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Final Report Date: 4/24/2013

PSP Enrollment #3879University of Arkansas
Fayetteville, Arkansas USA

Submitted by sgwill@uark.edu on 3/12/2013 at 2:46 PM

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The Z-Score indicates the number of standard deviations from the average value. The Z-Score is determined by the following calculation:

$$Z\text{-Score} = (\text{Laboratory Test Result} - \text{Average Value}) / (\text{Standard Deviation})$$

The laboratory Rating calculation is based on the absolute value of the Z-Score (or number of standard deviations from the average). The following describes the laboratory Rating system:

- If Z-Score <= 1 Then Rating = 5
- If Z-Score > 1 And <= 1.5 Then Rating = 4
- If Z-Score > 1.5 And <= 2 Then Rating = 3
- If Z-Score > 2 And <= 2.5 Then Rating = 2
- If Z-Score > 2.5 And <= 3 Then Rating = 1
- If Z-Score > 3 Then Rating = 0

A negative sign on a Z-Score or Rating indicates that the laboratory's result was below the average, while a positive Z-Score or Rating indicates that the laboratory's result was above the average.

Particle Size Analysis of Soils by Hydrometer

Total material passing the 2.00-mm (No. 10) sieve (0.1 percent) - T88/D422[View Youden Diagram](#) | [View Performance Chart](#)

View T0608n Diagram		View Performance Chart		Sample 167				Sample 168				Repeatability(within-lab)			
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating	
1	1170	--	96.61	0.62	--	--	--	96.06	0.66	--	--	--	--	--	

Particle Size Analysis of Soils by Hydrometer

Total material passing the 0.425-mm (No. 40) sieve (0.1 percent) - T88/D422[View Youden Diagram](#) | [View Performance Chart](#)

Sample 167							Sample 168					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
2	1169	--	75.33	2.06	--	--	--	72.70	2.21	--	--	--	--	--

Particle Size Analysis of Soils by Hydrometer

Total material passing the 0.075-mm (No. 200) sieve (0.1 percent) - T88/D422[View Youden Diagram](#) | [View Performance Chart](#)

Sample 167							Sample 168					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
3	1173	--	58.35	2.29	--	--	--	54.16	2.39	--	--	--	--	--

Particle Size Analysis of Soils by Hydrometer

Total material smaller than 0.02 mm (0.1 percent) - T88/D422[View Youden Diagram](#) | [View Performance Chart](#)

Sample 167							Sample 168					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
4	1088	--	51.21	4.38	--	--	--	48.00	4.35	--	--	--	--	--

Particle Size Analysis of Soils by Hydrometer

Total material smaller than 0.002 mm (0.1 percent) - T88/D422[View Youden Diagram](#) | [View Performance Chart](#)

Sample 167							Sample 168					Repeatability (within-lab)			
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating	
5	1086	--	22.29	3.19	--	--	--	20.98	3.15	--	--	--	--	--	

Particle Size Analysis of Soils by Hydrometer

Total material smaller than 0.001 mm (0.1 percent) - T88/D422[View Youden Diagram](#) | [View Performance Chart](#)

Sample 167							Sample 168					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
6	1078	--	15.47	3.01	--	--	--	14.55	2.92	--	--	--	--	--

Liquid Limit of Soils (Atterberg Limits)

Liquid Limit (0.1 percent) - T89/D4318[View Youden Diagram](#) | [View Performance Chart](#)

Sample 167							Sample 168					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
7	1451	31.2	29.18	1.73	1.17	4	29.2	28.51	1.69	0.41	5	0.78	-1.21	-4

Plastic Limit of Soils (Atterberg Limits)

Plastic Limit (0.1 percent) - T90/D4318[View Youden Diagram](#) | [View Performance Chart](#)

		Sample 167					Sample 168					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
8	1452	15.3	15.89	1.24	-0.48	-5	14.8	15.61	1.23	-0.66	-5	0.41	-0.38	-5

Shrinkage Factors of Soils by Mercury Method

Shrinkage Limit (Mercury Method) (0.1 percent) - T92[View Youden Diagram](#) | [View Performance Chart](#)

View Touden Diagram View Performance Chart														
Sample 167							Sample 168					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
9	36		11.17	1.11				11.36	1.36					

Shrinkage Factors of Soils by Wax Method

Shrinkage Limit (Wax Method) (0.1 percent) - D4943[View Youden Diagram](#) | [View Performance Chart](#)

Sample 167							Sample 168					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
10	39	--	10.47	2.14	--	--	--	10.26	2.08	--	--	--	--	--

Specific Gravity of Soils

Specific Gravity, Passing 2.00 mm (No. 10), TX / 20°C - T100/D854[View Youden Diagram](#) | [View Performance Chart](#)

New Tugden Diagram		View Performance Data					Sample 167					Sample 168					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating					
11	873	2.594	2.6580	0.0293	-2.18	-2	2.598	2.6572	0.0297	-1.99	-3	0.0123	0.27	5					

Moisture-Density (Proctor) of Soils, Standard Effort

Optimum Moisture Content (Standard) (0.1 percent) - T99/D698[View Youden Diagram](#) | [View Performance Chart](#)

Sample 167								Sample 168				Repeatability(within-lab)			
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating	
12	1172	10.1	9.74	0.77	0.47	5	9.3	9.51	0.70	-0.29	-5	0.43	-0.92	-5	

Moisture-Density (Proctor) of Soils, Standard Effort

Maximum Dry Density (Standard) (0.1 lb/ft³) - T99/D698[View Youden Diagram](#) | [View Performance Chart](#)

Sample 167							Sample 168					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
13	1172	127.0	124.76	1.51	1.48	4	128.0	125.56	1.46	1.67	3	0.72	0.19	5

Moisture-Density (Proctor) of Soils, Modified Effort

Optimum Moisture Content (Modified) (0.1 percent) - T180/D1557[View Youden Diagram](#) | [View Performance Chart](#)

Sample 167							Sample 168					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
14	350	--	6.87	0.63	--	--	--	6.74	0.58	--	--	--	--	--

Moisture-Density (Proctor) of Soils, Modified Effort

Maximum Dry Density (Modified) (0.1 lb/ft³) - T180/D1557[View Youden Diagram](#) | [View Performance Chart](#)

Sample 167							Sample 168					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
15	350	--	135.14	1.47	--	--	--	135.70	1.44	--	--	--	--	--

** Ratings Suppressed

-- No Data Submitted or Data Out of Accepted Range



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