.12	24	54.4	13.12
08:02:21:50	20	23.9	53.9	5.89	28	54.4	13.12
08:02:22:49	20	23.7	53.9	6.61	32	54.5	13.68
08:02:23:48	20	23.9	53.9	7.37	41	54.5	13.68
08:02:24:47	20	23.9	53.8	8.11	44	54.5	13.23
08:02:25:46	20	24.1	53.8	8.83	49	54.4	13.23
08:02:26:44	20	24.1	53.8	9.56	58	54.3	8.58
08:02:27:43	20	24.3	53.8	10.29	66	54.3	8.58
08:02:28:42	20	24.3	53.8	11.01	84	54.2	9.45
08:02:29:41	20	24.3	53.7	11.68	80	54.2	9.45
08:02:30:40	20	24.3	53.7	12.36	86	54.2	13.58
08:02:31:39	20	24.1	53.7	13.05	89	54.1	13.58
08:02:32:38	20	24.3	53.6	13.74	90	54.1	13.90
08:02:33:36	20	24.3	53.6	14.40	96	54.1	13.90
08:02:34:35	20	24.1	53.5	15.07	100	54.1	13.37
08:02:35:34	20	24.1	53.5	15.74	106	54.1	13.37
08:02:36:33	20	24.1	53.4	16.36	111	54.1	14.06
08:02:37:32	20	24.3	53.4	16.99	116	54.1	14.06
08:02:38:31	20	24.3	53.4	17.63	125	54.2	14.55
08:02:39:30	20	24.3	53.4	18.22	128	54.2	14.55
08:02:40:29	20	24.3	53.4	18.78	132	54.2	14.08
08:02:41:27	20	24.5	53.4	19.33	140	54.2	14.08

100IVD/8_IN_DRY_KMAG_SN_J10772_750LB_55RPM_30SCFM_TO_COMPARE_W/NO_FLOW_INSRT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
08:17:46:89	20	-0.6	1.7	0.04	3	55.6	-0.38
08:17:47:87	20	22.8	55.6	0.29	0	55.6	-0.38
08:17:48:86	20	24.1	54.3	1.06	12	55.7	7.23
08:17:49:85	20	24.9	53.8	1.82	28	55.0	7.23
08:17:50:84	20	24.9	53.4	2.60	42	55.0	13.22
08:17:51:83	20	24.9	53.3	3.31	49	54.8	13.22
08:17:52:82	20	25.1	53.1	4.06	61	54.7	13.41
08:17:53:81	20	25.3	53.0	4.75	76	54.7	13.41
08:17:54:79	20	25.1	52.9	5.48	87	54.8	11.63
08:17:55:78	20	25.3	52.8	6.17	100	54.7	11.63
08:17:56:77	20	25.3	52.8	6.83	110	54.7	12.99
08:17:57:76	20	25.3	52.7	7.51	119	54.7	12.99
08:17:58:75	20	25.5	52.6	8.14	125	54.8	12.70
08:17:59:74	20	25.5	52.6	8.78	134	54.8	12.70
08:18:00:73	20	25.7	52.6	9.42	137	54.8	7.34
08:18:01:72	20	25.5	52.5	10.06	133	54.8	7.34
08:18:02:70	20	25.7	52.5	10.67	143	54.8	9.65
08:18:03:69	20	25.9	52.5	11.28	144	54.8	9.65
08:18:04:68	20	25.9	52.4	11.88	148	54.7	13.19
08:18:05:67	20	25.7	52.4	12.49	150	54.7	13.19
08:18:06:66	20	25.7	52.3	13.14	152	54.7	12.39
08:18:07:65	20	25.5	52.3	13.74	152	54.7	12.39
08:18:08:64	20	25.3	52.3	14.30	163	54.7	13.14
08:18:09:62	20	25.5	52.3	14.89	173	54.7	13.14
08:18:10:61	20	25.5	52.2	15.46	173	54.7	12.74
08:18:11:60	20	25.7	52.2	16.02	200	54.7	12.74
08:18:12:59	20	25.7	52.2	16.55	203	54.7	12.23
08:18:13:58	20	25.7	52.2	17.08	208	54.7	12.23
08:18:14:57	20	25.7	52.2	17.63	215	54.6	13.71
08:18:15:56	20	25.9	52.2	18.13	226	54.6	13.71
08:18:16:55	20	26.1	52.2	18.56	238	54.6	13.23
08:18:17:53	20	26.1	52.2	18.97	293	54.6	12.61

100IVD/8_IN_DRY_KMAG_SN_K10772_750LB_55RPM_30SCFM_TO_COMPARE_W/NO_FLOW_INSR

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
08:30:17:11	20	-0.6	1.7	0.04	2.0	53.5	-0.25
08:30:18:10	20	5.6	56.2	0.29	3.3	53.5	-0.50
08:30:19:09	20	23.5	54.6	1.11	17.0	54.4	-0.50
08:30:20:08	20	23.5	54.2	1.82	28.3	54.3	10.30
08:30:21:12	20	23.5	54.1	2.61	34.5	54.3	10.30
08:30:22:11	20	23.9	54.0	3.38	39.5	54.3	12.40
08:30:23:10	20	23.7	53.8	4.09	52.0	54.3	12.40
08:30:24:09	20	23.9	53.6	4.84	78.3	54.3	13.05
08:30:25:08	20	24.1	53.5	5.51	97.0	54.2	13.05
08:30:26:12	20	24.3	53.5	6.21	120.8	54.2	12.12
08:30:27:11	20	24.3	53.4	6.88	135.8	54.2	12.49
08:30:28:10	20	24.5	53.3	7.47	144.5	54.2	12.49
08:30:29:09	20	24.5	53.3	8.11	144.5	54.2	11.77
08:30:30:08	20	24.5	53.1	8.74	147.0	54.2	11.77
08:30:31:12	20	24.7	52.9	9.37	152.0	54.2	7.21
08:30:32:11	20	24.7	52.8	9.95	155.8	54.0	7.21
08:30:33:10	20	24.9	52.8	10.52	165.8	54.0	9.35
08:30:34:14	20	25.1	52.8	11.12	174.5	53.9	9.35
08:30:35:13	20	25.1	52.7	11.70	174.5	53.9	12.00
08:30:36:28	20	25.1	52.7	12.22	182.0	53.9	12.00
08:30:37:11	20	25.1	52.7	12.79	192.0	53.9	12.97
08:30:38:09	20	24.9	52.7	13.36	197.0	53.8	12.97
08:30:39:08	20	25.1	52.6	13.92	200.8	53.8	12.83
08:30:40:07	20	25.1	52.6	14.43	212.0	53.7	12.83
08:30:41:06	20	25.1	52.6	14.93	218.3	53.6	13.00
08:30:42:05	20	25.1	52.6	15.42	228.3	53.6	13.00
08:30:43:04	20	25.3	52.6	15.92	238.3	53.5	11.80
08:30:44:03	20	25.3	52.6	16.39	249.5	53.5	11.80
08:30:45:01	20	25.5	52.6	16.90	249.5	53.5	13.23
08:30:46:00	20	25.3	52.6	17.38	254.5	53.3	13.23
08:30:46:99	20	25.5	52.6	17.85	284.5	53.4	13.40
08:30:47:98	20	25.5	52.6	18.20	347.0	53.4	13.40
08:30:48:97	20	25.5	52.6	18.45	448.3	53.4	11.27
08:30:49:96	20	25.5	52.6	18.65	422.0	53.5	11.27
08:30:50:95	20	25.7	52.6	18.84	489.5	53.5	7.79
08:30:51:94	20	25.7	52.6	19.02	530.8	53.8	7.79

100IVD/8_IN_DRY_KMAG_SN_L10772_750LB_55RPM_30SCFM_TO_COMPARE_W/NO_FLOW_INSRT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
08:53:49:74	20	-0.6	1.7	-0.03	0	55.4	-0.59
08:53:50:79	20	23.3	70.0	0.58	6	55.6	-0.59
08:53:51:83	20	24.5	70.0	1.39	15	55.4	10.55
08:53:52:82	20	24.9	70.0	2.16	24	55.4	10.55
08:53:53:81	20	25.1	70.0	2.92	33	54.8	12.49
08:53:54:79	20	25.1	70.0	3.68	43	54.7	12.49
08:53:55:78	20	25.1	70.0	4.42	49	54.7	12.92
08:53:56:83	20	25.5	70.0	5.19	58	54.6	12.92
08:53:57:82	20	25.5	70.0	5.95	67	54.6	11.72
08:53:58:80	20	25.5	70.0	6.64	75	54.6	11.72
08:53:59:85	20	25.7	70.0	7.39	91	54.6	13.01
08:54:00:84	20	25.5	70.0	8.07	101	54.7	13.01
08:54:01:83	20	25.7	70.0	8.74	112	54.7	10.95
08:54:02:81	20	25.9	70.0	9.41	123	54.7	10.95
08:54:03:80	20	25.7	70.0	10.03	127	54.8	7.86
08:54:04:85	20	25.7	70.0	10.68	133	54.8	7.86
08:54:05:83	20	25.7	70.0	11.28	153	54.7	11.01
08:54:06:82	20	25.7	70.0	11.85	158	54.7	11.01
08:54:07:87	20	25.9	70.0	12.44	170	54.7	11.60
08:54:08:86	20	25.9	70.0	13.03	180	54.8	12.23
08:54:09:84	20	25.9	70.0	13.58	200	54.8	12.23
08:54:10:83	20	26.3	70.0	14.12	214	54.8	11.48
08:54:11:82	20	26.1	70.0	14.61	237	54.8	11.48
08:54:12:87	20	26.3	70.0	15.11	243	54.7	12.05
08:54:13:85	20	26.3	70.0	15.55	266	54.7	12.05
08:54:14:84	20	26.1	70.0	16.02	275	54.7	10.81
08:54:15:83	20	26.3	70.0	16.46	277	54.7	10.81
08:54:16:82	20	26.5	70.0	16.85	281	54.7	11.73
08:54:17:86	20	26.6	70.0	17.31	290	54.6	11.73
08:54:18:85	20	26.8	70.0	17.71	348	54.5	11.89
08:54:19:84	20	26.8	70.0	17.95	451	54.5	11.89
08:54:20:88	20	27.0	70.0	18.17	455	54.5	7.91
08:54:21:87	20	26.8	70.0	18.33	498	54.7	7.91
08:54:22:86	20	27.0	70.0	18.48	535	54.7	6.31
08:54:23:85	20	26.8	70.0	18.62	537	54.7	6.31

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
08:54:24:84	20	27.0	70.0	18.89	363	54.5	6.04
08:54:25:88	20	27.0	70.0	19.06	469	54.5	6.04

100IVD/9_IN_DRY_KMAG_SN_A-NF1_750LB_55RPM_30SCFM_TO_COMPARE_W/3PIN_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
09:32:31:72	20	-0.6	9.0	-0.03	1	55.7	-0.14
09:32:32:71	20	20.6	55.5	0.66	5	55.6	4.06
09:32:33:69	20	21.4	55.5	1.44	15	55.1	4.06
09:32:34:68	20	21.6	55.4	2.20	17	55.1	13.08
09:32:35:67	21	21.4	55.4	3.01	16	54.6	13.08
09:32:36:66	20	21.6	55.2	3.77	24	54.6	12.86
09:32:37:65	20	21.8	54.7	4.55	35	54.6	12.86
09:32:38:64	20	21.8	54.5	5.28	50	54.6	13.41
09:32:39:63	21	22.2	54.2	5.99	64	54.6	13.41
09:32:40:61	20	22.6	54.0	6.75	81	54.5	12.32
09:32:41:60	20	22.8	53.8	7.43	86	54.5	12.32
09:32:42:59	20	22.8	53.7	8.14	98	54.5	12.97
09:32:43:58	20	22.8	53.6	8.83	103	54.3	12.97
09:32:44:57	20	22.9	53.5	9.48	118	54.1	7.92
09:32:45:56	20	23.3	53.4	10.12	131	54.1	7.92
09:32:46:55	20	23.7	53.3	10.73	144	53.9	9.97
09:32:47:54	20	24.3	52.9	11.33	156	53.8	9.97
09:32:48:52	20	24.1	52.8	11.94	161	53.8	12.36
09:32:49:51	20	23.7	52.8	12.53	164	53.9	12.36
09:32:50:50	20	24.5	52.7	13.13	176	53.9	13.58
09:32:51:49	20	23.7	52.7	13.69	188	53.9	13.58
09:32:52:48	20	23.9	52.6	14.24	202	53.7	12.72
09:32:53:47	20	24.1	52.6	14.77	210	53.6	12.72
09:32:54:46	20	25.3	52.5	15.30	220	53.6	12.91
09:32:55:44	20	25.9	52.1	15.79	231	53.6	12.91
09:32:56:43	20	25.9	52.0	16.27	241	53.6	12.80
09:32:57:42	20	26.1	51.8	16.73	253	53.6	12.80
09:32:58:41	20	26.6	51.7	17.15	351	53.6	12.65
09:32:59:40	20	26.6	51.4	17.41	371	53.6	12.65
09:33:00:39	20	26.8	51.2	17.71	376	53.6	10.55
09:33:01:38	20	26.8	51.1	17.97	428	53.8	10.55
09:33:02:37	20	26.8	51.0	18.20	473	54.1	8.98
09:33:03:35	20	27.2	50.9	18.36	493	54.1	8.98
09:33:04:34	20	27.0	50.8	18.55	425	54.1	6.97
09:33:05:33	20	27.0	50.7	18.69	539	54.2	5.98
09:33:06:32	20	27.0	50.7	18.92	495	54.2	5.98
09:33:07:31	20	27.0	50.7	19.07	521	54.2	6.79

100IVD/9_IN_DRY_KMAG_SN_B-NFI_750LB_55RPM_30SCFM_TO_COMPARE_W/3PIN_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
09:45:48:03	20	-0.6	1.7	-0.02	3	55.7	-0.42
09:45:49:02	21	21.2	56.5	0.56	3	55.9	-0.42
09:45:50:00	21	21.6	56.1	1.36	7	55.9	7.19
09:45:50:99	21	21.4	55.9	2.09	14	55.3	7.19
09:45:51:98	21	21.8	55.8	2.92	14	54.8	13.06
09:45:52:97	21	21.8	55.7	3.68	18	54.8	13.06
09:45:53:96	21	22.0	55.6	4.46	25	54.8	13.61
09:45:54:95	20	22.0	55.6	5.22	35	54.7	13.61
09:45:55:94	21	22.2	55.4	6.00	45	54.7	13.00
09:45:56:92	20	22.6	54.7	6.72	64	54.8	13.00
09:45:57:91	21	22.9	54.3	7.42	75	54.8	12.59
09:45:58:90	21	23.1	54.1	8.14	87	54.8	12.59
09:45:59:89	21	23.5	53.9	8.83	93	54.9	11.60
09:46:00:88	20	23.9	53.7	9.50	105	54.8	11.60
09:46:01:87	20	24.1	53.5	10.17	110	54.8	8.05
09:46:02:86	20	24.9	53.2	10.82	125	54.8	8.05
09:46:03:85	21	25.3	52.8	11.45	141	54.8	10.10
09:46:04:83	21	25.7	52.7	12.11	147	54.8	12.44
09:46:05:82	21	26.1	52.5	12.70	159	54.7	12.44
09:46:06:81	20	24.3	52.2	13.30	173	54.7	13.48
09:46:07:80	21	23.9	52.2	13.91	174	54.7	13.48
09:46:08:79	20	24.1	52.2	14.43	194	54.7	12.04
09:46:09:78	20	24.3	52.2	14.95	205	54.6	12.04
09:46:10:77	20	24.5	52.2	15.46	222	54.6	12.73
09:46:11:75	20	24.7	52.2	15.97	238	54.5	12.73
09:46:12:74	20	25.1	52.2	16.44	251	54.5	12.43
09:46:13:73	20	25.1	52.2	16.93	257	54.5	12.43
09:46:14:72	20	25.1	52.2	17.39	260	54.4	13.08
09:46:15:71	21	25.3	52.2	17.81	276	54.4	13.08
09:46:16:70	20	25.3	52.2	18.23	290	54.4	12.26
09:46:17:69	20	25.1	52.1	18.59	298	54.4	12.26
09:46:18:67	20	25.1	52.1	18.97	305	54.3	11.82

100IVD/9_IN_DRY_KMAG_SN_C-NFI_750LB_55RPM_30SCFM_TO_COMPARE_W/3PIN_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
09:58:27:70	21	-0.6	1.7	0.02	2	56.0	0.05
09:58:28:69	21	18.5	70.0	0.33	1	56.0	-0.24
09:58:29:68	21	20.8	70.0	1.08	4	56.0	-0.24
09:58:30:72	21	21.2	70.0	1.90	11	55.3	9.37
09:58:31:71	21	21.2	70.0	2.71	11	55.3	12.86
09:58:32:70	21	21.2	70.0	3.47	12	55.0	12.86
09:58:33:74	21	21.4	70.0	4.28	14	54.9	12.65
09:58:34:73	21	21.6	70.0	5.11	27	54.9	12.65
09:58:35:72	21	21.6	70.0	5.82	33	54.8	12.73
09:58:36:71	21	21.8	70.0	6.59	60	54.6	12.73
09:58:37:70	21	21.8	69.9	7.24	110	54.6	12.57
09:58:38:74	21	22.4	70.0	7.94	121	54.6	12.57
09:58:39:73	21	22.8	70.0	8.62	123	54.5	10.31
09:58:40:72	21	23.5	70.0	9.27	125	54.5	10.31
09:58:41:76	21	23.5	70.0	9.93	129	54.5	7.83
09:58:42:75	21	23.9	70.0	10.59	127	54.5	7.83
09:58:43:74	21	24.1	70.0	11.23	133	54.5	11.26
09:58:44:73	21	25.1	70.0	11.87	143	54.5	11.26
09:58:45:72	21	24.3	70.0	12.42	158	54.4	13.63
09:58:46:76	20	24.7	70.0	13.08	174	54.4	13.63
09:58:47:75	21	25.9	70.0	13.67	185	54.4	12.27
09:58:48:74	21	26.1	70.0	14.16	208	54.4	12.27
09:58:49:78	21	25.5	70.0	14.70	208	54.4	12.71
09:58:50:77	21	26.3	70.0	15.25	212	54.4	12.71
09:58:51:76	21	26.5	70.0	15.72	231	54.3	12.71
09:58:52:75	21	27.2	70.0	16.23	248	54.3	11.75
09:58:53:74	21	28.0	70.0	16.66	250	54.3	11.75
09:58:54:78	21	28.4	70.0	17.15	262	54.3	12.69
09:58:55:77	21	28.2	70.0	17.59	275	54.3	12.69
09:58:56:76	21	28.4	70.0	17.95	278	54.3	12.04
09:58:57:75	21	28.8	70.0	18.34	292	54.3	12.04
09:58:58:73	21	29.0	70.0	18.66	309	54.3	11.10
09:58:59:72	21	29.0	70.0	19.02	302	54.2	11.10

100IVD/9_IN_DRY_UREA_SN_D-NFI_750LB_55RPM_30SCFM_TO_COMPARE_W/3PIN_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
10:07:48:05	21	-0.6	70.0	0.02	-2	55.6	-0.10
10:07:49:04	21	20.0	70.0	0.34	-2	55.6	-0.10
10:07:50:03	21	21.2	70.0	1.11	-1	55.7	8.55
10:07:51:02	21	21.2	70.0	1.92	-0	55.1	8.55
10:07:52:01	21	21.2	70.0	2.72	2	55.1	13.09
10:07:52:99	21	21.4	70.0	3.51	5	54.8	13.09
10:07:54:04	21	21.6	70.0	4.35	8	54.8	12.89
10:07:55:03	21	21.6	70.0	5.15	12	54.8	12.89
10:07:56:02	21	21.6	70.0	5.95	16	54.8	13.46
10:07:57:00	21	21.6	70.0	6.72	17	54.8	13.46
10:07:57:99	21	21.8	70.0	7.50	22	54.8	12.67
10:07:59:04	21	22.0	70.0	8.32	27	54.8	12.67
10:08:00:02	21	22.2	70.0	9.09	34	54.8	8.62
10:08:01:01	21	22.4	70.0	9.82	40	54.8	8.62
10:08:02:06	21	22.6	70.0	10.61	58	54.8	9.89
10:08:03:05	21	22.9	70.0	11.34	59	54.8	9.89
10:08:04:03	21	23.3	70.0	12.05	67	54.8	12.82
10:08:05:02	21	23.9	70.0	12.79	74	54.8	12.82
10:08:06:01	21	23.9	70.0	13.48	82	54.7	12.92
10:08:07:06	21	24.5	70.0	14.18	99	54.7	12.92
10:08:08:04	21	24.5	70.0	14.83	110	54.7	13.07
10:08:09:03	21	25.3	70.0	15.48	124	54.5	13.07
10:08:10:08	21	25.9	70.0	16.13	143	54.5	13.22
10:08:11:06	21	26.3	70.0	16.74	144	54.5	14.93
10:08:12:05	21	26.3	70.0	17.31	159	54.5	14.93
10:08:13:04	21	26.8	70.0	17.84	171	54.5	14.17
10:08:14:03	21	27.4	70.0	18.33	190	54.4	14.17
10:08:15:07	21	27.2	70.0	18.64	367	54.5	11.22
10:08:16:06	21	27.2	70.0	19.05	265	54.5	11.22
10:08:17:05	21	24.3	70.0	19.27	470	54.7	9.42

100IVD/9_IN_DRY_UREA_SN_E-NFI_750LB_55RPM_30SCFM_TO_COMPARE_W/3PIN_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
10:17:40:75	21	-0.8	70.0	0.05	-6	56.1	0.14
10:17:41:74	21	20.0	70.0	0.51	-8	56.1	0.14
10:17:42:73	21	21.0	70.0	1.29	-8	55.7	5.98
10:17:43:72	21	21.0	70.0	2.09	-6	55.7	5.98
10:17:44:71	21	21.4	70.0	2.90	-5	55.2	12.67
10:17:45:70	21	21.2	70.0	3.68	-3	55.2	12.67
10:17:46:68	21	21.2	70.0	4.49	-0	55.2	12.95
10:17:47:67	21	21.4	70.0	5.28	3	55.2	12.95
10:17:48:66	21	21.4	70.0	6.06	5	55.2	12.78
10:17:49:65	21	21.4	70.0	6.86	6	55.1	12.78
10:17:50:64	21	21.6	70.0	7.63	12	55.0	13.68
10:17:51:63	21	21.8	70.0	8.42	18	55.0	13.68
10:17:52:62	21	22.0	70.0	9.18	24	55.0	8.41
10:17:53:60	21	22.0	70.0	9.95	36	54.9	8.41
10:17:54:59	21	22.4	70.0	10.69	41	54.9	10.66
10:17:55:58	21	22.8	70.0	11.42	41	54.9	13.59
10:17:56:57	21	22.9	70.0	12.17	45	54.8	13.59
10:17:57:56	21	23.1	70.0	12.88	61	54.8	12.79
10:17:58:55	21	23.7	70.0	13.62	71	54.8	12.79
10:17:59:54	21	24.3	70.0	14.28	81	54.7	13.37
10:18:00:53	21	24.7	70.0	14.97	89	54.7	13.37
10:18:01:51	21	25.1	70.0	15.61	100	54.8	12.21
10:18:02:50	21	25.9	70.0	16.23	114	54.8	12.21
10:18:03:49	21	26.3	70.0	16.86	129	54.8	13.67
10:18:04:48	21	26.5	70.0	17.43	162	54.7	13.67
10:18:05:47	21	26.8	70.0	17.97	171	54.7	14.57
10:18:06:46	21	27.4	70.0	18.52	164	54.7	14.57
10:18:07:45	21	28.0	70.0	19.01	183	54.6	13.80

100IVD/9_IN_DRY_UREA_SN_F-NFI_750LB_55RPM_30SCFM_TO_COMPARE_W/3PIN_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
10:48:42:95	20	-0.6	1.7	-0.01	-8	48.4	-0.42
10:48:43:93	21	14.2	54.0	0.54	-7	48.4	-0.42
10:48:44:92	21	21.0	54.0	1.33	-6	50.3	7.27
10:48:45:91	21	21.2	54.0	2.13	-5	51.2	7.27
10:48:46:90	21	21.2	54.0	2.92	-3	51.2	12.50
10:48:47:89	21	21.2	54.0	3.70	1	52.3	12.50
10:48:48:88	21	21.4	54.0	4.52	4	53.2	13.18
10:48:49:87	21	21.4	54.0	5.27	4	53.2	13.18
10:48:50:86	21	21.4	54.0	6.07	8	53.7	13.44
10:48:51:84	21	21.6	54.0	6.86	12	54.2	13.44
10:48:52:83	21	21.6	54.0	7.63	15	54.2	12.90
10:48:53:82	21	21.8	54.0	8.38	20	54.5	12.90
10:48:54:81	21	21.8	53.9	9.16	27	54.6	9.00
10:48:55:80	20	22.4	53.8	9.92	32	54.6	9.00
10:48:56:79	20	22.4	53.7	10.66	39	54.6	7.89
10:48:57:78	21	22.6	53.6	11.39	45	54.6	7.89
10:48:58:76	21	22.9	53.5	12.12	54	54.6	12.28
10:48:59:75	21	23.1	53.4	12.86	69	54.5	13.48
10:49:00:74	21	23.5	53.2	13.57	73	54.5	13.48
10:49:01:73	21	24.1	52.8	14.25	81	54.5	13.32
10:49:02:72	21	24.5	52.6	14.92	94	54.5	13.32
10:49:03:71	21	25.3	52.2	15.55	116	54.5	13.90
10:49:04:70	21	25.9	51.4	16.17	131	54.5	13.90
10:49:05:68	21	26.5	51.0	16.78	145	54.6	15.10
10:49:06:67	21	26.6	50.6	17.36	157	54.6	15.10
10:49:07:66	21	27.6	50.4	17.89	166	54.6	14.06
10:49:08:65	21	28.2	50.0	18.44	177	54.6	14.06
10:49:09:64	21	28.4	49.8	18.96	159	54.6	13.93
10:49:10:63	21	28.2	49.7	19.46	191	54.6	13.93

100IVD/9_IN_DRY_SAND_SN_G-NFI_750LB_55RPM_30SCFM_TO_COMPARE_W/3PIN_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
10:58:03:79	21	-0.6	1.7	-0.01	1	55.8	-1.28
10:58:04:72	21	14.6	24.3	0.11	1	55.8	-1.28
10:58:05:71	21	20.8	24.3	0.91	-0	55.8	3.38
10:58:06:70	21	20.8	24.2	1.71	-0	55.2	3.38
10:58:07:69	21	21.2	24.2	2.54	1	55.2	13.48
10:58:08:68	21	21.0	24.2	3.31	2	54.9	13.48
10:58:09:72	21	21.0	24.2	4.16	2	54.9	13.12
10:58:10:71	21	21.0	24.2	5.01	2	54.9	13.12
10:58:11:70	21	21.0	24.2	5.79	2	54.8	13.10
10:58:12:74	21	21.2	24.2	6.62	2	54.8	13.10
10:58:13:73	21	21.2	24.2	7.46	2	54.8	13.71
10:58:14:72	21	21.2	24.2	8.24	2	54.8	10.07
10:58:15:71	20	21.0	24.1	9.08	2	54.7	10.07
10:58:16:70	21	21.2	24.0	9.82	3	54.7	9.17
10:58:17:74	21	21.0	23.9	10.66	1	54.7	9.17
10:58:18:73	21	21.2	23.9	11.49	2	54.8	11.88
10:58:19:72	21	21.2	23.9	12.26	1	54.8	11.88
10:58:20:76	21	21.2	23.8	13.11	2	54.8	14.72
10:58:21:75	21	21.2	23.7	13.94	3	54.8	14.72
10:58:22:74	21	21.0	23.6	14.68	2	54.8	13.15
10:58:23:73	21	21.2	23.6	15.52	2	54.8	13.15
10:58:24:72	21	21.0	23.6	16.26	2	54.7	13.62
10:58:25:76	21	21.2	23.5	17.10	2	54.7	13.62
10:58:26:75	21	21.2	23.5	17.88	3	54.7	14.69
10:58:27:74	21	21.2	23.5	18.45	-0	54.7	14.69
10:58:28:78	21	21.2	23.4	19.09	1	54.7	12.05

100IVD/9_IN_DRY_SAND_SN_H-NFI_750LB_55RPM_30SCFM_TO_COMPARE_W/3PIN_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
11:07:12:17	21	-0.6	1.7	-0.03	4	55.6	-0.05
11:07:13:10	21	12.8	14.4	0.31	5	55.9	-0.88
11:07:14:09	21	21.2	14.4	1.10	3	55.7	-0.88
11:07:15:08	21	21.2	14.4	1.90	4	55.7	9.94
11:07:16:07	21	21.2	14.4	2.69	3	55.1	12.50
11:07:17:05	21	21.0	14.4	3.50	3	55.0	12.50
11:07:18:04	21	21.0	14.4	4.31	3	55.0	12.08
11:07:19:03	21	21.0	14.4	5.10	4	55.1	12.08
11:07:20:02	21	21.2	14.4	5.89	4	55.1	12.80
11:07:21:01	21	21.2	14.5	6.70	5	55.1	12.80
11:07:22:00	21	21.2	14.5	7.49	7	55.1	12.69
11:07:22:99	21	21.2	14.5	8.30	4	55.1	12.69
11:07:23:98	21	21.2	14.6	9.09	5	55.0	9.32
11:07:24:96	21	21.2	14.6	9.89	5	55.0	9.32
11:07:25:95	21	21.4	14.6	10.68	5	55.0	8.72
11:07:26:94	21	21.2	14.7	11.47	4	54.9	8.72
11:07:27:93	21	21.2	14.7	12.28	4	54.8	13.78
11:07:28:92	21	21.2	14.7	13.09	5	54.8	13.78
11:07:29:91	21	21.2	14.7	13.85	4	54.7	13.74
11:07:30:90	21	21.2	14.7	14.67	5	54.6	13.74
11:07:31:88	21	21.2	14.7	15.47	5	54.6	14.12
11:07:32:87	21	21.2	14.7	16.25	6	54.6	14.12
11:07:33:86	21	21.2	14.7	17.04	4	54.6	14.25
11:07:34:85	20	21.2	14.7	17.80	3	54.6	14.25
11:07:35:84	21	21.2	14.7	18.57	3	54.6	15.42
11:07:36:83	21	21.2	14.7	19.33	3	54.7	15.42

100IVD/9_IN_DRY_SAND_SN_I-NFI_750LB_55RPM_30SCFM_TO_COMPARE_W/3PIN_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
11:16:21:59	21	-0.6	1.7	0.05	2	54.3	-0.59
11:16:22:57	21	20.2	23.0	0.59	1	54.3	-0.59
11:16:23:62	21	21.2	23.0	1.42	2	54.8	8.80
11:16:24:61	21	21.2	22.9	2.26	1	54.6	8.80
11:16:25:60	21	21.2	22.9	3.04	2	54.6	12.87
11:16:26:58	21	21.2	22.9	3.87	4	54.6	12.87
11:16:27:57	21	21.2	22.9	4.64	4	54.7	12.92
11:16:28:62	21	21.2	22.8	5.51	4	54.7	12.92
11:16:29:60	21	21.2	22.8	6.34	7	54.7	13.45
11:16:30:59	21	21.2	22.7	7.08	5	54.8	13.45
11:16:31:64	21	21.4	22.6	7.92	4	54.8	12.58
11:16:32:63	21	21.2	22.6	8.78	2	54.8	12.58
11:16:33:61	21	21.2	22.6	9.52	2	54.8	9.17
11:16:34:60	21	21.4	22.6	10.34	4	54.8	9.17
11:16:35:59	21	21.2	22.5	11.11	4	54.8	10.03
11:16:36:64	21	21.2	22.4	11.94	4	54.8	10.03
11:16:37:62	21	21.4	22.4	12.79	6	54.8	13.65
11:16:38:61	21	21.4	22.3	13.53	3	54.8	13.65
11:16:39:66	21	21.4	22.2	14.37	3	54.7	13.67
11:16:40:64	21	21.4	22.2	15.20	4	54.7	13.33
11:16:41:63	21	21.4	22.2	15.93	2	54.8	13.33
11:16:42:62	21	21.4	22.1	16.78	4	54.7	15.38
11:16:43:61	21	21.4	22.1	17.53	6	54.7	15.38
11:16:44:65	21	21.4	22.0	18.31	6	54.6	14.40
11:16:45:64	21	21.4	22.0	19.12	6	54.6	14.40

100IVD/8_IN_UREA_SN_M10772_750LB_55RPM_30SCFM_TO_COMPARE_NOFLOW_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
11:26:57:51	21	-0.6	1.7	0.03	3	55.7	-0.03
11:26:58:50	21	14.6	70.0	0.46	2	55.7	-0.35
11:26:59:49	21	23.7	70.0	1.25	0	55.7	-0.35
11:27:00:48	21	23.7	70.0	2.06	1	55.1	11.93
11:27:01:47	21	24.1	70.0	2.85	5	55.1	11.93
11:27:02:46	21	23.9	70.0	3.62	7	54.9	13.45
11:27:03:45	21	24.1	70.0	4.43	10	54.7	13.45
11:27:04:43	21	24.3	70.0	5.22	13	54.7	12.53
11:27:05:42	21	24.5	70.0	5.98	16	54.7	12.53
11:27:06:41	21	24.5	70.0	6.76	19	54.8	13.11
11:27:07:40	21	24.5	70.0	7.54	23	54.8	13.11
11:27:08:39	21	24.5	70.0	8.32	27	54.9	13.27
11:27:09:38	21	24.7	70.0	9.07	35	55.0	8.93
11:27:10:37	21	24.7	70.0	9.80	39	55.0	8.93
11:27:11:35	21	24.7	70.0	10.54	48	55.1	7.80
11:27:12:34	21	24.7	70.0	11.26	59	55.0	7.80
11:27:13:33	21	24.9	70.0	11.98	73	55.0	12.97
11:27:14:32	21	24.9	70.0	12.69	85	54.9	12.97
11:27:15:31	21	24.9	70.0	13.38	92	54.9	12.59
11:27:16:30	21	24.9	70.0	14.03	103	54.9	12.59
11:27:17:29	21	24.9	70.0	14.67	127	54.8	13.08
11:27:18:28	21	24.7	70.0	15.29	148	54.8	13.08
11:27:19:26	21	24.7	70.0	15.84	163	54.7	13.44
11:27:20:25	21	25.1	70.0	16.41	175	54.5	13.44
11:27:21:24	21	24.9	70.0	17.01	181	54.5	12.52
11:27:22:23	21	24.9	70.0	17.53	197	54.4	12.52
11:27:23:22	21	24.9	70.0	17.98	225	54.4	13.35
11:27:24:21	21	25.1	70.0	18.47	267	54.4	13.35
11:27:25:20	21	25.1	70.0	18.94	240	54.3	13.00
11:27:26:18	21	25.3	70.0	19.19	437	54.3	13.00

100IVD/8_IN_UREA_SN_N10772_750LB_55RPM_30SCFM_TO_COMPARE_NOFLOW_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
17:06:32:29	21	-0.6	2.1	-0.00	1	55.5	-0.32
17:06:33:22	21	9.7	54.0	0.57	1	55.5	-0.32
17:06:34:21	21	24.5	54.1	1.35	1	55.3	5.52
17:06:35:20	21	24.7	54.1	2.14	4	55.3	5.52
17:06:36:19	21	24.7	54.1	2.93	7	54.6	11.95
17:06:37:18	21	24.9	54.1	3.70	9	54.5	11.95
17:06:38:17	21	25.1	54.1	4.47	14	54.5	12.50
17:06:39:16	21	25.1	54.1	5.23	15	54.5	12.50
17:06:40:14	21	24.9	54.1	6.00	18	54.4	12.37
17:06:41:13	21	25.1	54.1	6.77	23	54.4	12.85
17:06:42:12	21	25.1	54.1	7.51	27	54.4	12.85
17:06:43:11	21	25.1	54.1	8.29	31	54.5	11.78
17:06:44:10	21	25.3	54.1	9.03	33	54.5	11.78
17:06:45:09	21	25.3	54.1	9.79	35	54.5	8.71
17:06:46:08	21	25.3	54.1	10.52	39	54.4	8.71
17:06:47:06	21	25.3	54.1	11.23	43	54.4	7.92
17:06:48:05	21	25.3	54.1	12.01	47	54.4	7.92
17:06:49:04	21	25.3	54.1	12.72	49	54.3	12.12
17:06:50:03	21	25.5	54.1	13.46	52	54.3	12.12
17:06:51:02	21	25.5	54.1	14.16	52	54.3	11.89
17:06:52:01	21	25.5	54.1	14.87	56	54.3	11.89
17:06:53:00	21	25.7	54.1	15.59	59	54.3	12.08
17:06:53:99	21	25.7	54.1	16.28	64	54.3	12.08
17:06:54:97	21	25.5	54.1	16.97	67	54.3	12.63
17:06:55:96	21	25.5	54.1	17.67	69	54.3	12.63
17:06:56:95	21	25.7	54.1	18.36	71	54.2	15.02
17:06:57:94	21	25.7	54.1	19.01	74	54.2	15.02

100IVD/8_IN_DRY_UREA_SN_O10772_750LB_55RPM_30SCFM_TO_COMPARE_NOFLOW_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
17:14:10:48	21	-0.6	2.2	0.10	-0	55.5	-0.80
17:14:11:47	21	20.8	2.2	0.79	1	55.5	-0.80
17:14:12:46	21	25.1	2.2	1.58	1	55.5	10.53
17:14:13:44	21	25.1	2.2	2.38	3	54.8	10.53
17:14:14:43	21	25.1	2.2	3.16	5	54.5	12.04
17:14:15:42	21	25.1	2.2	3.95	6	54.5	12.04
17:14:16:41	21	25.1	2.2	4.73	8	54.4	12.89
17:14:17:40	21	25.3	2.2	5.51	10	54.4	12.89
17:14:18:39	21	25.3	2.2	6.28	11	54.4	12.69
17:14:19:38	21	25.3	2.2	7.06	11	54.4	12.69
17:14:20:36	21	25.3	2.2	7.81	14	54.4	12.40
17:14:21:35	21	25.3	2.2	8.59	16	54.4	12.40
17:14:22:34	21	25.3	2.2	9.38	18	54.5	11.06
17:14:23:33	21	25.5	2.2	10.12	21	54.5	11.06
17:14:24:32	21	25.5	2.2	10.89	23	54.5	7.96
17:14:25:31	21	25.5	2.2	11.67	26	54.5	7.96
17:14:26:30	21	25.7	2.2	12.40	29	54.6	11.28
17:14:27:29	21	25.5	2.2	13.17	30	54.6	11.28
17:14:28:27	21	25.7	2.2	13.97	34	54.6	13.60
17:14:29:26	21	25.7	2.3	14.67	41	54.5	13.60
17:14:30:25	21	25.7	2.3	15.43	48	54.5	14.04
17:14:31:24	21	25.7	2.3	16.15	56	54.4	14.04
17:14:32:23	21	25.7	2.3	16.83	60	54.4	13.58
17:14:33:22	21	25.7	2.3	17.57	70	54.4	13.58
17:14:34:21	21	25.7	2.3	18.22	81	54.4	13.39
17:14:35:19	21	25.9	2.3	18.87	95	54.4	13.39

100IVD/8_IN_DRY_UREA_SN_P10772_750LB_55RPM_30SCFM_TO_COMPARE_NOFLOW_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
17:19:54:20	21	-0.6	2.3	0.15	-1	55.6	-1.15
17:19:55:19	21	9.5	2.3	0.57	-0	55.6	-1.15
17:19:56:18	21	24.5	2.3	1.36	1	55.6	8.36
17:19:57:17	21	25.5	2.3	2.17	1	55.2	8.36
17:19:58:16	21	25.5	2.3	2.94	3	54.7	12.76
17:19:59:15	21	25.7	2.3	3.73	5	54.7	12.76
17:20:00:13	21	25.7	2.3	4.53	6	54.6	13.08
17:20:01:12	21	25.9	2.3	5.33	6	54.6	13.08
17:20:02:11	21	25.9	2.3	6.11	9	54.6	12.46
17:20:03:10	21	26.1	2.3	6.87	11	54.6	12.46
17:20:04:09	21	25.9	2.3	7.66	13	54.6	13.49
17:20:05:08	21	26.1	2.3	8.43	14	54.6	13.49
17:20:06:07	22	26.1	2.3	9.23	17	54.6	11.12
17:20:07:05	21	26.1	2.3	9.98	18	54.6	11.12
17:20:08:04	21	26.3	2.3	10.76	19	54.6	9.12
17:20:09:03	21	26.3	2.3	11.52	22	54.6	9.12
17:20:10:02	21	26.1	2.3	12.28	25	54.6	10.67
17:20:11:01	21	26.3	2.3	13.03	29	54.6	10.67
17:20:12:00	21	26.1	2.3	13.79	37	54.5	13.99
17:20:12:99	21	26.3	2.3	14.55	40	54.7	13.99
17:20:13:98	21	26.3	2.3	15.27	43	54.7	13.62
17:20:14:96	21	26.5	2.3	16.01	52	54.6	13.62
17:20:15:95	21	26.3	2.3	16.70	63	54.6	12.89
17:20:16:94	21	26.3	2.3	17.43	72	54.6	12.89
17:20:17:93	21	26.5	2.3	18.10	81	54.6	13.70
17:20:18:92	21	26.6	2.3	18.70	96	54.4	13.70
17:20:19:91	21	26.6	2.3	19.32	104	54.4	15.73
17:20:20:90	21	22.8	2.3	19.32	49	54.4	15.73

100IVD/9_IN_DRY_UREA_SN_K_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STANDARD_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
18:31:35:80	22	-0.6	-5.6	0.01	3	47.6	-1.15
18:31:36:79	21	4.4	60.0	0.65	3	47.6	-1.15
18:31:37:78	22	22.8	57.3	1.49	4	49.5	8.34
18:31:38:77	22	22.9	57.0	2.27	5	50.6	8.34
18:31:39:76	22	22.9	56.9	3.07	6	50.6	12.24
18:31:40:75	22	22.9	56.7	3.83	8	51.9	12.24
18:31:41:79	22	22.9	56.7	4.67	9	52.9	12.82
18:31:42:78	22	22.9	56.7	5.52	11	52.9	12.82
18:31:43:77	22	23.1	56.7	6.29	13	53.7	12.25
18:31:44:81	22	23.1	56.5	7.11	15	54.1	12.25
18:31:45:80	22	23.1	56.5	7.95	17	54.1	13.43
18:31:46:79	22	23.1	56.4	8.72	21	54.4	13.43
18:31:47:83	22	23.3	56.4	9.53	28	54.6	10.84
18:31:48:82	22	23.5	56.4	10.32	24	54.6	8.74
18:31:49:81	22	23.5	56.3	11.04	29	54.7	8.74
18:31:50:80	22	23.5	56.3	11.84	34	54.7	11.17
18:31:51:79	22	23.9	56.3	12.58	42	54.7	11.17
18:31:52:83	22	24.1	56.2	13.38	47	54.8	13.13
18:31:53:82	22	24.5	56.1	14.12	58	54.8	13.13
18:31:54:81	22	24.9	55.9	14.82	62	54.8	12.79
18:31:55:85	22	25.1	55.8	15.60	72	54.7	12.79
18:31:56:84	22	25.7	55.0	16.32	91	54.6	13.25
18:31:57:83	22	26.5	54.4	16.95	98	54.6	13.25
18:31:58:82	21	26.8	54.2	17.64	115	54.6	14.10
18:31:59:80	22	27.8	53.7	18.23	134	54.6	14.10
18:32:00:85	22	28.8	53.3	18.81	141	54.6	13.97
18:32:01:84	22	29.0	53.0	19.39	144	54.6	13.97

100IVD/9_IN_DRY_UREA_SN_L_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STANDARD_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
19:04:15:43	21	-0.6	-5.1	-0.02	6	55.1	-1.67
19:04:16:42	22	5.2	57.7	0.39	5	55.3	-1.44
19:04:17:41	22	21.4	56.3	1.14	7	55.3	-1.44
19:04:18:45	22	21.6	55.9	1.97	8	55.0	10.24
19:04:19:44	22	21.6	55.8	2.79	9	54.4	12.41
19:04:20:43	22	21.6	55.8	3.54	12	54.4	12.41
19:04:21:42	22	21.8	55.8	4.34	14	54.4	12.19
19:04:22:41	22	21.8	55.7	5.11	16	54.4	12.19
19:04:23:45	22	21.8	55.7	5.95	18	54.4	12.16
19:04:24:44	22	22.0	55.7	6.75	21	54.4	12.16
19:04:25:43	22	22.0	55.6	7.49	22	54.5	12.58
19:04:26:47	22	22.0	55.6	8.30	24	54.5	12.58
19:04:27:46	22	22.2	55.5	9.09	29	54.5	10.39
19:04:28:45	22	22.2	55.5	9.85	29	54.5	10.39
19:04:29:44	22	22.2	55.5	10.60	34	54.5	8.31
19:04:30:43	22	22.4	55.4	11.33	41	54.5	8.31
19:04:31:47	22	22.6	54.9	12.10	49	54.6	11.83
19:04:32:46	22	23.1	54.3	12.83	51	54.6	11.83
19:04:33:45	22	23.1	54.2	13.56	54	54.7	12.91
19:04:34:44	22	23.5	54.1	14.29	57	54.5	12.91
19:04:35:43	22	23.7	54.0	15.02	66	54.5	13.32
19:04:36:47	22	24.3	53.7	15.73	75	54.4	13.32
19:04:37:46	22	24.5	53.3	16.40	84	54.4	12.30
19:04:38:45	22	23.1	53.2	17.04	118	54.4	12.30
19:04:39:49	22	23.3	53.2	17.65	147	54.3	13.82
19:04:40:48	22	23.5	53.2	18.22	169	54.2	13.82
19:04:41:47	22	23.7	53.2	18.74	182	54.2	14.27
19:04:42:46	22	23.7	53.2	19.26	192	54.1	14.27

100IVD/9_IN_DRY_UREA_SN_M_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STANDARD_INSERT

TIME	P_URG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
19:12:31:96	22	-0.6	-5.7	-0.00	4	55.5	-0.54
19:12:32:95	22	19.6	56.7	0.42	4	55.6	2.16
19:12:33:94	22	21.4	55.9	1.23	6	55.6	2.16
19:12:34:93	22	21.6	55.8	2.04	9	55.1	12.22
19:12:35:91	22	21.6	55.7	2.85	8	54.6	12.22
19:12:36:90	22	21.6	55.7	3.64	10	54.6	12.22
19:12:37:89	22	21.8	55.6	4.42	12	54.4	12.22
19:12:38:88	22	21.8	55.6	5.22	14	54.4	11.95
19:12:39:87	22	21.8	55.5	6.01	14	54.4	11.95
19:12:40:86	22	21.8	55.5	6.79	16	54.4	12.88
19:12:41:85	22	22.0	55.5	7.59	17	54.4	12.88
19:12:42:84	22	22.0	55.5	8.37	19	54.4	12.32
19:12:43:82	22	22.2	55.5	9.16	22	54.3	12.32
19:12:44:81	22	22.4	55.4	9.93	26	54.3	8.66
19:12:45:80	22	22.2	55.4	10.69	28	54.3	8.66
19:12:46:79	22	22.6	55.4	11.46	32	54.3	8.38
19:12:47:78	22	22.8	54.9	12.21	39	54.4	8.38
19:12:48:77	22	23.1	54.5	12.98	47	54.4	13.84
19:12:49:76	22	23.1	54.4	13.71	58	54.4	13.84
19:12:50:74	22	23.9	54.1	14.44	67	54.4	12.92
19:12:51:73	22	24.3	54.0	15.14	69	54.4	12.92
19:12:52:72	22	24.7	53.7	15.84	82	54.4	12.72
19:12:53:71	22	25.1	53.4	16.48	93	54.4	12.72
19:12:54:70	22	26.3	52.9	17.17	113	54.4	12.71
19:12:55:69	22	27.0	52.4	17.81	132	54.6	12.71
19:12:56:68	22	27.2	52.1	18.37	152	54.6	12.93
19:12:57:67	22	28.0	51.8	18.92	163	54.6	12.93

100IVD/9_IN_DRY_KMAG_SN_N_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STANDARD_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
19:22:36:47	22	-0.8	-5.4	0.01	109	55.8	-0.51
19:22:37:40	22	15.7	56.6	0.77	116	55.6	-0.51
19:22:38:39	22	21.8	56.2	1.56	118	55.6	6.96
19:22:39:38	22	22.0	56.2	2.35	126	55.0	6.96
19:22:40:37	22	22.2	56.2	3.13	135	54.7	12.61
19:22:41:36	22	22.2	55.8	3.90	136	54.7	12.61
19:22:42:35	22	22.4	55.6	4.66	149	54.8	12.36
19:22:43:34	22	22.6	55.6	5.43	162	54.7	12.36
19:22:44:32	22	22.8	55.4	6.15	174	54.7	11.99
19:22:45:31	22	22.9	54.7	6.87	187	54.5	12.28
19:22:46:30	22	23.1	54.5	7.57	202	54.5	12.28
19:22:47:29	22	23.5	54.3	8.27	210	54.5	10.62
19:22:48:28	22	23.5	54.1	8.95	220	54.4	10.62
19:22:49:27	22	23.9	54.0	9.61	234	54.4	7.86
19:22:50:26	22	24.3	53.9	10.26	248	54.4	7.86
19:22:51:24	22	25.3	53.4	10.86	267	54.4	6.20
19:22:52:29	22	25.1	53.2	11.46	286	54.5	6.20
19:22:53:28	22	26.5	52.8	12.03	297	54.5	10.51
19:22:54:27	22	27.2	52.2	12.53	310	54.5	10.51
19:22:55:25	22	27.6	52.0	13.10	319	54.5	10.75
19:22:56:24	22	27.4	51.8	13.60	341	54.5	10.75
19:22:57:29	22	27.8	51.8	14.11	354	54.5	11.07
19:22:58:28	22	28.2	51.3	14.61	367	54.4	11.07
19:22:59:26	22	28.4	51.2	15.03	377	54.4	10.14
19:23:00:25	22	28.4	51.2	15.44	402	54.3	10.14
19:23:01:24	22	28.8	51.1	15.79	416	54.3	8.78
19:23:02:28	22	29.6	50.7	16.16	422	54.3	8.78
19:23:03:27	22	30.7	50.4	16.52	438	54.2	10.33
19:23:04:26	22	31.1	50.1	16.84	471	54.3	10.33
19:23:05:25	22	31.9	49.8	17.17	473	54.3	8.21
19:23:06:24	22	32.9	49.7	17.49	476	54.4	8.21
19:23:07:28	22	33.5	49.2	17.78	469	54.4	8.18
19:23:08:27	22	34.2	48.8	18.09	467	54.4	8.18
19:23:09:26	22	34.4	48.6	18.38	440	54.3	8.70
19:23:10:30	22	33.7	48.4	18.70	427	54.3	9.52
19:23:11:29	22	32.9	48.4	19.04	408	54.3	9.52

100IVD/9_IN_DRY_KMAG_SN_O_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STANDARD_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
19:53:17:63	22	-0.6	-5.5	0.01	-1	55.5	-1.10
19:53:18:56	22	20.8	56.2	0.71	2	55.6	-1.10
19:53:19:55	22	22.0	55.9	1.47	4	55.6	10.02
19:53:20:54	22	22.0	55.8	2.30	8	54.9	10.02
19:53:21:53	22	22.2	55.8	3.09	14	54.5	12.71
19:53:22:57	22	22.4	55.6	3.88	20	54.5	12.71
19:53:23:56	22	22.4	55.5	4.70	32	54.5	12.80
19:53:24:55	22	22.4	55.5	5.48	44	54.5	12.80
19:53:25:59	22	22.8	55.4	6.22	57	54.5	12.23
19:53:26:58	22	22.8	55.1	6.98	66	54.5	12.23
19:53:27:57	22	23.1	54.7	7.66	84	54.6	11.92
19:53:28:56	22	23.5	54.2	8.40	88	54.6	11.92
19:53:29:55	21	24.3	53.7	9.09	103	54.6	10.18
19:53:30:53	22	24.7	53.4	9.74	111	54.6	10.18
19:53:31:52	22	25.1	53.2	10.40	130	54.6	7.16
19:53:32:51	22	25.1	53.0	11.01	138	54.5	7.16
19:53:33:50	22	25.1	53.0	11.66	152	54.5	7.05
19:53:34:49	22	25.7	52.8	12.20	171	54.5	7.05
19:53:35:48	22	26.8	52.0	12.81	182	54.5	12.09
19:53:36:47	22	27.4	51.6	13.36	201	54.4	12.09
19:53:37:46	22	27.8	51.4	13.87	216	54.4	12.34
19:53:38:44	22	28.0	51.2	14.36	220	54.3	12.34
19:53:39:49	22	28.6	50.9	14.90	246	54.3	10.71
19:53:40:48	22	30.2	49.8	15.41	279	54.3	10.42
19:53:41:47	22	31.3	49.5	15.86	294	54.2	10.42
19:53:42:51	22	32.1	49.2	16.28	300	54.2	11.39
19:53:43:50	22	33.1	48.6	16.72	309	54.2	11.39
19:53:44:49	22	33.9	48.2	17.13	323	54.2	11.47
19:53:45:47	22	34.2	47.5	17.54	328	54.1	11.47
19:53:46:46	22	33.7	47.4	17.97	331	54.1	11.53
19:53:47:51	22	32.7	47.4	18.38	329	54.0	11.53
19:53:48:50	22	32.3	47.4	18.79	315	54.1	9.44
19:53:49:48	22	29.8	47.6	19.21	294	54.1	9.44

100IVD/9_IN_DRY_KMAG_SN_P_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STANDARD_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
20:01:45:58	22	-0.6	-5.7	-0.00	-1	55.8	-1.08
20:01:46:51	22	9.5	56.1	0.62	-1	55.8	1.65
20:01:47:56	22	21.4	55.7	1.42	2	55.7	1.65
20:01:48:54	22	21.6	55.6	2.27	9	54.9	12.38
20:01:49:53	22	21.8	55.4	3.03	15	54.9	12.38
20:01:50:52	22	21.8	55.2	3.86	24	54.6	12.95
20:01:51:51	22	22.0	54.8	4.61	34	54.6	12.95
20:01:52:55	22	22.0	54.7	5.43	45	54.6	12.32
20:01:53:54	22	22.4	54.5	6.20	56	54.7	12.32
20:01:54:53	22	22.6	54.2	6.92	67	54.7	12.53
20:01:55:57	22	22.6	54.1	7.66	81	54.7	12.53
20:01:56:56	22	22.6	54.0	8.40	94	54.7	11.07
20:01:57:55	22	23.1	53.9	9.07	110	54.6	11.07
20:01:58:54	22	23.9	53.5	9.76	119	54.6	8.65
20:01:59:53	22	23.9	53.3	10.39	131	54.6	8.65
20:02:00:57	22	24.3	53.0	11.01	146	54.6	6.33
20:02:01:56	22	24.9	52.9	11.65	164	54.6	9.23
20:02:02:55	22	25.3	52.7	12.20	181	54.6	9.23
20:02:03:59	22	25.7	52.3	12.76	198	54.6	12.26
20:02:04:58	22	25.7	52.2	13.36	219	54.6	12.26
20:02:05:57	22	26.1	52.1	13.85	239	54.5	12.09
20:02:06:56	22	26.3	52.0	14.34	246	54.4	12.09
20:02:07:55	22	26.6	51.6	14.82	254	54.4	10.12
20:02:08:59	22	27.2	51.2	15.24	268	54.5	10.12
20:02:09:58	22	28.2	50.7	15.70	274	54.3	10.13
20:02:10:57	22	29.4	49.9	16.11	276	54.3	10.13
20:02:11:56	22	31.1	49.2	16.48	323	54.3	10.29
20:02:12:55	22	32.1	48.4	16.85	346	54.3	10.29
20:02:13:54	22	33.7	47.3	17.21	352	54.3	10.65
20:02:14:52	22	35.2	46.4	17.58	346	54.1	10.65
20:02:15:51	22	35.8	46.2	17.92	344	54.0	10.45
20:02:16:50	22	35.6	45.9	18.25	334	54.0	10.45
20:02:17:49	22	34.2	45.9	18.65	319	54.0	11.00
20:02:18:48	22	32.7	45.8	19.06	300	54.0	11.00
20:02:19:47	22	29.4	47.3	19.30	292	54.0	11.94

100IVD/8_IN_DRY_KMAG_SN_Q10772_750LB_55RPM_30SCFM_TO_COMPARE_NO_FLOW_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
14:30:35:90	21	-0.6	-5.2	0.01	4	54.2	-0.44
14:30:36:89	21	0.6	54.8	0.63	4	54.2	-0.44
14:30:37:87	21	23.7	54.9	1.41	12	53.8	8.92
14:30:38:86	21	24.1	54.7	2.16	17	53.8	8.92
14:30:39:85	21	24.3	54.5	2.93	22	53.2	13.24
14:30:40:84	21	24.3	54.4	3.71	26	53.1	13.24
14:30:41:83	21	24.3	54.2	4.43	37	53.1	14.13
14:30:42:82	21	24.3	54.2	5.18	46	53.1	14.13
14:30:43:81	21	24.3	54.2	5.92	62	53.2	13.07
14:30:44:79	21	24.5	54.1	6.65	70	53.2	13.07
14:30:45:78	21	24.5	54.1	7.35	82	53.1	13.14
14:30:46:77	21	24.7	54.1	8.07	90	53.1	13.14
14:30:47:76	21	24.7	54.0	8.75	108	53.1	11.63
14:30:48:75	21	24.9	54.0	9.44	122	53.2	11.63
14:30:49:74	21	25.1	54.0	10.11	138	53.2	7.80
14:30:50:73	21	25.1	54.0	10.72	153	53.2	7.80
14:30:51:72	21	25.3	54.0	11.29	172	53.1	6.48
14:30:52:70	21	25.3	54.0	11.88	174	53.0	6.48
14:30:53:69	21	25.3	54.0	12.41	195	53.0	12.28
14:30:54:68	21	25.5	53.9	12.98	216	52.9	12.28
14:30:55:67	21	25.9	53.8	13.50	234	52.8	13.51
14:30:56:66	21	26.1	53.8	14.01	254	52.8	13.51
14:30:57:65	21	26.5	53.5	14.48	276	52.8	13.17
14:30:58:64	21	26.8	53.2	14.93	289	52.9	11.45
14:30:59:62	21	27.8	53.0	15.36	300	52.9	11.45
14:31:00:61	21	28.6	52.4	15.77	310	53.0	9.84
14:31:01:60	21	29.8	51.4	16.16	320	53.0	9.84
14:31:02:59	21	31.1	50.7	16.53	349	53.0	9.67
14:31:03:58	21	32.7	50.1	16.90	358	52.9	9.67
14:31:04:57	21	33.3	49.6	17.25	349	52.7	9.49
14:31:05:56	21	35.0	48.6	17.63	341	52.7	9.49
14:31:06:55	21	36.0	47.6	18.00	339	52.7	10.37
14:31:07:53	21	36.0	47.6	18.38	332	52.6	10.37
14:31:08:52	21	34.6	47.5	18.74	338	52.6	10.65
14:31:09:51	21	33.1	47.5	19.16	317	52.6	10.65

100IVD/8_IN_DRY_KMAG_SN_R10772_750LB_55RPM_30SCFM_TO_COMPARE_NO_FLOW_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
14:47:25:92	21	-0.6	-5.6	0.01	33	51.6	-0.43
14:47:26:86	21	8.9	55.9	0.01	36	51.6	-0.43
14:47:27:84	21	23.7	55.9	0.20	35	52.6	-0.32
14:47:28:83	21	23.7	55.9	0.99	35	53.2	-0.32
14:47:29:82	21	23.7	55.8	1.78	42	53.2	11.62
14:47:30:81	21	23.9	55.8	2.56	43	52.8	11.62
14:47:31:80	21	24.3	55.8	3.35	48	52.7	13.32
14:47:32:79	21	24.3	55.8	4.11	49	52.7	13.32
14:47:33:78	21	24.3	55.8	4.87	48	52.8	13.32
14:47:34:76	21	24.5	55.8	5.66	51	52.8	13.32
14:47:35:75	21	24.5	55.8	6.38	53	52.8	13.87
14:47:36:74	21	24.5	55.8	7.15	57	52.9	13.87
14:47:37:73	21	24.9	54.8	7.88	66	52.9	13.11
14:47:38:72	21	24.9	54.5	8.64	69	52.9	13.11
14:47:39:71	21	25.1	54.4	9.35	75	52.9	11.33
14:47:40:70	21	25.3	54.2	10.12	81	52.9	11.33
14:47:41:69	21	25.3	54.2	10.82	87	52.9	7.98
14:47:42:67	21	25.1	54.1	11.52	91	52.8	7.98
14:47:43:66	21	25.1	54.1	12.18	99	52.7	9.44
14:47:44:65	21	25.1	54.0	12.92	105	52.7	9.44
14:47:45:64	21	25.1	54.0	13.60	117	52.8	14.21
14:47:46:63	21	25.1	54.0	14.26	129	52.9	13.90
14:47:47:62	21	25.5	54.0	14.91	139	52.9	13.90
14:47:48:61	21	25.3	54.0	15.55	149	52.9	12.86
14:47:49:59	21	25.5	54.0	16.16	160	52.8	12.86
14:47:50:58	21	25.5	54.0	16.76	166	52.8	15.09
14:47:51:57	21	25.5	53.9	17.37	177	52.9	15.09
14:47:52:56	21	25.5	53.9	17.93	191	52.9	14.84
14:47:53:55	21	25.5	53.8	18.46	191	52.9	14.84
14:47:54:54	21	25.5	53.8	19.03	203	53.0	13.25
14:47:55:53	21	25.5	53.8	19.54	223	53.1	13.25

100IVD/8_IN_DRY_KMAG_SN_S10772_750LB_55RPM_30SCFM_TO_COMPARE_NO_FLOW_INSERT

TIME	P URG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
14:58:36:62	21	-0.6	-5.6	-0.03	-0	48.2	-0.82
14:58:37:61	21	20.0	54.9	0.72	16	49.9	4.78
14:58:38:59	21	23.7	54.9	1.53	20	49.9	4.78
14:58:39:58	21	24.3	54.7	2.29	72	50.6	13.54
14:58:40:63	21	24.5	54.5	3.09	52	51.3	13.54
14:58:41:61	21	24.5	54.5	3.87	61	51.3	13.44
14:58:42:60	21	24.7	54.4	4.62	66	52.1	13.44
14:58:43:59	21	24.9	54.4	5.40	74	52.7	14.11
14:58:44:58	21	24.9	54.3	6.12	79	52.7	14.11
14:58:45:62	21	24.9	54.2	6.88	85	52.9	13.94
14:58:46:61	21	25.1	54.2	7.62	91	53.0	13.94
14:58:47:60	21	25.1	54.1	8.35	100	53.0	13.32
14:58:48:65	21	25.1	54.0	9.10	108	53.1	13.32
14:58:49:63	21	25.1	54.0	9.80	114	53.0	13.07
14:58:50:62	21	25.1	54.0	10.49	120	53.0	13.07
14:58:51:61	21	25.3	54.0	11.16	126	53.0	10.31
14:58:52:60	21	25.3	53.9	11.84	129	53.0	10.31
14:58:53:64	21	25.3	53.8	12.53	141	53.0	12.41
14:58:54:63	21	25.3	53.8	13.20	151	53.0	12.41
14:58:55:62	21	25.5	53.8	13.83	166	53.0	12.03
14:58:56:61	21	25.5	53.7	14.43	183	53.0	12.03
14:58:57:60	21	25.7	53.7	15.04	204	52.9	12.33
14:58:58:59	21	25.7	53.6	15.61	215	53.0	12.86
14:58:59:58	21	25.7	53.5	16.15	216	53.0	12.86
14:59:00:56	21	25.7	53.5	16.69	221	53.0	12.99
14:59:01:55	21	25.7	53.5	17.22	231	53.0	12.99
14:59:02:54	21	25.9	53.5	17.76	247	53.0	13.38
14:59:03:53	21	25.9	53.5	18.23	249	53.0	13.38
14:59:04:52	21	26.1	53.4	18.73	244	53.0	12.81
14:59:05:56	21	26.3	53.3	19.24	251	53.0	12.81

100IVD/8_IN_DRY_KMAG_SN_T10772_750LB_55RPM_30SCFM_TO_COMPARE_NO_FLOW_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
15:08:54:75	21	-0.6	-5.5	0.01	9	51.7	-0.37
15:08:55:79	21	9.3	54.9	0.86	31	52.8	6.01
15:08:56:78	22	25.1	54.2	1.63	26	52.8	6.01
15:08:57:77	22	24.9	54.0	2.38	22	52.9	14.00
15:08:58:81	21	24.9	54.0	3.22	24	53.0	14.00
15:08:59:80	22	24.7	54.0	4.00	24	53.0	13.70
15:09:00:79	21	24.9	53.9	4.78	24	53.2	13.70
15:09:01:78	21	24.9	53.9	5.58	22	53.3	14.13
15:09:02:77	21	24.9	53.8	6.38	21	53.3	14.13
15:09:03:81	21	24.9	53.8	7.19	26	53.4	14.31
15:09:04:80	21	24.9	53.8	7.96	27	53.5	14.31
15:09:05:79	21	25.3	53.8	8.72	34	53.5	13.86
15:09:06:83	21	25.7	53.7	9.53	48	53.6	13.86
15:09:07:82	21	26.1	53.4	10.28	57	53.6	12.82
15:09:08:81	21	26.1	53.2	11.00	63	53.6	12.82
15:09:09:80	21	26.3	53.1	11.75	68	53.6	12.48
15:09:10:79	21	26.1	53.0	12.44	82	53.6	12.48
15:09:11:83	21	26.3	52.9	13.20	90	53.6	12.37
15:09:12:82	21	26.3	52.9	13.89	104	53.5	12.37
15:09:13:81	21	26.5	52.8	14.56	112	53.4	12.21
15:09:14:85	21	26.5	52.7	15.22	124	53.4	12.34
15:09:15:84	21	26.5	52.7	15.89	136	53.3	12.34
15:09:16:83	21	26.5	52.7	16.48	142	53.3	13.12
15:09:17:82	21	26.5	52.7	17.11	149	53.3	13.12
15:09:18:81	21	26.5	52.7	17.68	158	53.3	14.04
15:09:19:85	21	26.6	52.7	18.27	171	53.3	14.04
15:09:20:84	21	26.8	52.7	18.80	176	53.3	12.95
15:09:21:83	21	26.8	52.6	19.31	189	53.3	12.95

1001VD/9_IN_DRY_KMAG_SN_Q_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STANDARD_INSERT

TIME	P URG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
15:20:29:61	21	-0.6	14.9	-0.00	-0	54.2	-0.25
15:20:30:54	22	21.6	57.2	0.53	-0	54.7	-0.25
15:20:31:59	22	22.4	56.8	1.36	-0	54.4	4.79
15:20:32:58	22	22.6	56.7	2.19	-1	54.4	13.01
15:20:33:57	22	22.6	56.5	2.94	-0	53.9	13.01
15:20:34:61	21	22.8	56.4	3.77	-0	53.8	13.59
15:20:35:60	21	22.8	56.4	4.60	-0	53.8	13.59
15:20:36:59	21	22.8	56.4	5.38	-0	53.7	13.19
15:20:37:57	21	22.8	56.3	6.20	-0	53.7	13.19
15:20:38:56	22	22.8	56.3	6.96	-0	53.7	13.83
15:20:39:61	21	22.9	56.2	7.77	1	53.7	13.83
15:20:40:60	21	22.9	56.2	8.58	17	53.7	12.20
15:20:41:58	21	23.1	56.2	9.33	32	53.7	12.20
15:20:42:63	21	23.1	56.2	10.12	44	53.7	9.04
15:20:43:62	21	23.7	56.0	10.88	57	53.8	9.04
15:20:44:61	21	24.1	55.9	11.60	72	53.8	7.91
15:20:45:59	21	24.3	55.8	12.34	89	53.7	7.91
15:20:46:58	21	24.9	55.8	13.00	101	53.7	11.91
15:20:47:63	21	25.1	55.6	13.73	117	53.7	11.91
15:20:48:61	21	24.5	55.5	14.42	120	53.6	11.94
15:20:49:60	21	24.9	55.5	15.04	127	53.4	11.94
15:20:50:65	21	26.5	54.0	15.65	145	53.4	13.17
15:20:51:64	21	27.4	53.4	16.29	154	53.3	13.17
15:20:52:62	21	27.6	53.2	16.88	159	53.3	11.58
15:20:53:61	21	28.0	53.1	17.48	167	53.3	11.58
15:20:54:60	21	27.8	53.0	17.99	169	53.3	13.75
15:20:55:65	21	25.1	53.0	18.55	192	53.3	11.91
15:20:56:63	21	24.9	53.0	19.11	184	53.3	11.91

100IVD/9_IN_WET_UREA_SN_R_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STANDARD_INSERT

TIME	P URG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min.
15:57:10:80	22	-0.6	19.0	0.31	-30	53.9	-0.26
15:57:11:79	22	23.3	56.2	1.11	-26	53.9	-0.26
15:57:12:78	22	24.3	55.8	1.94	-28	54.1	11.09
15:57:13:77	22	24.7	55.6	2.78	-26	53.7	11.09
15:57:14:76	22	24.7	55.4	3.63	-25	53.7	12.61
15:57:15:75	22	24.7	54.8	4.48	-24	53.7	12.61
15:57:16:74	22	24.9	54.5	5.30	-25	53.8	13.09
15:57:17:73	22	24.9	54.4	6.16	-24	53.8	13.09
15:57:18:71	22	24.9	54.3	6.99	-25	53.8	12.78
15:57:19:70	22	24.9	54.2	7.82	-25	53.9	12.78
15:57:20:69	22	24.9	54.1	8.66	-25	53.9	11.96
15:57:21:68	22	25.1	54.0	9.50	-21	53.9	11.96
15:57:22:67	22	25.1	54.0	10.31	-23	53.9	12.15
15:57:23:66	22	25.1	54.0	11.16	-24	53.9	12.15
15:57:24:65	22	25.1	53.9	12.01	-23	53.9	13.14
15:57:25:63	22	25.1	53.8	12.84	-24	53.9	9.89
15:57:26:62	22	25.1	53.8	13.67	-23	54.0	9.89
15:57:27:61	22	25.1	53.8	14.48	-23	54.0	13.48
15:57:28:60	22	25.1	53.8	15.33	-23	54.0	13.48
15:57:29:59	22	25.1	53.7	16.17	-23	54.1	13.78
15:57:30:58	22	25.1	53.7	17.02	-22	54.1	13.78
15:57:31:57	22	25.1	53.7	17.84	-22	54.1	12.81
15:57:32:56	22	25.1	53.7	18.68	-21	54.1	12.81
15:57:33:54	22	25.3	53.7	19.49	-22	54.1	13.47
15:57:34:53	22	25.3	53.7	20.31	-20	54.1	13.47

100IVD/9_IN_WET_UREA_SN_S_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STANDARD_INSERT

TIME	P URG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
16:39:10:07	21	8.5	38.2	0.20	-31	56.6	0.09
16:39:11:06	21	24.1	55.8	0.97	-31	56.5	0.09
16:39:12:05	21	24.7	54.8	1.78	-31	55.8	7.89
16:39:13:04	21	25.1	54.4	2.59	-30	55.8	12.93
16:39:14:03	21	25.1	54.2	3.40	-28	55.4	12.93
16:39:15:02	21	25.1	54.0	4.21	-25	55.4	12.42
16:39:16:00	21	25.3	54.0	5.02	-20	55.3	12.42
16:39:16:99	21	25.3	54.0	5.83	-19	55.3	12.27
16:39:17:98	21	25.3	53.9	6.63	-17	55.3	12.27
16:39:18:97	21	25.3	53.8	7.42	-17	55.2	12.93
16:39:19:96	21	25.3	53.8	8.22	-18	55.0	12.93
16:39:20:95	21	25.3	53.7	9.01	-17	55.0	12.42
16:39:21:94	21	25.3	53.7	9.82	-18	54.9	12.42
16:39:22:92	21	25.1	53.7	10.65	-20	54.8	12.53
16:39:23:91	21	25.1	53.6	11.44	-18	54.8	12.53
16:39:24:90	21	25.1	53.6	12.25	-17	54.9	10.67
16:39:25:89	21	25.1	53.6	13.07	-17	55.0	10.67
16:39:26:88	21	25.3	53.6	13.82	-18	55.0	10.88
16:39:27:87	21	25.3	53.6	14.64	-18	54.9	10.88
16:39:28:86	21	25.3	53.6	15.43	-18	55.0	12.83
16:39:29:85	21	25.3	53.5	16.23	-21	55.0	12.83
16:39:30:83	21	25.3	53.5	17.07	-20	55.1	14.45
16:39:31:82	21	25.3	53.5	17.84	-20	55.1	14.45
16:39:32:81	21	25.3	53.5	18.67	-20	55.1	13.15
16:39:33:80	21	25.3	53.5	19.43	-18	55.1	13.15

100IVD/9_IN_WET_UREA_SN_T_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STANDARD_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
16:47:30:61	21	2.5	23.0	-0.00	-31	51.5	-0.32
16:47:31:60	21	12.2	54.7	0.27	-31	53.8	-0.32
16:47:32:59	21	22.8	54.8	1.08	-31	53.8	5.28
16:47:33:57	21	23.1	54.8	1.90	-31	54.3	5.28
16:47:34:56	21	23.1	54.8	2.74	-28	54.3	12.62
16:47:35:55	21	23.1	54.8	3.54	-17	54.3	12.62
16:47:36:54	21	23.1	54.8	4.35	-17	54.6	12.18
16:47:37:53	21	23.1	54.8	5.16	-17	54.7	12.18
16:47:38:52	21	23.1	54.8	5.99	-16	54.7	12.64
16:47:39:51	21	23.3	54.8	6.82	-14	54.6	12.64
16:47:40:49	21	23.3	54.8	7.61	-6	54.6	12.83
16:47:41:48	21	23.3	54.8	8.47	-7	54.7	12.83
16:47:42:47	21	23.3	54.8	9.28	-6	54.7	12.09
16:47:43:46	21	23.3	54.8	10.11	-10	54.7	12.09
16:47:44:45	21	23.3	54.8	10.94	-15	54.7	13.39
16:47:45:44	21	23.5	54.8	11.74	-10	54.8	13.39
16:47:46:43	21	23.5	54.8	12.53	-15	54.8	11.10
16:47:47:42	21	23.3	54.8	13.34	-8	55.0	11.10
16:47:48:40	21	23.5	54.8	14.11	-23	55.1	11.45
16:47:49:39	21	23.5	54.8	14.89	-25	55.1	11.45
16:47:50:38	21	23.5	54.8	15.73	-27	55.0	13.57
16:47:51:37	21	23.5	54.8	16.55	-26	55.0	12.50
16:47:52:36	21	23.5	54.8	17.39	-26	55.0	12.50
16:47:53:35	21	23.5	54.8	18.17	-22	55.0	14.19
16:47:54:34	21	23.5	54.8	19.01	-25	55.0	14.19
16:47:55:32	21	23.5	54.8	19.79	-26	55.0	14.21
16:47:56:31	21	23.5	54.8	20.62	-15	54.9	14.21
16:47:57:30	21	23.5	54.8	21.41	-13	54.9	13.53
16:47:58:29	21	23.5	54.8	22.18	-13	54.9	13.53
16:47:59:28	21	23.5	54.8	22.99	-14	55.0	14.54
16:48:00:27	21	23.7	54.8	23.28	463	55.0	14.54
16:48:01:26	21	24.1	54.7	23.33	546	55.0	7.00
16:48:02:25	21	24.7	54.5	23.36	640	55.0	7.00
16:48:03:23	21	24.7	54.4	22.98	674	55.2	0.12

100IVD/9_IN_WET_UREA_SN_U_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STANDARD_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
14:18:08:80	21	-0.8	-5.7	0.00	7	53.6	-0.79
14:18:09:73	21	9.3	53.2	0.79	5	53.6	-0.76
14:18:10:72	21	22.6	53.2	1.59	8	54.3	-0.76
14:18:11:71	21	23.7	53.3	2.42	8	54.2	12.70
14:18:12:70	21	24.1	53.3	3.24	8	54.2	12.22
14:18:13:69	21	24.3	53.3	4.08	9	54.3	12.22
14:18:14:68	21	24.3	53.3	4.87	9	54.4	13.06
14:18:15:67	21	24.3	53.3	5.73	9	54.4	13.06
14:18:16:65	21	24.3	53.3	6.54	9	54.6	12.79
14:18:17:64	21	24.5	53.3	7.38	9	54.7	12.79
14:18:18:63	21	24.5	53.2	8.20	10	54.7	12.65
14:18:19:62	21	24.5	53.2	9.03	9	54.7	12.65
14:18:20:61	21	24.5	53.1	9.88	10	54.7	10.40
14:18:21:60	21	24.7	53.1	10.70	9	54.7	10.40
14:18:22:59	21	24.7	53.0	11.53	10	54.8	10.55
14:18:23:58	21	24.5	53.0	12.36	9	54.8	10.55
14:18:24:56	21	24.5	53.0	13.21	10	54.8	12.72
14:18:25:55	21	24.7	52.9	14.03	11	54.9	12.72
14:18:26:54	21	24.5	52.9	14.84	10	54.9	14.37
14:18:27:53	21	24.7	52.9	15.68	10	54.9	14.37
14:18:28:52	21	24.7	52.9	16.50	10	54.9	13.94
14:18:29:51	21	24.7	52.9	17.33	12	54.9	13.94
14:18:30:50	21	24.7	52.9	18.16	11	54.9	13.94
14:18:31:48	21	24.7	52.9	18.95	12	54.8	13.94
14:18:32:47	21	24.7	52.9	19.75	14	54.8	14.61

100IVD/8_IN_WET_UREA_SN_U10772_750LB_55RPM_30SCFM_TO_COMPARE_NO_FLOW_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
14:32:46:51	21	-0.8	-5.7	0.04	-8	55.6	-0.32
14:32:47:50	22	2.5	55.9	0.75	-7	55.6	-0.32
14:32:48:49	22	24.7	54.2	1.49	-4	55.6	9.43
14:32:49:53	22	24.9	53.8	2.33	-3	54.9	9.43
14:32:50:52	22	24.9	53.6	3.11	-2	54.7	12.41
14:32:51:51	22	24.7	53.6	3.89	-3	54.7	12.41
14:32:52:50	21	24.7	53.5	4.74	-3	54.7	12.56
14:32:53:49	22	24.7	53.5	5.51	-3	54.6	12.56
14:32:54:53	21	24.7	53.5	6.35	-3	54.6	12.64
14:32:55:52	21	24.7	53.4	7.17	-2	54.6	12.64
14:32:56:51	22	24.7	53.4	7.91	-3	54.7	13.50
14:32:57:55	22	24.7	53.4	8.72	-2	54.7	13.50
14:32:58:54	22	24.7	53.4	9.55	-2	54.6	11.60
14:32:59:53	21	24.7	53.4	10.33	-2	54.6	11.60
14:33:00:52	21	24.7	53.4	11.16	-2	54.6	12.28
14:33:01:50	21	24.7	53.4	11.92	-1	54.6	12.28
14:33:02:55	21	24.7	53.4	12.75	-2	54.7	10.89
14:33:03:54	21	24.7	53.4	13.60	1	54.7	14.26
14:33:04:53	21	24.7	53.3	14.41	4	54.7	14.26
14:33:05:57	21	24.7	53.3	15.26	6	54.7	12.69
14:33:06:56	21	24.7	53.3	16.09	10	54.7	12.69
14:33:07:55	21	24.7	53.3	16.89	11	54.7	14.11
14:33:08:53	21	24.7	53.2	17.76	10	54.7	14.11
14:33:09:52	21	24.7	53.2	18.54	10	54.7	13.94
14:33:10:57	22	24.7	53.1	19.37	8	54.6	13.94

100IVD/8_IN_WET_UREA_SN_V10772_750LB_55RPM_30SCFM_TO_COMPARE_NO_FLOW_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
14:46:00:35	22	3.7	38.0	-0.05	-8	55.6	0.01
14:46:01:28	22	19.4	53.3	0.77	-8	55.5	4.02
14:46:02:27	22	23.9	53.3	1.58	-6	55.5	4.02
14:46:03:26	22	24.1	53.3	2.41	-6	54.8	12.12
14:46:04:25	22	23.9	53.3	3.23	-4	54.5	12.12
14:46:05:24	22	23.9	53.3	4.03	9	54.5	12.72
14:46:06:22	22	23.7	53.3	4.85	-1	54.6	12.72
14:46:07:21	22	23.7	53.2	5.67	1	54.6	12.42
14:46:08:20	22	23.9	53.2	6.50	0	54.6	12.42
14:46:09:19	22	23.9	53.2	7.33	7	54.7	13.70
14:46:10:18	22	23.9	53.1	8.16	5	54.7	13.70
14:46:11:17	22	23.9	53.1	8.98	6	54.7	11.59
14:46:12:16	22	24.1	53.0	9.81	5	54.6	11.59
14:46:13:15	22	23.9	52.9	10.58	5	54.6	10.65
14:46:14:13	22	23.9	52.9	11.44	4	54.6	10.65
14:46:15:12	22	24.1	52.9	12.24	7	54.5	11.10
14:46:16:11	22	23.9	52.9	13.03	7	54.5	11.10
14:46:17:10	22	24.1	52.8	13.90	5	54.5	13.46
14:46:18:09	22	23.9	52.8	14.70	8	54.7	13.46
14:46:19:08	22	24.1	52.8	15.53	9	54.8	15.18
14:46:20:07	22	24.1	52.8	16.35	8	54.8	15.18
14:46:21:05	22	24.3	52.8	17.15	8	55.0	13.19
14:46:22:04	22	24.3	52.7	17.99	9	55.0	13.19
14:46:23:03	22	24.3	52.7	18.79	7	55.0	15.09
14:46:24:02	22	24.3	52.7	19.61	5	55.0	15.09

100IVD/8_IN_WET_SAND_SN_W10772_750LB_55RPM_30SCFM_TO_COMPARE_NO_FLOW_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
15:08:47:28	21	-0.6	-5.4	0.01	7	55.1	-0.70
15:08:48:21	22	18.1	54.8	0.60	7	55.3	0.83
15:08:49:20	22	22.6	54.5	1.41	8	55.0	0.83
15:08:50:19	22	22.6	54.4	2.21	6	55.0	12.87
15:08:51:18	22	22.6	54.2	3.03	6	54.6	12.87
15:08:52:17	22	22.6	54.1	3.85	6	54.6	13.12
15:08:53:16	22	22.8	54.0	4.66	11	54.5	13.12
15:08:54:14	22	22.6	54.0	5.48	-1	54.4	12.89
15:08:55:13	22	22.4	53.9	6.29	-1	54.4	12.89
15:08:56:12	22	22.4	53.8	7.11	3	54.5	13.00
15:08:57:11	22	22.4	53.8	7.95	0	54.5	13.00
15:08:58:10	22	22.4	53.8	8.77	0	54.5	13.14
15:08:59:09	22	22.6	53.8	9.56	-1	54.5	13.14
15:09:00:08	22	22.6	53.8	10.39	-1	54.6	12.83
15:09:01:06	22	22.6	53.8	11.22	-1	54.6	12.83
15:09:02:05	22	22.4	53.8	12.03	-1	54.7	10.97
15:09:03:04	22	22.4	53.8	12.85	-1	54.7	10.97
15:09:04:03	22	22.4	53.8	13.68	-1	54.7	10.76
15:09:05:02	22	22.4	53.8	14.47	0	54.7	10.76
15:09:06:01	22	22.4	53.8	15.31	1	54.7	14.54
15:09:07:00	22	22.4	53.7	16.15	7	54.7	14.54
15:09:07:99	22	22.6	53.7	16.94	13	54.8	13.81
15:09:08:97	22	22.6	53.7	17.77	13	54.8	14.20
15:09:09:96	22	22.6	53.6	18.52	38	54.8	14.20
15:09:10:95	21	22.8	53.6	19.33	28	54.8	15.95

100IVD/8_IN_WET_SAND_SN_X10772_750LB_55RPM_30SCFM_TO_COMPARE_NO_FLOW_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
15:21:03:88	22	-0.8	-5.7	-0.02	-4	55.9	-0.96
15:21:04:82	22	2.3	52.5	0.61	-4	55.9	3.42
15:21:05:81	22	22.8	53.5	1.42	2	55.6	3.42
15:21:06:80	22	23.1	53.5	2.27	10	55.6	13.42
15:21:07:78	22	23.1	53.5	3.07	9	55.0	13.42
15:21:08:77	22	23.1	53.5	3.85	22	54.9	13.55
15:21:09:76	22	23.1	53.5	4.66	23	54.9	13.55
15:21:10:75	22	22.9	53.5	5.49	15	54.8	13.74
15:21:11:74	22	23.1	53.5	6.27	22	54.8	13.74
15:21:12:73	22	23.1	53.5	7.09	20	54.8	13.41
15:21:13:72	22	22.9	53.6	7.93	27	54.8	13.41
15:21:14:70	22	23.1	53.5	8.68	27	54.8	13.40
15:21:15:69	22	22.9	53.6	9.47	36	54.8	13.40
15:21:16:68	22	22.9	53.6	10.27	46	54.8	11.45
15:21:17:67	22	23.1	53.5	11.01	53	54.9	11.45
15:21:18:66	22	23.1	53.5	11.78	51	54.9	11.21
15:21:19:65	22	23.1	53.5	12.54	38	54.9	11.21
15:21:20:64	22	23.1	53.5	13.35	45	54.9	12.60
15:21:21:63	22	23.1	53.5	14.16	43	54.9	12.60
15:21:22:61	22	23.1	53.5	14.95	37	54.8	14.31
15:21:23:60	22	23.1	53.5	15.69	36	54.7	14.31
15:21:24:59	22	23.3	53.5	16.50	33	54.7	13.68
15:21:25:58	22	23.3	53.5	17.23	33	54.6	13.68
15:21:26:57	22	23.1	53.5	18.03	51	54.5	13.87
15:21:27:56	22	23.3	53.5	18.80	49	54.5	13.87
15:21:28:55	22	23.3	53.5	19.48	38	54.7	16.45
15:21:28:77	22	23.3	47.5	19.49	38	54.7	16.45
15:21:29:70	22	1.3	-5.3	19.48	-2	54.9	7.44
15:21:30:69	22	-0.6	-5.4	19.49	-6	54.9	7.44

100IVD/8_IN_WET_SAND_SN_Y10772_750LB_55RPM_30SCFM_TO_COMPARE_NO_FLOW_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
16:22:50:04	21	-0.8	-5.5	0.09	-7	52.9	-0.80
16:22:50:97	22	20.0	52.9	0.85	10	54.0	-0.80
16:22:51:96	22	24.5	52.8	1.65	8	54.1	13.12
16:22:52:95	22	24.3	52.8	2.47	12	54.1	13.12
16:22:53:94	22	24.3	52.8	3.27	16	54.1	13.23
16:22:54:93	22	24.3	52.7	4.09	18	54.3	13.23
16:22:55:91	22	24.1	52.8	4.84	18	54.3	14.01
16:22:56:90	21	24.3	52.7	5.67	21	54.4	14.01
16:22:57:89	22	24.3	52.7	6.46	20	54.5	13.39
16:22:58:88	21	24.3	52.7	7.26	15	54.5	13.39
16:22:59:87	21	24.3	52.7	8.07	20	54.6	14.48
16:23:00:86	21	24.3	52.7	8.85	16	54.6	14.48
16:23:01:85	21	24.3	52.7	9.66	15	54.6	12.06
16:23:02:83	22	24.5	52.7	10.46	14	54.6	12.06
16:23:03:82	22	24.5	52.7	11.23	18	54.6	10.30
16:23:04:81	22	24.5	52.6	12.06	15	54.7	10.30
16:23:05:80	21	24.3	52.6	12.81	16	54.8	12.56
16:23:06:79	21	24.5	52.6	13.64	12	54.8	12.56
16:23:07:78	22	24.7	52.6	14.42	16	54.8	13.92
16:23:08:77	22	24.7	52.6	15.22	13	54.8	13.92
16:23:09:76	21	24.9	52.5	16.01	12	54.8	15.00
16:23:10:74	21	24.3	52.5	16.83	14	54.8	15.00
16:23:11:73	22	24.3	52.5	17.58	18	54.7	14.27
16:23:12:72	22	24.3	52.5	18.38	20	54.7	14.27
16:23:13:71	22	24.5	52.5	19.17	18	54.7	15.53
16:23:14:70	22	24.1	50.7	19.56	18	54.7	15.53

100IVD/9_IN_WET_SAND_SN_V_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STANDARD_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
16:47:18:09	21	-0.6	-5.5	0.07	-3	56.0	-0.71
16:47:19:02	22	16.1	53.8	0.86	2	55.9	3.94
16:47:20:01	22	21.6	53.8	1.68	1	55.9	3.94
16:47:21:00	22	21.6	53.8	2.51	1	55.2	13.21
16:47:21:99	22	21.6	53.8	3.35	2	54.9	13.21
16:47:22:97	22	21.6	53.8	4.15	1	54.9	13.36
16:47:23:96	22	21.8	53.9	4.97	3	54.9	13.36
16:47:24:95	22	21.6	53.9	5.79	5	55.0	13.48
16:47:25:94	22	21.8	53.9	6.63	8	55.0	13.48
16:47:26:93	22	22.0	53.9	7.42	11	55.0	13.88
16:47:27:92	22	22.0	53.9	8.23	12	55.1	13.88
16:47:28:91	21	22.4	53.9	9.01	18	55.1	13.76
16:47:29:89	22	22.6	53.9	9.80	25	55.1	13.76
16:47:30:88	21	23.3	53.9	10.58	41	55.1	10.43
16:47:31:87	22	24.1	53.8	11.32	50	55.1	10.43
16:47:32:86	22	24.7	52.9	12.10	56	54.9	11.67
16:47:33:85	22	24.7	52.8	12.84	57	54.8	11.67
16:47:34:84	22	25.1	52.7	13.60	66	54.8	12.99
16:47:35:83	21	25.3	52.6	14.34	70	54.8	12.99
16:47:36:81	22	25.3	52.5	15.12	66	54.8	14.66
16:47:37:80	22	22.4	52.5	15.93	6	54.8	14.66
16:47:38:79	22	22.4	52.6	16.71	30	54.8	13.40
16:47:39:78	22	22.0	52.7	17.53	41	54.7	13.40
16:47:40:77	22	22.0	52.8	18.32	40	54.7	14.37
16:47:41:76	22	22.0	52.8	19.10	41	54.6	15.68

100IVD/9_IN_WET_SAND_SN_W_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STANDARD_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
16:58:01:92	22	-0.6	-5.6	0.15	-5	54.1	0.34
16:58:02:91	22	8.1	1.9	0.91	13	55.1	0.34
16:58:03:90	22	22.0	1.9	1.77	0	54.9	13.48
16:58:04:89	22	21.6	1.9	2.57	-1	54.9	13.48
16:58:05:88	22	21.6	1.9	3.41	1	54.7	13.28
16:58:06:87	22	21.8	1.7	4.24	0	54.8	13.28
16:58:07:85	22	21.8	1.7	5.05	3	54.8	14.14
16:58:08:84	22	21.8	1.7	5.86	6	54.9	14.14
16:58:09:83	22	21.8	1.7	6.68	13	55.0	13.99
16:58:10:82	22	21.8	1.6	7.48	18	55.0	13.99
16:58:11:81	22	21.8	1.5	8.27	18	55.0	14.78
16:58:12:80	22	22.0	1.5	9.09	21	55.1	14.78
16:58:13:79	22	22.6	1.4	9.89	30	55.1	11.71
16:58:14:77	22	23.7	1.4	10.64	48	55.0	11.71
16:58:15:76	22	25.3	1.4	11.42	58	55.0	9.18
16:58:16:75	22	22.2	1.4	12.24	0	55.0	9.18
16:58:17:74	22	21.8	1.4	13.05	3	55.1	11.06
16:58:18:73	22	22.2	1.4	13.86	13	55.1	11.06
16:58:19:72	22	22.6	1.4	14.68	11	55.0	14.56
16:58:20:71	22	22.0	1.4	15.46	4	54.9	14.56
16:58:21:70	22	21.8	1.4	16.27	2	54.9	15.13
16:58:22:68	22	21.8	1.4	17.06	2	54.9	15.13
16:58:23:67	22	22.0	1.4	17.86	2	55.0	14.39
16:58:24:66	22	22.0	1.4	18.69	3	55.0	14.39
16:58:25:65	22	22.0	1.4	19.42	4	55.1	16.52

100IVD/9_IN_WET_SAND_SN_X_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STANDARD_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
17:09:27:67	22	-0.4	-0.5	-0.03	-4	55.9	-0.81
17:09:28:66	22	12.4	50.8	0.61	2	55.9	-0.81
17:09:29:64	22	21.6	53.7	1.44	1	55.6	9.16
17:09:30:63	22	21.6	53.7	2.28	3	55.6	9.16
17:09:31:62	22	21.8	53.7	3.10	8	55.0	13.56
17:09:32:61	22	21.8	53.7	3.91	13	54.8	13.56
17:09:33:60	22	21.8	53.7	4.74	20	54.8	13.85
17:09:34:59	22	22.0	53.7	5.56	19	54.8	13.85
17:09:35:58	22	22.0	53.7	6.40	15	54.7	13.47
17:09:36:56	22	22.0	53.7	7.18	15	54.7	13.47
17:09:37:55	22	22.4	53.7	7.98	13	54.6	13.65
17:09:38:54	22	22.8	53.7	8.78	26	54.8	13.65
17:09:39:53	22	23.5	53.7	9.56	40	54.8	12.20
17:09:40:52	22	24.1	53.6	10.36	51	54.9	12.20
17:09:41:51	22	24.9	53.2	11.10	55	54.9	10.37
17:09:42:50	22	25.1	52.9	11.91	66	54.9	10.37
17:09:43:49	22	25.3	52.8	12.64	69	55.0	8.90
17:09:44:47	22	25.1	52.8	13.41	59	54.9	8.90
17:09:45:46	22	24.3	52.7	14.19	37	54.9	13.73
17:09:46:45	22	23.5	52.7	15.02	18	54.7	14.48
17:09:47:44	22	22.8	52.8	15.82	10	54.8	14.48
17:09:48:43	22	22.9	52.9	16.58	11	54.8	14.38
17:09:49:42	22	22.8	53.0	17.38	10	54.8	14.38
17:09:50:41	22	22.6	53.1	18.20	5	54.8	14.15
17:09:51:39	22	22.4	53.1	18.98	5	54.8	14.15

100IVD/8_IN_WET_SAND_SN_Z10772_750LB_55RPM_30SCFM_TO_COMPARE_NO_FLOW_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
17:47:49:37	21	-0.6	-5.5	-0.00	-6	55.8	-1.07
17:47:50:36	21	-0.6	-5.5	-0.02	-7	55.8	-1.07
17:47:51:35	21	-0.6	-5.5	-0.00	-7	55.8	-0.17
17:47:52:34	21	-0.6	-5.5	0.75	-1	55.8	-0.17
17:47:53:33	21	10.3	53.7	1.53	28	55.3	10.43
17:47:54:32	22	25.5	50.8	2.33	18	55.3	10.43
17:47:55:31	22	23.5	51.5	3.13	5	54.9	13.38
17:47:56:30	21	23.3	51.8	3.91	14	54.9	13.38
17:47:57:28	21	23.3	51.9	4.73	13	54.9	13.20
17:47:58:27	21	23.3	52.0	5.50	16	54.9	13.20
17:47:59:26	21	23.3	52.0	6.33	13	54.8	14.11
17:48:00:25	21	23.3	52.1	7.12	31	54.8	14.11
17:48:01:24	21	23.3	52.1	7.89	30	54.8	13.51
17:48:02:23	22	23.5	52.1	8.67	35	54.8	13.51
17:48:03:22	21	23.5	52.1	9.43	38	54.8	11.65
17:48:04:20	21	23.5	52.2	10.22	29	54.8	11.65
17:48:05:19	21	23.7	52.2	10.97	28	54.9	10.28
17:48:06:18	21	23.7	52.2	11.73	33	54.9	10.28
17:48:07:17	21	24.1	52.2	12.50	34	54.8	8.49
17:48:08:16	21	24.5	52.2	13.31	20	54.8	8.49
17:48:09:15	21	24.3	52.2	14.10	16	54.8	13.54
17:48:10:14	21	24.5	52.2	14.86	16	54.7	13.54
17:48:11:12	21	24.3	52.2	15.65	10	54.8	14.21
17:48:12:11	21	24.1	52.2	16.42	10	54.8	14.21
17:48:13:10	22	23.7	52.2	17.21	5	54.8	14.74
17:48:14:09	21	23.5	52.2	18.00	1	54.8	14.74
17:48:15:08	21	23.5	52.2	18.78	5	55.0	14.27
17:48:16:07	21	23.3	52.2	18.98	-1	55.0	9.83
17:48:17:06	21	3.1	-5.8	18.96	-8	55.0	9.83
17:48:18:05	21	-0.8	-5.8	18.97	-17	55.4	-0.45

100IVD/8_IN_WET_SAND_SN_AA10772_750LB_55RPM_30SCFM_TO_COMPARE_NO_FLOW_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
17:57:09:39	21	-0.8	-5.7	0.15	-6	55.4	-0.52
17:57:10:33	22	6.8	54.7	0.53	-6	55.8	-0.40
17:57:11:32	22	22.8	54.3	1.36	3	55.7	-0.40
17:57:12:31	22	22.8	54.0	2.18	9	55.7	13.30
17:57:13:29	22	22.8	54.0	3.01	13	55.0	13.30
17:57:14:28	22	22.8	53.9	3.82	11	54.9	13.56
17:57:15:27	22	22.8	53.8	4.65	16	54.9	13.56
17:57:16:26	22	22.8	53.8	5.42	15	54.9	13.75
17:57:17:25	22	22.6	53.8	6.27	12	55.0	13.75
17:57:18:24	22	22.6	53.8	7.07	10	55.0	13.94
17:57:19:23	22	22.9	53.7	7.88	10	55.1	13.94
17:57:20:22	22	22.9	53.6	8.69	13	55.1	13.46
17:57:21:20	22	22.9	53.6	9.48	11	55.1	13.46
17:57:22:19	22	22.9	53.6	10.31	15	55.1	12.20
17:57:23:18	22	23.3	53.5	11.09	20	55.0	12.20
17:57:24:17	22	24.3	53.0	11.88	38	55.0	9.80
17:57:25:16	22	24.7	52.7	12.64	39	55.0	9.80
17:57:26:15	22	24.5	52.6	13.40	41	55.0	12.21
17:57:27:14	22	24.5	52.5	14.23	35	55.0	13.59
17:57:28:12	22	24.1	52.5	14.99	23	55.0	13.59
17:57:29:11	22	24.1	52.5	15.78	23	55.1	14.56
17:57:30:10	22	23.9	52.5	16.57	15	55.1	14.56
17:57:31:09	22	23.1	52.4	17.34	9	55.1	14.59
17:57:32:08	22	23.1	52.4	18.14	8	55.1	14.59
17:57:33:07	22	22.9	52.4	18.93	7	55.1	15.07
17:57:34:06	22	22.9	52.5	19.67	11	55.1	15.07

100IVD/9_IN_WET_SAND_SN_Y_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STANDARD_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
18:09:42:15	22	-0.8	-5.7	-0.00	-6	51.2	-0.62
18:09:43:14	22	3.3	54.0	0.61	-6	52.9	-0.40
18:09:44:13	22	22.0	54.7	1.45	-1	53.7	-0.40
18:09:45:11	22	22.0					

Data lost for remainder of test. Problem with power supply to DAS.

100IVD/9_IN_WET_SAND_SN_Z_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STANDARD_INSERT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
18:19:13:54	22	-0.6	-5.7	-0.02	-5	55.9	-0.51
18:19:14:53	22	22.0	55.9	0.70	3	56.0	-0.51
18:19:15:52	22	22.4	55.8	1.53	1	56.0	5.13
18:19:16:50	22	22.0	55.7	2.34	1	55.5	14.14
18:19:17:49	22	22.0	55.6	3.17	3	55.1	14.14
18:19:18:48	22	22.0	55.6	3.99	4	55.1	14.22
18:19:19:47	22	22.0	55.6	4.78	4	55.3	14.22
18:19:20:46	22	22.2	55.5	5.61	8	55.4	14.38
18:19:21:45	22	22.0	55.5	6.42	7	55.4	14.38
18:19:22:44	22	22.0	55.5	7.21	11	55.4	14.41
18:19:23:43	22	22.4	55.4	8.04	14	55.5	14.41
18:19:24:41	22	22.6	55.4	8.82	18	55.5	13.69
18:19:25:40	22	23.9	54.2	9.60	43	55.4	13.69
18:19:26:39	22	24.7	53.4	10.39	53	55.4	10.44
18:19:27:38	22	25.3	52.9	11.15	70	55.4	10.44
18:19:28:37	22	25.7	52.7	11.88	81	55.3	9.04
18:19:29:36	22	25.9	52.7	12.64	86	55.2	9.04
18:19:30:35	22	26.1	52.5	13.37	86	55.2	12.28
18:19:31:33	22	22.8	52.7	14.17	11	55.1	12.28
18:19:32:32	22	22.4	53.0	14.99	10	55.1	13.94
18:19:33:31	22	22.6	53.1	15.77	13	55.1	13.94
18:19:34:30	22	22.8	53.1	16.53	13	55.0	13.91
18:19:35:29	22	22.6	53.2	17.35	13	55.0	13.91
18:19:36:28	22	22.6	53.3	18.15	10	55.0	15.18
18:19:37:27	22	22.6	53.3	18.96	10	54.9	15.18

100IVD/9_IN_CRYST_UREA_SN_AA_NFI_750LB_55RPM_30SCFM_TO_COMPARE_STNDARD_INSRT

TIME	PURG_TC2	PurgePSI	PurgeCFM	DEPTH(IN)	DwnFrc(lb)	RPM	Inches/Min
19:03:03:59	21	-0.6	37.3	0.21	4	55.5	-0.42
19:03:04:58	22	20.8	56.2	1.01	7	55.5	2.09
19:03:05:57	22	21.4	55.8	1.84	4	55.3	2.09
19:03:06:56	22	21.4	55.8	2.63	6	54.7	13.29
19:03:07:55	22	21.4	55.7	3.46	6	54.7	14.11
19:03:08:53	21	21.4	55.7	4.27	6	54.7	14.11
19:03:09:52	21	21.2	55.6	5.10	8	54.7	13.15
19:03:10:51	22	21.2	55.6	5.92	5	54.7	13.15
19:03:11:50	21	21.4	55.5	6.71	4	54.6	13.16
19:03:12:49	21	21.4	55.5	7.53	5	54.6	13.16
19:03:13:48	21	21.4	55.5	8.33	6	54.6	11.28
19:03:14:47	21	21.4	55.4	9.16	8	54.7	11.28
19:03:15:45	21	21.4	55.4	9.94	9	54.8	9.20
19:03:16:44	21	21.4	55.3	10.74	8	54.8	9.20
19:03:17:43	21	21.4	55.2	11.53	6	54.8	10.22
19:03:18:42	21	21.4	55.2	12.35	7	54.9	10.22
19:03:19:41	21	21.4	55.2	13.14	6	54.9	14.05
19:03:20:40	21	21.4	55.2	13.95	8	54.9	14.05
19:03:21:39	21	21.6	55.2	14.76	12	54.9	12.90
19:03:22:38	21	21.4	55.0	15.53	10	54.9	12.90
19:03:23:36	21	21.6	55.0	16.32	7	54.9	13.44
19:03:24:35	21	21.4	54.8	17.14	8	55.0	13.44
19:03:25:34	21	21.4	54.8	17.89	10	55.0	14.17
19:03:26:33	21	21.4	54.8	18.66	10	54.9	14.17

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