



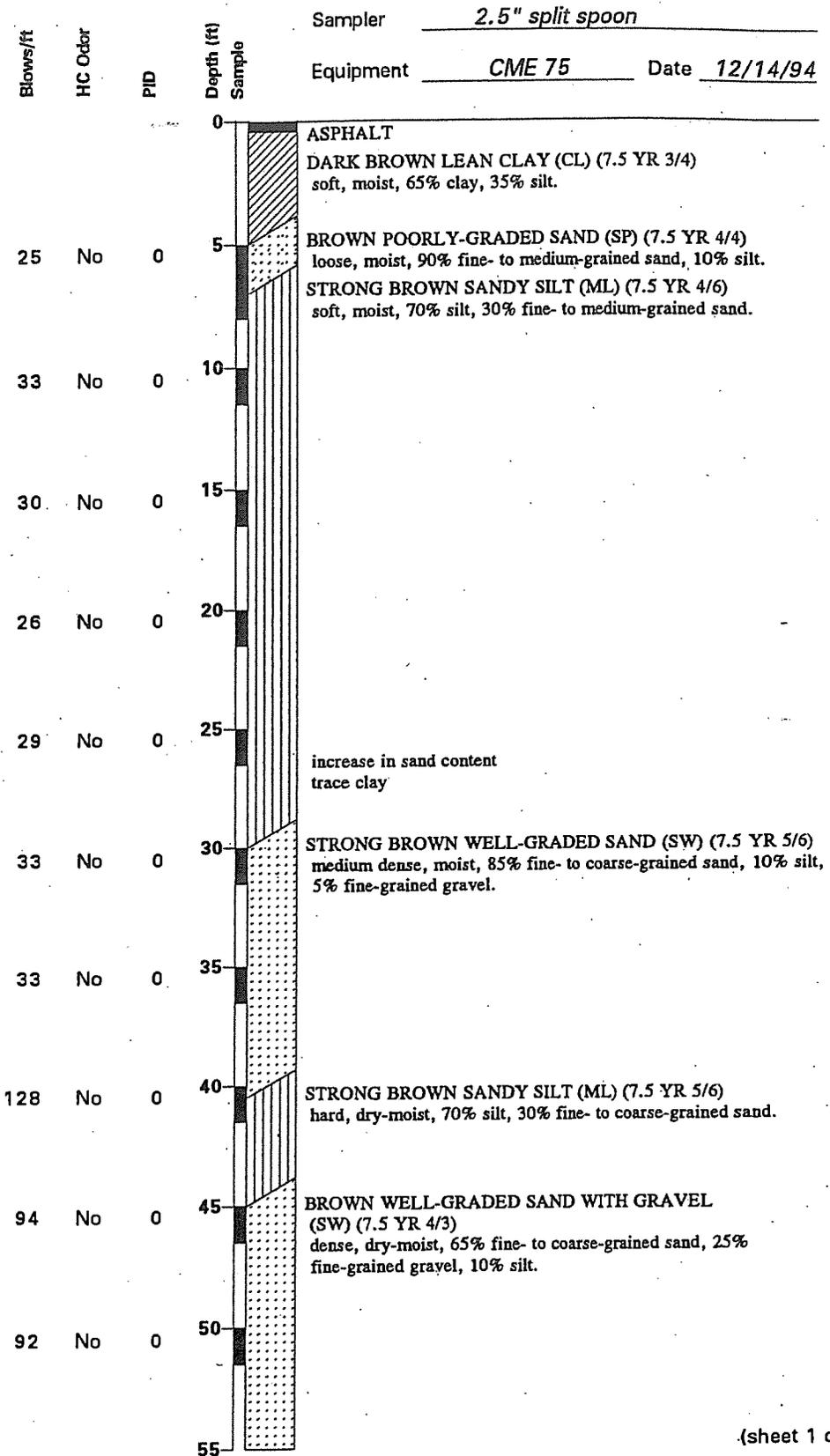
# *Final Remedial Investigation Report*

*West Central Phoenix  
East Grand Avenue WQARF Site*



Volume II of III: Appendices A through D

**APPENDIX A**  
**SOIL BORING LOGS**



(sheet 1 of 2)



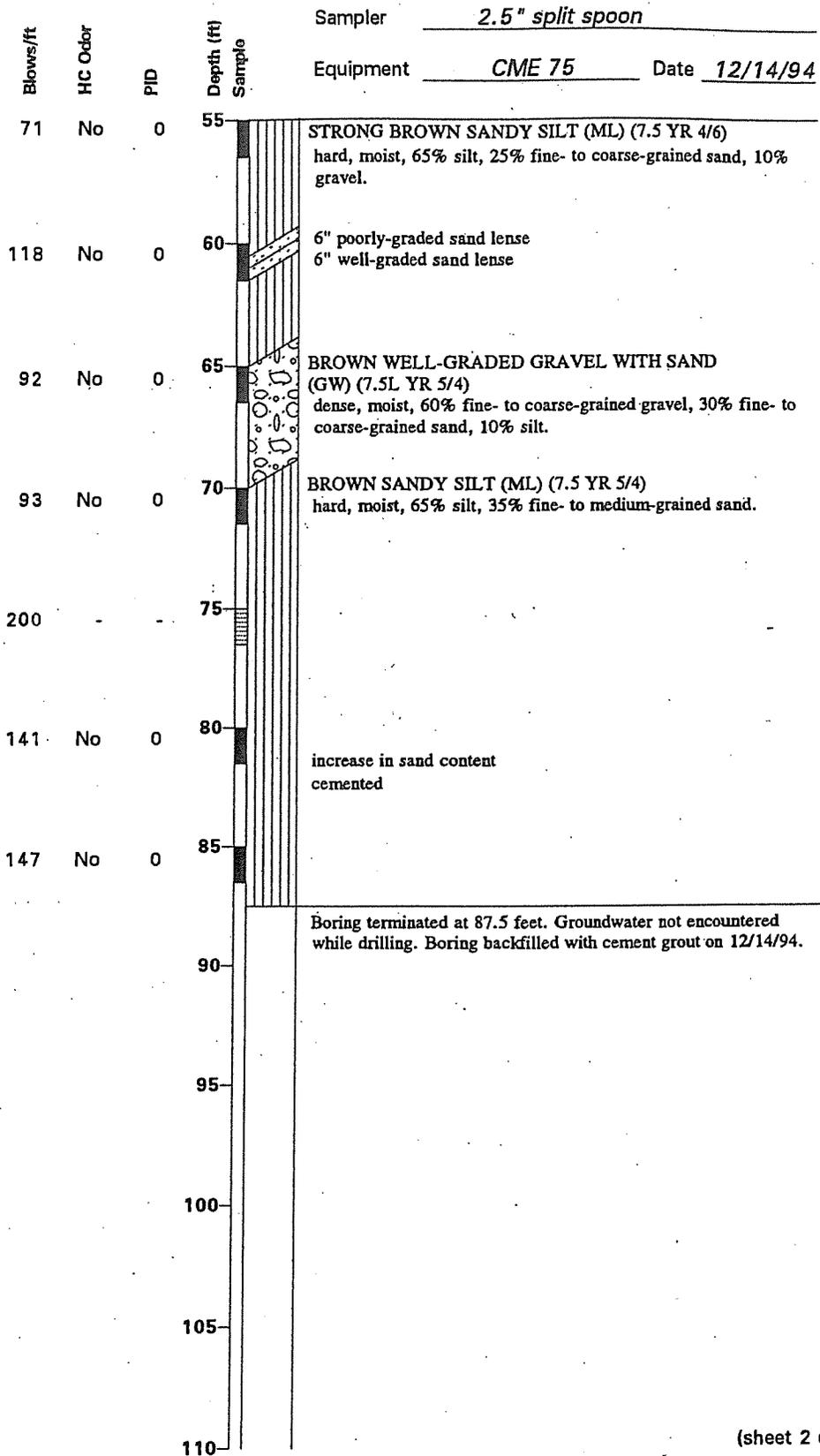
**Harding Lawson Associates**  
Engineering and  
Environmental Services

**LOG OF BORING SB-1**  
Former Univar Corporation Facility  
2930 W. Osborn Road  
Phoenix, Arizona

FIGURE

**A2**

DRAWN DBS	PROJECT NUMBER 30412-1	APPROVED BCT	DATE 1/11/95	REVISED DATE 3/9/95
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(sheet 2 of 2)



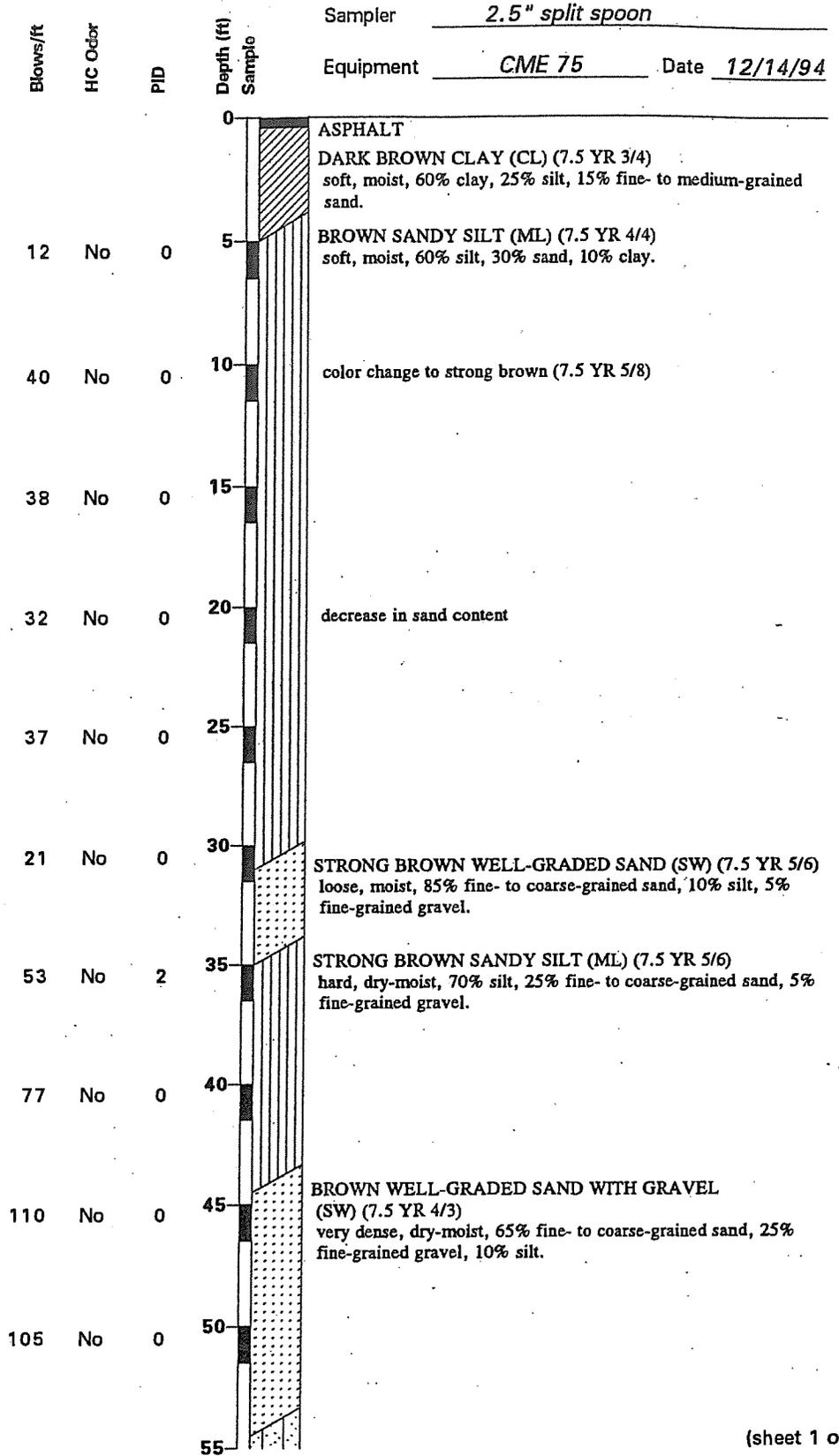
**Harding Lawson Associates**  
Engineering and  
Environmental Services

**LOG OF BORING SB-1**  
Former Univar Corporation Facility  
2930 W. Osborn Road  
Phoenix, Arizona

FIGURE

**A2**

DRAWN DBS	PROJECT NUMBER 30412-1	APPROVED BCT	DATE 1/11/95	REVISED DATE 3/9/95
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(sheet 1 of 2)



**Harding Lawson Associates**  
Engineering and Environmental Services

**LOG OF BORING SB-2**  
Former Univar Corporation Facility  
2930 W. Osborn Road  
Phoenix, Arizona

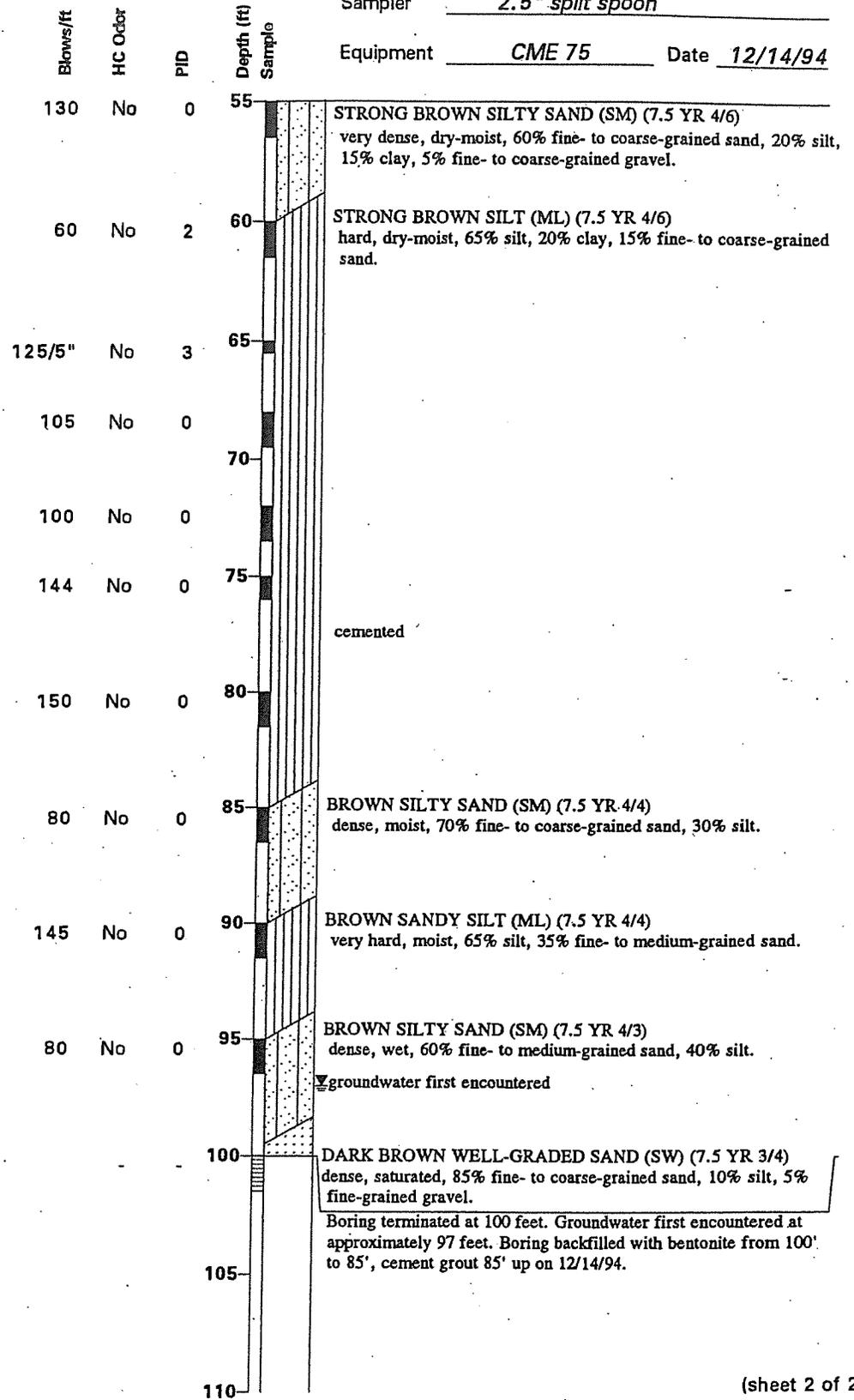
FIGURE

**A3**

DRAWN	PROJECT NUMBER	APPROVED	DATE	REVISED DATE
DBS	30412-1	BCT	1/11/95	3/9/95

Sampler 2.5" split spoon

Equipment CME 75 Date 12/14/94



(sheet 2 of 2)



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Environmental Services

**LOG OF BORING SB-2**  
Former Univar Corporation Facility  
2930 W. Osborn Road  
Phoenix, Arizona

FIGURE

**A3**

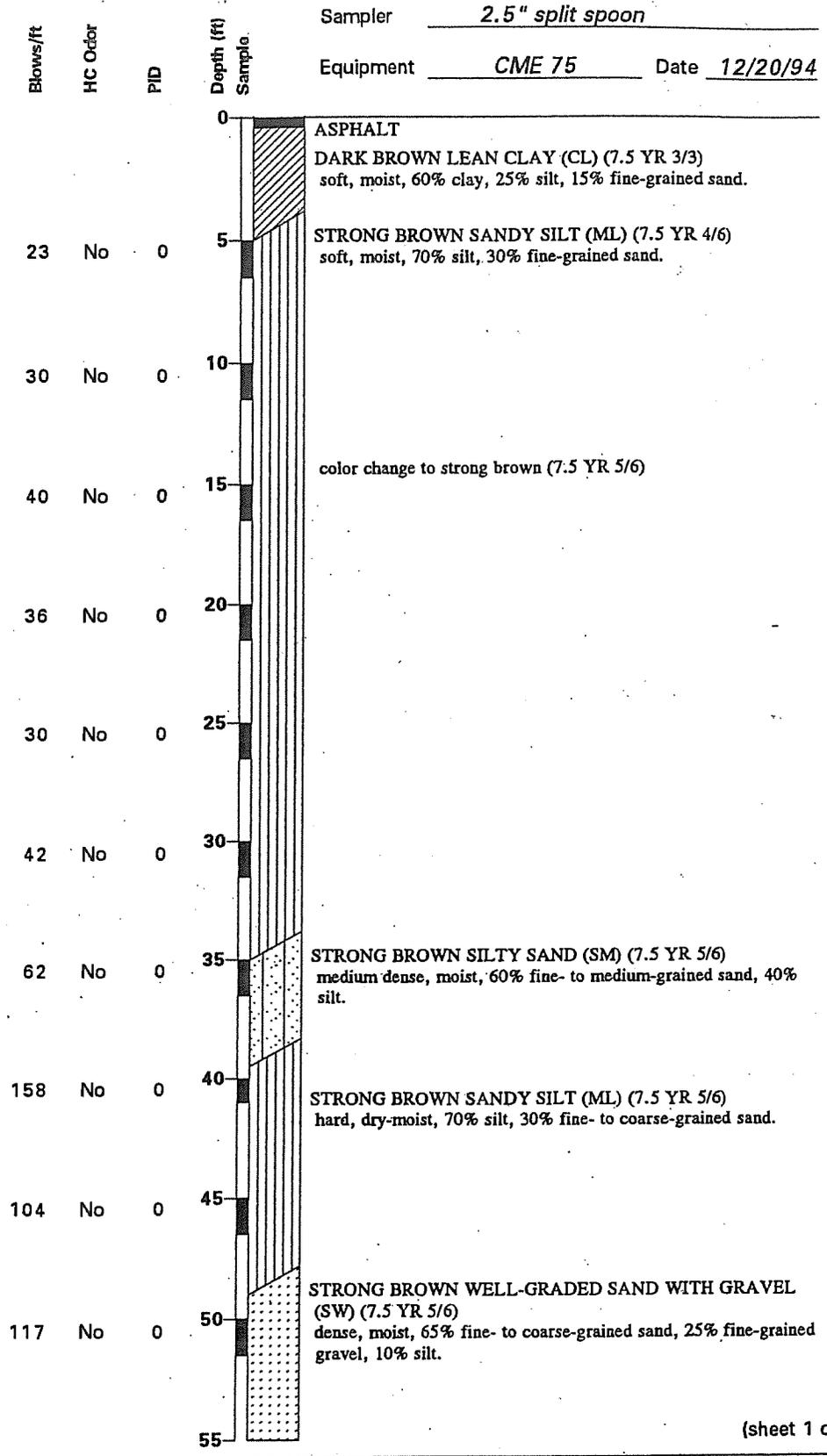
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DBS

PROJECT NUMBER  
30412-1

APPROVED  
BCT

DATE  
1/11/95

REVISED DATE  
3/9/95



(sheet 1 of 2)



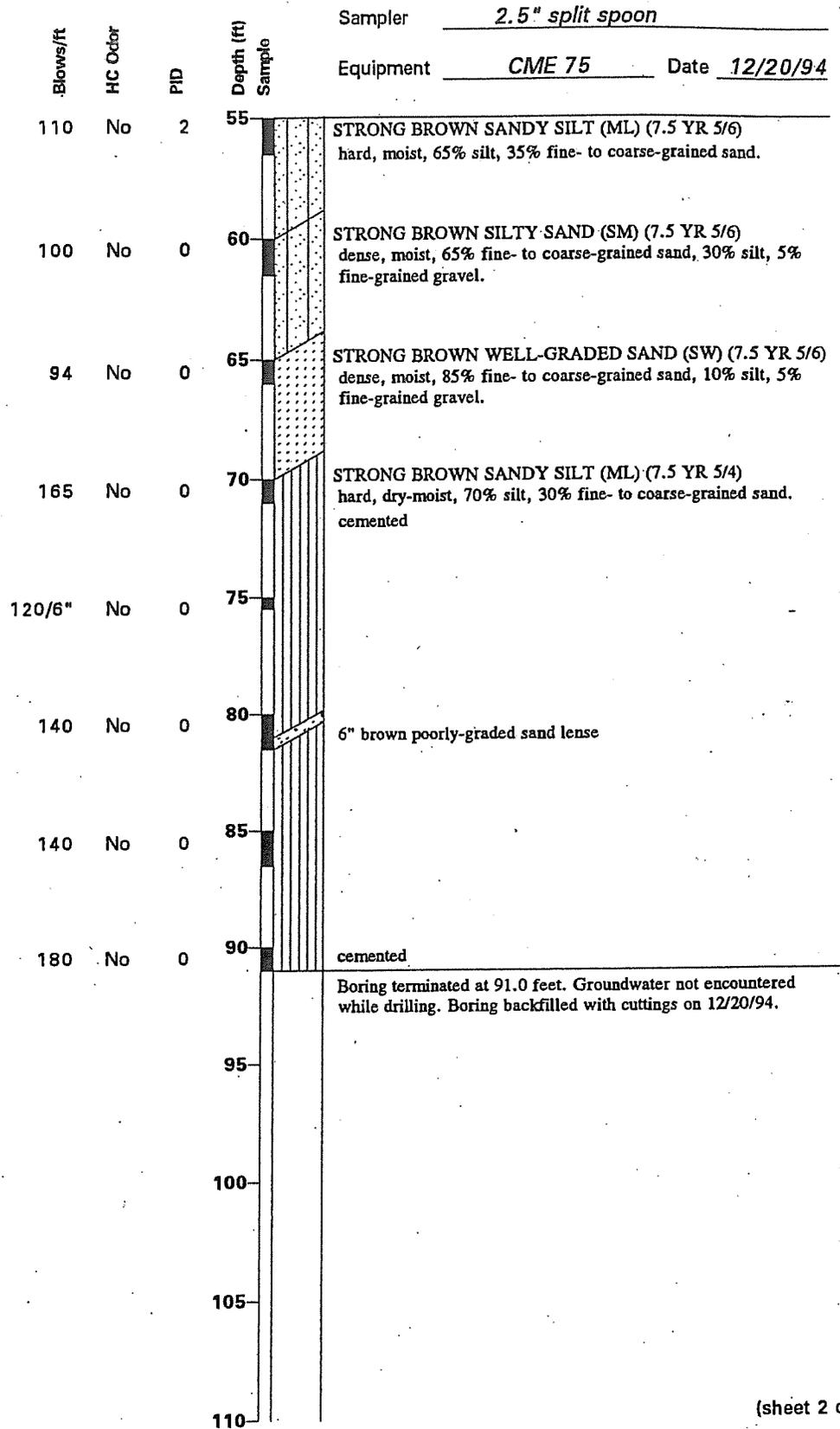
**Harding Lawson Associates**  
Engineering and Environmental Services

**LOG OF BORING SB-3**  
Former Univar Corporation Facility  
2930 W. Osborn Road  
Phoenix, Arizona

FIGURE

**A4**

DRAWN DBS	PROJECT NUMBER 30412-1	APPROVED BCT	DATE 1/11/95	REVISED DATE 3/9/95
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(sheet 2 of 2)



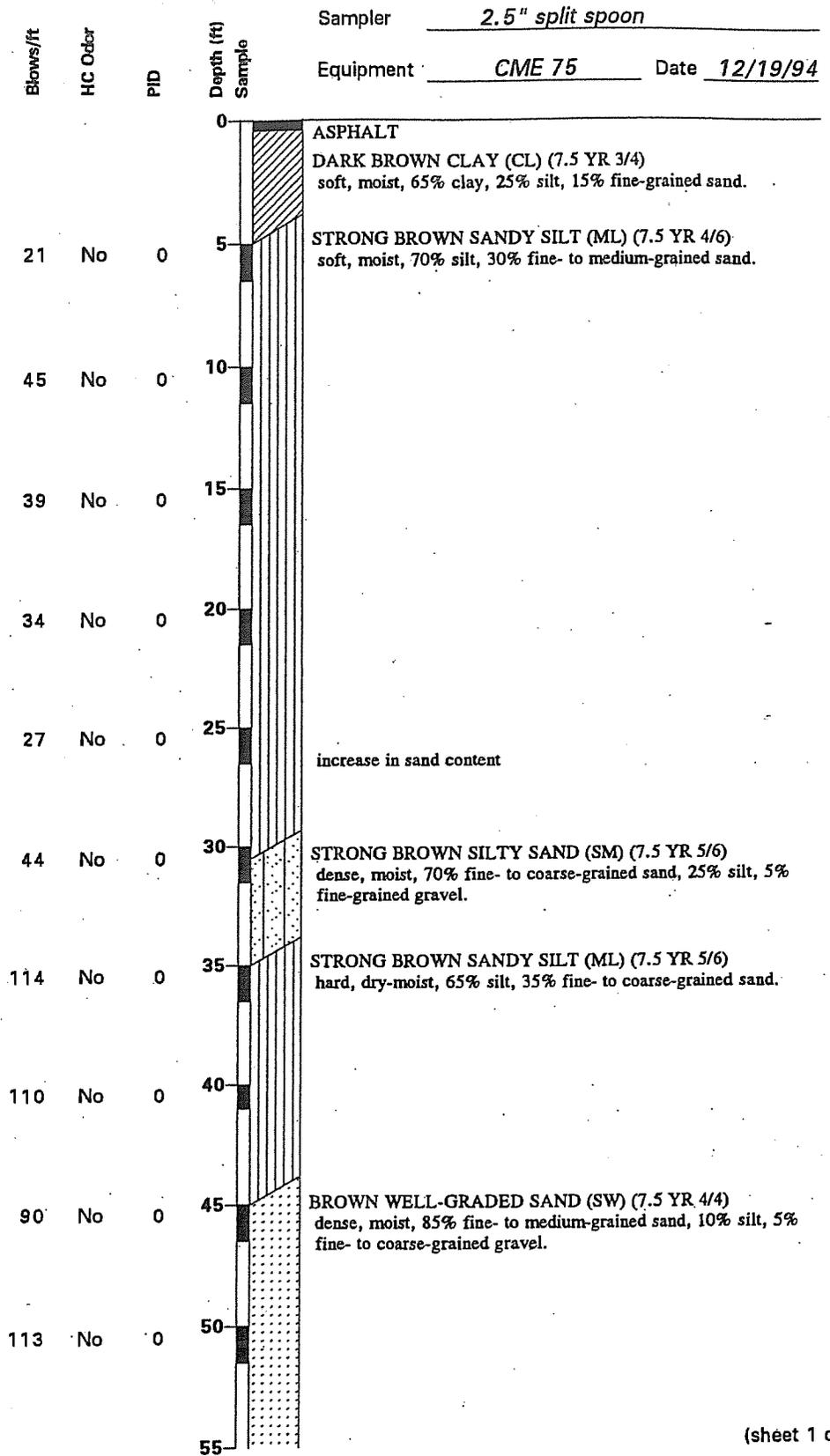
**Harding Lawson Associates**  
Engineering and Environmental Services

**LOG OF BORING SB-3**  
Former Univar Corporation Facility  
2930 W. Osborn Road  
Phoenix, Arizona

FIGURE

**A4**

DRAWN DBS	PROJECT NUMBER 30412-1	APPROVED BCJ	DATE 1/11/95	REVISED DATE 3/9/95
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(sheet 1 of 2)



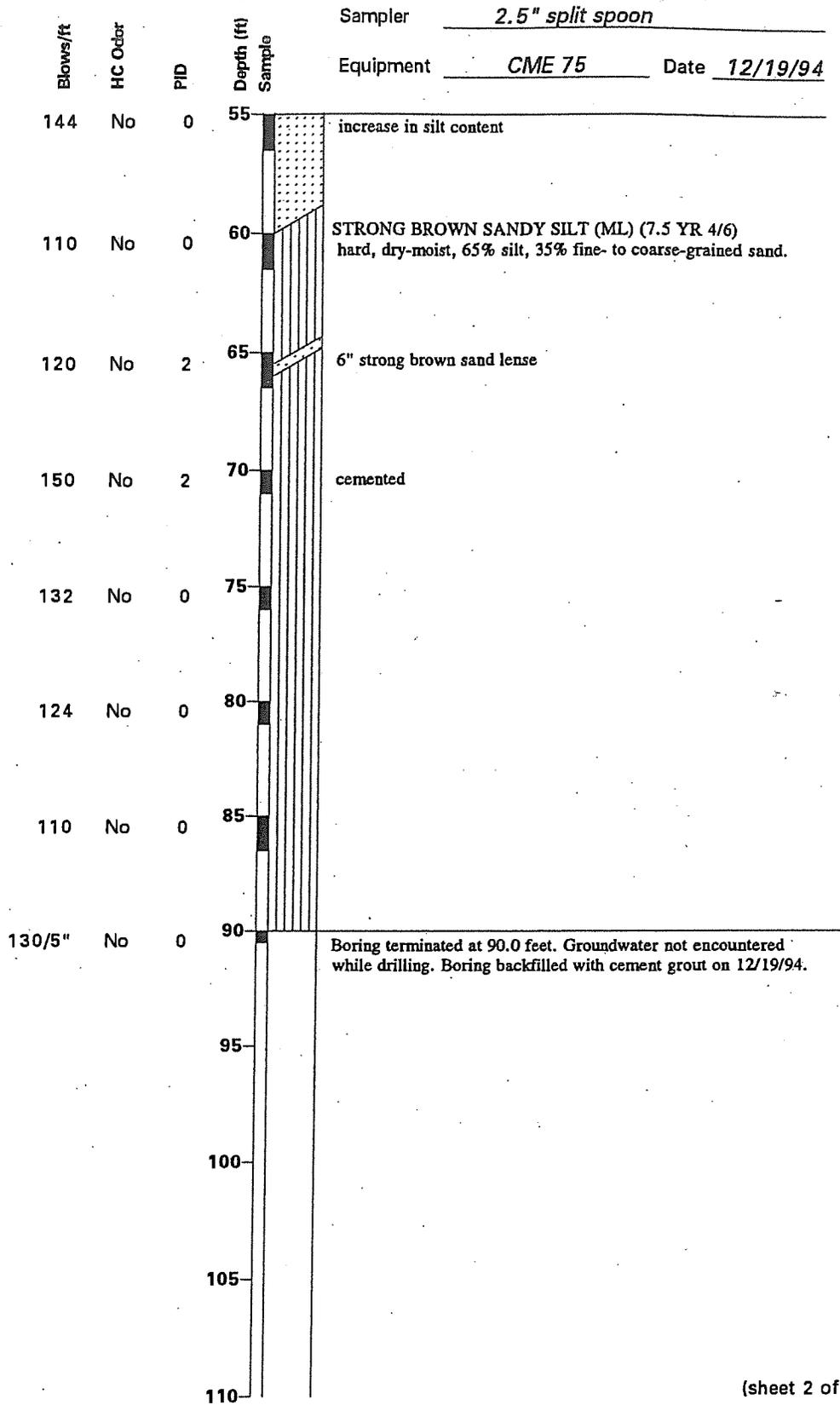
**Harding Lawson Associates**  
Engineering and  
Environmental Services

**LOG OF BORING SB-4**  
Former Univar Corporation Facility  
2930 W. Osborn Road  
Phoenix, Arizona

FIGURE

**A5**

DRAWN DBS	PROJECT NUMBER 30412-1	APPROVED BCT	DATE 1/11/95	REVISED DATE 3/9/95
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(sheet 2 of 2)



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Engineering and  
Environmental Services

**LOG OF BORING SB-4**  
Former Univar Corporation Facility  
2930 W. Osborn Road  
Phoenix, Arizona

FIGURE

**A5**

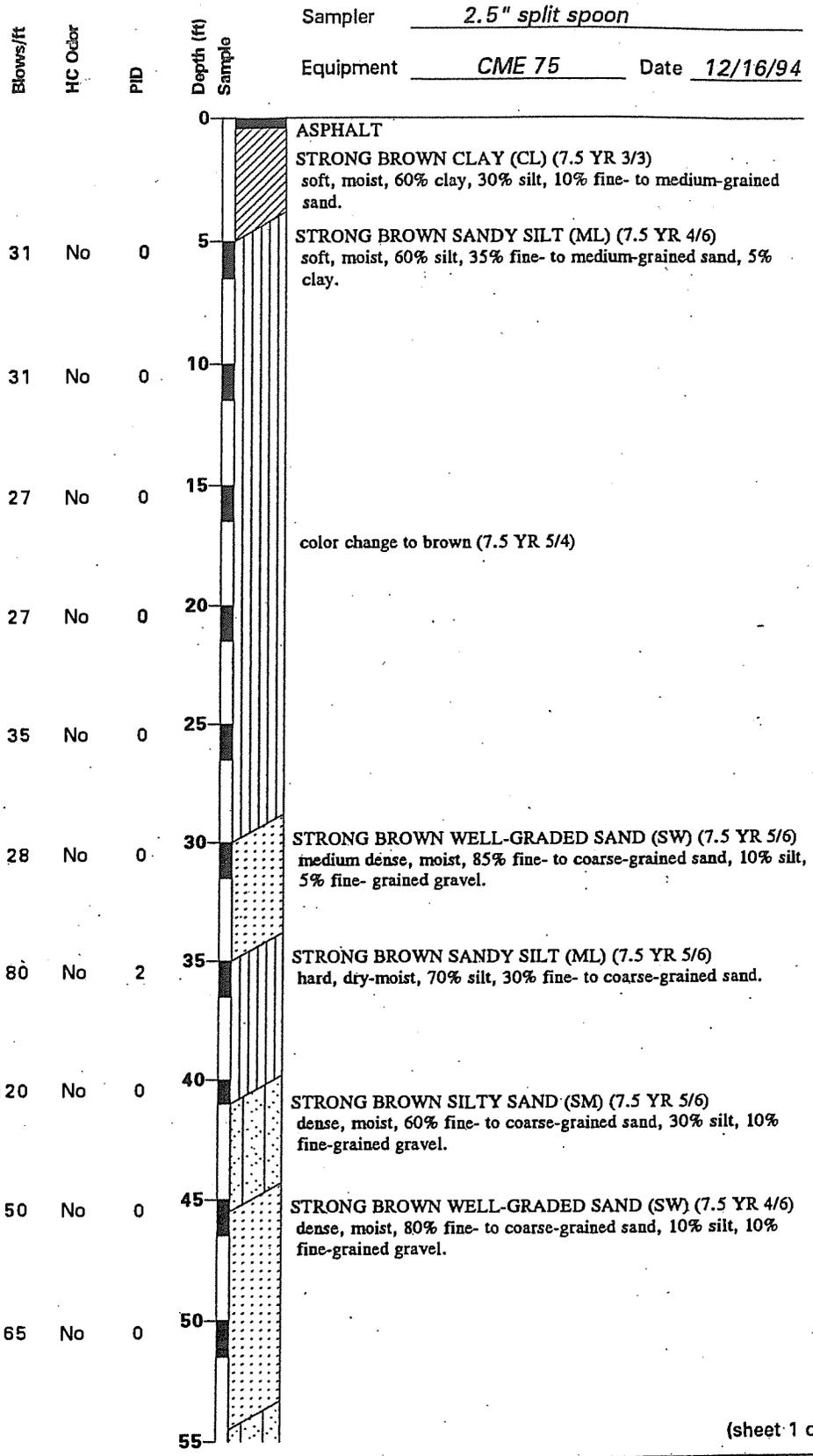
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APPROVED  
*RLT*

DATE  
1/11/95

REVISED DATE  
3/9/95



(sheet 1 of 2)

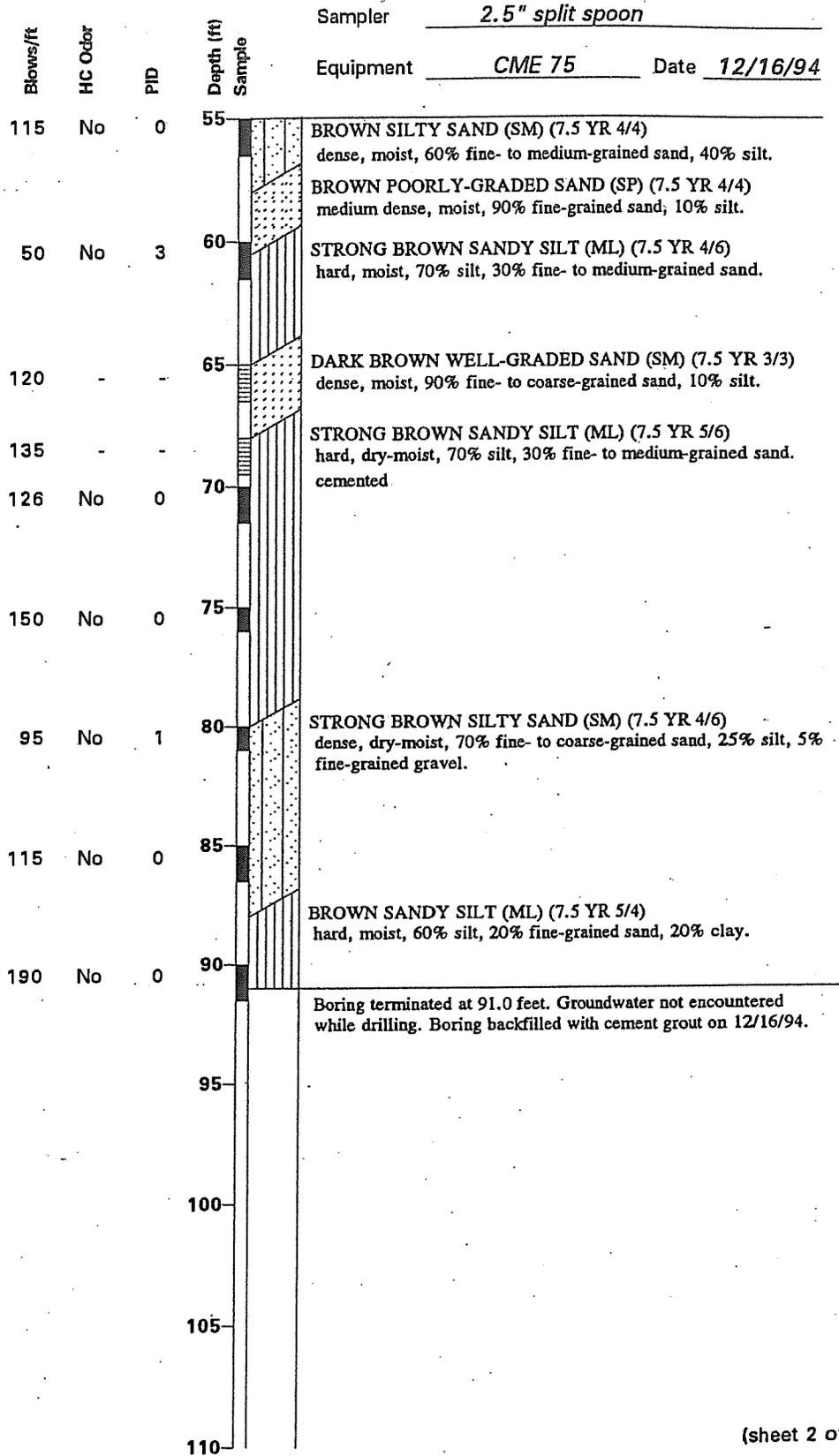


**Harding Lawson Associates**  
Engineering and Environmental Services

**LOG OF BORING SB-5**  
Former Univar Corporation Facility  
2930 W. Osborn Road  
Phoenix, Arizona

FIGURE  
**A6**

DRAWN DBS	PROJECT NUMBER 30412-1	APPROVED BCT	DATE 1/11/95	REVISED DATE 3/9/95
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(sheet 2 of 2)

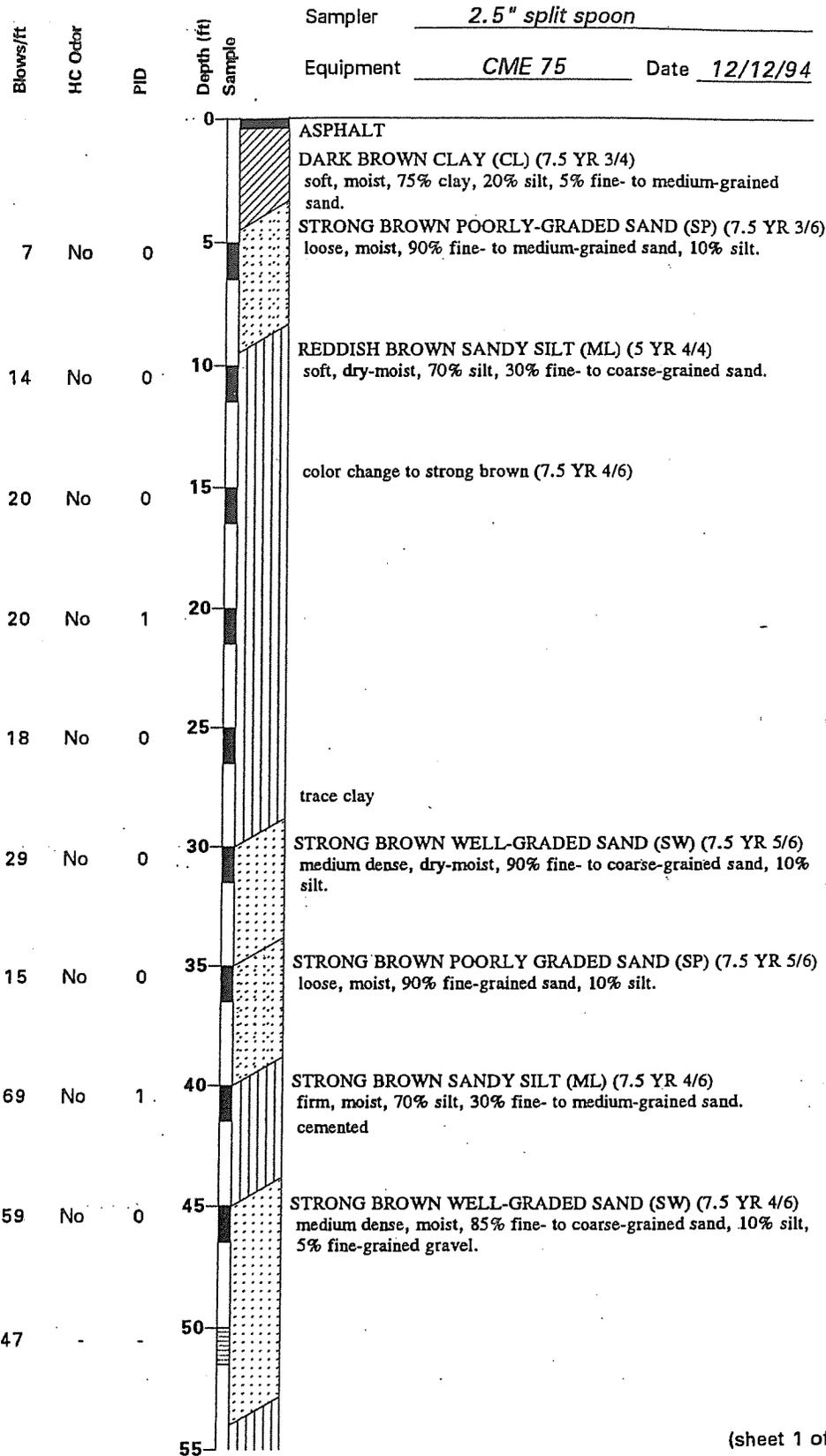


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Engineering and Environmental Services

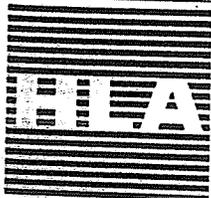
**LOG OF BORING SB-5**  
Former Univar Corporation Facility  
2930 W. Osborn Road  
Phoenix, Arizona

FIGURE  
**A6**

DRAWN DBS	PROJECT NUMBER 30412-1	APPROVED BCT	DATE 1/11/95	REVISED DATE 3/9/95
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(sheet 1 of 2)



**Harding Lawson Associates**  
Engineering and  
Environmental Services

**LOG OF BORING SB-6**  
Former Univar Corporation Facility  
2930 W. Osborn Road  
Phoenix, Arizona

FIGURE

**A7**

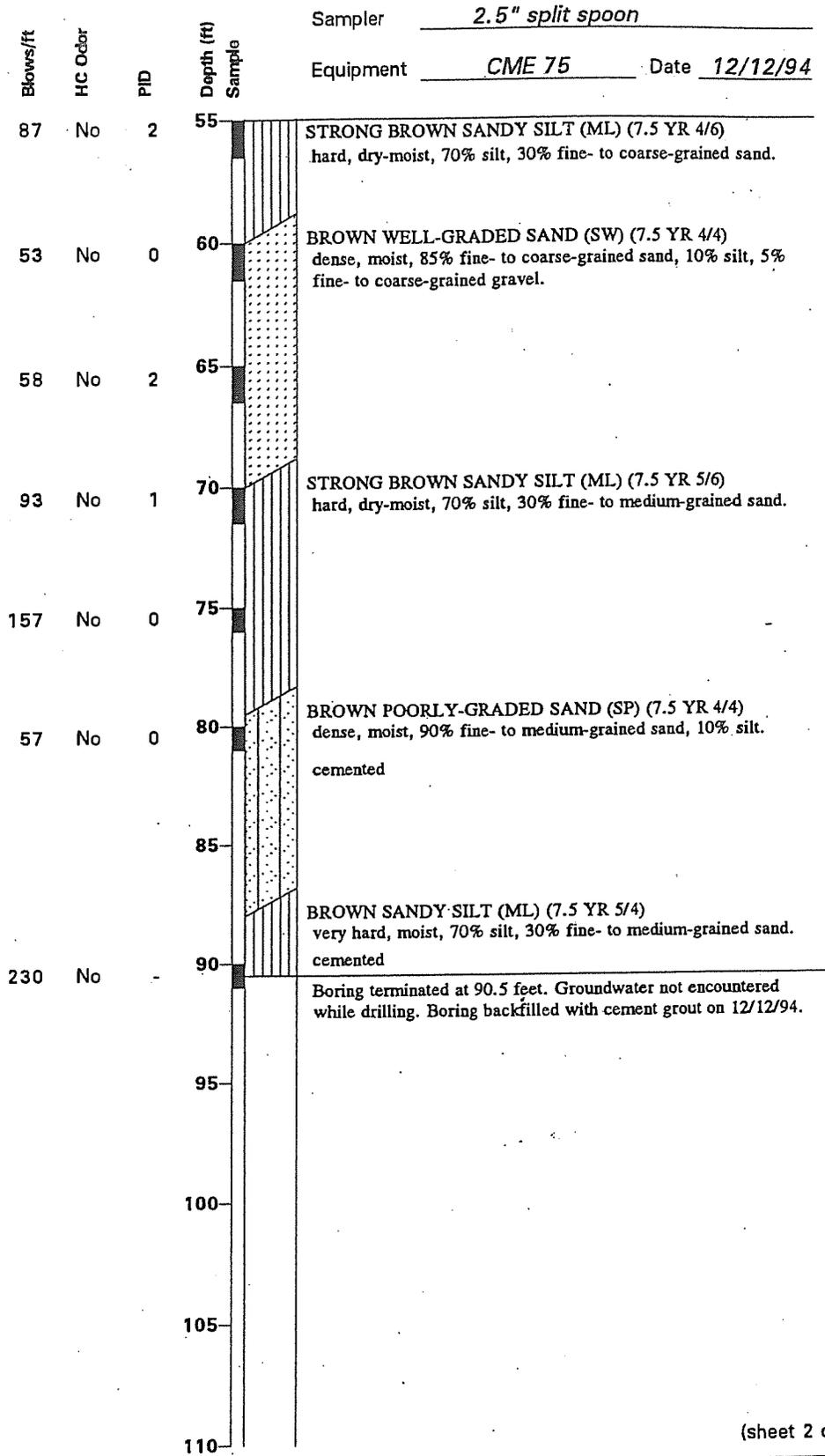
DRAWN  
DBS

PROJECT NUMBER  
30412-1

APPROVED  
BCT

DATE  
1/11/95

REVISED DATE  
3/9/95



(sheet 2 of 2)



**Harding Lawson Associates**  
Engineering and  
Environmental Services

**LOG OF BORING SB-6**  
Former Univar Corporation Facility  
2930 W. Osborn Road  
Phoenix, Arizona

FIGURE

**A7**

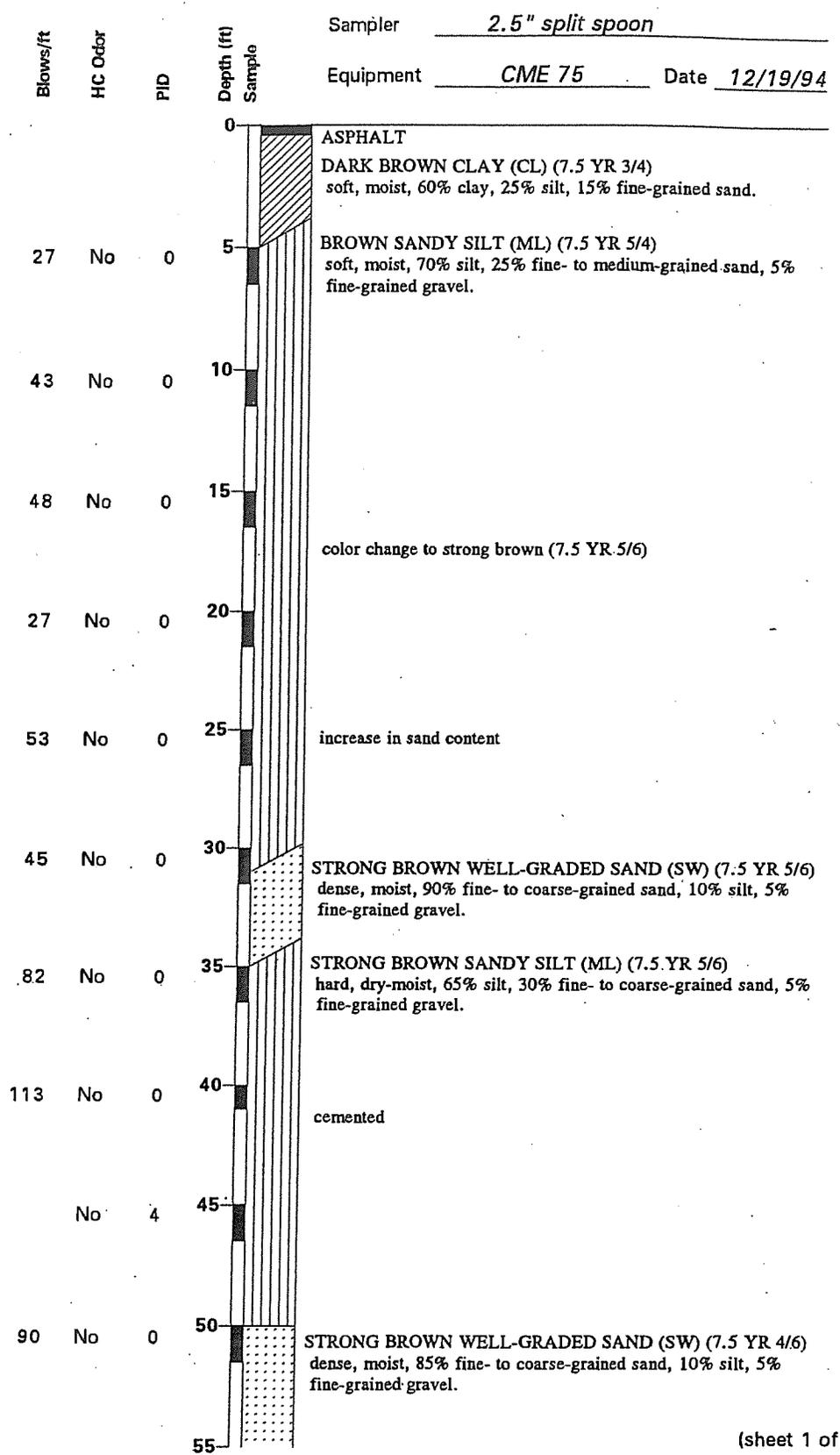
DRAWN  
DBS

PROJECT NUMBER  
30412-1

APPROVED  
BCT

DATE  
1/11/95

REVISED DATE  
3/9/95



(sheet 1 of 2)



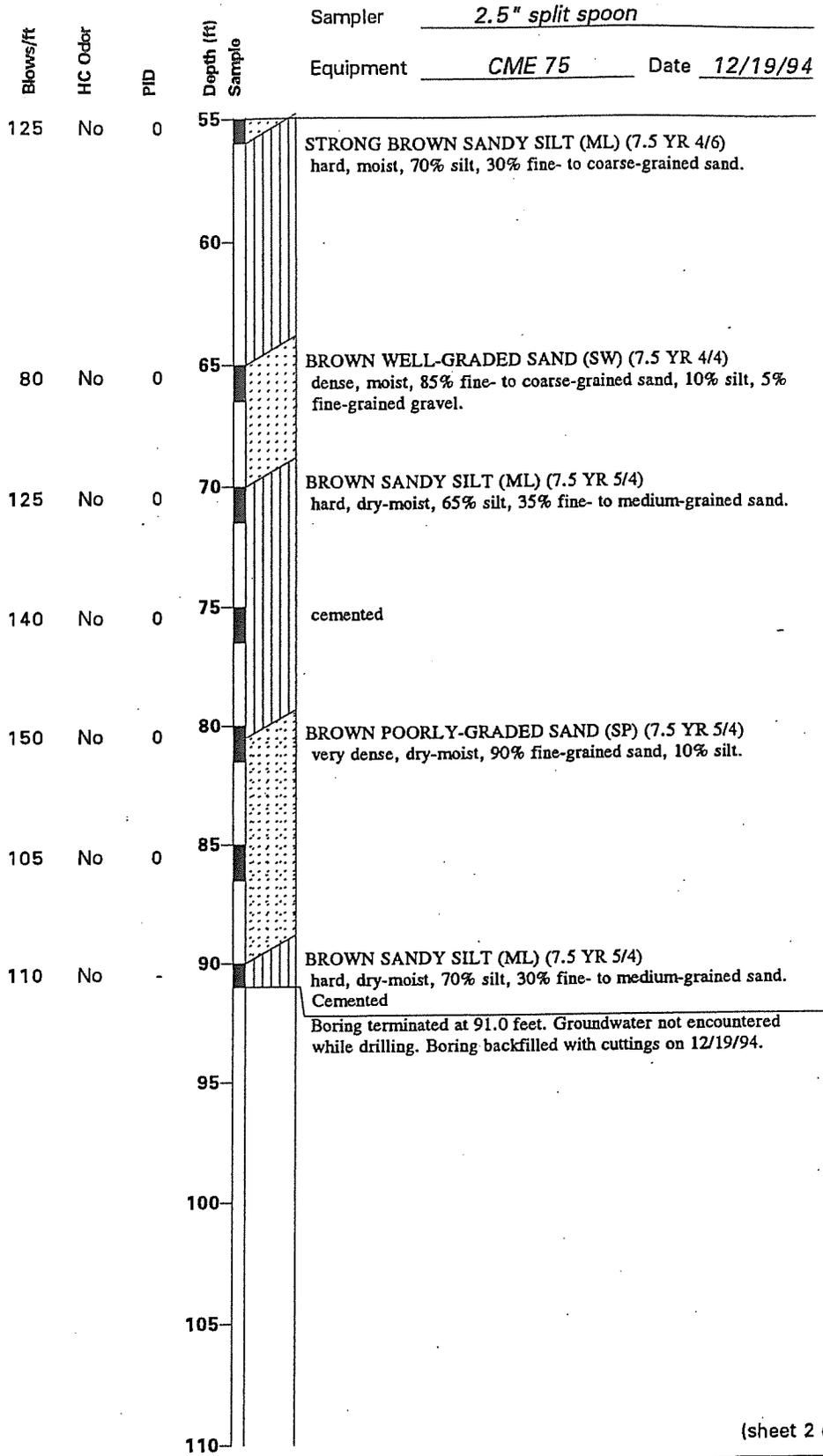
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Engineering and  
Environmental Services

**LOG OF BORING SB-7**  
Former Univar Corporation Facility  
2930 W. Osborn Road  
Phoenix, Arizona

FIGURE

**A8**

DRAWN DBS	PROJECT NUMBER 30412-1	APPROVED <i>BCI</i>	DATE 1/11/95	REVISED DATE 3/9/95
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(sheet 2 of 2)



**Harding Lawson Associates**  
Engineering and Environmental Services

**LOG OF BORING SB-7**  
Former Univar Corporation Facility  
2930 W. Osborn Road  
Phoenix, Arizona

FIGURE

**A8**

DRAWN DBS	PROJECT NUMBER 30412-1	APPROVED BCT	DATE 1/11/95	REVISED DATE 3/9/95
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# LOG OF BORING SB-8

(Page 1 of 5)

Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-8  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : Frank Van Alstine  
 Total Depth : 123.5'  
 Initial GW Depth : NA  
 Static GW Depth : 121.62'  
 Completion Date : 08/30/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
0715				3 3 2		CL	LEAN CLAY (CL), brown, moist, soft, no odor, low to medium plasticity, no reaction with HCl.	
0725				4 2 2		SM	SILTY SAND (SM), brown, fine sand, moist, soft, no odor, low plasticity, no reaction with HCl.	
0730				5 5 6		ML	SILT WITH SAND (ML), brown, (75% fines, 25% fine-grained sand), moist, firm, no odor, low plasticity, moderate reaction with HCl.	
0734				6 6 7		SM	SILTY SAND (SM), brown, fine sand, moist, firm, no odor, low plasticity, slight reaction with HCl.	
0742				5 6 9		ML	SILT with SAND (ML), brown, (80% fines, 20% fine-grained sand), moist, firm, no odor, low plasticity, slight reaction with HCl.	
0745				4 4 6		ML	SANDY SILT (ML), brown, (70% fines, 30% fine-grained sand), moist, firm, no odor, low plasticity, slight reaction with HCl.	
30								

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# LOG OF BORING SB-8

(Page 2 of 5)

Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-8  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : Frank Van Alstine  
 Total Depth : 123.5'  
 Initial GW Depth : NA  
 Static GW Depth : 121.62'  
 Completion Date : 08/30/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0751			7		ML		
				6		SP	POORLY-GRADED SAND (SP), brown, (60% fine subangular sand, 25% medium subangular sand, 15% coarse subangular sand), moist, dense, no odor, low plasticity, moderate reaction with HCl.	
				7				
35	0758			11		CL	LEAN CLAY with SAND (CL), brown, (60% clay 20% medium subangular sand, 20% coarse subangular sand), moist, very stiff, no odor, medium plasticity, moderate reaction with HCl.	
				16				
				49				
40	0816			14		CL	LEAN CLAY with SAND (CL), brown, (60% clay, 20% medium subangular sand, 20% coarse subangular sand), moist, very stiff, no odor, medium plasticity, moderate reaction with HCl.	
				15				
				19				
45	0820			12		ML	SANDY SILT (ML), brown, (65% fines, 15% fine subangular sand, 10% medium subangular sand, 10% coarse subangular sand), moist, stiff, no odor, low to medium plasticity, slight reaction with HCl.	
				14				
				15				
50	0830			12		SP	POORLY-GRADED SAND (SP), brown, (25% fine subrounded sand, 35% medium subrounded sand, 30% coarse subrounded sand), no odor, sub-rounded, no reaction with HCl.	
				14				
				21				
55	0835			17		SC	CLAYEY SAND (SC), brown, (80% fine-coarse subangular sand, 20% clay), moist, no odor, medium plasticity, no reaction with HCl.	
				20				
				24				
60								

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# LOG OF BORING SB-8

(Page 3 of 5)

Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-8  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : Frank Van Alstine  
 Total Depth : 123.5'  
 Initial GW Depth : NA  
 Static GW Depth : 121.62'  
 Completion Date : 08/30/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0840			27 18 16		SC	CLAYEY SAND (SC), brown, (85% fine to coarse subangular sand, 15% clay), moist, no odor, non-plastic, no reaction with HCl.	
65	0850			12 17 21		SP	POORLY-GRADED SAND with GRAVEL (SP), (fine to medium subrounded sand, fine subrounded gravel), slightly moist, no odor, non-plastic fines, no reaction with HCl.	
70	0900			10 12 16		ML	SILT (ML), brown, (100% fines), moist, very stiff, no odor, low to medium plasticity, moderate reaction with HCl.	
75	0935			17 27 31		SM	SILTY SAND (SM), brown, (fine sand), moist, stiff, no odor, low plasticity, weak reaction with HCl.	
80	0949			41 50-6			SILTY SAND (SM), light brown, (60% fine to medium sand, 40% fines), moist, no odor, low plasticity, little reaction with HCl.	
85	0959			14 15 21			SILTY SAND (SM), light brown, (75% coarse sand, 25% fines), moist, no odor, low plasticity, little reaction with HCl.	
90								



# LOG OF BORING SB-8

(Page 4 of 5)

Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-8  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : Frank Van Alstine  
 Total Depth : 123.5'  
 Initial GW Depth : NA  
 Static GW Depth : 121.62'  
 Completion Date : 08/30/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1006			50 50-3			SILTY SAND (SM), brown, (70% fine-coarse sand, 30% fines), moist, no odor, strong reaction with HCl.	
95	1015			28 32 35		SM	SILTY SAND (SM), brown, (60% sand, 40% fines), moist, no odor, low to moderate plasticity, strong reaction with HCl.	
100	1023			24 24 26			SILTY SAND (SM), light brown, (60% sand, 40% fines), slightly moist, no odor, strong reaction with HCl, strongly cemented.	
105	1035			19 24 30		CL	LEAN CLAY with SAND (CL), brown, (30% silt, 25% fine to medium sand, 45% clay), moist, soft, no odor, strong reaction with HCl.	
110	1045			12 16 20		SM	SILTY SAND (SM), light brown, (70% sand, 30% fines), moist, low plasticity, little reaction with HCl.	
115	1100			10 12 19		ML	SANDY SILT (ML), brown, wet, low to medium plasticity, moderate reaction with HCl.	
120						SM		

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# LOG OF BORING SB-8

(Page 5 of 5)

Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-8  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : Frank Van Alstine  
 Total Depth : 123.5'  
 Initial GW Depth : NA  
 Static GW Depth : 121.62'  
 Completion Date : 08/30/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1105			13 16 18		SM	SILTY SAND (SM), light brown, (70% sand, 30% fines), wet, low plasticity, little reaction with HCl.	
						ML	SILT (ML), brown, (100% fines), moist, low to moderate plasticity, strong reaction with HCl.	
Total Depth = 123.5'								
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150								

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# LOG OF BORING SB-9

(Page 1 of 5)

Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-9  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 121'  
 Initial GW Depth : 119.01'  
 Static GW Depth : 119.01'  
 Completion Date : 08/31/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0	0615			3			GRAVEL - base coarse.	
5	0620			2 2 4		SM	SILTY SAND (SM), moderate brown, (40% fines, 60% fine sand), slightly moist, no odor, low PI.	
10	0625			3 3 5		SM	SILTY SAND (SM), moderate brown, (30% fines, 70% fine subrounded sand), no odor, moderately sorted, no PI, strong reaction to HCl.	
15	0630			9 9 13		SM	SILTY SAND (SM), light brown, (30% fines, 70% medium to fine rounded sand), slightly moist, no odor, no PI, strong reaction to HCl.	
20	0645			5 7 11	ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), slightly moist, no odor, low PI, weak reaction to HCl.		
25	0648			4 5 7	SM	SILTY SAND (SM), light brown, (30% fines, 70% fine to medium rounded sand), slightly moist, no odor, weak reaction to HCl.		
30								



# LOG OF BORING SB-9

(Page 2 of 5)

Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-9  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 121'  
 Initial GW Depth : 119.01'  
 Static GW Depth : 119.01'  
 Completion Date : 08/31/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0653			8 10 10			SILTY SAND (SM), light brown, (25% fines, 75% medium to coarse subround to subangular moderately sorted sand), slightly moist, no odor, no PI, strong reaction to HCl.	
35	0700			9 10 15			SILTY SAND (SM), light brown, (30% fines, 70% fine to medium sand), moderately dense, no odor, moderate reaction to HCl.	
40	0715			18 25 26		SM	SILTY SAND (SM), light brown, (30% fines, 70% fine to medium sand), moderately dense, no odor, moderate reaction to HCl.	
45	0720			20 21 20			SILTY SAND WITH GRAVEL (SM), reddish brown, (15% fines, 20% angular gravel, 65% coarse angular sand), no odor, no PI, moderate reaction to HCl.	
50	0730			16 16 28		SW-SM	WELL-GRADED SAND WITH SILT AND GRAVEL (SW-SM), brown to gray, (10% fines, 30% angular gravel, 60% medium to coarse angular sand), slightly moist, no odor, no reaction to HCl.	
55	0739			20 22 24		SM	SILTY SAND (SM), moderate brown, (30% fines, 70% fine moderately sorted sand), slightly moist, no odor, low PI, strong reaction to HCl.	
60						SW-SM	WELL-GRADED SAND WITH SILT AND GRAVEL (SW-SM), reddish brown, (10% fines, 30% angular gravel, 60% coarse angular sand), slightly moist, moderately dense, no odor.	

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# LOG OF BORING SB-9

(Page 3 of 5)

Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-9  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 121'  
 Initial GW Depth : 119.01'  
 Static GW Depth : 119.01'  
 Completion Date : 08/31/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0744			10 10 13		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine to medium sand), slightly moist, moderately dense, no odor, low PI.	
65	0750			10 10 15		SW-SM	WELL-GRADED SAND WITH SILT AND GRAVEL (SW-SM), light brown, (10% silt, 30% angular gravel, 60% angular coarse sand), slightly moist, no odor, angular, no PI, no reaction to HCl.	
70	0800			17 20 36		SM	SILTY SAND (SM), light brown, (medium to fine sand), slightly moist, moderately dense, no odor, strong reaction to HCl.	
75	0805			39 50			SILTY SAND (SM), light brown, (30% fines, 70% medium to fine sand), slightly moist, dense, no odor, no PI, strong reaction to HCl.	
80	0813			30 38 35			SILTY SAND (SM), light brown, (10% gravel, 20% fines, 70% subround to subangular medium to coarse sand), slightly moist, moderately dense, no odor, no PI, strong reaction to HCl.	
85	0821			10 12 14			SILTY SAND (SM), light brown, (20% fines, 80% well sorted medium sand), slightly moist, moderately loose, no odor, well sorted, no PI.	
90								

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# LOG OF BORING SB-9

(Page 4 of 5)

Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-9  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 121'  
 Initial GW Depth : 119.01'  
 Static GW Depth : 119.01'  
 Completion Date : 08/31/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	0850			47 50			SILTY SAND (SM), light brown, (30% fines, 70% fine to medium moderately sorted sand), slightly moist, dense, no odor, no PI.	
95	0900			17 24 29		SM	SILTY SAND (SM), moderate to light brown, (25% fines, 75% well sorted medium sand), moderately dense, no odor, no PI, no reaction to HCl.	
100	0906			10 12 17			SILTY SAND (SM), light brown, (20% fines, 80% well sorted medium rounded sand), slightly moist, loose, no odor, no reaction to HCl.	
105	0918			10 14 10		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand, slightly moist), moderately loose, no odor, low PI, strong reaction to HCl.	
110	0923			11 15 20		SM	SILTY SAND (SM), moderate brown, (35% fines, 65% medium sand), slightly moist, moderately loose, no odor, no PI.	
115	0920			12 14 20		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), moist, no odor, medium PI, no reaction to HCl.	
120						SM	SILTY SAND (SM), moderately brown, (30% fines, 70% medium to coarse sand), saturated, moderately dense, no odor, angular, moderate to poorly sorted, no PI, moderate reaction to HCl.	

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# LOG OF BORING SB-9

(Page 5 of 5)

Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-9  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 121'  
 Initial GW Depth : 119.01'  
 Static GW Depth : 119.01'  
 Completion Date : 08/31/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	0940			15 18 20		SM	Total Depth = 121' bgs	
125								
130								
135								
140								
145								
150								





# LOG OF BORING SB-10

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-10  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 121'  
Initial GW Depth : NA  
Static GW Depth : NA  
Completion Date : 09/01/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0	0640		0.0	3 2 3		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), slightly moist, loose, no odor, plastic, strong reaction to 10% HCl.	
5	0644		0.0	2 3 4		SM	SILTY SAND (SM), moderate brown, (40% silty fines, 60% fine sand), slightly moist, loose, no odor, slightly plastic, strong reaction to 10% HCl.	
10	0649		0.0	7 9 9		SM	SILTY SAND (SM), light brown, (30% fines, 70% medium to fine sand), slightly moist, moderately dense, non-plastic, strong reaction to 10% HCl.	
15	0700		0.0	9 12 15		SM	SILTY SAND (SM), light brown, (20% fines, 80% moderately to well-sorted medium to fine sand), slightly moist, no odor, non-plastic fines, moderately strong reaction to 10% HCl.	
20	0705		0.0	5 7 8		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), slightly moist, moderately loose, no odor, fines slightly plastic, weak reaction to 10% HCl.	
25	0709		0.0	7 10 13		SM	No Recovery.	
30								

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# LOG OF BORING SB-10

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-10  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 121'  
 Initial GW Depth : NA  
 Static GW Depth : NA  
 Completion Date : 09/01/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0724		11	7 7 8			SILTY SAND (SM), light brown, (25% fines, 75% medium sand), slightly moist, loose, no odor, non-plastic, moderate reaction to 10% HCl.	
35	0730		9.0	7 7 7		SM	SILTY SAND (SM), reddish brown, (20% fines, 80% moderate to coarse sand), slightly moist, no odor, non-plastic, moderate reaction to 10% HCL.	
40	0735		2.0	10 10 13		SP-SM	POORLY-GRADED SAND WITH SILT AND GRAVEL (SP-SM), reddish brown, (10% fines, 25% angular gravel, 65% coarse angular sand), slightly moist, loose, no odor, non-plastic, weak reaction to 10% HCl.	
45	0742		2.0	10 14 21		SM	SILTY SAND (SM), moderate brown, (40% silty fines, 60% fine to medium sand), slightly moist, moderately loose, no odor, slightly plastic, weak reaction to 10% HCl.	
50			1.0	10 10 12		SP-SM	POORLY-GRADED SAND WITH SILT AND GRAVEL (SP-SM), light gray, (10% fines, 25% angular gravel, 65% coarse angular sand), slightly moist, loose, no odor, moderate reaction to 10% HCl.	
55	0753		1.0	12 18 21		SM	SILTY SAND (SM), moderate brown, (40% fines, 60% moderate to well sorted fine to medium sand, moderately loose, no odor, slightly moist, strong reaction to 10% HCl.	
60								

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# LOG OF BORING SB-10

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-10  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 121'  
 Initial GW Depth : NA  
 Static GW Depth : NA  
 Completion Date : 09/01/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0800		2.0	10 11 13			SILTY SAND (SM), light brown, (20% fines, 80% rounded well sorted medium sand), loose, non-plastic, no reaction to 10% HCl.	
65	0805		2.0	8 11 14			SILTY SAND (SM), reddish brown, (25% fines, 65% medium to coarse angular sand, 10% gravel), slightly moist, loose, no odor, no reaction to 10% HCl.	
70	0812		2.0	36 50			SILTY SAND (SM), light brown, (40% silty fines, 60% medium to fine rounded sand), dense, no odor, non-plastic fines, strong reaction to 10% HCl.	
75	0820		2.0	20 20 21		SM	SILTY SAND (SM), light brown, (30% silty fines, 70% fine to medium rounded sand), loose, no odor, non-plastic, no reaction to 10% HCl.	
80	0859		1.0	16 21 25			SILTY SAND (SM), light brown, (20% silty fines, 80% medium rounded sand), slightly moist, loose, no odor, no reaction to 10% HCl.	
85	0904		0.0	18 22 25			SILTY SAND (SM), light brown, (20% silty fines, 80% medium rounded sand), slightly moist, moderately dense, no odor, strong reaction to 10% HCl.	
90								



# LOG OF BORING SB-10

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-10  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 121'  
 Initial GW Depth : NA  
 Static GW Depth : NA  
 Completion Date : 09/01/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	0912		2.0	41 50		SM	SILTY SAND (SM), moderate brown, (40% silty fines, 60% fine subrounded sand), slightly moist, very dense, no odor, slightly plastic, strong reaction to 10% HCl.	
95	0920		2.0	40 50		ML	SANDY SILT (ML), moderate brown, (60% silty fines, 40% sands), slightly plastic, no odor, moderately sorted, rounded grains, slightly moist, very dense, strong reaction with HCl.	
100	0930		3.0	39 50		ML	SANDY SILT (ML), light brown, (60% silty fines, 40% fine to medium sand), slightly moist, very dense, no odor, slightly plastic, weak reaction to 10% HCl.	
105	0939		2.0	9 11 14		ML	SANDY SILT (ML), moderate brown, (60% silty fines 40% fine-grained sand), slightly moist, moderately loose, no odor, well sorted, slightly plastic, weak reaction to 10% HCl.	
110	0947		1.0	11 19 24		ML	SANDY SILT (ML), moderate brown, (60% silty fines, 40% fine-grained sand), slightly moist, moderately loose, no odor, slightly plastic, weak reaction to 10% HCl, with 2 inch interbedded coarse sand.	
115	0959		2.0	10 16 20		SM	SILTY SAND (SM), reddish brown, (20% silty fines, 80% medium to coarse angular sand, slightly moist, no odor, no reaction to 10% HCl.	
120	1012		6.0	11		ML	SANDY SILT (ML), moderate brown, (50% silt, 50% fine-grained sand), wet, moderately loose, no odor, slightly plastic, no reaction to 10% HCl.	

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-10  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 121'  
 Initial GW Depth : NA  
 Static GW Depth : NA  
 Completion Date : 09/01/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1012		6.0	16 20		ML	Total Depth = 121' bgs	
125								
130								
135								
140								
145								
150								





# LOG OF BORING SB-11

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-11  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 121'  
 Initial GW Depth : 116.00'  
 Static GW Depth : 116.00'  
 Completion Date : 09/02/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0	0710		0.0	2 2 3		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine sand), slightly moist, no odor, slightly plastic, moderate reaction to HCl.	
5	0713		0.0	2 3 4		SM	SILTY SAND (SM), light brown, (40% fines, 60% fine to medium sand), slightly moist, loose, no odor, non plastic, moderate reaction to HCl.	
10	0718		0.0	7 8 14		ML	SANDY SILT (ML), light brown, (60% fines, 40% fine sand), slightly moist, loose, no odor, slightly plastic, strong reaction to HCl.	
15	0730		1.0	8 10 14		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, moderately loose, no odor, slightly plastic, moderate reaction to HCl.	
20	0740		2.0	8 9		SM	SILTY SAND (SM), light brown, (30% fines, 70% fine-medium rounded sand), slightly moist, loose, no odor, slightly plastic, strong reaction to HCl.	
25	0745		2.0	5 8 11		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine rounded sand), slightly moist, loose, no odor, slightly plastic, weak reaction to HCl.	
30								

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# LOG OF BORING SB-11

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-11  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 121'  
 Initial GW Depth : 116.00'  
 Static GW Depth : 116.00'  
 Completion Date : 09/02/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0800		1.0	9 9 10		ML	SANDY SILT (ML), light brown, (60% fines, 40% fine rounded sand), slightly moist, loose, no odor, slightly plastic, weak reaction to HCl.	
35	0806		1.0	10 12 10		SM	SILTY SAND (SM), light brown, (20% fines, 80% fine to medium sand), slightly moist, loose, no odor, non plastic, strong reaction to HCl.	
40	0812		1.0	10 12 10		ML	SANDY SILT (ML), light brown, (60% fines, 40% fine to medium rounded sand), slightly moist, moderately loose, no odor, slightly plastic, strong reaction to HCl.	
45	0837		1.0	10 14 14		SM	SILTY SAND (SM), reddish brown, (10% gravel, 30% fines, 60% medium to coarse angular sand), slightly moist, no odor.	
50	0843		0.0	10 18 19		SP-SM	POORLY-GRADED SAND WITH SILT AND GRAVEL (SP-SM), reddish brown, (10% fines, 30% fine gravel, 60% coarse angular sand), slightly moist, moderately loose, no reaction to HCl.	
55	0850		1.0	17 19 25		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% rounded to subangular fine sand), slightly moist, dense, no odor, slightly plastic, strong reaction to HCl.	
60								



# LOG OF BORING SB-11

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-11  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 121'  
 Initial GW Depth : 116.00'  
 Static GW Depth : 116.00'  
 Completion Date : 09/02/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0857		1.0	20 13 13		SM	SILTY SAND WITH GRAVEL (SM), light gray, (20% fines, 30% fine gravel, 50% poorly sorted angular coarse sand), slightly moist, no odor, moderate reaction to HCl.	
65	0902		0.0	20 14 16		SM	SILTY SAND (SM), light brown, (20% fines, 80% well sorted angular medium sand), slightly moist, loose, no reaction with HCl.	
70	0910		1.0	35 50-5		ML	SANDY SILT (ML), light gray, (60% fines, 40% fine sand), slightly moist, dense, no odor, strong reaction to HCl. (1" Caliche layer at 71.5' bgs)	
75	0918		0.0	30 40 40		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine sand), slightly moist, moderately dense, no odor, moderate reaction to HCl.	
80	0926		0.0	22 24 25		SM	SILTY SAND (SM), light brown, (20% silt, 80% medium angular sand), slightly moist, loose, no odor, non plastic, moderate reaction to HCl.	
85	0933		1.0	13 14 17		SM	SILTY SAND (SM), light brown, (20% fines, 80% medium angular sand), slightly moist, loose, no odor, non plastic, no reaction to HCl.	
90								

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# LOG OF BORING SB-11

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-11  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 121'  
 Initial GW Depth : 116.00'  
 Static GW Depth : 116.00'  
 Completion Date : 09/02/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	0949		0.0	50 50-3		SM	SILTY SAND (SM), light brown, (30% fines, 70% medium sand), slightly moist, no odor, no reaction to HCl.	
95	1024		2.0	15 15 19		SM	SILTY SAND (SM), moderate brown, (30% fines, 70% fine to medium sand), slightly moist, moderately loose, no odor, non plastic, strong reaction to HCl.	
100	1026		1.0	15 20 31		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine sand), slightly moist, moderately dense, no odor, slightly plastic, strong reaction to HCl.	
105	1030		0.0	31 25 30		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine sand), slightly moist, moderately dense, no odor, slightly plastic, strong reaction to HCl.	
110	1040		1.0	7 9 12		SM	SILTY SAND (SM), reddish brown, (30% fines, 70% medium sand), slightly moist, loose, no odor, non plastic, no reaction to HCl.	
115	1048		2.0	10 12 14		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), moist, no odor, moderate to high plasticity, weak reaction to HCl.	
120	1100		2.0	13			SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), wet, loose, no odor, plastic.	

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LOG OF BORING SB-11

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-11  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 121'  
 Initial GW Depth : 116.00'  
 Static GW Depth : 116.00'  
 Completion Date : 09/02/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1100		2.0	14 19		ML	Total Depth = 121' bgs	
125								
130								
135								
140								
145								
150								





## LOG OF BORING SB-12

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-12  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 121'  
Initial GW Depth : 116.00'  
Static GW Depth : NA  
Completion Date : 9/3/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0	0655		6.0	2 3 3			SANDY SILT (ML), moderate brown, (50% fines, 50% fine-grained sand), slightly moist, loose, slightly plastic, moderate reaction to 10% HCl.	
5	0659		5.0	1 3 3			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, loose, no odor.	
10	0702		5.0	4 4 7			SANDY SILT (ML), moderate to light brown, (60% fines, 40% fine-grained sand), slightly moist, loose, slightly plastic, strong reaction to 10% HCl.	
15	0708		10.0	8 9 12		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, moderately loose, no odor, slightly plastic, strong reaction to 10% HCl.	
20	0714		5.0	6 6 8			SANDY SILT (ML), light brown, (60% fines, 40% fine-grained sand), slightly moist, loose, slightly plastic, weak reaction to 10% HCl.	
25	0720		8.0	5 9 12			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, loose, no odor, slightly plastic, no reaction to 10% HCl.	
30								



# LOG OF BORING SB-12

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-12  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 121'  
 Initial GW Depth : 116.00'  
 Static GW Depth : NA  
 Completion Date : 9/3/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0724		5.0	6 7			SILTY SAND (SM), light brown, (30% fines, 70% medium sand), slightly moist, loose, non-plastic, weak reaction to 10% HCl.	
35	0732		9.0	11 16 20		SM	SILTY SAND (SM), grayish brown, (30% fines, 70% fine to medium sand), slightly moist, moderately loose, no odor, non-plastic, strong reaction to 10% HCl.	
40	0738		12.0	17 17 19			SILTY SAND (SM), grayish brown, (30% fines, 70% fine to medium sand), moderately loose, no odor, non-plastic, strong reaction to 10% HCl.	
45	0744		6.0	27 28 27		SW-SM	WELL-GRADED SAND WITH SILT AND GRAVEL (SW-SM), reddish brown, (10% fines, 25% gravel, 65% medium to coarse angular sand), slightly moist, no odor, weak reaction to 10% HCl.	
50	0754		6.0	26 31 40			WELL-GRADED SAND WITH SILT AND GRAVEL (SW-SM), reddish brown, (10% fines, 25% gravel, 65% medium to coarse angular sand), slightly moist, moderately dense, no odor, weak reaction to 10% HCl.	
55	0826		4.0	15 20 26		SM	SILTY SAND (SM), reddish brown, (30% fines, 70% medium to coarse angular sand), slightly moist, moderately loose, no odor, angular, non-plastic, no reaction to 10% HCl.	
60							Gravels and cobbles ~ 4" - 6" from 51.5 to 54.5 ft bgs	



# LOG OF BORING SB-12

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-12  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 121'  
Initial GW Depth : 116.00'  
Static GW Depth : NA  
Completion Date : 9/3/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0834		14.0	13 15 19		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine-grained sand), slightly moist, moderately loose, no odor, slightly plastic, strong reaction to 10% HCl.	
65	0844		6.0	31 40 45		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, moderately dense, no odor, moderately sorted.  Note: ~0.5" caliche at 66' bgs.	
70	0855		8.0	39 50		SM	SILTY SAND (SM), light brown, (30% fines, 70% medium to fine sand), slightly moist, dense, no odor, non-plastic, strong reaction to 10% HCl.	
75	0906		6.0	31 40 50		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine-grained sand), slightly moist, moderately dense, no odor, slightly plastic, weak reaction to 10% HCl.	
80			4.0	50		SM	SILTY SAND (SM), light brown, (20% fines, 80% medium angular sand), slightly moist, loose, no odor, non-plastic, no reaction to 10% HCl.	
85	0926		4.0	13 13 15		SM	SILTY SAND (SM), light brown, (20% fines, 80% medium angular sand), slightly moist, loose, no odor, non-plastic, no reaction to 10% HCl.	
90								



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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-12  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 121'  
Initial GW Depth : 116.00'  
Static GW Depth : NA  
Completion Date : 9/3/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	0934		8.0	16 16 19		SM	SILTY SAND (SM), light brown, (45% fines, 55% fine-grained sand), slightly moist, no odor, slightly plastic fines, no reaction to 10% HCl.	
95	0946		6.0	15 19 22		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine-grained sand), slightly moist, moderately loose, no odor, slightly plastic, strong reaction to 10% HCl.  Note: 0.5" caliche layer at 96' bgs.	
100	0954		8.0	12 14 18		SM	SILTY SAND (SM), light brown, (30% fines, 70% medium sand), moderately loose, no odor, non-plastic, no reaction to 10% HCl.	
105	1006		13.0	27 31 35			2" caliche at 106' bgs.	
110	1014		9.0	11 13 19		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine sand), moist, moderately loose, no odor, slightly plastic, no reaction to 10% HCl.	
115	1024		8.0	24 20 20			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), moist, moderately loose, no odor, slightly plastic, no reaction to 10% HCl.  1" caliche layer.	
120			10.0	12 18				

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-12  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 121'  
 Initial GW Depth : 116.00'  
 Static GW Depth : NA  
 Completion Date : 9/3/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120						ML CL	LEAN CLAY WITH SAND (CL), moderate brown, (20% fine-grained sand, 80% clay), moist, moderately loose, no odor, plastic, no reaction to 10% HCl. Total Depth = 121'	
125								
130								
135								
140								
145								
150								

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# LOG OF BORING SB-13

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-13  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : T. Mehall  
 Total Depth : 125'  
 Initial GW Depth : 120.00'  
 Static GW Depth : 120.00'  
 Completion Date : 9/7/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0	0652			2 3 5		ML	SILT with SAND (ML), moderate brown, (20% fine-grained sand, 80% fines), slightly moist, loose, no odor, low PI, moderate reaction to HCl.	
5	0659			2 2 3		SM	SILTY SAND (SM), moderate brown, (40% fines, 60% fine-grained sand), slightly moist, loose, no odor, low PI, moderate reaction to HCl.	
10	0703			3 4 4			SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), slightly moist, moderately loose, no odor, medium PI, strong reaction to HCl..	
15	0707			7 7 9			SANDY SILT (ML), moderate brown, (40% fine-grained sand, 60% fines), slightly moist, moderately loose, no odor, low PI, moderate reaction to HCl.	
20	0711		3.0	7 8 10		ML	SILT with SAND (ML), moderate brown, (20% fine-grained sand, 80% fines), slightly moist, moderately loose, no odor, low PI, moderate reaction to HCl.	
25	0725		2.0	6 6 7			SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), moist, moderately loose, no odor, low to medium PI, weak reaction to HCl.	
30								

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-13  
Rig Type : CME95  
Drilling Method : HSA

Field Geologist : T. Mehall  
Total Depth : 125'  
Initial GW Depth : 120.00'  
Static GW Depth : 120.00'  
Completion Date : 9/7/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0730		2.0	9 8 9		ML	SILTY SAND (ML), brown, (40% fines, 60% fine to medium subangular sand), slightly moist, loose, no odor, low PI, moderate reaction to HCl.	
35	0737		<1	17 18 21		SM	SILTY SAND (SM), brown, (fine to medium subangular to subrounded sand), slightly moist, moderately loose, no odor, low PI, moderate reaction to HCl.	
40	0743		<1	16 21 31		ML	SANDY SILT (ML), brown, (fine-grained sand, trace clay), slightly moist, moderately loose to slightly dense, low PI, moderate reaction to HCl.	
45				23 23 27			SILTY SAND (SM), brown, (25% fines, 25% gravel, 50% medium to coarse subrounded sand), slightly moist, loose, no odor, no PI, no reaction to HCl.	
50	0756		<1	35 50-5		SM	SILTY SAND (SM), brown, (20% fines, 25% gravel, 55% fine to coarse subround to subangular sand), slightly moist, loose, no odor, no PI, weak reaction to HCl. Note: Cobbles present in cuttings from 47' to 54' bgs.	
55	0808		1.0	25 27 33			SILTY SAND (SM), brown, (30% fines, 70% fine-coarse subangular sand), slightly moist, loose no odor, low PI, weak reaction to HCl.	
60								

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# LOG OF BORING SB-13

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-13  
Rig Type : CME95  
Drilling Method : HSA

Field Geologist : T. Mehall  
Total Depth : 125'  
Initial GW Depth : 120.00'  
Static GW Depth : 120.00'  
Completion Date : 9/7/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0815		<1	47 20 16			SANDY SILT (ML), brown, (15% fine-grained sand, 85% fines), slightly moist, loose, no odor, medium to low PI, weak reaction to HCl.	
65	0826		1.0	38 24 50-5		ML	SANDY SILT (ML), moderate brown, (45% fine to medium subangular sand, 55% fines), slightly moist, moderately dense, no odor, medium PI, strong reaction to HCl. Note: 0.5' caliche layer at 66.5' bgs.	
70	0836		<1	32 50-5		SM	SILTY SAND (SM), brown, (40% fines, 60% fine to medium subangular sand), slightly moist, moderately dense, no odor, low to medium PI, strong reaction to HCl. Note: 0.5' caliche layer at 71.5' bgs.	
75	0844		1.0	26 28 30		ML	SANDY SILT (ML), light brown, (20% fine-grained sand, 80% fines), slightly moist, moderately dense, no odor, low to medium PI, moderate reaction to HCl.	
80	0850		1.0	10 11 19			SILTY SAND (SM), light brown, (20% fines, 15% gravel, 65% fine to coarse subrounded sand), slightly moist, loose, no odor, no PI, weak reaction to HCl.	
85	0858		<1	12 16 20		SM	SILTY SAND (SM), light brown, (30% fines, 70% fine to medium subangular sand), slightly moist, loose, no odor, low PI, strong reaction to HCl.	
90								



# LOG OF BORING SB-13

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-13  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : T. Mehall  
 Total Depth : 125'  
 Initial GW Depth : 120.00'  
 Static GW Depth : 120.00'  
 Completion Date : 9/7/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	0900		<1	42 50-3			SILTY SAND (SM), brown, (30% fines, 70% medium to coarse subrounded sand), moist, loose, no odor, ow PI, strong reaction to HCl.	
95	0918		<1	26 28 30		SM	SILTY SAND (SM), light brown, (30% fines, 70% fine to medium subrounded sand), moist, loose, no odor, low PI, strong reaction to HCl.	
100			1.0	10 12 16			SILTY SAND (SM), light brown, (15% fines, 85% medium to coarse subangular sand), moist, loose, no odor, no PI, weak reaction to HCl.	
105	1002		<1	14 16 22			SANDY SILT (ML), brown, (35% fine-grained sand, 65% fines), moist, loose, no odor, low PI, strong reaction to HCl. Note: 0.5' caliche layer at 106.5' bgs.	
110	1010		<1	12 12 15		ML	SANDY SILT (ML), brown, (15% fine-grained sand, 85% fines), moist, loose, no odor, low PI, weak reaction to HCl.	
115	1016		<1	10 10 11			SANDY SILT (ML), brown, (25% fine-grained sand, 75% fines), very moist, loose, no odor, low PI, weak reaction to HCl. Note: 0.25' caliche layer at 116'.	
120								

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# LOG OF BORING SB-13

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-13  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : T. Mehall  
 Total Depth : 125'  
 Initial GW Depth : 120.00'  
 Static GW Depth : 120.00'  
 Completion Date : 9/7/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1022		<1	12 14 17		ML	SANDY SILT (ML), brown, (10% fine-grained sand, 90% fines), very moist, moderately loose, no odor, low PI, strong reaction to HCl.	
125	1034		<1	7 8 11		SW-SM	SILTY SAND (SW-SM), brown, (10% fines, 90% medium to coarse sand), saturated, loose, no odor, no PI, no reaction to HCl. Total Depth = 125' bgs	
130								
135								
140								
145								
150								





# LOG OF BORING SB-14

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-14  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : T. Mehall  
 Total Depth : 127'  
 Initial GW Depth : NA  
 Static GW Depth : NA  
 Completion Date : 9/8/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0	0651		<1	2 2 3			SILT (ML), moderate brown, (100% fines), moist, moderately loose, no odor, low plasticity, strong reaction to 10% HCl.	
5	0654		<1	1 2 3		ML	SANDY SILT (ML), moderate brown, (45% fine-grained sand, 55% fines), moist, moderately loose, no odor, low plasticity, weak reaction to 10% HCl.	
10	0658		<1	7 8 9			SILTY SAND (SM), moderate brown, (40% fines, 60% fine-grained sand), slightly moist, moderately loose, no odor, low plasticity, strong reaction to 10% HCl.	
15	0702		<1	5 5 7		SM	SILTY SAND (SM), (40% fines, 60% fine sand), slightly moist, moderately loose, no odor, low plasticity, strong reaction to 10% HCl.	
20	0708		<1	7 7 8			SILT with SAND (ML), moderate brown, (20% fine-grained sand, 80% fines), slightly moist, moderately loose, no odor, low plasticity, strong reaction to 10% HCl.	
25	0712		<1	7 7 11		ML	SILT (ML), moderate brown, (100% fines), moist, moderately loose, no odor, medium plasticity, strong reaction to 10% HCl.	
30								

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# LOG OF BORING SB-14

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-14  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : T. Mehall  
 Total Depth : 127'  
 Initial GW Depth : NA  
 Static GW Depth : NA  
 Completion Date : 9/8/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0716		<1	8 8 10		ML	SANDY SILT (ML), light brown, (40% fine-grained sand, 60% fines), slightly moist, moderately loose, no odor, low plasticity, strong reaction to 10% HCL.	
35	0724		<1	15 17 21		SM	SILTY SAND (SM), light brown, (35% fines, 65% fine to coarse subangular sand), slightly moist, moderately loose, no odor, low plasticity, strong reaction to 10% HCL.	
40	0734		1.0	13 13 17		ML	SANDY SILT (ML), moderate brown, (75% fines, 25% fine-grained sand), slightly moist, moderately loose, no odor, low plasticity, strong reaction to 10% HCL. Note: hit gravel at 43' bgs.	
45	0740		2.0	13 39 50-5		SW-SM	WELL-GRADED SAND with SILT and GRAVEL (SW-SM), moderate brown, (55% subangular sand, 25% gravel, 15% fines), slightly moist, moderately loose, moderate reaction with HCL.	
50	0750		1.0	23 28 32		SW-SM	WELL-GRADED SAND with SILT and GRAVEL (SW-SM), moderate brown, (10% fines, 30% gravel, 60% subangular sand), slightly moist, moderately loose, no odor, non-plastic, weak reaction to 10% HCL.	
55	0758		<1	24 28 30		SM	SILTY SAND with GRAVEL (SM), moderate brown, (20% fines, 20% gravel, 60% subangular sand), slightly moist, moderately dense, moderate reaction with 10% HCL. Note: gravel ended at 58' bgs.	
60								

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-14  
Rig Type : CME95  
Drilling Method : HSA

Field Geologist : T. Mehall  
Total Depth : 127'  
Initial GW Depth : NA  
Static GW Depth : NA  
Completion Date : 9/8/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0834		<1	12 12 15		SM	SILTY SAND with GRAVEL (SM), moderate brown, (15% fines, 25% gravel, 55% subangular sand), slightly moist, moderately loose, no odor, moderate reaction to HCl.	
65	0842		<1	10 11 12		SW-SM	WELL-GRADED SAND with SILT (SW-SM), moderate brown, (10% fines, 90% fine to coarse subangular sand), slightly moist, loose, non-plastic, moderate reaction to 10% HCl, weakly cemented.	
70	0850		<1	15 50-2		ML	SILT with SAND (ML), light brown, (75% fines, 25% fine-grained sand), slightly moist, dense, no odor, medium plasticity, strong reaction to 10% HCl.	
75	0858		1.0	17 19 40		ML	SILTY with SAND (ML), moderate brown, (20% fines, 80% fine-grained sand), slightly moist, moderately loose, no odor, non-plastic, weak reaction to 10% HCl.	
80	0908		1.0	16 18 20		SW-SM	WELL-GRADED SAND with SILT and GRAVEL (SW-SM), light brown, (10% fines, 20% gravel, 70% subangular sand), slightly moist, moderately loose, no odor, non-plastic, moderate reaction to 10% HCl.	
85	0920		<1	12 14 32		SM	SILTY SAND (SM), light brown, (15% fines, 85% fine to coarse subangular sand), slightly moist, moderately loose, weak reaction to 10% HCl.	
90								

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-14  
Rig Type : CME95  
Drilling Method : HSA

Field Geologist : T. Mehall  
Total Depth : 127'  
Initial GW Depth : NA  
Static GW Depth : NA  
Completion Date : 9/8/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	0926		1.0	36 40 45			SANDY SILT (ML), light brown, (60% fines, 40% fine-grained sand), slightly moist, moderately dense, low P.I., strong reaction to HCl.	
95	0938		1.0	28 50-5		ML	SANDY SILT (ML), light brown, (60% fines, 40% fine-grained sand), slightly moist, moderately dense, no odor, low plasticity, strong reaction to 10% HCl.	
100	0946		1.0	17 22 24			SILTY SAND (SM), moderate brown, (15% fines, 85% fine to coarse subangular sand), slightly moist, moderately loose, non-plastic, weak reaction to 10% HCl.	
105	0958		1.0	19 26 32		SM	SILTY SAND (SM), moderate brown, (40% fines, 60% fine-grained sand), slightly moist to moist, moderately dense, no odor, low plasticity, weak reaction to 10% HCl.	
110	1008		2.0	10 20 21			SANDY SILT (ML), moderate brown, (35% fines, 65% fine-grained sand), moist, moderately loose, low plasticity, weak reaction to 10% HCl.	
115	1020		1.0	10 17 18		ML	SANDY SILT (ML), brown, (30% fine-grained sand, 70% fines), wet, moderately loose, no odor, low plasticity, weak reaction to 10% HCl.	
120								

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# LOG OF BORING SB-14

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-14  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : T. Mehall  
 Total Depth : 127'  
 Initial GW Depth : NA  
 Static GW Depth : NA  
 Completion Date : 9/8/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1028		1.0	11 17 22		ML	SILT (ML), moderate brown, (5% fine-grained sand, 95% fines), wet, moderately loose, no odor, moderate plasticity, weak reaction to 10% HCl.	
125	1038		<1	11 17 19		SM	SILTY SAND (SM), moderate brown, (40% fines, 60% fine to medium subangular sand), saturated, moderately loose, no odor, medium plasticity, weak reaction to 10% HCl. Total Depth = 127' bgs	
130								
135								
140								
145								
150								





# LOG OF BORING SB-15

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-12  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : T. Mehall  
 Total Depth : 166'  
 Initial GW Depth : 116.00'  
 Static GW Depth : 116.00'  
 Completion Date : 9-8-99 to 9-10-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0	0720		1.0	2 2 3			SILT with SAND (ML), dark brown, (20% fine-grained sand, 80% fines), moist, very soft, no odor, strong reaction to HCl.	
5	0724			3 3 6			No Recovery.	
10	0728		<1	4 6 10			SANDY SILT (ML), brown, (30% fine-grained sand, 70% fines), slightly moist, soft, no odor, strong reaction to HCl.	
15	0732		<1	8 9 12		ML	SANDY SILT (ML), dark brown, (60% clay, 40% fine-grained sand), slightly moist to moist, firm, no odor, strong reaction to HCl.	
20	0738		1.0	5 5 7			SILT with SAND (ML), dark brown, (20% fine-grained sand, 80% fines), slightly moist, soft, no odor, strong reaction to HCl.	
25	0742		<1	6 8 10			SILT with SAND (ML), brown, (20% fine-grained sand, 80% fines), slightly moist, soft, no odor, weak reaction to HCl.	
30								



# LOG OF BORING SB-15

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-12  
Rig Type : CME95  
Drilling Method : HSA

Field Geologist : T. Mehall  
Total Depth : 166'  
Initial GW Depth : 116.00'  
Static GW Depth : 116.00'  
Completion Date : 9-8-99 to 9-10-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0748		1.0	10 10 14		ML	SILTY SAND (SM), light brown, (30% fines, 70% fine to coarse subangular sand), slightly moist, soft, no odor, strong reaction to HCl.	
35	0756		<1	16 18 22		SM	SILTY SAND (SM), brown, (30% fines, 70% fine to coarse sand), slightly moist, firm, no odor, strong reaction to HCl.	
40	0802		<1	18 19 24		SM	SILTY SAND (SM), brown, (35% fines, 65% fine to medium subangular sand), slightly moist, firm, no odor, medium PI, strong reaction to HCl. Note hit gravel at 44' bgs.	
45	0808		<1	32 50-5		SM	Gravel blocked spoon. Cuttings indicate coarse gravel with silt and sand	
50	0814		<1	26 26 38		SW	WELL-GRADED SAND with SILT and GRAVEL (SW), (15% fines, 15% gravel, 60% fine to coarse subround to subangular sand), slightly moist, soft, no odor, no reaction to HCl.	
55	0822			80-6		SW	No Recovery. Cuttings indicate coarse gravel with silt and sand. Gravel transitioned into Silt at approximately 56' bgs.	
60								

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# LOG OF BORING SB-15

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-12  
Rig Type : CME95  
Drilling Method : HSA

Field Geologist : T. Mehall  
Total Depth : 166'  
Initial GW Depth : 116.00'  
Static GW Depth : 116.00'  
Completion Date : 9-8-99 to 9-10-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0832		<1	17 20 23			SILT with SAND (ML), brown, (20% fine-grained sand, 80% fines), slightly moist, firm, no odor, strong reaction to HCl.	
65	0916		<1	50 36 30			SANDY SILT (ML), brown, (65% fines, 35% fine-grained sand), slightly moist, firm, no odor, no reaction with HCl. Note: 0.5' Caliche layer at 65' bgs	
70	0926		<1	39 50-2		ML	SILT with SAND (ML), brown, (75% fines, 25% fine-grained sand), slightly moist, hard, strong reaction to HCl.	
75	0932		1.0	40 50-4			SILT with SAND (ML), brown, (75% fines, 25% fine-grained sand), slightly moist, hard, strong reaction to HCl.	
80	0940		1.0	26 50-5			SANDY SILT (ML), light brown, (50% fines, 50% fine to coarse subrounded sand), slightly moist, soft, no odor, weak reaction to HCl. Transitioned to Caliche at 81.0' bgs.	
85				40 50-2		SM	No Recovery.	
90								



# LOG OF BORING SB-15

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-12  
Rig Type : CME95  
Drilling Method : HSA

Field Geologist : T. Mehall  
Total Depth : 166'  
Initial GW Depth : 116.00'  
Static GW Depth : 116.00'  
Completion Date : 9-8-99 to 9-10-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1000		2.0	21 32 30			SILTY SAND (SM), brown, (30% fines, 70% fine to coarse subangular sand), moist, soft, no odor, strong reaction to HCL.	
95	1008		<1	8 12 17		SM	SILTY SAND (SM), reddish brown, (30% fines, 70% fine to coarse subangular sand), moist, soft, no odor, strong reaction to HCL.	
100	1016		<1	12 16 24			SILTY SAND (SM), brown, (20% fines, 80% fine to coarse subrounded sand), no reaction to HCL.	
105	1026		1.0	12 15 16			SILT with SAND (ML), brown, (80% fines, 20% fine-grained sand), moist, soft, no odor, no reaction to HCL. Thin sandy lense at 105.5' bgs.	
110	1034		<1	10 11 11		ML	SILT with SAND (ML), brown, (75% fines, 25% fine-grained sand), moist, soft, no odor, no reaction to HCL. 2" Caliche layer at 110' bgs.	
115	1042		<1	9 11 16			SILT with SAND (ML), brown, (80% fines, 20% fine-grained sand), moist, soft, no odor, no reaction to HCL. 4" Caliche layer at 115.0' bgs.	
120								

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LOG OF BORING SB-15

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-12  
Rig Type : CME95  
Drilling Method : HSA

Field Geologist : T. Mehall  
Total Depth : 166'  
Initial GW Depth : 116.00'  
Static GW Depth : 116.00'  
Completion Date : 9-8-99 to 9-10-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1050		<1	14 19 21		ML	SILT with SAND (ML), brown, (75% fines, 25% fine-grained sand), moist, soft, no odor, no reaction to HCl.	
125	1054		<1	10 12 15		SM	SILTY SAND (SM), brown, (40% fines, 60% fine-grained sand), wet, soft, no odor, no reaction to HCl. Transitioned to coarse sand at 126.0' bgs.	
130				16 12 20		SC	CLAYEY SAND with GRAVEL (SC), brown, (10% fine gravel, 40% fines, 50% fine to coarse subangular to subround sand), wet, firm, no odor, weak reaction with HCl.	
135				18 22 28		SC	CLAYEY SAND with GRAVEL (SC), brown, (10% fine gravel, 40% fines, 50% fine to coarse subround to subangular sand), wet, firm, no odor, no reaction to HCl.	
140	1220			7 12 16		ML	SANDY SILT (ML), brown, (50% fines, 50% fine-grained sand), wet, firm, no odor, no reaction to HCl.	
145	0630			15 22 28		SM	SILTY SAND (SM), (5% gravel, 30% fines, 65% fine-coarse subrounded to subangular sand), wet, soft, no odor, no reaction to HCl.	
150								

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# LOG OF BORING SB-15

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-12  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : T. Mehall  
 Total Depth : 166'  
 Initial GW Depth : 116.00'  
 Static GW Depth : 116.00'  
 Completion Date : 9-8-99 to 9-10-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0645			15 30 50-2		SM	SILTY SAND (SM), brown, (10% gravel, 30% fines, 60% fine to coarse subrounded to subangular sand), wet, firm, no odor, no reaction to HCl.	
155	0700			20 24 32			SILTY SAND (SM), brown, (40% fines, 60% fine to coarse subrounded sand), wet, firm, no odor, no reaction to HCl.	
160	0715			16 16 21		ML	SILT with SAND (ML), light brown, (85% fines, 15% fine-grained sand), moist, hard, no odor, weak reaction to HCl.	
165	0840			38 50-5			SILT with SAND (ML), brown, (20% fine-grained sand, 80% fines), moist, firm, no odor, no reaction to HCl.	
Total Depth = 166' bgs								
170								
175								
180								



# LOG OF BORING SB-16

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-16  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : F. Van Alstine  
Total Depth : 182'  
Initial GW Depth : 120.00'  
Static GW Depth : 120.00'  
Completion Date : 9-13-99 to 9-14-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0	0654		9.0	2 2 2		ML	SILT (ML), moderated brown, moist, loose, no odor, low PI, moderate reaction to HCl.	
5	0656		9.0	2 2 7		SM	SILTY SAND (SM), moderate brown, (40% fines, 60% fine-grained sand), slightly moist, loose, no odor, no PI, moderate reaction with HCl.	
10	0705		5.0	5 6 11		ML	SANDY SILT (ML), moderate brown, (40% fine to medium sand, 60% fines), slightly moist, loose, no odor, strong reaction to HCl.	
15	0709		10.0	5 5 9		ML	SILT with SAND (ML), light brown, (20% fine-grained sand, 80% fines), slightly moist, loose, no odor, strong reaction with HCl.	
20	0714		9.0	6 8 10		SM	SILTY SAND (SM), light brown, (60% fine-grained sand, 40% fines), moist, loose, no odor, low PI, moderate reaction to HCl.	
25	0724		11.0	7 8 9		SM	SILTY SAND (SM), moderate brown, (60% fine-grained sand, 40% fines), slightly moist to moist, loose, no odor, low PI, moderate reaction with HCl.	
30								



# LOG OF BORING SB-16

(Page 2 of 7)

Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-16  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : F. Van Alstine  
Total Depth : 182'  
Initial GW Depth : 120.00'  
Static GW Depth : 120.00'  
Completion Date : 9-13-99 to 9-14-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0726		7.0	8 10 10		SW	WELL-GRADED SAND (SW), rusty brown, (100% fine to coarse subangular sand), moist, moderately dense, no odor.	
35	0735		8.0	15 15 20		ML	SANDY SILT (ML), light to rusty brown, (70% fines, 30% fine to coarse sand), slightly moist, loose, no odor, low PI, moderate reaction with HCl.  SANDY SILT (ML), moderate brown, (55% fines, 45% fine to coarse subangular sand), slightly moist, moderately dense, no odor, low PI, strong reaction to HCl.	
40	0742		9.0	18 21 32		SM	SILTY SAND (SM), moderate brown, (70% fine to coarse subangular sand, 30% fines), slightly moist, no odor, strong reaction with HCl.	
45	0750		13.0	8 8 14		ML	SANDY SILT (ML), moderate brown, (80% fines, 20% fine-grained sand), moist, stiff, no odor, medium PI, moderate reaction with HCl.	
50	0756		10.0	27 28 28		SW	WELL-GRADED SAND with GRAVEL (SW), grayish brown, (85% fine to coarse angular to subrounded sand, 15% gravel), slightly moist, very dense, no odor, no PI.	
55	0827		8.0	15 17 24		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine to coarse subangular sand), moist, stiff, no odor, moderate PI, moderate reaction to HCl.	
60								



# LOG OF BORING SB-16

(Page 3 of 7)

Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-16  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : F. Van Alstine  
Total Depth : 182'  
Initial GW Depth : 120.00'  
Static GW Depth : 120.00'  
Completion Date : 9-13-99 to 9-14-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0833		4.0	14 15 17		ML		
						SM	SILTY SAND (SM), moderate brown, (60% fine to coarse angular sand, 40% fines), moist, no odor, moderately dense, low PI, moderate reaction to HCl.	
65	0842		4.0	12 13 15		SW	WELL-GRADED SAND with GRAVEL (SW), grayish brown, (90% fine-coarse subrounded sand, 10% fine gravel), moist, moderately dense, no odor, no PI, no reaction with HCl.	
70	0849		9.0	12 14 15		ML	SILT with SAND (ML), moderate brown, (90% fines, 10% fine-grained sand), moist, no odor, medium PI, strong reaction to HCl, thin caliche layers throughout.	
75	0856		6.0	14 15 17		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), slightly moist, stiff, no odor, low to medium PI, moderate reaction to HCl, minor cementation.	
80	0907		7.0	15 25 29		SM	SILTY SAND (SM), moderate brown, (60% fine-grained sand, 40% fines), slightly moist, no odor, no PI, dense, slight reaction with HCl.	
85	0914		7.0	10 11 14		SW	WELL-GRADED SAND (SW), (100% fine to coarse subangular sand), moist, moderately dense, no odor, no reaction to HCl	
90								



# LOG OF BORING SB-16

(Page 4 of 7)

Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-16  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : F. Van Alstine  
Total Depth : 182'  
Initial GW Depth : 120.00'  
Static GW Depth : 120.00'  
Completion Date : 9-13-99 to 9-14-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	0925		7.0	48 50-2			SILT (ML), light brown, (95% fines, 5% fine-grained sand), medium to high PI, hard, no odor, strong reaction with HCl.	
95	0932		8.0	14 16 18		ML	SILT with SAND (ML), moderate brown, (80% fines, 20% fine angular sand), medium PI, weak reaction with HCl.	
100	0941		8.0	13 15 20		SP	POORLY-GRADED SAND (SP), light brown, fine to medium subrounded sand, no odor, no PI, no reaction with HCl.	
105	0949		11.0	10 12 16		SM	SILTY SAND (SM), light brown, (70% fine-grained sand, 30% fines), moist, stiff, no odor, low PI, moderate reaction with HCl.	
110	1001		11.0	9 12 14		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor.	
115	1012		10.0	14 16 20			SILT with SAND (ML), moderate brown, (80% fines, 20% fine-grained sand), moist, stiff, no odor, medium to low PI, weak reaction with HCl. 2" caliche zone at 125.5' bgs.	
120								

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# LOG OF BORING SB-16

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-16  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : F. Van Alstine  
Total Depth : 182'  
Initial GW Depth : 120.00'  
Static GW Depth : 120.00'  
Completion Date : 9-13-99 to 9-14-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1020		5.0	6 9 10		SM	SILTY SAND (SM), moderate brown, (60% medium to coarse subrounded sand, 40% fines), saturated, no odor, no reaction with HCl.	
						ML	SANDY SILT (ML), moderate brown, fine-grained sand, saturated, no odor, stiff, no odor, high PI, no reaction with HCl.	
125	1130			10 16 20		CL	LEAN CLAY (CL), light brown, moist, very stiff, no odor, high PI, cemented zones throughout, strong reaction with HCl.	
130	1149			10 10 14		SM	SILTY SAND (SM), moderate brown, (70% fine to coarse sand, 30% fines), saturated, moderately dense, no odor, low to medium PI, weak reaction with HCl.	
135	1201			13 16 24		CL	LEAN CLAY (CL), light brown, moist, very stiff, no odor, high PI, no reaction with HCl.	
						SW	WELL-GRADED SAND (SW), (100% fine to coarse sand), cemented zones throughout that have a strong reaction with HCl.	
140	1214			19 20 24		ML	SILT (ML), moderate brown, (100% fines), moist, stiff, no odor, medium to high PI, no reaction with HCl.	
145	0640			10 12 15		GW-GM	POORLY-GRADED GRAVEL with SILT (GW-GM), (80% fine rounded to subround gravel, 10% fines, 10% sand), dense, no odor, no reaction with HCl.	
						ML	SANDY SILT (ML), light brown, (60% fines, 40% fine-grained sand), moist to wet, medium PI, no reaction with HCl.	
150								

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# LOG OF BORING SB-16

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Arizona Department of Environmental Quality VW&R	Project Number	: 20092-090-002	Field Geologist	: F. Van Alstine
	Project Location	: VW&R	Total Depth	: 182'
	Boring Number	: SB-16	Initial GW Depth	: 120.00'
	Rig Type	: CME 95	Static GW Depth	: 120.00'
	Drilling Method	: HSA	Completion Date	: 9-13-99 to 9-14-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0654			12 15 19		ML SW	WELL-GRADED SAND (SW), light brown, (95% fine to coarse sand, 5% fines), moist to wet, moderately dense, no odor, no PI, weak reaction with HCl.	
155	0706			21 24 23		SM	SILTY SAND (SM), light brown, (70% fine to coarse subrounded sand, 30% fines), wet, dense, no odor, no PI, no reaction with HCl.	
160	0732			15 17 18		SM	SILTY SAND (SM), light brown, (70% fine to coarse subrounded sand, 30% fines), wet, dense, no odor, no PI, no reaction with HCl.	
165	0900			10 12 10		ML	SILT with SAND (ML), light brown, (85% fines, 15% fine-grained sand), moist, stiff, no odor, low to medium PI, strong reaction with HCl.	
170	0920			11 15 16		SM	SILTY SAND (SM), light brown, (60% fine to medium sand, 40% fines), moist, dense, no odor, low PI, strong reaction to HCl.	
175	0936			16 22 24		ML	SILT (ML), light brown, (90% fines, 10% fine-grained sand), moist, very stiff, no odor, medium PI, moderate reaction to HCl.	
180								

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# LOG OF BORING SB-16

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Arizona Department of Environmental Quality VW&R	Project Number	: 20092-090-002	Field Geologist	: F. Van Alstine
	Project Location	: VW&R	Total Depth	: 182'
	Boring Number	: SB-16	Initial GW Depth	: 120.00'
	Rig Type	: CME 95	Static GW Depth	: 120.00'
	Drilling Method	: HSA	Completion Date	: 9-13-99 to 9-14-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
180	0948			18 18 20		SM	No recovery (appears to be primarily sand, saturated) Total Depth = 182' bgs	
185								
190								
195								
200								
205								
210								





# LOG OF BORING SB-17

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-17  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : F. Van Alstine  
 Total Depth : 182'  
 Initial GW Depth : NA  
 Static GW Depth : NA  
 Date(s) Drilled : 9-15-99 to 9-16-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0			4.0	3 2 2			SILT (ML), moderate brown, slightly moist, soft, no odor, medium plasticity, moderate reaction to 10% HCl.	
5	0719		2.0	2 5 9			SANDY SILT (ML), light brown, (60% fines, 40% fine-grained sand), slightly moist, firm, no odor, low plasticity, moderate reaction to 10% HCl.	
10	0727		2.0	6 8 8			SILT (ML), light brown, (90% fines, 10% fine-grained sand), slightly moist, firm, no odor, low plasticity, strong reaction to 10% HCl.	
15	0733		4.0	6 6 8		ML	SILT (ML), light brown, (90% fines, 10% fine-grained sand), slightly moist, firm, no odor, low plasticity, strong reaction to 10% HCl.	
20	0738		4.0	6 6 7			SILT (ML), light brown, (90% fines, 10% fine-grained sand), slightly moist, firm, no odor, low plasticity, strong reaction to 10% HCl.	
25	0741		6.0	6 8 7			SILT (ML), (90% fines, 10% fine-grained sand), moist, firm, no odor, moderate reaction to 10% HCl.	
30								

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# LOG OF BORING SB-17

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-17  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : F. Van Alstine  
 Total Depth : 182'  
 Initial GW Depth : NA  
 Static GW Depth : NA  
 Date(s) Drilled : 9-15-99 to 9-16-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0747		5.0	15 15 15		ML  SM	SILTY SAND (SM), light brown, (60% fine to coarse subrounded sand, 30% fines, 10% gravel), slightly moist, dense, no odor, moderate reaction to 10% HCl..	
35	0754		5.0	14 16 15			SANDY SILT (ML), moderate brown, (70% fines, 30% fine to medium subrounded sand), moist, stiff, low plasticity, weak reaction to 10% HCl.	
40	0804		6.0	16 22 24		ML	SANDY SILT (ML), light brown, (60% fines, 40% fine to coarse subrounded sand), slightly moist, very dense, no odor, low to medium plasticity, strong reaction to 10% HCl.	
45	0810		4.0	14 15 19			SANDY SILT (ML), light brown, (60% fines, 40% fine to coarse subrounded sand), slightly moist, very dense, no odor, low to medium plasticity, strong reaction to 10% HCl.	
50	0846		<1	12 12 24		SP	POORLY-GRADED SAND (SP), grayish brown, (90% fine to coarse sand subrounded sand, 10% gravel), dense, no odor, no plasticity, no reaction to 10% HCl.	
55	0854		4.0	12 18 32		ML	SANDY SILT (ML), light brown, (60% fines, 30% fine to coarse subrounded sand, 10% gravel), slightly moist, stiff, no odor, low plasticity, strong reaction to 10% HCl.	
60								

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# LOG OF BORING SB-17

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-17  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : F. Van Alstine  
 Total Depth : 182'  
 Initial GW Depth : NA  
 Static GW Depth : NA  
 Date(s) Drilled : 9-15-99 to 9-16-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0900		4.0	13 18 20		SM	SILTY SAND (SM), light brown, (70% fines, 30% very fine to medium subrounded sand), moist, dense, no odor, low to medium plasticity, strong reaction to 10% HCl, cemented nodules.	
65	0904		6.0	15 16 19		SP	POORLY-GRADED SAND (SP), grayish brown, (90% fine to coarse subrounded sand, 10% gravel), no odor, no plasticity, no reaction to 10% HCl. Note: layer of caliche in shoe, strongly cemented.	
70	0919		4.0	35 50-5		ML	SILT (ML), light brown, (90% fines, 10% fine-grained sand), slightly moist, hard, no odor, medium plasticity, moderate reaction to 10% HCl, cemented nodules.	
75	0925		4.0	17 32 46		ML	SANDY SILT (ML), light brown, (80% fines, 20% fine-grained sand, slightly moist, dense, no odor, low plasticity, strong reaction to 10% HCl, cemented nodules.	
80	0937		3.0	22 25 29		SM	SILTY SAND (SM), light brown, (70% fine to coarse subrounded sand, 30% fines), slightly moist, very dense, no odor, no plasticity, strong reaction to 10% HCl. Note: 2" caliche layers at 80.5' and 81.5'	
85	0946		4.0	24 25 27		SP	POORLY-GRADED SAND with GRAVEL (SP), grayish brown, (70% fine to coarse subrounded sand, 30% gravel), slightly moist, very dense, no odor, moderate reaction with HCl.	
90						ML		

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# LOG OF BORING SB-17

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-17  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : F. Van Alstine  
 Total Depth : 182'  
 Initial GW Depth : NA  
 Static GW Depth : NA  
 Date(s) Drilled : 9-15-99 to 9-16-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	0955		4.0	25 40 42			SANDY SILT (ML), light brown, (60% fines, 40% fine to coarse subrounded sand), slightly moist, very dense, no odor, low plasticity, strong reaction to 10% HCl.	
95	1006		1.0	21 30 33		ML	SILT (ML), light brown, (95% fines, 5% fine-grained sand), slightly moist, hard, no odor, medium plasticity, strong reaction with HCl.	
100	1015		3.0	15 16 20		SP	POORLY-GRADED SAND (SP), light brown, (90% fine to coarse subangular to subrounded sand, 10% gravel), moist, dense, no odor, sub-rounded, stroeaction to 10% HCl.	
105	1033		2.0	37 50-5		ML	SANDY SILT (ML), light brown, (70% fines, 30% fine subrounded sand), slightly moist, hard, no odor, medium plasticity, strong reaction to 10% HCl. Note: caliche layers.	
110	1040		2.0	12 13 15		SW	WELL-GRADED SAND (SW), grayish brown, moist, dense, no plasticity, no reaction to 10% HCl.	
115	1045		6.0	8 10 12		ML	SILT (ML), light brown, (100% fines), moist, no odor, medium plasticity, slight reaction to 10% HCl.	
120						SM	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), wet, no odor, low to medium plasticity, no reaction to 10% HCl. Note: sand lenses at 116' and 116.5' bgs.	

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# LOG OF BORING SB-17

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : SB-17  
Rig Type : CME95  
Drilling Method : HSA

Field Geologist : F. Van Alstine  
Total Depth : 182'  
Initial GW Depth : NA  
Static GW Depth : NA  
Date(s) Drilled : 9-15-99 to 9-16-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1053		11.0	32 50-5		SM	SILTY SAND (SM), moderate brown, (60% medium sand, 40% fines), wet, no odor, no plasticity, no reaction to 10% HCl. SANDY SILT (ML), (80% fines, 20% fine-grained sand), slightly moist, no odor, medium plasticity, no reaction to 10% HCl.	
125	0636			7 5 11		ML	SILT (ML), light brown, (95% fines, 5% fine-grained sand), moist to wet, stiff, no odor, medium plasticity, no reaction to 10% HCl.	
130	0645			9 9 12			SANDY SILT (ML), (70% fines, 30% fine to coarse subrounded sand), wet, stiff, no odor, no reaction to 10% HCl.	
135	0656			11 15 16		SP	POORLY-GRADED SAND (SP), light brown, moist to wet, dense, no odor, sub-rounded, low plasticity, no reaction to 10% HCl. Note: 2" caliche layer at 135.5'	
140	0710			50 50-5			SILT (ML), light brown, (90% fines, 10% fine to medium subrounded sand), moist, hard, no odor, strong reaction to 10% HCl. Note: caliche layer 0.5" to 1" thick.	
145	0820			13 13 20		ML	SANDY SILT (ML), light brown, (45% fine to coarse subrounded sand, 55% fines), moist to wet, dense, no odor, strong reaction to 10% HCl. Note: interbedded caliche layers.	
150								

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# LOG OF BORING SB-17

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Arizona Department of Environmental Quality VW&R	Project Number : 20092-090-002	Field Geologist : F. Van Alstine
	Project Location : VW&R	Total Depth : 182'
	Boring Number : SB-17	Initial GW Depth : NA
	Rig Type : CME95	Static GW Depth : NA
	Drilling Method : HSA	Date(s) Drilled : 9-15-99 to 9-16-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0838			10 13 17		ML	SANDY SILT (ML), (40% fine to medium subrounded sand, 60% fines), moist, dense, no odor, strong reaction to 10% HCl, cemented.	
155	0852			11 13 17		SP SM	POORLY-GRADED SAND with GRAVEL (SP), (60% medium to coarse subrounded sand, 40% gravel), dense, no plasticity, no reaction to 10% HCl.	
						ML	SILTY SAND (SM), moist, fine to medium sand, no plasticity.	
						ML	SANDY SILT (ML), (60% fines, 40% fine-grained sand), moist, no odor, low plasticity, no reaction to 10% HCl.	
160	0910			11 15 18		CL	LEAN CLAY (CL), light brown, (50% clay, 40% silt, 10% fine-grained sand), moist to wet, hard, no odor, medium to high plasticity, strong reaction to 10% HCl, gravel sized caliche.	
165	1032			9 9 17		SC	No recovery (residual in sampler appears to be CLAYEY SAND).	
170	1054			21 23 26		ML	SILT with SAND (ML), light brown, (90% fines, 10% fine-grained sand), moist, very stiff, low plasticity, no reaction to 10% HCl.	
175	1108			19 18 21		SM	SILTY SAND (SM), light brown, (60% fine-grained sand, 40% fines), moist, dense, no odor, no plasticity, moderate reaction to 10% HCl.	
180								

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# LOG OF BORING SB-17

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : SB-17  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : F. Van Alstine  
 Total Depth : 182'  
 Initial GW Depth : NA  
 Static GW Depth : NA  
 Date(s) Drilled : 9-15-99 to 9-16-99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
180	1124			11 16 22		SM	SILTY SAND (SM), light brown, (70% fine subrounded sand, 30% fines), moist to wet, dense, no odor, no plasticity, no reaction to 10% HCl.	
Total Depth = 182' bgs								
185								
190								
195								
200								
205								
210								



Project ADEQ/Van Waters and Rogers Owner ADEQ  
 Location 2930 W. Osborn Rd., Phoenix, AZ Proj. No. 023300550  
 Surface Elev. N/A Total Hole Depth 127 ft. Diameter 4 in.  
 Top of Casing 1109.28 ft. Water Level Initial 124 ft. Static 105 ft.  
 Screen: Dia 4 in. Length 30 ft. Type/Size SCH 40 PVC/0.010 in.  
 Casing: Dia 4 in. Length 95 ft. Type SCH 40 PVC  
 Fill Material Colorado Sand 10/20 Rig/Core AP 1000  
 Drill Co. HF Drilling Method Dual Wall Percussion  
 Driller B. Lohman Log By R. Loqsdon Date 3/18/97 Permit # 55-561071  
 Checked By [Signature] License No. AZ 21616

See Site Map  
For Boring Location

**COMMENTS:**

All USCS soil type boundaries are gradational. All percentages are approximate.

Depth (ft.)	Well Completion	PIID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							0 - 11.5 Feet: Clayey/Sand and Silt Red to brown, dry to damp, moderately sorted, loose. Sand is fine grained, subangular. Silt 40%, sand 40%, clay 20%.
2							
4							
6							
8							
10		3.6		60@5"			
12						SM	11.5 - 21.5 Feet: Silt 50%, sand 40%, clay 10%.
14							
16							
18							
20		3.4	00001222	60@5"			
22							
24							21.5 31.5 Feet: Silty Sand Red brown, dry, moderately sorted, loose. Sand is fine to coarse grained, rounded to subangular. Sand 70%, silt 30%.



Project ADEQ/Van Waters and Rogers

Owner ADEQ

Location 2930 W. Osborn Rd., Phoenix, AZ

Proj. No. 023300550

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24							
26							
28						SM	
30		3.4	5085"				
32							31.5 - 51.5 Feet: Sand is, subrounded to subangular. Decrease in coarse sand percentage. Sand 80%, silt 20%.
34							
36						SP	
38							
40		5.4	6085"				
42							41.5 - 51.5 Feet: Silty Sand and Cobbles Grey, dry, poor to very poorly sorted, loose. Cobble are rounded, up to 6" in diameter. Sand is fine to coarse grained, rounded to subangular. Cobble 45%, sand 45%, silt 10%.
44							
46							
48						GP	
50		N/A	5085"				No return. Collected grab sample from cuttings. Cobbles of basalt.
52							51.5 - 71.5 Feet: Gravelly Silty Sand Brown, loose. Sand is fine to coarse grained, rounded to angular. Gravel is fine, subangular. Sand 60%, silt 30%, gravel 10%.
54							
56							

# Drilling Log



Monitoring Well WCP-15

Project ADEQ/Van Waters and Rogers Owner ADEQ  
 Location 2930 W. Osborn Rd., Phoenix, AZ Proj. No. 023300550

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
56						No return on split spoon after two attempts. Collected grab sample from cuttings.
58						
60		4.6	50@5"			
62						
64					GP	
66						
68						
70		7.3	26 50@4"			
72						
74						
76					SC SM	71.5 - 81.5 Feet: Silty Clayey Sand Brown, dry, moderately sorted, loose. Sand is fine to medium grained, subangular. Sand 50%, clay 30%, silt 20%.
78						
80		5.8	0000224 17 25 50@3"			
82						
84					SM	81.5 - 91.5 Feet: Sandy Silt Buff/tan, dry, moderately sorted, hard. Sand is fine grained, subangular. Slight cementation of sand and silt by caliche. Silt 60%, sand 40%.
86						
88						

Project ADEQ/Van Waters and Rogers Owner ADEQ  
 Location 2930 W. Osborn Rd., Phoenix, AZ Proj. No. 023300550

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
88							
90		6.8		50@5"		SM	Sand and silt slightly cemented by caliche.
92							91.5 - 101.5 Feet: Silty Sand Red brown, damp, moderately sorted, loose. Sand is fine to coarse grained, subangular. Sand 80%, silt 20%.
94							
96						SP	
98							
100		5.2	0000218	31 50@5"			Approximately 10% coarse-grained sand.
102							101.5 - 115 Feet: Sandy Clayey Silt Brown, moist, well sorted. Sand is fine to medium grained, subangular. Silt 70%, clay 20%, sand 10%.
104							
106							
108							
110						ML	
112							
114							
116		4.4					115 - 120 Feet: Red brown, moist, moderate to well sorted, soft. Sand is fine grained, subangular. Silt 50%, clay 30%, sand 20%.
118							
120							

# Drilling Log

Monitoring Well WCP-15



Project ADEQ/Van Waters and Rogers Owner ADEQ  
 Location 2930 W. Osborn Rd., Phoenix, AZ Proj. No. 023300550

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure)		
							Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%		
120		3.8				ML	120 - 127 Feet: Brown, wet, well sorted, soft. Silty 60%, clay 20%, sand 20%.		
122									
124									Initial water level.
126									125 Feet: Total Depth of Monitoring Well WCP-15
128							127 Feet: Total Depth of Borehole		
130									
132									
134									
136									
138									
140									
142									
144									
146									
148									
150									
152									



# Drilling Log



Monitoring Well WCP-16

Project ADEQ/Van Waters and Rogers Owner ADEQ  
 Location 2930 W. Osborn Rd., Phoenix, AZ Proj. No. 023300550  
 Surface Elev. N/A Total Hole Depth 136 ft. Diameter 4 in.  
 Top of Casing 1108.71 ft. Water Level Initial 106 ft. Static 105 ft.  
 Screen: Dia 4 in. Length 31 ft. Type/Size SCH 40 PVC/0.010 in.  
 Casing: Dia 4 in. Length 95 ft. Type SCH 40 PVC  
 Fill Material Colorado Sand 10/20 Rig/Core AP 1000  
 Drill Co. HF Drilling Method Dual Wall Percussion  
 Driller B. Lohman Log By R. Logsdon Date 3/17/97 Permit # 55-561072  
 Checked By [Signature] License No. AZ 21616

See Site Map  
For Boring Location

**COMMENTS:**

All USCS soil type boundaries are gradational. All percentages are approximate.

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							0 - 11.5 Feet: Clayey/Sandy Silt Red to brown, dry to damp, moderate to poorly sorted, semi-hard to hard. Sand is fine to medium grained, subangular. Silt 40%, sand 40%, clay 20%.
2							
4							
6							
8							
10		7.7		10 25 27		SM	Some cementation by caliche.
12							11.5 - 21.5 Feet: Sandy Clayey Silt Brown, damp, moderate to well sorted, soft. Sand is fine grained, subangular. Silt 50%, clay 30%, sand 20%.
14							
16							
18							
20		8.1	00001230	17 50@5"			
22						SP	21.5 - 31.5 Feet: Silty Sand Brown-red, dry to damp, moderately sorted, loose. Sand is fine to medium grained, subrounded to subangular. Sand 85%, silt 10%.
24							

Project ADEQ/Van Waters and Rogers Owner ADEQ  
 Location 2930 W. Osborn Rd., Phoenix, AZ Proj. No. 023300550

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24							Silty Sand (continued)
26							
28						SP	
30		8.7		17 50@5"			
32							31.5 - 41.5 Feet: Clayey Silty Sand Light brown, dry to damp, moderately sorted, loose to semi-hard. Sand is fine grained, subrounded to angular. Sand 60%, silt 30%, clay 10%.
34							
36						SM	
38							
40		8		50@5"			
42							41.5 - 51.5 Feet: Silty Gravelly Sand Grey-brown, poorly sorted, loose to semi-hard. Sand is fine to coarse grained, subangular. Gravel is fine to coarse, rounded to subangular. Sand 50%, gravel 35%, silt 15%.
44							
46						GM	
48							
50		7.1		50@5"			
52							51.5 - 61.5 Feet: Silty Sand Red-brown, damp, moderately sorted, loose. Sand is fine grained, subangular. Sand 70%, silt 15%, clay 5%.
54						SM	
56							

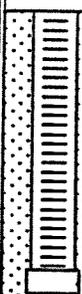
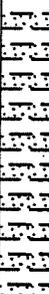
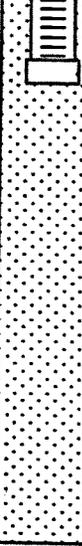
Project ADEQ/Van Waters and Rogers Owner ADEQ  
 Location 2930 W. Osborn Rd., Phoenix, AZ Proj. No. 023300550

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
56							Silty Sand (continued)
58						SM	
60		5		25 50@6"			
62							61.5 - 71.5 Feet: Sandy Clayey Silt Red-brown, damp, moderately sorted, soft to semi-hard. Sand is fine grained, subangular. Silt 50%, clay 30%, sand 20%.
64							
66						SM SC	
68							
70		5		25 50@3"			
72							71.5 - 81.5 Feet: Gravelly/Cobbly Silty Sand Red-brown, damp, moderately sorted, soft to semi-hard. Sand is fine grained, subangular. Gravel are rounded up to 4" in diameter. Cobble are rounded to subrounded up to 2" in diameter. Sand 50%, silt 40%, gravel/cobbles 10%.
74							
76						GM	
78							
80				50@6"			
82							81.5 - 91.5 Feet: Silty Sand Brown, dry to damp, moderately sorted, soft to semi-hard. Sand 80%, silt 15%, clay 5%.
84							
86						SM	
88							

Project ADEQ/Van Waters and Rogers Owner ADEQ  
 Location 2930 W. Osborn Rd., Phoenix, AZ Proj. No. 023300550

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
88							Silty Sand (continued)
90		4.2		30 50@5"			
92							91.5 - 101.5 Feet: Red-brown, moist, moderate to well sorted, hard. Sand 80%, silt 20%.
94							
96							
98						SM	
100		9.1	00001227	25 30 50@2"			101.5 - 110 Feet: Red-brown, saturated, moderate to well sorted, soft. Sand is fine grained, subangular. Sand 70%, silt 25%, clay 5%.
102							
104							
106							Initial water level.
108							
110							110 - 120 Feet: Sandy Clayey Silt Red brown, moist, moderate to well sorted, soft. Sand is fine grained, subangular. Silt 50%, clay 30%, sand 20%.
112							
114						ML	
116							
118							
120						SM	

Project ADEG/Van Waters and Rogers Owner ADEQ  
 Location 2930 W. Osborn Rd., Phoenix, AZ Proj. No. 023300550

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-120							
-122		SM	120 - 126 Feet: Clayey Sandy Silt Red-brown, saturated, moderately sorted, soft. Sand is fine grained, subangular. Silt 40%, sand 30%, clay 30%.				
-124							
-126			126 Feet: Total Depth of Monitor Well WCP-16				
-128							
-130							
-132							
-134							
-136			136 Feet: Total Depth of Borehole				
-138							
-140							
-142							
-144							
-146							
-148							
-150							
-152							





Project ADEQ/Van Waters and Rogers Owner ADEQ  
 Location 2930 W. Osborn Rd., Phoenix, AZ Proj. No. 023300550  
 Surface Elev. N/A Total Hole Depth 127 ft. Diameter 4 in.  
 Top of Casing 1106.61 ft. Water Level Initial 123 ft. Static 106 ft.  
 Screen: Dia 4 in. Length 30 ft. Type/Size SCH 40 PVC/0.010 in.  
 Casing: Dia 4 in. Length 95 ft. Type SCH 40 PVC  
 Fill Material Colorado Sand 10/20 Rig/Core AP 1000  
 Drill Co. HF Drilling Method Dual Wall Percussion  
 Driller B. Lohman Log By R. Logsdon Date 3/19/97 Permit # 55-561073  
 Checked By [Signature] License No. AZ 21616

See Site Map  
For Boring Location

COMMENTS:

All USCS soil type boundaries are gradational. All percentages are approximate.

Depth (ft.)	Well Completion	PTD (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
0		2.8	00001213	12 36 13		SM ML	0 - 11.5 Feet: Sandy Silt Red brown, dry, moderately to well sorted, loose. Sand is fine grained, subangular. Silt 60%, sand 40%.
11.5 - 21.5 Feet: Silt 80%, sand 20%.							
21.5 - 31.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
31.5 - 33.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
33.5 - 35.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
35.5 - 37.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
37.5 - 39.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
39.5 - 41.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
41.5 - 43.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
43.5 - 45.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
45.5 - 47.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
47.5 - 49.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
49.5 - 51.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
51.5 - 53.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
53.5 - 55.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
55.5 - 57.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
57.5 - 59.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
59.5 - 61.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
61.5 - 63.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
63.5 - 65.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
65.5 - 67.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
67.5 - 69.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
69.5 - 71.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
71.5 - 73.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
73.5 - 75.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
75.5 - 77.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
77.5 - 79.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
79.5 - 81.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
81.5 - 83.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
83.5 - 85.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
85.5 - 87.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
87.5 - 89.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
89.5 - 91.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
91.5 - 93.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
93.5 - 95.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
95.5 - 97.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
97.5 - 99.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
99.5 - 101.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
101.5 - 103.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
103.5 - 105.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
105.5 - 107.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
107.5 - 109.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
109.5 - 111.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
111.5 - 113.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
113.5 - 115.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
115.5 - 117.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
117.5 - 119.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
119.5 - 121.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
121.5 - 123.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
123.5 - 125.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							
125.5 - 127.5 Feet: Silty Sand Red brown. Sand is fine to coarse grained, rounded to subangular. Sand 80%, silt 20%.							

Project ADEQ/Van Waters and Rogers Owner ADEQ  
 Location 2930 W. Osborn Rd., Phoenix, AZ Proj. No. 023300550

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24							Silty Sand (continued)
26							
28							
30		4.1		32 50@5"			
32						SM	31.5 - 41.5 Feet: Clayey Silty Sand Tan, dry, moderately sorted, semi-hard. Sand is fine grained, subangular. Sand 60%, silt 30%, clay 10%.
34							
36							
38							
40		2.6		33 50@5"			
42							41.5 - 51.5 Feet: Gravelly Silty Sand Brown, dry, moderately sorted, loose. Sand is fine to medium grained, subrounded to subangular. Gravel is fine, rounded. Sand 70%, silt 20%, gravel 10%.
44							
46						GM	
48							
50		1.5		50@5"			
52							51.5 - 61.5 Feet: Clayey Sandy Silt Red-brown, damp, moderate to well sorted, soft to semi-hard. Sand is fine grained, subangular. Silt 60%, sand 30%, clay 10%.
54						ML	
56							

Project ADEG/Van Waters and Rogers Owner ADEG  
 Location 2930 W. Osborn Rd., Phoenix, AZ Proj. No. 023300550

Depth (ft.)	Well Completion	PID (ppm)	Sample ID Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
56						Clayey Sandy Silt (continued)
58					ML	
60		2.4	50e6"			
62						61.5 - 71.5 Feet: Silty Gravelly Sand Brown, damp, poorly sorted, loose. Sand is fine to coarse grained, subangular, angular. Gravel is rounded to subangular. Sand 70%, gravel 20%, silt 10%.
64					GM	
66						
68						
70		1.3	50e5"			
72						71.5 - 81.5 Feet: Clayey Sandy Silt Brown red, dry to damp, moderate to well sorted, loose. Sand is fine grained, subangular. Silt 60%, sand 30%, clay 10%.
74						
76						
78						
80		3	00001221 50e6"		ML	81.5 - 91.5 Feet: Silt 50%, sand 40%, clay 10%.
82						
84						
86						
88						



Project ADEQ/Van Waters and Rogers Owner ADEQ  
 Location 2930 W. Osborn Rd., Phoenix, AZ Proj. No. 023300550

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ x Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
88							Clayey Sandy Silt (continued)
90		3.2		34 50@2"		ML	
92							91.5 - 101.5 Feet: Gravelly Silty Sand Red brown, moist, moderately sorted, loose. Sand is fine to medium grained, subangular to angular. Gravel is fine, subangular. Sand 60%, silt 30%, gravel 10%.
94							
96						GM	
98							
100		4.0		00001225 50@4"			
102							101.5 - 110 Feet: Clayey Silty Sand Red brown, moist, moderately sorted. Sand is fine grained, subangular to angular. Sand 50%, silt 30%, clay 20%.
104							
106							
108							
110		4.2				SM	110 - 120 Feet: Red brown, moist, moderately sorted, soft. Sand is fine grained, subangular. Sand 45%, silt 45%, clay 20%.
112							
114							
116							
118							
120						ML	

# Drilling Log



Monitoring Well WCP-17

Project ADEQ/Van Waters and Rogers Owner ADEQ  
 Location 2930 W. Osborn Rd., Phoenix, AZ Proj. No. 023300550

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
120		2				ML	120 - 127 Feet: Sandy Clayey Silt Red brown, moist to wet, moderate to well sorted, soft to semi-hard. Sand is fine grained, subangular to angular. Silt 50%, clay 30%, sand 20%.
122							Initial water level.
124							125 Feet: Total Depth of Monitor Well WCP-17
126		1.4					127 Feet: Total Depth of Borehole
128							
130							
132							
134							
136							
138							
140							
142							
144							
146							
148							
150							
152							





MANAGERS DESIGNERS/CONSULTANTS  
 202 East Earl Dr., Suite 460  
 Phoenix, Arizona 85012

Project No.: 080-006	Page 1 of 5 Pages
Project Loc: Van Waters & Rogers	Field Geologist: M. Rutkowski
Boring No: WCP-28	Datum: NAD 27
Rig Type: Becker	M.P. Elev: 1108.73'
Drilling Method: Dual Wall Air Perc.	Total Depth: 141.5'
Init. Date: 5-26-98	Initial GW Depth: NA
Comp. Date: 5-26-98	Static GW Depth: 108.75'

Depth In Feet	Time	Blow Count Blows/Foot	Sample Type	FID
	0935			
5				
10	0945	50 (6)	N	0.0
15				
20	1003	45	N	0.0
25				
30				

Lean Clay with Sand (CL), medium brown, moist, very hard, no odor  
 Sand very fine to fine grained

Sandy clay (CL), medium brown, moist, hard, no odor  
 Sand coarse grained

Silty sandy clay (CL), medium brown, moist, hard to very hard, no odor  
 Sand coarse grained

NOTES:





MANAGERS DESIGNERS/CONSULTANTS  
 202 East Earll Dr., Suite 460  
 Phoenix, Arizona 85012

Project No.: 080-006	Page 3 of 5 Pages
Project Loc: Van Waters & Rogers	Field Geologist: M. Rutkowski
Boring No: WCP-28	Datum: NAD 27
Rig Type: Becker	M.P. Elev: 1108.73'
Drilling Method: Dual Wall Air Perc.	Total Depth: 141.5'
Init. Date: 5-26-98	Initial GW Depth: NA
Comp. Date: 5-26-98	Static GW Depth: 108.75'

Depth In Feet	Time	Blow Count	Blows/Foot	Sample Type	FID
60	1055	50 (5)	N	0.0	
61					
62					
63					
64					
65					
66					
67					
68					
69					
70	1106	50 (6)	N	0.0	
71					
72					
73					
74					
75					
76					
77					
78					
79					
80	1130	40	N	0.0	
81					
82					
83					
84					
85					
86					
87					
88					
89					
90					

Lean clay with sand (CL), medium brown, moist, very hard, no odor  
 Subround to angular sand up to medium grained

Poorly graded sand with silt and gravel (SP), medium tan, moist, dense, no odor  
 Sand subround to angular mostly fine grained

NOTES:



Project No.: 080-006	Page 4 of 5 Pages
Project Loc: Van Waters & Rogers	Field Geologist: M. Rutkowski
Boring No: WCP-28	Datum: NAD 27
Rig Type: Becker	M.P. Elev: 1108.73'
Drilling Method: Dual Wall Air Perc.	Total Depth: 141.5'
Init. Date: 5-26-98	Initial GW Depth: NA
Comp. Date: 5-26-98	Static GW Depth: 108.75'

Depth In Feet	Time	Blow Count	Blows/Foot	Sample Type	FID
90	1055	50 (5)	N		0.0
95					
100	1154	50 (6)	N		0.0
105					
110	1208	40	N		0.0
115					
120					

Silty sand (SM), medium tan, moist, dense, no odor  
Sand subround to angular mostly fine grained

Lean clay with silt and gravel (CL), medium brown, moist to very moist, hard, no odor

NOTES:



Project No.: 080-006	Page 5 of 5 Pages
Project Loc: Van Waters & Rogers	Field Geologist: M. Rutkowski
Boring No: WCP-28	Datum: NAD 27
Rig Type: Becker	M.P. Elev: 1108.73'
Drilling Method: Dual Wall Air Perc.	Total Depth: 141.5'
Init. Date: 5-26-98	Initial GW Depth: NA
Comp. Date: 5-26-98	Static GW Depth: 108.75'

Depth In Feet	Time	Blow Count Blows/Foot	Sample Type	FD
120	1217	15	N	0.0
125				
130	1227	25	N	0.0
135				
140	1239	50 (5)	N	0.0
145				
150				

Same as above, more sand less gravel

Lean clay with sand (CL) trace fine gravel, medium brown, very moist, very stiff, no odor, caliche

Bottom of Boring - 141.5 ft bgs

NOTES:





202 East Earll Dr., Suite 460  
Phoenix, Arizona 85012

Project No.: 080-006	Page 1 of 5 Pages
Project Loc: Van Waters & Rogers	Field Geologist: M. Rutkowski
Boring No: WCP-29	Datum: NAD 27
Rig Type: Becker	M.P. Elev: 1108.75'
Drilling Method: Dual Wall Air Perc.	Total Depth: 141.5
Init. Date: 5-28-98	Initial GW Depth: 109'
Comp. Date: 5-28-98	Static GW Depth: 108.69'

Depth In Feet	Time	Blow Count Blows/foot	Sample Type	FID
	1343			
5				
10	1354	30	N	0.0
15				
20	1400	50 (4)	N	0.0
25				
30				

Lean clay with sand (CL), medium brown, moist, very stiff, no odor sand very fine grained

Same as above

Same as above

NOTES:



Project No.: 080-006	Page 2 of 5 Pages
Project Loc: Van Waters & Rogers	Field Geologist: M. Rutkowski
Boring No: WCP-29	Datum: NAD 27
Rig Type: Becker	M.P. Elev: 1108.75'
Drilling Method: Dual Wall Air Perc.	Total Depth: 141.5
Init. Date: 5-28-98	Initial GW Depth: 109'
Comp. Date: 5-28-98	Static GW Depth: 108.69'

Depth In Feet	Time	Blow Count Blows/Foot	Sample Type	FID
30	1413	50 (6)	N	0.0
35				
40	1430	50 (4)	N	0.0
45				
50	1441	50 (6)	N	0.0
55				
60				

Same as above

Poorly graded sand with silt and gravel (SP), medium brown to variable color, moist, very dense, no odor  
Subangular to subrounded sand, gravel to 1", moderate cementation

NOTES:



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 202 East Earl Dr. Suite 460  
 Phoenix, Arizona 85012

Project No.: 080-006	Page 3 of 5 Pages
Project Loc: Van Waters & Rogers	Field Geologist: M. Rutkowski
Boring No: WCP-29	Datum: NAD 27
Rig Type: Becker	M.P. Elev: 1108.75'
Drilling Method: Dual Wall Air Perc.	Total Depth: 141.5
Init. Date: 5-28-98	Initial GW Depth: 109'
Comp. Date: 5-28-98	Static GW Depth: 108.69'

Depth In Feet	Time	Blow Count Blows/Foot	Sample Type	FID
60	1500	50 (5)	N	0.0
65				
70	1520	50 (4)	N	0.0
75				
80	1645	50 (6)	N	0.0
85				
90				

Sandy clay (CL), medium brown, moist, very hard, no odor  
 Subround to angular sand up to medium grained

Same as above with gravel

NOTES:

Project No.: 080-006	Page 4 of 5 Pages
Project Loc: Van Waters & Rogers	Field Geologist: M. Rutkowski
Boring No: WCP-29	Datum: NAD 27
Rig Type: Becker	M.P. Elev: 1108.75'
Drilling Method: Dual Wall Air Perc.	Total Depth: 141.5
Init. Date: 5-28-98	Initial GW Depth: 109'
Comp. Date: 5-28-98	Static GW Depth: 108.69'

Depth In Feet	Time	Blow Count Blows/Foot	Sample Type	FID
90	1705	30	N	0.0
95				
100	1725	50 (4)	N	0.0
105				
110	1740	50 (6)	N	0.0
115				

Poorly graded sand with silt (SP), medium brown, moist to very moist, no odor

Sandy Clay (CL), medium brown, moist, very hard, no odor  
 Sand very fine grained, locally strongly cemented

Same as above

NOTES:



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Project No.: 080-006

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Project Loc: Van Waters & Rogers

Field Geologist: M. Rutkowski

Boring No: WCP-29

Datum: NAD 27

Rig Type: Becker

M.P. Elev: 1108.75'

Drilling Method: Dual Wall Air Perc.

Total Depth: 141.5

Init. Date: 5-28-98

Initial GW Depth: 109'

Comp. Date: 5-28-98

Static GW Depth: 108.69'

Depth In Feet	Time	Blow Count Blows/Foot	Sample Type	FID
120	1755	50 (6)	N	0.0
125				
130	1810	30	N	0.0
135				
140				
	1825			
145				
150				

Same as above, strong caliche nodules

Sandy clay (CL) with gravel, medium brown, very moist, very stiff, no odor, gravel to 1.5"

Bottom of Boring - 141.5 ft bgs

NOTES:





Project No.: 080-006	Page 1 of 5 Pages
Project Loc: Van Waters & Rogers	Field Geologist: M. Rutkowski
Boring No: WCP-30	Datum: NAD 27
Rig Type: Becker	M.P. Elev: 1108.78'
Drilling Method: Dual Wall Air Perc.	Total Depth: 141.5'
Init. Date: 5-27-98	Initial GW Depth: 109'
Comp. Date: 5-27-98	Static GW Depth: 110.40'

Depth In Feet	Time	Blow Count Blows/Foot	Sample Type	FID
	0950			
5				
10	1000	50 (6)	N	0.0
15				
20	1013	50 (6)	N	0.0
25				
30				

Sandy clay (CL), medium brown, slightly moist, hard, no odor  
Local layers of silty sand

Lean clay with sand (CL), mottled medium brown and light tan, slightly moist, very hard, no odor, sand very fine to fine grained, moderate cementation

Sandy clay (CL), mottled reddish brown and medium brown, moist, very hard, no odor  
Sand coarse

NOTES:



Project No.: 080-006	Page 2 of 5 Pages
Project Loc: Van Waters & Rogers	Field Geologist: M. Rutkowski
Boring No: WCP-30	Datum: NAD 27
Rig Type: Becker	M.P. Elev: 1108.78'
Drilling Method: Dual Wall Air Perc.	Total Depth: 141.5'
Init. Date: 5-27-98	Initial GW Depth: 109'
Comp. Date: 5-27-98	Static GW Depth: 110.40'

Depth In Feet	Time	Blow Count	Blows/foot	Sample Type	FID
30	1025	50 (6)	N		0.0
35					
40	1035	50 (4)	N		0.0
45					
50	1047	50 (6)	N		0.0
55					
60					

As above, trace fine gravel to 1", mottled light tan to medium brown

No recovery

Poorly graded sand with silt and gravel (SP), variable color, slightly moist, very dense, no odor  
Subround to angular sand, gravel to 3"

NOTES:



Project No.: 080-006	Page 3 of 5 Pages
Project Loc: Van Waters & Rogers	Field Geologist: M. Rutkowski
Boring No: WCP-30	Datum: NAD 27
Rig Type: Becker	M.P. Elev: 1108.78'
Drilling Method: Dual Wall Air Perc.	Total Depth: 141.5'
Init. Date: 5-27-98	Initial GW Depth: 109'
Comp. Date: 5-27-98	Static GW Depth: 110.40'

Depth In Feet	Time	Blow Count	Blows/Foot	Sample Type	FID
60	1105	50	(5)	N	0.0
65					
70	1113	50	(4)	N	0.0
75					
80	1129	50	(6)	N	0.0
85					
90					

Sandy clay (CL) trace gravel, mottled medium brown and light tan, moist, very hard, no odor, subround to angular sand up to medium grained

Silty sand (SM), medium brown, moist, very dense, no odor moist sand, medium coarse, moderate cementation

NOTES:



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Project No.: 080-006	Page 4 of 5 Pages
Project Loc: Van Waters & Rogers	Field Geologist: M. Rutkowski
Boring No: WCP-30	Datum: NAD 27
Rig Type: Becker	M.P. Elev: 1108.78'
Drilling Method: Dual Wall Air Perc.	Total Depth: 141.5'
Init. Date: 5-27-98	Initial GW Depth: 109'
Comp. Date: 5-27-98	Static GW Depth: 110.40'

Depth In Feet	Time	Blow Count Blows/Foot	Sample Type	FID	
90	1139	30	N	0.0	Same as above with clay, medium tan and reddish brown strong cementation
95					
100	1155	10	N	0.0	Same as above, well developed caliche nodules
105					
					Sandy clay (CL), medium brown, moist, very stiff, no odor
110	1200	30	N	0.0	
115					
120					

NOTES:



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 Phoenix, Arizona 85012

Project No.: 080-006

Page 5 of 5 Pages

Project Loc: Van Waters & Rogers

Field Geologist: M. Rutkowski

Boring No: WCP-30

Datum: NAD 27

Rig Type: Becker

M.P. Elev: 1108.78'

Drilling Method: Dual Wall Air Perc.

Total Depth: 141.5'

Init. Date: 5-27-98

Initial GW Depth: 109'

Comp. Date: 5-27-98

Static GW Depth: 110.40'

Depth In Feet	Time	Blow Count Blows/Foot	Sample Type	FID	
120	1205	10	N	0.0	Same as above, trace gravel, less stiff
125					
130	1645	50 (5)	N	0.0	Same as above, very moist
135					
					Poorly graded sand with gravel (SP), variable color, very moist, very dense, no odor, subround to angular clay lens in sample
140	1705	50 (5)	N	0.0	
					Bottom of Boring - 141.5 ft bgs
145					
150					

NOTES:





# LOG OF BORING WCP-40

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-40  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : 120'  
 Static GW Depth : 116.6'  
 Installation Date(s) : 9/27/99 to 9/28/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0							No sample collected.	
5	0750			4 4 6		ML	SANDY SILT (ML), light brown, (50% fines, 50% fine sand), moist, soft, no odor, slightly plastic.	
10	0755			4 6 9			SANDY SILT (ML), light brown, (40% fines, 60% fine sand), slightly moist, moderately firm, no odor, slightly plastic.	
15	0800		3.0	15 16 19		SM	SILTY SAND (SM), moderately brown, (35% fines, 65% medium to fine sand), slightly moist, moderately firm, no odor, non-plastic.	
20	0805		2.0	7 9 9		ML	SANDY SILT (ML), moderately brown, (50% fines, 50% fine sand), slightly moist, soft, no odor, slightly plastic.	
25	0810		2.0	10 11 14			SANDY SILT (ML), moderately brown, (50% fines, 50% fine sand), slightly moist, moderately firm, no odor, slightly plastic.	
30						SM		

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# LOG OF BORING WCP-40

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Arizona Department of Environmental Quality VW&R	Project Number	: 20092-090-002	Field Geologist	: R. Findlay
	Project Location	: VW&R	Total Depth	: 150'
	Boring Number	: WCP-40	Initial GW Depth	: 120'
	Rig Type	: CME-95	Static GW Depth	: 116.6'
	Drilling Method	: HSA	Installation Date(s)	: 9/27/99 to 9/28/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0820		2.0	9 12 13			SILTY SAND with GRAVEL (SM), reddish brown, (20% fines, 80% medium to coarse angular sand), slightly moist, soft, no odor, non-plastic.	
35	0835		2.0	11 20 21		SM	SILTY SAND (SM), light brown, (40% fines, 60% fine sand), slightly moist, moderately dense, no odor, slightly plastic.	
40	0840		1.0	11 20 21			SILTY SAND (SM), moderately brown, (40% fines, 60% fine sand), slightly moist, moderately firm, no odor, slightly plastic.	
45	0846		1.0	17 20 30		SW-SM	WELL-GRADED SAND with SILT and GRAVEL (SW-SM), light brown, (10% fines, 25% gravel, 65% medium sand), slightly moist, no odor, angular, non-plastic.	
50	0855		1.0	21 37 41			SANDY SILT (ML), light brown, (40% fines, 60% fine sand), slightly moist, dense, no odor, slightly plastic.	
55	0905		1.0	7 10 13		ML	SANDY SILT (ML), light brown, (40% fines, 60% fine sand), slightly moist, soft, no odor, slightly plastic.	
60								

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# LOG OF BORING WCP-40

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-40  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : 120'  
 Static GW Depth : 116.6'  
 Installation Date(s) : 9/27/99 to 9/28/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0935		0.0	12 17 19		SM	SILTY SAND (SM), light brown, (15% fines, 85% well-sorted angular sands), slightly moist, soft, no odor.	
65	0950		9.0	41 50		ML	SANDY SILT (ML), light brown, (40% fines, 60% fine sand), slightly moist, firm, no odor.	
70	1000		2.0	35 39 41		ML	SANDY SILT (ML), light brown, (40% fine sand, 60% fines), slightly moist, firm, no odor, slightly plastic.	
75	1020		1.5	9 9 4		SM	SILTY SAND (SM), light brown, (10% fines, 90% well-sorted medium angular sand), slightly moist, loose, no odor.	
80	1035		2.0	14 19 16		SM	SILTY SAND (SM), light brown, (10% fines, 90% medium to coarse angular sand, trace gravel), slightly moist, moderately firm, no odor.	
85	1058		1.0	40 50		ML	SANDY SILT (ML), light brown, (40% fine sand, 60% fines), slightly moist, dense, no odor, slightly plastic. Note : caliche interbedded in sample.	
90								

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# LOG OF BORING WCP-40

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-40  
Rig Type : CME-95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 150'  
Initial GW Depth : 120'  
Static GW Depth : 116.6'  
Installation Date(s) : 9/27/99 to 9/28/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1107		5.0	28 50-5			SANDY SILT (ML), light brown, slightly moist, moderately hard, no odor, moderately to well sorted, slightly plastic.	
95	1115		3.0	7 9 17			SANDY SILT (ML), moderately brown, slightly moist, loose, no odor, well sorted, slightly plastic.	
100	1130		1.0	7 9 13			SANDY SILT (ML), moderately brown, (40% fine sand, 60% fines), slightly moist, moderately loose, no odor, slightly plastic.	
105	1150		1.0	11 12 15		ML	SANDY SILT (ML), moderately brown, slightly moist, loose, no odor, well-sorted fines, slightly plastic.	
110	1205		1.0	6 8 13			SANDY SILT with CLAY (ML), moderately brown, (20% clay, 40% fine sand, 40% fines), very moist, loose, no odor, slightly plastic.	
115	1230		1.0	14 17 19			SANDY SILT (ML), moderately brown, moist, moderately loose, no odor, angular, moderate to poorly sorted, slightly plastic. Note: trace caliche at 116' bgs.	
120								

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# LOG OF BORING WCP-40

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-40  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : 120'  
 Static GW Depth : 116.6'  
 Installation Date(s) : 9/27/99 to 9/28/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1255		1.0	16 18 19		ML	SANDY SILT (ML), moderately brown, wet, moderately loose, no odor, angular, poorly sorted.	
125	0645			10 11 13		ML	SANDY SILT with CLAY (ML), moderately brown, (20% clay, 40% fine sand, 40% fines), moist, loose, no odor, slightly plastic.	
130	0705			12 12 24		SP-SM	POORLY GRADED SAND with SILT and GRAVEL (SP-SM), moderately brown, (10% fines, 25% angular gravel, 65% coarse angular sand), moderately dense, no odor.	
135	0730			18 22 27		ML	SANDY SILT (ML), moderately brown, wet, well sorted, slightly plastic.	
140	0745			9 11 16			No recovery.	
145	0800			3 6 6		SM	SILTY SAND (SM), reddish brown, (20% fines, 80% medium to coarse angular to subrounded sand).	
150							No sample at 150' bgs. Silty, clayey, sands. Formation tightens up. Total Depth = 150' bgs	

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# LOG OF BORING WCP-41

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-41  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 146  
 Initial GW Depth : 116'  
 Static GW Depth : 115'  
 Installation Date(s) : 9/29/99 to 9/30/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0700	[ ]	1.0	4 4 5	[ ]	ML	SANDY SILT (ML), light brown, slightly moist, loose, well sorted, slightly plastic, strong reaction to 10% HCl.	
10	0705	[ ]	1.0	14 16 17	[ ]	ML	SANDY SILT (ML), light brown, slightly moist, moderately dense, no odor, well sorted, slightly plastic, strong reaction to 10% HCl.	
15	0710	[ ]	1.0	9 9 10	[ ]	SM	SILTY SAND (SM), light brown, (30% fines, 70% fine sand), slightly moist, loose, no odor, non-plastic, strong reaction to 10% HCl.	
20	0725	[ ]	1.0	12 14 11	[ ]	CL	LEAN CLAY with SAND (CL), moderate brown, (20% fine sand, 40% fines, 40% clay), slightly moist, moderately loose to tight, no odor, plastic, moderate reaction to 10% HCl.	
25	0730	[ ]	2.0	10 12 16	[ ]	CL	LEAN CLAY with SAND (CL), moderate brown, (20% fine sand, 40% fines, 40% clay), moist, moderately loose, no odor, plastic, moderate reaction to 10% HCl.	
30						ML		

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# LOG OF BORING WCP-41

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-41  
Rig Type : CME-95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 146  
Initial GW Depth : 116'  
Static GW Depth : 115'  
Installation Date(s) : 9/29/99 to 9/30/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0735		2.0	14 18 20		ML	SANDY SILT (ML), moderate brown, (50% fine sand, 50% fines), loose, no odor, slightly plastic, strong reaction to 10% HCl.	
						SM	SILTY SAND (SM), reddish brown, (20% fines, 80% medium to coarse angular sand), no odor, poorly sorted, moderate reaction to 10% HCl.	
35	0750		2.0	10 16 16		ML	SANDY SILT (ML), moderate brown, slightly moist, moderately dense, no odor, slightly plastic.	
40	0755		2.0	13 17 16		ML	SANDY SILT (ML), moderate brown, slightly moist, stiff, no odor, strong reaction to 10% HCl.	
45	0810		1.0	18 24 29		SM	SILTY SAND with GRAVEL (SM), reddish brown, (20% fines, 25% gravel, 55% medium to coarse sand), wet, moderately dense, no odor, angular to subangular, weak reaction to 10% HCl.	
50	0820		1.0	5 9 12		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, slightly plastic, strong reaction to 10% HCl.	
55	0850		1.0	19 24 26		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), moist, moderately loose to tight, no odor, slightly plastic, strong reaction to 10% HCl.	
60						SM		

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# LOG OF BORING WCP-41

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-41  
Rig Type : CME-95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 146  
Initial GW Depth : 116'  
Static GW Depth : 115'  
Installation Date(s) : 9/29/99 to 9/30/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0905		1.0	27 36 36		SM	SILTY SAND (SM), reddish brown, (30% fines, 70% fine to medium sand), slightly moist, dense, no odor, moderately sorted, no reaction to 10% HCl.	
65	0935		1.0	26 30 32			SILTY SAND with GRAVEL (SM), reddish, (15% fines, 25% gravel, 60% medium to coarse angular sand), slightly moist, moderately dense, no reaction to 10% HCl.	
70	0950		1.0	21 37 31			SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, moderately dense, slightly plastic. Note: interbedded caliche+	
75	1005		1.0	27 29 33		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, moderately dense, no odor, slightly plastic, no reaction to 10% HCl.	
80	1015		1.0	15 17 24			SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, moderately dense, no odor, slightly plastic, strong reaction to 10% HCl.	
85	1040		1.0	18 24 23		SM	SILTY SAND (SM), reddish brown, (20% fines, 80% medium to coarse angular sand, trace gravel), slightly moist, no odor, poorly sorted, no reaction to 10% HCl.	
90						ML		



# LOG OF BORING WCP-41

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-41  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 146  
 Initial GW Depth : 116'  
 Static GW Depth : 115'  
 Installation Date(s) : 9/29/99 to 9/30/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1050			16 18 20			SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), slightly moist, moderately dense, slightly plastic, strong reaction to 10% HCl. Note: caliche in shoe of split spoon.	
95	1105		1.0	22 31 40		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, moderately dense, no odor, slightly plastic, strong reaction to 10% HCl. Note: interbedded caliche.	
100	1125		1.0	23 31 34		ML	SANDY SILT (ML), moderate brown, (50% fine sand, 50% fines), slightly moist, moderately dense, no odor, slightly plastic, moderate reaction to 10% HCl.	
105	1230		1.0	13 12 18			SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), moist, moderately loose, no odor, slightly plastic, no reaction to 10% HCl.	
110	1245		1.0	16 10 12		CL	LEAN CLAY with SAND (CL), moderate brown, (20% fine sand, 40% fines, 40% clay), moist, no odor, plastic, no reaction to 10% HCl.	
115	1300		2.0	12 16 18		SM	SILTY SAND (SM), dark brown, (20% fines, 80% medium rounded sand), saturated, no odor, no reaction to 10% HCl.	
120						CL	LEAN CLAY with SAND (CL), moderate brown, (20% fine sand, 40% fines, 40% clay), wet, loose, no odor, plastic, no reaction to 10% HCl.	

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# LOG OF BORING WCP-41

Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-41  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 146  
 Initial GW Depth : 116'  
 Static GW Depth : 115'  
 Installation Date(s) : 9/29/99 to 9/30/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1315			19 20 26		CL	LEAN CLAY with SAND (CL), moderate brown, (20% fine sand, 40% fines, 40% clay), moist, moderately loose to dense, no odor, plastic, no reaction to 10% HCl. Sand (per driller's comments).	
125	0650		2.0	15 21 24		ML	SANDY SILT (ML), moderate brown, (20% clay, 40% fine sand, 40% fines), moist, moderately dense, tight formation, no odor, slightly plastic.	
130	0705		1.0	10 13 13		ML	SANDY SILT (ML), moderate brown, (20% clay, 40% fine sand, 40% fines), moist, moderately dense, tight formation, no odor, slightly plastic.	
135	0725		3.0	36 50-5		SM	SILTY SAND (SM), dark brown, (30% fines, 70% medium to coarse angular sand), wet, moderately loose, no odor, non-plastic.	
140	0745		3.0	18 20 24		SP-SM	POORLY GRADED SAND with SILT and GRAVEL (SP-SM), reddish brown, (10% fines, 25% gravel, 65% coarse sub-angular sand), saturated, moderately dense, no odor. Total Depth = 146' bgs	
145								
150								

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# LOG OF BORING WCP-42

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-42  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : 110'  
 Static GW Depth : 118.5'  
 Installation Date(s) : 10/1/99 to 10/4/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0705		0.0	3 3 5			SANDY SILT (ML), light brown, slightly moist, loose, no odor, moderately sorted, slightly plastic, strong reaction to 10% HCl.	
10	0710		0.0	13 13 15		ML	SANDY SILT (ML), light brown, slightly moist, moderately loose, no odor, slightly plastic, strong reaction to 10% HCl.	
15	0715		0.0	6 16 16			SANDY SILT (ML), light brown, (50% fines, 50% fine sand), loose, no odor, slightly plastic, strong reaction to 10% HCl.	
20	0720		0.0	8 9 9			SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), loose, no odor, slightly plastic, strong reaction to 10% HCl.	
25	0725		0.0	10 12 16			SANDY SILT (ML), light brown, (50% fine sand, 50% fines, trace gravel), loose, no odor, slightly plastic, strong reaction to 10% HCl.	
30						SM		

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# LOG OF BORING WCP-42

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-42  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : 110'  
 Static GW Depth : 118.5'  
 Installation Date(s) : 10/1/99 to 10/4/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0730		0.0	10 7 8		SM	SILTY SAND (SM), light brown, (30% fines, 70% fine to medium subangular sand), slightly moist, non-plastic, strong reaction to 10% HCl.	
35	0742		0.0	15 18 22		SM	SILTY SAND with GRAVEL (SM), reddish brown, (15% fines, 25% gravel, 60% coarse subangular to angular sand), no odor, strong reaction to 10% HCl.	
40	0752		0.0	18 30 28		ML	SANDY SILT (ML), dark brown, (10% clay, 40% fine sand, 50% fines), dense, very tight formation, no odor, slightly plastic, strong reaction to 10% HCl.	
45	0800		2.0	21 32 23		SM	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, moderately dense, no odor, slightly plastic, strong reaction to 10% HCl.	
50	0810		2.0	12 14 31		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, moderately dense, no odor, slightly plastic, strong reaction to 10% HCl.	
55	0825		1.0	23 32 35		SM	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, moderately dense, no odor, slightly plastic, strong reaction to 10% HCl.	
60								

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# LOG OF BORING WCP-42

Arizona Department of Environmental Quality VW&R	Project Number	: 20092-090-002	Field Geologist	: R. Findlay
	Project Location	: VW&R	Total Depth	: 150'
	Boring Number	: WCP-42	Initial GW Depth	: 110'
	Rig Type	: CME-95	Static GW Depth	: 118.5'
	Drilling Method	: HSA	Installation Date(s)	: 10/1/99 to 10/4/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0830		1.0	34 56-5		SM	SILTY SAND with GRAVEL (SM), reddish brown, (15% fines, 75% medium sand, 10% gravel), slightly moist, dense, no odor.	
65	0845		2.0	50-5		ML	SANDY SILT (ML), light gray, (40% fine sand, 60% fines), slightly moist, very dense.  Note: caliche interbedded.	
70	0855		1.0	18 18 21			SILTY SAND (SM), light brown, (20% fines, 80% fine to medium subangular sand), slightly moist, moderately loose, no odor, non-plastic.	
75	0905		2.0	16 23 28			SILTY SAND (SM), light brown, (20% fines, 80% fine to medium subangular sand), slightly moist, dense, no odor, non-plastic, strong reaction to 10% HCl.	
80	0950		2.0	22 36 31		SM	SILTY SAND (SM), reddish brown, (30% fines, 80% fine to medium sand), slightly moist, moderately dense, no odor, non-plastic, no reaction to 10% HCl.	
85	1010		2.0	14 16 17			SILTY SAND (SM), reddish brown, (35% fines, 65% fine to medium sand), slightly moist, loose, no odor, slight to non-plastic, no reaction to 10% HCl.	
90								

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# LOG OF BORING WCP-42

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-42  
Rig Type : CME-95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 150'  
Initial GW Depth : 110'  
Static GW Depth : 118.5'  
Installation Date(s) : 10/1/99 to 10/4/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1020		2.0	14 21 22		SM	SILTY SAND (SM), reddish brown, (35% fines, 65% fine to medium sand), slightly moist, loose, no odor, non-plastic, no reaction to 10% HCl.	
95	1030		2.0	50			SANDY SILT (ML), grayish brown, (40% fine sand, 60% fines), dry, very dense, no odor, slightly plastic, strong reaction to 10% HCl.  Note: 4" caliche layer at 100' bgs.	
100	1045		1.0	17 19 24		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, moderately dense, no odor, slightly plastic, no reaction to 10% HCl.	
105	1105		2.0	18 16 20				
110	1120			15 18 20			SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), saturated at 111' bgs, slightly plastic, 2" caliche at 111.2' bgs, moist below caliche, moderately dense, no reaction to 10% HCl (except caliche).	
115	1135		4.0	19 23 24		CL	LEAN CLAY with SAND (CL), (20% fine sand, 40% fines, 40% clay), slightly moist, moderately dense, no odor, plastic, strong reaction to 10% HCl.	
120						SM		

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# LOG OF BORING WCP-42

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-42  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : 110'  
 Static GW Depth : 118.5'  
 Installation Date(s) : 10/1/99 to 10/4/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1205		4.0	14 16 17		SM	SILTY SAND (SM), reddish brown, (20% fines, 80% medium to coarse angular sand), saturated.	
125	0650		9.0	14 15 15		ML	SANDY SILT (ML), moderate brown, (20% clay, 40% fine sand 40% fines), moist, moderately tight, no odor, slightly plastic, no reaction to 10% HCl.  SANDY SILT (ML), moderate brown, (50% fines, 50% sand), wet, loose, no odor, slightly plastic.	
130	0705		11.0	12 15 19		SM	SILTY SAND with GRAVEL (SM), reddish brown, (15% fines, 25% gravel, 60% coarse subangular sand), saturated, moderately loose, no odor, no reaction to 10% HCl.	
135						SM	SILTY SAND with GRAVEL (SM), reddish brown, (15% fines, 25% gravel, 60% coarse subangular sand), saturated, moderately loose, no odor, no reaction to 10% HCl.	
140	0730		8.0	16 19 24		SM	SILTY SAND (SM), moderate brown, (35% fines, 65% coarse sand, trace gravel), saturated, no odor, no reaction to 10% HCl.	
145	0750		7.0	20 50		ML	SILTY SAND (SM), moderate brown, (30% fines, 70% coarse subangular sand, trace gravel), saturated, dense, no odor.  SANDY SILT (ML), moderate brown, (50% fines, 50% sand), wet, slightly plastic.	
150							Total Depth = 150' bgs	

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# LOG OF BORING WCP-43

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-43  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 147'  
 Initial GW Depth : 116'  
 Static GW Depth : 116.3'  
 Installation Date(s) : 10/11/99 to 10/12/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0705		6.0	3 3 5		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), moist, loose, no odor, slightly plastic, strong reaction to 10% HCl.	
10	0710		4.0	3 4 5		ML	SANDY SILT (ML), light brown, (40% fine sand, 60% fines), slightly moist, loose, no odor, slightly plastic, strong reaction to 10% HCl.	
15	0720		5.0	7 6 9		SM	SILTY SAND (SM), reddish brown, (15% fines, 75% medium to coarse angular sand, 10% gravel), loose, no odor, no reaction to 10% HCl.	
20	0725		5.0	6 7 9		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, no odor, slightly plastic, no reaction to 10% HCl.	
25	0730		2.0	4 5 7		ML	SANDY SILT (ML), moderate brown, (50% fine sand, 50% fines), slightly moist, no odor, slightly plastic, moderate to weak reaction to 10% HCl.	
30						SM		

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# LOG OF BORING WCP-43

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-43  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 147'  
 Initial GW Depth : 116'  
 Static GW Depth : 116.3'  
 Installation Date(s) : 10/11/99 to 10/12/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0735		4.0	8 10 10			SILTY SAND with GRAVEL (SM), reddish brown, (15% fines, 25% gravel, 60% medium to coarse sand), slightly moist, moderately loose, no odor, no reaction to 10% HCl.	
35	0745		4.0	9 12 16			SILTY SAND (SM), light brown, (30% fines, 70% fine to medium sand), slightly moist, moderately loose, no odor, non-plastic, strong reaction to 10% HCl.	
40	0800		4.0	16 19 24		SM	SILTY SAND with GRAVEL (SM), (15% fines, 25% gravel, 60% medium to coarse subangular to rounded sand), moderately dense, no odor, strong reaction to 10% HCl.	
45	0805		4.0	21 36 22			SILTY SAND with GRAVEL (SM), (15% fines, 25% gravel, 60% medium to coarse sand), slightly moist, moderately dense, no odor, weak reaction to 10% HCl.	
50	0815		4.0	16 16 18			SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), moist, moderately loose, no odor, slightly plastic, strong reaction to 10% HCl.	
55	0825		3.0	16 18 16		ML	SANDY SILT (ML), moderate brown, (50% fine sand, 50% fines), slightly moist, moderately loose, no odor, slightly plastic, strong reaction to 10% HCl.	
60								

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# LOG OF BORING WCP-43

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-43  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 147'  
 Initial GW Depth : 116'  
 Static GW Depth : 116.3'  
 Installation Date(s) : 10/11/99 to 10/12/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0835		3.0	12 12 20		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, moderately loose, no odor, slightly plastic, strong reaction to 10% HCl.	
65	0850		3.0	28 28 30			SILTY SAND with GRAVEL (SM), (15% fines, 25% gravel, 60% medium to coarse subangular to subrounded sand), slightly moist, moderately dense, no odor, no reaction to 10% HCl.	
70	0935		3.0	13 20 20		SM	SILTY SAND (SM), moderate brown, (30% fines, 70% fine sand), slightly moist, moderately loose, no odor, non-plastic, no reaction to 10% HCl.	
75	0950		1.0	16 18 22			SILTY SAND (SM), (15% fines, 75% medium to coarse sand, 10% gravel), slightly moist, moderately loose, no odor, non-plastic, no reaction to 10% HCl.	
80	1000		1.0	15 22 19				
85	1020		2.0	40 50-2		ML	SANDY SILT (ML), moderate brown, (50% fine sand, 50% fines), slightly moist, very dense, no odor, slightly plastic, strong reaction to 10% HCl.	
90								

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# LOG OF BORING WCP-43

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-43  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 147'  
 Initial GW Depth : 116'  
 Static GW Depth : 116.3'  
 Installation Date(s) : 10/11/99 to 10/12/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1045		1.0	29 50-5			SANDY SILT (ML), light brown, (50% fine sand, 50% fines), slightly moist, very dense, no odor, slightly plastic, strong reaction to 10% HCl.	
95	1100		2.0	26 33 36		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), moist, moderately dense to tight, no odor, slightly plastic, no reaction to 10% HCl.	
100	1115		2.0	14 15 25			SANDY SILT (ML), light brown, (40% fine sand, 60% fines), slightly moist, moderately loose, no odor, slightly plastic, strong reaction to 10% HCl.  Note: caliche interbedded.	
105	1120		3.0	10 10 15			SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), moist, loose, no odor, slightly plastic, no reaction to 10% HCl.	
110	1145		4.0	10 11 19		SM	SILTY SAND (SM), moderate brown, (30% fines, 70% fine to medium subangular to subrounded sand), slightly moist, loose, no odor, non-plastic, no reaction to 10% HCl.	
115	1200		2.0	11 10 13		ML	SANDY SILT (ML), moderate brown, (50% fine sand, 50% fines), wet, loose, no odor, slightly plastic, no reaction to 10% HCl.	
120								

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# LOG OF BORING WCP-43

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-43  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 147'  
 Initial GW Depth : 116'  
 Static GW Depth : 116.3'  
 Installation Date(s) : 10/11/99 to 10/12/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1220			15 12 13		ML	SANDY SILT (ML), moderate brown, (50% fine sand, 50% fines), saturated, loose, no odor, slightly plastic, no reaction to 10% HCl.	
125	0645		2.0	20 24 30		ML	SANDY SILT (ML), moderate brown, (50% fine sand, 50% fines), saturated, moderately dense, no odor, slightly plastic, no reaction to 10% HCl. Note: 2" thick caliche layer at 126' bgs.	
130							No Sample. Sand and gravel as noted by driller.	
135								
140	0720		1.0	40 50-5		SM	SILTY SAND (SM), moderate brown, (35% fines, 65% medium sand), saturated, no odor, non-plastic, no reaction to 10% HCl.	
145							Total Depth = 147'	
150								





# LOG OF BORING WCP-44

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-44  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : NA  
 Static GW Depth : 116.58'  
 Installation Date(s) : 11/30/99 to 12/1/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0930	[ ]		4 4 6	[Stippled pattern]	SM	SILTY SAND (SM), moderate brown, (10% gravel, 30% fines, 60% medium to fine sand), slightly moist, loose, no odor, non-plastic, no reaction to 10% HCl.	
10	0940	[ ]		8 7 8	[Vertical lines]	ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), slightly moist, loose, no odor, slightly plastic.	
15	0950	[ ]		10 12 16	[Vertical lines]	ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), slightly moist, loose, no odor, slightly plastic.	
20	0955	[ ]		8 10 11	[Vertical lines]	ML	SANDY SILT (ML), moderate brown, (40% sand, 60% fines), slightly moist, loose, no odor, slightly to moderately plastic.	
25	1000	[ ]		5 5 6	[Vertical lines]	ML	SANDY SILT (ML), light brown, (40% fines, 60% fine sand), slightly moist, loose, slightly plastic, increase in fine sand.	
30					[Stippled pattern]	SM		

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# LOG OF BORING WCP-44

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-44  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : NA  
 Static GW Depth : 116.58'  
 Installation Date(s) : 11/30/99 to 12/1/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	1005			8 10 12		SM	SILTY SAND (SM), light brown, (10% gravel, 30% fines, 60% medium to coarse subrounded sand), loose, no odor, non-plastic, slight reaction to 10% HCl.	
35	1020			8 8 8			SILTY SAND (SM), light brown, (30% fines, 70% medium subrounded sand), loose, no odor, non-plastic, strong reaction to 10% HCl.	
40	1030			16 27 27		SM-ML	SILTY SAND to SANDY SILT (SM-ML) light brown, (40% fines, 60% fine sand to 40% fine sand, 60% fines), slightly moist, very dense, no odor, non-plastic, strong reaction to 10% HCl.	
45	1040			13 16 22		SM	SILTY SAND (SM), reddish brown, (10% gravel, 25% fines, 65% medium to coarse subrounded sand), slightly moist, no odor, non-plastic, strong reaction to 10% HCl.	
50	1050			15 19 23		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), slightly moist, moderately loose, no odor, slightly plastic, moderate reaction to 10% HCl.	
55	1100			16 12 12		SP-SM	SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), slightly moist, moderately loose, no odor, slightly plastic, moderate reaction to 10% HCl.	
60								

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# LOG OF BORING WCP-44

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-44  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : NA  
 Static GW Depth : 116.58'  
 Installation Date(s) : 11/30/99 to 12/1/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	1110			18 20 16		SP-SM	POORLY GRADED SAND with SILT (SP-SM), light brown, (10% fines, 25% gravel, 65% coarse subrounded sand), slightly moist, moderately loose, no odor, no reaction to 10% HCl.	
65	1115			28 50-4		SP-SM	POORLY GRADED SAND with SILT (SP-SM), light brown, (10% fines, 30% gravel, 60% medium to coarse subrounded sand), slightly moist, very dense, no odor, no reaction to 10% HCl.	
70	1125			41 50-5		SM	SILTY SAND (SM), light brown, (10% gravel, 30% fines, 60% medium to coarse subrounded sand), slightly moist, no odor, no reaction to 10% HCl.	
75	1135			20 25 26		SM	SILTY SAND (SM), moderate brown, (5% gravel, 25% fines, 60% medium subrounded sand), slightly moist, no odor, no reaction to 10% HCl.	
80	1145			21 16 12		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), slightly moist, no odor, slightly plastic, no reaction to 10% HCl.	
85	1155			12 16 16		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), slightly moist, loose, no odor, slightly plastic, no reaction to 10% HCl.	
90								

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# LOG OF BORING WCP-44

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-44  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : NA  
 Static GW Depth : 116.58'  
 Installation Date(s) : 11/30/99 to 12/1/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1205			12 14 18		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), slightly moist, loose, no odor, slightly plastic, no reaction to 10% HCl.	
95	1220			15 18 25		ML-SM	SILTY SAND (ML-SM), moderate brown, (40% fines, 60% fine sand), slightly moist, loose, no odor, slightly plastic, no reaction to 10% HCl.	
100	1235			18 19 20			SILTY SAND (SM), reddish brown, (20% fines, 80% medium subrounded to rounded sand), slightly moist, loose, no odor, no reaction to 10% HCl.	
105	1300			31 32 36		SM	SILTY SAND (SM), light gray brown, (30% fines, 70% medium to coarse sand), slightly moist, moderately dense, no odor, non-plastic, strong reaction to 10% HCl.	
110	1330			7 9 10			SILTY SAND (SM), reddish brown, (30% fines, 70% medium sand), slightly moist, no odor, non-plastic, no reaction to 10% HCl.	
115	1345			17 25 26			SILTY SAND (SM), reddish brown, (30% fines, 70% medium angular sand), moderately dense, no odor, non-plastic, slightly reaction to 10% HCl.	
120								

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# LOG OF BORING WCP-44

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-44  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : NA  
 Static GW Depth : 116.58'  
 Installation Date(s) : 11/30/99 to 12/1/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1400			18 24 50-4		SM	SILTY SAND (SM), moderate brown, (30% fines, 70% medium sand), saturated, moderately dense, no odor.	
125	1420			31 26 29		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), moist, dense, slightly plastic, strong reaction to 10% HCl.  Note: caliche interbedded in sample.	
130	0850			14 15 21		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), wet, moderately firm, no reaction to 10% HCl.	
135	1007			13 13 16		ML	SANDY SILT (ML), moderate brown, (30% sand, 10% clay, 60% fines), wet, moderately firm, no reaction to 10% HCl.	
140	1020			17 19 25		SM	SILTY SAND (SM), moderate brown, (30% fines, 70% medium to fine sand), saturated, no reaction to 10% HCl.	
145	1034			12 16 18		SW	WELL-GRADED SAND (SW), moderate brown, (20% fine sand, 40% medium sand, 40% coarse sand), saturated, subrounded, no reaction to 10% HCl.	
150							Total Depth = 150' bgs	

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# LOG OF BORING WCP-45

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-45  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : 121'  
 Static GW Depth : 118.12'  
 Installation Date(s) : 10/5/99 to 10/6/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0945		0.0	2 2 2			SANDY SILT (ML), moderate brown, (40% fines, 60% fine sand), slightly moist, loose, strong reaction to 10% HCl.	
10	0950		6.0	8 9 9		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), slightly moist, loose, strong reaction to 10% HCl.	
15	0955		0	6 6 7			SANDY SILT (ML), moderate brown, (50% fines, 50% fine sand), slightly moist, loose, no odor, strong reaction to 10% HCl.	
20	1000		6.0	7 6 6			SANDY SILT (ML), reddish brown, (40% sand, 60% fines), slightly moist, loose, no odor, slightly plastic, strong reaction to 10% HCl.	
25	1010		4.0	3 4 6		SM	SILTY SAND (SM), reddish brown, (30% fines, 70% medium to fine sand), slightly moist, loose, no odor, non-plastic, no reaction to 10% HCl.	
30								



## LOG OF BORING WCP-45

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-45  
Rig Type : CME95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 150'  
Initial GW Depth : 121'  
Static GW Depth : 118.12'  
Installation Date(s) : 10/5/99 to 10/6/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	1015		3.0	6 7 9		SM	SILTY SAND (SM), reddish brown, (30% fines, 70% medium to coarse subangular sand), slightly moist, loose, no odor, no reaction to 10% HCl.	
35	1025		2.0	10 10 13		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, moderately loose, no odor, strong reaction to 10% HCl.	
40	1030		3.0	20 32 36		ML	SANDY SILT (ML), light brown, (40% fine sand, 60% fines), slightly moist, moderately dense, tight formation, no odor, strong reaction to 10% HCl.	
45	1040		4.0	8 8 11		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, loose, no odor, slightly plastic, strong reaction to 10% HCl.	
						SM	SILTY SAND (SM), reddish brown, (30% fines, 70% medium to coarse subrounded sand), slightly moist, no reaction to 10% HCl.	
50	1050		4.0	14 16 16		ML	SANDY SILT (ML), moderate reddish brown, (50% fine sand, 50% fines), slightly moist, no odor, slightly plastic, strong reaction to 10% HCl.	
							No Recovery, gravel in split-spoon.	
55	1100			32 50-5		SM	SILTY SAND (SM), reddish brown, (15% fines, 25% gravel, 60% coarse subangular sand), slightly moist, no odor, no reaction to 10% HCl.	
60								



# LOG OF BORING WCP-45

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-45  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : 121'  
 Static GW Depth : 118.12'  
 Installation Date(s) : 10/5/99 to 10/6/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	1115		4.0	16 20 30		SM	SILTY SAND (SM), light gray, (30% fines, 70% medium to fine sand), slightly moist, moderately loose to dense, no odor, non-plastic, no reaction to 10% HCl.	
65	1130		2.0	16 20 34		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, moderately dense, no odor, slightly plastic, no reaction to 10% HCl.	
70	1145		1.0	20 30 32		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, no odor, slightly plastic, no reaction to 10% HCl.	
75	1200		2.0	16 16 23		SM	SILTY SAND (SM), light brown, (30% fines, 70% medium to fine sand), slightly moist, no odor, non-plastic, no reaction to 10% HCl.	
80	1210		3.0	60-5		ML	SANDY SILT (ML), (50% fine sand, 50% fines), slightly moist, no odor, slightly plastic, strong reaction to 10% HCl.	
85	1225		2.0	16 26 30		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, no odor, slightly plastic, strong reaction to 10% HCl.	
90						SM		

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# LOG OF BORING WCP-45

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-45  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : 121'  
 Static GW Depth : 118.12'  
 Installation Date(s) : 10/5/99 to 10/6/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1240		2.0	16 20 20			SILTY SAND (SM), moderate brown, (30% fines, 70% medium to fine sand), slightly moist, no odor, non-plastic, slight reaction to 10% HCl.	
95	1250		4.0	25 30 36		SM	SILTY SAND (SM), light brown, (30% fines, 70% fine sand), slightly moist, dense, tight formation, no odor, strong reaction to 10% HCl.	
100	1315		2.0	19 20 23			SILTY SAND (SM), light brown, (30% fines, 70% fine sand), slightly moist, dense, no odor, non-plastic, strong reaction to 10% HCl.  Note: caliche in shoe of split spoon, poor recovery.	
105	1335		2.0	16 19 21			SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, moderately loose, no odor, slightly plastic, no reaction to 10% HCl.	
110	1350		2.0	14 16 20		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, moderately loose, no odor, slightly plastic, no reaction to 10% HCl.	
115	1410		4.0	9 14 15			SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), moist, no odor, slightly plastic, no reaction to 10% HCl.	
120								

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# LOG OF BORING WCP-45

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-45  
Rig Type : CME95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 150'  
Initial GW Depth : 121'  
Static GW Depth : 118.12'  
Installation Date(s) : 10/5/99 to 10/6/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1420		3.0	10 14 22		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), wet, no odor, slightly plastic, no reaction to 10% HCl.	
125	1435			12 16 22		SM	SILTY SAND (SM), moderate brown, (35% fines, 65% coarse sand), saturated, no odor, non-plastic, no reaction to 10% HCl.	
130	0740			16 20 28		CL	LEAN CLAY (CL), moderate brown, (70% clay, 20% fines, 10% fine sand), wet, no odor, medium plasticity, strong reaction to 10% HCl. Note: thin layers of caliche.	
135	0750			20 21 22		SM	SILTY SAND (SM), moderate brown, (75% subangular to subrounded sand, 15% fines, 10% fine gravel), saturated, no odor, no reaction to 10% HCl.	
140							No Recovery: sand with gravel based on driller comments.	
145	0810			19 20 21		SW	WELL-GRADED SAND (SW), moderate brown, (95% subangular to subrounded sand, 5% fines), saturated, no odor, no reaction to 10% HCl. Driller stated: seated in clay at 150' bgs.	
150							Total Depth = 150' bgs	

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# LOG OF BORING WCP-46

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : Shamrock Towing  
 Boring Number : WCP-46  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : F. Van Alstine  
 Total Depth : 150'  
 Initial GW Depth : 121'  
 Static GW Depth : 118.23'  
 Installation Date(s) : 12/2/99 to 12/3/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0							No sample collected.	
5	0736			2 2 3			No recovery.	
10	0742			5 7 7		SM	SILTY SAND (SM), brown, (30% fines, 70% fine subangular to subrounded sand), moist, moderately dense, no odor, no PI, strong reaction to HCl.	
15	0752			8 9 12			SILTY SAND (SM), moderately brown, (40% fines, 60% fine subangular sand), slightly moist, moderately dense, no odor, no PI, moderate reaction to HCl.	
20	0756			4 5 5		CL	LEAN CLAY (CL), trace fine sand, brown, moist, stiff, no odor, medium PI, no reaction to HCl.	
25	0804			4 7 7		SC	CLAYEY SAND (SC), fine sand, moderate brown, moist, stiff, no odor, subangular, poorly sorted, medium PI, moderate reaction to HCl.	
30								

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# LOG OF BORING WCP-46

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : Shamrock Towing  
 Boring Number : WCP-46  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : F. Van Alstine  
 Total Depth : 150'  
 Initial GW Depth : 121'  
 Static GW Depth : 118.23'  
 Installation Date(s) : 12/2/99 to 12/3/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0834			7 8 9		SP	POORLY-GRADED SAND (SP), brown, (10% fines, 90% subangular to subrounded sand), moist, dense, no odor, no PI, strong reaction to HCl.	
35	0841			11 18 32		SP	POORLY-GRADED SAND (SP), rusty brown, (20% fines, 80% subangular to subrounded sand), slightly moist, very dense, no odor, (50% coarse, 30% medium, 20% fine), no PI, strong reaction to HCl.	
40	0848			12 12 14		ML	SILT (ML), light brown, (10% fine subrounded sand, 90% fines), slightly moist, very stiff, no odor, no PI, strong reaction to HCl.	
45	0858			8 9 9		SM	SILTY SAND (SM), brown, (20% fines, 80% fine sand), slightly moist, moderately dense, no odor, no PI, weak reaction to HCl.	
50	0908			10 9 9		SW	WELL-GRADED SAND with TRACE GRAVEL (SW), brown, (10% gravel, 90% fine to coarse subangular to subrounded sand (40% fine, 30% medium, 30% coarse sand)), slightly moist, moderately dense, no odor, no PI, no reaction to HCl.	
55	0920			15 17 21		SW	WELL-GRADED SAND (SW), rusty brown, (5% fines, 10% gravel, 85% fine to coarse subangular to subrounded sand, trace gravel (50% fine, 30% medium, 20% coarse sand)), slightly moist, very dense, no odor, no PI, no reaction to HCl.	
60								

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# LOG OF BORING WCP-46

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : Shamrock Towing  
 Boring Number : WCP-46  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : F. Van Alstine  
 Total Depth : 150'  
 Initial GW Depth : 121'  
 Static GW Depth : 118.23'  
 Installation Date(s) : 12/2/99 to 12/3/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0930			4 6 8		SW	WELL-GRADED SAND (SW), light brown, (10% gravel, 90% fine to coarse sand (30% fine, 40% medium, 30% coarse sand)), slightly moist, moderately dense, no odor, subround, no PI, no reaction to HCl.	
65	0940			20 29 50-5		ML	SANDY SILT (ML), light brown, (15% fine sand, 85% fines), slightly moist, very stiff, no odor, low PI, strong reaction to HCl.	
70	0952			13 15 20		ML	SILT (ML), light brown, (5% fine sand, 95% fines), slightly moist, very stiff, no odor, low PI, weak reaction to HCl.	
75	1006			16 20 24		SM	SILTY SAND (SM), light brown, (40% fines, 60% fine to coarse subrounded sand (70% fine, 20% medium, 10% coarse sand)), moist, dense, no odor, no PI, no reaction to HCl.	
80	1020			17 50 34		SW	WELL-GRADED SAND (SW), light brown, (20% fines, 80% fine to coarse subrounded sand (70% fine, 20% medium, 10% coarse sand)), slightly moist, very dense, no odor, low PI, strong reaction to HCl.	
85	1038			30 50-5		SW	WELL-GRADED SAND (SW), light grayish brown, (20% fines, 80% fine to coarse subrounded sand (70% fine, 20% medium, 10% coarse sand)), slightly moist, very dense, no odor, no PI, strong reaction to HCl.	
90								

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# LOG OF BORING WCP-46

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : Shamrock Towing  
 Boring Number : WCP-46  
 Rig Type : CME95  
 Drilling Method : HSA

Field Geologist : F. Van Alstine  
 Total Depth : 150'  
 Initial GW Depth : 121'  
 Static GW Depth : 118.23'  
 Installation Date(s) : 12/2/99 to 12/3/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1050			35 50-5			SILTY SAND (SM), light brown, (30% fines, 70% fine to coarse subrounded sand (70% fine, 20% medium, 10% coarse sand)), slightly moist, very dense, no odor, no PI, strong reaction to HCl. Trace caliche in 91.5' bgs.	
95	1150			20 25 40		SM	SILTY SAND (SM), brown, (40% fines, 60% fine subrounded sand), moist, very dense, no odor, no PI, no reaction to HCl. Trace cemented nodules	
100	1212			14 16 18			POORLY-GRADED SAND with SILT (SP-SM), moderate brown, (10% fines, 90% fine subrounded sand), moist, dense, no odor, no PI, no reaction to HCl.	
105	1228			11 11 12		SP-SM	POORLY-GRADED SAND with SILT (SP-SM), moderate brown, (10% fines, 90% fine subrounded sand), moist, dense, no odor, no PI, no reaction to HCl.	
110	1244			15 18 21			SANDY SILT (ML), moderate brown, (20% fine sand, 80% fines), moist, very stiff, no odor, low PI, weak reaction to HCl.	
115	1258			8 9 12		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), wet, stiff, no odor, no PI, no reaction to HCl.	
120								



# LOG OF BORING WCP-46

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : Shamrock Towing  
Boring Number : WCP-46  
Rig Type : CME95  
Drilling Method : HSA

Field Geologist : F. Van Alstine  
Total Depth : 150'  
Initial GW Depth : 121'  
Static GW Depth : 118.23'  
Installation Date(s) : 12/2/99 to 12/3/99

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1314			10 16 18			POORLY-GRADED SAND with GRAVEL (SP), brown, (10% fines, 10% gravel, 80% fine to coarse subrounded sand (30% fine, 40% medium, 30% coarse sand)), wet, moderately dense, no odor, no PI, no reaction to HCl.	
125	1334			10 19 20		SP	POORLY-GRADED SAND and GRAVEL (SP), brown, (30% fine gravel, 70% fine to coarse subrounded sand (30% fine, 40% medium, 30% coarse sand)), wet, very dense, no odor, no PI, no reaction to HCl.	
130	1448			12 12 15			POORLY-GRADED SAND and GRAVEL (SP), light brown, (30% fine gravel, 70% fine to coarse subrounded sand, trace clay (30% fine, 40% medium, 30% coarse sand)), wet, very dense, no odor, high PI, no reaction to HCl.	
135	0750						Heaving Sand - No sample retained.	
140	0800			25 27 30		SC	CLAYEY SAND (SC), brown, (40% clay, 60% fine to medium subrounded sand (70% fine, 30% medium sand)), moist, very dense, no odor, medium to high PI, no reaction to HCl.	
145	0822			30 36 39		SP	POORLY-GRADED SAND (SP), (5% fine gravel, 5% clay, 90% fine to coarse subrounded sand (35% fine, 35% medium, 30% coarse sand)), wet, very dense, no odor, no PI, no reaction to HCl.	
						SC	CLAYEY SAND (SC), brown, (25% clay, 75% fine to medium sand), wet, very dense, no odor, subround, no PI, no reaction to HCl.	
150							Total Depth = 150' bgs	

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# LOG OF BORING WCP-47

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-47  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 153'  
 Initial GW Depth : NA  
 Static GW Depth : 123.7'  
 Installation Date(s) : 01/15/01 to 01/16/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	1014		0.0	4 5 8		ML	SILT with SAND (ML), moderate brown, (80% fines, 20% fine-grained sand), moist, no odor, moderate reaction to 10% HCl.	
10	1020		0.0	8 8 9		SM	SILTY SAND (SM), light-moderate brown, (65% fine-coarse grained sand, 35% fines), slightly moist, no odor, strong reaction to 10% HCl.	
15	1026		0.0	13 14 17		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
20	1032		0.0	7 8 9		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine-grained sand), slightly moist, no odor, strong reaction to 10% HCl.	
25	1039		0.0	7 8 9		SM	SILTY SAND (SM), moderate brown, (85% fine-grained sand, 15% fines), slightly moist, no odor, moderate reaction to 10% HCl.	
						ML	SILT with SAND (ML), moderate brown, (90% fines, 10% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
30						SW		

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# LOG OF BORING WCP-47

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-47  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 153'  
 Initial GW Depth : NA  
 Static GW Depth : 123.7'  
 Installation Date(s) : 01/15/01 to 01/16/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	1050		0.0	9 9 12		SW	WELL-GRADED SAND (SW), moderate brown, (95% fine-coarse, subrounded-angular sand, 5% gravel), slightly moist, no odor, strong reaction to 10% HCl.	
35	1052		0.0	14 15 17		SM	SILTY SAND (SM), moderate brown, (60% fine-coarse subangular-angular sand, 40% fines), slightly moist, no odor, strong reaction to 10% HCl.	
40	1104		0.0	15 38 32		SW	WELL-GRADED SAND (SW), light brown to slightly gray, (100% fine-coarse, subangular-angular sand), dry, no odor, strong reaction to 10% HCl.	
45	1115		0.0	32 37 32		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), slightly moist, no odor, strong reaction to 10% HCl.	
50	1123		0.0	12 12 16		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine-coarse, subround-angular sand), slightly moist, no odor, slight reaction to 10% HCl.	
55	1133		0.0	18 50-5		SM	SILTY SAND (SM), moderate brown, (65% fine-coarse, subangular-angular sand, 35% fines), moist, no odor, moderate reaction to 10% HCl.	
60						SW		

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# LOG OF BORING WCP-47

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Arizona Department of Environmental Quality VW&R	Project Number	: 20092-090-002	Field Geologist	: S. Kleinheider
	Project Location	: VW&R	Total Depth	: 153'
	Boring Number	: WCP-47	Initial GW Depth	: NA
	Rig Type	: CME 95	Static GW Depth	: 123.7'
	Drilling Method	: HSA	Installation Date(s)	: 01/15/01 to 01/16/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	1141		0.0	34 50-5			WELL-GRADED SAND with GRAVEL (SW), light brown to gray, (5% fines, 30% rounded-subrounded gravel, 65% fine-coarse, subangular-angular sand), dry, no odor, no reaction to 10% HCl.	
65	1152		0.0	30 22 25		SW	WELL-GRADED SAND (SW), light-moderate brown, (90% fine-coarse, subangular-angular sand, 5% gravel, 5% fines), dry, no odor, no reaction to 10% HCl.	
70	1202		0.0	15 18 20			WELL-GRADED SAND (SW), moderate brown, (95% fine-coarse, subrounded-subangular sand, 5% fines), slightly moist, no odor, no reaction to 10% HCl.	
75	1214		0.0	38 50-6		ML	SANDY SILT (ML), moderate brown, (65% fines, 35% fine-grained sand), slightly moist, no odor, no reaction to 10% HCl.	
80	1225		0.0	29 33 45		SW	WELL-GRADED SAND with GRAVEL (SW), moderate brown, (35% subrounded-subangular gravel, 65% fine-coarse, subrounded-angular sand), slightly moist, no odor, strong reaction to 10% HCl.	
85	1237		0.0	32 36 38		SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), slightly moist, no odor, strong reaction to 10% HCl. Caliche layer: 1"	
90						SP		

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# LOG OF BORING WCP-47

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-47  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 153'  
 Initial GW Depth : NA  
 Static GW Depth : 123.7'  
 Installation Date(s) : 01/15/01 to 01/16/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1247			20 22 29		SP	POORLY-GRADED SAND (SP), moderate brown, (95% fine-grained sand, 5% fines), slightly moist, no odor, no reaction to 10% HCl.	
95	1301		0.0	41 50-4		SM	SILTY SAND (SM), moderate brown, (75% fine-grained sand, 25% fines), slightly moist, no odor, no reaction to 10% HCl.	
100	1316		0.0	44 50-5		ML	SILT with SAND (ML), (85% fines, 15% fine-grained sand), slightly moist, firm, no odor, strong reaction to 10% HCl.	
105	1334		0.0	14 18 20		ML	SANDY SILT (ML), moderate brown, (65% fines, 35% fine-grained sand), moist, firm, no odor, no reaction to 10% HCl.	
110	1344		0.0	11 19 20		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), moist, soft, no odor, no reaction to 10% HCl.	
115	1358		0.0	11 11 14		ML	SILT with SAND (ML), moderate brown, (80% fines, 20% fine-grained sand), moist, firm, no odor, moderate reaction to 10% HCl. Caliche layer: 1", Caliche nodules: 1" in diameter, strong reaction to 10% HCL.	
120								

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# LOG OF BORING WCP-47

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-47  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 153'  
 Initial GW Depth : NA  
 Static GW Depth : 123.7'  
 Installation Date(s) : 01/15/01 to 01/16/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1416		0.0	38 39 50-5		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, no reaction to 10% HCl. Caliche layer: 1"	
125	1437		0.0	22 24 40		SM	SILTY SAND (SM), moderate brown, (80% fine-coarse, subangular-angular sand, 20% fines), wet, no odor, strong reaction to 10% HCl.	
130	0747		0.0	14 14 18		ML	SANDY SILT (ML), moderate brown, (55% fines, 45% fine-grained sand), wet, no odor, no reaction to 10% HCl.	
135	0802					SW	WELL-GRADED SAND with GRAVEL (SW), moderate brown, (70% fine-coarse grained sand, 25% gravel, 5% fines), wet, no odor.	
140							No more gravels per driller. Sands per driller. Finer-grained materials per driller	
145	0827		0.0			ML	SILT (ML), light brown, (95% fines, 5% fine-grained sand), dry, no odor, strong reaction to 10% HCl.	
150						SW		

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# LOG OF BORING WCP-47

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-47  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 153'  
 Initial GW Depth : NA  
 Static GW Depth : 123.7'  
 Installation Date(s) : 01/15/01 to 01/16/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0835		0.0	14 18 21		SW	WELL-GRADED SAND (SW), moderate brown, (95% fine-coarse, subangular-angular sand, 5% fines), wet, no odor, no reaction to 10% HCl. Total Depth = 153' bgs	
155								
160								
165								
170								
175								
180								



# LOG OF BORING WCP-48

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-48  
 Rig Type : Speed Star  
 Drilling Method : Mud Rotary

Field Geologist : R. Findlay  
 Total Depth : 301'  
 Initial GW Depth : NA  
 Static GW Depth : 117.45'  
 Installation Date(s) : 06/12/00 to 06/20/00

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0							Gravel base coarse 8"	
5							12" OD conductor casing set to 20' bgs. No soil samples collected.	
20	0915	<input type="checkbox"/>	0.0				SANDY SILT (ML), brown, fine sandy silt, (40% sand, 60% fines), plastic, loose, no odor.	
25	0930	<input type="checkbox"/>	0.0			ML	SANDY SILT (ML), brown, (50% sand, 50% fines) increase sands, loose, no odor.	
30								

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LOG OF BORING WCP-48

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Arizona Department of Environmental Quality VW&R	Project Number	: 20092-090-002	Field Geologist	: R. Findlay
	Project Location	: VW&R	Total Depth	: 301'
	Boring Number	: WCP-48	Initial GW Depth	: NA
	Rig Type	: Speed Star	Static GW Depth	: 117.45'
	Drilling Method	: Mud Rotary	Installation Date(s)	: 06/12/00 to 06/20/00

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30								
40	1605	<input type="checkbox"/>				ML	SANDY SILT (ML), brown, (30% medium fine sand, 70% fines), loose, no odor.	
45	1607	<input type="checkbox"/>					SANDY SILT (ML), brown, (30% medium fine sand, 70% fines), loose, no odor.	
50	1610	<input type="checkbox"/>					SILTY SAND with GRAVEL (SM), brown, (30% gravel, 35% fines, 35% sand), loose, fractured grains no odor, less fines than above.	
55	1615	<input type="checkbox"/>				SM	SILTY SAND with GRAVEL (SM), reddish brown, silty, gravelly medium coarse sands, (15% gravel, 30% fines, 55% sand), loose, fractured grains no odor, less fines than above.	
60								

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# LOG OF BORING WCP-48

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-48  
 Rig Type : Speed Star  
 Drilling Method : Mud Rotary

Field Geologist : R. Findlay  
 Total Depth : 301'  
 Initial GW Depth : NA  
 Static GW Depth : 117.45'  
 Installation Date(s) : 06/12/00 to 06/20/00

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	1630	<input type="checkbox"/>				SM	SILTY SAND (SM), brown, (40% fines, 60% medium fine sand), increased fines, loose, no odor.	
65	1650	<input type="checkbox"/>				SM	SILTY SAND (SM), reddish brown, (20%, 80%, trace gravel), trace gravel, no odor.	
70	1653	<input type="checkbox"/>				ML	SILTY SAND (ML), brown, (50% sand, 50% fines), loose, no odor.	
75	1655	<input type="checkbox"/>				SM	SILTY SAND (SM), brown, (30% fines, 70% medium-coarse angular sand), loose, no odor.	
80	1700	<input type="checkbox"/>				ML	SANDY SILT (ML), brown, (40% poorly-graded sand, 60% fines), loose, no odor.	
85	1705	<input type="checkbox"/>				ML	SANDY SILT (ML), brown, fine (30%, 70%), loose, no odor.	
90						SM		

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# LOG OF BORING WCP-48

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-48  
 Rig Type : Speed Star  
 Drilling Method : Mud Rotary

Field Geologist : R. Findlay  
 Total Depth : 301'  
 Initial GW Depth : NA  
 Static GW Depth : 117.45'  
 Installation Date(s) : 06/12/00 to 06/20/00

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1710	<input type="checkbox"/>				SM	SILTY SAND (SM), brown, (35% fines, 65% medium-coarse subangular sand), loose, no odor.	
95	1715	<input type="checkbox"/>					SILTY SAND (SM), brown, (40% fines, 60% sand), loose, no odor.	
100	1720	<input type="checkbox"/>				ML	SANDY SILT (ML), brown, (50% fines, 50% fine-medium sand), loose, no odor.	
105	0750	<input type="checkbox"/>					SANDY SILT (ML), brown, (35% fine-medium sand, 65% fines), loose, no odor.	
110	0800	<input type="checkbox"/>					SANDY SILT (ML), brown, (30% well-sorted fine-grained sand, 70% fines), loose, no odor.	
115	0810	<input type="checkbox"/>					SANDY SILT (ML), brown, (40% fine-medium poorly-graded sand, 60% fines), loose, no odor.	
120								

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# LOG OF BORING WCP-48

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-48  
 Rig Type : Speed Star  
 Drilling Method : Mud Rotary

Field Geologist : R. Findlay  
 Total Depth : 301'  
 Initial GW Depth : NA  
 Static GW Depth : 117.45'  
 Installation Date(s) : 06/12/00 to 06/20/00

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS		
120	0817	<input type="checkbox"/>	0.0	6485 5445		ML	SANDY SILT (ML), brown, (35% sand, 65% fines), no odor. Plastic, moderate to strong reaction to 10% HCl.			
	0915	<input type="checkbox"/>								
125	1135	<input type="checkbox"/>	0.0							SANDY SILT (ML), brown, (50% fines, 50% fine-medium sand), loose, no odor, slight to moderately plastic, moderate to weak reaction to 10% HCl.
130	1145	<input type="checkbox"/>	0.0						SANDY SILT (ML), brown, (40% medium-fine sand, 60% fines), loose, no odors, plastic with moderate reaction to 10% HCl.	
135	1150	<input type="checkbox"/>	0.0				SM		SILTY SAND (SM), brown, (10% small gravel, 40% fines, 50% medium-coarse angular sand), loose, no odor, non plastic with moderate reaction to 10% HCl.	
140	1445	<input type="checkbox"/>	0.0			SILTY SAND (SM), brown, (35% fines, 65% medium to coarse angular sand, trace gravel), loose, no odor, non plastic, weak reaction to 10% HCl.				
145	1500	<input type="checkbox"/>	0.0			SILTY SAND (SM), brown, (10% gravel, 30% fines, 60% medium to coarse angular sand), loose, no odor, non plastic, weak reaction to 5% HCl.				
150										

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# LOG OF BORING WCP-48

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-48  
 Rig Type : Speed Star  
 Drilling Method : Mud Rotary

Field Geologist : R. Findlay  
 Total Depth : 301'  
 Initial GW Depth : NA  
 Static GW Depth : 117.45'  
 Installation Date(s) : 06/12/00 to 06/20/00

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	1510	<input type="checkbox"/>	0.0	37 45 50		SM	SILTY SAND (SM), brown, (40% fines, 60% fine to coarse sand), loose, no odor, slight to non plastic, strong reaction to 10% HCl.	
155	1515	<input type="checkbox"/>	0.0				SILTY SAND (SM), brown, (40% fines, 60% fine to medium angular sand), loose, no odor, slight to non plastic with strong reaction to HCl.	
160	1520	<input type="checkbox"/>	0.0				SILTY SAND (SM), brown, (35% fines, 65% fine to medium angular sand), loose, no odor, slightly to non plastic, strong reaction to 10% HCl.	
165	0815	<input type="checkbox"/>	0.0			SM-ML	SILTY SAND/ SANDY SILT (SM-ML), brown, (50% fines, 50% fine to medium sand), loose, no odor, slightly plastic.	
170	0820	<input type="checkbox"/>	0.0			ML	SANDY SILT (ML), brown, (35% fine to medium sand, 65% fines, trace clay), loose, no odor, very plastic, strong reaction to 10% HCl.	
175	0825	<input type="checkbox"/>	0.0	SANDY SILT (ML), brown, (30% poorly graded fine sand, 70% fines), loose, no odor, very plastic, with strong reaction to 10% HCl.				
180						ML-CL		

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# LOG OF BORING WCP-48

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-48  
 Rig Type : Speed Star  
 Drilling Method : Mud Rotary

Field Geologist : R. Findlay  
 Total Depth : 301'  
 Initial GW Depth : NA  
 Static GW Depth : 117.45'  
 Installation Date(s) : 06/12/00 to 06/20/00

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
180	0830	<input type="checkbox"/>	0.0			ML-CL	SILT with SAND/ LEAN CLAY with SAND (ML-CL), brown, (20% sand, 40% clay, 40% fines), loose, no odor, very plastic, strong reaction to 10% HCl.	
185	0845	<input type="checkbox"/>	0.0			ML	SANDY SILT (ML), brown, loose, very plastic, no odor, with strong reaction to 10% HCl.	
190	0855	<input type="checkbox"/>	0.0			ML	SANDY SILT (ML), brown, (30%, 30%, 40%), loose, no odor and very plastic, strong reaction to 10% HCl.	
195	0915	<input type="checkbox"/>	0.0	10 9		ML-CL	SILT with SAND/ LEAN CLAY with SAND (ML-CL), brown, (20% sand, 40% fines, 40% clay), dry, no odor and very plastic and very tight, strong reaction to 10% HCl.	
	1210	<input type="checkbox"/>	0.0					
200	1515	<input type="checkbox"/>	0.0			ML-CL	SILT with SAND/ LEAN CLAY with SAND (ML-CL), brown, (20% sand, 40% fines, 40% clay), loose, no odor, plastic with strong reaction to 10% HCl.	
205	1530	<input type="checkbox"/>	0.0			ML	SANDY SILT (ML), brown, (50% fines, 50% fine to medium sand), loose, slight to non-plastic, no odor, slight to non plastic, moderate reaction to 10% HCl.	
210								

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# LOG OF BORING WCP-48

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-48  
 Rig Type : Speed Star  
 Drilling Method : Mud Rotary

Field Geologist : R. Findlay  
 Total Depth : 301'  
 Initial GW Depth : NA  
 Static GW Depth : 117.45'  
 Installation Date(s) : 06/12/00 to 06/20/00

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
210	1540	<input type="checkbox"/>	0.0				SANDY SILT (ML), brown, (30% fines, 70% fine sand), loose, moderately plastic, with no odor, slightly plastic with slight to no reaction to 10% HCl.	
215	1550	<input type="checkbox"/>	0.0			ML	SANDY SILT (ML), brown, (40% fines, 60% fine to medium sand), loose, no odor, slightly plastic, strong reaction to 10% HCl.	
220	1600	<input type="checkbox"/>	0.0				SANDY SILT (ML), brown, (40% fine to medium sand, 60% fines), loose, no odor, slightly to moderately plastic, moderate to strong reaction to 10% HCl.	
	1820	<input type="checkbox"/>		60 100				
225	0850	<input type="checkbox"/>	0.0				SANDY SILT (ML), brown, (40% fine to coarse sand, 60% fines), loose, no odor, moderately plastic, strong reaction to 10% HCl.	
230	0900	<input type="checkbox"/>				SM	SILTY SAND (SM), brown, (40% fines, 60% fine to coarse angular sand), loose, no odor, slight to non plastic, weak reaction to 10% HCl.	
235	0915	<input type="checkbox"/>				ML-SM	SANDY SILT (ML), brown, (40% fine to coarse sand, 60% fines), loose, no odors, plastic, moderate reaction to 10% HCl.	
							SANDY SILT (ML) Increase sands.	
240								

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# LOG OF BORING WCP-48

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-48  
 Rig Type : Speed Star  
 Drilling Method : Mud Rotary

Field Geologist : R. Findlay  
 Total Depth : 301'  
 Initial GW Depth : NA  
 Static GW Depth : 117.45'  
 Installation Date(s) : 06/12/00 to 06/20/00

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
240	0930	<input type="checkbox"/>						
1100		<input type="checkbox"/>		100 50			SILTY SAND (SM), brown, (40% fines, 60% fine to coarse sand), loose, slight to non-plastic, no odor.	
245	1417	<input type="checkbox"/>	0.0			SM	SILTY SAND (SM), brown, (40% fines, 60% fine to coarse sand), loose, slightly plastic, no odor and moderate reaction to 10% HCl.	
250	1420	<input type="checkbox"/>	0.0				SILTY SAND (SM), light to moderate brown, (40% fines, 60% fine to coarse sand), slightly to moderately plastic, no odor and moderate to strong reaction to HCl.	
255	1423	<input type="checkbox"/>	0.0				SANDY SILT (ML), light to moderate brown, (50% fine to medium sand, 50% fines), loose, no odor, plastic, strong reaction to 10% HCl.	
260	1427	<input type="checkbox"/>	0.0			ML	SANDY SILT (ML), brown, (40% medium sand, 60% fines), loose, plastic, no odor, strong reaction to 10% HCl.	
265	1441	<input type="checkbox"/>	0.0				SANDY SILT (ML), brown, (35% medium sand, 65% fines), loose, plastic, no odor and strong reaction to 10% HCl.	
270								



# LOG OF BORING WCP-48

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-48  
 Rig Type : Speed Star  
 Drilling Method : Mud Rotary

Field Geologist : R. Findlay  
 Total Depth : 301'  
 Initial GW Depth : NA  
 Static GW Depth : 117.45'  
 Installation Date(s) : 06/12/00 to 06/20/00

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
270	1447	<input type="checkbox"/>	0.0			ML	SANDY SILT (ML), brown, (35% fine to medium sand, 65% fines), loose, plastic, no odor strong reaction to 10% HCl.	
275	1453	<input type="checkbox"/>	0.0			ML	SANDY SILT (ML), brown, (30% fine to medium sand, 70% fines), loose, plastic, no odor and strong reaction to 10% HCl.	
	1600	<input type="checkbox"/>		29 50		SM	Sand observed on tip of hydropunch and bailer.	
280							SANDY SILT (ML), brown, to light brown, (40% fine to medium sand, 60% fines), loose, plastic, no odor and strong reaction to 10% HCl.	
285	0915	<input type="checkbox"/>	0.0			ML	SANDY SILT (ML), brown, (40% fine to medium sand, 60% fines), loose, plastic, no odor and weak reaction to 10% HCl.	
290	0925	<input type="checkbox"/>	0.0				SANDY SILT (ML), brown, (40% fine to medium sand, 60% fines), loose, plastic no odor, and weak reaction to 10% HCl.	
295	0930	<input type="checkbox"/>	0.0				SANDY SILT (ML), brown, (40% fine to medium sand, 60% fines), loose, no odor, slightly plastic and moderate reaction to 10% HCl.	
	0935	<input type="checkbox"/>	0.0			ML-SM	SANDY SILT/ SILTY SAND (ML-SM), brown, (50% fine to coarse sand, 50% fines), loose, no odor, slightly plastic, and moderate reaction to 10% HCl.	
300	1100	<input type="checkbox"/>		40 49			Total Depth = 301' bgs	

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# LOG OF BORING WCP-83

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-83  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 150'  
Initial GW Depth : NA  
Static GW Depth : 119.1'  
Installation Date(s) : 01/22/01 to 01/23/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0747		0.0	5 5 8		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
10	0801		0.0	6 6 8		SM	SILTY SAND (SM), moderate brown, (80% fine-coarse, subround-angular sand, 20% fines), slightly moist, no odor, strong reaction to 10% HCl.	
15	0808		0.0	7 10 10		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
20	0817		0.0	12 12 13		SM	SILTY SAND (SM), moderate brown, (60% fine-grained sand, 40% fines), moist, no odor, strong reaction to 10% HCl.	
25	0825		0.0	7 9 8		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, moderate reaction to 10% HCl.	
30						SW	WELL-GRADED SAND (SW), moderate brown, (100% subangular-angular coarse-fine sand), slightly moist, no odor, strong reaction to 10% HCl.	

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# LOG OF BORING WCP-83

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-83  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 150'  
Initial GW Depth : NA  
Static GW Depth : 119.1'  
Installation Date(s) : 01/22/01 to 01/23/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0832		0.0	9 9 10		SW SM	SILTY SAND (SM), reddish brown, (80% fine-grained sand, 20% fines), slightly moist, no odor, strong reaction to 10% HCl.	
35	0845		0.0	10 11 11		SW	WELL-GRADED SAND (SW), moderate brown, (95% fine-coarse, subangular-angular sand, 5% fines), slightly moist, no odor, strong reaction to 10% HCl.	
40	0854		0.0	17 24 20		SM	SILTY SAND (SM), light brown, (65% fine-grained sand, 35% fines), slightly moist, no odor, slight reaction to 10% HCl.	
45	0905		0.0	21 23 23		SW	WELL-GRADED SAND with GRAVEL (SW), (75% fine-coarse, subangular-angular sand, 25% rounded-subrounded gravel), slightly moist, no odor, moderate reaction to 10% HCl.	
50	0915		0.0	29 50-6		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
55	0925		0.0	16 19 36		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
60								

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# LOG OF BORING WCP-83

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-83  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 150'  
 Initial GW Depth : NA  
 Static GW Depth : 119.1'  
 Installation Date(s) : 01/22/01 to 01/23/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0941		0.0	21 33 40		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, slight reaction to 10% HCl.	
65	0953		0.0	14 16 23		SW	WELL-GRADED SAND with GRAVEL (SW), (80% fine-coarse, subrounded-angular sand, 20% subrounded-round gravel), slightly moist, no odor, no reaction to 10% HCl.	
70	1005		0.0	17 18 24		SW	WELL-GRADED SAND with GRAVEL (SW), (85% fine-coarse, subrounded-angular sand, 15% fines), slightly moist, no odor, no reaction to 10% HCl.	
75	1020		0.0	36 50-5		SM	SILTY SAND (SM), light-moderate brown, (70% fine-coarse, subangular-angular sand, 30% fines), slightly moist, no odor, slight reaction to 10% HCl.	
80	1033		0.0	25 31 33		SM	SILTY SAND (SM), light-moderate brown, (70% fine-coarse sand, 30% fines), moist, no odor, no reaction to 10% HCl.	
85	1045		0.0	22 16 17		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine-coarse, subangular-angular sand), slightly moist, no odor, no reaction to 10% HCl.	
90						ML		

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# LOG OF BORING WCP-83

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Arizona Department of Environmental Quality VW&R	Project Number	: 20092-090-002	Field Geologist	: S. Kleinheider
	Project Location	: VW&R	Total Depth	: 150'
	Boring Number	: WCP-83	Initial GW Depth	: NA
	Rig Type	: CME 95	Static GW Depth	: 119.1'
	Drilling Method	: HSA	Installation Date(s)	: 01/22/01 to 01/23/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1104		0.0	28 40 50-5		ML	SANDY SILT (ML), moderate brown, (65% fines, 35% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
95	1200		0.0	41 50-5		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, moderate reaction to 10% HCl.	
100	1221		0.0	13 16 20		SM	SILTY SAND (SM), moderate brown, (65% fine-grained sand, 35% fines), moist, no odor, no reaction to 10% HCl.	
105	1233		0.0	14 20 23		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
110	1246		0.0	24 20 20		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
115	1302			7 7 10		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), moist-wet, no odor, no reaction to 10% HCl.	
120								

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# LOG OF BORING WCP-83

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-83  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 150'  
 Initial GW Depth : NA  
 Static GW Depth : 119.1'  
 Installation Date(s) : 01/22/01 to 01/23/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1316			15 16 20		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), wet, no odor, no reaction to 10% HCl.	
						SM	SILTY SAND (SM), moderate brown, (70% fine-coarse sand, 30% fines), wet, no odor, no reaction to 10% HCl.	
125	0747		0.0	22 26 28		ML	SILT with SAND (ML), moderate brown, (80% fines, 20% fine-grained sand), moist, no odor, slight reaction to 10% HCl.	
130	0806		0.0	18 18 50		SM	SILTY SAND (SM), moderate brown, (70% fine-coarse sand, 30% fines), wet, no odor, no reaction to 10% HCl.	
135	0827					SP	No Recovery. Sand and Gravel per driller.	
140						SP	POORLY-GRADED SAND (SP), (100% subangular-angular coarse sand), wet, no odor, no reaction to 10% HCl.	
145	0858			21 50 50-5		ML	SILT with SAND (ML), moderate brown, (75% fines, 25% fine-grained sand), wet, no odor, slight reaction to 10% HCl.	
						ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-coarse sand), wet, no odor, slight reaction to 10% HCl.	
150	0924			15 17 27			Total Depth = 150' bgs	

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# LOG OF BORING WCP-84

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-84  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 151'  
Initial GW Depth : NA  
Static GW Depth : 120'  
Installation Date(s) : 01/24/01 to 01/25/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0748		0.0	3 3 3		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), moist, no odor, moderate reaction to 10% HCl.	
						SP	POORLY-GRADED SAND (SP), moderate brown, (100% fine-grained sand), no odor, slight reaction to 10% HCl.	
10	0757		0.0	9 8 8			SILT with SAND (ML), moderate brown, (75% fines, 25% fine-grained sand), moist, no odor, moderate reaction to 10% HCl.	
15	0803		0.4	13 10 10			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
20	0811		0.0	7 9 11		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), moist, no odor, moderate reaction to 10% HCl.	
25	0817		0.0	5 5 6			SILT with SAND (ML), moderate brown, (80% fines, 20% fine-grained sand), moist, no odor, moderate reaction to 10% HCl.	
						SP		
30								

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# LOG OF BORING WCP-84

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-84  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : NA  
 Static GW Depth : 120'  
 Installation Date(s) : 01/24/01 to 01/25/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0824		0.4	7 8 8		SP	POORLY-GRADED SAND (SP), moderate brown, (100% fine-grained subrounded-subangular sand), slightly moist, no odor, no reaction to 10% HCl.	
35	0835		0.5	8 10 14		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-coarse subangular-angular sand), moist, no odor, strong reaction to 10% HCl.	
40	0845		0.0	18 24 38		SW	WELL-GRADED SAND with GRAVEL (SW), moderate-light brown, (75% fine-coarse subangular-angular sand, 25% subrounded-rounded gravel), slightly moist, no odor, moderate reaction to 10% HCl.	
45	0858		0.0	15 26 42		SW	WELL-GRADED SAND with GRAVEL (SW), light-moderate brown, gray, (85% fine-coarse subangular-angular sand, 15% subrounded gravel), dry-slightly moist, no odor, slight reaction to 10% HCl.	
50	0909		0.0	15 17 24		ML	SILT with SAND (ML), moderate brown, (80% fines, 20% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
55	0927		0.4	26 50-5		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, no odor, strong reaction to 10% HCl.	
60								

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# LOG OF BORING WCP-84

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-84  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : NA  
 Static GW Depth : 120'  
 Installation Date(s) : 01/24/01 to 01/25/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0934		0.0	15 15 15		ML	SILT with SAND (ML), moderate brown, (75% fines, 25% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
65	0950		0.2	29 26 50-5		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine-coarse, subround-subangular sand), slightly moist, no odor, strong reaction to 10% HCl.	
70	1005		0.0	39 50-5		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
75	1019		0.2	17 20 20		SP	POORLY-GRADED SAND (SP), moderate brown, (100% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
80	1031		0.0	12 12 15		SW	WELL-GRADED SAND (SW), moderate brown, (95% fine-coarse, subrounded-angular sand, 5% fines), slightly moist, no odor, moderate reaction to 10% HCl.	
85	1048		0.0	12 16 18		SM	SILTY SAND (SM), moderate brown, (80% fine-coarse sand, 20% fines), slightly moist, no odor, strong reaction to 10% HCl.	
90						ML	SILT with SAND (ML), moderate brown, (75% fines, 25% fine-grained sand), moist, no odor, no reaction to 10% HCl.	

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# LOG OF BORING WCP-84

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-84  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : NA  
 Static GW Depth : 120'  
 Installation Date(s) : 01/24/01 to 01/25/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1135		0.2	39 50-5			SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
95	1148		0.0	24 36 40			SILT with SAND (ML), moderate brown, (75% fines, 25% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
100	1202		0.5	26 50-5		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), moist, no odor, moderate-strong reaction to 10% HCl.	
105	1214		0.2	8 9 11			SILT with SAND (ML), moderate brown, (75% fines, 25% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
110	1229		0.0	9 11 13		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
						SP	POORLY-GRADED SAND (SP), (100% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
115	1246		0.4	16 19 21		ML	SILT with SAND (ML), moderate brown, (80% fines, 20% fine-grained sand), moist-wet, no odor, no reaction to 10% HCl.	
120								

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# LOG OF BORING WCP-84

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-84  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : NA  
 Static GW Depth : 120'  
 Installation Date(s) : 01/24/01 to 01/25/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1304		0.0	24 25 21		ML	SILT (ML), moderate brown, (95% fines, 5% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
125	1325		0.0	12 12 16		SM	SILTY SAND (SM), moderate brown, (90% fine-coarse, subrounded-angular sand, 10% fines), wet, no odor, no reaction to 10% HCl.	
130	0746					SM	no split spoon, flowing sands	
135	0752					SM	no split spoon, flowing sands	
140	0810			35 90-5		ML	SILT with SAND (ML), moderate brown, (90% fines, 10% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
145	0831			12 14 18		SM	SILTY SAND (SM), moderate brown, (90% fine-coarse, subround-subangular sand, 10% fines), wet, no odor, no reaction to 10% HCl.	
150	0855			16		SM	SILTY SAND (SM), moderate brown, (90% fine-coarse, subround-subangular sand, 10% fines), wet, no odor, no reaction to 10% HCl.	

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# LOG OF BORING WCP-84

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-84  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : NA  
 Static GW Depth : 120'  
 Installation Date(s) : 01/24/01 to 01/25/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0855			18 29		SM	Total Depth = 150' bgs	
155								
160								
165								
170								
175								
180								



# LOG OF BORING WCP-85

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-85  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151.5'  
 Initial GW Depth : NA  
 Static GW Depth : 121'  
 Installation Date(s) : 01/8/01 to 01/9/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0840		0.0	5 6 7			SILTY SAND (SM), light brown, (65% medium-coarse sand, 35% fines), slightly moist, no odor, dense, slight reaction to 10% HCl.	
10	0845		0.0	14 21 14		SM	SILTY SAND (SM), light brown, (70% medium-fine sand, 30% fines), slightly moist, loose, no odor, moderate reaction to 10% HCl.	
15	0850			5 6 5			SILTY SAND (SM), light brown, (70% medium-coarse, subangular sand, 15% fines, 15% gravel), slightly moist, loose, no odor, no reaction to 10% HCl.	
20	0900		0.0	12 18 20			SILTY SAND (SM), light brown, (65% medium-coarse sand, 35% fines), slightly moist, loose.	
25	0905		0.5	5 7 8		ML	SANDY SILT (ML), moderate brown, fine sandy silt, moist, loose, slight reaction to 10% HCl.	
30								

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# LOG OF BORING WCP-85

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-85  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151.5'  
 Initial GW Depth : NA  
 Static GW Depth : 121'  
 Installation Date(s) : 01/8/01 to 01/9/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0910		0.0	9 9 9		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% sand), slightly moist, loose, no odor, strong reaction to 10% HCl.	
35	0928		0.0	27 29 33		SM	SILTY SAND (SM), light-moderate brown, (75% sand, 15% fines, 10% gravel), slightly moist, no odor, slight-moderate reaction to 10% HCl.	
40	0935		0.6	7 8 9		SM	SILTY SAND (SM), light-moderate brown, (85% fine-coarse sand, 15% fines), loose, no odor, no reaction to 10% HCl.	
45	0941		0.0	18 30 27		SP	WELL-GRADED SAND with GRAVEL (SP), moderate brown, (80% fine-coarse angular sand, 15% subrounded gravel, 5% fines), loose, no odor, no reaction to 10% HCl.	
50	0955		0.0	10 10 11		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% sand), moist, no odor, no reaction to 10% HCl.	
55	1000		0.0	6 6 9		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% sand), moist, no odor, moderate reaction to 10% HCl.	
60						SM		

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# LOG OF BORING WCP-85

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-85  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151.5'  
 Initial GW Depth : NA  
 Static GW Depth : 121'  
 Installation Date(s) : 01/8/01 to 01/9/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	1006		0.0	17 17 19		SM	SILTY SAND (SM), light-moderate brown, (15% fines, 85% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
65	1017		0.0	17 20 29		SW-SM	WELL-GRADED SAND with SILT (SW-SM), light-moderate brown, (5% gravel, 85% subround-angular sand, 10% fines), moist, loose, no odor, no reaction to 10% HCl.	
70	1030		0.0	19 22 23		SW	WELL-GRADED SAND with GRAVEL (SW), light-moderate brown, (80% fine-coarse, subrounded-angular sand, 15% gravel, 5% fines), loose, moist, no odor, no reaction to 10% HCl.  Gravels per driller, some cobbles.	
75	1045		0.0	25 26 30		SM	SILTY SAND (SM), light brown, (5% gravel, 15% fines, 80% fine-grained sand), moist, loose, no odor, strong reaction to 10% HCl.	
80	1057		0.0	50-6		SM	SILTY SAND (SM), light brown, (5% gravel, 15% fines, 80% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
85	1143		0.0	28 50-5		ML	SANDY SILT (ML), light brown, (60% fines, 40% fine-grained sand), moist, firm, contains interbedded caliche, no odor, strong reaction to 10% HCl.	
90								

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# LOG OF BORING WCP-85

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-85  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 151.5'  
Initial GW Depth : NA  
Static GW Depth : 121'  
Installation Date(s) : 01/8/01 to 01/9/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1156		0.0	50-5			SANDY SILT (ML), light brown, (60% fines, 40% fine-grained sand), moist, firm, contains interbedded caliche, no odor, strong reaction to 10% HCl.	
95	1210		0.0	27 28 30			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), moist, firm, contains a 1" layer of caliche at 94' bgs, no odor, strong reaction to 10% HCl in caliche, no reaction in other locations.	
100	1226		0.0	20 9 8		ML	SILT with SAND (ML), moderate brown, (20% fine-grained sand, 80% fines), moist, firm, no odor, interbedded caliche layers, strong reaction to 10% HCl in caliche, no reaction elsewhere.	
105	1240		0.0	9 20 21			SILT with SAND (ML), moderate brown, (20% sand, 80% fines), moist, firm, no odor, no reaction to 10% HCl.	
110	1256		0.0	9 10 12			SILT with SAND (ML), moderate brown, (20% sand, 80% fines), moist, firm, no odor, no reaction to 10% HCl.	
115	1314		0.0	9 7 12		SP	POORLY-GRADED SAND (SP), moderate brown, (100% coarse-subangular to angular sand), moist, loose, no odor, no reaction to 10% HCl.	
						SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), moist, loose, no odor, no reaction to 10% HCl.	
						SW-SM		
120								

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# LOG OF BORING WCP-85

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-85  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 151.5'  
Initial GW Depth : NA  
Static GW Depth : 121'  
Installation Date(s) : 01/8/01 to 01/9/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1330		0.0	14 16 22		SW-SM	WELL-GRADED SAND with GRAVEL and SILT (SW-SM), moderate brown, (30% gravel, 60% subrounded-angular sand, 10% fines), saturated (wet), loose, no odor, no reaction to 10% HCl.	
125	0815			10 12 14		SM	SILTY SAND (SM), moderate brown, (70% sand, 30% fines), loose, wet, no odor, no reaction to 10% HCl.	
130	0827			10 16 21		SM	SILTY SAND (SM), moderate brown, (75% fine-coarse, subrounded-angular sand, 25% fines), loose, saturated, no odor, no reaction to 10% HCl.	
135	0846		0.0	19 18 20		SP	POORLY-GRADED SAND (SP), moderate brown, (100% coarse-grained sand), loose, no odor, no reaction to 10% HCl.	
140	0918			16 18 27		SP	No Description, (bad recovery, sand in auger.)	
145							No Description	
150						ML	SANDY SILT (ML), moderate brown, (65% fines, 35% sand), moist, firm, no odor, no reaction to 10% HCl.	

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# LOG OF BORING WCP-85

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-85  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151.5'  
 Initial GW Depth : NA  
 Static GW Depth : 121'  
 Installation Date(s) : 01/8/01 to 01/9/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	1005		0.2	17 24 29		ML	Total Depth = 151.5' bgs	
155								
160								
165								
170								
175								
180								



# LOG OF BORING WCP-86

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-86  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : 120.8'  
 Static GW Depth : 119.9'  
 Installation Date(s) : 01/10/01 to 01/11/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0832		0.0	2 3 4		SM	SILTY SAND (SM), moderate brown, (60% fine-coarse, subrounded-angular sand, 40% fines), slightly moist, no odor, loose, moderate reaction to 10% HCl.	
10	0841		0.0	7 7 8		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, no odor, firm, moderate reaction to 10% HCl.	
15	0848		0.0	7 8 8		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, no odor, firm, strong reaction to 10% HCl.	
20	0853		0.0	6 8 8		SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), slightly moist, no odor, no reaction to 10% HCl.	
25	0900		0.0	13 14 17		SM	SILTY SAND (SM), moderate brown, (80% fine-grained sand, 20% fines), slightly moist, no odor, no reaction to 10% HCl.	
30						SW		

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# LOG OF BORING WCP-86

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-86  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : 120.8'  
 Static GW Depth : 119.9'  
 Installation Date(s) : 01/10/01 to 01/11/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0906		0.0	12 14 15		SW	WELL-GRADED SAND with GRAVEL (SW), light-moderate brown, (15% gravel, 5% fines, 80% fine-coarse, subangular-angular sand), slightly moist, no odor, no reaction to 10% HCl.	
35	0914		0.0	6 6 6		SM	SILTY SAND (SM), light-moderate brown, (70% fine-grained sand, 30% fines), slightly moist, no odor, no reaction to 10% HCl.	
40	0923		0.0	15 22 30		ML	SANDY SILT (ML), moderate brown, (55% fines, 10% subrounded gravel, 35% fine-coarse, subangular-angular sand), slightly moist, no odor, strong reaction to 10% HCl.	
45	0935		0.0	22 26 36		ML	SANDY SILT (ML), light-moderate brown, (65% fines, 35% fine-coarse, subrounded sand), firm, slightly moist, no odor, strong reaction to 10% HCl.	
50	0946		0.0	30 32 34		SW	WELL-GRADED SAND with GRAVEL (SW), light-moderate brown, (15% subrounded gravel, 5% fines, 80% fine-coarse subangular-angular sand), slightly moist, no odor, slight reaction to 10% HCl.	
55	0957		0.0	33 50-6		SW	WELL-GRADED SAND with GRAVEL (SW), light-moderate brown, (25% subrounded-rounded gravel, 5% fines, 70% fine-coarse subangular-angular sand), slightly moist, no odor, no reaction to 10% HCl.	
						GW	WELL-GRADED GRAVEL with SAND (GW), (60% subround-round gravel, 40% coarse, subround-round sand), slightly moist, no odor, no reaction to 10% HCl.	
						SM	Gravel up to 3" in diameter.	
60								

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# LOG OF BORING WCP-86

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-86  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : 120.8'  
 Static GW Depth : 119.9'  
 Installation Date(s) : 01/10/01 to 01/11/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	1011		0.0	38 50-5		SM	SILTY SAND (SM), moderate brown, (60% fine-grained sand, 40% fines), firm, slightly moist, no odor, no reaction to 10% HCl.	
65	1025		0.0	24 30 36		SM	SILTY SAND (SM), moderate brown, (60% fine-coarse, subrounded-angular sand, 40% fines), slightly moist, no odor, strong reaction to 10% HCl.	
70	1036		0.0	12 13 21		ML	SANDY SILT (ML), moderate brown, (65% fines, 35% fine-coarse, subround sand), moist, firm, no odor, no reaction to 10% HCl.	
75	1048		0.0	15 18 21		SW	WELL-GRADED SAND (SW), light-moderate brown, (5% subrounded gravel, 95% fine-coarse, subround-angular sand), moist, no odor, no reaction to 10% HCl.	
80	1101		0.0	17 17 18		SW	WELL-GRADED SAND (SW), light-moderate brown, (100% fine-coarse subrounded-angular sand), slightly moist, no odor, no odor	
85	1206		0.0	31 32 40		ML	SANDY SILT (ML), moderate brown, (55% fines, 45% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
90								

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# LOG OF BORING WCP-86

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-86  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : 120.8'  
 Static GW Depth : 119.9'  
 Installation Date(s) : 01/10/01 to 01/11/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1219		0.0	30 50-5		ML	SANDY SILT (ML), moderate brown, (55% fines, 45% fine-grained sand), slightly moist, no odor, strong reaction to 10% HCl.	
95	1238		0.0	20 22 26		SM	SILTY SAND (SM), moderate brown, (80% fine-grained sand, 20% fines), moist, no odor, no reaction to 10% HCl.	
100	1255		0.0	13 14 20			SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), moist, no odor, no reaction to 10% HCl. Caliche layer: 1"	
105	1311		0.0	23 50-5			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), moist, firm, no odor, strong reaction to 10% HCl. Contains interbedded layers of caliche.	
110	1327		0.0	22 26 28		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, firm, no odor, no reaction to 10% HCl, except in interbedded caliche layers (strong reaction). Interbedded caliche.	
115	1346		0.0	18 19 21			SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), dry to slightly moist, no odor, strong reaction to 10% HCl. Interbedded caliche.	
120								

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# LOG OF BORING WCP-86

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-86  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : 120.8'  
 Static GW Depth : 119.9'  
 Installation Date(s) : 01/10/01 to 01/11/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1403		0.0	10 12 12		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), wet, no odor, no reaction to 10% HCl.	
125	1420		0.0	12 14 20		SM	SILTY SAND (SM), moderate brown, (85% fine-coarse, subrounded-angular sand, 15% fines), saturated, no odor, no reaction to 10% HCl.	
130	0803		0.0	9 12 14			SILT with SAND (ML), moderate brown, (75% fines, 25% fine-grained sand), wet, firm, no odor, no reaction to 10% HCl.	
135	0825		0.0	24 30 26		ML	SILT with SAND (ML), light brown, (85% fines, 15% fine-grained sand), dry, firm to hard, no odor, strong reaction to 10% HCl.	
140	0848		0.0	19 21 27			SILT with SAND (ML), light brown, (85% fines, 15% sand), dry to nearly dry, firm to hard, no odor, moderate reaction to 10% HCl.	
145	0915		0.0	14 14 20			SILT with SAND (ML), moderate brown, (80% fines, 20% sand), moist, firm, no odor, little reaction to 10% HCl.	
150	0945		0.0	18		SM	SILTY SAND (SM), moderate brown, (65% sand, 35% fines), wet, no odor, no reaction to 10% HCl.	

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# LOG OF BORING WCP-86

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-86  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : 120.8'  
 Static GW Depth : 119.9'  
 Installation Date(s) : 01/10/01 to 01/11/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0945		0.0	24 26		SM	Total Depth = 151' bgs	
155								
160								
165								
170								
175								
180								



# LOG OF BORING WCP-87

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-87  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 153'  
 Initial GW Depth : NA  
 Static GW Depth : 121.5'  
 Installation Date(s) : 01/26/01 to 01/29/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0753		0.0	5 6 10		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine sand), slightly moist, no odor, strong reaction to 10% HCl.	
10	0800		0.0	4 5 5		SM	SILTY SAND (SM), moderate brown, (65% fine-grained sand, 35% fines), moist, no odor, strong reaction to 10% HCl.	
15	0806		0.0	6 6 8		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
20	0812		0.0	10 10 12		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
25	0818		0.0	8 9 9		SP	POORLY -GRADED SAND (SP), moderate brown, (95% fine-grained sand, 5% fines), moist, no odor, no reaction to 10% HCl.	
						ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
						SM		
30								

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# LOG OF BORING WCP-87

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-87  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 153'  
 Initial GW Depth : NA  
 Static GW Depth : 121.5'  
 Installation Date(s) : 01/26/01 to 01/29/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0825		0.0	6 6 7			SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), moist, no odor, strong reaction to 10% HCl.	
35	0833		0.0	8 8 8		SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), moist, no odor, strong reaction to 10% HCl.	
40	0841		0.0	10 12 16			SILTY SAND (SM), moderate-light brown, (60% fine-coarse, subangular-angular sand, 40% fines), dry, no odor, strong reaction to 10% HCl.	
45	0852		0.0	18 32 44		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
50	0900		0.0	20 22 23			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-coarse, subrounded-subangular sand), slightly moist, no odor, strong reaction to 10% HCl.	
55	0909		0.0	20 50-5		SW	WELL-GRADED SAND with GRAVEL (SW), (60% fine-coarse, subround-angular sand, 40% subrounded-round gravel), dry, no odor, moderate-strong reaction to 10% HCl.	
60								

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# LOG OF BORING WCP-87

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-87  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 153'  
 Initial GW Depth : NA  
 Static GW Depth : 121.5'  
 Installation Date(s) : 01/26/01 to 01/29/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0929		0.0	42 25 23		SW	WELL-GRADED SAND with GRAVEL (SW), (85% fine-coarse, subround-angular sand, 15% subround-round gravel), dry, no odor, slight reaction to 10% HCl.	
65	0940		0.0	31 50-6		ML	SILT with SAND (ML), moderate brown, (80% fines, 20% fine-grained sand), slightly moist, no odor, strong reaction to 10% HCl.	
70	0950		0.0	16 29 30		SM	SILTY SAND (SM), moderate brown, (80% fine-grained sand, 20% fines), slightly moist, no odor, slight reaction to 10% HCl.	
75	1003		0.0	42 50-6		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), dry, no odor, strong reaction to 10% HCl.	
80	1015			14 16 50-5		SP	POORLY-GRADED SAND (SP), light-moderate brown, (100% fine-grained sand), slightly moist, no odor, no reaction to 10% HCl.	
85						ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
90						SM		

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# LOG OF BORING WCP-87

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-87  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 153'  
 Initial GW Depth : NA  
 Static GW Depth : 121.5'  
 Installation Date(s) : 01/26/01 to 01/29/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1320		0.0	26 29 40		SM	SILTY SAND (SM), light brown, (80% fine-grained sand, 20% fines), dry, no odor, strong reaction to 10% HCl. Some caliche present.	
95	1329		0.0	31 28 26		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
100	1345		0.0	19 16 15		CL	LEAN CLAY (CL), moderate brown, (95% fines, 5% fine sand), very moist, medium-high dry strength, no dilatancy, medium toughness, no odor, no reaction to 10% HCl.	
						SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), no odor, no reaction to 10% HCl.	
105	1401		0.0	20 20 32		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), no odor, strong reaction to 10% HCl.	
110	1422			12 15 20		SP	POORLY-GRADED SAND (SP), moderate brown, (95% fine-grained sand, 5% fines), moist, no odor, no reaction to 10% HCl.	
115	1433		0.0	50-6		ML	SANDY SILT (ML), moderate-light brown, gray, (70% fines, 30% fine-grained sand), slightly moist, no odor, strong reaction to 10% HCl.	
						SW		
120								

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# LOG OF BORING WCP-87

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-87  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 153'  
Initial GW Depth : NA  
Static GW Depth : 121.5'  
Installation Date(s) : 01/26/01 to 01/29/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1448		0.0	10 12 12		SW	WELL-GRADED SAND (SW), moderate brown, (100% sand), moist, no odor, no reaction to 10% HCl.	
125	1507		0.0	13 16 23		SM	SILTY SAND (SM), moderate brown, (85% fine-grained sand, 15% fines), wet, no odor, no reaction to 10% HCl.	
130	0813		2.1	18 21 26		ML	SILT with SAND (ML), moderate brown, (95% fines, 5% fine-grained sand), slightly moist-moist, no odor, strong reaction to 10% HCl.	
135	0834		11.3	16 27 34		SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), wet, no odor, no reaction to 10% HCl.	
140	0854		1.5	10 12 16		ML	SILT with SAND (ML), moderate brown, (95% fines, 5% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
145	0918		0.4	9 12 15		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, no reaction to 10% HCl.	
150								

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# LOG OF BORING WCP-87

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-87  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 153'  
 Initial GW Depth : NA  
 Static GW Depth : 121.5'  
 Installation Date(s) : 01/26/01 to 01/29/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0940			31 40 50-5		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, no reaction to 10% HCl.  Total Depth = 153' bgs	
155								
160								
165								
170								
175								
180								



# LOG OF BORING WCP-88

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-88  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 152.5'  
Initial GW Depth : NA  
Static GW Depth : 120.8'  
Installation Date(s) : 01/30/01 to 01/31/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	1002		0.0	3 3 4		ML	SILT with SAND (ML), moderate brown, (95% fines, 5% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
10	1010		0.0	3 3 5		SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), slightly moist, no odor, strong reaction to 10% HCl.	
15	1015		0.0	7 8 10		ML	SILT (ML), moderate brown, (95% fines, 5% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
20	1020		0.0	5 5 6		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist-slightly moist, no odor, strong reaction to 10% HCl.	
25	1027		0.0	5 5 5		SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), moist, no odor, strong reaction to 10% HCl.	
30						ML		

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# LOG OF BORING WCP-88

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-88  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 152.5'  
 Initial GW Depth : NA  
 Static GW Depth : 120.8'  
 Installation Date(s) : 01/30/01 to 01/31/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	1033		0.0	8 11 15		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% sand), moist, no odor, strong reaction to 10% HCl.	
35	1041		0.0	10 10 10		SW	WELL-GRADED SAND (SW), light-moderate brown, (100% fine-coarse subrounded-angular sand), slightly moist, no odor, strong reaction to 10% HCl.	
40	1050		0.0	11 14 16		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
45	1059		0.0	20 30 33		SM	SILTY SAND (SM), light brown-gray, (80% fine-coarse, subangular-angular sand, 20% fines), dry, no odor, strong reaction to 10% HCl.	
50	1107		0.0	38 50-6		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), dry-slightly moist, no odor, strong reaction to 10% HCl.	
55	1118		0.0	18 35 40		ML	SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), slightly moist, no odor, moderate reaction to 10% HCl.	
60						SW		

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# LOG OF BORING WCP-88

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-88  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 152.5'  
Initial GW Depth : NA  
Static GW Depth : 120.8'  
Installation Date(s) : 01/30/01 to 01/31/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	1128		0.0	20 36 21		SW	WELL-GRADED SAND with GRAVEL (SW), light brown, (70% fine-coarse, subrounded-subangular sand, 30% fine subrounded gravel), dry-slightly moist, no odor, strong reaction to 10% HCl.	
65	1138		0.0	19 50-5		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), dry, no odor, strong reaction to 10% HCl.	
70	1149		0.0	50-5		SM	SILTY SAND (SM), moderate brown, (60% fine-grained sand, 40% fines), slightly moist, no odor, strong reaction to 10% HCl.	
75	1159		0.0	15 18 21		SW	WELL-GRADED SAND with GRAVEL (SW), reddish brown, (85% fine-coarse subangular-angular sand, 15% fine-medium, well-rounded gravel), slightly moist, no odor, no reaction to 10% HCl.	
80	1212		0.0	24 29 38		ML	SILT with SAND (ML), light-moderate brown, (85% fines, 15% fine-grained sand), slightly moist-moist, no odor, strong reaction to 10% HCl.	
						SP	POORLY-GRADED SAND (SP), light brown, (100% fine-grained sand), slightly moist, no odor, no reaction to 10% HCl.	
85	1223		0.0	10 10 13		ML	SILT (ML), moderate brown, (95% fines, 5% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
						SP	POORLY-GRADED SAND (SP), light brown, (100% fine-grained sand), slightly moist, no odor, no reaction to 10% HCl.	
						ML	SILT (ML), moderate brown, (100% fines), moist, no odor, no reaction to 10% HCl.	
90								

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# LOG OF BORING WCP-88

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-88  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 152.5'  
Initial GW Depth : NA  
Static GW Depth : 120.8'  
Installation Date(s) : 01/30/01 to 01/31/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1235		0.0	9 9 11		ML SM	SILTY SAND (SM), moderate brown, (60% fine-grained sand, 40% fines), moist, no odor, no reaction to 10% HCl.	
95	1250		0.0	11 16 19		SW	WELL-GRADED SAND (SW), light-moderate brown, (95% fine-coarse, subrounded-angular sand, 5% subrounded-subangular fine-medium gravel), slightly moist, no odor, no reaction to 10% HCl.	
100	1305		0.0	41 50-5		SW	WELL-GRADED SAND (SW), light-moderate brown, (90% fine-coarse, subrounded-angular sand, 10% subrounded-subangular medium-coarse gravel), dry, no odor, strong reaction to 10% HCl.	
105	1321		0.0	18 22 25		SP SW	POORLY-GRADED SAND (SP), light-moderate brown, (100% fine-grained sand), moist, no odor, no reaction to 10% HCl. WELL-GRADED SAND (SW), light-moderate brown, (100% fine-coarse, subrounded-angular sand), slightly moist-moist, no odor, no reaction to 10% HCl.	
110	1333		0.0	15 16 18		ML	SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
115	1403		0.0	8 9 17		SW	WELL-GRADED SAND (SW), moderate-reddish brown, (95% fine-coarse, subrounded sand, 5% fines), slightly moist, no odor, no reaction to 10% HCl.	
120						ML		

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# LOG OF BORING WCP-88

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-88  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 152.5'  
 Initial GW Depth : NA  
 Static GW Depth : 120.8'  
 Installation Date(s) : 01/30/01 to 01/31/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1420		0.0	16 18 28		ML	SANDY SILT (ML), moderate brown-light brown, (70% fines, 30% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
125	1441		0.0	12 14 23		SM	SILTY SAND (SM), moderate brown, (85% fine-grained sand, 15% fines), moist to nearly wet, no odor, no reaction to 10% HCl.	
130	1505		0.0	10 12 14		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), wet, no odor, no reaction to 10% HCl.	
135	0802		0.0	10 10 12		SW	WELL-GRADED SAND (SW), light brown, (100% fine-coarse, subrounded-angular sand), wet, no odor, no reaction to 10% HCl.	
140								
145								
150						ML		

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# LOG OF BORING WCP-88

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-88  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 152.5'  
 Initial GW Depth : NA  
 Static GW Depth : 120.8'  
 Installation Date(s) : 01/30/01 to 01/31/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0905		0.0	21 23 26		ML	ML? Total Depth = 152.5' bgs	
155								
160								
165								
170								
175								
180								

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# LOG OF BORING WCP-89

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-89  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 155'  
 Initial GW Depth : NA  
 Static GW Depth : 122.9'  
 Installation Date(s) : 02/1/01 to 02/2/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0809		0.0	3 3 3		ML	SILT (ML), moderate-dark brown, (100% fines), moist, no odor, strong reaction to 10% HCl.	
10	0819		0.0	4 5 4		SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), slightly moist, no odor, slight reaction to 10% HCl.	
15	0825		0.0	4 4 4		ML	SILT (ML), moderate brown, (95% fines, 5% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
20	0832		0.0	5 6 6		SP	POORLY-GRADED SAND (SP), moderate brown, (95% fine-grained sand, 5% fines), moist, no odor, no reaction to 10% HCl.	
25	0839		0.0	11 11 13		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine-coarse, subrounded-angular sand), moist, no odor, no reaction to 10% HCl.	
30						ML		

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# LOG OF BORING WCP-89

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-89  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 155'  
 Initial GW Depth : NA  
 Static GW Depth : 122.9'  
 Installation Date(s) : 02/1/01 to 02/2/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0845		0.0	7 8 11		ML	SILT (ML), moderate brown, (95% fines, 5% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
						SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), moist, no odor, strong reaction to 10% HCl.	
35	0853		0.0	6 10 10		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine-coarse, subrounded-angular sand), moist, no odor, moderate reaction to 10% HCl.	
40	0901		0.0	9 16 12		SM	SILTY SAND (SM), moderate brown, (80% fine-coarse, subrounded-subangular sand, 20% fines), slightly moist, no odor, strong reaction to 10% HCl.	
45	0910		0.0	25 35 33		ML	SANDY SILT (ML), light brown, (65% fines, 35% fine-grained sand), dry-slightly moist, no odor, strong reaction to 10% HCl.	
50	0919		0.0	10 12 18		ML	SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
55	0930			22 22 28		SW	WELL-GRADED SAND (SW), (100% fine-coarse, subrounded-rounded sand), dry, no odor, no reaction to 10% HCl.	
60								

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# LOG OF BORING WCP-89

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Arizona Department of Environmental Quality VW&R	Project Number	: 20092-090-002	Field Geologist	: S. Kleinheider
	Project Location	: VW&R	Total Depth	: 155'
	Boring Number	: WCP-89	Initial GW Depth	: NA
	Rig Type	: CME 95	Static GW Depth	: 122.9'
	Drilling Method	: HSA	Installation Date(s)	: 02/1/01 to 02/2/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0938		0.0	34 50-6		SW	WELL-GRADED SAND with GRAVEL (SW), (50% fine-coarse, subrounded-subangular sand, 50% rounded-subrounded gravel), dry, no odor, no reaction to 10% HCl.	
65	0950		0.0	16 16 19		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
70	1003		0.0	15 21 25		SW	WELL-GRADED SAND with GRAVEL (SW), (80% fine-coarse, subrounded-subangular sand, 15% fine-coarse subrounded-rounded gravel, 5% fines), slightly moist, no odor, no reaction to 10% HCl.	
75	1014		0.0	28 50-6		SW	WELL-GRADED SAND with GRAVEL (SW), (80% fine-coarse, subrounded-subangular sand, 15% fine-coarse subrounded-rounded gravel, 5% fines), dry, no odor, no reaction to 10% HCl.	
80	1031		0.0	12 32 41		ML	SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), moist, no odor, moderate reaction to 10% HCl.	
85	1045		0.0	15 24 36		ML	SANDY SILT (ML), moderate brown, (65% fines, 35% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
90						SP		

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# LOG OF BORING WCP-89

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-89  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 155'  
 Initial GW Depth : NA  
 Static GW Depth : 122.9'  
 Installation Date(s) : 02/1/01 to 02/2/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1100		0.0	15 20 21		SP	POORLY-GRADED SAND (SP), (100% fine-grained sand), slightly moist, no odor, moderate reaction to 10% HCl.	
95	1115		0.0	29 50-5		SW	WELL-GRADED SAND with GRAVEL (SW), light-moderate brown, (85% fine-coarse, subrounded-angular sand, 15% medium rounded gravel), dry, no odor, strong reaction to 10% HCl.	
100	1133		0.0	10 10 13		SM	SILTY SAND (SM), moderate brown, (85% fine-grained sand, 15% fines), moist, no odor, no reaction to 10% HCl.	
105	1149		0.0	14 18 27		CL	LEAN CLAY (CL), moderate-dark brown, (95% fines, 5% sand), moist, tough, high plasticity, no odor, strong reaction to 10% HCl.	
110	1236		0.0	22 50-6		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), dry-slightly moist, no odor, strong reaction to 10% HCl.	
115	1253		0.0	12 12 18		SP	POORLY-GRADED SAND (SP), moderate brown, (100% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
120						SW		

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# LOG OF BORING WCP-89

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-89  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 155'  
 Initial GW Depth : NA  
 Static GW Depth : 122.9'  
 Installation Date(s) : 02/1/01 to 02/2/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1307		0.0	10 10 13		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine-coarse, subrounded-rounded sand), moist, no odor, no reaction to 10% HCl.	
125	1330		0.0	22 39 50-4		ML	SILT (ML), moderate-dark brown, (100% fines), moist, no odor, slight reaction to 10% HCl.	
130	1350			10 25 28		SW	WELL-GRADED SAND (SW), moderate brown, (100% medium-coarse sand), wet, no odor, no reaction to 10% HCl.	
135	0755			31 44 46		ML	SILT (ML), moderate brown, (100% fines), slightly moist-moist, no odor, moderate reaction to 10% HCl.	
140	0813					SP	POORLY-GRADED SAND (SP), (100% coarse, subrounded-subangular sand), some gravel, wet, no odor, no reaction to 10% HCl.	
145	0826			17 21 29		SM	SILTY SAND (SM), moderate brown, (60% fine-grained sand, 40% fines), wet, no odor, no reaction to 10% HCl.	
150								

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# LOG OF BORING WCP-89

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-89  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 155'  
 Initial GW Depth : NA  
 Static GW Depth : 122.9'  
 Installation Date(s) : 02/1/01 to 02/2/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0840					SM	No recovery, (possible flowing sands.)	
155	0859					ML	No recovery-fine-grained Total Depth = 155' bgs	
160								
165								
170								
175								
180								

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# LOG OF BORING WCP-90

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-90  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 160'  
 Initial GW Depth : NA  
 Static GW Depth : 127'  
 Installation Date(s) : 01/17/01 to 01/18/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	1314		0.0	2 3 3		SP	POORLY-GRADED SAND (SP), moderate brown, (95% fine-grained, subrounded-angular sand, 5% fines), moist, no odor, no reaction to 10% HCl.	
10	1322		0.0	4 5 6		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
15	1328		0.0	9 11 10		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), moist, no odor, strong reaction to 10% HCl.	
20	1337		2.3	7 8 12		SM	SILTY SAND (SM), light-moderate brown, (75% fine-grained sand, 25% fines), slightly moist, no odor, moderate reaction to 10% HCl.	
25	1343		0.0	10 11 11		SP	POORLY-GRADED SAND (SP), light-moderate brown, (95% fine-grained sand, 5% fines), dry, no odor, strong reaction to 10% HCl.	
30						SM		

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# LOG OF BORING WCP-90

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-90  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 160'  
 Initial GW Depth : NA  
 Static GW Depth : 127'  
 Installation Date(s) : 01/17/01 to 01/18/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	1352		0.0	7 8 8		SM	SILTY SAND (SM), light-moderate brown, (70% fine-grained sand, 30% fines), dry, no odor, strong reaction to 10% HCl.	
35	1400		0.0	50-5		ML	SANDY SILT (ML), light brown, (65% fines, 35% fine-grained sand), dry, firm, no odor, strong reaction to 10% HCl.	
40	1412		0.0	31 50-5		SW	WELL-GRADED SAND with GRAVEL (SW), light brown, (80% fine-coarse subrounded-angular sand, 20% gravel), dry, no odor, moderate reaction to 10% HCl.	
45	1421		0.0	12 14 17		SW	WELL-GRADED SAND (SW), light brown, (95% fine-coarse subrounded-angular sand, 5% gravel), dry, no odor, no reaction to 10% HCl.	
50	1432		0.0	10 12 19		SW	WELL-GRADED SAND (SW), light brown, (95% fine-coarse, subrounded-angular sand, 5% gravel), dry, no odor, no reaction to 10% HCl.	
55	1444		0.0	36 50-5		ML	SANDY SILT (ML), moderate brown, (65% fines, 35% fine-grained sand), slightly moist, no odor, strong reaction to 10% HCl.	
60						GW	WELL-GRADED GRAVEL with COBBLES (GW), (25% cobbles, 60% gravel, 15% sand).	

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# LOG OF BORING WCP-90

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-90  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 160'  
 Initial GW Depth : NA  
 Static GW Depth : 127'  
 Installation Date(s) : 01/17/01 to 01/18/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	1456		0.0	38 50-5		SW	WELL-GRADED SAND (SW), (100% fine-coarse, subangular-angular sand), dry, no odor, no reaction to 10% HCl.	
65	1508		0.0	41 50-6		SW	WELL-GRADED SAND with GRAVEL and COBBLES (SW), light brown-gray, 25% gravel, 25% cobbles, 50% fine-coarse subrounded-angular sand, dry, no odor, moderate reaction to 10% HCl.	
70	1520		0.0	21 50-5		ML	SANDY SILT (ML), light brown, (60% fines, 40% fine-grained sand), dry, no odor, strong reaction to 10% HCl.	
75	1531		0.0	16 28 29		SW	WELL-GRADED SAND (SW), (100% fine-coarse, subrounded-angular sand), dry, no odor, no reaction to 10% HCl.	
80	0740		0.0	12 12 16		SW	WELL-GRADED SAND (SW), (100% fine-coarse, subrounded-angular sand), dry, no odor, no reaction to 10% HCl.	
85	0750		0.8	32 50-4		ML	SANDY SILT (ML), moderate brown, (65% fines, 35% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
90								

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# LOG OF BORING WCP-90

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-90  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 160'  
 Initial GW Depth : NA  
 Static GW Depth : 127'  
 Installation Date(s) : 01/17/01 to 01/18/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	0802		0.3	50-4			SANDY SILT (ML), moderate brown-light gray, (70% fines, 30% fine-grained sand), moist, no odor, strong reaction to 10% HCl. Caliche layer: 2-3"	
95	0817		0.0	11 12 19			SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
100	0838		0.0	12 12 12		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
105	0854		0.0	4 6 11			SANDY SILT (ML), moderate brown, (65% fines, 35% fine-grained sand), moist, no odor, no reaction to 10% HCl.	
110	0909		0.7	11 11 26		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine-coarse, subrounded-subangular sand), moist, no odor, no reaction to 10% HCl.	
115	0924		0.0	37 50-6		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, moderate reaction to 10% HCl.	
120						SW		

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# LOG OF BORING WCP-90

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-90  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 160'  
 Initial GW Depth : NA  
 Static GW Depth : 127'  
 Installation Date(s) : 01/17/01 to 01/18/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	0943		0.0	14 14 19		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine-coarse, subrounded-angular sand), moist, no odor, no reaction to 10% HCl.	
125	1000		0.6	12 14 17		SM	SILTY SAND (SM), moderate brown, (85% fine-coarse, subrounded-angular sand, 15% fines), moist, no odor, no reaction to 10% HCl.	
130	1020			16 28 35		SP	POORLY-GRADED SAND (SP), (100% coarse rounded to subangular sand), wet, no odor, no reaction to 10% HCl.	
135						SP	no recovery (possible flowing sands)	
140						SP	no recovery (possible flowing sands)	
145						ML	SILT (ML), fine-grained material per driller. No split-spoon collected.	
150								

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# LOG OF BORING WCP-90

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-90  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 160'  
 Initial GW Depth : NA  
 Static GW Depth : 127'  
 Installation Date(s) : 01/17/01 to 01/18/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150								
155						ML		-
160							Total Depth = 160' bgs	
165								
170								
175								
180								



# LOG OF BORING WCP-92

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-92  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 151'  
 Initial GW Depth : 120'  
 Static GW Depth : 117.2'  
 Installation Date(s) : 7/16/01 to 7/17/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0							Asphalt & basecourse 12".	
5	0610		0.0	3 3 5			SANDY SILT (ML), moderate brown, (40% sand, 60% fines), moist, loose, slightly plastic, no odor, slight reaction to HCl.	
10	0620		0.0	4 4 5		ML	SANDY SILT (ML), moderate brown, (40% sand, 60% fines), moist, loose, slightly plastic, no odor, moderate reaction to HCl.	
15	0635		0.0	4 4 4			SANDY SILT (ML), moderate to light brown, (50% sand, 50% fines), slightly moist, loose, slight to non plastic, no odor, moderate reaction to HCl.	
20	0642		0.0	6 6 6			SANDY SILT (ML), moderate to light brown, (45% sand, 55% fines), slightly moist, loose, slightly plastic, no odor, strong reaction to HCl.	
25	0648		0.0	3 4 4		ML-CL	SANDY SILT/ SANDY CLAY (ML-CL), (35% fine graded sand, 65% fines), wet, loose, plastic, no odor, slight reaction to HCl.	
30						SM		

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# LOG OF BORING WCP-92

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-92  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 151'  
 Initial GW Depth : 120'  
 Static GW Depth : 117.2'  
 Installation Date(s) : 7/16/01 to 7/17/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0655		5.1	9 9 10		SM	SILTY SAND (SM), light reddish brown, (30% fines, 70% fine to coarse angular sand), slightly moist, loose, non plastic, no odor, slight reaction to HCl.	
35	0700		1.5	7 9 10		ML	SANDY SILT (ML), fine, moderate brown, (40% sand, 60% fines), slightly moist, loose, slightly plastic, no odor and slight reaction to HCl.	
40	0708		7.0	10 12 13			SANDY SILT (ML), (50% fines, 50% fine-grained sand), slightly moist, moderately loose, no odor, strong reaction to HCl.	
45	0717		3.3	12 15 16			SANDY SILT (ML), (50% fine-grained sand, 50% fines), slightly moist, moderately loose, layers with increased sand, no odor, moderate reaction to HCl.	
50	0730		6.2	18 19 22		SM	SILTY SAND (SM), (45% fines, 55% sand), slightly moist, moderately dense, no odor, strong reaction to HCl.	
55	0737		10.5	36 50-5		SM	SILTY SAND (SM), moderate to light brown, (45% fines, 55% sand), slightly moist, dense, moderately sorted non plastic, no odor, strong reaction to HCl.	
60								

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# LOG OF BORING WCP-92

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-92  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 151'  
 Initial GW Depth : 120'  
 Static GW Depth : 117.2'  
 Installation Date(s) : 7/16/01 to 7/17/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0750		10.4	50-5		SM	SILTY SAND (SM), light brown, (45% fines, 55% sand), slightly moist, very dense, non plastic, no odor, strong reaction to HCl.	
65	0800		8.0	37 50-4			SANDY SILT (ML), light brown, (40% fine to coarse sand, 60% fines), slightly moist, very dense, slightly plastic, no odor, strong reaction to HCl.	
70	0815		6.4	8 19 23			SANDY SILT (ML), moderate to light brown, (40% fine to coarse sand, 60% fines), slightly moist, moderately dense, no odor, moderate reaction to HCl.	
75	0830		9.0	28 50-4		ML	SANDY SILT (ML), light brown and gray brown, (40% fine to coarse sand, 60% fines), slightly moist, moderately dense, no odor, strong reaction to HCl.	
80	0840		0.0	10 10 14			SANDY SILT (ML), moderate brown, (35% sand, 65% fines), slightly moist, moderately loose, slightly plastic, no odor, no reaction to HCl.	
85	0855		0.0	10 15 21			SANDY SILT (ML), moderate brown, (40% fine-grained sand, 60% fines), slightly moist, moderately loose, slightly plastic, no odor, no reaction to HCl.	
90						SW		

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# LOG OF BORING WCP-92

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-92  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 151'  
 Initial GW Depth : 120'  
 Static GW Depth : 117.2'  
 Installation Date(s) : 7/16/01 to 7/17/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	0810		0.0	16 21 28		SW	SILTY SAND (SW), light brown, (5% gravel, 20% fines, 75% angular sand), slightly dense, no odor, no reaction to HCl.	
95	0955		0.0	26 50-6		SW	SILTY SAND (SW), reddish brown, (5% 0.5-2" gravel, 30% fines, 65% angular sand), slightly moist, dense, no odor, no reaction to HCl.	
100	1010		0.0	22 35 40		ML	SANDY SILT (ML), fine, moderate brown, (40% sand, 60% fines), slightly moist, dense, no odor, strong reaction to HCl.	
105	1025		0.0	32 55		ML	SANDY SILT (ML), fine, moderate brown, (40% sand, 60% fines), slightly moist, moderately dense, slightly plastic, no odor, no reaction to HCl.	
110	1040		0.0	18 22 25		ML	SANDY SILT (ML), fine, moderate brown, (45% sand, 55% fines), slightly moist, moderately dense, no odor, no reaction to HCl.	
115	1055		0.0	18 21 22		SM	SILTY SAND (SM), reddish brown, (30% fines, 70% fine-coarse angular sand), slightly moist, moderately dense, no odor, no reaction to 10% HCl.	
						ML	SANDY SILT (ML), fine, moderate brown, (40% sand, 60% fines), moist, moderately dense, slightly plastic, no odor, no reaction to HCl.	
						SM		
120								

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# LOG OF BORING WCP-92

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-92  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 151'  
 Initial GW Depth : 120'  
 Static GW Depth : 117.2'  
 Installation Date(s) : 7/16/01 to 7/17/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1110		0.0	18 21 32			SILTY SAND (SM), (5% gravel, 25% fines, 70% angular sand), saturated, moderately dense, no odor and no reaction to HCl.	
125	0600		0.0	34 50		SM	SILTY SAND (SM), coarse, reddish brown, (5% gravel, 20% fines, 75% coarse angular sand), saturated, very dense, no odor, no reaction to HCl.	
130	0620		0.0	17 19 23			SILTY SAND (SM), moderate reddish brown, (40% fines, 60% fine to medium sand), wet, moderately dense, increasing fines, slightly to non plastic, no odor, no reaction to HCl.	
135	0640		0.0	35 50			SANDY SILT (ML), moderate brown, (40% fine-grained sand, 60% fines), wet to very moist, very dense, no odor.	
140	0700		0.0	22 28 30		ML	SANDY SILT (ML), moderate brown, (40% fine to coarse sand, 60% fines), slightly plastic, no odor, no reaction to HCl.	
145	0720		0.0	15 17 17			SANDY SILT (ML), moderate brown, (40% fine to medium sand, 60% fines), moderately loose, slightly plastic, no odor, no reaction to HCl.	
150	0740		0.0	10				

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# LOG OF BORING WCP-92

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-92  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 151'  
 Initial GW Depth : 120'  
 Static GW Depth : 117.2'  
 Installation Date(s) : 7/16/01 to 7/17/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0740		0.0	12 15		ML	SANDY SILT (ML), moderate brown, (40% fine to coarse sand, 60% fines), layers of interbedded silty fine-medium sand, wet, loose, no odor, no reaction to HCl.  Total Depth = 151' bgs	
155								
160								
165								
170								
175								
180								



# LOG OF BORING WCP-93

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-93  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 151'  
 Initial GW Depth : 130'  
 Static GW Depth : 119.2'  
 Installation Date(s) : 7/24/01 to 7/25/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0600		0	5 5 8			SANDY SILT (ML), medium fine, moderate brown, (50% fines, 50% sand), slightly moist, loose, no odor, strong reaction to HCl, slightly plastic.	
10	0605		0	8 8 9		ML	SANDY SILT (ML), medium fine, moderate brown, (40% sand, 60% fines), slightly moist, loose, slightly plastic, no odor, strong reaction to HCl.	
15	0610		0	10 10 13			SANDY SILT (ML), moderate brown, (50% sand, 50% fines), increased sand 50% fines, slightly moist, moderately loose, no odor, slightly plastic, strong reaction to HCl.	
20	0620		0	7 7 9			SANDY SILT (ML), moderate brown, (10% clay, 30% sand, 60% fines), moist, loose, plastic, increased silt/clay, no odors, strong reaction to HCl.	
25	0625		0	10 10 11		SM	SILTY SAND (SM), medium fine, light brown, (20% fines, 80% well-sorted rounded sand), slightly moist, loose, non plastic, no odor, slight reaction to HCl.	
30								

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# LOG OF BORING WCP-93

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-93  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 151'  
 Initial GW Depth : 130'  
 Static GW Depth : 119.2'  
 Installation Date(s) : 7/24/01 to 7/25/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0630		0	9 10 12		SM	SILTY SAND (SM), (35% fines, 65% medium-coarse angular sand), slightly moist, moderately loose, slight to non plastic, no odor, light reaction to HCl.	
35	0640		0	8 8 9		ML	SANDY SILT (ML), reddish brown, (40% fine-medium sand, 60% fines), slightly moist, loose, slightly plastic, no odor, strong reaction to HCl.	
40	0650		0	25 37 34		SM	SILTY SAND (SM), (35% fines, 60% medium-coarse angular sand, 5% gravel), light brown, dense, slightly moist, no odor, non plastic, strong reaction to HCl.	
45	0700		0	19 22 27		SW	WELL-GRADED SAND with GRAVEL (SW), light gray brown, (5% fines, 20% gravel, 75% medium to coarse subangular sand), slightly moist, dense, no odor, strong reaction to HCl.	
50	0710		0	40 41 48		SM	SILTY SAND (SM), light grey brown (10% gravel, 15% fines, 75% medium to coarse subangular sand), slightly moist, dense, no odor and strong reaction to HCl.	
55	0720		0	? 27 50-6		ML	SANDY SILT (ML), moderate brown, (40% fine to coarse sand, 60% fines, trace gravel), slightly moist, dense, slightly plastic, no odor, strong reaction to 10% HCl.	
60								

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# LOG OF BORING WCP-93

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-93  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 151'  
 Initial GW Depth : 130'  
 Static GW Depth : 119.2'  
 Installation Date(s) : 7/24/01 to 7/25/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0730		0	24 38 50-4		ML	SANDY SILT (ML), moderate brown, (40% fine to medium sand, 60% fines), slightly moist, dense, slightly plastic, no odor, strong reaction to HCl.	
65	0745		0	16 24 36		SM	SILTY SAND (SM), (5% gravel, 15% fines, 80% medium to coarse rounded to angular sand), slightly moist, dense, no odor, no reaction to HCl.	
70	0755		0	26 29 37		SM	SILTY SAND (SM), light reddish brown, (10% gravel, 20% fines, 70% medium to coarse angular sand), slightly moist, dense, no odor, no reaction to HCl.	
75	0805		0	29 50-6		ML	SANDY SILT (ML), moderate brown, (40% fine-grained sand, 60% fines), slightly moist, slightly plastic, very dense, no odor, strong reaction to HCl.	
80	0820		0	31 50-5		ML	SANDY SILT (ML), fine, light brown, (40% sand, 60% fines), slightly moist, very dense, slightly plastic no odor, strong reaction to HCl.	
85	0830		0	16 16 18		SM	SANDY SILT (ML), moderate brown, (45% fine to medium sand, 55% fines), moist, moderately loose, slightly plastic, no odor, no reaction to HCl.	
90								



# LOG OF BORING WCP-93

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-93  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 151'  
 Initial GW Depth : 130'  
 Static GW Depth : 119.2'  
 Installation Date(s) : 7/24/01 to 7/25/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	0850		0	22 28 30		SM	SILTY SAND (SM), light brown, ( 30% fines, 70% medium to coarse sand), slightly moist, moderately dense, no odor, strong reaction to HCl.	
95	1130		0	50-5			SANDY SILT (ML), light brown, (40% fine-grained sand, 60% fines), slightly moist, very dense caliche 4inches thick, poor recovery, slightly plastic, no odor, strong reaction to HCl.	
100	1140		0	10 12 18			SANDY SILT (ML), moderate brown, (45% medium sand, 55% fines), moist, moderately loose, slightly plastic, no odor, no reaction to HCl.	
105	1155		0	22 50-5		ML	SANDY SILT (ML), fine sandy silt, light gray brown, (35% fine grained sand, 65% fines), slightly moist, dense, caliche interbedded, no odor, strong reaction to HCl.	
110	1210		0	50-5			SANDY SILT (ML), light brown, poor recovery, caliche in shoe 3 inches thick, strong reaction to HCl.	
115	1225		0	8 10 15			SANDY SILT (ML), moderate brown, (10% clay, 40% fine-grained sand, 50% fines), moist, loose, plastic, no odor, no reaction to HCl.	
120								

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# LOG OF BORING WCP-93

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-93  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 151'  
 Initial GW Depth : 130'  
 Static GW Depth : 119.2'  
 Installation Date(s) : 7/24/01 to 7/25/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1240		0	20 30 35			SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), moist to wet, dense, no odor, no reaction to HCl.	
125	1250		0	12 16 22			SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), moist/wet, moderately dense, no odor, slightly plastic, no reaction to HCl.	
130	1305		0	24 25 26			SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), wet/saturated, dense, very tight, slightly plastic, no odor with no reaction to HCl.	
135	0615		0	14 14 17		ML	SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), moist, loose but very tight little to no water, slightly plastic, no odor, slight reaction to HCl.	
140	0630		0	40 50-5			SANDY SILT (ML), (50% fine to medium sand, 50% fines), moist to wet dense, does hold water, no odor, no reaction to HCl.	
145	0650		0	50 50-4			SANDY SILT (ML), medium fine sandy silt to silty sand, (50% fine to coarse sand, 50% fines), moist to wet, dense, no odor, no reaction to HCl.	
145							SANDY SILT (ML), moderate brown, (40% fine sand, 60% fines), slightly moist, dense, no odor, strong reaction to HCl.	
150	0710		0	29		SM	SILTY SAND (SM), (40% fines, 60% medium to coarse rounded sand, trace gravel), reddish brown, wet, dense, no odor, no reaction to HCl.	

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# LOG OF BORING WCP-93

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-93  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 151'  
 Initial GW Depth : 130'  
 Static GW Depth : 119.2'  
 Installation Date(s) : 7/24/01 to 7/25/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0710		0	50-4		SM	Total Depth = 151' bgs	
155								
160								
165								
170								
175								
180								

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# LOG OF BORING WCP-94

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-94  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : T. Mehall  
 Total Depth : 151'  
 Initial GW Depth : 122.6'  
 Static GW Depth : 120.2'  
 Installation Date(s) : 7/18/01 to 7/19/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0							Asphalt surface.	
5	0550		0.0	6 5 7		ML	SILT (ML), dark brown, (5% fine sand, 95% fines), slightly moist, no odor, strong reaction to HCl, medium stiff.	
10	0600		0.0	5 6 7		ML	SILT with SAND (ML), dark brown (15% fine sand, 85% fines), moist, no odor, weak reaction to HCl, soft.	
15	0605		0.0	7 8 8		SM	SANDY SILT (ML), dark brown, (30% fine sand, 70% fines), moist, soft, no odor, strong reaction to HCl.	
20	0615		0.0	6 14 19		ML	SILTY SAND (SM), dark brown, (30% fines, 70% predominantly fine with trace medium and coarse sand), moist, no odor, weak reaction to HCl.	
25	0620		0.0	12 15 16		SW	SILT (ML), (10% fine sand, 10% clay, 80% fines, trace clay), slightly moist, caliche, stiff, no odor, strong reaction to HCl.	
						SW	WELL-GRADED SAND (SW), brown, (100% fine-coarse subangular to subrounded sand), slightly moist, no odor, no reaction to HCl, increased in coarse-grained sand at 26' bgs.	
30						SM	SILTY SAND (SM), brown, (40% fines, 60% fine sand), soft, moist, no reaction to HCl.	

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# LOG OF BORING WCP-94

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-94  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : T. Mehall  
 Total Depth : 151'  
 Initial GW Depth : 122.6'  
 Static GW Depth : 120.2'  
 Installation Date(s) : 7/18/01 to 7/19/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0625		0.0	9 9 10			SILTY SAND (SM), brown, (30% fines, 70% fine sand), moist, soft, no odor, weak reaction to HCl.	
35	0632		0.0	20 14 15		SM	SILTY SAND (SM), tan, (25% fines, 75% sand, predominantly subangular fine to medium with trace coarse), slightly moist, subangular, strong reaction to HCl.	
40	0640		0.0	13 15 16			SILTY SAND (SM), brown, (30% fines, 70% fine to medium sand), slightly moist, no odor, no reaction to HCl.	
						SW	WELL-GRADED SAND (SW), light brown, (5% gravel, 15% coarse subrounded sand, 35% medium sand, 45% fine sand, trace gravel), no reaction to HCl.	
45	0650		0.0	16 15 18			SILT (ML), (5% sand, 95% fines), caliche, stiff, slightly moist, no odor, no reaction to HCl.	
50	0700		0.0	33 50-6		ML	SILT (ML), (fines with trace sand and caliche throughout), hard, slightly moist, no odor, strong reaction to HCl.	
55	0710		0.0	50-5			caliche.	
60								

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# LOG OF BORING WCP-94

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-94  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : T. Mehall  
 Total Depth : 151'  
 Initial GW Depth : 122.6'  
 Static GW Depth : 120.2'  
 Installation Date(s) : 7/18/01 to 7/19/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0720		0.0	20 50-5		ML	SILT (ML), (10% fine sand, 90% fines, caliche throughout), hard, slightly moist, strong reaction to HCl.	
65	0730		0.0	12 13 20		ML	SILT with SAND (ML), dark brown, (15% fine sand, 85% fines), moderately stiff, moist, no odor, no reaction to HCl.	
70	0740		0.0	22 28 40		SW	WELL-GRADED SAND (SW), grayish brown, (10% fine subangular gravel, 90% subangular sand), slightly moist, no odor, no reaction to HCl.	
75	0800		0.0	50-4			caliche layer.	
80	0855		0.0	20 24 27		ML	SILT with SAND (ML), dark brown, (20% fine sand, 80% fines), trace caliche, hard, slightly moist, no odor, strong reaction to HCl.	
85	0910		0.0	16 21 27		SW	WELL-GRADED SAND (SW), light brown, (100% fine-coarse subangular sand), slightly moist, no odor, no reaction to HCl.	
90						ML		

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# LOG OF BORING WCP-94

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-94  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : T. Mehall  
 Total Depth : 151'  
 Initial GW Depth : 122.6'  
 Static GW Depth : 120.2'  
 Installation Date(s) : 7/18/01 to 7/19/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	0920		0.0	17 25 50-6		ML	SILT with SAND (ML), dark brown, (15% fine sand, 10% subrounded gravel, 75% fines), moist, no odor, no reaction to HCl.	
95	0955		0.0	16 22 26		SW	WELL-GRADED SAND (SW), light brown, (100% fine-coarse subrounded to subangular sand), slightly moist, no odor, no reaction to HCl.	
100	1010		0.0	39 50-6		ML	SILT (ML), dark brown, (10% fine sand, 90% fines), hard, caliche throughout, slightly moist, no odor, strong reaction to HCl	
105	1040		0.0	24 48 41		ML	SILT with SAND (ML), dark brown, (15% fine sand, 85% fines), moderately stiff, moist, no odor, no reaction to HCl.	
110	1115		0.0	28 24 25		SM	SILTY SAND (SM), light brown, (20% fines, 80% fine to medium sand), moist, no odor, strong reaction to HCl.	
115	1135		0.0	29 35 38		ML	SANDY SILT (ML), brown, (30% fine to medium sand, 70% fines), moderately stiff, slightly moist, no odor, strong reaction to HCl.	
120								

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# LOG OF BORING WCP-94

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-94  
Rig Type : CME-95  
Drilling Method : HSA

Field Geologist : T. Mehall  
Total Depth : 151'  
Initial GW Depth : 122.6'  
Static GW Depth : 120.2'  
Installation Date(s) : 7/18/01 to 7/19/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1205		0.0	9 10 15		SM	SILTY SAND (SM), brown, (40% fines, 60% fine sand), moderately soft, wet, no odor, no reaction to HCl.	
125	1225		0.0	15 19 23		ML	SILT (ML), dark brown, (10% fine sand, 90% fines), moderately stiff, saturated, no odor, no reaction to HCl.	
130	0620		0.0	12 19 45		ML	SILT with SAND (ML), brown, (25% fine to medium sand, 75% fines), stiff, wet, no odor, no reaction to HCl.	
135	0645		0.0	23 35 48		CL	LEAN CLAY with SAND (CL), brown, (20% fine to medium sand, 80% clay), stiff, wet, no odor, no reaction to HCl.	
140	0700		0.0	26 44 50-5		ML	SILT with SAND (ML), brown, (5% clay, 15% fine sand, 80% fines) stiff to hard, saturated, no odor, no reaction to HCl.	
145	0720		0.0	18 24 30		ML	SILT (ML), brown, (5% fine sand, 95% fines), stiff, saturated, no odor, no reaction to HCl.	
150	0740		0.0	21		ML	SILT (ML), brown, (10% fine sand, 90% fines), hard, saturated, no odor, no reaction to HCl.	

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# LOG OF BORING WCP-94

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-94  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : T. Mehall  
 Total Depth : 151'  
 Initial GW Depth : 122.6'  
 Static GW Depth : 120.2'  
 Installation Date(s) : 7/18/01 to 7/19/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0740		0.0	48 50-5		ML	Total Depth = 151' bgs	
155								
160								
165								
170								
175								
180								



# LOG OF BORING WCP-95

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-95  
Rig Type : CME-95  
Drilling Method : HSA

Field Geologist : T. Mehall  
Total Depth : 140'  
Initial GW Depth : 109.1'  
Static GW Depth : 108.9'  
Installation Date(s) : 7/5/01 to 7/6/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0600		0.0	4 4 5		SM	SILTY SAND (SM), brown, (40% fines, 60% sand), fine to moderate, slightly moist, no odor, weak reaction to HCl.	
10	0610		0.0	10 12 15		SW	WELL-GRADED SAND with SILT (SW), brown, (10% fines, 90% subrounded to subangular sand), slightly moist, no odor, no reaction to HCl.	
15	0620		0.0	17 18 18		SW	WELL-GRADED SAND with SILT (SW), reddish brown, (10% fines, 90% subrounded to subangular medium sand), slightly moist, no odor, no reaction to HCl.	
20	0630		0.0	8 8 8		ML	SILT (ML), (10% fine sand, 90% fines, trace clay), moist, no odor, weak reaction to HCl.	
25	0633		0.0	10 11 11		ML	SILT (ML), (5% fine sand, 95% fines), slightly moist, no odor, weak reaction to HCl.	
30								



# LOG OF BORING WCP-95

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-95  
Rig Type : CME-95  
Drilling Method : HSA

Field Geologist : T. Mehall  
Total Depth : 140'  
Initial GW Depth : 109.1'  
Static GW Depth : 108.9'  
Installation Date(s) : 7/5/01 to 7/6/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0640		0.0	50-5		CL	SANDY LEAN CLAY (CL), brown, (30% fine sand, 10% gravel, 60% clay), moderate plasticity, no odor, no reaction to HCl.	
35	0650		0.0	17 14 22		ML	SANDY SILT (ML), brown, (30% fine sand, 70% fines), moist, no odor, weak reaction to HCl.	
40	0700		0.0	21 30 32		ML	SANDY SILT (ML), brown, (10% clay, 30% fine sand, 60% fines), moist, no odor, weak reaction to HCl.	
45	0715		0.0	17 18 19		SW	SILTY SAND (SM), brown, (25% fines, 75% fine to coarse sand), moist, no odor, no reaction to HCl.	
50	0720		0.0	15 16 16		SW	WELL-GRADED SAND (SW), reddish brown, moist, (95% fine to coarse sand, 5% sub-rounded graded), no odor, no reaction to HCl.	
55	0730		0.0	31 28 36		ML	SILT with SAND (ML) light brown, (15% fine sand, 85% fines), slightly moist, no odor, moderate reaction to HCl.	
60								



# LOG OF BORING WCP-95

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-95  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : T. Mehall  
 Total Depth : 140'  
 Initial GW Depth : 109.1'  
 Static GW Depth : 108.9'  
 Installation Date(s) : 7/5/01 to 7/6/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0740		0.0	20 50-5			SILT with SAND (ML), light brown, (15% fine sand, 85% fines), slightly moist, no odor, moderate reaction to HCl.	
65	0755		0.0	32 50-5			SILT (ML), (5% fine sand, 95% fines), slightly moist to moist, no odor, no reaction in silt, strong reaction in trace caliche.	
70	0805		0.0	17 17 18		ML	SILT (ML), (5% fine sand, 95% fines), slightly moist to moist, no odor, no reaction to HCl.	
75	0815		0.0	17 23 31			SILT (ML), dark brown, (5% fine sand, 95% fines), slightly moist to moist, no odor, no reaction to HCl.	
80	0825		0.0	20 20 21			SILT (ML), (5% fine sand, 95% fines), moist, no odor, no reaction to HCl.	
85	0840		0.0	15 50-6		SW	WELL-GRADED SAND (SW), reddish brown, (100% subrounded to subangular sand), slightly moist to moist, no odor, no reaction to HCl.	
90						ML		

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# LOG OF BORING WCP-95

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-95  
Rig Type : CME-95  
Drilling Method : HSA

Field Geologist : T. Mehall  
Total Depth : 140'  
Initial GW Depth : 109.1'  
Static GW Depth : 108.9'  
Installation Date(s) : 7/5/01 to 7/6/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	0850		0.0	10 11 20		ML	SANDY SILT (ML), light brown, (25% fine sand, 75% fines, trace caliche), moist, no odor, no reaction to HCl in sand strong reaction in caliche.	
95	0935		0.0	14 16 20		SM	SILTY SAND (SM), dark brown, (30% fines, 70% fine to medium sand), moist, no odor, no reaction to HCl.	
100	0950		0.0	15 18 21		ML	SANDY SILT (ML), dark brown, (40% fine sand, 60% fines), moist, no odor, no reaction to HCl.	
105	1000		0.0	30 44 45		SM	SILTY SAND (SM), dark brown, (15% fines, 85% fine sand), moist, no odor, strong reaction to HCl in caliche, no reaction in SM.	
110	1015		0.0	12 14 19		SM	SILTY SAND (SM), dark brown, (15% fines, 85% fine to medium sand with trace coarse sand), saturated, no odor, no reaction to HCl.	
115	0555		0.0	29 50-6		ML	SILT with SAND (ML), brown, (20% fine sand, 80% fines), caliche, hard, slightly moist, no odor, caliche portion strong reaction to HCl.	
120						SM		

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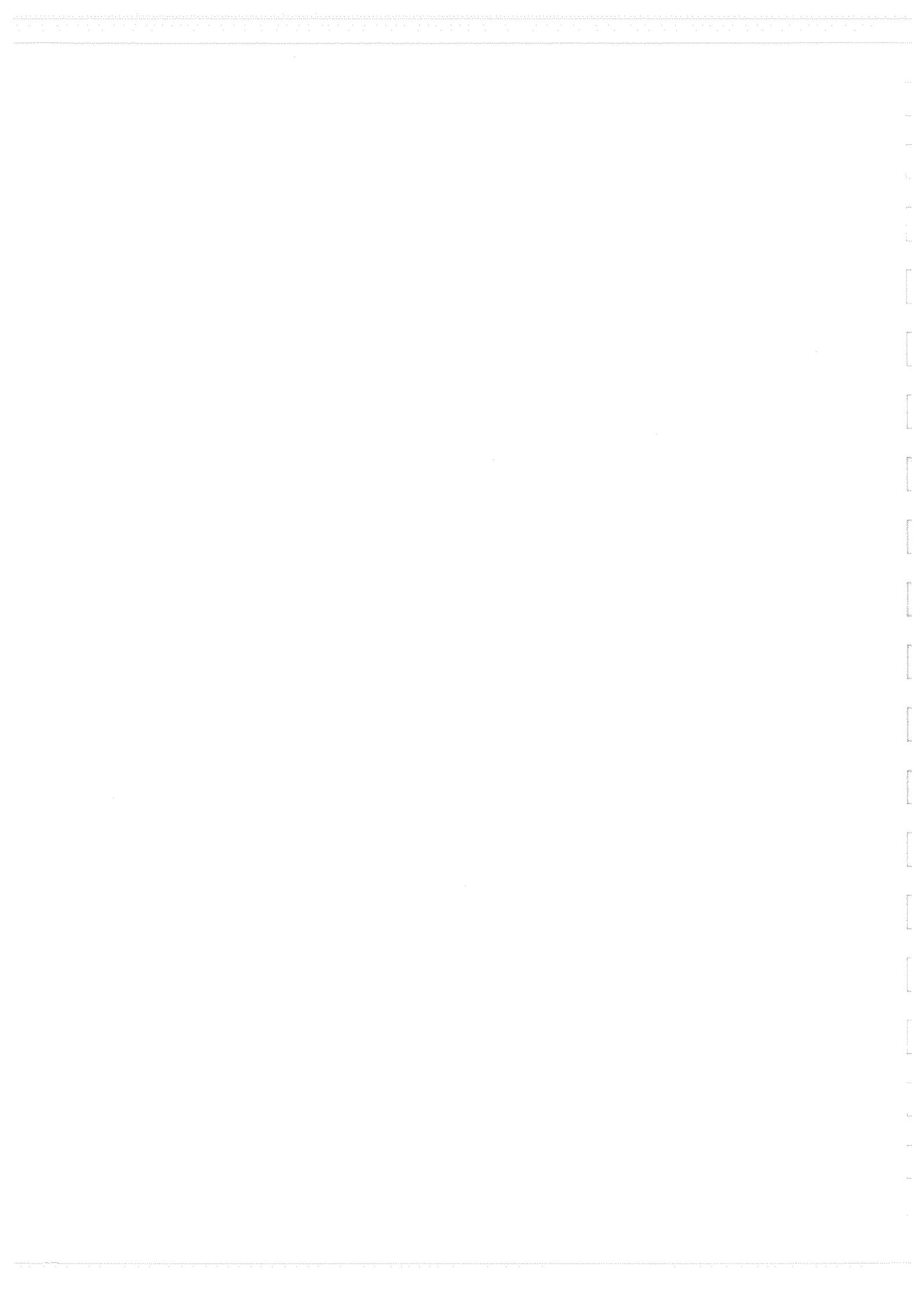
LOG OF BORING WCP-95

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Arizona Department of Environmental Quality VW&R	Project Number	: 20092-090-002	Field Geologist	: T. Mehall
	Project Location	: VW&R	Total Depth	: 140'
	Boring Number	: WCP-95	Initial GW Depth	: 109.1'
	Rig Type	: CME-95	Static GW Depth	: 108.9'
	Drilling Method	: HSA	Installation Date(s)	: 7/5/01 to 7/6/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	0610		0.0	21 21 29			SILTY SAND (SM), brown, (30% fines, 70% fine sand), wet, no odor, no reaction to HCl.	
125	0625		0.0	16 19 25		SM	SILTY SAND (SM), brown, (45% fines, 55% sand), saturated, no odor, no reaction to HCl.	
130	0640		0.0	26 27 24			SILTY SAND (SM), brown, (45% fines, 55% fine sand), saturated, no odor, no reaction to HCl.	
135	0700		0.0	35 50-5		ML	SILT with SAND (ML), brown, (25% fine sand, 75% fines), saturated, no odor, no reaction to HCl.	
140	0720		0.0	45 50-6		SC	CLAYEY SAND (SC), brown, (25% clay, 75% fine to medium sand), saturated, no odor, no reaction to HCl. Total Depth = 140' bgs	
145								
150								

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# LOG OF BORING WCP-96

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-96  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : 120'  
 Static GW Depth : 118.7'  
 Installation Date(s) : 7/20/01 to 7/23/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0611		0.0	3 4 5			SILT (ML), moderate brown, (95% fines, 5% fine-grained sand), moist, no odor, strong reaction with HCl.	
10	0623		0.0	5 8 9		ML	SILT (ML), moderate brown, (95% fines, 5% fine-grained sand), moist, no odor, strong reaction with HCl.	
15	0630		0.0	14 14 15			SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, strong reaction to HCl.	
20	0637		0.0	7 4 10			SILT (ML), moderate brown, (100% fines), moist, no odor, moderate to strong reaction to HCl.	
25	0644		0.0	10 10 10		SP	POORLY-GRADED SAND (SP), moderate brown, (100% fine-grained sand) slightly moist, no odor, no reaction to HCl.	
						SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), moist, no odor, moderate reaction to HCl.	
						ML		
30								

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# LOG OF BORING WCP-96

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-96  
Rig Type : CME-95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 151'  
Initial GW Depth : 120'  
Static GW Depth : 118.7'  
Installation Date(s) : 7/20/01 to 7/23/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0652		0.0	10 12 15		ML	SILT (ML), moderate brown, (100% fines) moist, no odor, strong reaction with HCl.	
33						SP	POORLY-GRADED SAND (SP), moderate brown, (100% subrounded-angular medium sand), dry, no odor, no reaction to HCl.	
35	0700		0.0	11 12 12		SM	SILTY SAND (SM), moderate brown, (70% fine grained sand, 30% fines), moist, no odor, strong reaction to HCl.	
38								
40	0709		0.0	12 13 17		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine grained sand), moist, no odor, strong reaction to HCl.	
45	0718		0.0	29 50-6			SILT (ML), moderate gray-moderate brown, (95% fines, 5% fine grained sand), slightly moist, no odor, strong reaction to HCl.	
50	0729		0.0	22 28 35		SM	SILTY SAND (SM), moderate brown, (75% fine-medium subrounded sand, 25% fines), slightly moist, no odor, strong reaction to HCl.	
55	0737		0.0	50-5		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), slightly moist, no odor, strong reaction with HCl.	
60								

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# LOG OF BORING WCP-96

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-96  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : 120'  
 Static GW Depth : 118.7'  
 Installation Date(s) : 7/20/01 to 7/23/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0746		0.0	50-6		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, strong reaction to 10% HCl.	
65	0758		0.0	12 15 19		SM	SILTY SAND (SM), (moderate brown, (60% fine-grained sand, 40% fines), moist, no odor, no reaction with HCl.	
70	0810		0.0	44 35 38		SW	WELL-GRADED SAND with GRAVEL (SW), light-moderate brown, (65% fine coarse, subrounded-angular sand, 35% fine-medium subrounded gravel), slightly moist, no odor, no reaction with HCl.	
75	0825		0.0	29 50-6		SW	WELL-GRADED SAND with GRAVEL (SW), light-moderate brown, (75% fine-coarse subrounded angular sand, 25% fine subrounded gravel), slightly moist, no odor, no reaction with HCl.	
80	0836		0.0	27 30 35		SP	POORLY-GRADED SAND (SP), moderate brown, (100% fine-grained sand), slightly moist-moist, no odor, no reaction to HCl.	
85	0848		0.0	15 15 16		SM	SILTY SAND (SM), moderate brown, (65% fine-grained sand, 35% fines), moist, no odor, no reaction with HCl.	
90						SP	POORLY-GRADED SAND with GRAVEL (SP), moderate brown, (75% fine-grained sand, 25% fine subrounded gravel), slightly moist, no odor, no reaction with HCl.	

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# LOG OF BORING WCP-96

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-96  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : 120'  
 Static GW Depth : 118.7'  
 Installation Date(s) : 7/20/01 to 7/23/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	0902		0.0	21 24 25			SILT (ML), moderate brown, (100% fines), moist, no odor, strong reaction with HCl.	
95	0944		0.0	9 9 12		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, no reaction with HCl.  SILT (ML), moderate brown, (100% fines), moist, no odor, no reaction with HCl.	
100	0955		0.0	11 12 13		SP	POORLY-GRADED SAND (SP), moderate brown, (100% fine-grained sand), moist, no odor, no reaction to HCl. SILT (ML), moderate brown, (95% fines, 5% fine-grained sand), moist, no odor, no reaction to HCl.	
105	1007		0.0	16 20 24			SILT (ML), moderate brown, (100% fines), moist, no odor, no reaction to HCl.	
110	1023		0.0	21 22 25		ML	SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), moist, no odor, strong reaction with HCl.	
115	1043		0.0	16 24 30			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), moist, no odor, moderate reaction to HCl.	
120						SP		

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# LOG OF BORING WCP-96

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-96  
Rig Type : CME-95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 151'  
Initial GW Depth : 120'  
Static GW Depth : 118.7'  
Installation Date(s) : 7/20/01 to 7/23/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1110		0.0	19 21 27		SP	POORLY-GRADED SAND (SP), moderate brown, (95% fine-grained sand, 5% fines), wet, no odor, no reaction to HCl.	
125	0615		0.0	17 19 28		SM	SILTY SAND (SM), moderate brown, (75% fine-grained sand, 25% fines), wet, no odor, no reaction to HCl.	
130	0630		0.0	10 16 16		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, no reaction to 10% HCl.	
135	0652		0.0	41 41 50-5		SM	SILTY SAND (SM), moderate brown, (70% fine-coarse, subrounded-subangular sand, 30% fines), wet, no odor, no reaction to 10% HCl.	
140	0707		0.0	17 17 20		SM	SILTY SAND (SM), moderate brown, (80% fine-coarse subrounded sand, 20% fines), wet, no odor, no reaction to 10% HCl.	
145	0728		0.0	38 50-5		ML	SILT (ML), light-moderate brown, (100% fines), dry to slightly moist, no odor, strong reaction with HCl.	
150	0747		0.0	14 16		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, slight reaction to 10% HCl.	

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# LOG OF BORING WCP-96

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-96  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : 120'  
 Static GW Depth : 118.7'  
 Installation Date(s) : 7/20/01 to 7/23/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0747		0.0	16 18		ML	Total Depth = 151' bgs	
155								
160								
165								
170								
175								
180								



# LOG OF BORING WCP-97

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-97  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : NA  
 Static GW Depth : 118.25'  
 Installation Date(s) : 7/2/01 to 7/3/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0612		0.0	2 3 6		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, slight reaction to HCl.	
10	0619		0.0	5 6 9			SILT with SAND (ML), light-moderate brown, (75% fines, 25% fine-grained sand), slightly moist, no odor, moderate reaction to HCl.	
15	0620		0.0	5 6 8		SW	WELL-GRADED SAND (SW), (100% fine-coarse subrounded-subangular sand), slightly moist, no odor, no reaction to HCl.	
20	0635		NA	7 7 8			WELL-GRADED SAND (SW), (100% fine-coarse subrounded-subangular sand), slightly moist, no odor, no reaction to HCl.	
25	0643		0.0	5 5 6		ML	SILT (ML), (95% fines, 5% fine-grained sand), moist, no odor, slight reaction to HCl.	
30						SW	SILT (ML), (100%) fines, moist, no odor, slight reaction to HCl.	

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# LOG OF BORING WCP-97

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-97  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : NA  
 Static GW Depth : 118.25'  
 Installation Date(s) : 7/2/01 to 7/3/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0650		0.0	9 8 8		SW	WELL-GRADED SAND (SW), (100% fine-coarse subrounded-subangular sand), slightly moist, no reaction to HCl.	
35	0700		0.0	3 5 6		SW	WELL-GRADED SAND (SW), (95% fine-coarse subrounded-subangular sand, 5% fines), slightly moist, slight reaction to HCl.	
40	0707		0.0	12 15 24		ML	SILT with SAND (ML), (85% fines, 15% fine-medium subrounded subangular sand), moist, no odor, moderate reaction with HCl.	
45	0715		0.0	15 16 24		ML	SILT with SAND (ML), (85% fines, 15% fine-medium subrounded subangular sand), moist, no odor, strong reaction with HCl.	
50	0725		0.0	13 15 18		SM	SILTY SAND (SM), (70% fine-medium subangular sand, 30% fines), moist, no odor, moderate reaction with HCl.	
55	0733		0.0	28 50-5		SW	WELL-GRADED SAND with GRAVEL (SW), (70% fine-coarse subrounded-subangular sand, 30% fine-medium subrounded-rounded gravel), slightly moist, no odor, no reaction with HCl.	
60						ML		

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# LOG OF BORING WCP-97

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-97  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : NA  
 Static GW Depth : 118.25'  
 Installation Date(s) : 7/2/01 to 7/3/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0742		0.0	21 26 34			SANDY SILT (ML), (70% fines, 30% fine-grained sand), moist, no odor, moderate reaction with HCl.	
65	0755		0.0	31 50-6		ML	SILT (ML), (95% fines, 5% fine-grained sand), moist, no odor, moderate reaction with HCl.	
70	0806		1.0	26 31 44			SILT (ML), (95% fines, 5% fine-grained sand), moist, no odor, slight reaction with HCl.	
75	0816		2.5	10 11 13		SM	SILTY SAND (SM), (80% fine-grained sand, 20% fines), moist, no odor, no reaction with HCl.	
80	0828		0.0	26 28 29		SW	WELL-GRADED SAND with GRAVEL (SW), (60% fine-coarse subrounded-subangular sand 40% subrounded gravel), slightly moist, no odor, no reaction with HCl.	
85	0838		0.0	15 15 17		ML	SANDY SILT (ML), (70% fines, 30% fine-grained sand), moist, no odor, slight reaction with HCl.	
90								



# LOG OF BORING WCP-97

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-97  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : NA  
 Static GW Depth : 118.25'  
 Installation Date(s) : 7/2/01 to 7/3/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	0852		0.0	24 28 33		ML	SANDY SILT (ML), (75% fines, 25% fine-grained sand), moist, no odor, no reaction with HCl.	
95	0939		0.0	14 16 20		SP	POORLY-GRADED SAND (SP), (100% fine-grained sand), moist, no odor, no reaction with HCl.	
100	0957		0.0	25 30 33		SP	POORLY-GRADED SAND (SP), (100% fine-grained sand), moist, no odor, slight reaction to HCl.	
105	1013		0.0	18 20 23		ML	SANDY SILT (ML), (70% fines, 30% fine-grained sand), moist, no odor, slight reaction to HCl.	
110	1025		0.0	10 11 17		SW	WELL-GRADED SAND (SW), (100% fine-coarse, subrounded-subangular sand), moist, no odor, no reaction with HCl.	
115	1039		0.0	16 25 34		ML	SANDY SILT (ML), (70% fines, 30% fine-grained sand), very moist, no odor, no reaction with HCl.	
120								



# LOG OF BORING WCP-97

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-97  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : NA  
 Static GW Depth : 118.25'  
 Installation Date(s) : 7/2/01 to 7/3/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1102		0.0	12 14 17		ML	SILT (ML), (100% fines), moist, no odor, no reaction with HCl.	
125	1118		0.0	9 11 15		SM	SILTY SAND (SM), (70% fine-grained sand, 30% fines), wet, no odor, no reaction with HCl.	
130	0603		0.0	12 16 20			SILT (ML), moderate brown, (100% fines), moist, no odor, no reaction with HCl.	
135	0620		0.0	21 27 22		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, no reaction with HCl.	
140	0638		0.0	16 24 30			SILT (ML), moderate to light brown, (100% fines), slightly moist, no odor, moderate reaction with HCl.	
145	0656		0.0	10 15 21			SILT (ML), moderate brown, (100% fines), slightly moist-moist, no odor, no reaction with HCl.	
150	0715		0.0	10		SM	SILTY SAND (SM), (90% fine-grained sand, 10% fines), moderate brown, wet, no odor, no reaction with HCl.	

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# LOG OF BORING WCP-97

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-97  
 Rig Type : CME-95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : NA  
 Static GW Depth : 118.25'  
 Installation Date(s) : 7/2/01 to 7/3/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0715		0.0	12 12		SM	Total Depth = 151' bgs	
155								
160								
165								
170								
175								
180								



# LOG OF BORING WCP-98

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-98  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : 120'  
 Static GW Depth : 118.6'  
 Installation Date(s) : 7-11-01 to 7-11-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0620		0	4 3 4		SM	SILTY SAND (SM), moderate to light brown, (35% fines, 65% fine to medium sand), slightly moist, moderately loose, non-plastic, no odor, no reaction to 10% HCl.	
10	0625		0	6 5 5			SILTY SAND (SM), light reddish brown, (25% fines, 65% medium to coarse sand, 10% gravel), slightly moist, loose, non-plastic, no odor, no reaction to 10% HCl.	
15	0630		0	8 9 13		SP-SM	POORLY-GRADED SAND with SILT and GRAVEL (SP-SM), light reddish brown, (10% fines, 30% gravel, 60% medium to coarse sand) slightly moist, loose, no odor, no reaction to 10% HCl.	
20	0640		0	10 15 17			SANDY SILT (ML), moderate brown, (50% fines, 50% sand), slightly moist, moderately loose, slightly plastic, no odor.	
25	0645		0	15 19 22		ML	SANDY SILT (ML), light brown, (60% fines, 40% fine-grained sand), slightly moist, moderately dense, well sorted fines, no odor.	
30								

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# LOG OF BORING WCP-98

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-98  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : 120'  
 Static GW Depth : 118.6'  
 Installation Date(s) : 7-11-01 to 7-11-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0650		0	15 16 18			SILTY SAND (SM), light brown, (47.5% fines, 47.5% fine-grained sand, 5% gravel), slightly moist, moderately loose, no odor.	
35	0700		0	25 50		ML	SANDY SILT (ML), (60% fines, 40% fine-grained sand), slightly moist, moderately loose moderate to poorly sorted, no odor.	
40	0710		0	32 50			SANDY SILT (ML), light brown, (55% fines, 40% coarse sand, 5% gravel), dry, very dense, no odor.	
45	0715		0	36 32 34		SM	SILTY SAND (SM), light reddish brown, (60% medium-coarse sand, 40% fines), slightly moist, moderately dense, no odor and non-plastic.	
50	0725		0	34 46		SW	WELL-GRADED SAND with GRAVEL (SW), reddish brown, (70% medium-coarse sand, 25% gravel, 5% fines, trace obbbles), slightly moist, very dense, non plastic, no odor, no reaction to 10% HCl.	
55	0735		0	29 50		ML	SANDY SILT (ML), moderate brown, (50% fine-grained sand, 50% fines), slightly moist, dense, slightly plastic, no odor, strong reaction with HCl.	
60								

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# LOG OF BORING WCP-98

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-98  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 150'  
Initial GW Depth : 120'  
Static GW Depth : 118.6'  
Installation Date(s) : 7-11-01 to 7-11-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0750		0	20 36 40		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, dense, slightly plastic, no odor and no reaction to 10% HCl.	
65	0800		0	11 14 18		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, moderately loose, slightly plastic to plastic, no odor and no reaction to 10% HCl.	
70	0810		0	11 12 18		SM	SILTY SAND (SM), light brown, (70% fine-medium sand, 30% fines), moist, loose, sub-rounded grains, no odor, and no reaction to 10% HCl.	
75	0820		0	20 20 22		SW	WELL-GRADED SAND with GRAVEL (SW), light reddish brown, (65% fine-coarse sand, 30% gravel, 5% fines), slightly moist, very dense, no odor, slight reaction to 10% HCl.	
80	0830		0	19 50		SW	WELL-GRADED SAND with GRAVEL (SW), light reddish brown, (75% fine-coarse sand, 20% gravel, 5% fines), slightly moist, very dense, no odor, slight reaction to 10% HCl.	
85	0845		0	35 50		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, very dense, slightly plastic, no odor and strong reaction to 10% HCl.	
90								



# LOG OF BORING WCP-98

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-98  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 150'  
Initial GW Depth : 120'  
Static GW Depth : 118.6'  
Installation Date(s) : 7-11-01 to 7-11-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	0905		0	18 24 30			SANDY SILT (ML), light brown/gray, (60% fines, 40% fine-grained sand), dry, dense, increased caliche fragments, no odor and strong reaction to 10% HCl.	
95	0940		0	11 15 29			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), moist, moderately loose, no odor or reaction to 10% HCl.	
100	1005		0	17 17 45		ML	SANDY SILT (ML), moderate brown, fine sandy silt to silty fine sand, (50% fines, 50% fine-grained sand), slightly moist, moderately dense, no odor, strong reaction with HCl.	
105	1020		0	15 17 18			SANDY SILT (ML), moderate brown, fine sandy silt to silty fine sand, (50% fines, 50% fine-grained sand), slightly moist, moderately loose, no odor, no reaction with HCl.	
110	1035		0	15 21 30		SM	SILTY SAND (SM), moderate brown, (60% fine-grained sand, 40% fines), moist, moderately dense, slight to non-plastic, no odor and no reaction to 10% HCl.	
115	1045		0	20 22 24		ML	SANDY SILT (ML), moderate to light brown, (60% fines, 40% fine-grained sand), slightly moist, moderately dense, slightly plastic, no odor and slight reaction to 10% HCl.	
120								



# LOG OF BORING WCP-98

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-98  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : 120'  
 Static GW Depth : 118.6'  
 Installation Date(s) : 7-11-01 to 7-11-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1100		0	24 28 30			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), saturated, moderately dense, no odor.	
125	1215		0	16 18 20			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), saturated, moderately loose, moderately plastic, no odor.	
130	1230		0	20 22 45		ML	SANDY SILT (ML), moderate brown, (65% fines, 35% fine-grained sand), moist, moderately dense, no odor, slightly plastic, no reaction to 10% HCl.	
135	1250		0	24 25 28			SANDY SILT (ML), moderate brown, (65% fines, 35% fine-grained sand), moist, moderately dense, slightly plastic, no odor and no reaction with 10% HCl.	
140	1310		0	27 50			SANDY SILT (ML), light brown, (60% fines, 40% fine-grained sand), moist, very dense, slightly plastic, no odor with moderate reaction to 10% HCl.	
145	1325		0	27 32 36		SM	SILTY SAND (SM), grayish brown, (70% fine-coarse angular sand, 30% fines, trace gravel), wet, dense, caliche, no odor, and a strong reaction to 10% HCl.	
150						ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), wet, very dense, and strong reaction to 10% HCl.	

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# LOG OF BORING WCP-98

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-98  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 150'  
 Initial GW Depth : 120'  
 Static GW Depth : 118.6'  
 Installation Date(s) : 7-11-01 to 7-11-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	1340		0	58		ML	Total Depth = 150.3' bgs	
155								
160								
165								
170								
175								
180								



# LOG OF BORING WCP-99

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-99  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : 116.2'  
 Static GW Depth : na  
 Installation Date(s) : 11/14/2001 to 11/15/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0826		0	6 10 12		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), slightly moist, no odor, moderate reaction with HCl.	
10	0833		0	3 4 6			WELL-GRADED SAND with GRAVEL (SW), moderate brown, (60% fine-coarse sand, 40% fine-medium rounded gravel), dry, no odor, no reaction with HCl.	
15	0839		0	8 8 10		SW	WELL-GRADED SAND with GRAVEL (SW), moderate brown, (60% fine-coarse sand, 40% fine-medium rounded gravel), dry, no odor, no reaction with HCl.	
20	0843		0	10 18 18			WELL-GRADED SAND with GRAVEL (SW), moderate brown, (70% fine-coarse, subangular-subrounded sand), 30% fine-medium subrounded-rounded sand), slightly moist, no odor, no reaction with HCl.	
25	0851		0	12 15 17		ML	SILT (ML), (100% fines), moist, no odor, moderate reaction with HCl.	
30						SW-SM		



# LOG OF BORING WCP-99

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-99  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 151'  
Initial GW Depth : 116.2'  
Static GW Depth : na  
Installation Date(s) : 11/14/2001 to 11/15/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0857		0	14 15 17		SW-SM	WELL-GRADED SAND with SILT and GRAVEL (SW-SM), moderate brown, (75% fine-coarse sand, 15% gravel, 10% fines), slightly moist. no odor, no reaction with HCl.	
35	0907		0	22 26 28		ML	SILT with SAND (ML), (80% fines, 20% fine-medium sand), moist, no odor, moderate reaction with HCl.	
40	0915		0	25 29 31		SW	WELL-GRADED SAND with GRAVEL (SW), moderate brown, (70% fine-coarse subrounded-angular sand, 30% fine-medium rounded gravel), slightly moist, no odor, no reaction with HCl.	
45	0927		0	50-6		SW	WELL-GRADED SAND with GRAVEL (SW), moderate brown, (65% fine-coarse subrounded to subangular sand, 30% fine subrounded gravel, 5% fines), slightly moist, no odor, no reaction with HCl.	
50	0936		0	22 24 27		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, strong reaction with HCl.	
55	0946		0	14 25 29		SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), moist, no odor, no reaction with HCl.	
60						ML		



# LOG OF BORING WCP-99

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-99  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : 116.2'  
 Static GW Depth : na  
 Installation Date(s) : 11/14/2001 to 11/15/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0955		3.2	13 15 18		ML	SILT with SAND (ML), moderate brown, (80% fines, 20% fine-grained sand), moist, no odor, no reaction with HCl.	
65	1005		1.2	16 18 18		SW	WELL-GRADED SAND with GRAVEL (SW), moderate brown, (75% fine-coarse subrounded to angular sand, 25% subrounded-rounded gravel), slightly moist, no odor, no reaction with HCl.	
70	1025		0.6	19 25 26		SM	SILTY SAND (SM), moderate brown, (60% fine-grained sand, 40% fines), moist, no odor, no reaction with HCl.	
75	1032		21.1	14 29 21		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine-coarse sand), no odor, no reaction with HCl.	
80	1050		3.6	11 14 20		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine-coarse subrounded sand), slightly moist, no reaction with HCl.	
85	1106		9.5	24 50-4		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, strong reaction with HCl.	
90								

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# LOG OF BORING WCP-99

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-99  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : 116.2'  
 Static GW Depth : na  
 Installation Date(s) : 11/14/2001 to 11/15/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1150		12.0	12 14 15			SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no reaction with HCl.	
95	1206		0.2	14 14 15		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, slight reaction with HCl.	
100	1221		0.7	14 15 17			SANDY SILT (ML), moderate brown, (65% fines, 35% fine-grained sand), moist, no odor, no reaction with HCl.	
105	1235		2.0	15 16 17		SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), moist, no odor, no reaction with HCl.	
110	1250		0.4	20 28 29		ML	SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), moist, no odor, no reaction with HCl.	
115	1315		0.3	12 15 19		SM	SANDY SILT (ML), brown, (70% fines, 30% fine-grained sand), dry, no odor, strong reaction with HCl.  SILTY SAND (SM), moderate brown, (80% fine-grained sand, 20% fines), very moist, no odor, no reaction with HCl.	
120								

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# LOG OF BORING WCP-99

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-99  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : 116.2'  
 Static GW Depth : na  
 Installation Date(s) : 11/14/2001 to 11/15/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1335		NA	12 16 18		SM	SILTY SAND (SM), (70% fine- grained sand, 30% fines), wet, no odor, no reaction with HCl.	
125	0738		6.7	8 10 10		SP-SM	POORLY-GRADED SAND with SILT and GRAVEL (SP-SM), moderate brwon, (90% fine-grained sand, 10% fines), wet, no odor, no reaction with HCl.	
130	0756		2.9	20 22 28			POORLY-GRADED SAND (SP), moderate brown, (95% fine-grained sand, 5% fines), wet, no odor, no reaction with HCl.	
135	0815		NA	12 17 20			POORLY-GRADED SAND (SP), moderate brown, (95% fine-grained sand, 5% fines), wet, no odor, no reaction with HCl.	
140	0835		1.5	14 16 18		SP	POORLY-GRADED SAND (SP), moderate brown, (100% medium-grained sand), wet, no odor, no reaction with HCl.	
145	0850		0.6	16 22 33			POORLY-GRADED SAND with GRAVEL (SP), moderate brown, (85% medium-grained subrounded sand, 15% finegravel-subrounded), wet, no odor, no reaction with HCl.	
150							POORLY-GRADED SAND (SP), moderate brown, (100% coarse-grained sand), wet, no odor, no reaction with HCl.	

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# LOG OF BORING WCP-99

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-99  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151'  
 Initial GW Depth : 116.2'  
 Static GW Depth : na  
 Installation Date(s) : 11/14/2001 to 11/15/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0920		0.7	NA		SP SM	SILTY SAND (SM), moderate brown, (80% fine-medium sand, 20% fines), wet, no odor, no reaction with HCl.	
Total Depth = 151' bgs								
155								
160								
165								
170								
175								
180								



# LOG OF BORING WCP-100

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-100  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 161'  
Initial GW Depth : 130'  
Static GW Depth : 124.39'  
Installation Date(s) : 11/20/01 to 11/21/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0715		3.2	4 5 4			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, loose, slightly plastic, no odor, and strong reaction to HCl.	
10	0725		3.4	6 6 7		ML	SANDY SILT (ML), moderate to light brown, (50% fines, 50% fine-grained sand), slightly moist, dense, no odor, strong reaction to HCl.	
15	0730		4.7	9 10 17			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, loose, slightly plastic, no odor, strong reaction to HCl.	
20	0740		6.2	8 9 10			SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), slightly moist, loose, slightly plastic, no odor, strong reaction with HCl.	
25	0745		10.1	3 5 6			SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand, trace clay), slightly moist to moist, loose, plastic, no odor, strong reaction to HCl.	
30						SM	SILTY SAND (SM), light reddish brown, (65% medium-coarse sand, 35% fines), slightly moist, moderately loose, non plastic, no odor, strong reaction with HCl.	



# LOG OF BORING WCP-100

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-100  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 161'  
Initial GW Depth : 130'  
Static GW Depth : 124.39'  
Installation Date(s) : 11/20/01 to 11/21/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0755		5.3	10 13 17		SM		
35	0805		6.1	12 16 19		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine to coarse sand), slightly moist, moderately dense, slightly plastic, no odor, strong reaction with HCl.	
40	0815		7.0	31 35 37			SANDY SILT (ML), moderate brown, (60% fines, 40% fine to coarse angular sand), slightly moist, dense, slightly plastic, no odor, strong reaction with HCl.	
45	0825		4.4	32 33 35		SM	SILTY SAND (SM), light brown, (65% fine-coarse angular sand, 35% fines), slightly moist, dense, no odor, no reaction with HCl.	
50	0835		5.5	11 18 20		SW-SM	WELL-GRADED SAND with SILT (SW-SM), light reddish brown, (75% medium-coarse angular sand, 15% gravel, 10% fines), slightly moist, dense, non plastic, no reaction with HCl.	
55	0845		15.6	16 20 26		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-medium sand, trace clay), slightly moist, dense, slightly plastic, no odor, slight reaction with HCl.	
60							SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, dense, slightly plastic, no odor, slight reaction with HCl.	



# LOG OF BORING WCP-100

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-100  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 161'  
Initial GW Depth : 130'  
Static GW Depth : 124.39'  
Installation Date(s) : 11/20/01 to 11/21/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0850		20.1	14 26 28		ML		
65	0910		7.7	11 15 16		SM	SILTY SAND (SM), light brown, (65% medium-coarse sand, 35% fines), slightly moist, moderately loose, non plastic, no odor, no reaction with HCl.	
70	0920		25.7	20 22 23		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine to medium sand), slightly moist, dense, slightly plastic, no odor, slight reaction with HCl.	
75	0940		13.3	16 28 30		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), slightly moist, no odor, slightly plastic, strong reaction with HCl.	
80	0955		7.1	12 14 17		SM	SILTY SAND (SM), reddish brown, (70% fine-coarse, 30% fines), slightly moist, non plastic, no odor, slight reaction with HCl.	
85	1005		12.0	15 16 18		SM	SILTY SAND (SM), reddish brown, (65% fine-coarse subangular sand, 35% fines, trace gravel), slightly moist, non plastic, no odor, slight reaction with HCl.	
90								



# LOG OF BORING WCP-100

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-100  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 161'  
Initial GW Depth : 130'  
Static GW Depth : 124.39'  
Installation Date(s) : 11/20/01 to 11/21/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1020		6.2	28 50-4			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, dense, slightly plastic, no odor, slight reaction with HCl.	
95	1110		10.9	42 50-3		ML	SANDY SILT (ML), light brown, (60% fines, 40% fine to coarse subrounded sand), slightly moist, very dense, no odor, strong reaction with HCl.	
100	1125		38.0	15 15 16			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), moist, loose, slightly plastic, no odor, slight reaction to HCl.	
105	1135		31.4	14 26 35			SANDY SILT (ML), moderate brown, (65% fines, 35% fine-grained sand), moist, caliche interbedded throughout, slightly plastic, no odor, strong reaction with HCl.	
110	1155		6.7	11 16 20		SM	SILTY SAND (SM), moderate brown, (70% fine-coarse sand, 30% fines), slightly moist, moderately loose, non plastic, no odor, no reaction with HCl.	
115	1210		12.0	15 20 22		ML	SANDY SILT (ML), moderate brown, (65% fines, 35% fine-grained sand), moist, moderately dense, slightly plastic, no odor, slight reaction to HCl.	
120								



# LOG OF BORING WCP-100

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-100  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 161'  
Initial GW Depth : 130'  
Static GW Depth : 124.39'  
Installation Date(s) : 11/20/01 to 11/21/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1225		20.0	19 24 33		ML	SANDY SILT (ML), moderate brown, (50% fines, 50% fine to medium sand), moist, moderately loose, slightly plastic, no odor, no reaction to HCl.	
125	1245		14.7	7 7 8		CL	LEAN CLAY with SAND (CL), moderate brown, (40% clay, 40% silt, 20% fine-grained sand), moist, loose, plastic, no odor, no reaction to HCl.	
130	1305		7.8	19 20 35		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine to coarse sand), wet, dense, slightly plastic, no odor, strong reaction to HCl.	
135	1315		5.8	24 19 23		SM	SILTY SAND (SM), moderate brown, (55% medium to coarse subrounded sand, 40% fines, 5% subrounded gravel), wet, dense, slightly to non plastic, no odor, no reaction to HCl.	
140	1335		NA	14 36 44		ML	SANDY SILT (ML), moderate light brown, (60% fines, 40% fine-grained sand), moist, dense, plastic, no odor, no reaction to HCl.	
145	1355		NA	42 50-3		SM	SILTY SAND (SM), moderate brown, (55% fine to coarse sand, 45% fines), wet, very dense, increasing fines with depth, no odor, strong reaction with HCl.	
150						SP		



# LOG OF BORING WCP-100

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-100  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 161'  
 Initial GW Depth : 130'  
 Static GW Depth : 124.39'  
 Installation Date(s) : 11/20/01 to 11/21/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	1420		NA	18 20 22		SP	POORLY-GRADED SAND (SP), reddish brown, (95% coarse sand, 5% fines), saturated, loose, non plastic, no odor, no reaction with HCl.	
155						ML	SANDY SILT (ML), moderate brown, (65% fines, 35% fine-grained sand), slightly moist, very dense, slightly plastic, no odor, strong reaction with HCl.	
Total Depth = 161' bgs								
160								
165								
170								
175								
180								



# LOG OF BORING WCP-200

(Page 1 of 6)

Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-200  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 155  
 Initial GW Depth : 131  
 Static GW Depth : 124.25  
 Installation Date(s) : 11-16-01 & 11-19-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0745		2	33 4 4			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, slightly plastic, moderately loose, slight reaction with HCl.	
10	0750		3.2	6 7 10		ML	SANDY SILT (ML), light brown, (55% fines, 45% fine-grained sand), loose, no odor, slight reaction with HCl.	
15	0755		3.0	8 14 16			SANDY SILT (ML), light brown, (60% fines, 40% fine-medium sand), slightly moist, moderately loose, no odor, no reaction with HCl.	
20	0805		5.0	7 7 9			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), loose, slightly moist, slightly plastic, no odor, slight reaction with HCl.	
25	0810		4.7	8 9 9			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), loose, slightly moist, slightly plastic, no odor.	
30						SM		

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LOG OF BORING WCP-200

Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-200  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : R. Findlay  
Total Depth : 155  
Initial GW Depth : 131  
Static GW Depth : 124.25  
Installation Date(s) : 11-16-01 & 11-19-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0815		4.5	12 12 14		SM	SILTY SAND (SM), reddish brown, (70% fine-grained sand, 30% fines), slightly moist, moderate loose, slightly to non plastic, no odor, no reaction with HCl.	
35	0825		5.5	12 9 10		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, loose, slightly plastic, no odor, moderate to strong reaction to HCl.	
40	0835		4.2	14 19 21		SM	SILTY SAND (SM), light brown, (70% fine-coarse sand, 30% fines), slightly moist, moderately loose, non plastic, no odor, strong reaction with HCl.	
45	0845		7.3	9 14 17		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, moderate loose, slightly plastic, no odor, no reaction to HCl.	
50	0855		4.8	19 22 23		SW-SM	WELL-GRADED SAND with SILT (SW-SM), light reddish tan, (80% medium to coarse sand, 10% angular sand up to 1/4" in diameter, 10% fines), slightly moist, moderately dense, non plastic, no odor, no reaction with HCl.	
55	0900		10.3	13 16 23		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist, moderately dense, slightly plastic, no odor, no reaction with HCl.	
60								

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# LOG OF BORING WCP-200

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-200  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 155  
 Initial GW Depth : 131  
 Static GW Depth : 124.25  
 Installation Date(s) : 11-16-01 & 11-19-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0915		3.1	25 26 27		ML	SANDY SILT (ML), moderate brown, (50% fine-grained sand, 50% fines), slightly moist, moderately dense, slightly plastic, no odor, no reaction with HCl.	
65	0925		6.0	15 19 18		SM	SILTY SAND (SM), light reddish brown, (80% fine-coarse sand, 20% fines), slightly moist, loose, non plastic, no odor, no reaction to HCl.	
70	0935		8.5	21 50-6		ML	SANDY SILT (ML), light brown, (50% fine-medium sand, 50% fines, trace gravel), slightly moist, very dense, slightly plastic, no odor, no reaction with HCl.	
75	0950		4.2	32 50-6		ML	SANDY SILT (ML), light brown, (60% fines, 40% fine-grained sand), slightly moist, slightly plastic, no odor.	
80	1000		3.0	46 50-4		ML	SANDY SILT (ML), light brown, (60% fines, 40% fine-grained sand, trace gravel), slightly moist, slightly plastic, no odor.	
85	1100		10.7	13 26 31		SM	SILTY SAND (SM), light reddish brown, (60% fine-grained sand, 40% fines), slightly moist, non plastic, no odor, strong reaction to HCl.	
90						ML		



# LOG OF BORING WCP-200

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-200  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 155  
 Initial GW Depth : 131  
 Static GW Depth : 124.25  
 Installation Date(s) : 11-16-01 & 11-19-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1115		14.4	37 50-5		ML	SANDY SILT (ML), moderate reddish brown, (60% fines, 40% fine to medium sand), moist, slightly plastic, dense, no odor, no reaction with HCl.	
95	1130		20.5	15 17 21		ML	SANDY SILT (ML), moderate brown, (50% fine-medium sand, 50% fines), slightly moist, loose, no odor, no reaction with HCl.	
100	1145		13.0	16 18 23		SM	SILTY SAND (SM), light brown, (70% fine-medium angular sand, 30% fines), slightly moist, non plastic, no odor, no reaction with HCl.	
105	1205		17.7	12 16 20		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), slightly moist to moist, moderately loose, no odor, slightly plastic, slight reaction to HCl.	
110	1225		24.1	11 16 27		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, moderately loose, slightly plastic, no odor, no reaction with HCl.	
115	1240		19.4	12 16 21		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, moderately loose, plastic, no odor, no reaction with HCl.	
120								

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# LOG OF BORING WCP-200

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-200  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 155  
 Initial GW Depth : 131  
 Static GW Depth : 124.25  
 Installation Date(s) : 11-16-01 & 11-19-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1255		21.2	14 16 17			SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, moderately loose, plastic, no odor, no reaction with HCl.	
125	1310		32.3	7 12 13		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained incr. moist, slightly plastic, loose, no odor, no reaction with HCl.	
130	1330		16.1	16 18 21			SANDY SILT (ML), moderate brown, (60% fines, 40% fine-medium sand), saturated at 131" bgs, plastic, moderately loose, no odor, no reaction with HCl.	
135	0730		NA	10 12 18			SANDY SILT (ML), moderate brown, (50% fine to medium sand, 50% fines), saturated, poor recovery, slightly plastic, increased sands, loose, no odor, no reaction with HCl.	
140	0745		NA	36 50-4		SM	SILTY SAND (SM), light reddish brown, (70% medium to coarse angular sand, 30% fines), saturated, dense, non plastic, no odor, no reaction with HCl.	
145	0810		NA	46 54-4		SW	WELL-GRADED SAND (SW), light reddish brown, (95% fine to coarse angular sand, trace gravel), saturated, no odor, no reaction to HCl.	
150						ML	SANDY SILT (ML), moderate brown, (50% fine to medium sand, 50% fines), wet, dense, slightly plastic, no odor, strong reaction with HCl.	

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# LOG OF BORING WCP-200

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-200  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : R. Findlay  
 Total Depth : 155  
 Initial GW Depth : 131  
 Static GW Depth : 124.25  
 Installation Date(s) : 11-16-01 & 11-19-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0840		NA	21 26 32		ML	SANDY SILT (ML), moderate brown, (50% fine to medium sand, 50% fines), wet, dense, slightly plastic, no odor, strong reaction with HCl.	
155	1035		NA	12 13 19		SM	SILTY SAND (SM), moderate brown, (55% fine-medium sand, 45% fines), wet, moderately loose, slightly plastic, no odor, no reaction with HCl.	
Total depth = 156' bgs.								
160								
165								
170								
175								
180								

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# LOG OF BORING WCP-201

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-201  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 156'  
 Initial GW Depth : 123.3'  
 Static GW Depth : na  
 Completion Date : 11-30-01 to 12/03/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0728		NA	4 8 10			SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), mostly dry, no odor, strong reaction with HCl.	
10	0733		NA	9 9 10			SILT (ML), moderate brown, (100% fines), dry, no odor, strong reaction with HCl.	
15	0740		9.7	6 8 11		ML	SILT (ML), moderate brown, (100% fines), dry, no odor, strong reaction with HCl.	
20	0746		52.2	8 13 14			SILT (ML), moderate brown, (100% fines), dry, no odor, strong reaction with HCl.	
25	0752		30.7	6 7 9			SILT (ML), moderate brown, (100% fines), dry, no odor, strong reaction with HCl.	
30						SW		

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# LOG OF BORING WCP-201

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-201  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 156'  
Initial GW Depth : 123.3'  
Static GW Depth : na  
Completion Date : 11-30-01 to 12/03/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0803		1.5	11 13 14		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine-coarse subrounded-angular sand), slightly moist, no odor, no reaction with HCl.	
35	0841		0	12 19 20			SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), slightly moist, no odor, strong reaction with HCl.	
40	0851		0	14 17 20		ML	SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), dry, no odor, strong reaction with HCl.	
45	0903		0	18 22 28			SILT (ML), moderate brown, (100% fines), slightly moist, no odor, moderate reaction with HCl.	
50	0911		0	16 30 36			SANDY SILT with GRAVEL (ML), moderate brown, (65% fines, 25% fine-medium subrounded gravel, 10% fine-medium subrounded to subangular sand) dry, no odor, strong reaction with HCl.	
55	0922		0	19 28 30		SW	WELL-GRADED SAND with GRAVEL (SW), moderate brown, (100% fine-coarse subrounded sand), dry, no odor, no reaction to HCl.	
60						ML	SILT with SAND (ML), moderate brown, (90% fines, 10% fine-grained sand), slightly moist, no odor, no reaction with HCl.	

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# LOG OF BORING WCP-201

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-201  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 156'  
Initial GW Depth : 123.3'  
Static GW Depth : na  
Completion Date : 11-30-01 to 12/03/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0932		0	50-6		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-medium sand), slightly moist, no odor, strong reaction with HCl.	
65	0945		0	29 30 35		SW	WELL-GRADED SAND with GRAVEL (SW), moderate to light brown, (100% fine-coarse subrounded to subangular sand), slightly moist, no odor, no reaction with HCl.	
70	1010		1.2	12 18 19		SP	POORLY-GRADED SAND (SP), light brown, (100% fine-grained sand), slightly moist, no odor, no reaction with HCl.	
75	1023		0	17 21 25		ML	SILT with SAND (ML), moderate brown, (75% fines, 25% fine-grained sand), moist, no odor, no reaction with HCl.	
80	1035		0	50-6		ML	SILT with SAND (ML), light brown, (80% fines, 20% fine-grained sand), dry, no odor, strong reaction with HCl.	
85	1049		0	31 50-6		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, strong reaction with HCl.	
90						SP	POORLY-GRADED SAND (SP), moderate brown, (100% fine to medium subangular to subrounded sand), moist, no odor, no reaction with HCl.	

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# LOG OF BORING WCP-201

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-201  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 156'  
 Initial GW Depth : 123.3'  
 Static GW Depth : na  
 Completion Date : 11-30-01 to 12/03/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1103		0	15 17 21		SP	SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), moist, no odor, no reaction with HCl.	
95	1117		0	13 27 29		ML	SILT (ML), reddish brown, (100% fines), moist, no odor, no reaction with HCl.	
100	1133		0	19 20 28		SM	SILTY SAND (SM), moderate brown, (65% fine to medium sand, 35% fines), moist, no odor, no reaction with HCl.	
105	1148		0	17 27 28		SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), slightly moist, no odor, strong reaction with HCl.	
110	1206		0	15 32 50-5		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, no reaction with HCl.	
115	1221		0	41 50-5		ML	SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), dry, no odor, strong reaction with HCl.	
120								

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# LOG OF BORING WCP-201

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-201  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 156'  
Initial GW Depth : 123.3'  
Static GW Depth : na  
Completion Date : 11-30-01 to 12/03/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1238		0	10 15 19			SILT (ML), moderate brown, (100% fines), moist, no odor, moderate reaction with HCl.	
125	1253		0	12 17 20			SILT (ML), moderate brown, (100% fines), moist, no odor, moderate reaction with HCl.	
130	1311		NA	12 15 17		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, moderate reaction with HCl.	
135	0732		NA	76-6			SILT (ML), moderate brown, (100% fines), wet, no odor, no reaction with HCl.	
140	0748		NA	10 50-4		SM	SILTY SAND (SM), moderate brown, (65% fine-medium sand, 35% fines), wet, no odor, no reaction with HCl.	
145	0805		NA	31 50-3		ML	SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), moist no odor, slight reaction with HCl.	
150						SW	WELL-GRADED SAND (SW), (95% fine-coarse subrounded sand, 5% fines), wet, no odor, no reaction with HCl.	



# LOG OF BORING WCP-201

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Arizona Department of Environmental Quality VW&R	Project Number	: 20092-090-002	Field Geologist	: S. Kleinheider
	Project Location	: VW&R	Total Depth	: 156'
	Boring Number	: WCP-201	Initial GW Depth	: 123.3'
	Rig Type	: CME 95	Static GW Depth	: na
	Drilling Method	: HSA	Completion Date	: 11-30-01 to 12/03/01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0825		NA	47 50-4		SW	SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), moist no odor, strong reaction with HCl.	
155	0846		NA	22 24 28		ML	SILT with SAND (ML), (95% fines, 5% fine-grained sand), wet, no odor, no reaction with HCl.	
Total Depth = 156' bgs								
160								
165								
170								
175								
180								



# LOG OF BORING WCP-202

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-202  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 152'  
 Initial GW Depth : 120.2'  
 Static GW Depth : na  
 Completion Date : 12-4-01 & 12-5-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0720		0	2 4 4		ML	SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), moist, no odor, slight reaction with HCl.	
10	0733		0	6 6 7			SANDY SILT (ML), moderate brown, (65% fines, 35% fine-medium subrounded sand), slightly moist, no odor, strong reaction with HCl.	
15	0740		0	7 8 9		SP	POORLY-GRADED SAND (SP), moderate brown, (100% fine-grained sand), slightly moist, no odor, no reaction with HCl.	
20	0749		0	6 7 8		ML	SILT with SAND (ML), moderate brown, (80% fines, 20% fine-grained sand), moist, no odor, strong reaction with HCl.	
25	0753		0	3 3 5		SP	POORLY-GRADED SAND (SP), moderate brown, (95% fine-grained sand, 5% fines), slightly moist, no odor, slight reaction with HCl.	
30						ML		

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LOG OF BORING WCP-202

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-202  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 152'  
Initial GW Depth : 120.2'  
Static GW Depth : na  
Completion Date : 12-4-01 & 12-5-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0759		0	8 7 7		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, strong reaction with HCl.	
35	0808		0	9 12 14		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, moderate reaction with HCl.	
40	0817		0	8 9 11		SM	SILTY SAND (SM), moderate brown, (60% fine-grained sand, 40% fines), moist, no odor, no reaction with HCl.	
45	0827		0	24 26 28		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), dry to slightly moist, no odor, strong reaction with HCl.	
50	0837		0	15 25 50-6		ML	SANDY SILT (ML), moderate brown, (65% fines, 35% fine-grained sand), slightly moist, no odor, strong reaction with HCl.	
55	0848		0	50-6		ML	SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), dry, no odor, strong reaction with HCl.	
60						SM		

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LOG OF BORING WCP-202

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-202  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 152'  
Initial GW Depth : 120.2'  
Static GW Depth : na  
Completion Date : 12-4-01 & 12-5-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0901		0	11 12 13		SM	SILTY SAND with GRAVEL (SM), moderate brown, (60% fine-medium sand, 25% fines, 15% fine subrounded gravel), moist, no odor, no reaction with HCl.	
65	0912		0	18 32 45		SW	WELL-GRADED SAND with GRAVEL (SW), (60% fine-coarse subrounded to subangular sand, 40% subrounded-rounded fine-medium gravel), dry, no odor, no reaction with HCl.	
70	0948		0	25 50-4		SP	POORLY-GRADED SAND (SP), (90% coarse subangular sand, 10% fines), moist, no odor, no reaction with HCl.	
75	1006		0	17 31 41		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, no reaction with HCl.	
80	1020		0	11 17 20		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-medium sand), moist, no odor, no reaction with HCl.	
85	1037		0	20 22 28		SW	WELL-GRADED SAND with GRAVEL (SW), light to moderate brown, (80% fine-coarse subrounded to subangular sand, 20% fine to medium subrounded to rounded gravel), slightly moist, no odor, no reaction with HCl.	
90						SP	POORLY-GRADED SAND (SP), moderate brown, (100% fine-grained sand), moist, no odor, no reaction with HCl.	

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# LOG OF BORING WCP-202

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-202  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 152'  
 Initial GW Depth : 120.2'  
 Static GW Depth : na  
 Completion Date : 12-4-01 & 12-5-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1050		0	15 20 21		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, no reaction with HCl.	
95	1102		0	12 24 27		SW	WELL-GRADED SAND with GRAVEL (SW), moderate brown, (80% fine to coarse subrounded to subangular sand, 20% fine-medium subrounded gravel), dry, no odor, no reaction with HCl.	
100	1120		0	9 12 38		ML	SANDY SILT (ML), moderate brown, (65% fines, 35% fine-coarse sand), moist, no odor, no reaction with HCl.	
105	1135		0	50-6		SP	POORLY-GRADED SAND (SP), moderate brown, (100% fine-grained sand), dry, no odor, no reaction with HCl.	
110	1150		0	22 50-6		ML	SILT (ML), light brown, (100% fines), no odor, dry, strong reaction with HCl.	
115	1210		0	17 20 23		SP	POORLY-GRADED SAND (SP), light brown, (100% fine-grained sand), slightly moist, no odor, moderate reaction with HCl.	
120						SW		

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# LOG OF BORING WCP-202

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-202  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 152'  
Initial GW Depth : 120.2'  
Static GW Depth : na  
Completion Date : 12-4-01 & 12-5-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1228		0	10 11 12		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine to coarse subrounded to subangular sand), moist, no odor, no reaction with HCl.	
125	1245		0	14 16 16			POORLY-GRADED SAND (SP), moderate light to reddish brown, (100% fine-grained sand), wet, no odor, no reaction with HCl.	
130	0744		0	7 11 21		SP	POORLY-GRADED SAND (SP), moderate to light brown, (100% fine-grained sand), wet, no odor, no reaction with HCl.	
135	0800		0	13 19 22			POORLY-GRADED SAND (SP), moderate brown, (95% fine-grained sand, 5% fines), wet, no odor, no reaction with HCl.	
140	0820		0	14 50-6		SM	SILTY SAND (SM), moderate brown, (60% fine-medium sand, 40% fines), wet, no odor, no reaction with HCl.	
145	0843		0	6 8 8		ML	SILT (ML), light brown, (100% fines), dry, no odor, strong reaction with HCl.	
150						ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), no odor, no reaction with HCl.	



# LOG OF BORING WCP-202

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-202  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 152'  
 Initial GW Depth : 120.2'  
 Static GW Depth : na  
 Completion Date : 12-4-01 & 12-5-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0905		0	12 14 20		ML SP	POORLY-GRADED SAND (SP), moderate to dark brown, (100% fine-grained sand), wet, no odor, no reaction with HCl.	
155								
160								
165								
170								
175								
180								



# LOG OF BORING WCP-203

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-203  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 162'  
 Initial GW Depth : na  
 Static GW Depth : 130.7'  
 Completion Date : 12-17-01 & 12-18-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0							Fill Material, Glass, etc.	
5	1228		0	1 1 2			SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), moist no odor, strong reaction with HCl.	
10	1235		0	5 5 6			SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), slightly moist, no odor, strong reaction with HCl.	
15	1240		0	10 21 32		ML	SILT (ML), light to moderate brown, (100% fines), dry, no odor, strong reaction with HCl.	
20	1245		0	8 11 12			SANDY SILT (ML), light brown, (70% fines, 30% fine-grained sand), dry, no odor, strong reaction with HCl.	
25	1253		0	8 11 13			WELL-GRADED SAND (SW), (100% fine-coarse subrounded-subangular sand), dry, no odor, no reaction with HCl.	
30						SW		

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# LOG OF BORING WCP-203

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-203  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 162'  
Initial GW Depth : na  
Static GW Depth : 130.7'  
Completion Date : 12-17-01 & 12-18-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	1257		0	12 16 20		SW	WELL-GRADED SAND with GRAVEL (SW), (60% fine-coarse subrounded to subangular sand, 40% fine-medium subrounded gravel), dry, no odor, strong reaction with HCl.	
35	1305		0	41 50-4		ML	SILT (ML), moderate brown, (100% fines), dry, no odor, strong reaction with HCl.	
40	1311		0	20 50-2		SW-SM	WELL-GRADED SAND with SILT and GRAVEL (SW-SM), (50% fine-coarse subrounded-subangular sand, 10% fines, 40% fine-medium subrounded gravel), slightly moist, no odor, strong reaction with HCl.	
45	1318		0	16 17 27		SP	POORLY-GRADED SAND (SP), (100% coarse subrounded-subangular sand), slightly moist, no odor, no reaction with HCl.	
50	1325		0	15 23 27		SW	WELL-GRADED SAND with GRAVEL (SW), (60% fine-coarse subrounded-subangular sand, 40% subrounded-rounded fine-medium gravel), dry, no odor, no reaction with HCl.	
55	1334		0	17 21 25		SM	SILTY SAND (SM), (65% fine-medium sand, 35% fines), moist, no odor, no reaction with HCl.	
60								

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# LOG OF BORING WCP-203

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-203  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 162'  
Initial GW Depth : na  
Static GW Depth : 130.7'  
Completion Date : 12-17-01 & 12-18-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	1343		0	19 24 28		SM	SILTY SAND (SM), (70% fine-grained sand, 30% fines), moist, no odor, no reaction with HCl.	
65	1352		0	22 31 37		SW	WELL-GRADED SAND (SW), (100% fine-coarse sand), dry, no odor, no reaction with HCl.	
70	1402		0	19 25 38		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, strong reaction with HCl.	
75	1415		0	16 18 19		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine to coarse subrounded to subangular sand), slightly moist, no odor, no reaction with HCl.	
80	1427		0	36 50-5		SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), moist, no odor, strong reaction with HCl.	
85	1440		0	50-5		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, strong reaction with HCl.	
90								



# LOG OF BORING WCP-203

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-203  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 162'  
Initial GW Depth : na  
Static GW Depth : 130.7'  
Completion Date : 12-17-01 & 12-18-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1456		0	17 21 25		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), moist, no odor, no reaction with HCl.	
95	1506		0	13 17 20		SM	SILTY SAND (SM), moderate brown, (80% fine-grained sand, 20% fines), moist, no odor, no reaction with HCl.	
100	1519		0.5	16 24 27		SW	WELL-GRADED SAND with GRAVEL (SW), moderate brown, (70% fine to coarse subrounded to subangular sand, 30% subrounded to rounded fine-medium gravel), moist, no odor, no reaction with HCl.	
105	1532		0.2	16 22 22		SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), moist, no odor, no reaction with HCl.	
110	1550		NA	12 13 14		SW	WELL-GRADED SAND with GRAVEL (SW), moderate brown, (80% fine-coarse subrounded to angular sand, 20% fine subrounded gravel), slightly moist, no odor, no reaction with HCl.	
115	1606		NA	50-5		ML	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), moist, no odor, no reaction with HCl.	
120						SM	SANDY SILT (ML), moderate brown, (60% fines, 40% fine-grained sand), moist, no odor, strong reaction with HCl.	



# LOG OF BORING WCP-203

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-203  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 162'  
Initial GW Depth : na  
Static GW Depth : 130.7'  
Completion Date : 12-17-01 & 12-18-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1623		NA	8 9 14		SM	SILTY SAND (SM), moderate brown, (60% fine-grained sand, 40% fines), moist, no odor, no reaction with HCl.	
125	1637		NA	16 20 29		SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), moist, no odor, strong reaction with HCl.	
130	1656		NA	50-5		ML	SILT (ML), moderate brown, (100% fines), moist to slightly moist, no odor, no reaction with HCl.	
135	1714		NA	40 50-5		SM	SILTY SAND (SM), moderate brown, (80% fine-grained sand, 20% fines), wet, no odor, slight reaction with HCl.	
140	1032		NA	41 50-5		ML	SILT (ML), moderate brown, (100% fines), dry to slightly moist, no odor, strong reaction with HCl.	
145	1053		NA	8 12 16		SP	POORLY-GRADED SAND (SP), dark brown, (100% medium subrounded to subangular sand), wet, no odor, no reaction with HCl.	
						ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-medium subrounded to subangular sand), moist, no odor, no reaction with HCl.	
						SP	POORLY-GRADED SAND (SP), dark brown, (100% medium subrounded to subangular sand), wet, no odor, no reaction with HCl.	
150						ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-medium sand), moist to wet, no odor, moderate reaction with HCl.	



# LOG OF BORING WCP-203

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-203  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 162'  
 Initial GW Depth : na  
 Static GW Depth : 130.7'  
 Completion Date : 12-17-01 & 12-18-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	1113		NA	33 50-5		ML	SILT (ML), moderate brown, (100% fines), dry to slightly moist, no odor, strong reaction with HCl.	
155	1135		NA	21 28 32		SP	POORLY-GRADED SAND (SP), moderate brown, (100% medium subrounded sand), wet, no odor, no reaction with HCl.	
160	1210		NA	27 50-6		ML	SILT (ML), moderate brown, (100% fines), slightly moist, no odor, strong reaction with HCl.	
Total Depth = 162' bgs								
165								
170								
175								
180								



# LOG OF BORING WCP-204

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-204  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151  
 Initial GW Depth : 120.5  
 Static GW Depth : na  
 Completion Date : 11-28-01 & 11-29-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
0								
5	0800		NA	2 4 8		ML	SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), moist, no odor, moderate reaction with HCl.	
10	0810		NA	1 2 2		ML	SILT (ML), moderate brown, (100% fines), moist, no odor, moderate reaction with HCl.	
15	0815		NA	3 4 4		ML	SILT (ML), moderate brown, (95% fines, 5% fine-grained sand), moist, no odor, moderate reaction with HCl.	
20	0825		0	6 7 7		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine-coarse subrounded-subangular sand), slightly moist, no odor, no reaction with HCl.	
25	0830		0	8 11 14		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine-coarse subrounded to angular sand), slightly moist, no odor, no reaction with HCl.	
30						ML		



# LOG OF BORING WCP-204

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-204  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 151  
Initial GW Depth : 120.5  
Static GW Depth : na  
Completion Date : 11-28-01 & 11-29-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
30	0841		4	11 13 16		ML	SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), moist, no odor, moderate reaction with HCl.	
35	0850		0	8 9 9		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine-coarse subrounded to rounded sand), slightly moist, no odor, no reaction with HCl.	
40	0859		0	9 13 14		SP	POORLY-GRADED SAND (SP), moderate brown, (100% fine-grained sand), mostly dry, no odor, no reaction with HCl.	
45	0906		2.4	11 17 27		ML	SILT with SAND (ML), moderate brown, (75% fines, 25% fine-grained sand), moist, no odor, slight reaction with HCl.	
50	0920		0	26 44 48		ML	SILT with SAND (ML), moderate brown, (85% fines, 15% fine-grained sand), mostly dry, no odor, strong reaction with HCl.	
55	0935		0	47 50-3			SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), slightly moist, no odor, moderate reaction with HCl.	
60								



# LOG OF BORING WCP-204

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
Project Location : VW&R  
Boring Number : WCP-204  
Rig Type : CME 95  
Drilling Method : HSA

Field Geologist : S. Kleinheider  
Total Depth : 151  
Initial GW Depth : 120.5  
Static GW Depth : na  
Completion Date : 11-28-01 & 11-29-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
60	0950		0	17 18 18		ML	SILT (ML), moderate brown, (100% fines), dry, no odor, strong reaction with HCl.	
65	1000		0	16 19 22		SM	SILTY SAND (SM), moderate brown, (65% fine-grained sand, 35% fines), slightly moist, no odor, no reaction with HCl.	
70	1014		0	9 11 12		SP	POORLY-GRADED SAND (SP), moderate brown, (100% fine-grained sand), slightly moist, no odor, no reaction with HCl.	
75	1027		0	23 24 25		SW	WELL-GRADED SAND (SW), moderate brown, (100% fine-coarse, subrounded to angular sand), dry, no odor, no reaction with HCl.	
80	1040		0	50-6		SW	WELL-GRADED SAND with GRAVEL (SW), moderate brown, (75% fine-coarse, subrounded sand, 25% fine-medium subrounded to rounded gravel), slightly moist, no odor, no reaction with HCl.	
85	1053		0	12 16 19		SP	POORLY-GRADED SAND (SP); light to moderate brown, (95% fine-grained sand, 5% fines), slightly moist, no odor, no reaction with HCl.	
90								



# LOG OF BORING WCP-204

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Arizona Department of Environmental Quality VW&R	Project Number	: 20092-090-002	Field Geologist	: S. Kleinheider
	Project Location	: VW&R	Total Depth	: 151
	Boring Number	: WCP-204	Initial GW Depth	: 120.5
	Rig Type	: CME 95	Static GW Depth	: na
	Drilling Method	: HSA	Completion Date	: 11-28-01 & 11-29-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
90	1107		0	20 23 25		SW	WELL-GRADED SAND with GRAVEL (SW), moderate brown, (85% fine-coarse subrounded-subangular sand, 15% fine-medium subrounded- rounded gravel), slightly moist, no odor, no reaction with HCl.	
95	1151		0	8 10 13		ML	WELL-GRADED SAND (SW), moderate brown, (100% fine-coarse, subrounded sand), slightly moist, no odor, no reaction with HCl. SILT with SAND (ML), moderate brown, (75% fines, 25% fine-grained sand), moist, no odor, no reaction with HCl.	
100	1205		0	9 15 23		SM	SILT (ML), moderate brown, (90% fines, 10% fine-grained sand), moist, no odor, moderate reaction with HCl. SILTY SAND (SM), moderate brown, (65% fines, 35% fine-grained sand), slightly moist, no odor, moderate reaction with HCl.	
105	1222		2.9	14 14 22		SP	POORLY-GRADED SAND (SP), moderate brown, (95% fine-grained sand, 5% fines), slightly moist, no odor, strong reaction with HCl.	
110	1237			32 50-5		ML	SANDY SILT (ML), moderate brown, (75% fines, 25% fine-grained sand), moist, no odor, strong reaction with HCl.	
115	1257			22 32 50-6		SM	SILTY SAND (SM), moderate brown, (80% fine-grained sand, 20% fines), slightly moist, no odor, strong reaction with HCl.	
120								



LOG OF BORING WCP-204

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Arizona Department of Environmental Quality  
VW&R

Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-204  
 Rig Type : CME 95  
 Drilling Method : HSA

Field Geologist : S. Kleinheider  
 Total Depth : 151  
 Initial GW Depth : 120.5  
 Static GW Depth : na  
 Completion Date : 11-28-01 & 11-29-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
120	1318			12 14 19		SM	SILT with SAND (ML), moderate brown, (80% fine-grained sand, 20% fines), wet, no odor, moderate reaction with HCl.	
125	0715			9 10 12		ML	SILT (ML), moderate to light brown, (90% fines, 10% fine-grained sand), slightly moist, no odor, strong reaction with HCl.	-
130	0745			6 23 24		SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), wet, no odor, no reaction with HCl.	
135	0800			11 18 28		SM	SILTY SAND (SM), moderate brown, (70% fine-grained sand, 30% fines), wet, no odor, no reaction with HCl.	
140	0820			12 18 25		ML	SANDY SILT (ML), moderate brown, (70% fines, 30% fine-grained sand), moist, no odor, slight reaction with HCl.	
145	0835			13 15 16		ML	SILT (ML), moderate brown, (100% fines), slightly moist to moist, no odor, slight reaction with HCl.	
150	0850			9				

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Arizona Department of Environmental Quality  
VW&R

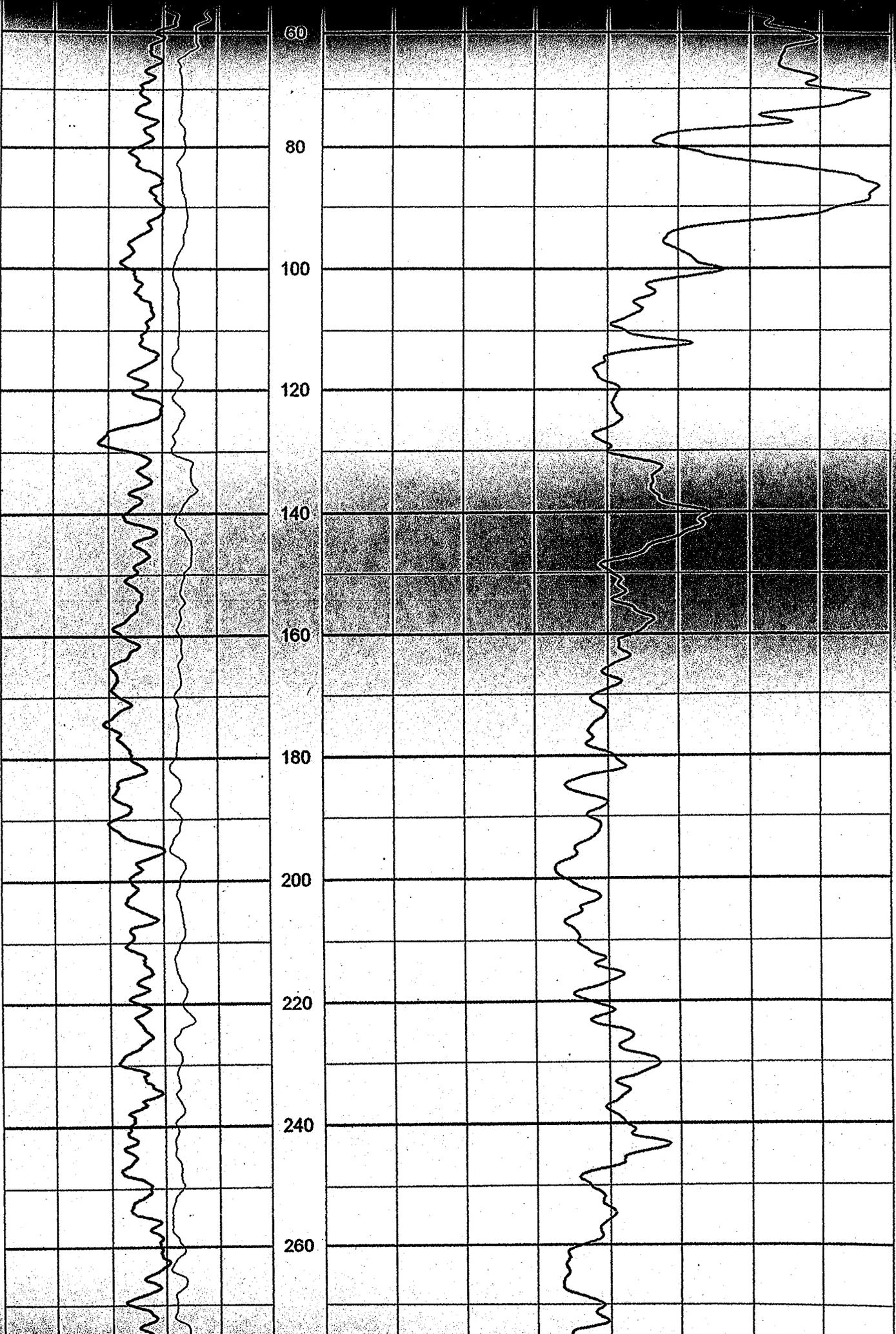
Project Number : 20092-090-002  
 Project Location : VW&R  
 Boring Number : WCP-204  
 Rig Type : CME 95  
 Drilling Method : HSA

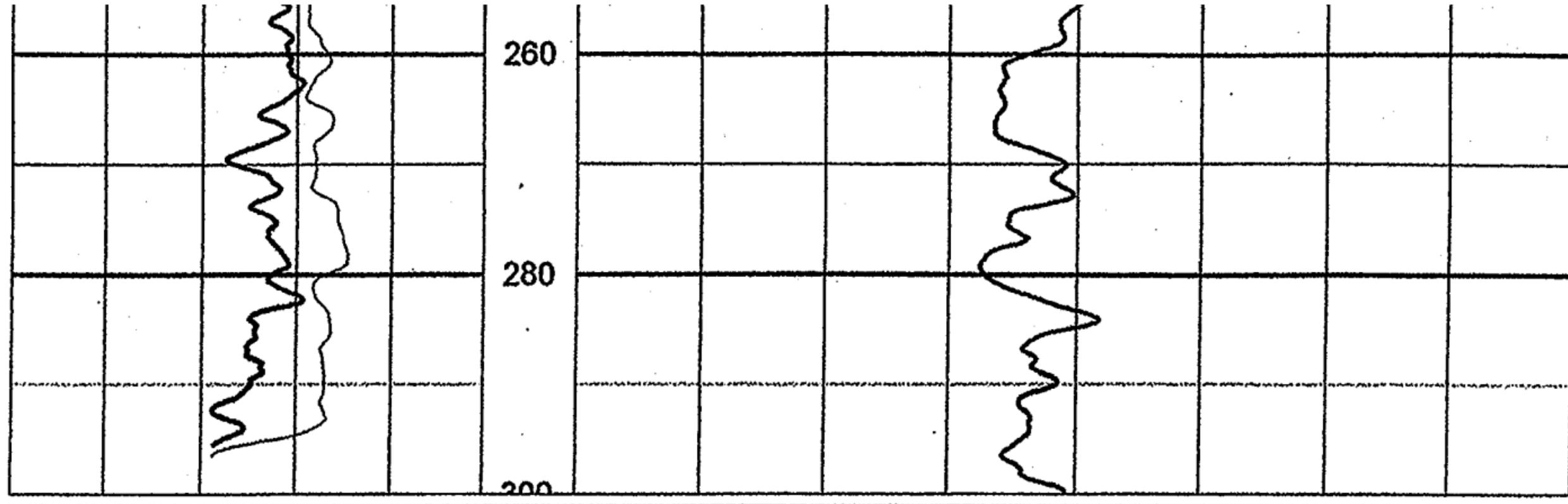
Field Geologist : S. Kleinheider  
 Total Depth : 151  
 Initial GW Depth : 120.5  
 Static GW Depth : na  
 Completion Date : 11-28-01 & 11-29-01

Depth in feet	TIME	Samples	PID ppm	Blow Count	GRAPHIC	USCS	DESCRIPTION	REMARKS
150	0850			9 12		ML	SILT (ML), moderate brown, (90% fines, 10% fines-grained sand), moist, no odor, no reaction with HCl.	
Total Depth = 151' bgs								
155								
160								
165								
170								
175								
180								

**APPENDIX B**  
**GEOPHYSICAL LOGGING RESULTS**  
**WCP-48**













**APPENDIX C**  
**AQUIFER TEST REPORT**

# Aquifer Test Report

## WCP East Grand Avenue WQARF Site

### Phoenix, Arizona

*Prepared for:*

**Arizona Department of Environmental Quality**

1110 W. Washington Street

Phoenix, Arizona 85007

*Prepared by:*

**Weston Solutions, Inc.**

950 West Elliot Road

Suite 110

Tempe, AZ 85284

June 2006





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<b><u>Attachment</u></b>	<b><u>Title</u></b>
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Attachment B	Analytical Data
Attachment C	Time-Drawdown Data

## ACRONYMS

ADEQ	Arizona Department of Environmental Quality
bgs	below ground surface
1,1-DCE	1,1-dichloroethene
EPA	Environmental Protection Agency
FS	Feasibility Study
ft/ft	feet per foot
gpm	gallons per minute
gpm/ft	gallons per minute per foot
IDW	Investigation-derived waste
PCE	tetrachloroethene
RI	Remedial Investigation
STL	Severn Trent Laboratories-Chicago
TCE	trichloroethene
UAU	Upper Alluvial Unit
µg/L	micrograms per liter
VOC	volatile organic compound
VW&R	Van Waters and Rogers
WCP	West Central Phoenix
WESTON	Weston Solutions, Inc.
WQARF	Water Quality Assurance Revolving Fund

## 1.0 INTRODUCTION

Weston Solutions, Inc. (WESTON®) prepared this Aquifer Test Report as part of the requirements of Contract Number 99-0017-AN with the Arizona Department of Environmental Quality (ADEQ) for Work Assignment Number 99-0148. An aquifer test was conducted on May 22 through 23, 2001 to collect and analyze data to determine hydrogeologic parameters such as transmissivity, hydraulic conductivity, and the storage coefficient. The results will be used for the Remedial Investigation (RI) and Feasibility Study (FS) for the West Central Phoenix (WCP) East Grand Avenue Water Quality Assurance Revolving Fund (WQARF) Site (Figure 1-1). The wells selected for the aquifer test were located on or near the former Van Waters & Rogers (VW&R) facility, which has been identified as the primary source of contamination in the WCP East Grand Avenue WQARF Site. The aquifer test was conducted for ADEQ and funded by the Arizona WQARF.

Groundwater monitor well WCP-29 was pumped at 34.7 gallons per minute (gpm) for approximately 21.5 hours (Figure 1-2). Drawdown was monitored using a Hermit™ 3000 datalogger attached to pressure transducers in groundwater monitor wells WCP-29, WCP-28, and WCP-16. Solinst® PXD-261 Leveloggers™ were installed in the observation (WCP-15 and WCP-84) and background (WCP-17 and WCP-42) wells. Additionally, a Barologger™ was suspended in WCP-84 to monitor changes in barometric pressure. Groundwater samples were collected and submitted for laboratory analysis at three intervals during the event. Once the pumping phase of the aquifer test was completed, recovery data were collected in the pumping, observation, and background wells for the next 300 minutes (Figure 1-3). Groundwater elevations during the pumping and recovery stages of the test were also measured manually with a water-level indicator.

### 1.1 FACILITY BACKGROUND

VW&R is a chemical distribution firm that operated at 2930 West Osborn Road (Figure 1-2) in Phoenix, Arizona from 1957 to 1970. The VW&R facility is located in the southeast ¼ of the southwest ¼ of the northeast ¼ of Section 26, Township 2 North, and Range 2 East of the Gila

and Salt River Base and Meridian in Maricopa County, Arizona. In 1970, VW&R moved their operation to its current location on South 45<sup>th</sup> Avenue in Phoenix, Arizona (ADEQ, 1993). Century Wheel and Rim, a distributor of undercarriage and transportation parts, currently occupies the property at 2930 West Osborn Road. Bakala Investment Properties L.L.C. currently owns the property.

## **1.2 AQUIFER TEST OBJECTIVES**

The aquifer test was conducted to estimate aquifer properties, such as transmissivity, hydraulic conductivity, and the storage coefficient, and to assess potential aquifer boundary conditions within identified hydrostratigraphic units in the WCP East Grand Avenue WQARF Site. In addition, hydrogeologic components of the site conceptual model will be formulated for the RI report.

## **1.3 SITE GEOLOGY/HYDROGEOLOGY**

This section presents site-specific information on the hydrogeologic units and aquifer characteristics obtained by investigations conducted at the VW&R facility and other sites in the WCP area.

Geologic logs of borings drilled on and adjacent to the VW&R facility during Phases I and II of the RI were reviewed to evaluate subsurface conditions. The Phase II RI monitor wells were drilled to approximately 142 feet below ground surface (bgs). The boring logs provide lithological information on the vadose zone, capillary zone, and the upper portions of the Upper Alluvial Unit (UAU) (Attachment A). Boring logs from the Phase III and Phase IV wells were not incorporated into the fence diagrams for this report. The locations of the cross sections are shown in Figure 1-4. An east-west trending cross section (A-A') and a north-south cross section (B-B') were prepared to graphically represent the lithologies encountered beneath the VW&R facility (Figure 1-5 and Figure 1-6, respectively).

Subsurface soils beneath the VW&R facility are predominantly silty/clayey sand to silty/sandy clay. Silty clays are typically present from the surface to a depth of 5 feet bgs, followed by a layer of silty sand to a depth of approximately 30 feet. Alternating layers of sandy silt and silty

sand are encountered to the maximum depth of borings at the facility, approximately 142 feet bgs. Up to three zones of gravelly sand (up to 40 percent gravel) have been documented in borings at the facility (Fluor Daniel, 1997).

Six shallow groundwater monitor wells have been installed in the UAU at the VW&R facility. Static water levels in September 2000 were measured at depths of 118 to 120 feet bgs in these wells. Lithologies recorded in the upper portion of the groundwater zone at the VW&R facility are typically fine-grained, consisting predominantly of sandy silts with silty sands (Fluor Daniel, 1997). A zone of gravelly sand was encountered in WCP-30 at a depth of 136 to 141.5 feet bgs, which is below the water table.

Groundwater elevations measured on September 20 through 22, 2000 are shown in Table 1-1. Groundwater elevation contours for the September groundwater sampling event are also shown on Figure 1-7. Groundwater elevation data indicate a southwesterly direction of groundwater movement.

Groundwater flow direction in the WCP East Grand Avenue WQARF Site appears to be strongly influenced by the episodic pumping of SRP well 10.5E-7.5N, located less than 2,000 feet west of the VW&R facility (WESTON, 1997). Pumping records obtained from SRP demonstrate that this well was pumped extensively in the spring and summer of 1997, but the well has not been pumped extensively since that time. Available data indicate that groundwater flow directions in the WCP East Grand Avenue WQARF Site shift from a southwesterly flow direction to a westerly or northwesterly direction when the SRP well is pumping (WESTON, 1997). A second SRP well (11.2E-7.7N) is located along the Grand Canal to the east of the VW&R facility across 27<sup>th</sup> Avenue. SRP did not pump this well in 2000.

Groundwater gradients for the WCP East Grand Avenue WQARF Site were calculated using the September 2000 groundwater elevations. They range from 0.0057 feet per foot (ft/ft) in the central part of the facility to 0.002 ft/ft in the southwest.

### **1.3.1 Well Construction Information**

Groundwater monitor well WCP-29 was used as the extraction well for the aquifer test (Figure 1-3). Observation wells near the pumping well included WCP-28 to the north, WCP-84 to the east, WCP-16 to the west, and WCP-15 to the northwest. WCP-17 and WCP-42 were used as background wells to monitor regional groundwater level changes. Each of the test wells are drilled into the UAU. Well construction details and ownership for the pumping, observation, and background wells are included in Table 1-2. Distances from the pumping well to each of the observation and background wells are shown in Table 1-2.

Screened intervals in the monitor wells in the aquifer test network range from 95 to 148.5 feet bgs. The pumping well, WCP-29, is screened from 99.5 to 139.5 feet bgs. With depth-to-water at 119.46 feet bgs, a water column of just over 20 feet was present.

## **2.0 AQUIFER TEST PROCEDURES**

Step-drawdown tests and a constant-rate multi-well pumping test were conducted. The following sections describe the procedures followed for each test.

### **2.1 STEP-DRAWDOWN TEST**

WESTON conducted step-drawdown tests at WCP-29 and WCP-28 on May 10, 2001. These monitor wells were redeveloped via bailing, surging, and pumping before aquifer testing. A Hermit™ 3000 data logger with an In Situ PXD-261™ pressure transducer was installed in the pumping well to monitor changes in groundwater levels. A flowmeter accurate to  $\pm 0.1$  percent gpm was used to monitor and record discharge rates and total flow. A water-level indicator accurate to 0.01 feet was used to manually confirm transducer data in the pumped well and to monitor water levels in the observation well. The step tests consisted of three (WCP-28) or four (WCP-29) steps of approximately one-hour duration (Table 2-1). Each well was pumped at a constant discharge rate until drawdown stabilized.

### **2.2 AQUIFER TEST/RECOVERY**

Groundwater monitor well WCP-29 was pumped at 34.7 gpm for approximately 21.5 hours (approximately 45,000 gallons) using a Flint and Walling® 2-horsepower submersible pump. The pump was secured 1 foot from the bottom of the well. Drawdown was monitored using a Hermit™ 3000 datalogger attached to pressure transducers in groundwater monitor wells WCP-29, WCP-28, and WCP-16. Solinst® PXD-261 Leveloggers™ were installed in observation wells WCP-15 and WCP-84 and background wells WCP-17 and WCP-42. Additionally, a Barologger™ was suspended in WCP-84 to monitor changes in barometric pressure. Once the pumping phase of the aquifer test was completed, recovery data were collected in the pumping, observation, and background wells for the next 300 minutes (Figure 1-3). A water-level indicator was used to manually measure depth-to-water during the pumping and recovery stages of the test in addition to the pressure transducers. This provided independent confirmation of data obtained from the pressure transducers.

The aquifer test was suspended after 21.5 hours because investigation-derived waste (IDW) storage tanks neared capacity and there were sufficient data to analyze for aquifer parameters. Upon cessation of pumping, groundwater levels were monitored both manually and with pressure transducers for the following 300 minutes.

### **2.3 INVESTIGATION-DERIVED WASTE**

Purged groundwater was sent to a 4,000-gallon tanker. A transfer pump was used to move the purged water to one of the storage tanks staged on the adjacent property. Two 21,000-gallon and one 6,500-gallon tanks were used to store the IDW pending laboratory results.

Upon receiving the laboratory results, a discharge permit was obtained (dated June 26, 2001) and the IDW was discharged to a City of Phoenix sanitary sewer (manhole #403) on July 2-3, 2001. IDW laboratory results are presented in Attachment B.

### **2.4 WATER QUALITY TESTING**

During the pumping test, water quality samples were collected from the pumping well to characterize groundwater quality. Samples were collected near the beginning, middle, and end of the test, for a total of three groundwater samples.

Groundwater samples were collected directly from a sampling port installed on the pump discharge line. Groundwater samples were submitted for volatile organic compounds (VOC) analysis by the Environmental Protection Agency (EPA) Method 8260B to Severn Trent Laboratory (STL). Analysis indicates that the only VOCs above laboratory detection limits were trichloroethene (TCE), tetrachloroethene (PCE), 1,1-dichloroethene (1,1-DCE), and chloroform (Attachment B). Results show that TCE concentrations ranged from 7 to 10 micrograms per liter ( $\mu\text{g/L}$ ), PCE ranged from 4 to 6  $\mu\text{g/L}$ , 1,1-DCE at 2  $\mu\text{g/L}$ , and chloroform 0.8 to 0.9  $\mu\text{g/L}$ . No other VOCs were above laboratory detection limits. A summary of the results is presented in Table 2-2.

### **3.0 ANALYTICAL METHODS**

This section presents a summary of the analytical methods used to analyze the data obtained during the step-drawdown and aquifer tests.

#### **3.1 STEP-DRAWDOWN TEST**

Step-drawdown tests were conducted at WCP-29 and WCP-28 on May 10, 2001 to determine an optimal pumping rate for the aquifer test (Figures 3-1 and 3-2). The pump used for the step-drawdown tests had a maximum discharge rate of approximately 23.5 gpm, producing 1.82 and 1.48 feet of drawdown in WCP-29 and WCP-28, respectively. The data were analyzed by plotting discharge versus the drawdown-discharge quotient (Figure 3-3). The results failed to produce a linear plot. The specific capacity of WCP-29 ranged from 12.8 to 13.2 gallons per minute per foot (gpm/ft) and 7.4 to 7.7 gpm/ft in WCP-28. A pump with a 35-gpm discharge capacity was procured for the aquifer test.

#### **3.2 AQUIFER TEST CORRECTIONS**

Pumping, barometric pressure changes, and regional groundwater level changes affect groundwater levels collected during an aquifer test. Prior to data analysis, groundwater levels need to be corrected for outside influences such as barometric pressure changes and regional groundwater level changes.

An inverse relationship exists between changes in atmospheric pressure and groundwater levels. As atmospheric pressure increases, groundwater levels drop and decreasing atmospheric pressure results in rising groundwater levels. The Hermit™ 3000 datalogger measured and corrected groundwater elevation measurements (WCP-28, WCP-29, and WCP-16) for changes in barometric pressure during the aquifer test. A Barologger™ was used to measure atmospheric pressure during the aquifer test. The Barologger™ readings were subtracted from the Levelogger™ (WCP-15, WCP-84, WCP-17, and WCP-42) data to correct for changes in atmospheric pressure.

Water levels were measured at approximately 0700 hours on both May 18 and 22, 2001. Regional groundwater levels dropped an average of 0.07 feet over the four-day period (approximately 0.02 feet/day). A correction of 1.21 E-05 feet/minute was applied for the duration of the aquifer test and recovery. The time-drawdown data are found in Attachment C.

### 3.3 AQUIFER TEST SOLUTIONS

The corrected aquifer test data were imported into AquiferWin32™ for analysis. Analysis of drawdown data was accomplished using the Theis Unconfined Method (Theis, 1935), Theis Recovery Method (Theis, 1935), and the Cooper Jacob Approximation to the Theis Equation (Cooper and Jacob, 1946).

A series of assumptions are made when using these analytical methods:

1. Well discharge is at a constant rate.
2. Well is of infinitesimally small diameter.
3. Well fully penetrates the aquifer.
4. Aquifer is fully confined.
5. Aquifer has infinite areal extent.
6. Aquifer is homogeneous, isotropic, and of uniform thickness.
7. Groundwater flow is horizontal and unsteady.
8. Discharge from the well is derived exclusively from storage in the aquifer.
9.  $r^2S/(4Tt) < 0.01$  (Cooper and Jacob Method only)( $r$  = radius,  $S$  = storage coefficient,  $T$  = transmissivity, and  $t$  = time)

The following analytical solutions were applied.

#### **Theis Unconfined Method (Theis, 1935):**

The Theis equation can be applied to unconfined aquifers using the late drawdown data (Kruseman & de Ridder, 1990). Additionally, it can be used when a correction is applied when drawdown is large in comparison to aquifer thickness (Jacob, 1944). The correction factor is as follows.

$$s' = s - (s^2/2D) \quad (\text{if } s' > 0.5D, s' = 0.5D)$$

where:

$s'$	=	corrected drawdown (ft)
$s$	=	observed drawdown (ft)
$D$	=	unstressed aquifer saturated thickness (ft)

The Theis Unconfined Method was applied to the data from the four observation wells (WCP-15, WCP-16, WCP-28, and WCP-84). The discharge from the pumping well (WCP-29) was derived from both aquifer and well storage and therefore failed one of the previously listed assumptions. The data from WCP-29 were not analyzed by this method.

#### **Theis Recovery Method (Theis, 1935):**

This solution can be applied to unconfined aquifers under the following conditions.

1. If the drawdown is small compared to the saturated thickness of the aquifer and there is no delayed yield effect.
2. If  $t_p > (25 r^2 S)/T$ , where  $t_p$  is the length of time the pump was operating.
3. If  $t' > (25 r^2 S)/T$ , where  $t'$  is the length of time since the cessation of pumping.

The pumping well (WCP-29) had a maximum drawdown of 2.95 feet (aquifer thickness = 18.5 feet). The Theis Recovery Method was used to analyze the data from the pumping well (WCP-29) and the four observation wells.

#### **Cooper and Jacob Approximation to the Theis Equation:**

The Cooper and Jacob Time-Drawdown Method was used to analyze data from the four observation wells. This solution can be applied to unconfined aquifers if the drawdown is small compared to the saturated thickness of the aquifer and there is no delayed yield affect. This method was not applied to the pumping well (WCP-29) since drawdown exceeded 10 percent of aquifer thickness.

#### 4.0 AQUIFER PUMPING TEST RESULTS AND CONCLUSIONS

The aquifer test was run from May 22 – 23, 2001. A total volume of 44,735 gallons was pumped from WCP-29 during the course of the aquifer test (1,288 minutes), which resulted in an average discharge of 34.7 gpm. The total drawdown for each well at the end of the pumping portion of the test is as follows: WCP-29 (2.95 feet), WCP-28 (1.24 feet), WCP-16 (1.21 feet), WCP-15 (0.51 feet), and WCP-84 (0.63 feet). The background wells (WCP-17 and WCP-42) did not respond to the pumping event. The drawdown data are presented in Attachment C. The time-drawdown data collected during the pumping test and recovery portions of the aquifer test are illustrated in Figures 4-1 through 4-5.

The aquifer test data were analyzed using the late time data, believed to be more representative of aquifer conditions (Kruseman & de Ridder, 1990). However, the early data from the recovery portion of the aquifer test were used during the Theis Recovery analysis. The analytical results are summarized in the following table:

<b>Transmissivity (gallons/day/foot)</b>			
<b>WELL ID</b>	<b>Theis Unconfined</b>	<b>Theis Recovery</b>	<b>Cooper and Jacob</b>
WCP-15	31,532	29,906	26,141
WCP-16	28,987	29,331	27,952
WCP-28	29,219	27,906	28,060
WCP-29	na	28,764	na
WCP-84	35,702	30,466	26,550

na = not analyzed

<b>Hydraulic Conductivity (gallons/day/foot squared)</b>			
<b>WELL ID</b>	<b>Theis Unconfined</b>	<b>Theis Recovery</b>	<b>Cooper and Jacob</b>
WCP-15	1,704	1,617	1,413
WCP-16	1,567	1,585	1,511
WCP-28	1,579	1,508	1,517
WCP-29	na	1,555	na
WCP-84	1,930	1,647	1,435

na = not analyzed

Note: Hydraulic conductivity was calculated using an approximate aquifer thickness of 18.5 feet in the aquifer test area.

An analysis of data collected from the four observation wells suggests that transmissivity ranges from 26,141 to 35,702 gal/day/ft (3,495 to 4,773 ft<sup>2</sup>/day) (Figures 4-6 to 4-15). Data collected from WCP-29 during the aquifer test indicated a transmissivity of 28,764 gal/day/ft (3,845 ft<sup>2</sup>/day) (Figure 4-10). Hydraulic conductivity in the pumping and observation wells ranged from 1,413 to 1,930 gal/day/ft<sup>2</sup> (189 to 258 ft/day). The short duration of the aquifer test resulted in low storage coefficients ranging from 8.3 E-04 to 3.3 E-03.

#### 4.1 VELOCITY CALCULATION

The average linear velocity of groundwater can be estimated using the following equation (Bear, 1979).

$$V = K/n_e (dh/dl)$$

V = average linear velocity (ft/day)

K = hydraulic conductivity (ft/day)

n<sub>e</sub> = effective porosity

dh/dl = hydraulic gradient

The following ranges of hydraulic parameters were assumed based on the collected data.

Transmissivity, T (ft <sup>2</sup> /day)	3,495 – 4,782
Aquifer thickness, b (ft)	18.5
Hydraulic Conductivity, K (ft/day)	189 – 258
Effective Porosity, n <sub>e</sub>	0.20 – 0.30
Hydraulic Gradient, dh/dl	0.00381 – 0.00667

The equation was used in combination with the range of hydraulic parameters given above to calculate a range of average linear groundwater velocities. Based upon the hydraulic parameters at the WCP East Grand Avenue WQARF Site, the average linear velocity of groundwater is 2.4 to 8.6 feet per day.

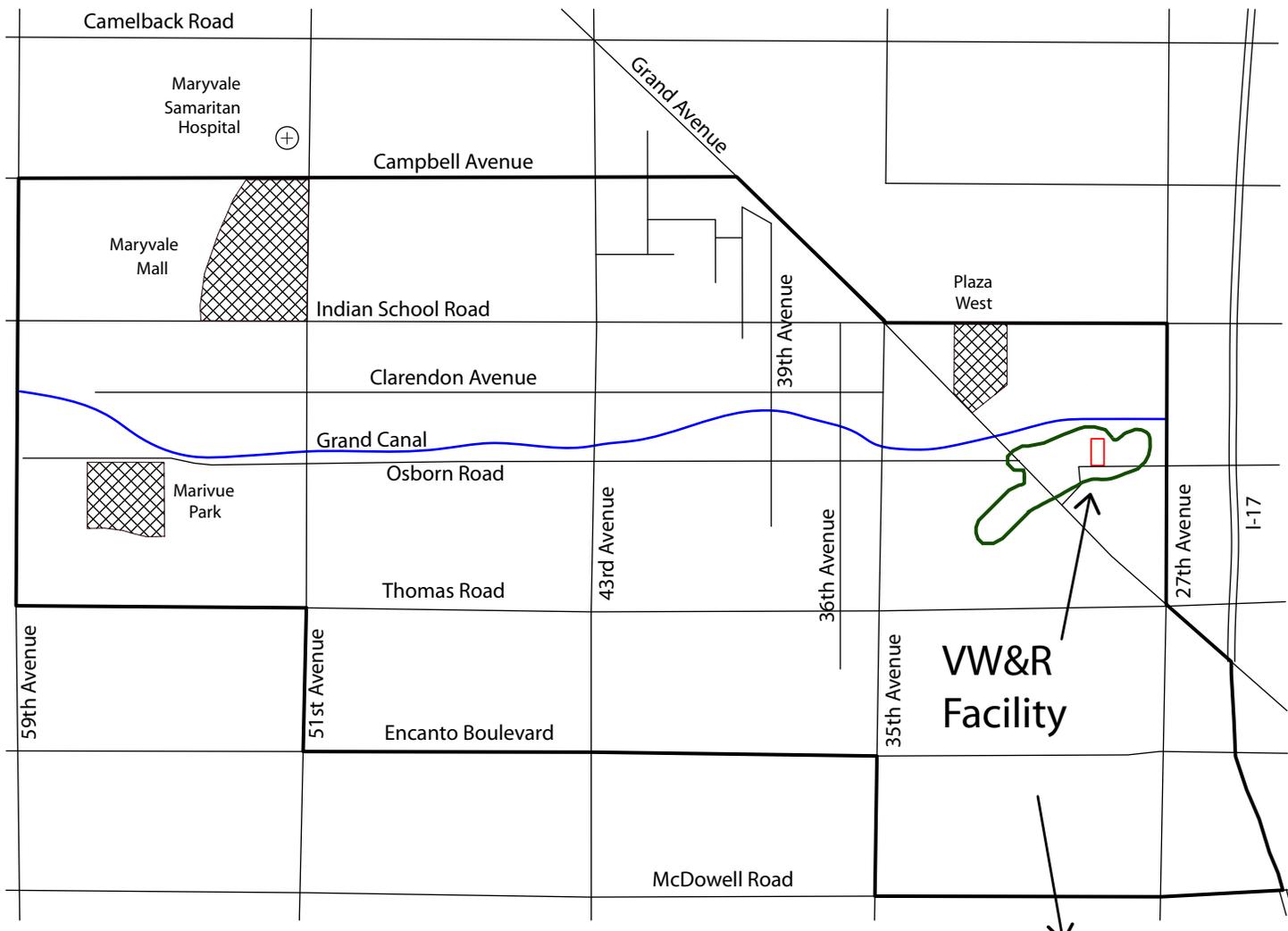
## 5.0 REFERENCES

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## **FIGURES**



LEGEND

-  Former West Central Phoenix Project Area Boundary
-  WCP East Grand Avenue WQARF Site
-  VW&R Facility

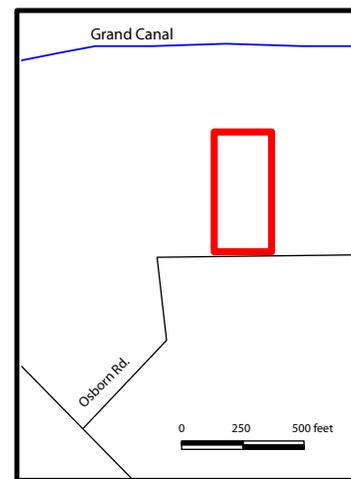


Figure 1-1  
Former West Central Phoenix Boundary



Figure 1-2  
Groundwater Monitor Well  
Network  
WCP East Grand Avenue  
WQARF Site

Legend

- SRP Production Well
- Monitor Well
- Irrigation Canal
- Street, Road, or Avenue
- Approximate Facility Boundary

Note: All well locations are approximate. The Monitor Well Network presented was current at the time of the Aquifer Test.

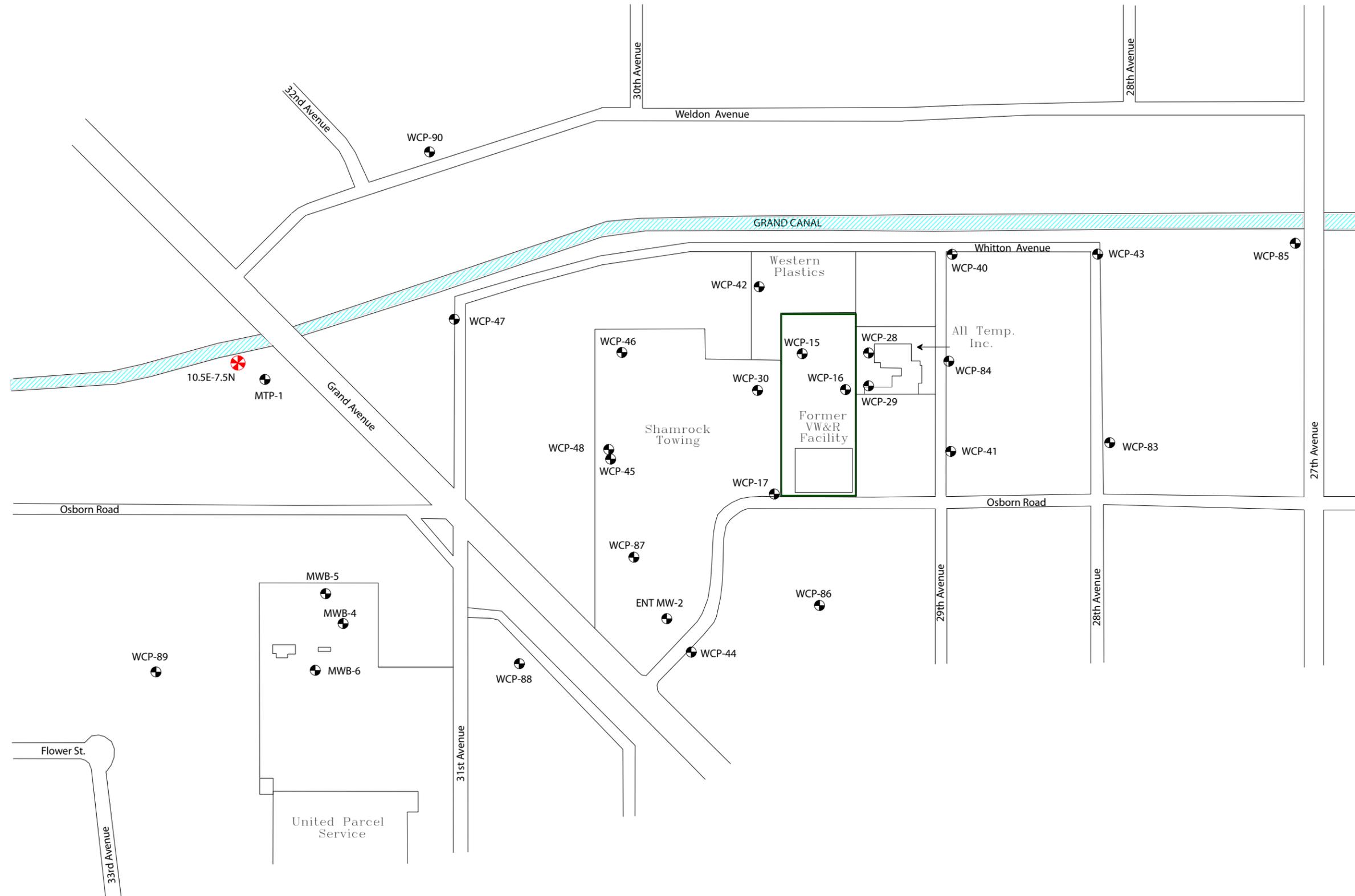
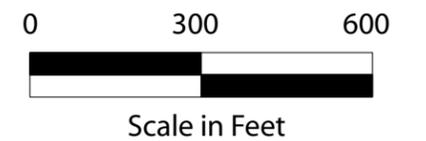




Figure 1-3  
Pumped, Observed, &  
Background Wells

Legend

- Pumped Well
- Observation Wells
- Background Wells
- Monitor Well
- Irrigation Canal
- Street, Road, or Avenue
- Approximate Facility Boundary

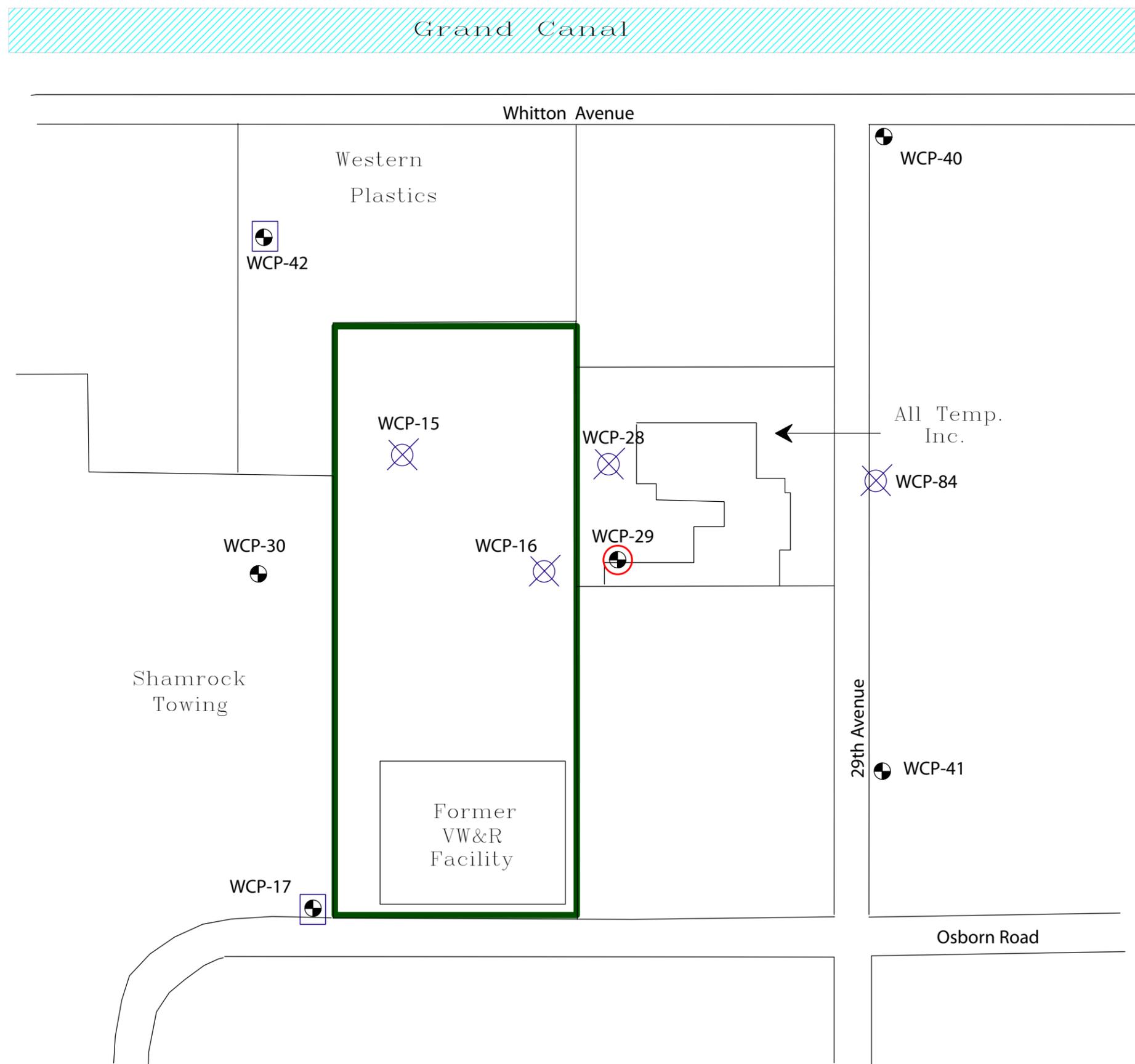
Note: All well locations are approximate.



Scale in Feet



2702 North Third Street, Suite 2001  
Phoenix, Arizona 85004



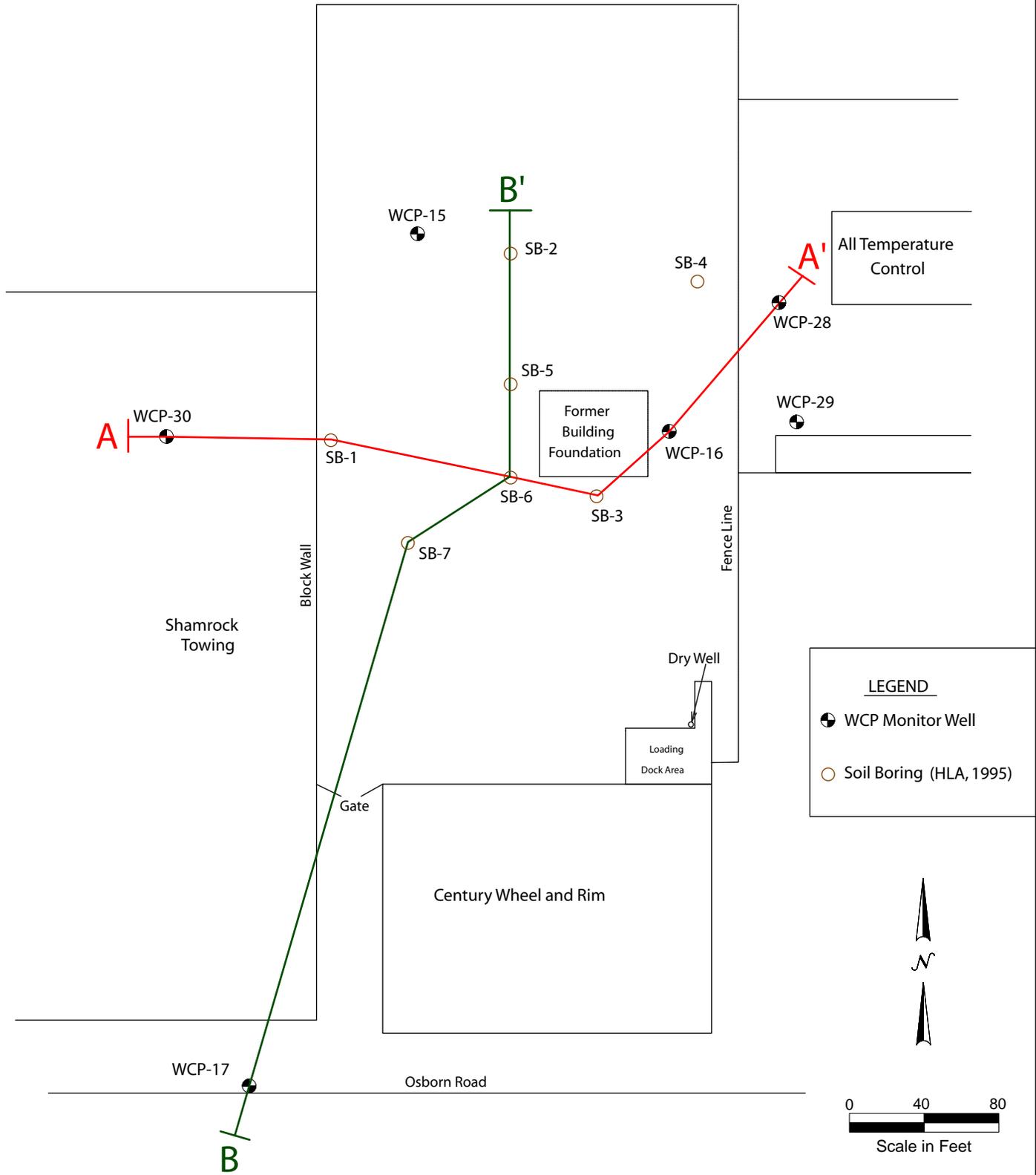
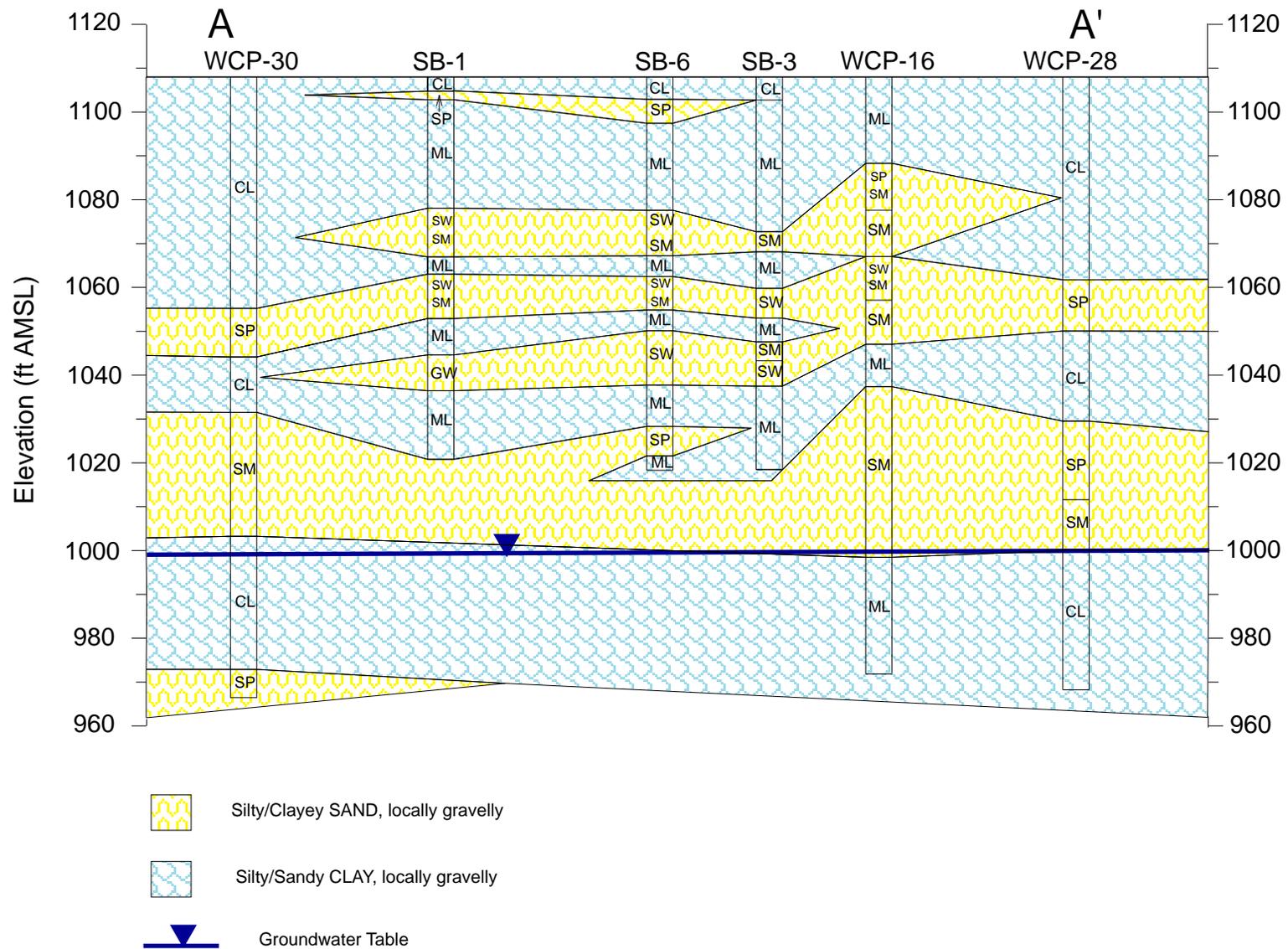


Figure 1-4  
Trace of Fence Diagrams A-A' and B-B'  
VW&R Facility





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Figure 1-5  
Cross Section A-A'  
VW&R Facility





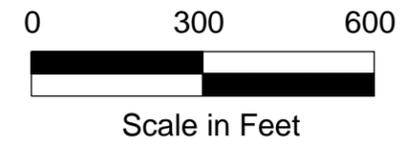
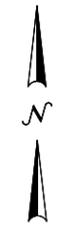


Figure 1-7  
Groundwater Elevations  
WCP East Grand Avenue  
WQARF Site  
September 20-22, 2000

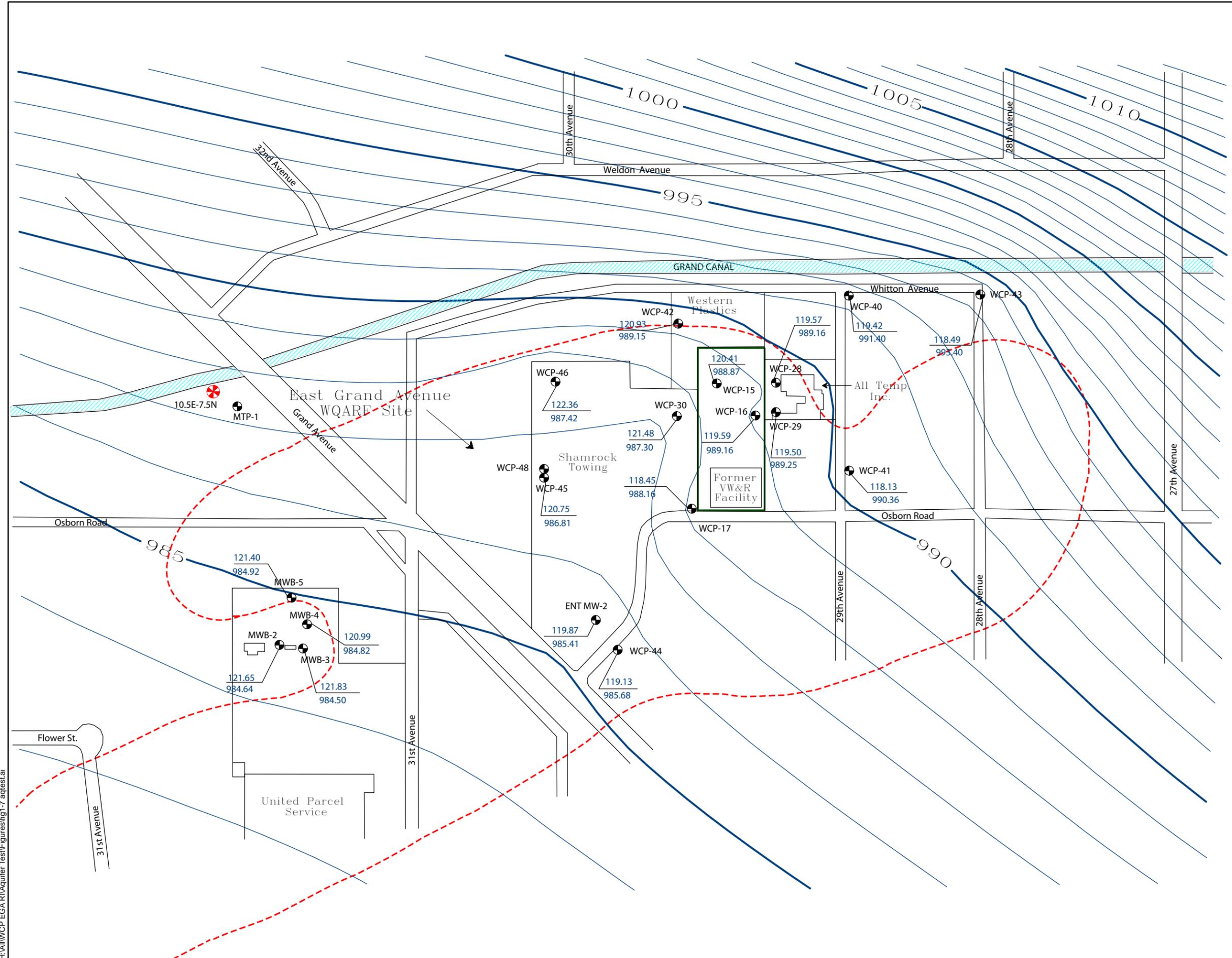
Legend

- Monitor Well
- Depth to Groundwater (feet)
- Groundwater Elevation (feet amsl)
- SRP Production Well
- Groundwater Elevation Contour (one foot contour interval)
- WQARF Registry Site Boundary (approximate)
- Irrigation Canal
- Street, Road, or Avenue
- Approximate Facility Boundary

Notes: All well locations are approximate. Groundwater Elevations (feet above mean sea level), City of Phoenix Datum. Groundwater elevation data represent a subset of area-wide groundwater elevation contours.

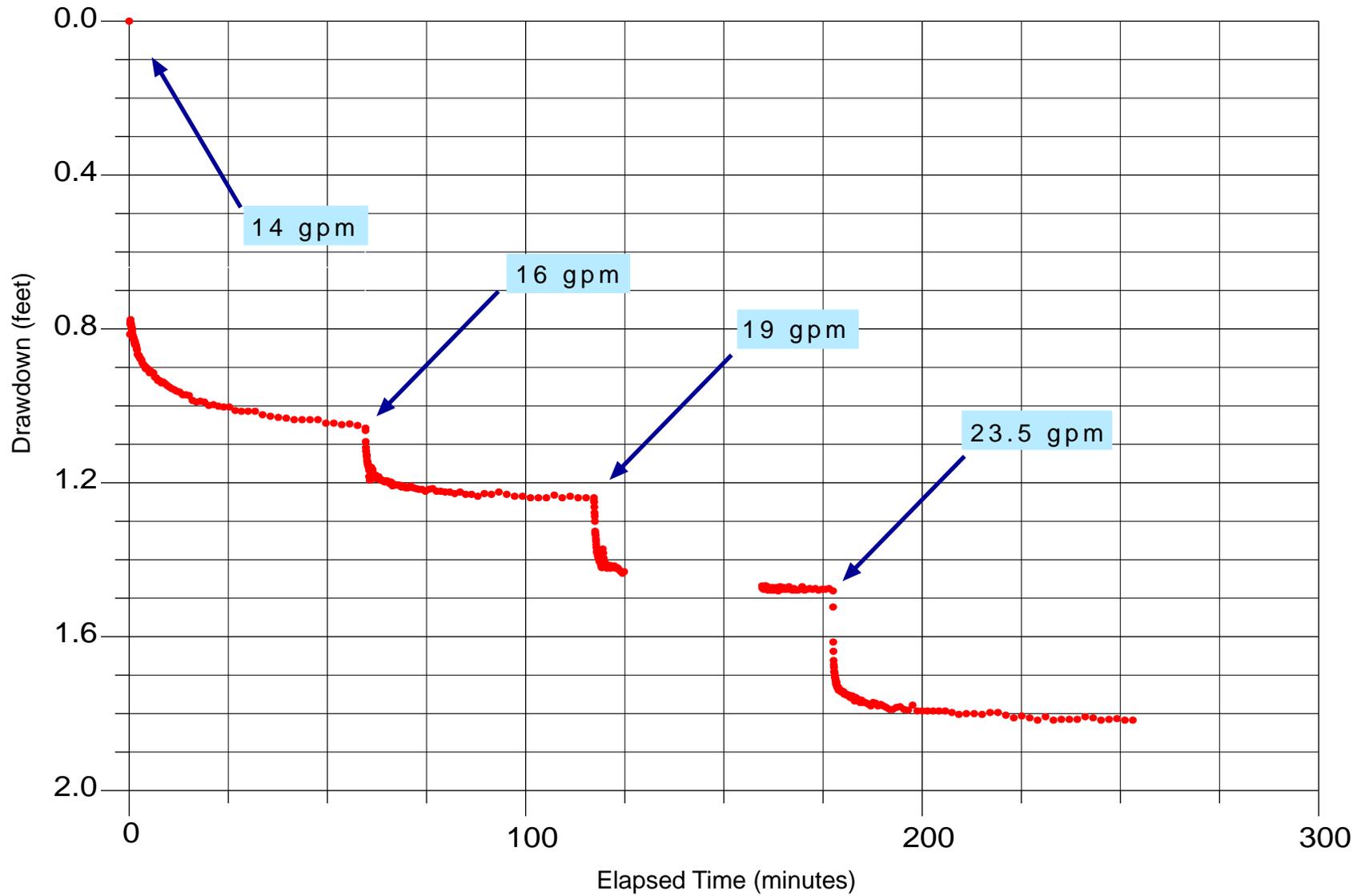


**WESTON SOLUTIONS**  
2702 North Third Street, Suite 2001  
Phoenix, Arizona 85004



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# WCP-29



• time-drawdown

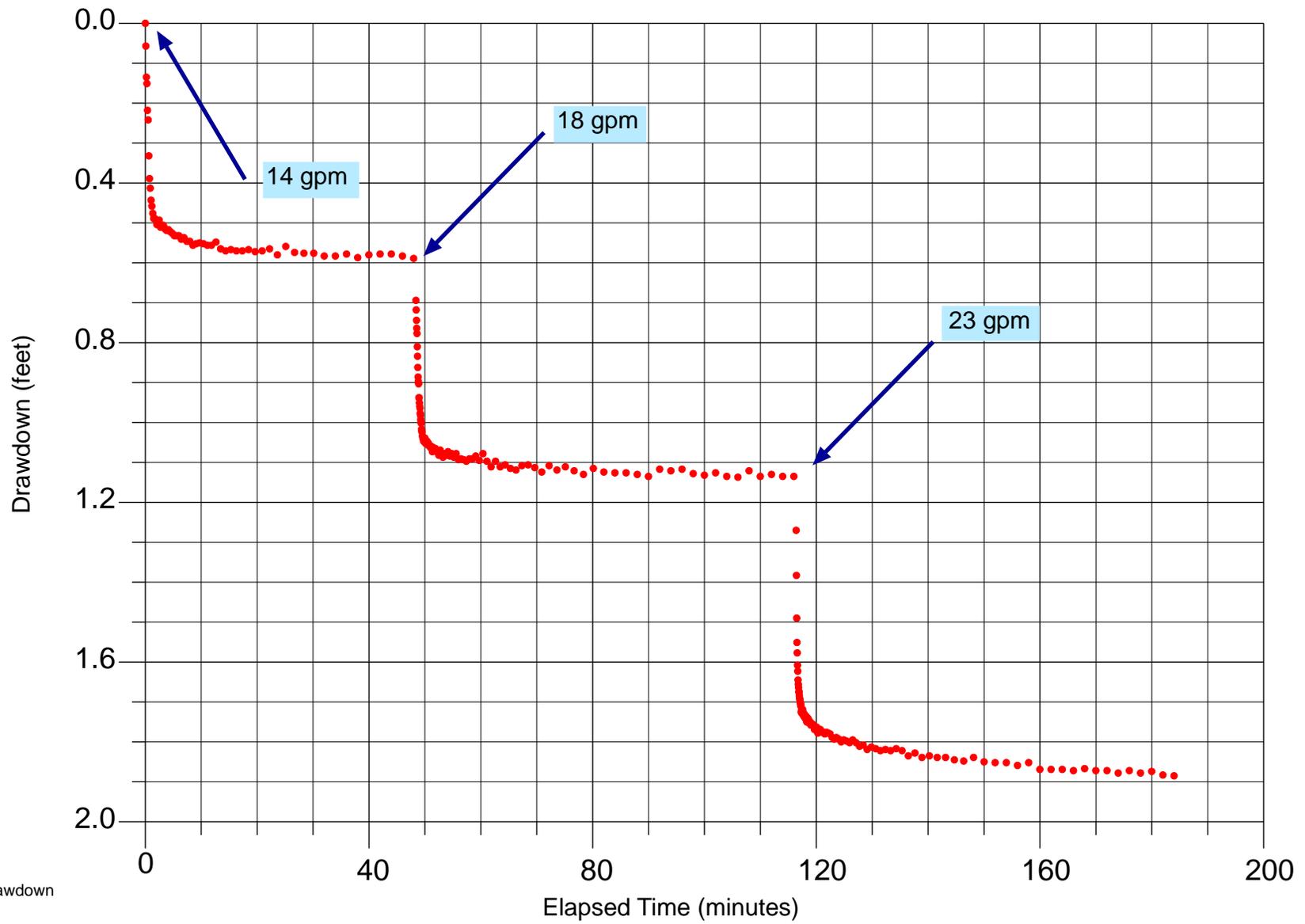
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Figure 3-1  
Step-Drawdown Test  
WCP-29



# WCP-28



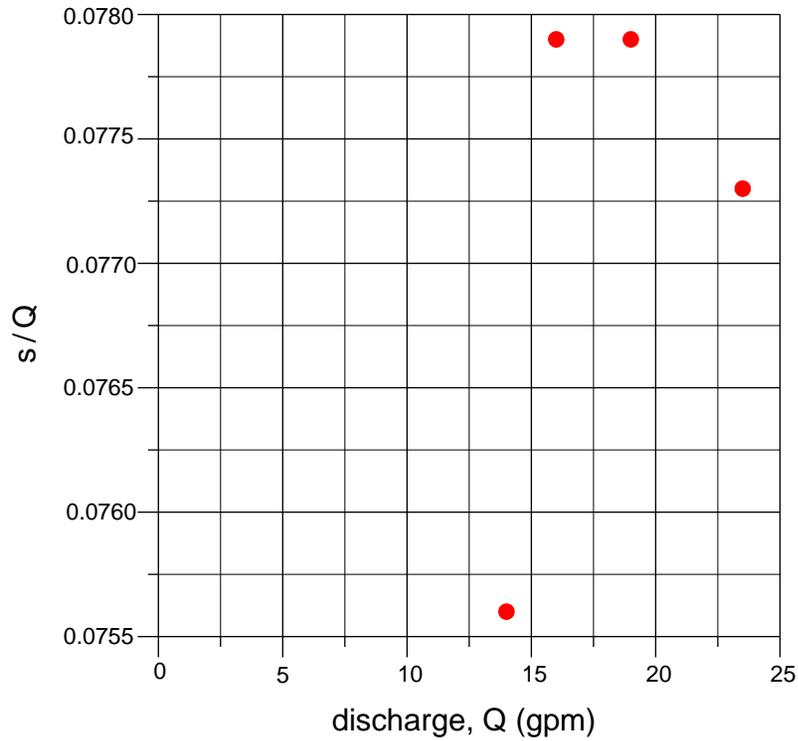
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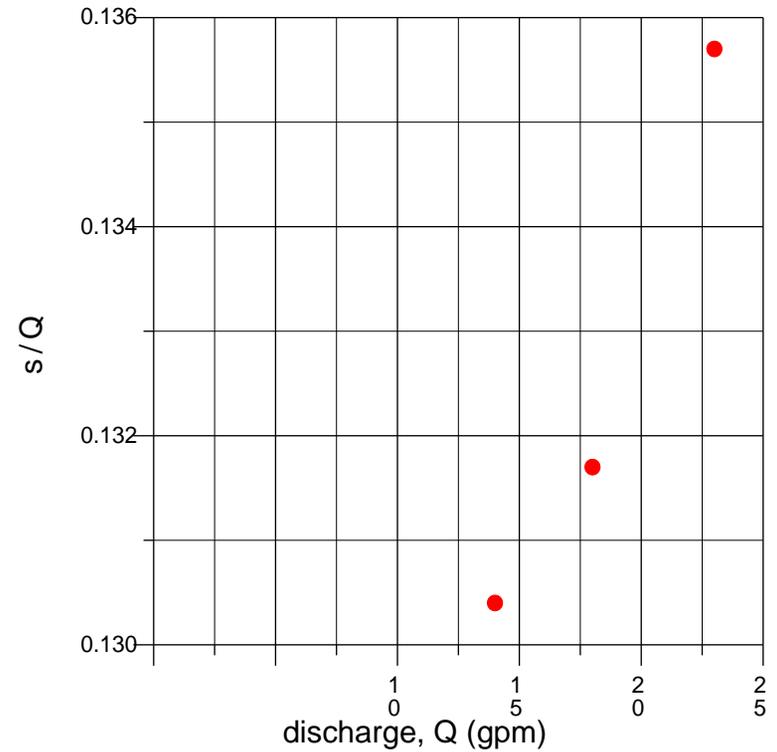
Figure 3-2  
Step-Drawdown Test  
WCP-28



WCP-29



WCP-28



WCP-29

discharge, Q (gpm)	drawdown, s (feet)	s/Q	Specific Capacity (gpm/ft)
14	1.06	0.0756	13.2
16	1.25	0.0779	12.8
19	1.48	0.0779	12.8
23.5	1.82	0.0773	12.9

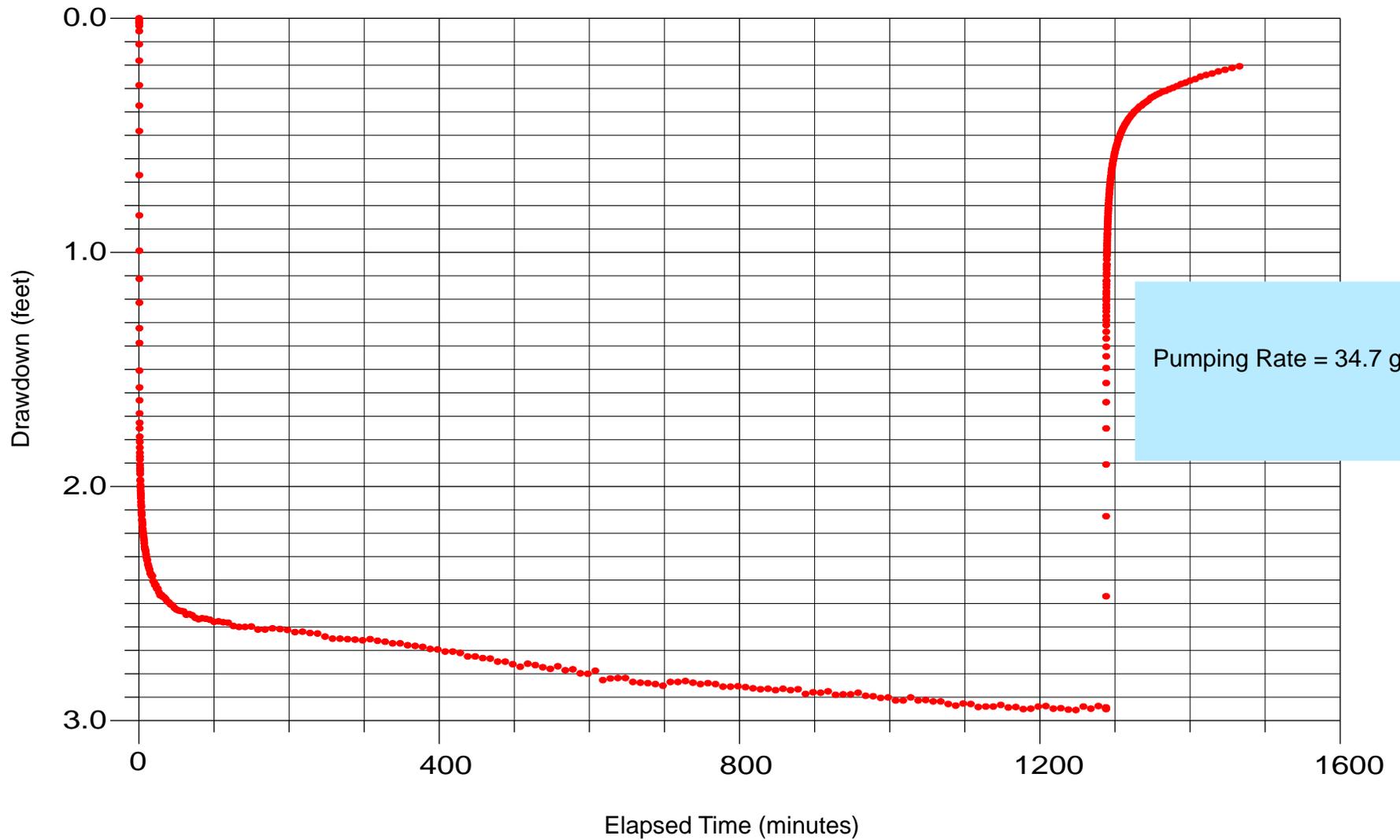
WCP-28

discharge, Q (gpm)	drawdown, s (feet)	s/Q	Specific Capacity (gpm/ft)
14	1.06	0.0756	7.7
18	1.25	0.0779	7.6
23	1.48	0.0779	7.4

Figure 3-3  
Specific Capacity, Step-Drawdown  
Tests



# WCP-29 (Pumping Well)



Pumping Rate = 34.7 gpm

• time-drawdown

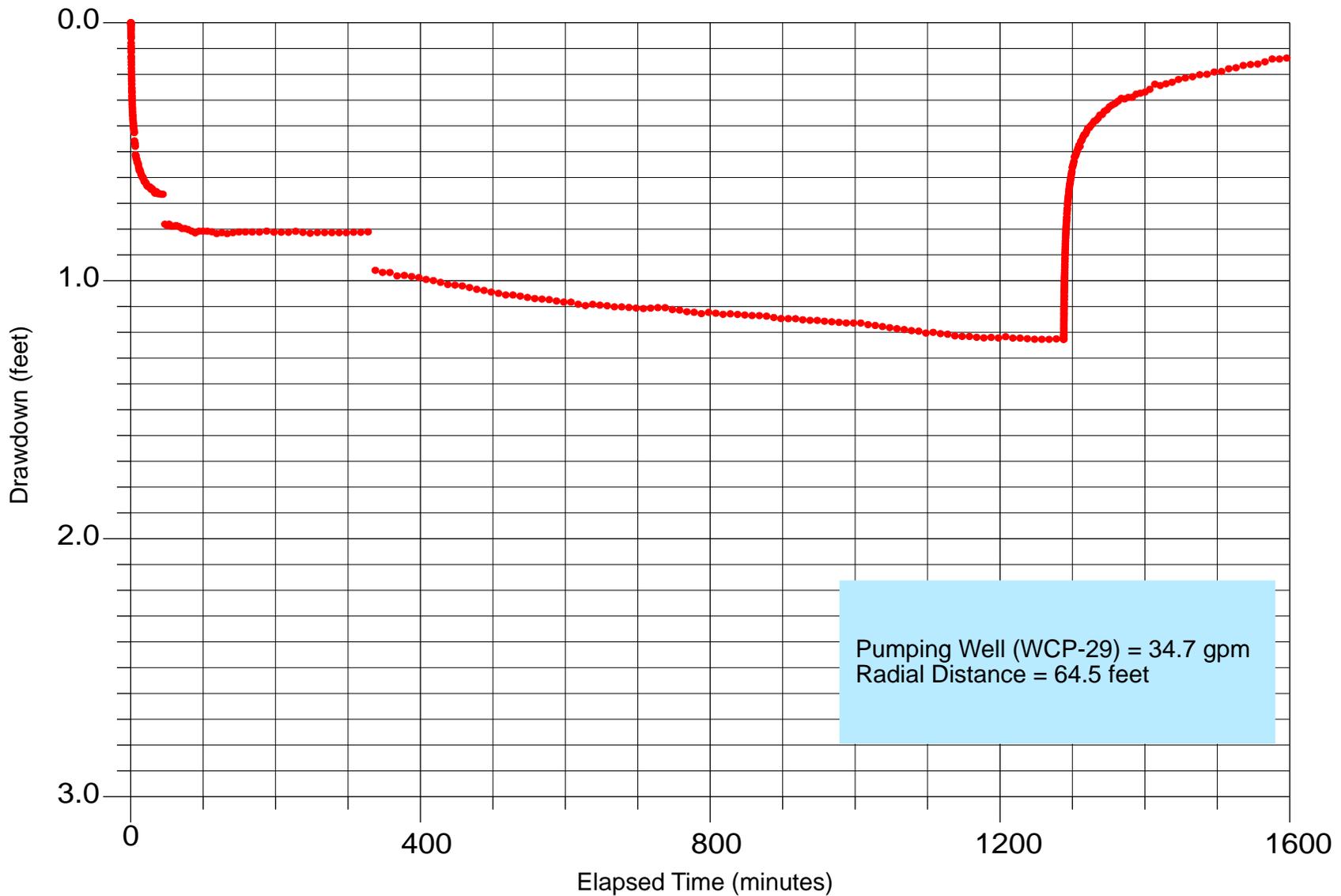
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Figure 4-1  
Aquifer Test - May 22-23, 2001  
WCP-29



# WCP-28 (Observation Well)



Pumping Well (WCP-29) = 34.7 gpm  
Radial Distance = 64.5 feet

• time-drawdown

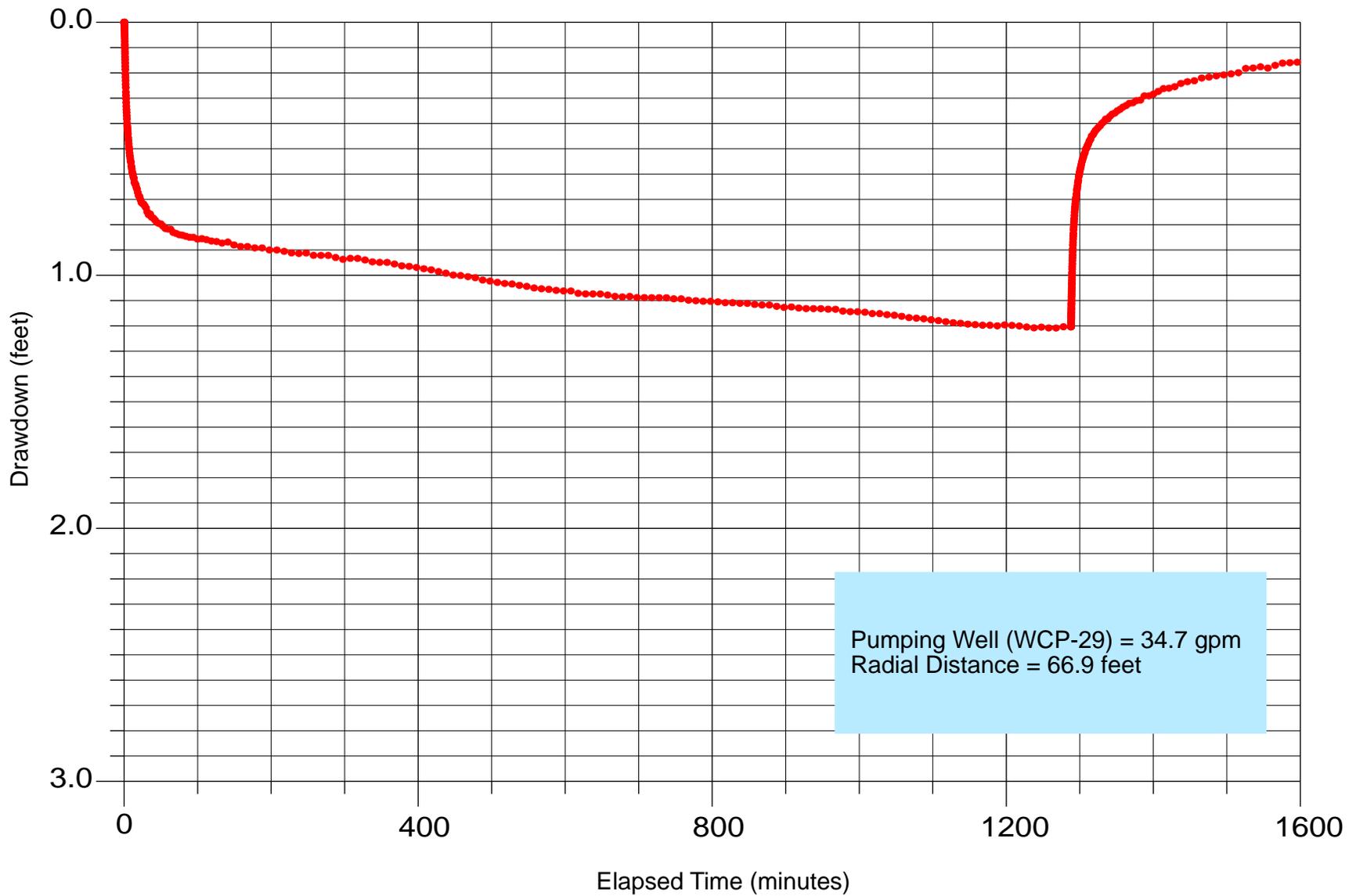
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Figure 4-2  
Aquifer Test - May 22-23, 2001  
WCP-28



# WCP-16 (Observation Well)



• time-drawdown

H:\IIWCP EGA R\Aquifer Test\Figures\fig4-3 aqtest.ai



Figure 4-3  
Aquifer Test - May 22-23, 2001  
WCP-16



# WCP-15 (Observation Well)

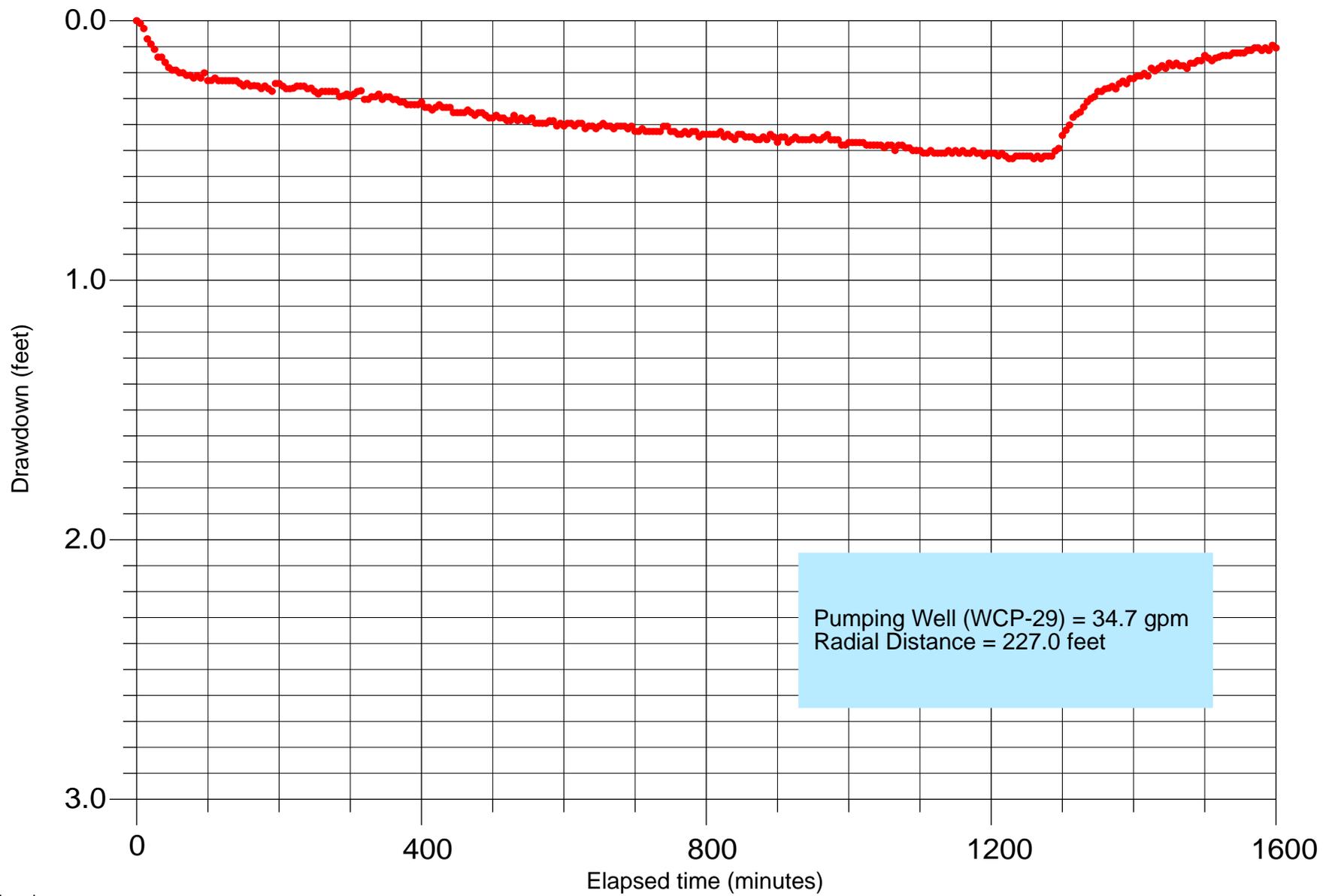


Figure 4-4  
Aquifer Test - May 22-23, 2001  
WCP-15

# WCP-84 (Observation Well)

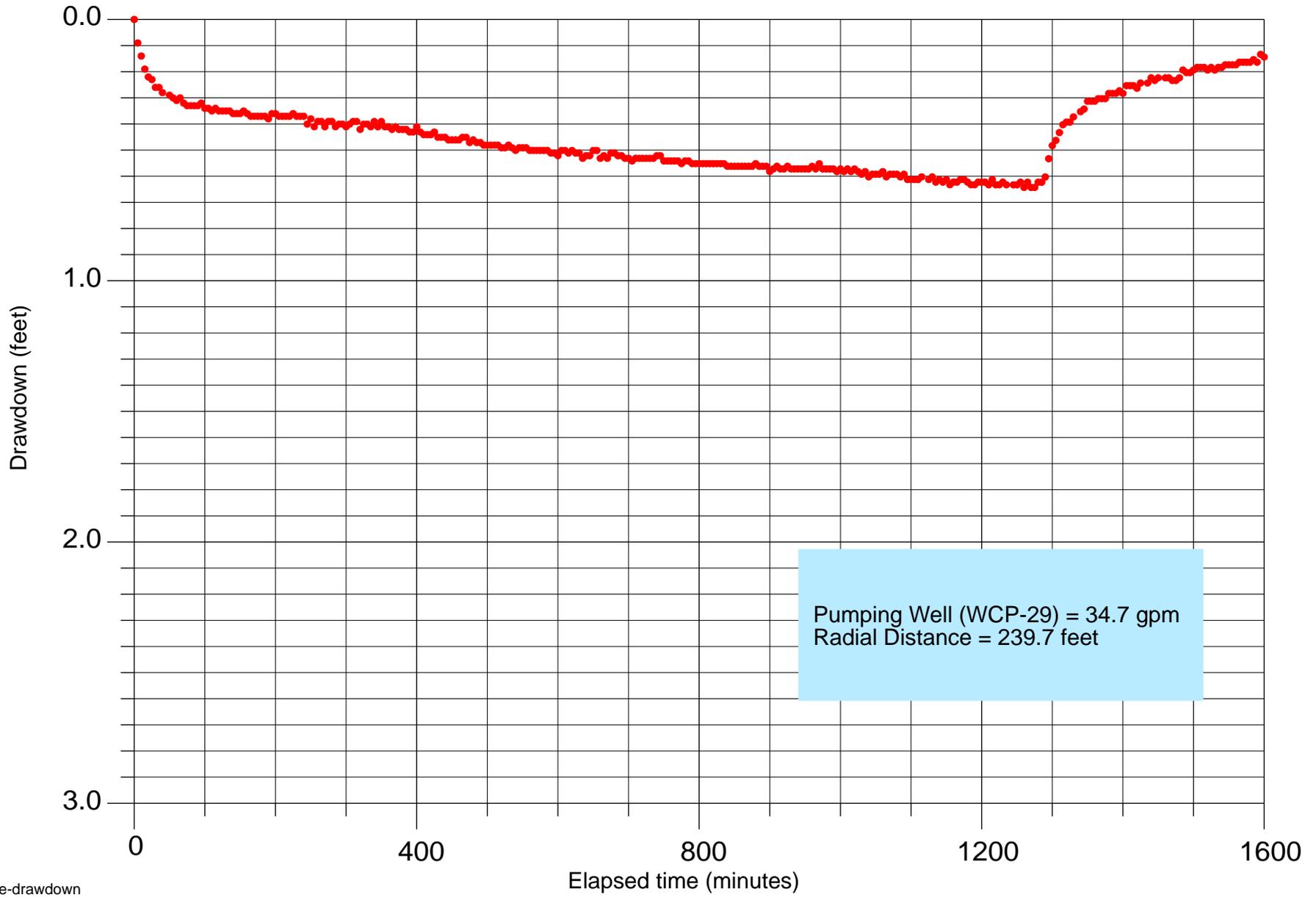
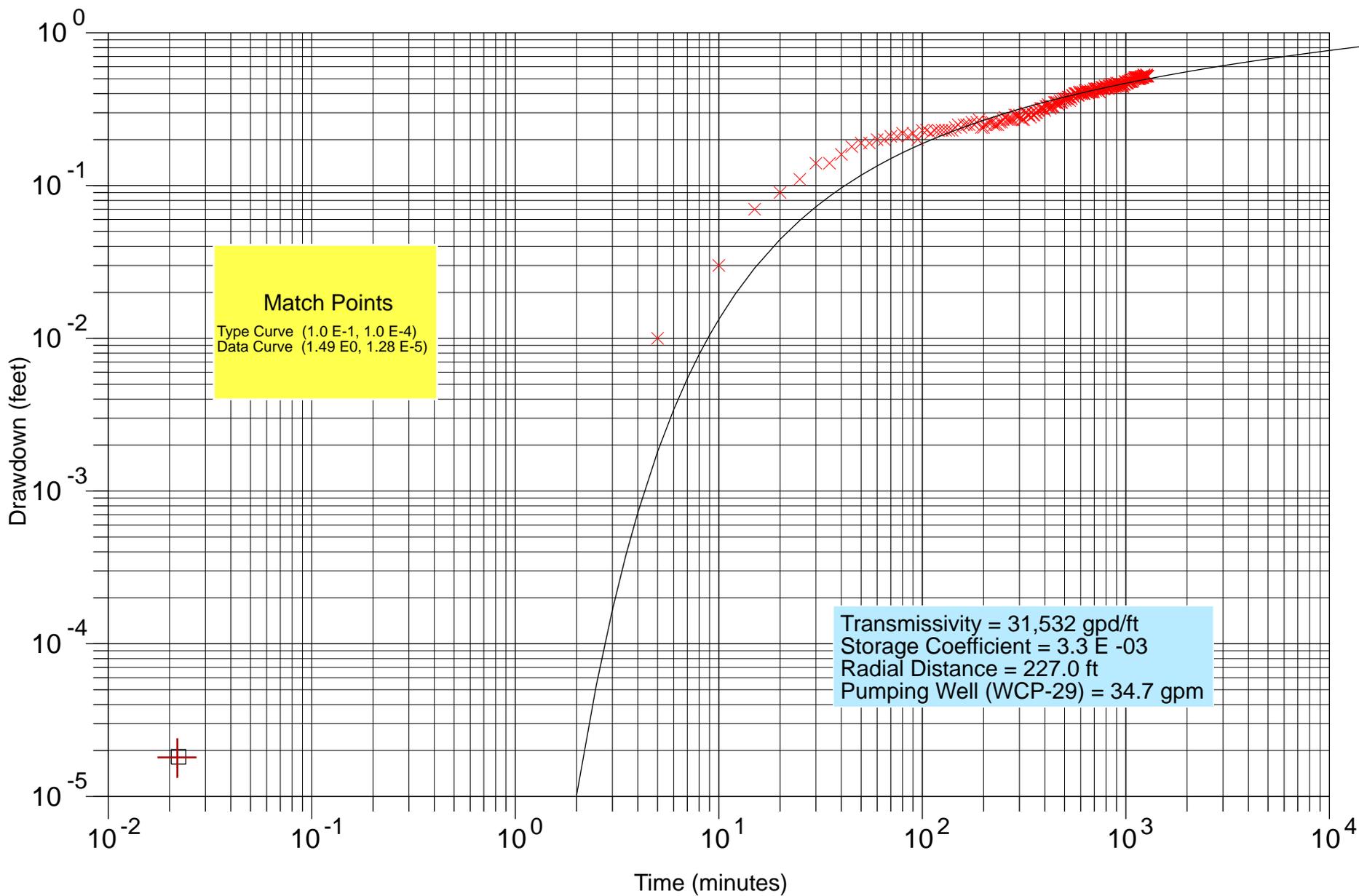


Figure 4-5  
Aquifer Test - May 22-23, 2001  
WCP-84

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 Data Curve Match Point



Figure 4-6a  
Aquifer Test, This Unconfined (1935)  
WCP-15

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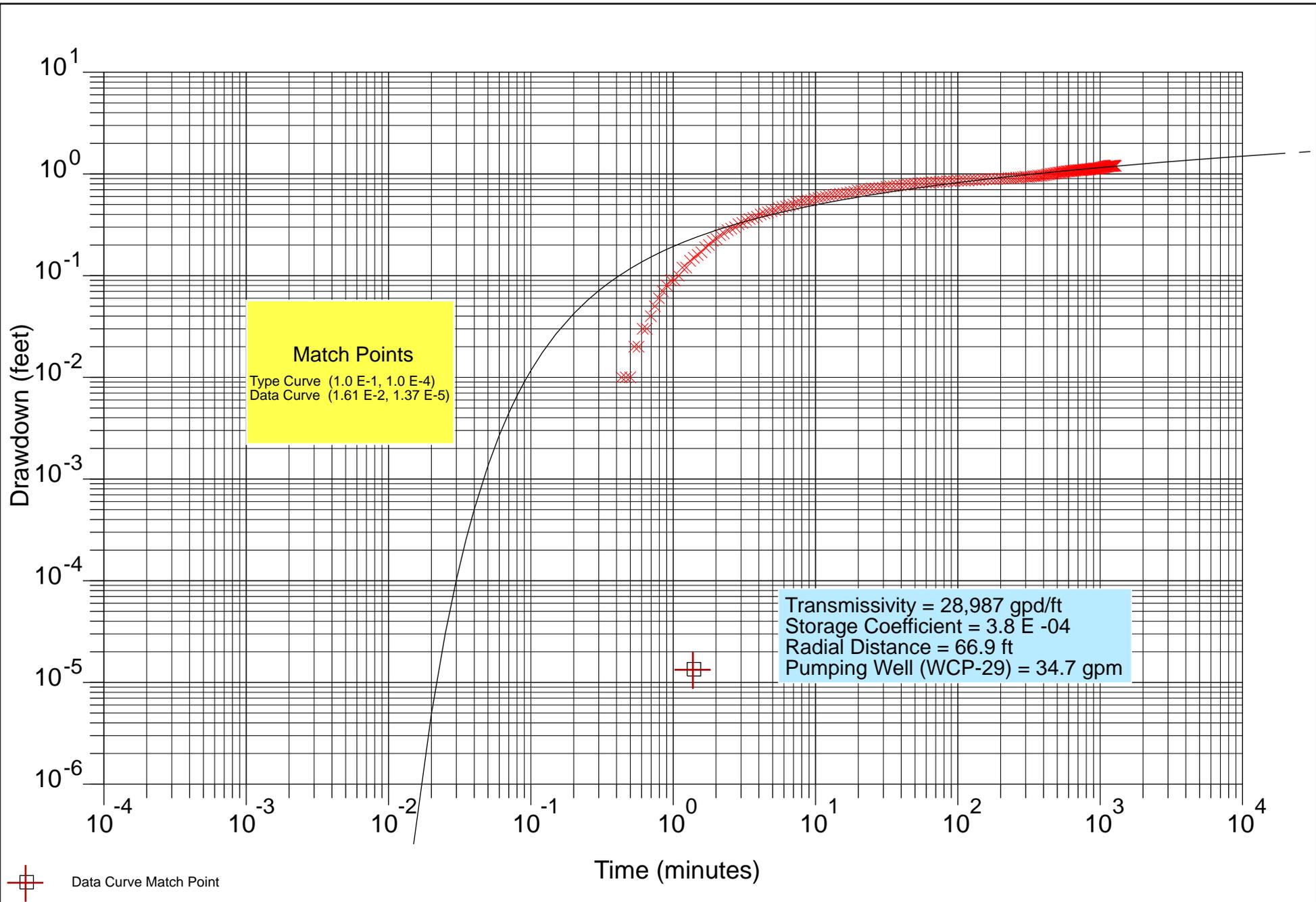
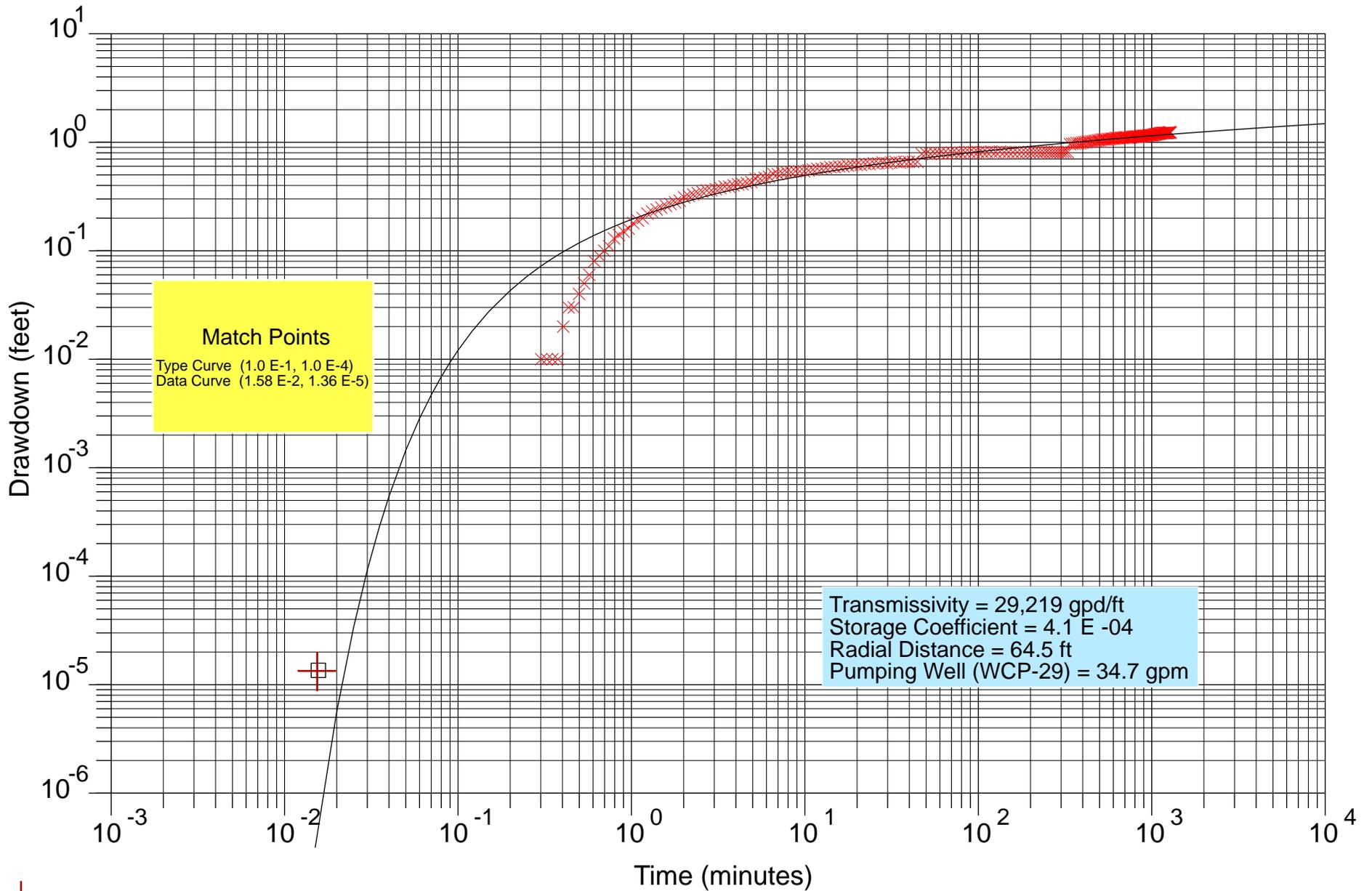


Figure 4-6b  
Aquifer Test, This Unconfined (1935)  
WCP-16

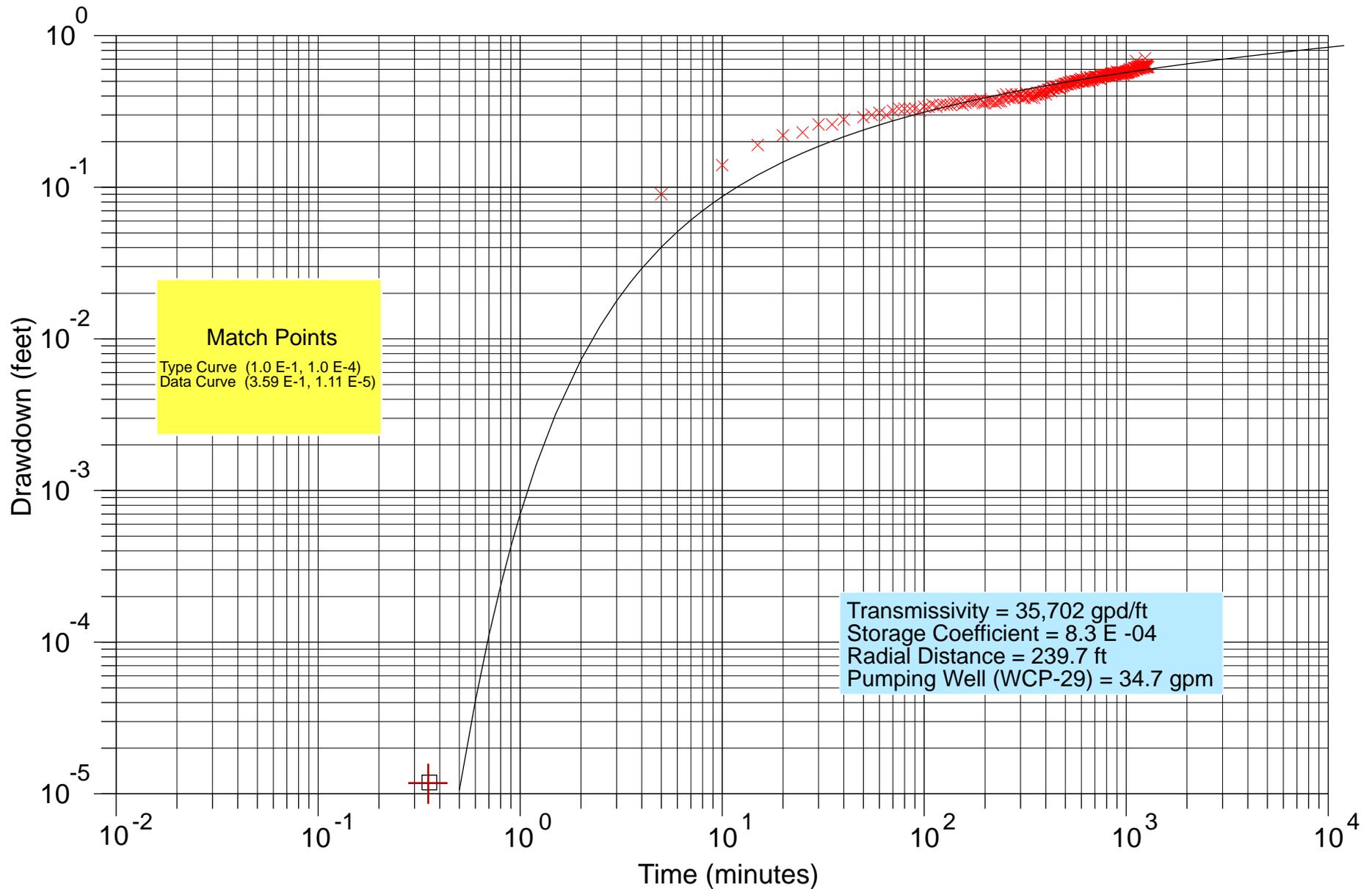




 Data Curve Match Point



Figure 4-6c  
Aquifer Test, This Unconfined (1935)  
WCP-28



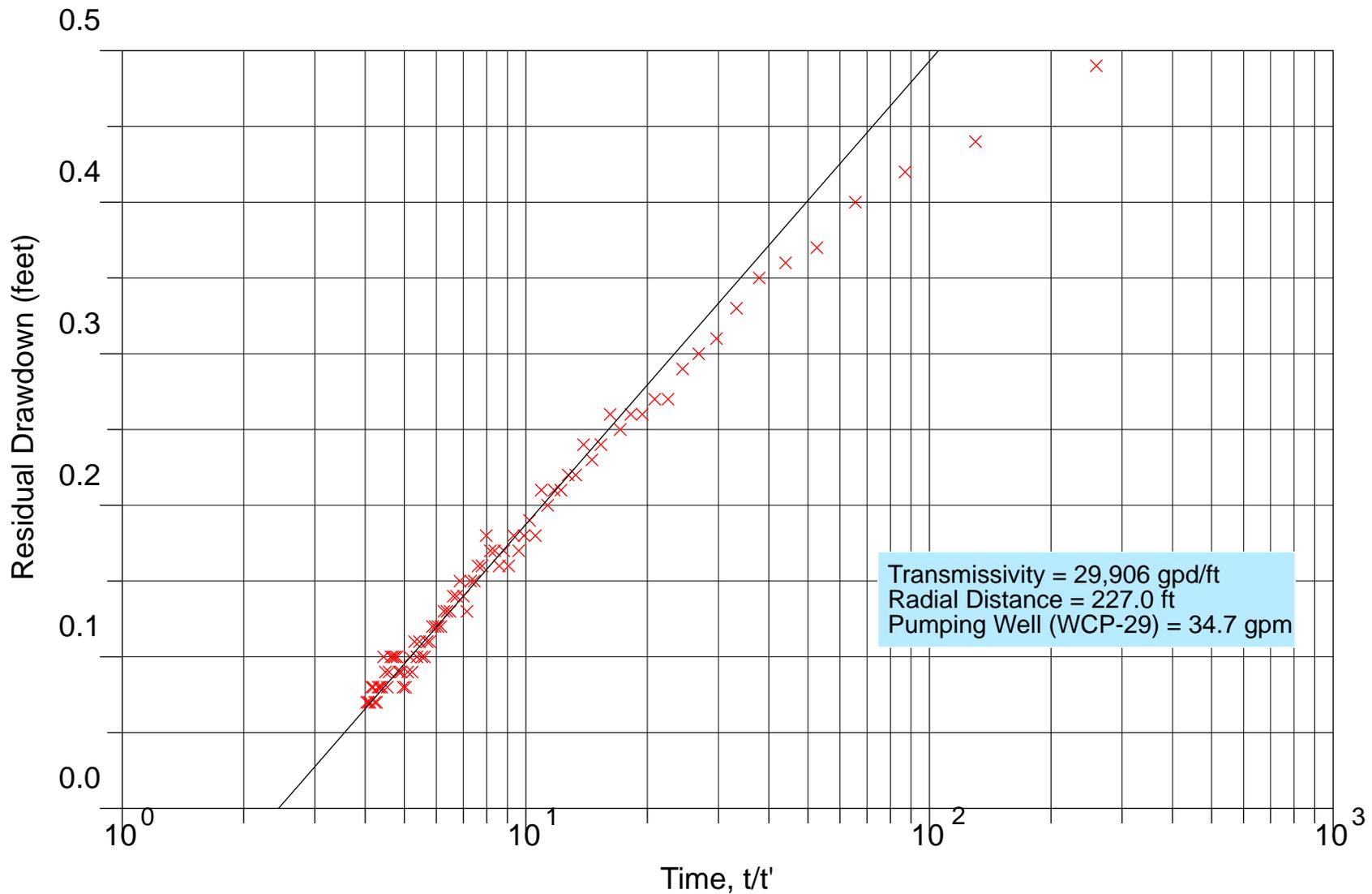
 Data Curve Match Point



Figure 4-6d  
Aquifer Test, This Unconfined (1935)  
WCP-84



# WCP-15 (Observation Well)



x time-drawdown

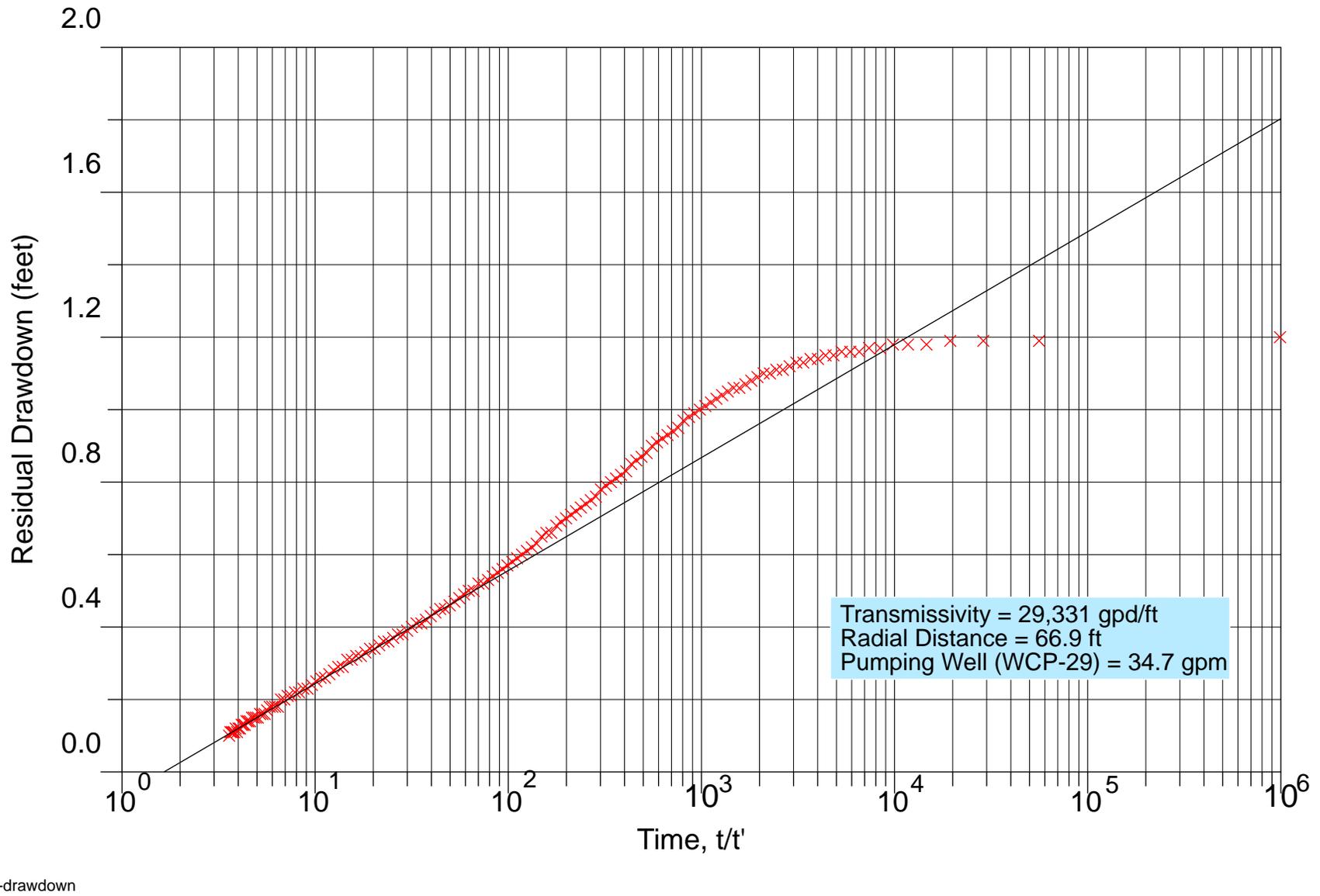
H:\AI\WCP EGA RI\Aquifer Test\Figures\Fig4-7 aqtest.ai



Figure 4-7  
Aquifer Test, Theis Recovery (1935)  
WCP-15



# WCP-16 (Observation Well)



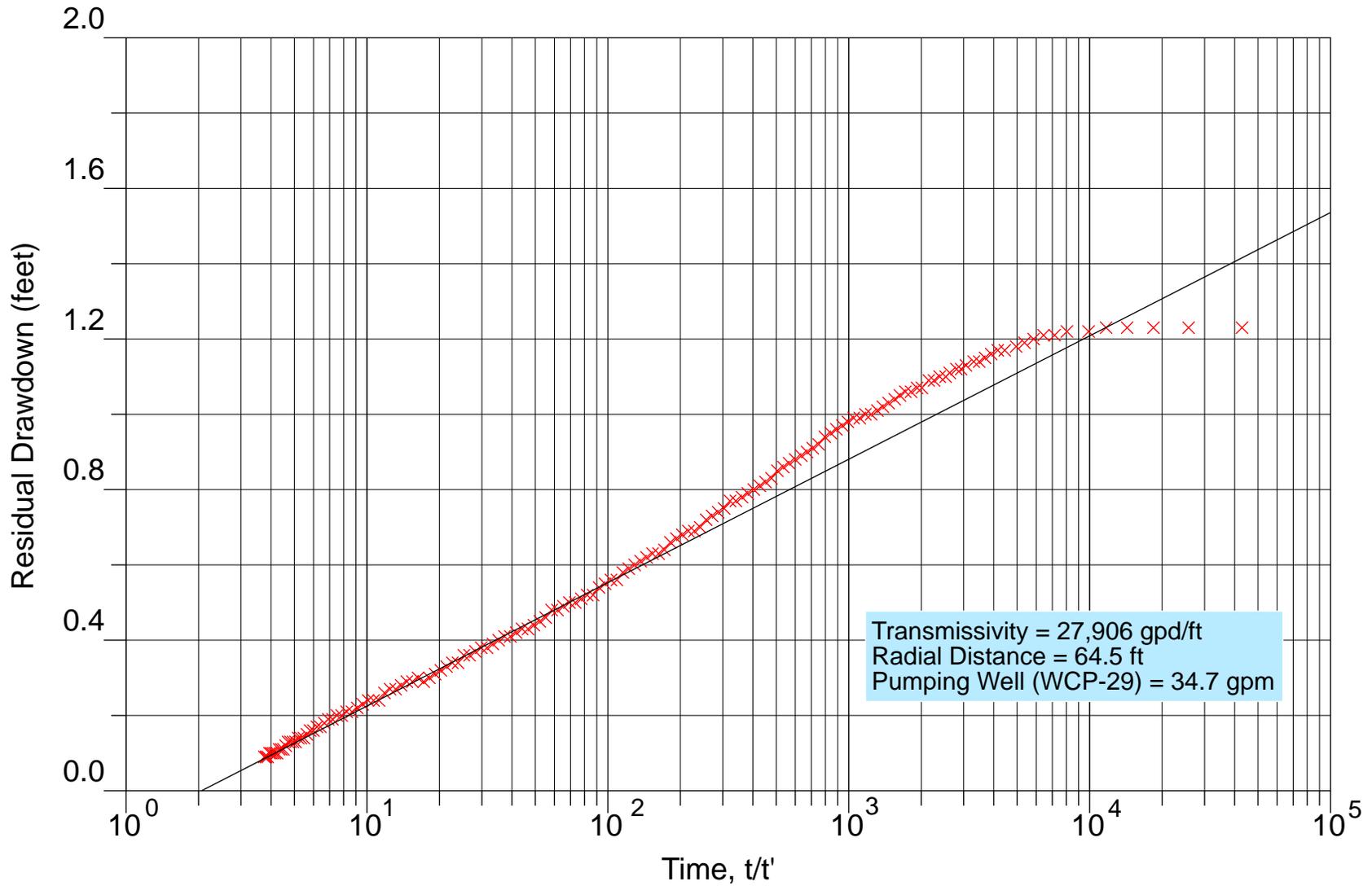
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Figure 4-8  
Aquifer Test, Theis Recovery (1935)  
WCP-16



# WCP-28 (Observation Well)



x time-drawdown

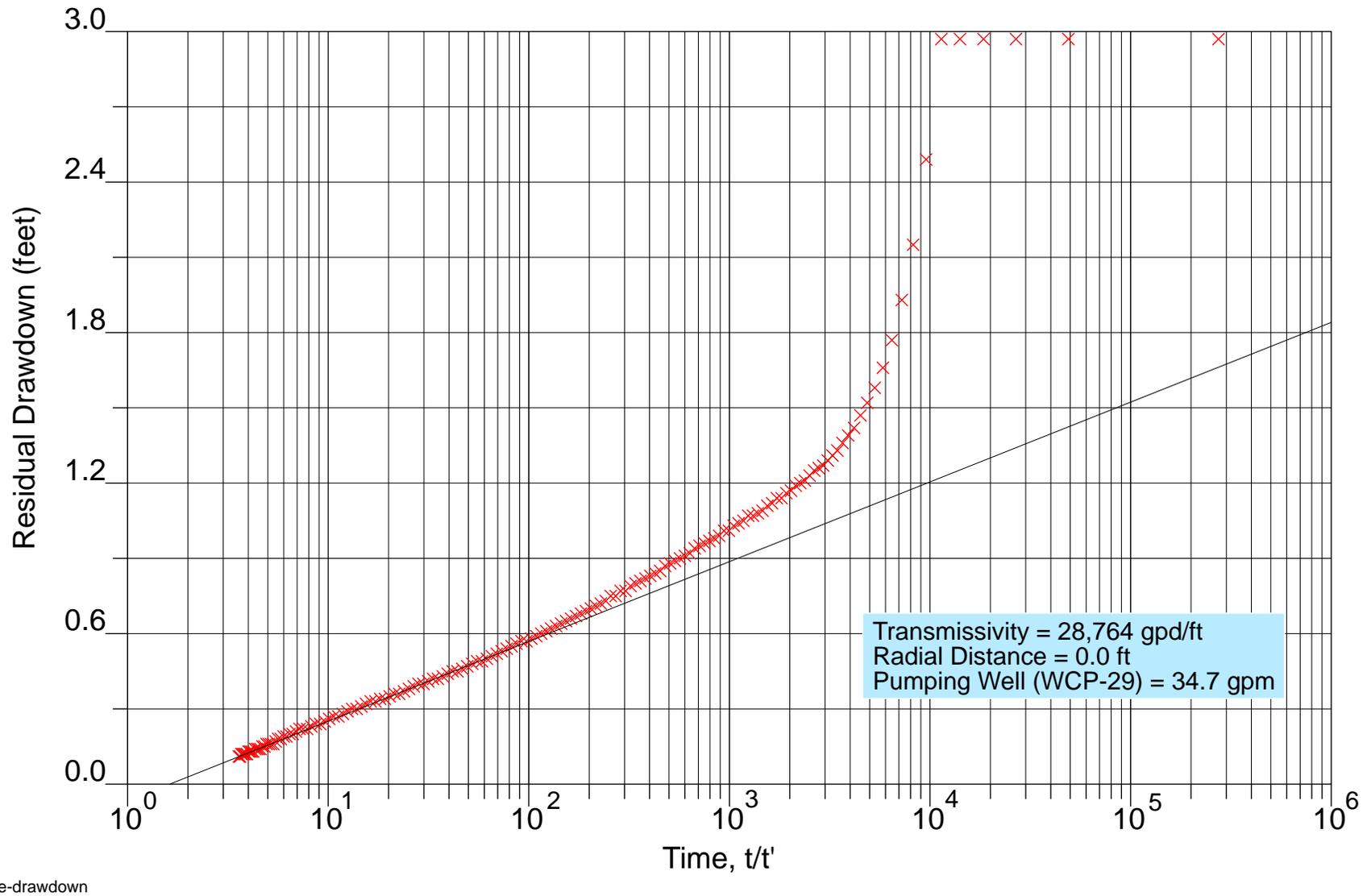
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Figure 4-9  
Aquifer Test, This Recovery (1935)  
WCP-28



# WCP-29 (Pumping Well)

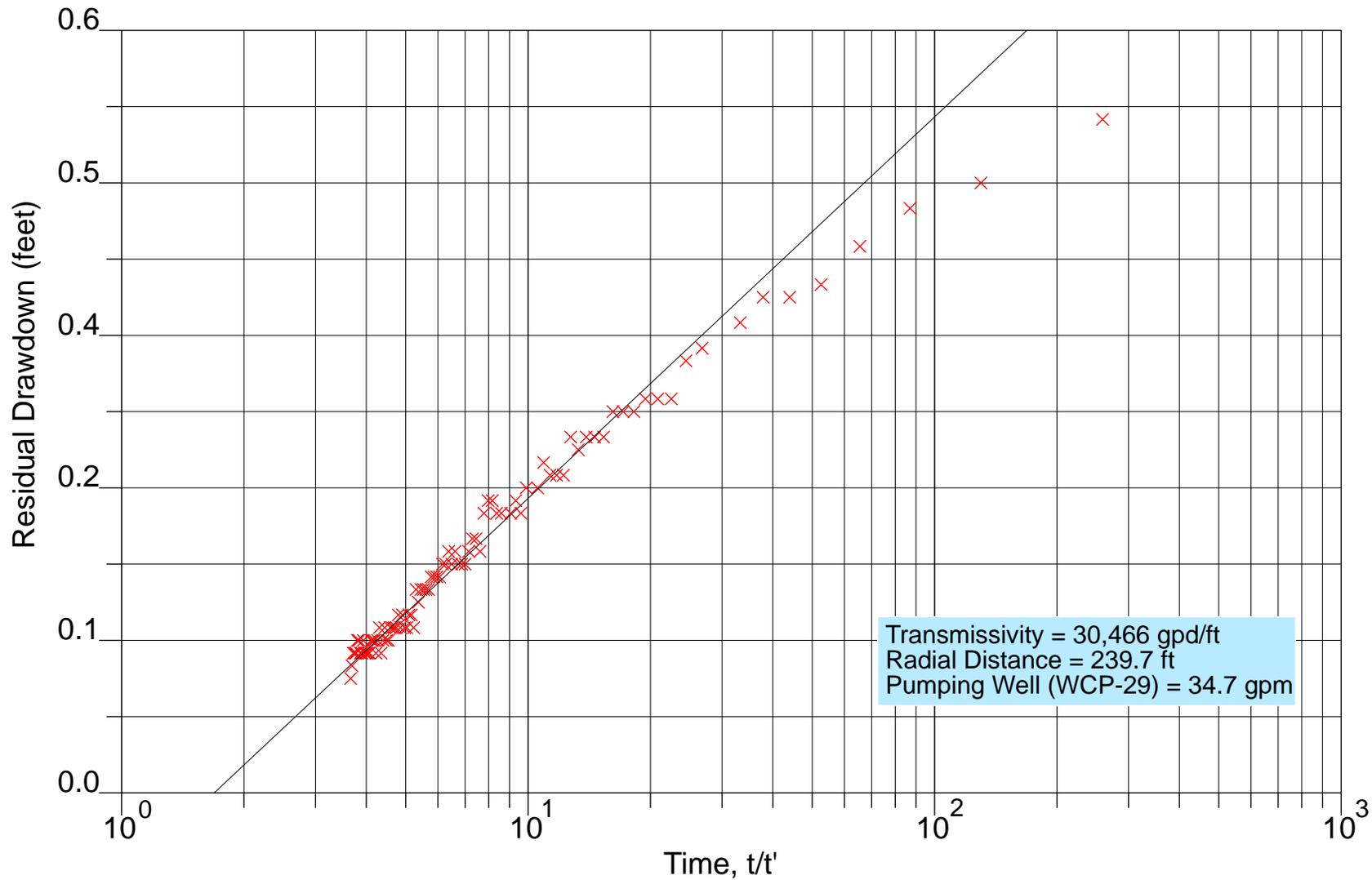


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Figure 4-10  
Aquifer Test, This Recovery (1935)  
WCP-29

# WCP-84 (Observation Well)



x time-drawdown

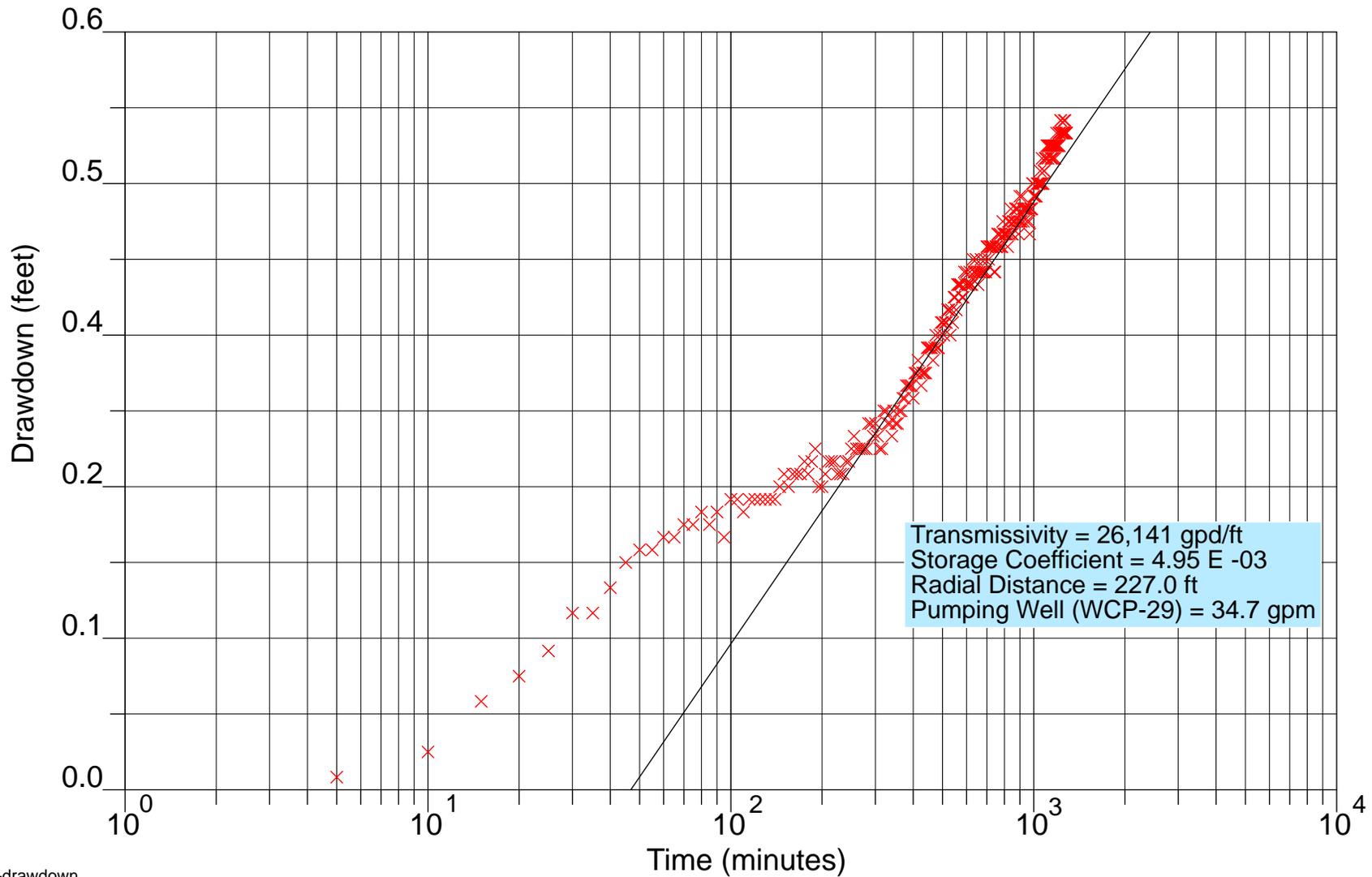
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Figure 4-11  
Aquifer Test, This Recovery (1935)  
WCP-84



# WCP-15 (Observation Well)



- x time-drawdown
- △ data omitted from

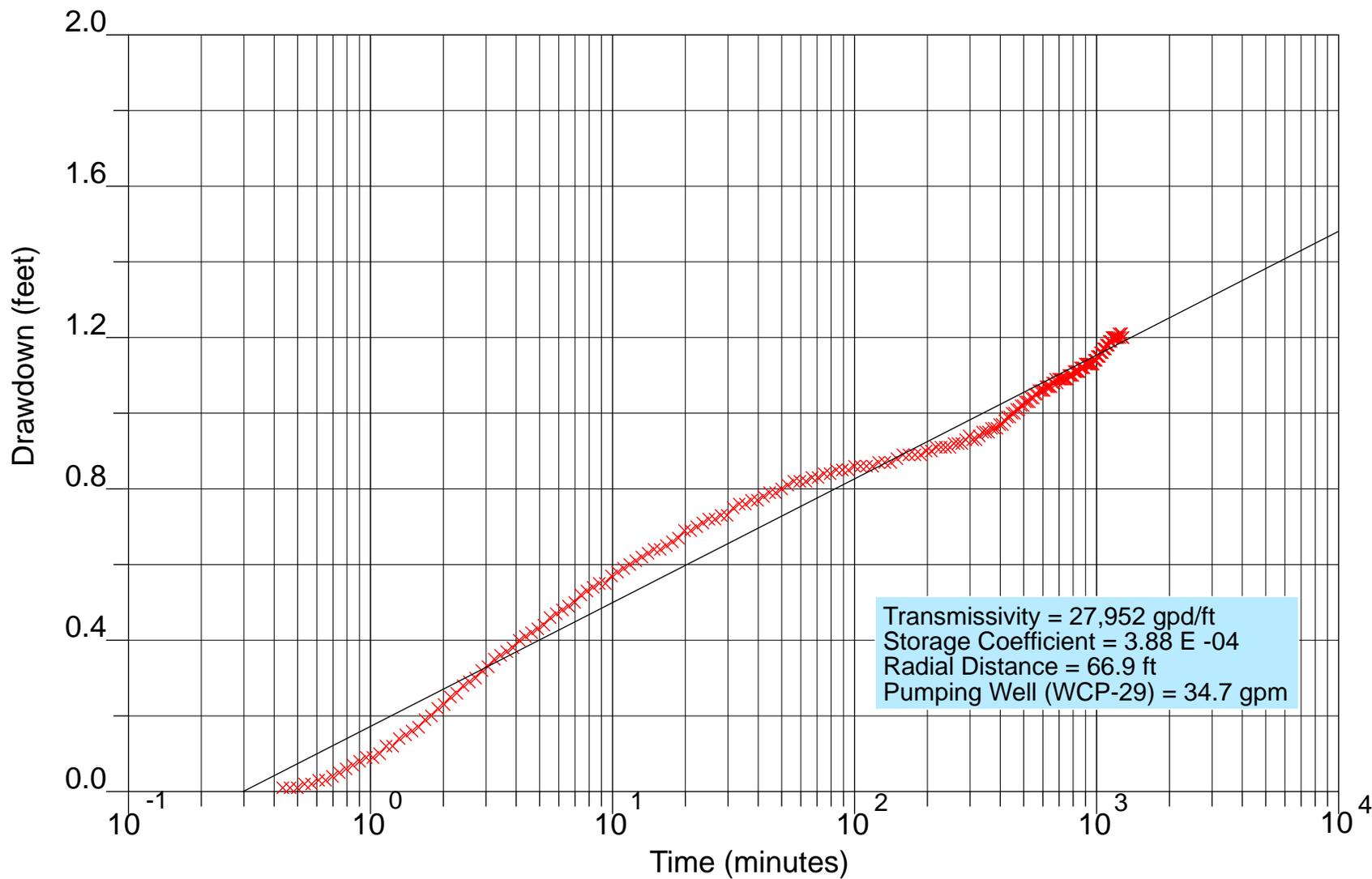
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Figure 4-12  
Aquifer Test, Cooper and Jacob Straight-Line Method (1946)  
WCP-15



# WCP-16 (Observation Well)



x time-drawdown

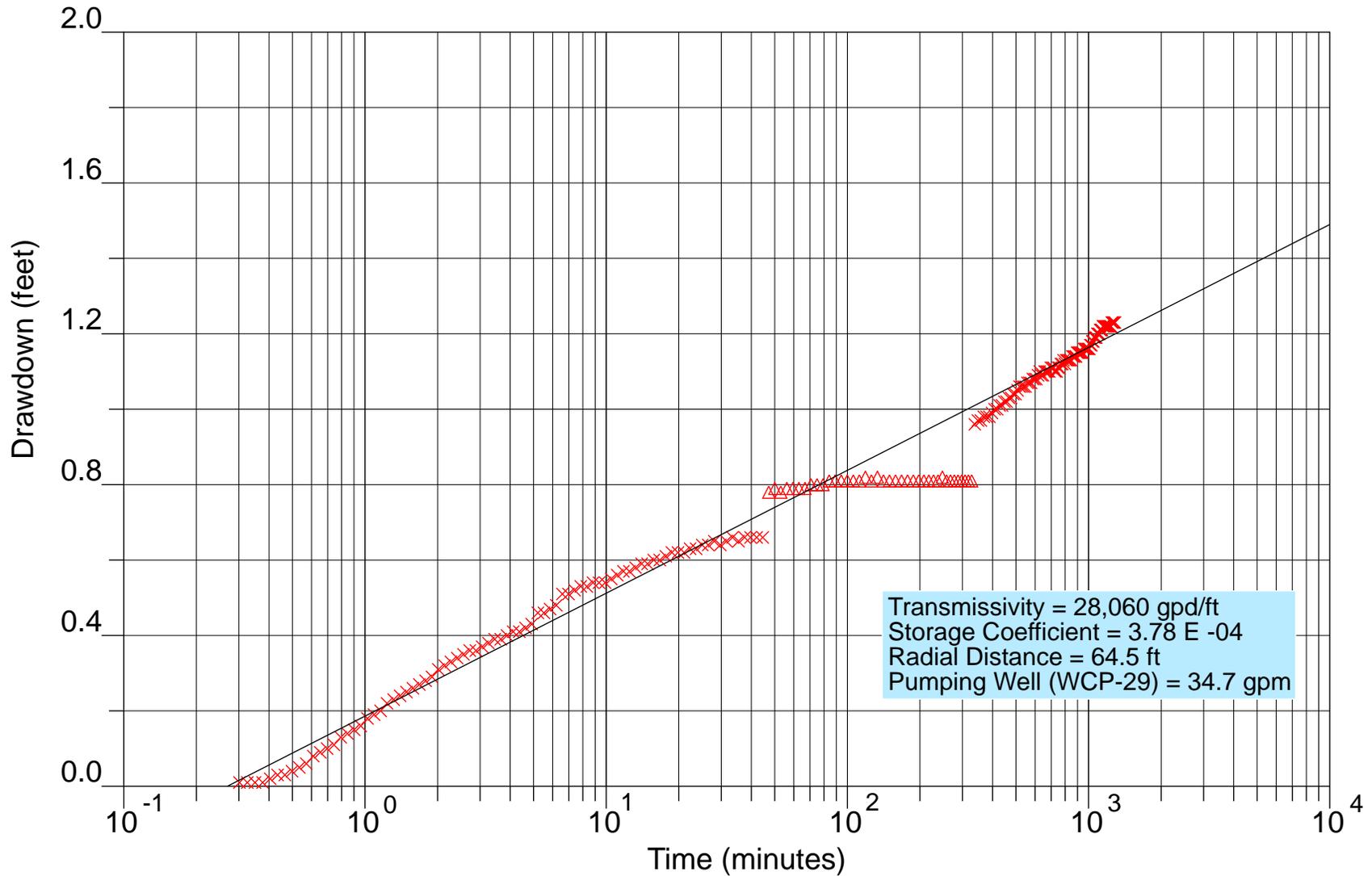
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Figure 4-13  
Aquifer Test, Cooper and Jacob Straight-Line Method (1946)  
WCP-16



# WCP-28 (Observation Well)



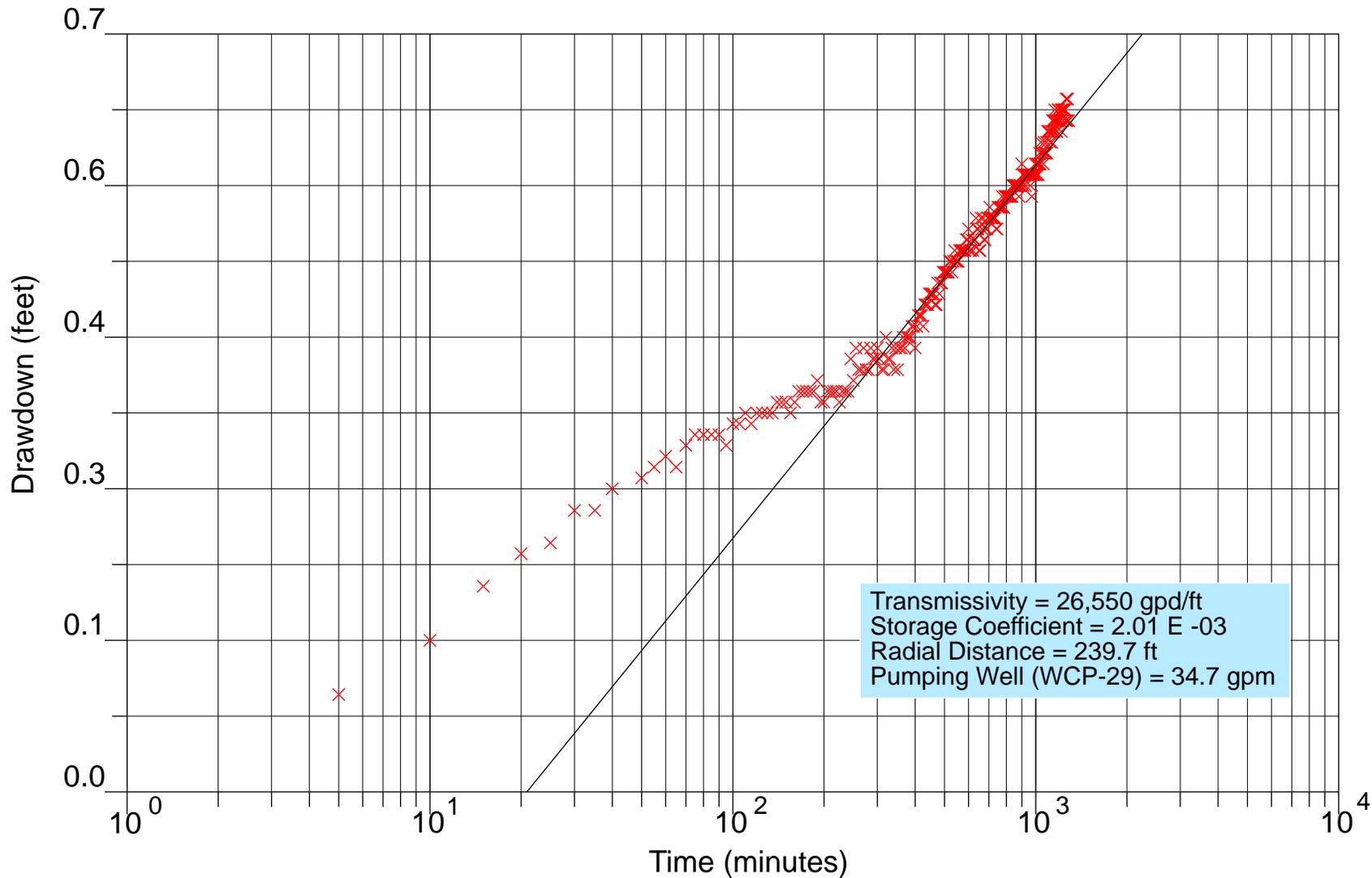
- × time-drawdown
- △ data omitted from



Figure 4-14  
Aquifer Test, Cooper and Jacob Straight-Line Method (1946)  
WCP-28



# WCP-84 (Observation Well)



x time-drawdown

H:\I\WCP-EGA-R\A\Aquifer Test\Figures\Fig4-15 aqtest.ai



Figure 4-15  
Aquifer Test, Cooper and Jacob Straight-Line Method (1946)  
WCP-84



## **TABLES**

**Table 1-1**  
**September 2000 Groundwater Elevations**

Location	TOC Elevation	September 2000	
		DTW	GW Elevation
MOGUL MW-1	1098.72	115.64	983.08
MOGUL MW-2	1099.04	116.14	982.90
MOGUL MW-3	1097.49	116.58	980.91
MOGUL MW-4	1099.44	116.23	983.21
Phoenix Pest MW-5	1094.97	109.97	985.00
Phoenix Pest MW-6	1095.78	110.37	985.41
Phoenix Pest MW-7	1097.02	111.27	985.75
Southwest Roofing MWB-2	1106.29	121.65	984.64
Southwest Roofing MWB-3	1106.33	121.83	984.50
Southwest Roofing MWB-4	1105.81	120.99	984.82
Southwest Roofing MWB-5	1106.32	121.40	984.92
WCP-8	1109.92	123.67	986.25
WCP-10	1102.50	119.46	983.04
WCP-11	1107.66	123.30	984.36
WCP-15	1109.28	120.41	988.87
WCP-16	1108.75	119.59	989.16
WCP-17	1106.61	118.45	988.16
WCP-28	1108.73	119.57	989.16
WCP-29	1108.75	119.50	989.25
WCP-30	1108.78	121.48	987.30
WCP-40	1110.82	119.42	991.40
WCP-41	1108.49	118.13	990.36
WCP-42	1110.08	120.93	989.15
WCP-43	1111.89	118.49	993.40
WCP-44	1104.81	119.13	985.68
WCP-45	1107.56	120.75	986.81
WCP-46	1109.78	122.36	987.42
ENT MW-2	1105.28	119.87	985.41

Notes: TOC = Top of casing  
DTW = Depth-to-water  
GW = Groundwater  
Elevations in feet amsl (above mean sea level)

**Table 1-2  
Monitor Well Construction Details**

Well ID	Property Owner Contact Information	ADWR No.	Install Date	Casing		Screen		Screened Interval (ft bgs)	Total Well Depth (ft bgs)	Total Boring Depth (ft bgs)	Sand Pack	TOC Elevation (ft amsl)	Radial Distance to Pumped Well (ft)
				Material	Length (ft)	Material	Length (ft)						
WCP-15	Bakala Investment Properties, L.L.C.	55-561071	03/18/1997	4-inch Dia. Sch. 40 PVC	95	0.01-inch Slotted PVC	30	96-126	125	127	10/20 Colorado Silica Sand	1109.28	227
WCP-16	Bakala Investment Properties, L.L.C.	55-561072	03/17/1997	4-inch Dia. Sch. 40 PVC	96	0.01-inch Slotted PVC	30	95-125	126	136	10/20 Colorado Silica Sand	1108.71	66.9
WCP-17	City of Phoenix	55-561073	03/19/1997	4-inch Dia. Sch. 40 PVC	95	0.01-inch Slotted PVC	30	95-125	125	127	10/20 Colorado Silica Sand	1106.61	448.1
WCP-28	Leonard & Cheryl Destremps	55-568218	05/26/1998	4-inch Dia. Sch. 40 PVC	99.5	0.01-inch Slotted PVC	40	99.5-139.5	139.5	141.5	8/20 Colorado Silica Sand	1108.73	64.5
WCP-29	Leonard & Cheryl Destremps	55-568217	05/28/1998	4-inch Dia. Sch. 40 PVC	99.5	0.01-inch Slotted PVC	40	99.5-139.5	139.5	141.5	8/20 Colorado Silica Sand	1108.75	0
WCP-42	Fred & Sylvia Shindell	55-575875	10/04/1999	4-inch Dia. Sch. 40 PVC	108.5	0.01-inch Slotted PVC	40	108.5-148.5	148.5	150	10/20 Colorado Silica Sand	1109.69	457.6
WCP-84	City of Phoenix	55-584132	01/29/2001	4-inch Dia. Sch. 40 PVC	108.5	0.01-inch Slotted PVC	40	108.5-148.5	148.5	150	10/20 Colorado Silica Sand	1109.04	239.7

Notes: ADWR = Arizona Department of Water Resources  
ft bgs = feet below ground surface  
TOC = Top of casing  
ft amsl = feet above mean sea level  
PVC = polyvinyl chloride

**Table 2-1  
Step-Drawdown Tests**

WCP-29	Step #	Discharge (gpm)	Drawdown (ft)
	1	14	1.058
	2	16	1.246
	3	19	1.481
	4	23.5	1.817

WCP-28	Step #	Discharge (gpm)	Drawdown (ft)
	1	14	1.825
	2	18	2.371
	3	23	3.121

Notes: gpm = gallons per minute  
ft = feet

**Table 2-2  
Aquifer Test Water Quality Results**

Sample ID	Date	Elapsed Time (minutes)	TCE (µg/L)	PCE (µg/L)	1,1-DCE (µg/L)	Chloroform (µg/L)
MW-029-01	05/22/2001	130	7	4	2	0.8
MW-029-02	05/23/2001	720	8	5	2	0.8
MW-029-03	05/23/2001	1250	10	6	2	0.9

Notes: TCE = trichloroethene  
PCE = tetrachloroethene  
1,1-DCE = 1,1-dichloroethene  
µg/L = micrograms per liter

**ATTACHMENT A**  
**BORING LOGS**

**ATTACHMENT B**  
**ANALYTICAL DATA**

**ATTACHMENT C**  
**TIME-DRAWDOWN DATA**

## Pumping Wells

elapsed time (min)	WCP-29 DTW (ft)	Drawdown (ft)	WCP-28 DTW (ft)	Drawdown (ft)	WCP-16 DTW (ft)	Drawdown (ft)
0.00	119.46		119.45		119.41	
0.02	119.46	0.00	119.45	0.00	119.41	0.00
0.04	119.47	0.01	119.45	0.00	119.41	0.00
0.06	119.46	0.00	119.45	0.00	119.41	0.00
0.09	119.46	0.00	119.45	0.00	119.41	0.00
0.11	119.46	0.00	119.45	0.00	119.41	0.00
0.13	119.46	0.00	119.45	0.00	119.41	0.00
0.15	119.47	-0.01	119.45	0.00	119.41	0.00
0.17	119.47	-0.01	119.45	0.00	119.41	0.00
0.19	119.48	-0.02	119.45	0.00	119.41	0.00
0.22	119.49	-0.03	119.45	0.00	119.41	0.00
0.24	119.51	-0.05	119.45	0.00	119.41	0.00
0.26	119.57	-0.11	119.45	0.00	119.41	0.00
0.28	119.64	-0.18	119.45	0.00	119.41	0.00
0.30	119.74	-0.28	119.46	0.00	119.41	0.00
0.33	119.83	-0.37	119.46	-0.01	119.41	0.00
0.35	119.94	-0.48	119.46	-0.01	119.41	0.00
0.38	120.13	-0.67	119.46	-0.01	119.41	0.00
0.40	120.30	-0.84	119.47	-0.02	119.41	0.00
0.43	120.45	-0.99	119.48	-0.02	119.42	-0.01
0.47	120.57	-1.11	119.48	-0.03	119.42	-0.01
0.50	120.67	-1.21	119.49	-0.04	119.42	-0.01
0.53	120.78	-1.32	119.50	-0.05	119.43	-0.02
0.57	120.84	-1.38	119.51	-0.06	119.43	-0.02
0.61	120.96	-1.50	119.53	-0.08	119.44	-0.03
0.65	121.03	-1.57	119.54	-0.09	119.44	-0.03
0.70	121.09	-1.63	119.55	-0.10	119.45	-0.04
0.74	121.14	-1.68	119.56	-0.11	119.46	-0.05
0.79	121.18	-1.72	119.58	-0.13	119.47	-0.06
0.85	121.21	-1.75	119.59	-0.14	119.48	-0.07
0.90	121.24	-1.78	119.60	-0.15	119.49	-0.08
0.96	121.27	-1.81	119.61	-0.16	119.50	-0.09
1.02	121.29	-1.83	119.63	-0.18	119.50	-0.09
1.09	121.31	-1.85	119.64	-0.19	119.51	-0.10
1.16	121.33	-1.87	119.65	-0.20	119.53	-0.12
1.24	121.34	-1.88	119.67	-0.21	119.53	-0.12
1.31	121.37	-1.91	119.68	-0.22	119.55	-0.14
1.40	121.38	-1.92	119.69	-0.24	119.56	-0.15
1.49	121.39	-1.93	119.70	-0.25	119.57	-0.16
1.58	121.40	-1.94	119.71	-0.26	119.58	-0.17
1.68	121.43	-1.97	119.72	-0.27	119.60	-0.19
1.78	121.43	-1.97	119.73	-0.28	119.61	-0.20
1.90	121.45	-1.99	119.74	-0.29	119.63	-0.22
2.01	121.46	-2.00	119.76	-0.30	119.64	-0.23
2.14	121.47	-2.01	119.77	-0.31	119.66	-0.25
2.27	121.49	-2.03	119.78	-0.33	119.67	-0.26

Note: DTW = depth to water  
min = minutes  
ft = feet

WCP East Grand Avenue Aquifer Test

May 22-23, 2001

Began: 12:10 PM 5-22-01

Ended: 09:38 AM 5-23-01

elapsed time (min)	WCP-29 DTW (ft)	Drawdown (ft)	WCP-28 DTW (ft)	Drawdown (ft)	WCP-16 DTW (ft)	Drawdown (ft)
2.41	121.50	-2.04	119.79	-0.34	119.69	-0.28
2.56	121.51	-2.05	119.80	-0.35	119.70	-0.29
2.72	121.52	-2.06	119.81	-0.36	119.71	-0.30
2.89	121.54	-2.08	119.81	-0.36	119.73	-0.32
3.06	121.54	-2.08	119.82	-0.37	119.74	-0.33
3.25	121.57	-2.11	119.83	-0.38	119.76	-0.35
3.45	121.57	-2.11	119.84	-0.39	119.77	-0.36
3.66	121.58	-2.12	119.84	-0.39	119.78	-0.37
3.88	121.60	-2.14	119.85	-0.40	119.79	-0.38
4.12	121.60	-2.14	119.86	-0.41	119.81	-0.40
4.37	121.61	-2.15	119.86	-0.41	119.82	-0.41
4.63	121.62	-2.16	119.87	-0.42	119.83	-0.42
4.91	121.64	-2.18	119.88	-0.42	119.84	-0.43
5.21	121.65	-2.19	119.91	-0.46	119.85	-0.44
5.52	121.66	-2.20	119.91	-0.46	119.87	-0.46
5.86	121.67	-2.21	119.92	-0.47	119.88	-0.47
6.21	121.68	-2.22	119.93	-0.48	119.89	-0.48
6.58	121.69	-2.23	119.96	-0.51	119.90	-0.49
6.98	121.70	-2.24	119.96	-0.51	119.91	-0.50
7.40	121.71	-2.25	119.97	-0.52	119.93	-0.52
7.84	121.72	-2.26	119.98	-0.53	119.94	-0.53
8.31	121.73	-2.27	119.98	-0.53	119.95	-0.54
8.81	121.73	-2.27	119.99	-0.54	119.96	-0.55
9.34	121.75	-2.29	119.99	-0.54	119.96	-0.55
9.90	121.76	-2.30	119.99	-0.54	119.98	-0.57
10.49	121.77	-2.31	120.00	-0.55	119.99	-0.58
11.12	121.77	-2.31	120.01	-0.56	120.00	-0.59
11.78	121.79	-2.33	120.02	-0.57	120.01	-0.60
12.49	121.80	-2.34	120.02	-0.57	120.02	-0.61
13.23	121.81	-2.35	120.03	-0.57	120.03	-0.62
14.02	121.81	-2.35	120.04	-0.58	120.04	-0.63
14.86	121.83	-2.37	120.04	-0.59	120.05	-0.64
15.75	121.83	-2.37	120.05	-0.60	120.05	-0.64
16.69	121.84	-2.38	120.05	-0.60	120.06	-0.65
17.68	121.84	-2.38	120.06	-0.60	120.07	-0.66
18.73	121.86	-2.40	120.07	-0.61	120.08	-0.67
19.85	121.86	-2.40	120.07	-0.62	120.10	-0.69
21.03	121.88	-2.42	120.07	-0.62	120.10	-0.69
22.28	121.88	-2.42	120.08	-0.63	120.11	-0.70
23.61	121.89	-2.43	120.08	-0.63	120.12	-0.71
25.02	121.89	-2.43	120.09	-0.63	120.13	-0.72
26.50	121.91	-2.45	120.09	-0.63	120.13	-0.72
28.08	121.92	-2.46	120.10	-0.64	120.14	-0.73
29.75	121.92	-2.46	120.09	-0.64	120.14	-0.73
31.52	121.93	-2.47	120.10	-0.65	120.16	-0.75
33.39	121.93	-2.47	120.11	-0.66	120.17	-0.76
35.38	121.94	-2.48	120.10	-0.65	120.17	-0.76

Note: DTW = depth to water  
 min = minutes  
 ft = feet

WCP East Grand Avenue Aquifer Test

May 22-23, 2001

Began: 12:10 PM 5-22-01

Ended: 09:38 AM 5-23-01

elapsed time (min)	WCP-29 DTW (ft)	Drawdown (ft)	WCP-28 DTW (ft)	Drawdown (ft)	WCP-16 DTW (ft)	Drawdown (ft)
37.48	121.95	-2.49	120.11	-0.66	120.18	-0.77
39.71	121.95	-2.49	120.11	-0.66	120.18	-0.77
42.07	121.96	-2.50	120.11	-0.66	120.19	-0.78
44.56	121.96	-2.50	120.11	-0.66	120.20	-0.79
47.21	121.98	-2.52	120.23	-0.78	120.20	-0.79
50.02	121.98	-2.52	120.24	-0.79	120.21	-0.80
52.98	121.99	-2.53	120.23	-0.78	120.22	-0.81
56.13	121.99	-2.53	120.24	-0.79	120.23	-0.82
59.46	121.99	-2.53	120.24	-0.79	120.23	-0.82
62.99	122.01	-2.55	120.24	-0.79	120.23	-0.82
66.73	122.00	-2.54	120.24	-0.79	120.24	-0.83
70.69	122.01	-2.55	120.25	-0.80	120.24	-0.83
74.89	122.02	-2.56	120.25	-0.80	120.25	-0.84
79.33	122.02	-2.56	120.25	-0.80	120.25	-0.84
84.04	122.02	-2.56	120.26	-0.81	120.26	-0.85
89.02	122.02	-2.56	120.26	-0.81	120.26	-0.85
94.30	122.03	-2.57	120.26	-0.81	120.26	-0.85
99.90	122.04	-2.58	120.26	-0.81	120.27	-0.86
105.82	122.03	-2.57	120.26	-0.81	120.27	-0.86
112.10	122.04	-2.58	120.26	-0.81	120.27	-0.86
118.75	122.04	-2.58	120.27	-0.82	120.27	-0.86
125.79	122.05	-2.59	120.26	-0.81	120.28	-0.87
133.25	122.06	-2.60	120.27	-0.82	120.28	-0.87
141.15	122.06	-2.60	120.26	-0.81	120.28	-0.87
149.52	122.06	-2.60	120.26	-0.81	120.29	-0.88
158.38	122.07	-2.61	120.26	-0.81	120.30	-0.89
167.78	122.07	-2.61	120.26	-0.81	120.30	-0.89
177.72	122.07	-2.61	120.26	-0.81	120.30	-0.89
187.72	122.07	-2.61	120.26	-0.81	120.30	-0.89
197.72	122.07	-2.61	120.26	-0.81	120.31	-0.90
207.72	122.08	-2.62	120.26	-0.81	120.31	-0.90
217.72	122.08	-2.62	120.26	-0.81	120.32	-0.91
227.72	122.09	-2.63	120.26	-0.81	120.32	-0.91
237.72	122.09	-2.63	120.26	-0.81	120.32	-0.91
247.72	122.10	-2.64	120.27	-0.82	120.32	-0.91
257.72	122.11	-2.65	120.26	-0.81	120.33	-0.92
267.72	122.11	-2.65	120.26	-0.81	120.33	-0.92
277.72	122.11	-2.65	120.26	-0.81	120.33	-0.92
287.72	122.12	-2.66	120.26	-0.81	120.34	-0.93
297.72	122.12	-2.66	120.26	-0.81	120.35	-0.94
307.72	122.11	-2.65	120.26	-0.81	120.34	-0.93
317.72	122.12	-2.66	120.26	-0.81	120.34	-0.93
327.72	122.13	-2.67	120.26	-0.81	120.35	-0.94
337.72	122.13	-2.67	120.41	-0.96	120.36	-0.95
347.72	122.13	-2.67	120.42	-0.97	120.36	-0.95
357.72	122.14	-2.68	120.42	-0.97	120.36	-0.95
367.72	122.14	-2.68	120.43	-0.98	120.37	-0.96

Note: DTW = depth to water  
 min = minutes  
 ft = feet

WCP East Grand Avenue Aquifer Test

May 22-23, 2001

Began: 12:10 PM 5-22-01

Ended: 09:38 AM 5-23-01

elapsed time (min)	WCP-29 DTW (ft)	Drawdown (ft)	WCP-28 DTW (ft)	Drawdown (ft)	WCP-16 DTW (ft)	Drawdown (ft)
377.72	122.15	-2.69	120.43	-0.98	120.37	-0.96
387.72	122.16	-2.70	120.43	-0.98	120.37	-0.96
397.72	122.16	-2.70	120.44	-0.99	120.38	-0.97
407.72	122.17	-2.71	120.45	-1.00	120.38	-0.97
417.72	122.17	-2.71	120.45	-1.00	120.39	-0.98
427.72	122.18	-2.72	120.46	-1.01	120.40	-0.99
437.72	122.19	-2.73	120.46	-1.01	120.40	-0.99
447.72	122.19	-2.73	120.47	-1.02	120.41	-1.00
457.72	122.20	-2.74	120.47	-1.02	120.41	-1.00
467.72	122.20	-2.74	120.48	-1.03	120.42	-1.01
477.72	122.21	-2.75	120.48	-1.03	120.42	-1.01
487.72	122.21	-2.75	120.49	-1.04	120.43	-1.02
497.72	122.22	-2.76	120.49	-1.04	120.43	-1.02
507.72	122.24	-2.78	120.50	-1.05	120.44	-1.03
517.72	122.22	-2.76	120.51	-1.06	120.44	-1.03
527.72	122.23	-2.77	120.51	-1.06	120.44	-1.03
537.72	122.24	-2.78	120.51	-1.06	120.45	-1.04
547.72	122.25	-2.79	120.51	-1.06	120.45	-1.04
557.72	122.24	-2.78	120.52	-1.07	120.46	-1.05
567.72	122.25	-2.79	120.52	-1.07	120.46	-1.05
577.72	122.25	-2.79	120.52	-1.07	120.47	-1.06
587.72	122.27	-2.81	120.53	-1.08	120.47	-1.06
597.72	122.27	-2.81	120.53	-1.08	120.47	-1.06
607.72	122.26	-2.80	120.53	-1.08	120.47	-1.06
617.72	122.30	-2.84	120.54	-1.09	120.48	-1.07
627.72	122.29	-2.83	120.55	-1.10	120.48	-1.07
637.72	122.29	-2.83	120.54	-1.09	120.48	-1.07
647.72	122.29	-2.83	120.54	-1.09	120.48	-1.07
657.72	122.30	-2.84	120.55	-1.10	120.49	-1.08
667.72	122.31	-2.85	120.55	-1.10	120.49	-1.08
677.72	122.31	-2.85	120.55	-1.10	120.50	-1.09
687.72	122.31	-2.85	120.55	-1.10	120.49	-1.08
697.72	122.32	-2.86	120.56	-1.11	120.50	-1.09
707.72	122.31	-2.85	120.56	-1.11	120.50	-1.09
717.72	122.31	-2.85	120.56	-1.11	120.50	-1.09
727.72	122.30	-2.84	120.55	-1.10	120.50	-1.09
737.72	122.31	-2.85	120.55	-1.10	120.50	-1.09
747.72	122.31	-2.85	120.56	-1.11	120.50	-1.09
757.72	122.31	-2.85	120.56	-1.11	120.50	-1.09
767.72	122.32	-2.86	120.57	-1.12	120.51	-1.10
777.72	122.33	-2.87	120.57	-1.12	120.51	-1.10
787.72	122.33	-2.87	120.58	-1.13	120.51	-1.10
797.72	122.32	-2.86	120.57	-1.12	120.51	-1.10
807.72	122.33	-2.87	120.58	-1.13	120.52	-1.11
817.72	122.33	-2.87	120.58	-1.13	120.52	-1.11
827.72	122.34	-2.88	120.58	-1.13	120.52	-1.11
837.72	122.34	-2.88	120.58	-1.13	120.52	-1.11

Note: DTW = depth to water  
 min = minutes  
 ft = feet

WCP East Grand Avenue Aquifer Test

May 22-23, 2001

Began: 12:10 PM 5-22-01

Ended: 09:38 AM 5-23-01

elapsed time (min)	WCP-29 DTW (ft)	Drawdown (ft)	WCP-28 DTW (ft)	Drawdown (ft)	WCP-16 DTW (ft)	Drawdown (ft)
847.72	122.34	-2.88	120.58	-1.13	120.52	-1.11
857.72	122.34	-2.88	120.59	-1.14	120.53	-1.12
867.72	122.34	-2.88	120.59	-1.14	120.53	-1.12
877.72	122.34	-2.88	120.59	-1.14	120.53	-1.12
887.72	122.36	-2.90	120.59	-1.14	120.53	-1.12
897.72	122.35	-2.89	120.60	-1.15	120.54	-1.13
907.72	122.36	-2.90	120.60	-1.15	120.54	-1.13
917.72	122.35	-2.89	120.60	-1.15	120.54	-1.13
927.72	122.36	-2.90	120.60	-1.15	120.54	-1.13
937.72	122.36	-2.90	120.60	-1.15	120.54	-1.13
947.72	122.36	-2.90	120.60	-1.15	120.54	-1.13
957.72	122.36	-2.90	120.61	-1.16	120.54	-1.13
967.72	122.37	-2.91	120.61	-1.16	120.54	-1.13
977.72	122.37	-2.91	120.61	-1.16	120.55	-1.14
987.72	122.38	-2.92	120.61	-1.16	120.55	-1.14
997.72	122.38	-2.92	120.61	-1.16	120.55	-1.14
1007.72	122.39	-2.93	120.61	-1.16	120.56	-1.15
1017.72	122.39	-2.93	120.62	-1.17	120.56	-1.15
1027.72	122.38	-2.92	120.62	-1.17	120.56	-1.15
1037.72	122.39	-2.93	120.63	-1.18	120.57	-1.16
1047.72	122.39	-2.93	120.63	-1.18	120.57	-1.16
1057.72	122.40	-2.94	120.64	-1.19	120.57	-1.16
1067.72	122.40	-2.94	120.64	-1.19	120.58	-1.17
1077.72	122.41	-2.95	120.64	-1.19	120.58	-1.17
1087.72	122.41	-2.95	120.65	-1.20	120.58	-1.17
1097.72	122.40	-2.94	120.65	-1.20	120.59	-1.18
1107.72	122.41	-2.95	120.65	-1.20	120.59	-1.18
1117.72	122.42	-2.96	120.66	-1.21	120.59	-1.18
1127.72	122.42	-2.96	120.66	-1.21	120.60	-1.19
1137.72	122.42	-2.96	120.66	-1.21	120.60	-1.19
1147.72	122.41	-2.95	120.67	-1.22	120.60	-1.19
1157.72	122.42	-2.96	120.67	-1.22	120.61	-1.20
1167.72	122.42	-2.96	120.67	-1.22	120.61	-1.20
1177.72	122.43	-2.97	120.67	-1.22	120.61	-1.20
1187.72	122.43	-2.97	120.67	-1.22	120.61	-1.20
1197.72	122.42	-2.96	120.67	-1.22	120.61	-1.20
1207.72	122.42	-2.96	120.67	-1.22	120.61	-1.20
1217.72	122.43	-2.97	120.67	-1.22	120.61	-1.20
1227.72	122.43	-2.97	120.67	-1.22	120.61	-1.20
1237.72	122.43	-2.97	120.67	-1.22	120.62	-1.21
1247.72	122.44	-2.98	120.68	-1.23	120.61	-1.20
1257.72	122.42	-2.96	120.68	-1.23	120.62	-1.21
1267.72	122.43	-2.97	120.68	-1.23	120.62	-1.21
1277.72	122.42	-2.96	120.68	-1.23	120.61	-1.20
1287.72	122.43	-2.97	120.68	-1.23	120.61	-1.20
1287.89	122.43	-2.97	120.68	-1.23	120.61	-1.20
1287.92	122.43	-2.97	120.68	-1.23	120.61	-1.20

Note: DTW = depth to water  
 min = minutes  
 ft = feet

WCP East Grand Avenue Aquifer Test

May 22-23, 2001

Began: 12:10 PM 5-22-01

Ended: 09:38 AM 5-23-01

elapsed time (min)	WCP-29 DTW (ft)	Drawdown (ft)	WCP-28 DTW (ft)	Drawdown (ft)	WCP-16 DTW (ft)	Drawdown (ft)
1287.94	122.43	-2.97	120.68	-1.23	120.61	-1.20
1287.96	122.43	-2.97	120.68	-1.23	120.61	-1.20
1287.98	122.43	-2.97	120.68	-1.23	120.61	-1.20
1288.00	122.43	-2.97	120.68	-1.23	120.61	-1.20
1288.02	121.95	-2.49	120.67	-1.22	120.61	-1.20
1288.05	121.61	-2.15	120.67	-1.22	120.61	-1.20
1288.07	121.39	-1.93	120.66	-1.21	120.61	-1.20
1288.09	121.23	-1.77	120.66	-1.21	120.61	-1.20
1288.11	121.12	-1.66	120.65	-1.20	120.61	-1.20
1288.13	121.04	-1.58	120.64	-1.19	120.60	-1.19
1288.15	120.98	-1.52	120.63	-1.18	120.60	-1.19
1288.18	120.93	-1.47	120.62	-1.17	120.60	-1.19
1288.20	120.88	-1.42	120.62	-1.17	120.59	-1.18
1288.22	120.85	-1.39	120.61	-1.16	120.59	-1.18
1288.24	120.82	-1.36	120.60	-1.15	120.59	-1.18
1288.26	120.79	-1.33	120.59	-1.14	120.58	-1.17
1288.28	120.77	-1.31	120.59	-1.14	120.58	-1.17
1288.31	120.75	-1.29	120.58	-1.13	120.57	-1.16
1288.33	120.73	-1.27	120.57	-1.12	120.57	-1.16
1288.35	120.72	-1.26	120.57	-1.12	120.57	-1.16
1288.38	120.71	-1.25	120.56	-1.11	120.56	-1.15
1288.40	120.69	-1.23	120.55	-1.10	120.56	-1.15
1288.43	120.67	-1.21	120.55	-1.10	120.55	-1.14
1288.46	120.66	-1.20	120.54	-1.09	120.55	-1.14
1288.49	120.65	-1.19	120.54	-1.09	120.54	-1.13
1288.53	120.63	-1.17	120.52	-1.07	120.54	-1.13
1288.56	120.62	-1.16	120.52	-1.07	120.53	-1.12
1288.60	120.60	-1.14	120.51	-1.06	120.52	-1.11
1288.64	120.60	-1.14	120.51	-1.06	120.52	-1.11
1288.68	120.58	-1.12	120.50	-1.05	120.51	-1.10
1288.72	120.57	-1.11	120.49	-1.04	120.51	-1.10
1288.77	120.55	-1.09	120.48	-1.03	120.50	-1.09
1288.82	120.54	-1.08	120.47	-1.02	120.49	-1.08
1288.87	120.53	-1.07	120.46	-1.01	120.48	-1.07
1288.93	120.53	-1.07	120.45	-1.00	120.47	-1.06
1288.99	120.51	-1.05	120.45	-1.00	120.47	-1.06
1289.05	120.50	-1.04	120.44	-0.99	120.46	-1.05
1289.12	120.49	-1.03	120.44	-0.99	120.45	-1.04
1289.19	120.47	-1.01	120.43	-0.98	120.44	-1.03
1289.26	120.47	-1.01	120.42	-0.97	120.43	-1.02
1289.34	120.45	-0.99	120.41	-0.96	120.42	-1.01
1289.42	120.44	-0.98	120.40	-0.95	120.41	-1.00
1289.51	120.43	-0.97	120.39	-0.94	120.40	-0.99
1289.61	120.42	-0.96	120.37	-0.92	120.39	-0.98
1289.71	120.41	-0.95	120.36	-0.91	120.38	-0.97
1289.81	120.40	-0.94	120.35	-0.90	120.36	-0.95
1289.92	120.38	-0.92	120.34	-0.89	120.35	-0.94

Note: DTW = depth to water  
 min = minutes  
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WCP East Grand Avenue Aquifer Test

May 22-23, 2001

Began: 12:10 PM 5-22-01

Ended: 09:38 AM 5-23-01

elapsed time (min)	WCP-29 DTW (ft)	Drawdown (ft)	WCP-28 DTW (ft)	Drawdown (ft)	WCP-16 DTW (ft)	Drawdown (ft)
1290.04	120.37	-0.91	120.33	-0.88	120.34	-0.93
1290.17	120.36	-0.90	120.32	-0.87	120.33	-0.92
1290.30	120.35	-0.89	120.31	-0.86	120.32	-0.91
1290.44	120.34	-0.88	120.30	-0.85	120.31	-0.90
1290.59	120.33	-0.87	120.28	-0.83	120.29	-0.88
1290.75	120.31	-0.85	120.27	-0.82	120.28	-0.87
1290.91	120.30	-0.84	120.26	-0.81	120.27	-0.86
1291.09	120.29	-0.83	120.25	-0.80	120.26	-0.85
1291.28	120.28	-0.82	120.24	-0.79	120.24	-0.83
1291.48	120.27	-0.81	120.23	-0.78	120.23	-0.82
1291.69	120.26	-0.80	120.22	-0.77	120.22	-0.81
1291.91	120.25	-0.79	120.22	-0.77	120.21	-0.80
1292.14	120.23	-0.77	120.20	-0.75	120.20	-0.79
1292.39	120.23	-0.77	120.19	-0.74	120.19	-0.78
1292.66	120.21	-0.75	120.18	-0.73	120.17	-0.76
1292.94	120.21	-0.75	120.17	-0.72	120.16	-0.75
1293.24	120.19	-0.73	120.15	-0.70	120.15	-0.74
1293.55	120.18	-0.72	120.14	-0.69	120.14	-0.73
1293.88	120.17	-0.71	120.14	-0.69	120.13	-0.72
1294.24	120.16	-0.70	120.13	-0.68	120.12	-0.71
1294.61	120.15	-0.69	120.12	-0.67	120.11	-0.70
1295.01	120.14	-0.68	120.11	-0.66	120.10	-0.69
1295.43	120.13	-0.67	120.09	-0.64	120.09	-0.68
1295.87	120.12	-0.66	120.08	-0.63	120.07	-0.66
1296.34	120.11	-0.65	120.08	-0.63	120.07	-0.66
1296.84	120.10	-0.64	120.07	-0.62	120.06	-0.65
1297.37	120.09	-0.63	120.06	-0.61	120.04	-0.63
1297.93	120.08	-0.62	120.05	-0.60	120.03	-0.62
1298.52	120.07	-0.61	120.04	-0.59	120.02	-0.61
1299.15	120.06	-0.60	120.03	-0.58	120.01	-0.60
1299.81	120.05	-0.59	120.01	-0.56	120.00	-0.59
1300.51	120.04	-0.58	120.01	-0.56	119.99	-0.58
1301.26	120.03	-0.57	120.00	-0.55	119.98	-0.57
1302.05	120.03	-0.57	119.99	-0.54	119.97	-0.56
1302.89	120.02	-0.56	119.97	-0.52	119.96	-0.55
1303.77	120.01	-0.55	119.97	-0.52	119.95	-0.54
1304.71	120.00	-0.54	119.96	-0.51	119.94	-0.53
1305.71	119.99	-0.53	119.95	-0.50	119.93	-0.52
1306.76	119.98	-0.52	119.95	-0.50	119.93	-0.52
1307.88	119.97	-0.51	119.94	-0.49	119.91	-0.50
1309.06	119.96	-0.50	119.93	-0.48	119.91	-0.50
1310.31	119.95	-0.49	119.93	-0.48	119.90	-0.49
1311.64	119.95	-0.49	119.91	-0.46	119.89	-0.48
1313.04	119.94	-0.48	119.90	-0.45	119.88	-0.47
1314.53	119.93	-0.47	119.89	-0.44	119.87	-0.46
1316.11	119.92	-0.46	119.88	-0.43	119.86	-0.45
1317.78	119.91	-0.45	119.88	-0.43	119.86	-0.45

Note: DTW = depth to water  
 min = minutes  
 ft = feet

WCP East Grand Avenue Aquifer Test

May 22-23, 2001

Began: 12:10 PM 5-22-01

Ended: 09:38 AM 5-23-01

elapsed time (min)	WCP-29 DTW (ft)	Drawdown (ft)	WCP-28 DTW (ft)	Drawdown (ft)	WCP-16 DTW (ft)	Drawdown (ft)
1319.55	119.91	-0.45	119.87	-0.42	119.85	-0.44
1321.42	119.90	-0.44	119.86	-0.41	119.84	-0.43
1323.41	119.89	-0.43	119.86	-0.41	119.83	-0.42
1325.51	119.88	-0.42	119.85	-0.40	119.82	-0.41
1327.73	119.88	-0.42	119.84	-0.39	119.82	-0.41
1330.09	119.87	-0.41	119.83	-0.38	119.81	-0.40
1332.59	119.86	-0.40	119.83	-0.38	119.80	-0.39
1335.24	119.86	-0.40	119.82	-0.37	119.79	-0.38
1338.04	119.85	-0.39	119.81	-0.36	119.79	-0.38
1341.01	119.84	-0.38	119.81	-0.36	119.78	-0.37
1344.16	119.83	-0.37	119.79	-0.34	119.77	-0.36
1347.49	119.82	-0.36	119.79	-0.34	119.77	-0.36
1351.02	119.82	-0.36	119.78	-0.33	119.76	-0.35
1354.76	119.81	-0.35	119.77	-0.32	119.75	-0.34
1358.72	119.80	-0.34	119.76	-0.31	119.75	-0.34
1362.91	119.80	-0.34	119.75	-0.30	119.74	-0.33
1367.36	119.79	-0.33	119.74	-0.29	119.73	-0.32
1372.06	119.79	-0.33	119.75	-0.30	119.73	-0.32
1377.05	119.78	-0.32	119.74	-0.29	119.72	-0.31
1382.33	119.77	-0.31	119.74	-0.29	119.72	-0.31
1387.92	119.76	-0.30	119.73	-0.28	119.70	-0.29
1393.85	119.76	-0.30	119.72	-0.27	119.70	-0.29
1400.12	119.75	-0.29	119.72	-0.27	119.69	-0.28
1406.77	119.74	-0.28	119.71	-0.26	119.68	-0.27
1413.81	119.73	-0.27	119.69	-0.24	119.67	-0.26
1421.27	119.73	-0.27	119.69	-0.24	119.67	-0.26
1429.18	119.72	-0.26	119.69	-0.24	119.66	-0.25
1437.55	119.71	-0.25	119.68	-0.23	119.65	-0.24
1446.41	119.70	-0.24	119.67	-0.22	119.64	-0.23
1455.80	119.70	-0.24	119.66	-0.21	119.64	-0.23
1465.75	119.69	-0.23	119.66	-0.21	119.63	-0.22
1475.75	119.68	-0.22	119.65	-0.20	119.63	-0.22
1485.75	119.68	-0.22	119.65	-0.20	119.62	-0.21
1495.75	119.68	-0.22	119.64	-0.19	119.62	-0.21
1505.75	119.67	-0.21	119.64	-0.19	119.61	-0.20
1515.75	119.66	-0.20	119.63	-0.18	119.61	-0.20
1525.75	119.66	-0.20	119.62	-0.17	119.59	-0.18
1535.75	119.65	-0.19	119.62	-0.17	119.59	-0.18
1545.75	119.65	-0.19	119.61	-0.16	119.59	-0.18
1555.75	119.64	-0.18	119.61	-0.16	119.59	-0.18
1565.75	119.64	-0.18	119.60	-0.15	119.58	-0.17
1575.75	119.63	-0.17	119.59	-0.14	119.57	-0.16
1585.75	119.62	-0.16	119.59	-0.14	119.57	-0.16
1595.75	119.62	-0.16	119.59	-0.14	119.57	-0.16
1605.75	119.62	-0.16	119.58	-0.13	119.56	-0.15

Note: DTW = depth to water  
 min = minutes  
 ft = feet

**Observation Wells**

elapsed time (min)	WCP-15 DTW (ft)	Drawdown (ft)	WCP-84 DTW (ft)	Drawdown (ft)
0	120.22		118.90	
5	120.23	-0.01	118.99	-0.09
10	120.25	-0.03	119.04	-0.14
15	120.29	-0.07	119.09	-0.19
20	120.31	-0.09	119.12	-0.22
25	120.33	-0.11	119.13	-0.23
30	120.36	-0.14	119.16	-0.26
35	120.36	-0.14	119.16	-0.26
40	120.38	-0.16	119.18	-0.28
45	120.40	-0.18	119.30	-0.40
50	120.41	-0.19	119.19	-0.29
55	120.41	-0.19	119.20	-0.30
60	120.42	-0.20	119.21	-0.31
65	120.42	-0.20	119.20	-0.30
70	120.43	-0.21	119.22	-0.32
75	120.43	-0.21	119.23	-0.33
80	120.44	-0.22	119.23	-0.33
85	120.43	-0.21	119.23	-0.33
90	120.44	-0.22	119.23	-0.33
95	120.42	-0.20	119.22	-0.32
100	120.45	-0.23	119.24	-0.34
105	120.45	-0.23	119.24	-0.34
110	120.44	-0.22	119.25	-0.35
115	120.45	-0.23	119.24	-0.34
120	120.45	-0.23	119.25	-0.35
125	120.45	-0.23	119.25	-0.35
130	120.45	-0.23	119.25	-0.35
135	120.45	-0.23	119.25	-0.35
140	120.45	-0.23	119.26	-0.36
145	120.46	-0.24	119.26	-0.36
150	120.47	-0.25	119.26	-0.36
155	120.46	-0.24	119.25	-0.35
160	120.47	-0.25	119.26	-0.36
165	120.47	-0.25	119.27	-0.37
170	120.47	-0.25	119.27	-0.37
175	120.48	-0.26	119.27	-0.37
180	120.47	-0.25	119.27	-0.37
185	120.48	-0.26	119.27	-0.37
190	120.49	-0.27	119.28	-0.38
195	120.46	-0.24	119.26	-0.36
200	120.46	-0.24	119.26	-0.36
205	120.47	-0.25	119.27	-0.37
210	120.48	-0.26	119.27	-0.37
215	120.48	-0.26	119.27	-0.37
220	120.48	-0.26	119.27	-0.37
225	120.47	-0.25	119.26	-0.36
230	120.47	-0.25	119.27	-0.37
235	120.47	-0.25	119.27	-0.37
240	120.48	-0.26	119.27	-0.37
245	120.48	-0.26	119.30	-0.40
250	120.49	-0.27	119.28	-0.38
255	120.50	-0.28	119.31	-0.41

**Background Wells**

elapsed time (min)	WCP-17 DTW (ft)	Drawdown (ft)	WCP-42 DTW (ft)	Drawdown (ft)
0	118.45		120.76	
15	118.48	-0.03	120.79	-0.03
30	118.47	-0.02	120.79	-0.03
45	118.47	-0.02	120.79	-0.03
60	118.48	-0.03	120.78	-0.02
75	118.47	-0.02	120.79	-0.03
90	118.48	-0.03	120.79	-0.03
105	118.47	-0.02	120.79	-0.03
120	118.53	-0.08	120.84	-0.08
135	118.50	-0.05	120.81	-0.05
150	118.49	-0.04	120.81	-0.05
165	118.48	-0.03	120.79	-0.03
180	118.48	-0.03	120.79	-0.03
195	118.50	-0.05	120.82	-0.06
210	118.49	-0.04	120.80	-0.04
225	118.51	-0.06	120.82	-0.06
240	118.49	-0.04	120.81	-0.05
255	118.49	-0.04	120.80	-0.04
270	118.51	-0.06	120.82	-0.06
285	118.51	-0.06	120.83	-0.07
300	118.53	-0.08	120.83	-0.07
315	118.54	-0.09	120.84	-0.08
330	118.53	-0.08	120.84	-0.08
345	118.55	-0.10	120.84	-0.08
360	118.55	-0.10	120.85	-0.09
375	118.56	-0.11	120.86	-0.10
390	118.56	-0.11	120.84	-0.08
405	118.56	-0.11	120.86	-0.10
420	118.59	-0.14	120.85	-0.09
435	118.55	-0.10	120.84	-0.08
450	118.56	-0.11	120.84	-0.08
465	118.57	-0.12	120.84	-0.08
480	118.59	-0.14	120.86	-0.10
495	118.58	-0.13	120.85	-0.09
510	118.58	-0.13	120.85	-0.09
525	118.61	-0.16	120.88	-0.12
540	118.61	-0.16	120.88	-0.12
555	118.63	-0.18	120.89	-0.13
570	118.63	-0.18	120.90	-0.14
585	118.65	-0.20	120.90	-0.14
600	118.64	-0.19	120.89	-0.13
615	118.65	-0.20	120.90	-0.14
630	118.65	-0.20	120.90	-0.14
645	118.65	-0.20	120.89	-0.13
660	118.64	-0.19	120.88	-0.12
675	118.65	-0.20	120.89	-0.13
690	118.63	-0.18	120.86	-0.10
705	118.63	-0.18	120.86	-0.10
720	118.62	-0.17	120.86	-0.10
735	118.62	-0.17	120.85	-0.09
750	118.62	-0.17	120.86	-0.10
765	118.62	-0.17	120.85	-0.09

Notes: DTW = depth to water  
 min = minutes  
 ft = feet

**Observation Wells**

elapsed time (min)	WCP-15 DTW (ft)	Drawdown (ft)	WCP-84 DTW (ft)	Drawdown (ft)
260	120.49	-0.27	119.29	-0.39
265	120.49	-0.27	119.29	-0.39
270	120.49	-0.27	119.31	-0.41
275	120.49	-0.27	119.29	-0.39
280	120.49	-0.27	119.29	-0.39
285	120.51	-0.29	119.31	-0.41
290	120.51	-0.29	119.30	-0.40
295	120.50	-0.28	119.30	-0.40
300	120.51	-0.29	119.31	-0.41
305	120.50	-0.28	119.30	-0.40
310	120.49	-0.27	119.29	-0.39
315	120.49	-0.27	119.29	-0.39
320	120.52	-0.30	119.32	-0.42
325	120.52	-0.30	119.30	-0.40
330	120.51	-0.29	119.30	-0.40
335	120.51	-0.29	119.31	-0.41
340	120.50	-0.28	119.29	-0.39
345	120.52	-0.30	119.31	-0.41
350	120.51	-0.29	119.29	-0.39
355	120.51	-0.29	119.31	-0.41
360	120.52	-0.30	119.31	-0.41
365	120.52	-0.30	119.32	-0.42
370	120.53	-0.31	119.31	-0.41
375	120.53	-0.31	119.32	-0.42
380	120.54	-0.32	119.32	-0.42
385	120.54	-0.32	119.32	-0.42
390	120.54	-0.32	119.33	-0.43
395	120.54	-0.32	119.33	-0.43
400	120.53	-0.31	119.31	-0.41
405	120.55	-0.33	119.33	-0.43
410	120.55	-0.33	119.34	-0.44
415	120.56	-0.34	119.34	-0.44
420	120.55	-0.33	119.34	-0.44
425	120.54	-0.32	119.33	-0.43
430	120.55	-0.33	119.35	-0.45
435	120.55	-0.33	119.35	-0.45
440	120.55	-0.33	119.35	-0.45
445	120.57	-0.35	119.36	-0.46
450	120.57	-0.35	119.36	-0.46
455	120.57	-0.35	119.36	-0.46
460	120.57	-0.35	119.36	-0.46
465	120.56	-0.34	119.35	-0.45
470	120.57	-0.35	119.35	-0.45
475	120.58	-0.36	119.37	-0.47
480	120.57	-0.35	119.36	-0.46
485	120.57	-0.35	119.37	-0.47
490	120.58	-0.36	119.37	-0.47
495	120.59	-0.37	119.38	-0.48
500	120.59	-0.37	119.38	-0.48
505	120.58	-0.36	119.38	-0.48
510	120.59	-0.37	119.38	-0.48
515	120.59	-0.37	119.38	-0.48
520	120.60	-0.38	119.39	-0.49
525	120.60	-0.38	119.39	-0.49
530	120.58	-0.36	119.38	-0.48
535	120.60	-0.38	119.39	-0.49

**Background Wells**

elapsed time (min)	WCP-17 DTW (ft)	Drawdown (ft)	WCP-42 DTW (ft)	Drawdown (ft)
780	118.62	-0.17	120.87	-0.11
795	118.63	-0.18	120.86	-0.10
810	118.63	-0.18	120.86	-0.10
825	118.63	-0.18	120.86	-0.10
840	118.63	-0.18	120.86	-0.10
855	118.64	-0.19	120.88	-0.12
870	118.62	-0.17	120.87	-0.11
885	118.64	-0.19	120.88	-0.12
900	118.65	-0.20	120.88	-0.12
915	118.63	-0.18	120.87	-0.11
930	118.63	-0.18	120.87	-0.11
945	118.64	-0.19	120.88	-0.12
960	118.64	-0.19	120.88	-0.12
975	118.64	-0.19	120.88	-0.12
990	118.64	-0.19	120.88	-0.12
1005	118.64	-0.19	120.87	-0.11
1020	118.65	-0.20	120.87	-0.11
1035	118.65	-0.20	120.88	-0.12
1050	118.63	-0.18	120.85	-0.09
1065	118.63	-0.18	120.86	-0.10
1080	118.63	-0.18	120.86	-0.10
1095	118.62	-0.17	120.84	-0.08
1110	118.61	-0.16	120.84	-0.08
1125	118.61	-0.16	120.84	-0.08
1140	118.58	-0.13	120.82	-0.06
1155	118.61	-0.16	120.85	-0.09
1170	118.59	-0.14	120.83	-0.07
1185	118.59	-0.14	120.85	-0.09
1200	118.59	-0.14	120.85	-0.09
1215	118.59	-0.14	120.84	-0.08
1230	118.57	-0.12	120.83	-0.07
1245	118.56	-0.11	120.83	-0.07
1260	118.55	-0.10	120.82	-0.06
1275	118.54	-0.09	120.81	-0.05
1290	118.54	-0.09	120.81	-0.05
1305	118.53	-0.08	120.83	-0.07
1320	118.52	-0.07	120.82	-0.06
1335	118.52	-0.07	120.81	-0.05
1350	118.52	-0.07	120.82	-0.06
1365	118.51	-0.06	120.80	-0.04
1380	118.49	-0.04	120.80	-0.04
1395	118.50	-0.05	120.81	-0.05
1410	118.50	-0.05	120.81	-0.05
1425	118.49	-0.04	120.81	-0.05
1440	118.49	-0.04	120.81	-0.05
1455	118.49	-0.04	120.81	-0.05
1470	118.48	-0.03	120.81	-0.05
1485	118.47	-0.02	120.80	-0.04
1500	118.48	-0.03	120.80	-0.04
1515	118.48	-0.03	120.81	-0.05
1530	118.47	-0.02	120.80	-0.04
1545	118.49	-0.04	120.81	-0.05
1560	118.49	-0.04	120.83	-0.07
1575	118.49	-0.04	120.82	-0.06
1590	118.50	-0.05	120.83	-0.07
1605	118.51	-0.06	120.84	-0.08

Notes: DTW = depth to water  
 min = minutes  
 ft = feet

**Observation Wells**

elapsed time (min)	WCP-15 DTW (ft)	Drawdown (ft)	WCP-84 DTW (ft)	Drawdown (ft)
540	120.59	-0.37	119.40	-0.50
545	120.61	-0.39	119.39	-0.49
550	120.61	-0.39	119.39	-0.49
555	120.60	-0.38	119.39	-0.49
560	120.62	-0.40	119.40	-0.50
565	120.62	-0.40	119.40	-0.50
570	120.62	-0.40	119.40	-0.50
575	120.62	-0.40	119.40	-0.50
580	120.61	-0.39	119.40	-0.50
585	120.61	-0.39	119.40	-0.50
590	120.63	-0.41	119.41	-0.51
595	120.62	-0.40	119.41	-0.51
600	120.63	-0.41	119.42	-0.52
605	120.62	-0.40	119.40	-0.50
610	120.62	-0.40	119.40	-0.50
615	120.63	-0.41	119.41	-0.51
620	120.62	-0.40	119.40	-0.50
625	120.62	-0.40	119.41	-0.51
630	120.64	-0.42	119.41	-0.51
635	120.63	-0.41	119.43	-0.53
640	120.63	-0.41	119.42	-0.52
645	120.64	-0.42	119.42	-0.52
650	120.63	-0.41	119.40	-0.50
655	120.62	-0.40	119.40	-0.50
660	120.63	-0.41	119.43	-0.53
665	120.63	-0.41	119.42	-0.52
670	120.64	-0.42	119.43	-0.53
675	120.63	-0.41	119.41	-0.51
680	120.63	-0.41	119.41	-0.51
685	120.63	-0.41	119.42	-0.52
690	120.64	-0.42	119.42	-0.52
695	120.63	-0.41	119.43	-0.53
700	120.65	-0.43	119.43	-0.53
705	120.65	-0.43	119.44	-0.54
710	120.64	-0.42	119.43	-0.53
715	120.65	-0.43	119.43	-0.53
720	120.65	-0.43	119.43	-0.53
725	120.65	-0.43	119.43	-0.53
730	120.65	-0.43	119.43	-0.53
735	120.65	-0.43	119.43	-0.53
740	120.63	-0.41	119.42	-0.52
745	120.63	-0.41	119.42	-0.52
750	120.65	-0.43	119.44	-0.54
755	120.65	-0.43	119.44	-0.54
760	120.66	-0.44	119.44	-0.54
765	120.66	-0.44	119.44	-0.54
770	120.65	-0.43	119.44	-0.54
775	120.66	-0.44	119.45	-0.55
780	120.65	-0.43	119.44	-0.54
785	120.65	-0.43	119.44	-0.54
790	120.67	-0.45	119.45	-0.55
795	120.66	-0.44	119.45	-0.55

Notes: DTW = depth to water  
 min = minutes  
 ft = feet

**Observation Wells**

elapsed time (min)	WCP-15 DTW (ft)	Drawdown (ft)	WCP-84 DTW (ft)	Drawdown (ft)
800	120.66	-0.44	119.45	-0.55
805	120.66	-0.44	119.45	-0.55
810	120.66	-0.44	119.45	-0.55
815	120.66	-0.44	119.45	-0.55
820	120.65	-0.43	119.45	-0.55
825	120.67	-0.45	119.45	-0.55
830	120.66	-0.44	119.45	-0.55
835	120.67	-0.45	119.45	-0.55
840	120.68	-0.46	119.46	-0.56
845	120.66	-0.44	119.46	-0.56
850	120.66	-0.44	119.46	-0.56
855	120.67	-0.45	119.46	-0.56
860	120.67	-0.45	119.46	-0.56
865	120.67	-0.45	119.46	-0.56
870	120.68	-0.46	119.46	-0.56
875	120.68	-0.46	119.46	-0.56
880	120.67	-0.45	119.45	-0.55
885	120.68	-0.46	119.46	-0.56
890	120.66	-0.44	119.46	-0.56
895	120.67	-0.45	119.46	-0.56
900	120.69	-0.47	119.48	-0.58
905	120.67	-0.45	119.47	-0.57
910	120.67	-0.45	119.46	-0.56
915	120.69	-0.47	119.47	-0.57
920	120.68	-0.46	119.47	-0.57
925	120.67	-0.45	119.46	-0.56
930	120.68	-0.46	119.47	-0.57
935	120.68	-0.46	119.47	-0.57
940	120.68	-0.46	119.47	-0.57
945	120.68	-0.46	119.47	-0.57
950	120.67	-0.45	119.47	-0.57
955	120.68	-0.46	119.47	-0.57
960	120.68	-0.46	119.46	-0.56
965	120.67	-0.45	119.47	-0.57
970	120.66	-0.44	119.45	-0.55
975	120.68	-0.46	119.47	-0.57
980	120.68	-0.46	119.47	-0.57
985	120.68	-0.46	119.47	-0.57
990	120.70	-0.48	119.47	-0.57
995	120.70	-0.48	119.48	-0.58
1000	120.69	-0.47	119.47	-0.57
1005	120.69	-0.47	119.48	-0.58
1010	120.69	-0.47	119.47	-0.57
1015	120.69	-0.47	119.48	-0.58
1020	120.69	-0.47	119.47	-0.57
1025	120.70	-0.48	119.48	-0.58
1030	120.70	-0.48	119.49	-0.59
1035	120.70	-0.48	119.48	-0.58
1040	120.70	-0.48	119.50	-0.60
1045	120.70	-0.48	119.49	-0.59
1050	120.71	-0.49	119.49	-0.59
1055	120.70	-0.48	119.49	-0.59

Notes: DTW = depth to water  
min = minutes  
ft = feet

**Observation Wells**

elapsed time (min)	WCP-15 DTW (ft)	Drawdown (ft)	WCP-84 DTW (ft)	Drawdown (ft)
1060	120.70	-0.48	119.48	-0.58
1065	120.72	-0.50	119.50	-0.60
1070	120.70	-0.48	119.49	-0.59
1075	120.70	-0.48	119.49	-0.59
1080	120.71	-0.49	119.49	-0.59
1085	120.71	-0.49	119.50	-0.60
1090	120.72	-0.50	119.49	-0.59
1095	120.72	-0.50	119.51	-0.61
1100	120.72	-0.50	119.51	-0.61
1105	120.73	-0.51	119.51	-0.61
1110	120.73	-0.51	119.51	-0.61
1115	120.72	-0.50	119.50	-0.60
1120	120.73	-0.51	119.58	-0.68
1125	120.73	-0.51	119.51	-0.61
1130	120.73	-0.51	119.50	-0.60
1135	120.73	-0.51	119.52	-0.62
1140	120.72	-0.50	119.51	-0.61
1145	120.73	-0.51	119.52	-0.62
1150	120.72	-0.50	119.51	-0.61
1155	120.73	-0.51	119.53	-0.63
1160	120.72	-0.50	119.52	-0.62
1165	120.73	-0.51	119.52	-0.62
1170	120.73	-0.51	119.51	-0.61
1175	120.72	-0.50	119.51	-0.61
1180	120.73	-0.51	119.52	-0.62
1185	120.73	-0.51	119.53	-0.63
1190	120.74	-0.52	119.53	-0.63
1195	120.73	-0.51	119.52	-0.62
1200	120.73	-0.51	119.52	-0.62
1205	120.73	-0.51	119.52	-0.62
1210	120.74	-0.52	119.53	-0.63
1215	120.73	-0.51	119.51	-0.61
1220	120.74	-0.52	119.53	-0.63
1225	120.75	-0.53	119.53	-0.63
1230	120.75	-0.53	119.52	-0.62
1235	120.74	-0.52	119.53	-0.63
1240	120.74	-0.52	119.61	-0.71
1245	120.74	-0.52	119.53	-0.63
1250	120.74	-0.52	119.53	-0.63
1255	120.74	-0.52	119.52	-0.62
1260	120.75	-0.53	119.54	-0.64
1265	120.74	-0.52	119.52	-0.62
1270	120.75	-0.53	119.54	-0.64
1275	120.74	-0.52	119.54	-0.64
1280	120.74	-0.52	119.52	-0.62
1285	120.74	-0.52	119.52	-0.62
1290	120.72	-0.50	118.90	0.00
1295	120.71	-0.49	118.90	0.00
1300	120.66	-0.44	118.90	0.00
1305	120.64	-0.42	118.90	0.00
1310	120.62	-0.40	118.90	0.00
1315	120.59	-0.37	118.90	0.00
1320	120.58	-0.36	118.90	0.00
1325	120.57	-0.35	118.90	0.00

Notes: DTW = depth to water  
 min = minutes  
 ft = feet

**Observation Wells**

elapsed time (min)	WCP-15 DTW (ft)	Drawdown (ft)	WCP-84 DTW (ft)	Drawdown (ft)
1330	120.55	-0.33	118.90	0.00
1335	120.53	-0.31	118.90	0.00
1340	120.52	-0.30	118.90	0.00
1345	120.51	-0.29	118.90	0.00
1350	120.49	-0.27	118.90	0.00
1355	120.49	-0.27	118.90	0.00
1360	120.48	-0.26	118.90	0.00
1365	120.48	-0.26	118.90	0.00
1370	120.47	-0.25	118.90	0.00
1375	120.48	-0.26	118.90	0.00
1380	120.46	-0.24	118.90	0.00
1385	120.45	-0.23	118.90	0.00
1390	120.46	-0.24	118.90	0.00
1395	120.44	-0.22	118.90	0.00
1400	120.44	-0.22	118.90	0.00
1405	120.43	-0.21	118.90	0.00
1410	120.43	-0.21	118.90	0.00
1415	120.42	-0.20	118.90	0.00
1420	120.43	-0.21	118.90	0.00
1425	120.40	-0.18	118.90	0.00
1430	120.41	-0.19	118.90	0.00
1435	120.40	-0.18	118.90	0.00
1440	120.39	-0.17	118.90	0.00
1445	120.40	-0.18	118.90	0.00
1450	120.38	-0.16	118.90	0.00
1455	120.39	-0.17	118.90	0.00
1460	120.38	-0.16	118.90	0.00
1465	120.39	-0.17	118.90	0.00
1470	120.39	-0.17	118.90	0.00
1475	120.40	-0.18	118.90	0.00
1480	120.38	-0.16	118.90	0.00
1485	120.38	-0.16	118.90	0.00
1490	120.37	-0.15	118.90	0.00
1495	120.37	-0.15	118.90	0.00
1500	120.35	-0.13	118.90	0.00
1505	120.36	-0.14	118.90	0.00
1510	120.37	-0.15	118.90	0.00
1515	120.36	-0.14	118.90	0.00
1520	120.36	-0.14	118.90	0.00
1525	120.35	-0.13	118.90	0.00
1530	120.35	-0.13	118.90	0.00
1535	120.35	-0.13	118.90	0.00
1540	120.34	-0.12	118.90	0.00
1545	120.34	-0.12	118.90	0.00
1550	120.34	-0.12	118.90	0.00
1555	120.34	-0.12	118.90	0.00
1560	120.33	-0.11	118.90	0.00
1565	120.33	-0.11	118.90	0.00
1570	120.32	-0.10	118.90	0.00
1575	120.32	-0.10	118.90	0.00
1580	120.33	-0.11	118.90	0.00
1585	120.32	-0.10	118.90	0.00
1590	120.33	-0.11	118.90	0.00
1595	120.31	-0.09	118.90	0.00
1600	120.32	-0.10	118.90	0.00
1605	120.31	-0.09	118.90	0.00

Notes: DTW = depth to water  
 min = minutes  
 ft = feet

WCP East Grand Avenue Aquifer Test  
 Data Collected Manually  
 May 22-23, 2001  
 Began: 12:10 PM 5-22-01  
 Ended: 09:38 AM 5-23-01

WCP-29			WCP-28			WCP-16		
time	elapsed time (min)	DTW (ft)	time	elapsed time (min)	DTW (ft)	time	elapsed time (min)	DTW (ft)
1210	0	121.34	1210	0	119.45	1210	0	119.41
1211	1	123.38	1225	15	120.16	1234	24	120.14
1215	5	123.54	1250	40	120.30	1259	49	120.23
1220	10	123.65	1315	65	120.33	1321	71	120.26
1225	15	123.76	1338	88	120.35	1350	100	120.28
1230	20	123.77	1408	118	120.37	1418	128	120.30
1235	25	123.84	1438	148	120.39	1452	162	120.31
1240	30	123.84	1508	178	120.40	1520	190	120.32
1245	35	123.84	1535	205	120.41	1547	217	120.33
1250	40	123.87	1603	233	120.41	1611	241	120.34
1255	45	123.87	1625	255	120.42	1635	265	120.35
1300	50	123.88	1650	280	120.44	1656	286	120.36
1305	55	123.91	1707	297	120.44	1721	311	120.36
1310	60	123.94	1739	329	120.45	1750	340	120.37
1315	65	123.94	1815	365	120.46	0658	1128	120.61
1320	70	123.95	1844	394	120.49	0752	1182	120.61
1325	75	123.95	1914	424	120.51	0850	1240	120.61
1330	80	123.94	1944	454	120.52			
1440	150	123.96	2014	484	120.54			
1450	160	123.97	2044	514	120.55			
1500	170	123.97	2114	544	120.57			
1510	180	123.97	2144	574	120.57			
1520	190	123.99	2214	604	120.58			
1530	200	123.99	2244	634	120.59			
1540	210	123.97	2314	664	120.60			
1600	230	123.97	2344	694	120.60			
1610	240	123.99	2414	724	120.61			
1620	250	124.01	0114	784	120.62			
1630	260	124.01	0214	844	120.63			
1640	270	124.02	0314	904	120.64			
1650	280	124.01	0414	964	120.65			
1710	300	124.03	0514	1024	120.66			
1730	320	124.04	0614	1084	120.68			
1740	330	124.01	0716	1144	120.70			
1816	366	124.00	0814	1204	120.70			
1845	395	124.03	0914	1264	120.70			
1915	425	124.06						
1945	455	124.08						
2015	485	124.10						
2045	515	124.11						
2115	545	124.12						
2145	575	124.13						
2215	605	124.14						
2245	635	124.16						
2315	665	124.17						
2345	695	124.18						
0015	725	124.19						
0115	785	124.19						

Note: DTW = depth to water  
 min = minutes  
 ft = feet

<b>WCP-29</b> (continued)			<b>WCP-84</b>			<b>WCP-17</b>		
	<b>elapsed</b>			<b>elapsed</b>			<b>elapsed</b>	
<b>time</b>	<b>time (min)</b>	<b>DTW (ft)</b>	<b>time</b>	<b>time (min)</b>	<b>DTW (ft)</b>	<b>time</b>	<b>time (min)</b>	<b>DTW (ft)</b>
0215	845	124.21	1210	0	118.90	1215	5	118.45
0315	905	124.22	1230	20	119.07	1241	31	118.44
0415	965	124.22	1255	45	119.14	1304	54	118.43
0515	1025	124.24	1318	68	119.17	1329	79	118.41
0615	1085	124.27	1346	96	119.19	1358	108	118.41
0722	1145	124.29	1413	123	119.20	1428	138	118.40
0815	1205	124.34	1449	159	119.21	1500	170	118.40
0915	1265	124.30	1516	186	119.22	1526	196	118.39
0938	1288	124.29	1542	212	119.24	1554	224	118.39
			1607	237	119.24	1624	254	118.39
			1631	261	119.25	1641	271	118.40
<b>WCP-42</b>			1653	283	119.26	1704	294	118.40
			1717	307	119.26	1729	319	118.40
	<b>elapsed</b>		1747	337	119.27	1758	348	118.40
	<b>time (min)</b>	<b>DTW (ft)</b>	0650	1120	119.50	0707	1137	118.57
1219	9	120.76	0746	1176	119.50	0800	1190	118.58
1246	36	120.77	0850	1240	119.50	0901	1251	118.58
1310	60	120.76						
1333	83	120.76						
1403	113	120.75						
1433	143	120.76						
1505	175	120.77						
1530	200	120.77						
1600	230	120.77						
0714	1144	120.96						
0805	1195	120.97						
0906	1256	120.97						

Note: DTW = depth to water  
 min = minutes  
 ft = feet

**APPENDIX D**  
**LAND AND WATER USE REPORT**

# Land and Water Use Report

## WCP East Grand Avenue WQARF Site

### Phoenix, Arizona

*Prepared for:*

**Arizona Department of Environmental Quality**

1110 W. Washington Street

Phoenix, Arizona 85007

*Prepared by:*

**Weston Solutions, Inc.**

950 West Eliot Road, Suite 110

Phoenix, Arizona 85284

June 2006





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## ACRONYMS

ADEQ	Arizona Department of Environmental Quality
ADWR	Arizona Department of Water Resources
AMA	Active Management Area
AWS	Assured Water Supply
BTEX	benzene, toluene, ethylbenzene, and xylene
CAP	Central Arizona Project
COP	City of Phoenix
1,1-DCE	1,1-dichloroethene or 1,1-dichloroethylene
FS	Feasibility Study
LUST	leaking underground storage tank
MCL	maximum contaminant level
MTP	Michigan Trailer Park
µg/L	micrograms per liter
mg/L	milligrams per liter
PCE	tetrachloroethene or tetrachloroethylene
RI	Remedial Investigation
RO	Remedial Objective
SRP	Salt River Project
TCE	trichloroethene or trichloroethylene
TDS	total dissolved solids
VOCs	volatile organic compounds
VW&R	Van Waters & Rogers
WCP	West Central Phoenix
WQARF	Water Quality Assurance Revolving Fund

## EXECUTIVE SUMMARY

Weston Solutions, Inc. (WESTON<sup>®</sup>) has prepared this Land and Water Use Report for the West Central Phoenix (WCP) East Grand Avenue Water Quality Assurance Revolving Fund (WQARF) Site for the Arizona Department of Environmental Quality (ADEQ). A Land and Water Use Report is a required part of the site Remedial Investigation (RI) in accordance with the WQARF Remedy Selection Rules, R18-16-406 (D). The purpose of the report is to gather information regarding current and foreseeable uses of land or waters that have been or are threatened to be impacted by a contaminant release.

WESTON met with various stakeholders including representatives from the City of Phoenix (COP), Salt River Project (SRP), and local property/well owners to gather information concerning the current and future land and water uses of the site property and surrounding area. Land use on the property and in the surrounding area is predominantly light industrial. The COP Planning Department has no current plans to change zoning or land use in the area.

The COP and SRP currently own and operate groundwater wells within the WCP area. The COP is not currently operating any wells within a one-mile radius of the WCP East Grand Avenue WQARF Site boundary (Figure 1-1). Due to population increases and the consequent increase in water demand, the need may exist to install additional groundwater wells in the WCP area within the next 100 years. SRP maintains two irrigation wells currently not being pumped in accordance with an agreement with the ADEQ. This agreement may remain in place until a remedy selection has been made.

Groundwater in the area is also extracted by the Michigan Trailer Park and Danone Waters of North America. Michigan Trailer Park operates a 400-foot well as the sole water supply source for the Park's residents. Danone Waters extracts water from their 952-foot well for their processing and bottling operation. Neither entity has plans to change the use of wells on their property.

## **1.0 INTRODUCTION**

Weston Solutions, Inc. (WESTON®) has prepared this Land and Water Use Report as part of the requirements of Contract Number 99-0017-AN with the Arizona Department of Environmental Quality (ADEQ), Task Assignment 99-0148. The purpose of the Work Assignment is to complete the Remedial Investigation (RI) and Feasibility Study (FS) of the West Central Phoenix (WCP) East Grand Avenue Water Quality Assurance Revolving Fund (WQARF) Site (Figure 1-1). The Land and Water Use Report is required as a component of the RI in accordance with the WQARF Remedy Selection Rules, R18-16-406 (D).

### **1.1 PROCESS OVERVIEW**

The process to complete the RI and select remedial objectives (ROs) begins with the completion of the Draft RI Report. Following the completion of the Draft RI Report, which includes the land and water use report, a public meeting is held to discuss the Use Report and solicit input for the selection of ROs. Typically, the public will be given 30 days to comment on the Use Report. Following the public meeting and comment period, ADEQ issues the Proposed ROs Report. The ROs chosen for a site may be based off of none, some, or all of the uses identified in the Use Report. If there is significant public interest or additional information has been discovered, an additional public meeting to discuss the ROs is held. The Final ROs Report is then prepared and included in the Final RI Report.

### **1.2 LAND AND WATER USE REPORT**

The purpose of the Land and Water Use Report is to gather information regarding current and “foreseeable” uses of land or waters that have been or are threatened to be impacted by a contaminant release, and to project time frames for future changes in those uses. Information gathered from discussions with property owners, water providers, municipalities, and well owners are to be included in the report.

In general, this Land and Water Use Report identifies various current and potential future uses of land and water in the vicinity of the WCP East Grand Avenue WQARF Site. However, the report does not evaluate the uses, nor does it classify the use as “reasonably foreseeable”. The

evaluation of uses will take place during public comment periods and public meetings and will be presented in the Proposed ROs Report.

### **1.3 SITE BACKGROUND**

In 1982, a volatile organic compound (VOC), trichloroethene (TCE), was detected in several City of Phoenix (COP) municipal wells located in WCP. Subsequent groundwater sampling confirmed the presence of TCE at concentrations above the EPA Maximum Contaminant Levels (MCLs). ADEQ subsequently designated the area of groundwater contamination as the WCP WQARF area and recommended further study under the WQARF program. The WCP WQARF area was placed on the WQARF Priority List in 1987.

In 1998, the following five WQARF Registry sites were established pursuant to Arizona Revised Statutes (ARS) §49-287.01 within the WCP WQARF area:

- West Osborn Complex;
- West Grand Avenue;
- East Grand Avenue;
- North Canal; and
- North Plume.

Contaminants known to be present at levels above regulatory limits in the groundwater in the WCP East Grand Avenue WQARF Site include the chlorinated solvents TCE, tetrachloroethene (PCE), and 1,1-dichloroethene (1,1-DCE). The former Van Waters & Rogers (VW&R) facility, located at 2930 West Osborn Road in Phoenix, Arizona, has been identified as the primary source of contamination in the WCP East Grand Avenue WQARF Site (Figures 1-1 and 1-2). VW&R is a chemical distribution firm that operated at the West Osborn Road address from 1957 to 1970. In 1970, VW&R moved their operation to its current location on South 45<sup>th</sup> Avenue in Phoenix, Arizona (WESTON, 1998). VOPAK USA, currently operating under the name Univar, now owns VW&R.

## 1.4 GENERAL GROUNDWATER QUALITY

Groundwater in the WCP East Grand Avenue WQARF Site and the surrounding area generally contain concentrations of total dissolved solids (TDS) ranging from 415 milligrams per liter (mg/L) to greater than 1,000 mg/L (Brown and Pool, 1989 and Daniel, 1981). The principal ions present within local groundwater include sodium, calcium, chloride, and bicarbonate (Reeter and Remick, 1986). Salt River Project (SRP) data for TDS in wells within the WCP area range from 554 mg/L to 965 mg/L (SRP, 1999). The EPA has not set an MCL for TDS, however, there is a secondary standard of 500 mg/L TDS for drinking water. The secondary standards are non-enforceable guidelines regulating contaminants that may cause aesthetic effects in drinking water.

Based on analytical data collected by the SRP from wells located in the WCP area, other general groundwater quality parameters such as nitrate and arsenic are within current regulatory guidelines for drinking water uses (SRP, 1999). Nitrate analyses in 1999 for the two SRP wells closest to the WCP East Grand Avenue WQARF Site were below the MCL of 10 mg/L as were data collected by USGS in 1980 to 1985 (Brown and Pool, 1989). Arsenic was not detected in SRP samples and was typically below 0.074 mg/L in USGS data.

Several facilities near the WCP East Grand Avenue WQARF Site boundary have had releases from underground storage tank systems and appear in the ADEQ leaking underground storage tank (LUST) database. Of these LUST sites, the former Fedmart facility, located adjacent to the VW&R facility on the current Shamrock Towing property; and the Southwest Roofing facility on the current United Parcel Service property, located approximately 1,500 feet southwest of the VW&R facility, have impacted groundwater quality beneath the WCP East Grand Avenue WQARF Site.

Concentrations of benzene, toluene, ethylbenzene, and xylene (BTEX) in groundwater samples collected from wells associated with the former Fedmart facility have exceeded regulatory limits. One groundwater monitor well installed at the Fedmart facility was included in groundwater sampling conducted for the WCP East Grand Avenue WQARF Site RI. The maximum concentration of benzene detected in samples from that well was 7,000 µg/L. The Arizona

Aquifer Water Quality Standard (AWQS) for benzene is 5 µg/L. Approximately 80 gallons of free product were bailed from the wells at the facility in 2002. No other active remediation systems are currently in place at the Fedmart facility.

An air sparging remediation system was installed and became operational in January 2001 at the Southwest Roofing facility. Southwest Roofing monitor wells MWB-4, MWB-5, and MWB-6 were included in the WCP East Grand Avenue WQARF Site groundwater-sampling network. MWB-14 was added to the sampling network toward the end of the sampling period. Concentrations of BTEX in these wells were below detection or below the AWQSs. Groundwater elevation data collected during sampling indicate the presence of a groundwater mound at the Southwest Roofing and UPS properties. The mound appeared concurrently with the start of air sparging activities in January 2001 and is believed to be a result of those activities.

## **2.0 USE EVALUATION**

The following sections outline current and foreseeable land and water uses for the WCP East Grand Avenue WQARF Site and the surrounding area. Reasonably foreseeable uses for land are those uses of land likely to occur at the site within a reasonable time period. Reasonably foreseeable uses of water are those likely to occur within 100 years unless a longer time period is shown to be reasonable based on site-specific circumstances [A.A.C. R18-16-406(D)].

A list of contacts, meetings, and interviews conducted as part of the use evaluation is presented in Table 2-1.

### **2.1 LAND USES**

Development in the area occurs consistent with zoning laws and must go through a site-planning review and permit process. Current zoning districts in the Site area are identified below and a more detailed description of COP zoning designations can be found in Table 2-2. The property lies within the southern portion of Alhambra Village and is bordered by the villages of Maryvale on the west and south, and Encanto on the east. Each village located within the COP has a Planning Coordinator who has input into planning decisions for that community. Contact information for the Village Planning Coordinators can be found in Table 2-3.

#### **2.1.1 Current Site-Specific Land Use**

Century Wheel and Rim, a distributor of undercarriage and transportation parts, currently occupies the former VW&R property and has stated that there are no foreseeable changes to the use of the property. The property is owned by Bakala Investment Properties, L.L.C. The current zoning designation for the facility is A-1, Light Industrial (COP, 2001a).

#### **2.1.2 Current Regional Land Use**

The current land use surrounding the WCP East Grand Avenue WQARF Site is predominantly A-1 (Light Industrial) and A-2 (Industrial) (Figure 2-1). Residential areas (Zoned R-5 and R1-6) lie approximately 1,800 feet to the east of the VW&R facility and approximately 3,700 feet to the southwest. Various commercial zones also border the area.

### **2.1.3 Future Land Use**

Meetings with the COP Planning Department, including the Alhambra and Maryvale planning coordinators, indicated that there are no foreseeable plans to alter current zoning districts in the WCP East Grand Avenue WQARF Site vicinity, nor are there any special projects in the area. However, property owners can file to change the zoning designation of their property. Requests for zoning changes must go through a public hearing and be approved by the City Council prior to finalization.

## **2.2 GROUNDWATER USES**

The WCP East Grand Avenue WQARF Site lies within the Phoenix Active Management Area (AMA) created by the Arizona Groundwater Management Code passed in 1980. All groundwater legally withdrawn from any AMA must occur under a groundwater right or permit, unless groundwater is being withdrawn from an exempt well. An exempt well is defined as having a maximum discharge capacity of 35 gallons per minute or less. All exempt wells must be registered with the Arizona Department of Water Resources (ADWR). Non-exempt wells have a discharge capacity greater than 35 gallons per minute and are associated with one of the following types of rights or permits (ADWR, 2001a):

- Grandfathered rights—derived from past individual water use. There are three types of grandfathered rights:
  - Irrigation grandfathered rights;
  - Type 1 non-irrigation grandfathered rights;
  - Type 2 non-irrigation grandfathered rights;
- Service area rights—allow cities, towns, private water companies and irrigation districts to withdraw groundwater to serve their customers; or
- Withdrawal permits—allow new withdrawals of groundwater for non-irrigation uses within AMAs. There are eight types of withdrawal permits covering various groundwater uses that are subject to different requirements. Examples of withdrawal permits include general industrial use permits, dewatering permits, and poor-quality groundwater-withdrawal permits.

Grandfathered rights are derived from past individual water use. An irrigation grandfathered right is the right to use groundwater to irrigate specific acres of land. The amount of

groundwater that can be used is specified in the right; however, the amount will vary over time according to a formula established in the management plans. A Type 1 non-irrigation right is associated with land permanently retired from farming and converted to a non-irrigation use. The maximum amount of groundwater that may be pumped each year using a Type 1 right is three acre-feet per acre of land. An irrigation grandfathered right and a Type 1 non-irrigation right may not be sold apart from the associated land. Figure 2-2 presents irrigation grandfathered rights and Type 1 non-irrigation rights in the WCP East Grand Avenue WQARF Site area.

Groundwater withdrawn under a Type 2 right can only be used for a non-irrigation purpose. Type 2 rights are the most flexible because they can be sold separately from the land or well. In addition, the owner of a Type 2 right may, with ADWR approval, withdraw groundwater from a new location within the same AMA.

Groundwater wells having either grandfathered Type 2 irrigation rights (private use) or service area permits (municipal and utility use) within a one-mile radius of the VW&R facility have been identified and are presented in Table 2-4.

There are approximately 280 registered wells in the area that are permitted to withdraw groundwater to monitor aquifer conditions. A list of these wells is included in Attachment A for reference.

The following sections present detailed information regarding specific uses of wells in or near the WCP East Grand Avenue WQARF Site.

## **2.2.1 Municipal and Utility Groundwater Use**

The COP and SRP pump groundwater to a certain degree to satisfy their customer needs. The following sections discuss the current and future groundwater uses of the COP and SRP.

### **2.2.1.1 City of Phoenix**

The COP receives water from four major sources: SRP, the Colorado River through the Central Arizona Project (CAP), reclaimed water, and groundwater (COP, 2000). The portion of water supplied by SRP is from reservoirs on the Salt and Verde Rivers and from groundwater wells.

The “On-Project” area, which refers to approximately 30 percent of the water service area entitled to water delivered by SRP, is generally south of the Arizona Canal (Figure 2-3). The WCP East Grand Avenue WQARF Site lies within the northern section of the On-Project Area. The “Off-Project and Non-member Area” is supplied primarily by CAP water, supplemented by reclaimed water and water stored at Horseshoe Dam on the Verde River. Groundwater is supplied from wells operated by the COP. Although less than 5 percent of current total water deliveries are from groundwater, the COP uses groundwater to ensure adequate supplies during drought periods and temporary water system outages (COP, 2000).

The COP owns and maintains ten wells in the WCP area (Figure 2-4). Due to water quality degradation and the establishment of more stringent drinking water quality standards in recent years, most of these wells were placed on inactive status by 1989 because the water they produce does not meet current regulatory standards (Table 2-5). COP-77 is the only COP well within a one-mile radius of the VW&R facility. This well, located north of the WCP East Grand Avenue WQARF Site near Campbell Avenue and 27<sup>th</sup> Avenue, is unused and was capped prior to 1982 (Earth Tech, 1989). The exact date and reason that COP-77 was taken out of service is unknown.

#### ***2.2.1.1.1 Future COP Needs***

According to information provided by COP, the COP estimates that by 2010, 18,000 acre-feet per year of new well capacity will be needed to provide back up water supplies during future drought events (COP, 2000). The additional new well capacity is expected to increase to 140,000 acre-feet by 2050. Reportedly, these increases would require up to 80 new wells by 2050. The COP is currently drilling all of its new production wells in the northeast Phoenix area, but future expansion is limited by concerns over potential land subsidence and competing demand from Scottsdale production wells just across the Phoenix-Scottsdale boundary (COP, 2001c). The state-mandated Assured Water Supply (AWS) Rules limit the depth to which groundwater levels may be lowered through future pumping to 1,000 feet below land surface over the next 100 years. In addition, the COP anticipated that many of the northeast Phoenix wells will require expensive treatment to remove arsenic if the MCL of 10 µg/L is implemented

(COP, 2001c). The new arsenic rule became effective on February 22, 2002. The date by which systems must comply with the new 10 µg/L standard is January 23, 2006.

According to COP, possible well field expansion may occur in the WCP area despite water quality problems because groundwater elevations there are several hundred feet higher than in other potential expansion areas and arsenic levels are not a concern. The COP is unlikely to restore previously closed wells to production due to the high cost of wellhead treatment and because of other physical and ADWR regulatory limits (COP, 2001c). According to COP, it is possible, however, that existing well sites could be redrilled with new wells (COP Meeting, 2001).

COP's continued interest in future well development in the Central Phoenix wellfields led COP to the development of computerized tools that would assist the City in evaluating the suitability of groundwater resources in the Central Phoenix area. The primary goal of the project was to aid the City in evaluating the general location and timing of future groundwater resources development for the COP public water supply. As part of the project, COP evaluated the entire water service area for future well development and assigned numerical scores, based on established criteria. Based strictly on the statistical evaluation of the scores, COP indicates that areas with scores in at least the 75<sup>th</sup> percentile (scores  $\geq$  81) may warrant consideration for future well development. The area where the WCP East Grand Avenue WQARF Site is located scored 74 to 80, therefore, it may not be considered for future well development (COP, 2002).

#### **2.2.1.2 Salt River Project**

Groundwater comprises approximately 15 percent of the water supplied by SRP to municipal treatment plants; however, groundwater contribution varies seasonally with the highest contribution occurring March through August. Historically, there has been enough surface water to meet demand in only one out of every three years. During extended periods of low run off, groundwater can account for almost one-third of the total SRP water supply (SRP, 1999).

SRP operates and maintains nine irrigation wells within the WCP area (Figure 2-4). Four of these wells (11.2E-7.7N, 10.5E-7.5N, 9.5E-7.7N, and 8.5E-7.5N) have been affected by TCE contamination; two of which are within a one-mile radius of the WCP East Grand Avenue

WQARF Site (Table 2-2). The two wells are 11.2E-7.7N, which is east-northeast (upgradient) of the contaminant plume and well 10.5E-7.5N, which is located less than 2000 feet west (cross gradient) of the Site (Figure 2-2).

Groundwater beneath the WCP East Grand Avenue WQARF Site typically flows to the south-southwest; however, regional groundwater flow direction is affected during pumping in two SRP wells located in the site vicinity. Data gathered by SRP shows that concentrations of TCE increased during years of higher pumpage when compared to years of lower pumpage at well 11.2E-7.7N (SRP, 2001). Other wells in the WCP area have shown similar effects. SRP and ADEQ have had an agreement since 1999 to not pump wells located near WQARF sites in the WCP area due to these influences on contaminant plume migration. Annual pumping rates from the WCP area wells were considerably lower in the past 30 years than the previous 30 years. This was due in large part to above normal precipitation on the watershed and the increased availability of surface water through this period. In recent years, the CAP and the Arizona Water Banking Authority have made it possible for SRP to use Colorado River water in lieu of pumping groundwater.

#### ***2.2.1.2.1 Future SRP Needs***

Although not in use at this time, SRP has no plans to eliminate any of the wells in the WCP area from their system. Based on demand analysis, SRP has indicated it will continue to need the wells in the area to remain operational, especially during dry years. Current monthly demand (1999-2000) for the section of the Grand Canal downstream from the WCP WQARF area ranges from less than 1,000 acre-feet in the winter months to more than 10,000 acre-feet in the peak summer months. Based on this demand, SRP anticipates that future pumping needs from the four wells affected by TCE contamination during dry years are as follows:

- 60 to 80 percent of the time during the summer months (June to August);
- 20 to 40 percent during shoulder months (March through May and September through October), and
- 0 to 10 percent during the winter months (November through February). In wet years, the wells would most likely be used minimally, if at all (SRP, 2001).

SRP indicated to ADEQ that it has future plans for the construction of a drinking water treatment plant planned at the end of the Grand Canal. If the treatment plant is constructed, overall water demand will likely increase. Additionally, a drinking water treatment plant on the Grand Canal will require that water sources discharging to the canal will comply with more stringent water quality criteria. Currently, SRP does not plan on installing any new wells in the WCP area (SRP, 2001).

## **2.2.2 Private Groundwater Use**

Private groundwater use, or non-municipal groundwater use, in the WCP East Grand Avenue WQARF Site area consists of a domestic well used by the Michigan Trailer Park, a water supply well used by Danone Waters of North America, and an irrigation well located at 3600 West Osborn Road, owned by Capitol Liquidators.

### **2.2.2.1 Michigan Trailer Park**

The Michigan Trailer Park (MTP), located west of the VW&R facility at 3135 Grand Avenue, is a 150-pad mobile home and RV park with a current average year-round occupancy of 90 pads. The sole water supply source for the park is from a 400-foot well (MTP-1) located on the MTP property. The well, which is cross gradient to the WCP East Grand Avenue WQARF Site and close to SRP Well 10.5E-7.5N, has an approximate pumping capacity of 85 to 100 gallons per minute and serves approximately 135 to 180 residents. The property was sold prior to the finalization of this report. However, the previous owner stated that there were no plans to remove the well from service.

An elevated nitrate concentration from a December 1999 sample caused Maricopa County to request monthly nitrate testing to investigate the need for shutting down the well. All results previous to and since the 1999 sample have been below the nitrate MCL of 10 mg/L. Maricopa County is not requiring MTP to shut down the well at this time and it is expected that the well will remain in service indefinitely.

VOC analyses have also been conducted on samples collected from MTP-1. PCE and TCE have been detected in samples collected from MTP-1; however the concentrations detected have been

below the AWQS of 5 µg/L established for each compound. PCE has been detected at a concentration of 0.8 µg/L and TCE has been detected at concentrations ranging from 0.3 µg/L to 0.6 µg/L. The analytical results for samples collected from MTP-1 are considered estimated values due to possible contaminant carryover and/or because the detected value was below the laboratory reporting limit but above the method detection limit.

#### **2.2.2.2 Danone Waters**

Danone Waters of North America, formerly owned by McKesson Water Inc., operates a water processing, bottling, and distribution plant approximately one-half mile southwest (down gradient) of the WCP East Grand Avenue WQARF Site boundary. The business has been at their present location since 1974 and expanded their facility a couple of years ago. Danone owns three Grandfathered Groundwater Rights (Type 2 non-irrigation rights) for a total of 163 acre-feet and operates a 952-foot well located on the property, which has a pumping capacity of 225 gallons per minute. Danone samples the well regularly and results have not shown detectable concentrations of VOCs. Prior to bottling, groundwater undergoes several treatment steps including reverse osmosis. The company has discussed the feasibility of installing an additional well on-site for back up purposes although no decisions have been made at this time.

#### **2.2.2.3 Other Private Wells**

The irrigation well located at 3600 West Osborn Road, commonly referred to as the West Osborn Complex Irrigation Well, is not currently being used. According to ADWR records, this well is not associated with any active grandfathered groundwater right or permit. The last grandfathered groundwater right associated with this well was in 1997. The Type 2 right was conveyed to an unknown party and this well was taken off of the certificate. The well has not been abandoned or capped to date; however, United Industrial Corporation will abandon the well in the near future as part of the ongoing RI at the WCP West Osborn Complex site.

### **2.3 SURFACE WATER USES**

The Grand Canal is the only surface water body in the vicinity of the WCP East Grand Avenue WQARF Site. Water from SRP irrigation wells along the Grand Canal is discharged to the

canal, which presently serves downstream agricultural and urban irrigation customers. A drinking water treatment plant may be constructed at the end of the Grand Canal which would change the end use of the canal water requiring that water discharged to the canal meet stricter water quality criteria than what is currently required.

The Grand Canal is not fully lined in the area of the WCP East Grand Avenue WQARF Site (Figure 2-5). The canal is primarily unlined between 19<sup>th</sup> Avenue and Interstate 17 except for lined portions near Indian School Road, 23<sup>rd</sup> Avenue, and Interstate 17. The canal is lined on the south bank and on the southern half of the bottom from Interstate 17 to 27<sup>th</sup> Avenue and on the bottom and both banks from 27<sup>th</sup> Avenue to 39<sup>th</sup> Avenue.

### **3.0 SUMMARY OF USES**

The land and water uses described in Section 2.0 most likely relevant to discussion of remedial objectives are presented below.

#### **3.1 LAND USES**

The zoning pattern in the area has been long established and there are no foreseeable changes for the future. Land uses for the VW&R facility property and within the WCP East Grand Avenue WQARF Site area are expected to remain predominantly industrial or light industrial.

#### **3.2 GROUNDWATER USES**

Current and future groundwater uses within the WCP East Grand Avenue WQARF Site area include the following:

- The COP anticipates the possible need for additional drinking water wells to augment production in the WCP area sometime in the future.
- SRP owns several irrigation wells in the area and will continue to need operational wells to supplement surface water supplies. A water treatment plant may be built on the Grand Canal sometime in the future, which would change the use of the groundwater from irrigation to drinking water.
- The Michigan Trailer Park is expected to continue to use their well to provide drinking water to park residents.
- Danone Water is expected to continue to use the well located on their property in their bottling operations.

#### **3.3 SURFACE WATER USES**

Currently, there are no surface water uses within the WCP East Grand Avenue WQARF Site.

#### 4.0 REFERENCES

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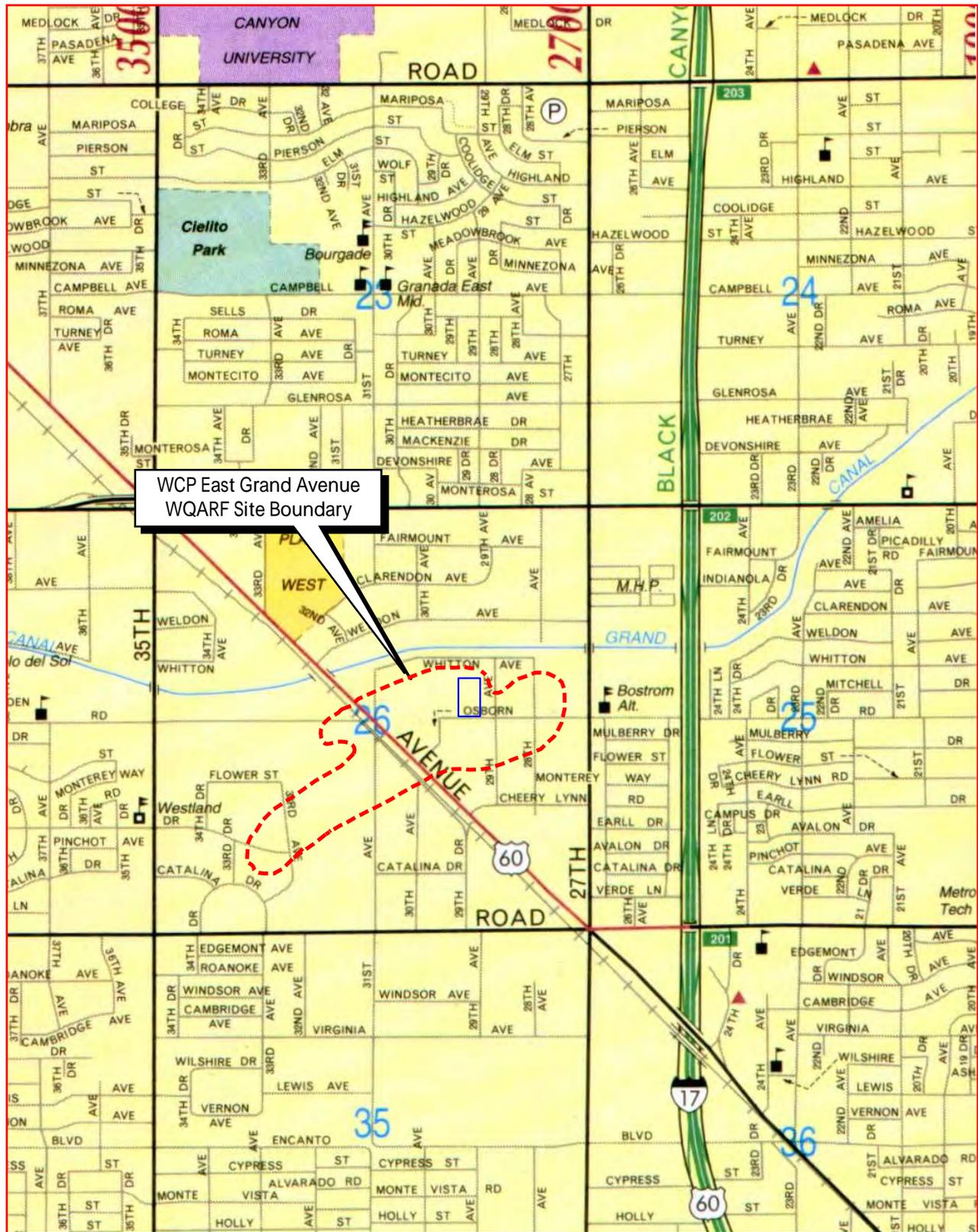
Salt River Project (SRP), 1999. SRP Annual Water Quality Report.

SRP, 2001. Letter to Ms. Ana Vargas, Arizona Department of Environmental Quality, entitled "SRP Wells and Water Demand in the West Central Phoenix WQARF Area". Dated June 26, 2001.

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## **FIGURES**



WCP East Grand Avenue  
WQARF Site Boundary

Approximate Scale



□ WV&R Facility Location

○ Approximate WQARF Boundary

NOTE: Base map scanned from Phoenix Metropolitan Steet Atlas, 1999



Figure 1-1  
Location Map  
WCP East Grand Avenue  
WQARF Site





WCP East Grand Avenue  
WQARF Site Boundary

Source:  
Landiscor Aerial Information Custom Digital Imagery  
Order # 9117a, May 1999 Flight

-  VW&R Facility Location
-  Approximate WQARF Boundary

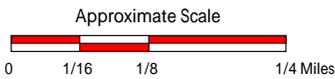
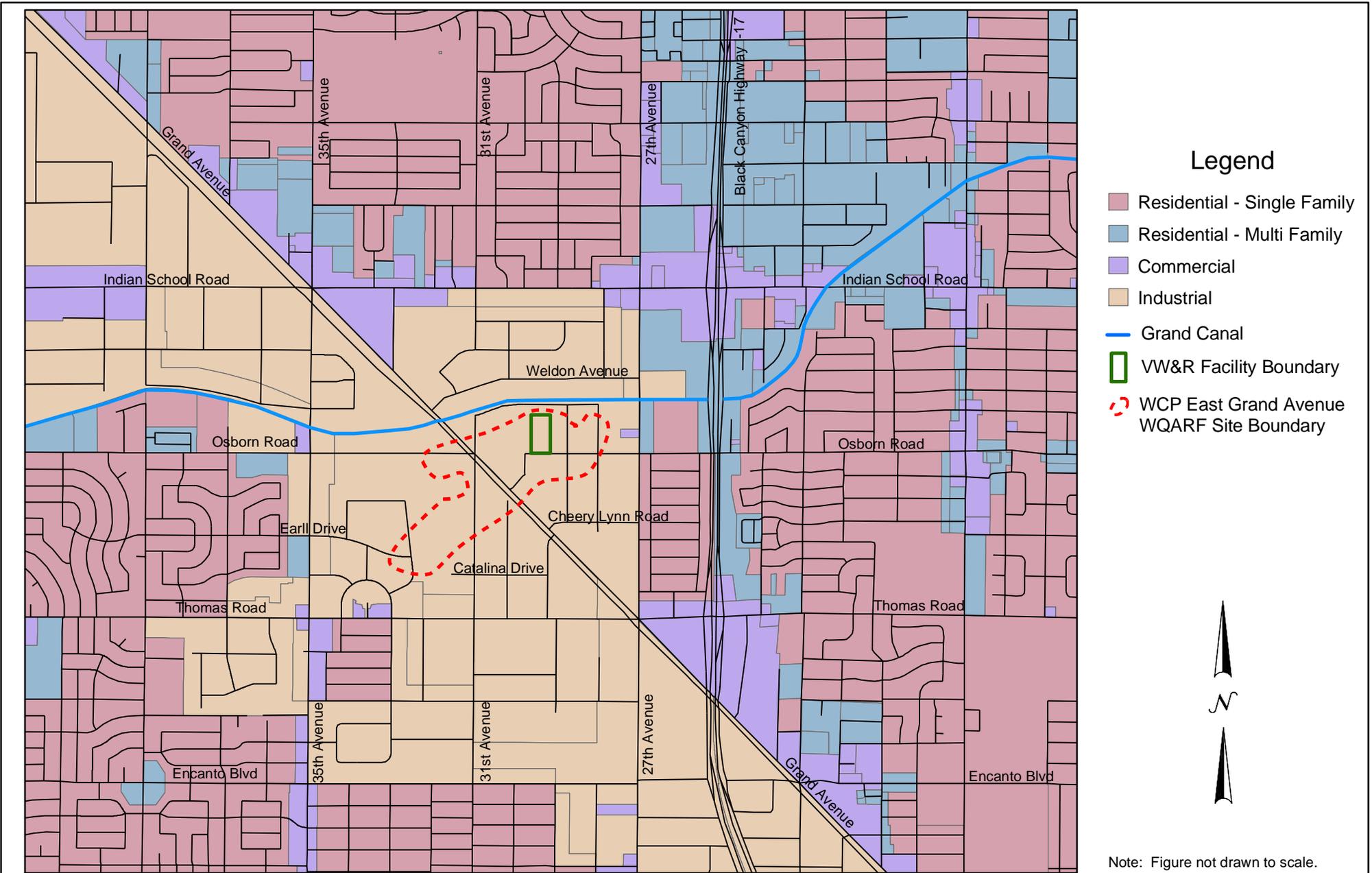


Figure 1-2  
Aerial Photograph  
WCP East Grand Avenue WQARF Site



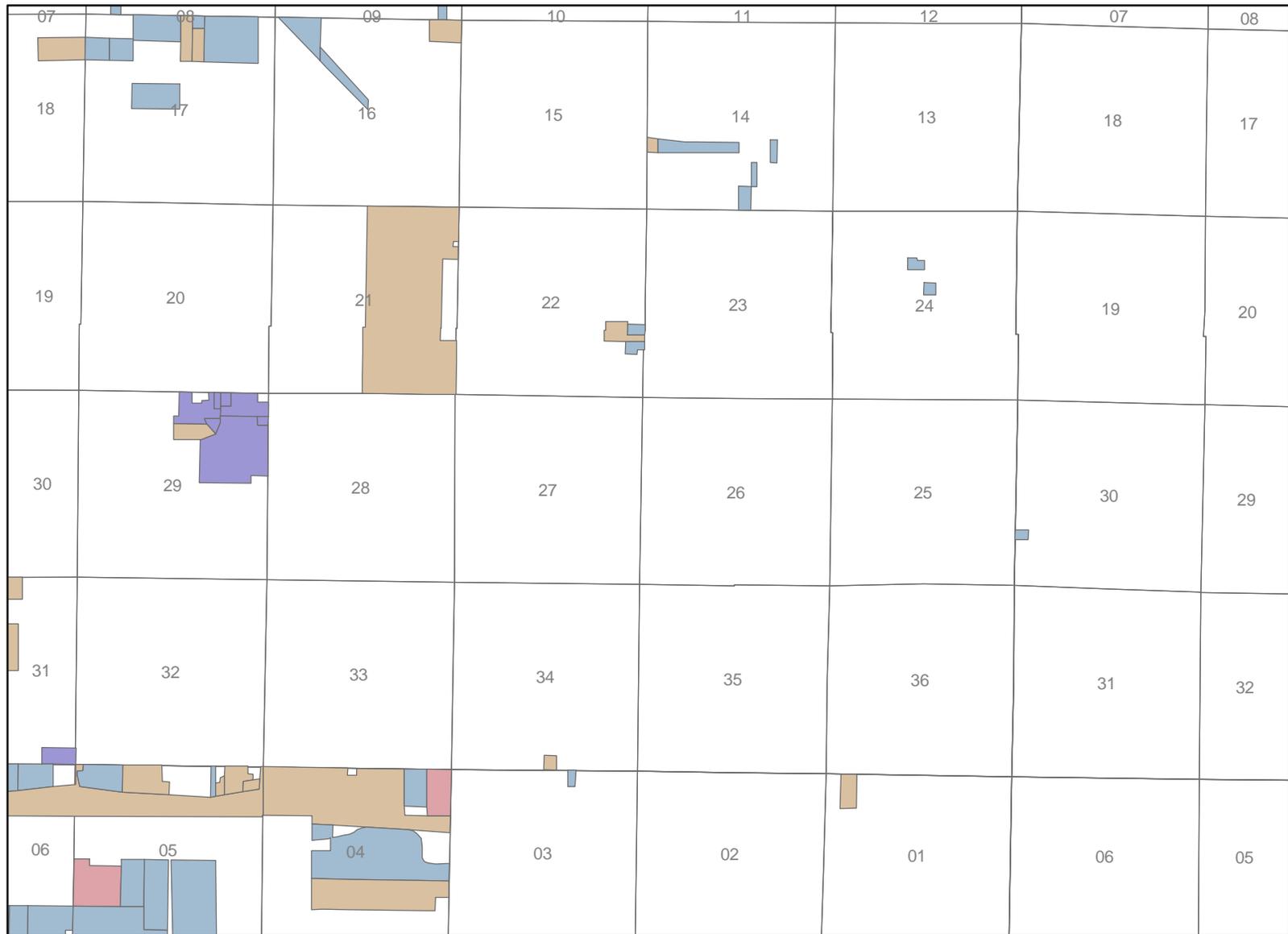


Note: Figure not drawn to scale.



Figure 2-1  
Area Zoning Map  
WCP East Grand Avenue WQARF Site





### Legend

-  Irrigation Right
-  Type I Right
-  Partially Developed
-  Fully Developed
- 26 Section Number

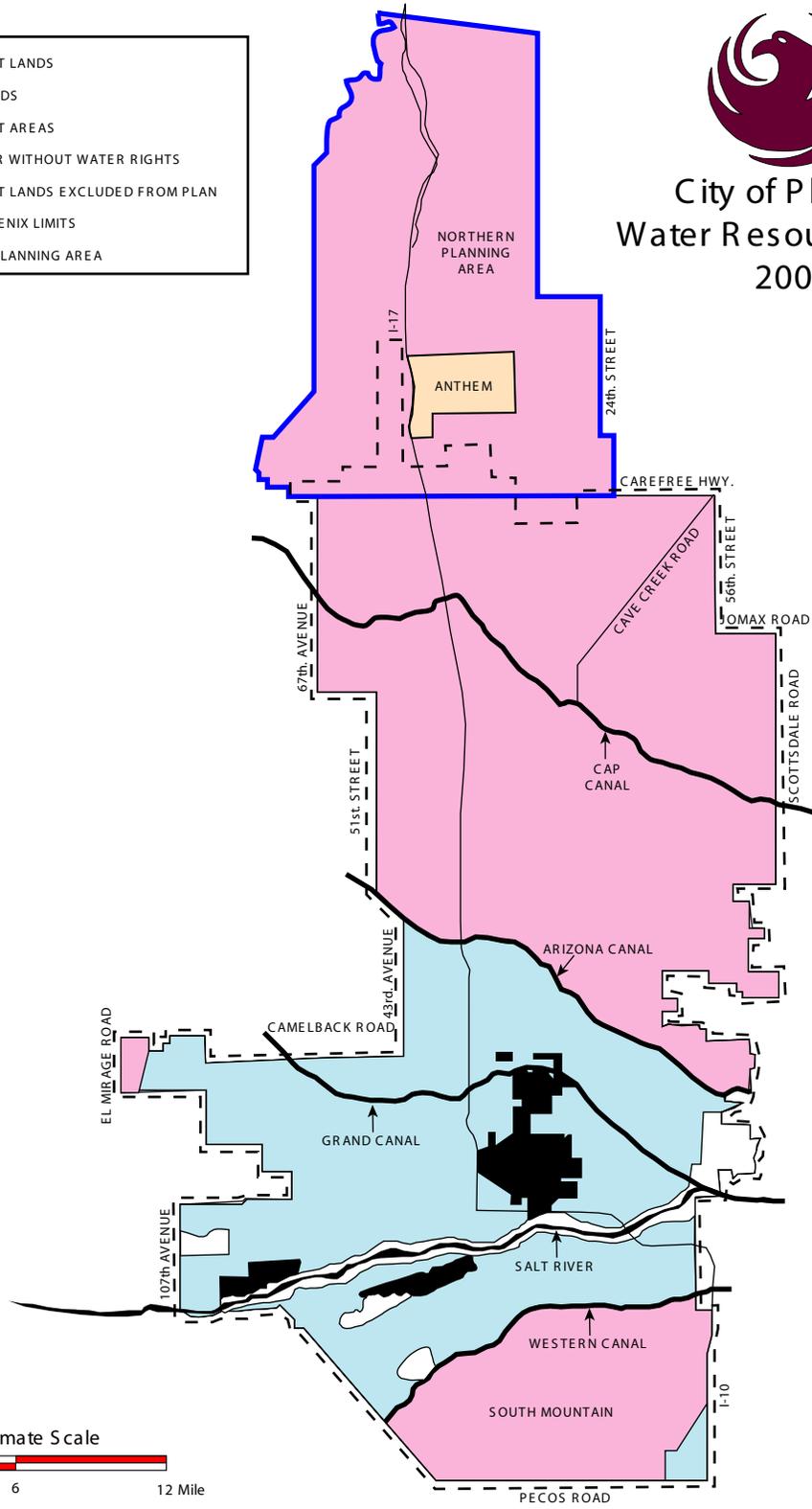


Figure 2-2  
Grandfathered Irrigation and Type I Non Irrigation Groundwater Rights  
WCP East Grand Avenue WQARF Site Area



# City of Phoenix Water Resources Plan 2000

- OFF-PROJECT LANDS
- MEMBER LANDS
- WATER RIGHT AREAS
- NON-MEMBER WITHOUT WATER RIGHTS
- OFF-PROJECT LANDS EXCLUDED FROM PLAN
- CITY OF PHOENIX LIMITS
- NORTHERN PLANNING AREA



NOTE: Figure adapted from City of Phoenix Water Resources Plan Update 2000

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### Figure 2-3 SRP Water Service Planning Areas West Central Phoenix





Figure 2-4  
COP and SRP  
Wells Within the  
West Central Phoenix  
Project Area

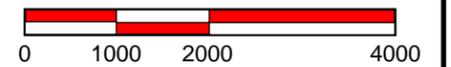
Legend

- Former WCP WQARF Boundary
- SRP Well
- City of Phoenix Well
- Grand Canal
- Approximate WQARF Site Boundary

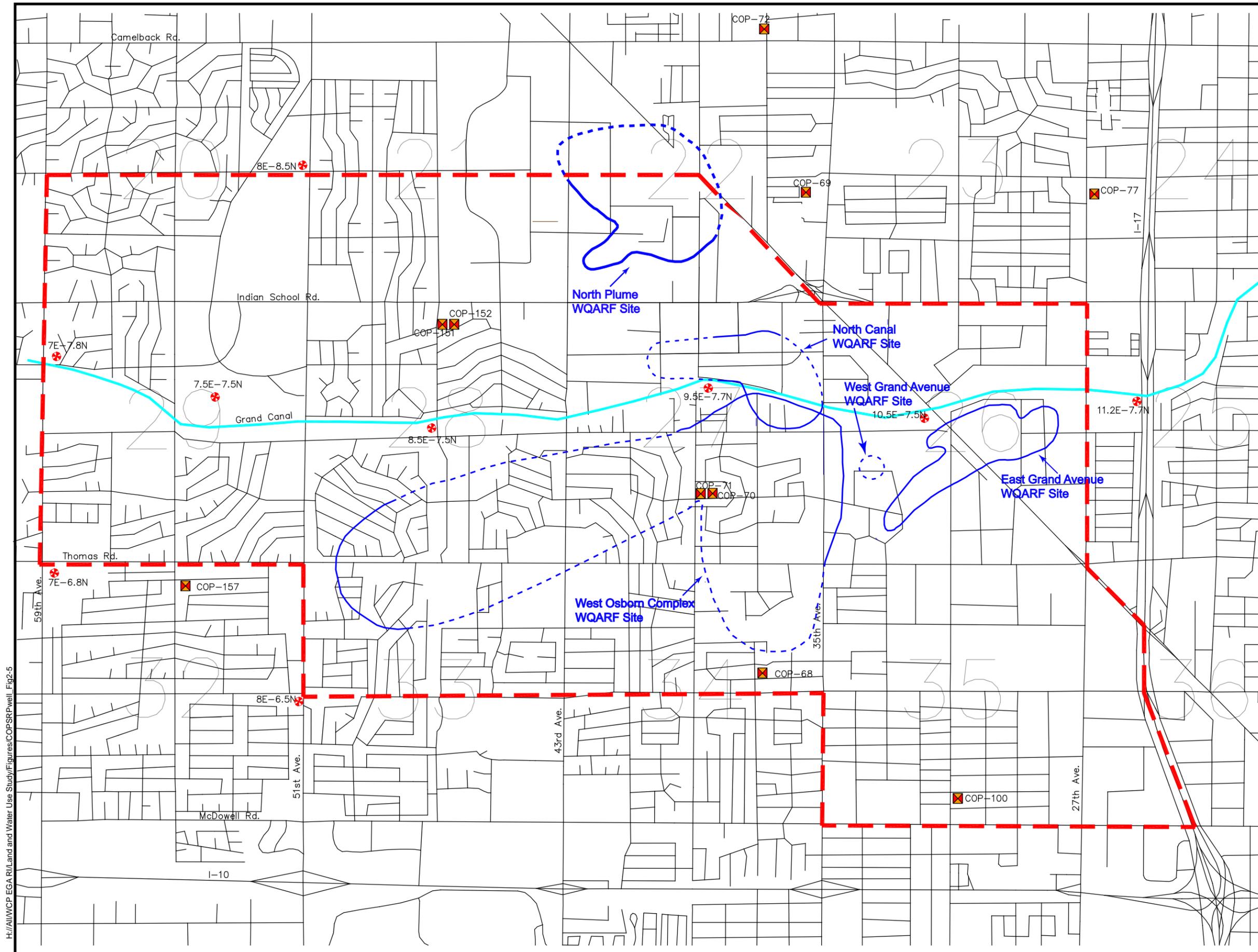
NOTE: All well locations have been approximated.



Approximate Scale  
Measured in Feet

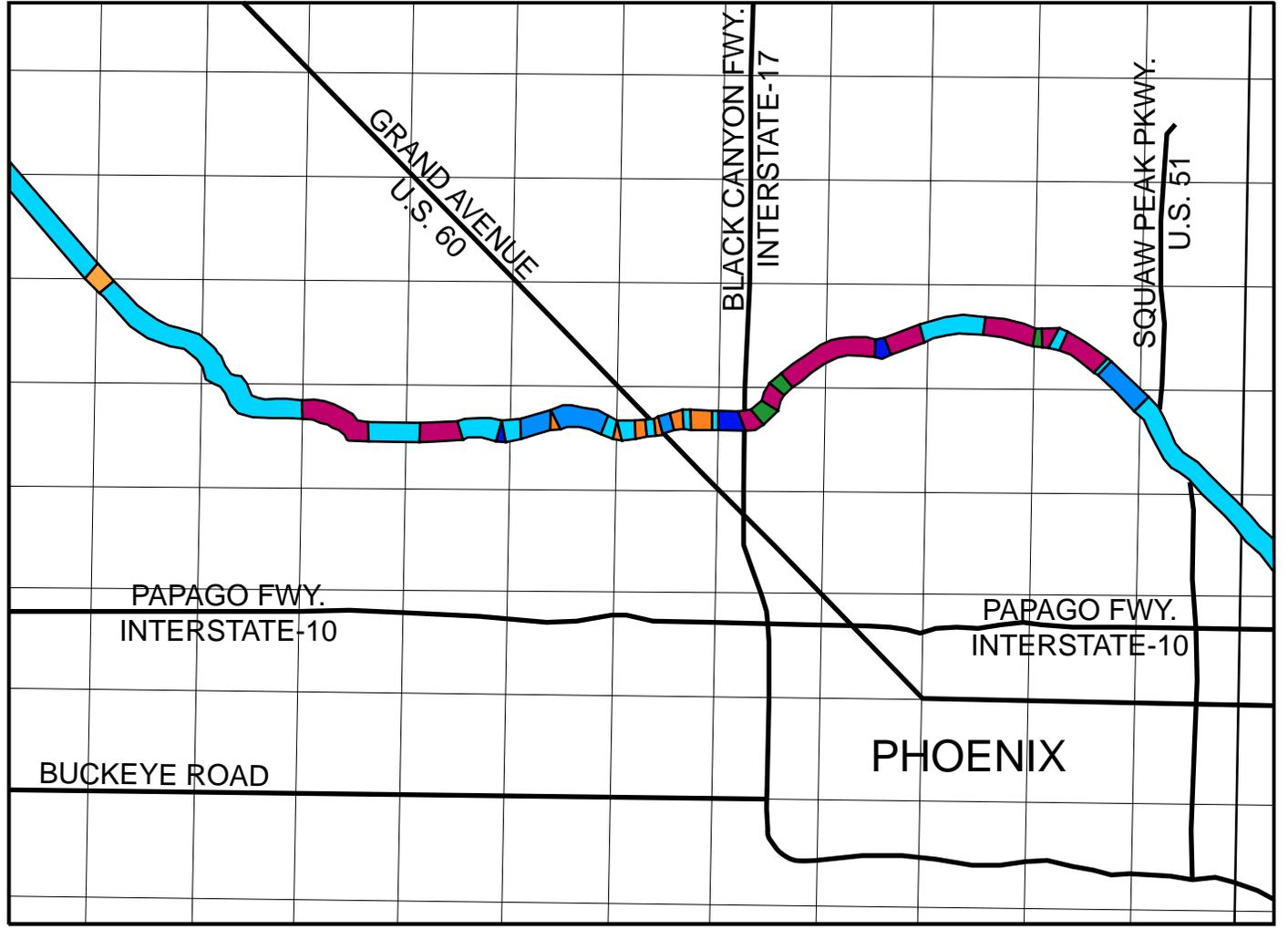


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H:\AI\WCP EGA R\Land and Water Use Study\Figures\COPSRPwell\_Fig2-5

H:\AI\WCP EGA-RI\Land and Water Use Study\Figures\UnlinedCanals-112602-traceOver.ai Drawn by G. Cadiente 112602



- Bottom and Bank Lining
- Bottom Lining Only
- Lining on Both Banks
- Lining on One Bank Only
- Unlined
- Piped
- Lining on Bottom and One Bank



NOTE: Figure adapted from the map of Lined and Unlined Canals by the Salt River Valley Water User's Association (data as of the year 2000).



Figure 2-5  
Lined and Unlined Sections  
of the  
Grand Canal



## **TABLES**

**Table 2-1  
Personal Interviews and Contacts**

<b>Date</b>	<b>Type of Contact</b>	<b>Party/Attendees</b>	<b>Notes</b>
March 26, 2001	Meeting: COP	Lynda Person, ADEQ Don Richey, ADEQ Tamara Huddleston, AGO Keith Larson, COP Karen O'Regan, COP Karen Peters, COP Bob Pikora, COP Planning Elaine Taylor-Tyler, COP Planning Steve Muenker, COP Planning Nancy Nesky, WESTON Bob Forsberg, LFR	Meeting notes by WESTON available in ADEQ project files.
April 16, 2001	Meeting: SRP	Lynda Person, ADEQ Ana Vargas, ADEQ Bob Forsberg, LFR Kevin Wanttaja, SRP Paul Cherrington, SRP Joe Rauch, SRP Nancy Nesky, WESTON	Meeting notes by WESTON available in ADEQ project files.
June 25, 2001	Telephone Conversation	Celeste Smith Century Wheel and Rim	Notes in Appendix B
June 27, 2001	Interview	Linda Pederson Osborn Investors	Notes in Appendix B
June 27, 1001	Interview	Al Jackson Danone Water	Notes in Appendix B

**Table 2-2  
Zoning Code Descriptions**

<b>Zoning Code</b>	<b>Name</b>	<b>Description/Purpose</b>
A-1	Light Industrial District	Industrial uses designed to serve the needs of the community for industrial activity not offensive to nearby commercial and residential uses.
A-2	Industrial District	Designed to accommodate uses with one or more of the following characteristics: intensive use of property; open uses and/or storage; industrial processes which may involve significant amounts of heat, mechanical, and chemical processing, large amounts of materials transfer, extended or multiple shift operation, large scaled structures. Such uses often function best in association with other similar or supportive uses. Because of the intensity and characteristics of this use class, specific standards are set to maximize their compatibility when adjacent to residential districts or when located on arterial or collector streets.
C-1	Commercial Neighborhood Retail District	Light neighborhood type retail and customer service uses designed to be compatible with each other and nearby residential districts.
C-2	Commercial Intermediate District	Commercial uses of medium intensity designed to be compatible with each other and to provide for a wide range of types of commercial activity within the district.
C-3	Commercial General District	Designed to provide for the intensive commercial uses necessary to the proper development of the community.
CP/GCP	Commerce Park/General Commerce park option	Provides for a broad range of manufacturing, warehousing, distribution and supportive retail sales and services. It is differentiated from the A-1 and A-2 districts, however, in that environmental and site standards ensure a high degree of compatibility with other commerce park options as well as other adjacent uses.
R1-6	Residential	Single family residence 5.30 dwellings/acre – base intensity.
R-5	Residential	Multi family residence 43.5 dwellings/acre – base intensity.

**Table 2-3**  
**Village Planning Coordinators Contact Information**

<b>Village Name</b>	<b>Planning Coordinator</b>	<b>Phone Number</b>
Alhambra	Robert Pikora	(602) 262-6823
Maryvale	Jan Hatmaker	(602) 261-8771
Encanto	Charla McCoy	(602) 261-8726

Information as of July 2003.

**Table 2-4**  
**Groundwater Wells Within a One-Mile Radius of the WCP East Grand Avenue WQARF Site<sup>1,2</sup>**

Owner	Approximate Distance from Site	ADWR No.	Common Well Name	Location (T, R, Section, Acre160, Acre40, Acre10)	Well Type	Well Use	Water Use	Installed	Well Depth (ft bgs)	Water Level <sup>3</sup> (ft bgs)	Casing Type	Casing Depth (ft bgs)	Pump Rate (gallons per minute)
Capital Liquidators	Crossgradient, 0.5-1.0 mile	55-603866	WOC Irrigation Well	2N 2E 27 NE, SE, SE	Non-Exempt	Water Production	Irrigation	Unknown	Unknown	Unknown	Unknown	Unknown	50
Nuckols, Bryce	Crossgradient, 0-0.5 mile	55-618512	MTP-1 (Michigan Trailer Park)	2N 2E 26 NW, SE, SW	Non-Exempt	Water Production	Domestic	Unknown	400	Unknown	Steel-Perforated or Slotted Casing	Unknown	80
Danone Waters of North America	Downgradient, 0-0.5 mile	55-800680	Danone	2N 2E 26 SW, NW, SE	Non-Exempt	Water Production	Domestic	04-Jan-74	952	106	Steel-Perforated or Slotted Casing	950	225
Salt River Project	Upgradient, 0-0.5 mile	55-617850	11.2E-7.7N	2N 2E 25 NW, SW, SE	Non-Exempt	Water Production	Irrigation	01-Jun-50	500	110	Steel-Perforated or Slotted Casing	500	1457
Salt River Project	Downgradient, 0.5-1.0 mile	55-608377	10.5E-7.5N	2N 2E 26 SE, NW, NW	Non-Exempt	Water Production	Irrigation	10-Jun-49	698	129	Steel-Perforated or Slotted Casing	698	3254
City of Phoenix	Upgradient, 0.5-1.0 mile	55-626555	No. 77	2N 2E 24 SW, NW, NW	Non-Exempt	Capped/Abandoned	Municipal	01-Dec-52	400	20	Steel-Perforated or Slotted Casing	400	0

<sup>1</sup> Information for the Danone Water Well furnished by Danone. Information for MTP-1 furnished by Linda Pederson. Other well information from the Arizona Department of Water Resources Well Database

<sup>2</sup> A list of groundwater wells used for monitoring or other environmental purposes can be found in Appendix A.

<sup>3</sup> Water level at time of well installation.

ft bgs = feet below ground surface

**Table 2-5**  
**Summary of COP Wells in West Central Phoenix<sup>1,2</sup>**

Well No.	Well Status	Reason Well is Not Active	Date Taken Out of Service	Year Drilled	Well Diameter (inches)	Well Depth (feet)	Maximum Pumping Capacity
68	Inactive but not capped	1221 mg/L TDS 34 mg/L Nitrates	3/1986	1953	12	434	750
69	Abandoned	825 mg/L TDS 15mg/L Nitrates	10/1988	1954	16	405	450
70	Capped	8.9 µg/L TCE	9/1982	1955	16	701	800
71	Capped	29.0 µg/L TCE	4/1982	1957	16	545	700
72	Active	N/A	N/A	1959	20	1200	442
151	Capped	3.3 µg/L TCE 16 mg/L Nitrates	3/1989	1962	12	650	850
152	Capped	3.9 µg/L TCE 12 mg/L Nitrates	3/1989	1957	20-12	630	1320
157	Inactive but not capped	14 mg/L Nitrates	11/1989	1962	20	696	1169
77	Unused/Capped	Unknown	Unknown	1952	12	400	Unknown
100	Closed	Ethylene dibromide contamination	10/1984	1952	12	387	Unknown

<sup>1</sup> Information from COP letter to ADEQ, April 2001 except for Wells 77 and 100.

<sup>2</sup> Information for Wells 77 and 100 taken from the *Water Quality Assurance Revolving Fund Phase I Report. West Central Phoenix Area, Task Assignment E-1, Phoenix, Arizona*. Prepared by Earth Technology Corporation, August 1989.

**ATTACHMENT A**  
**GROUNDWATER MONITORING WELLS**

**Appendix A**  
**Groundwater Monitoring Wells in the WCP EGA Vicinity<sup>1</sup>**

ADWR ID	LOCATION (T, R, Section, Acre160, Acre40, Acre10)	WELL TYPE	WELL USE	WATER USE	APPROVED/INSTALLED	WELL DEPTH	WATER LEVEL	CASING TYPE	CASING DEPTH	PUMP RATE	COMPANY	CANCELLED
527053	2N 2E 24 SW, SW,SW	EXPLORATION	GEOTECHNICAL	NONE		0	0		0	0	UNOCAL CORP,	Y
546408	2N 2E 25 NW, NW, NW	EXPLORATION	GEOTECHNICAL	NONE		0	0		0	0	MOBIL OIL CORP,	Y
522459	2N 2E 25 SW, SW, NW	EXPLORATION	CATHODIC	NONE	1/10/89	260	0	PLASTIC OR PVC	260	0	SOUTHWEST GAS CORP,	
546922	2N 2E 26 NE, SW, SE	EXPLORATION	GEOTECHNICAL	NONE		0	0		0	0	VOPAK	Y
523566	2N 2E 26 NE, SE, SW	EXPLORATION	GEOTECHNICAL	NONE		0	0		0	0	PIONEER WEST CORP,	Y
534580	2N 2E 26 SW, SW, SW	EXPLORATION	ABANDONED	NONE	3/4/92	110	0	PLASTIC OR PVC	110	0	ARCO PRODUCTS COMPANY	Y
526412	2N 2E 26 SW, SW, SW	EXPLORATION	GEOTECHNICAL	NONE	11/16/89	100	100		0	0	RATHON CORP	
559775	2N 2E 26 SW, SE, SW	EXPLORATION	GEOTECHNICAL	NONE		0	0		0	0	WACHOVIA TRUST SVCS,	
534617	2N 2E 26 SE, NW, NW	EXPLORATION	CATHODIC	NONE	5/7/92	260	0	BLACK STEEL-IRON-SEAMLESS	260	0	SW GAS CORP,	
536974	2N 2E 35 NE, NW, NE	EXPLORATION	GEOTECHNICAL	NONE	11/4/92	100	101		0	0	RTC METROPLEX CONS,	
537955	2N 2E 35 NW, NE, SE	EXPLORATION	GEOTECHNICAL	NONE		0	0		0	0	ALTHEN, MARC,	Y
574537	2N 2E 25 NW, NW, NE	GEOTECHNICAL	GEOTECHNICAL	NONE	8/13/00	80	0		0	0	ARIZONA DEPT OF TRANSPORT	Y
567360	2N 2E 25 SW, SW, SE	GEOTECHNICAL	GEOTECHNICAL	NONE	3/20/98	105	105	PLASTIC OR PVC	0	0	VANASSE, DON	
583156	2N 2E 26 NE, NE, NE	GEOTECHNICAL	GEOTECHNICAL	NONE	9/20/00	0	0		0	0	EQUIVA SERVICES LLC	
575867	2N 2E 26 NE, SW, SE	GEOTECHNICAL	WATER PRODUCTION	TEST	9/17/99	120	121		0	0	ARIZONA DEPARTMENT OF ENV	
570060	2N 2E 26 SE, NW, NW	GEOTECHNICAL	GEOTECHNICAL	NONE	8/18/98	0	0		0	20	SUNBELT STORES, INC	
576653	2N 2E 26 SE, NW, NW	GEOTECHNICAL	GEOTECHNICAL	TEST	8/30/99	0	0		0	0	SUNBELT STORES, INC	
586133	2N 2E 27 NE, NE, SW	GEOTECHNICAL				0	0		0	0	ARIZONA DEPARTMENT OF ENV	
578117	2N 2E 23 SW, SE, SW	MONITOR	MONITOR	TEST	11/22/99	0	0		0	0	TOSCO MARKETING COMPANY	
578118	2N 2E 23 SW, SE, SW	MONITOR	MONITOR	TEST	11/22/99	0	0		0	0	TOSCO MARKETING COMPANY	
585753	2N 2E 23 SW, SE, SW	MONITOR	MONITOR	TEST	3/2/01	0	0		0	0	TOSCO MARKETING CO #2857	
585754	2N 2E 23 SW, SE, SW	MONITOR	MONITOR	TEST	3/2/01	0	0		0	0	TOSCO MARKETING CO #2857	
581689	2N 2E 24 SW, NW, NW	MONITOR	MONITOR	TEST	7/28/00	95	77	PLASTIC OR PVC	95	0	TOSCO MARKETING CORPORATI	
581691	2N 2E 24 SW, NW, NW	MONITOR	MONITOR	TEST	7/28/00	95	77	PLASTIC OR PVC	95	0	TOSCO MARKETING CORPORATI	
581692	2N 2E 24 SW, NW, NW	MONITOR	MONITOR	TEST	7/28/00	95	77	PLASTIC OR PVC	95	0	TOSCO MARKETING CORPORATI	
581693	2N 2E 24 SW, NW, NW	MONITOR	MONITOR	TEST	7/28/00	95	77	PLASTIC OR PVC	95	0	TOSCO MARKETING CORPORATI	

## Appendix A Groundwater Monitoring Wells in the WCP EGA Vicinity<sup>1</sup>

ADWR ID	LOCATION (T, R, Section, Acre160, Acre40, Acre10)	WELL TYPE	WELL USE	WATER USE	APPROVED/INSTALLED	WELL DEPTH	WATER LEVEL	CASING TYPE	CASING DEPTH	PUMP RATE	COMPANY	CANCELLED
581694	2N 2E 24 SW, NW, NW	MONITOR	MONITOR	TEST	7/28/00	95	77	PLASTIC OR PVC	95	0	TOSCO MARKETING CORPORATI	
581697	2N 2E 24 SW, NW, NW	MONITOR	MONITOR	TEST	7/28/00	95	77	PLASTIC OR PVC	95	0	TOSCO MARKETING CORPORATI	
581690	2N 2E 24 SW, NW, NW	MONITOR	MONITOR	TEST	7/28/00	95	77	PLASTIC OR PVC	95	0	TOSCO MARKETING CORPORATI	
581695	2N 2E 24 SW, NW, NW	MONITOR	MONITOR	TEST	7/28/00	95	77	PLASTIC OR PVC	95	0	TOSCO MARKETING CORPORATI	
581696	2N 2E 24 SW, NW, NW	MONITOR	MONITOR	TEST	7/28/00	95	77	PLASTIC OR PVC	95	0	TOSCO MARKETING CORPORATI	
529407	2N 2E 25 NW, NW, NW	MONITOR	ABANDONED	MONITORING	9/14/90	112	95	PLASTIC OR PVC	110	0	MOBIL OIL CORP	Y
546411	2N 2E 25 NW, NW, NW	MONITOR	ABANDONED	MONITORING	12/16/94	123	84	PLASTIC OR PVC	123	0	MOBIL OIL CORP.	Y
522840	2N 2E 25 NW, NW, NW	MONITOR	ABANDONED	MONITORING	12/12/88	95	0	PLASTIC OR PVC	90	0	MOBIL OIL CORP.	Y
529406	2N 2E 25 NW, NW, NW	MONITOR	ABANDONED	MONITORING	9/14/90	112	94	PLASTIC OR PVC	110	0	MOBIL OIL CORP	Y
533112	2N 2E 25 NW, NW, NW	MONITOR	ABANDONED	MONITORING	10/17/91	107	87	PLASTIC OR PVC	105	0	MOBIL OIL CORP.	Y
546410	2N 2E 25 NW, NW, NW	MONITOR	ABANDONED	MONITORING	12/16/94	175	83	PLASTIC OR PVC	115	0	MOBIL OIL CORP.	Y
546992	2N 2E 25 NW, NW, NW	MONITOR	ABANDONED	MONITORING	12/20/94	123	84	PLASTIC OR PVC	122	0	MOBIL OIL CORP.	Y
480793	2N 2E 25 NW, NW, NW	MONITOR				0	0		0	0		
580794	2N 2E 25 NW, NW, NW	MONITOR	MONITOR	TEST	8/21/00	110	84	PLASTIC OR PVC	105	0	MOBIL OIL CORP.	
580795	2N 2E 25 NW, NW, NW	MONITOR	MONITOR	TEST	10/22/00	106	88	PLASTIC OR PVC	106	0	MOBIL OIL CORP.	
580796	2N 2E 25 NW, NW, NW	MONITOR	MONITOR	TEST	6/7/00	0	0		0	0	MOBIL OIL CORP.	
573804	2N 2E 25 SW, SW, NW	MONITOR	MONITOR	TEST	4/26/99	120	0	PLASTIC OR PVC	90	0	VANASSE, DON	
573805	2N 2E 25 SW, SW, SW	MONITOR	MONITOR	TEST	4/27/99	120	0	PLASTIC OR PVC	90	0	VANASSE, DON	
573806	2N 2E 25 SW, SW, SW	MONITOR	MONITOR	TEST	4/28/99	120	0	PLASTIC OR PVC	90	0	VANASSE, DON	
583274	2N 2E 26 NE, NE, NE	MONITOR	MONITOR	TEST	10/3/00	0	0		0	0	EQUIVA SERVICES LLC	
583276	2N 2E 26 NE, NE, NE	MONITOR	MONITOR	TEST	10/3/00	0	0		0	0	EQUIVA SERVICES LLC	
583277	2N 2E 26 NE, NE, NE	MONITOR	MONITOR	TEST	10/3/00	0	0		0	0	EQUIVA SERVICES LLC	
583275	2N 2E 26 NE, NE, NE	MONITOR	MONITOR	TEST	10/3/00	0	0		0	0	EQUIVA SERVICES LLC	
584772	2N 2E 26 NE, NE, NW	MONITOR			12/26/00	0	0		0	0	LEVITZ FURNITURE CORP	
584773	2N 2E 26 NE, NE, NW	MONITOR	MONITOR	TEST	12/26/00	0	0		0	0	LEVITZ FURNITURE CORP	
584774	2N 2E 26 NE, NE, NW	MONITOR	MONITOR	TEST	2/19/01	120	95	PLASTIC OR PVC	120	0	LEVITZ FURNITURE CORP	

**Appendix A**  
**Groundwater Monitoring Wells in the WCP EGA Vicinity<sup>1</sup>**

ADWR ID	LOCATION (T, R, Section, Acre160, Acre40, Acre10)	WELL TYPE	WELL USE	WATER USE	APPROVED/INSTALLED	WELL DEPTH	WATER LEVEL	CASING TYPE	CASING DEPTH	PUMP RATE	COMPANY	CANCELLED
584775	2N 2E 26 NE, NE, NW	MONITOR	MONITOR	TEST	2/15/01	120	95	PLASTIC OR PVC	120	0	LEVITZ FURNITURE CORP	
584776	2N 2E 26 NE, NE, NW	MONITOR	MONITOR	TEST	2/14/01	120	95	PLASTIC OR PVC	120	0	LEVITZ FURNITURE CORP	
584777	2N 2E 26 NE, NE, NW	MONITOR	MONITOR	TEST	2/13/01	120	95	PLASTIC OR PVC	120	0	LEVITZ FURNITURE CORP	
575874	2N 2E 26 NE, SW, NE	MONITOR	MONITOR	TEST	12/3/99	150	118	PLASTIC OR PVC	148	0	ARIZONA DEPARTMENT OF ENV	
575875	2N 2E 26 NE, SW, NW	MONITOR	MONITOR	TEST	9/24/99	0	0		0	0	ARIZONA DEPARTMENT OF ENV	
575868	2N 2E 26 NE, SW, SW	MONITOR	MONITOR	TEST	6/17/00	300	0	PLASTIC OR PVC	280	0	ARIZONA DEPARTMENT OF ENV	
575873	2N 2E 26 NE, SW, SW	MONITOR	MONITOR	TEST	10/6/99	150	118	PLASTIC OR PVC	148	0	ARIZONA DEPARTMENT OF ENV	
584666	2N 2E 26 NE, SE, NE	MONITOR	WATER PRODUCTION	TEST	12/14/00	0	0		0	0	ARIZONA DEPARTMENT OF ENV	
575870	2N 2E 26 NE, SE, NW	MONITOR	MONITOR	TEST	10/12/99	149	117	PLASTIC OR PVC	106	0	ARIZONA DEPARTMENT OF ENV	
575869	2N 2E 26 NE, SE, SW	MONITOR	MONITOR	TEST	9/24/99	150	120	PLASTIC OR PVC	150	0	ARIZONA DEPARTMENT OF ENV	
575871	2N 2E 26 NE, SE, SW	MONITOR	MONITOR	TEST	9/30/99	145	116	PLASTIC OR PVC	143	0	ARIZONA DEPARTMENT OF ENV	
584131	2N 2E 26 NE, SE, SW	MONITOR	MONITOR	TEST	11/14/00	0	0		0	0	ARIZONA DEPARTMENT OF ENV	
584132	2N 2E 26 NE, SE, SW	MONITOR	MONITOR	TEST	11/14/00	0	0		0	0	ARIZONA DEPARTMENT OF ENV	
555473	2N 2E 26 NW, NE, NE	MONITOR	ABANDONED	MONITORING	3/18/96	106	96	STEEL - PERFORATED OR	106	0	BIRD INCORPORATED	
584665	2N 2E 26 NW, SE, NE	MONITOR	MONITOR	TEST	12/13/00	0	0		0	0	ARIZONA DEPARTMENT OF ENV	
577763	2N 2E 26 NW, SE, SW	MONITOR	MONITOR	TEST	11/8/99	0	0		0	0	ARIZONA DEPARTMENT OF ENV	
584133	2N 2E 26 NW, SE, SE	MONITOR	MONITOR	TEST	11/14/00	0	0		0	0	ARIZONA DEPARTMENT OF ENV	
555475	2N 2E 26 SW, NE, NE	MONITOR	ABANDONED	NONE	3/18/96	110	100	STEEL - PERFORATED OR	110	0	UPS OF AMERICA INC	Y
555476	2N 2E 26 SW, NE, NE	MONITOR	ABANDONED	NONE	3/18/96	110	100	STEEL - PERFORATED OR	110	0	UPS OF AMERICA INC	Y
555474	2N 2E 26 SW, NE, NE	MONITOR	ABANDONED	NONE	3/18/96	110	102	STEEL - PERFORATED OR	110	0	UPS OF AMERICA INC	Y
582358	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/19/00	118	0	PLASTIC OR PVC	118	0	CERTAINTEED NORWOOD	
582359	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	10/6/00	121	121	PLASTIC OR PVC	120	0	CERTAINTEED NORWOOD	
582360	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/23/00	121	120	PLASTIC OR PVC	120	0	CERTAINTEED NORWOOD	
582361	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/28/00	121	0	PLASTIC OR PVC	120	0	CERTAINTEED NORWOOD	
582362	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	10/10/00	121	0	PLASTIC OR PVC	120	0	CERTAINTEED NORWOOD	
582364	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	10/2/00	121	121	PLASTIC OR PVC	120	0	CERTAINTEED NORWOOD	

## Appendix A

### Groundwater Monitoring Wells in the WCP EGA Vicinity<sup>1</sup>

ADWR ID	LOCATION (T, R, Section, Acre160, Acre40, Acre10)	WELL TYPE	WELL USE	WATER USE	APPROVED/INSTALLED	WELL DEPTH	WATER LEVEL	CASING TYPE	CASING DEPTH	PUMP RATE	COMPANY	CANCELLED
582365	2N 2E 26 SW, NE, NE	MONITOR			9/29/00	121	0	PLASTIC OR PVC	120	0	CERTAINEED NORWOOD	
582366	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/14/00	137	119	PLASTIC OR PVC	135	0	CERTAINEED NORWOOD	
582367	2N 2E 26 SW, NE, NE	MONITOR			9/20/00	137	121	PLASTIC OR PVC	136	0	CERTAINEED NORWOOD	
582370	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/18/00	137	119	PLASTIC OR PVC	135	0	CERTAINEED NORWOOD	
582371	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/19/00	136	120	PLASTIC OR PVC	135	0	CERTAINEED NORWOOD	
582372	2N 2E 26 SW, NE, NE	MONITOR			9/18/00	137	121	PLASTIC OR PVC	135	0	CERTAINEED NORWOOD	
582374	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/21/00	137	121	PLASTIC OR PVC	136	0	CERTAINEED NORWOOD	
582375	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/21/00	137	120	PLASTIC OR PVC	135	0	CERTAINEED NORWOOD	
582376	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/22/00	137	120	PLASTIC OR PVC	135	0	CERTAINEED NORWOOD	
582377	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/22/00	137	120	PLASTIC OR PVC	135	0	CERTAINEED NORWOOD	
582378	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/26/00	137	121	PLASTIC OR PVC	135	0	CERTAINEED NORWOOD	
582379	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/25/00	137	121	PLASTIC OR PVC	135	0	CERTAINEED NORWOOD	
582380	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/26/00	137	121	PLASTIC OR PVC	135	0	CERTAINEED NORWOOD	
582381	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/27/00	137	121	PLASTIC OR PVC	136	0	CERTAINEED NORWOOD	
582382	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/27/00	137	121	PLASTIC OR PVC	136	0	CERTAINEED NORWOOD	
582383	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/28/00	137	121	PLASTIC OR PVC	137	0	CERTAINEED NORWOOD	
582384	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/29/00	137	122	PLASTIC OR PVC	135	0	CERTAINEED NORWOOD	
582386	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	10/3/00	137	122	PLASTIC OR PVC	136	0	CERTAINEED NORWOOD	
582388	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	10/5/00	137	122	PLASTIC OR PVC	136	0	CERTAINEED NORWOOD	
582389	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	10/13/00	137	122	PLASTIC OR PVC	135	0	CERTAINEED NORWOOD	
582390	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	7/31/00	137	122	PLASTIC OR PVC	136	0	CERTAINEED NORWOOD	
582391	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	10/10/00	137	122	PLASTIC OR PVC	136	0	CERTAINEED NORWOOD	
582393	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	10/13/00	136	122	PLASTIC OR PVC	136	0	CERTAINEED NORWOOD	
582394	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	10/11/00	137	122	PLASTIC OR PVC	136	0	CERTAINEED NORWOOD	
582363	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	10/12/00	121	0	PLASTIC OR PVC	120	0	CERTAINEED NORWOOD	
582369	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/14/00	137	119	PLASTIC OR PVC	135	0	CERTAINEED NORWOOD	

**Appendix A**  
**Groundwater Monitoring Wells in the WCP EGA Vicinity<sup>1</sup>**

ADWR ID	LOCATION (T, R, Section, Acre160, Acre40, Acre10)	WELL TYPE	WELL USE	WATER USE	APPROVED/INSTALLED	WELL DEPTH	WATER LEVEL	CASING TYPE	CASING DEPTH	PUMP RATE	COMPANY	CANCELLED
582387	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	10/5/00	137	122	PLASTIC OR PVC	135	0	CERTAINT EED NORWOOD	
582392	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	10/13/00	137	122	PLASTIC OR PVC	135	0	CERTAINT EED NORWOOD	
582385	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	10/3/00	137	122	PLASTIC OR PVC	135	0	CERTAINT EED NORWOOD	
582373	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/20/00	137	120	PLASTIC OR PVC	135	0	CERTAINT EED NORWOOD	
582368	2N 2E 26 SW, NE, NE	MONITOR	MONITOR	TEST	9/13/00	137	119	PLASTIC OR PVC	135	0	CERTAINT EED NORWOOD	
585116	2N 2E 26 SW, NE, NW	MONITOR	MONITOR	TEST	1/22/01	0	0		0	0	ARIZONA DEPARTMENT OF ENV	
584903	2N 2E 26 SE, NW, NE	MONITOR	MONITOR	TEST	12/28/00	0	0		0	0	ARIZONA DEPARTMENT OF ENV	
585041	2N 2E 26 SE, NW, NW	MONITOR	MONITOR	TEST	1/16/01	0	0		0	0	ARIZONA DEPARTMENT OF ENV	
570065	2N 2E 26 SE, NW, NW	MONITOR	MONITOR	TEST	8/18/98	0	0		0	0	SUNBELT STORES, INC	Y
570064	2N 2E 26 SE, NW, NW	MONITOR	MONITOR	TEST	8/18/98	0	0		0	0	SUNBELT STORES, INC	
570063	2N 2E 26 SE, NW, NW	MONITOR	MONITOR	TEST	8/18/98	0	0		0	0	SUNBELT STORES, INC	Y
570062	2N 2E 26 SE, NW, NW	MONITOR	MONITOR	TEST	8/18/98	0	0		0	0	SUNBELT STORES, INC	Y
570061	2N 2E 26 SE, NW, NW	MONITOR	MONITOR	TEST	8/18/98	0	0		0	0	SUNBELT STORES, INC	Y
575872	2N 2E 26 SE, NW, NW	MONITOR	MONITOR	TEST	12/1/99	150	118	PLASTIC OR PVC	148	0	ARIZONA DEPARTMENT OF ENV	
576648	2N 2E 26 SE, NW, NW	MONITOR	MONITOR	TEST	8/31/99	137	117	PLASTIC OR PVC	135	0	SUNBELT STORES, INC	
576649	2N 2E 26 SE, NW, NW	MONITOR	MONITOR	TEST	9/1/99	137	116	PLASTIC OR PVC	0	0	SUNBELT STORES, INC	
576650	2N 2E 26 SE, NW, NW	MONITOR	MONITOR	TEST	9/2/99	137	117	PLASTIC OR PVC	135	0	SUNBELT STORES, INC	
576651	2N 2E 26 SE, NW, NW	MONITOR	MONITOR	TEST	9/10/99	137	117	PLASTIC OR PVC	135	0	SUNBELT STORES, INC	
576652	2N 2E 26 SE, NW, NW	MONITOR	MONITOR	TEST	8/30/99	0	0		0	0	SUNBELT STORES, INC	
585117	2N 2E 26 SE, NW, NW	MONITOR	MONITOR	TEST	1/22/01	0	0		0	0	ARIZONA DEPARTMENT OF ENV	
577546	2N 2E 27 NE, NE, SW	MONITOR	MONITOR	TEST	10/20/99	140	109	PLASTIC OR PVC	100	0	DIEHL, GREG	
577547	2N 2E 27 NE, NE, SW	MONITOR	MONITOR	TEST	10/20/99	140	109	PLASTIC OR PVC	190	0	DIEHL, GREG	
577548	2N 2E 27 NE, NE, SW	MONITOR	MONITOR	TEST	10/20/99	140	109	PLASTIC OR PVC	100	0	DIEHL, GREG	
577549	2N 2E 27 NE, NE, SW	MONITOR	MONITOR	TEST	10/20/99	140	109	PLASTIC OR PVC	100	0	DIEHL, GREG	
585993	2N 2E 27 NE, NE, SW	MONITOR	MONITOR	TEST	3/13/01	0	0		0	0	ARIZONA DEPARTMENT OF ENV	
585994	2N 2E 27 NE, NE, SW	MONITOR	MONITOR	TEST	3/13/01	0	0		0	0	ARIZONA DEPARTMENT OF ENV	

**Appendix A**  
**Groundwater Monitoring Wells in the WCP EGA Vicinity<sup>1</sup>**

ADWR ID	LOCATION (T, R, Section, Acre160, Acre40, Acre10)	WELL TYPE	WELL USE	WATER USE	APPROVED/INSTALLED	WELL DEPTH	WATER LEVEL	CASING TYPE	CASING DEPTH	PUMP RATE	COMPANY	CANCELLED
553744	2N 2E 27 NE, SE, NW	MONITOR	ABANDONED	MONITORING	1/22/96	100	72	PLASTIC OR PVC	100	0	ARIZONA DEPARTMENT OF ENV	Y
553745	2N 2E 27 NE, SE, NW	MONITOR	ABANDONED	MONITORING	1/23/96	110	85	PLASTIC OR PVC	110	0	ARIZONA DEPARTMENT OF ENV	Y
585616	2N 2E 27 NE, SE, NW	MONITOR	MONITOR	TEST	2/26/01	0	0		0	0	ARIZONA DEPARTMENT OF ENV	
585617	2N 2E 27 NE, SE, NW	MONITOR	MONITOR	TEST	2/26/01	0	0		0	0	ARIZONA DEPARTMENT OF ENV	
553277	2N 2E 27 NE, SE, SW	MONITOR	ABANDONED	MONITORING	1/5/96	100	90	STEEL - PERFORATED OR	100	0	ARIZONA DEPARTMENT OF ENV	Y
573809	2N 2E 27 NE, SE, SW	MONITOR	MONITOR	TEST	3/31/99	110	0	PLASTIC OR PVC	40	0	UNITED INDUSTRIAL CORPORA	
573812	2N 2E 27 NE, SE, SW	MONITOR	MONITOR	TEST	3/31/99	0	0		0	0	UNITED INDUSTRIAL CORPORA	
573813	2N 2E 27 NE, SE, SW	MONITOR	MONITOR	TEST	3/31/99	0	0		0	0	UNITED INDUSTRIAL CORPORA	
573814	2N 2E 27 NE, SE, SW	MONITOR	MONITOR	TEST	3/31/99	0	0		0	0	UNITED INDUSTRIAL CORPORA	
573810	2N 2E 27 NE, SE, SW	MONITOR	MONITOR	TEST	3/31/99	110	0	PLASTIC OR PVC	40	0	UNITED INDUSTRIAL CORPORA	
573811	2N 2E 27 NE, SE, SW	MONITOR	MONITOR	TEST	3/31/99	110	0	PLASTIC OR PVC	40	0	UNITED INDUSTRIAL CORPORA	
555585	2N 2E 27 NE, SE, SE	MONITOR	ABANDONED	NONE	4/4/96	115	97	PLASTIC OR PVC	115	0	TOSCO MARKETING COMPANY	Y
555588	2N 2E 27 NE, SE, SE	MONITOR	MONITOR	MONITORING	11/10/99	0	0		0	0	TOSCO MARKETING COMPANY	Y
555589	2N 2E 27 NE, SE, SE	MONITOR	ABANDONED	NONE	11/10/99	0	0		0	0	TOSCO MARKETING COMPANY	Y
555584	2N 2E 27 NE, SE, SE	MONITOR	ABANDONED	NONE		115	92	PLASTIC OR PVC	115	0	TOSCO MARKETING COMPANY	Y
555586	2N 2E 27 NE, SE, SE	MONITOR	ABANDONED	NONE	4/3/96	115	97	PLASTIC OR PVC	115	0	TOSCO MARKETING COMPANY	Y
555587	2N 2E 27 NE, SE, SE	MONITOR	MONITOR	MONITORING	4/10/96	115	97	PLASTIC OR PVC	115	0	TOSCO MARKETING COMPANY	Y
564732	2N 2E 27 SE, NE, NE	MONITOR	WATER PRODUCTION	TEST	4/11/96	450	0	PLASTIC OR PVC	380	0	UNITED INDUSTRIAL CORPORA	
564733	2N 2E 27 SE, NE, NE	MONITOR	WATER PRODUCTION	TEST	10/9/97	140	95	PLASTIC OR PVC	135	0	UNITED INDUSTRIAL CORPORA	
548356	2N 2E 27 SE, SE, NE	MONITOR	ABANDONED	MONITORING	11/8/99	0	0		0	0	TOSCO CORPORATION	Y
548357	2N 2E 27 SE, SE, NE	MONITOR	ABANDONED	MONITORING	11/10/99	0	0		0	0	TOSCO MARKETING CORPORATI	Y
576820	2N 2E 27 SE, SE, SE	MONITOR	MONITOR	TEST	9/14/99	130	115	PLASTIC OR PVC	130	0	ARCO PRODUCTS COMPANY	
576821	2N 2E 27 SE, SE, SE	MONITOR	MONITOR	TEST	9/15/99	130	115	PLASTIC OR PVC	130	0	ARCO PRODUCTS COMPANY	
570759	2N 2E 35 NW, NE, SE	MONITOR	MONITOR	TEST	9/25/98	0	0		0	0	PENSKE TRUCK LEASING COMP	Y
570760	2N 2E 35 NW, NE, SE	MONITOR			12/4/98	110	108		0	0	PENSKE TRUCK LEASING COMP	Y
571773	2N 2E 35 NW, NE, SE	MONITOR	MONITOR	TEST	2/1/99	0	0		0	0	PENSKE TRUCK LEASING COMP	Y

**Appendix A**  
**Groundwater Monitoring Wells in the WCP EGA Vicinity<sup>1</sup>**

ADWR ID	LOCATION (T, R, Section, Acre160, Acre40, Acre10)	WELL TYPE	WELL USE	WATER USE	APPROVED/ INSTALLED	WELL DEPTH	WATER LEVEL	CASING TYPE	CASING DEPTH	PUMP RATE	COMPANY	CANCELLED
571774	2N 2E 35 NW, NE, SE	MONITOR	MONITOR	TEST	2/1/99	0	0		0	0	PENSKE TRUCK LEASING COMP	Y
571775	2N 2E 35 NW, NE, SE	MONITOR	MONITOR	TEST	2/1/99	0	0		0	0	PENSKE TRUCK LEASING COMP	Y
527050	2N 2E 24 SW, SW,SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	UNOCAL CORP,	Y
527051	2N 2E 24 SW, SW,SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	UNOCAL CORP,	Y
533774	2N 2E 24 SW, SW,SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	1/30/92	110	87	PLASTIC OR PVC	107	0	SOUTHLAND CORP,	
533776	2N 2E 24 SW, SW,SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	1/30/92	110	87	PLASTIC OR PVC	107	0	SOUTHLAND CORP,	
533777	2N 2E 24 SW, SW,SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	SOUTHLAND CORP,	Y
527052	2N 2E 24 SW, SW,SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	UNOCAL CORP,	Y
533773	2N 2E 24 SW, SW,SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	1/30/92	110	87	PLASTIC OR PVC	107	0	SOUTHLAND CORP,	
533775	2N 2E 24 SW, SW,SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	1/30/92	110	87	PLASTIC OR PVC	107	0	SOUTHLAND CORP,	
538702	2N 2E 25 NW, NW, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	5/23/93	100	75	PLASTIC OR PVC	60	0	ADOT,	
538704	2N 2E 25 NW, NW, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	5/25/93	100	75	PLASTIC OR PVC	60	0	ADOT,	
538703	2N 2E 25 NW, NW, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	5/24/93	100	75	PLASTIC OR PVC	60	0	ADOT,	
522837	2N 2E 25 NW, NW, NW	MONITOR OR PIEZOMETER	OBSERVATION	MONITORING		0	0		0	0	MOBIL OIL CORP,	Y
522838	2N 2E 25 NW, NW, NW	MONITOR OR PIEZOMETER	OBSERVATION	MONITORING		0	0		0	0	MOBIL OIL CORP,	Y
522839	2N 2E 25 NW, NW, NW	MONITOR OR PIEZOMETER	OBSERVATION	MONITORING		0	0		0	0	MOBIL OIL CORP,	Y
522841	2N 2E 25 NW, NW, NW	MONITOR OR PIEZOMETER	OBSERVATION	MONITORING	12/12/88	120	105	PLASTIC OR PVC	120	0	MOBIL OIL CORP,	
524018	2N 2E 25 NW, NW, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	5/10/89	115	100	PLASTIC OR PVC	110	0	MOBIL OIL CORP,	
524019	2N 2E 25 NW, NW, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	5/31/94	117	81	PLASTIC OR PVC	117	0	MOBIL OIL CORP,	
529408	2N 2E 25 NW, NW, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	9/18/90	112	95	PLASTIC OR PVC	110	0	MOBIL OIL CORP,	Y
547960	2N 2E 25 SW, SW, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	3/6/95	120	94	PLASTIC OR PVC	120	0	PHOENIX PEST CONTROL,	
547958	2N 2E 25 SW, SW, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	3/1/95	120	93	PLASTIC OR PVC	119	0	PHOENIX PEST CONTROL,	
547959	2N 2E 25 SW, SW, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	3/3/95	120	93	PLASTIC OR PVC	120	0	PHOENIX PEST CONTROL,	
563713	2N 2E 25 SW, SW, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	8/8/97	110	100	PLASTIC OR PVC	110	0	VANASSE, DON	
531160	2N 2E 26 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	3/22/91	120	97	PLASTIC OR PVC	120	0	ATR/MCI,	
544109	2N 2E 26 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	SCHNEIDER, KURT,D	Y

## Appendix A Groundwater Monitoring Wells in the WCP EGA Vicinity<sup>1</sup>

ADWR ID	LOCATION (T, R, Section, Acre160, Acre40, Acre10)	WELL TYPE	WELL USE	WATER USE	APPROVED/INSTALLED	WELL DEPTH	WATER LEVEL	CASING TYPE	CASING DEPTH	PUMP RATE	COMPANY	CANCELLED
544110	2N 2E 26 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	BORINSTEIN, LLOYD,	Y
546409	2N 2E 26 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	MOBIL OIL CORP,	Y
555171	2N 2E 26 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	2/23/96	115	97	PLASTIC OR PVC	115	0	BIRD INC,	
555839	2N 2E 26 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	BIRD INC,	
555840	2N 2E 26 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	BIRD IND,	
526629	2N 2E 26 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	1/16/90	140	96	PLASTIC OR PVC	30	0	AMERICAN TELEVISION,	
531161	2N 2E 26 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	3/22/91	120	97	PLASTIC OR PVC	120	0	ATR/MCI,	
552591	2N 2E 26 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	MCI TELECOMMUNICATN,	
555838	2N 2E 26 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	BIRD INC,	
555841	2N 2E 26 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	BIRD INC,	
545852	2N 2E 26 NE, NE, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	10/13/94	115	95	STEEL - PERFORATED OR	85	0	SOUTHWEST ROOFING,	
553923	2N 2E 26 NE, NE, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	2/2/96	100	86	PLASTIC OR PVC	100	0	LEVITZ FURNITURE CORP	
545851	2N 2E 26 NE, NE, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	10/12/94	115	95	STEEL - PERFORATED OR	85	0	SOUTHWEST ROOFING,	
545853	2N 2E 26 NE, NE, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	10/14/94	115	96	STEEL - PERFORATED OR	85	0	SOUTHWEST ROOFING,	
549993	2N 2E 26 NE, NE, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	6/19/95	100	86	PLASTIC OR PVC	75	0	LEVITZ FURNITURE CRP,	
553922	2N 2E 26 NE, NE, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	2/15/96	100	85	PLASTIC OR PVC	100	0	LEVITZ FURNITURE CORP	
553924	2N 2E 26 NE, NE, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	2/2/96	100	87	PLASTIC OR PVC	100	0	LEVITZ FURNITURE CORP	
533232	2N 2E 26 NE, SW, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	SUNBELT INVEST. HOLD,	Y
547461	2N 2E 26 NW, SW, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	2/9/95	125	95	PLASTIC OR PVC	125	0	ADEQ,	
524020	2N 2E 26 NW, SW, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	4/17/89	98	98		0	0	PGL BUILDING PROD.,	
535334	2N 2E 26 NW, SW, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	5/23/92	130	89	PLASTIC OR PVC	130	10	ADEQ,	
537381	2N 2E 26 NW, SW, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	11/27/92	124	99	PLASTIC OR PVC	125	10	ADEQ,	
538224	2N 2E 26 SW, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	3/4/93	110	0		0	0	SOUTHWEST ROOFING,	Y
538225	2N 2E 26 SW, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	3/5/93	140	0		0	0	SOUTHWEST ROOFING,	
538228	2N 2E 26 SW, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	7/12/93	130	98	PLASTIC OR PVC	95	0	SOUTHWEST ROOFING,	
542154	2N 2E 26 SW, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	2/2/94	130	106	PLASTIC OR PVC	130	0	SOUTHWEST ROOFING,	

## Appendix A Groundwater Monitoring Wells in the WCP EGA Vicinity<sup>1</sup>

ADWR ID	LOCATION (T, R, Section, Acre160, Acre40, Acre10)	WELL TYPE	WELL USE	WATER USE	APPROVED/INSTALLED	WELL DEPTH	WATER LEVEL	CASING TYPE	CASING DEPTH	PUMP RATE	COMPANY	CANCELLED
542155	2N 2E 26 SW, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	SOUTHWEST ROOFING,	Y
538226	2N 2E 26 SW, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	3/10/93	135	99	PLASTIC OR PVC	95	0	SOUTHWEST ROOFING,	Y
538227	2N 2E 26 SW, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	3/15/93	130	100	PLASTIC OR PVC	95	0	SOUTHWEST ROOFING,	
552233	2N 2E 26 SW, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	10/24/95	125	95	PLASTIC OR PVC	125	0	BIRD INC,	
547462	2N 2E 26 SW, NW, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	2/7/95	130	95	PLASTIC OR PVC	125	0	ADEQ,	
535622	2N 2E 26 SW, SW, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	6/15/92	130	105	STEEL - PERFORATED OR	100	0	DEXTER WATER MGMT	
536032	2N 2E 26 SW, SW, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	7/31/92	130	101	PLASTIC OR PVC	130	0	ARCO PRODUCTS CO,	
536033	2N 2E 26 SW, SW, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	7/29/92	130	102	PLASTIC OR PVC	130	0	ARCO PRODUCTS CO,	
536034	2N 2E 26 SW, SW, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	7/29/92	145	98	PLASTIC OR PVC	145	0	ARCO PRODUCTS CO,	
561079	2N 2E 26 SW, SW, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	3/19/97	120	100	PLASTIC OR PVC	90	0	DUHI INC	
533625	2N 2E 26 SW, SW, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	11/22/91	120	110	STEEL - PERFORATED OR	120	0	SUNBELT INVESTMENTS,	
535620	2N 2E 26 SW, SW, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	6/15/92	130	105		100	0	DEXTER WATER MGMT	
535621	2N 2E 26 SW, SW, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	6/15/92	130	105	STEEL - PERFORATED OR	100	0	DEXTER WATER MGMT	
545742	2N 2E 26 SW, SW, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	10/5/94	120	90	PLASTIC OR PVC	120	0	ARCO PRODUCTS CO,	
537281	2N 2E 26 SE, SE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	12/2/92	90	0	PLASTIC OR PVC	90	0	GIFFORD-HILL PIPE CO,	
538662	2N 2E 26 SE, SE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	4/15/93	125	0	STEEL - PERFORATED OR	125	0	UNIVERSAL TECH INST,	
560840	2N 2E 27 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	2/11/97	105	90	PLASTIC OR PVC	80	0	SCARBOROUGH, ERNIE,	
560841	2N 2E 27 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	2/12/97	105	90	PLASTIC OR PVC	80	0	SCARBOROUGH, ERNIE,	
560842	2N 2E 27 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	2/12/97	105	90	PLASTIC OR PVC	80	0	SCARBOROUGH, ERNIE,	
561175	2N 2E 27 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	2/5/97	105	90	PLASTIC OR PVC	105	0	SCARBOROUGH, ERNIE,	
561177	2N 2E 27 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	2/6/97	105	90	PLASTIC OR PVC	85	0	SCARBOROUGH, ERNIE,	
560843	2N 2E 27 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	SCARBOROUGH, ERNIE	
561176	2N 2E 27 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	2/6/97	105	90	PLASTIC OR PVC	105	0	SCARBOROUGH, ERNIE	
561178	2N 2E 27 NE, NE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	2/10/97	105	90	PLASTIC OR PVC	80	0	SCARBOROUGH, ERNIE,	
534948	2N 2E 27 NE, NE, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	5/25/92	110	88	PLASTIC OR PVC	110	10	ADEQ,	
535679	2N 2E 27 NE, NE, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	6/26/92	110	85	PLASTIC OR PVC	110	10	ADEQ,	

**Appendix A**  
**Groundwater Monitoring Wells in the WCP EGA Vicinity<sup>1</sup>**

ADWR ID	LOCATION (T, R, Section, Acre160, Acre40, Acre10)	WELL TYPE	WELL USE	WATER USE	APPROVED/INSTALLED	WELL DEPTH	WATER LEVEL	CASING TYPE	CASING DEPTH	PUMP RATE	COMPANY	CANCELLED
561071	2N 2E 27 NE, SE, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	3/17/97	136	102	PLASTIC OR PVC	125	0	ADEQ,	
561073	2N 2E 27 NE, SE, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	3/18/97	127	102	PLASTIC OR PVC	97	0	ADEQ,	
561072	2N 2E 27 NE, SE, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	3/19/97	127	103	PLASTIC OR PVC	97	0	ADEQ,	
558431	2N 2E 27 NE, SE, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	10/15/96	390	0	STEEL - PERFORATED OR	370	12	UNITED INDUSTRIAL CORPORA	
562004	2N 2E 27 NE, SE, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING		160	0	PLASTIC OR PVC	147	0	UNITED INDUSTRIAL CORPORA	
562005	2N 2E 27 NE, SE, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	UNITED INDUSTRIAL CORPORA	
558430	2N 2E 27 NE, SE, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	10/27/96	810	0	STEEL - PERFORATED OR	810	7	UNITED INDUSTRIAL CORPORA	
558432	2N 2E 27 NE, SE, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	10/22/96	350	0	STEEL - PERFORATED OR	290	12	UNITED INDUSTRIAL CORPORA	
558433	2N 2E 27 NE, SE, SW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	10/16/96	290	0	STEEL - PERFORATED OR	285	12	UNITED INDUSTRIAL CORPORA	
532373	2N 2E 27 NE, SE, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	8/16/91	100	65	PLASTIC OR PVC	100	0	MAY, CHARLES,	
532648	2N 2E 27 NE, SE, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	PERRI, EUGENE,R	Y
532372	2N 2E 27 NE, SE, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	8/16/91	125	91	PLASTIC OR PVC	125	0	MAY, CHARLES,	
532374	2N 2E 27 NE, SE, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	MAY, CHARLES,	Y
532636	2N 2E 27 NE, SE, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	8/16/91	131	96	PLASTIC OR PVC	90	0	PERRI, EUGENE,R	
534444	2N 2E 27 NE, SE, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	CAPITOL LIQUIDATORS <sup>2</sup>	Y
534950	2N 2E 27 SE, NE, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	5/25/92	120	82	PLASTIC OR PVC	120	10	ADEQ,	
548358	2N 2E 27 SE, SE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	CIRCLE K CORP,	
548359	2N 2E 27 SE, SE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	CIRCLE K CORP,	
548360	2N 2E 27 SE, SE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	CIRCLE K CORP,	
548361	2N 2E 27 SE, SE, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	CIRCLE K CORP,	
559528	2N 2E 27 SE, SE, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	5/22/96	110	90	PLASTIC OR PVC	109	0	ARCO PRODUCTS CO,	
559529	2N 2E 27 SE, SE, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	ARCO PRODUCTS CO,	
559530	2N 2E 27 SE, SE, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	ARCO PRODUCTS CO,	
559531	2N 2E 27 SE, SE, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	ARCO PRODUCTS CO,	
547942	2N 2E 35 NE, NW, NE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	RESOLUTION TRUST COR,P	Y
521049	2N 2E 35 NE, SW, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	5/27/88	130	92	PLASTIC OR PVC	125	0	SHAMROCK REAL ESTATE,	Y

## Appendix A

### Groundwater Monitoring Wells in the WCP EGA Vicinity<sup>1</sup>

ADWR ID	LOCATION (T, R, Section, Acre160, Acre40, Acre10)	WELL TYPE	WELL USE	WATER USE	APPROVED/INSTALLED	WELL DEPTH	WATER LEVEL	CASING TYPE	CASING DEPTH	PUMP RATE	COMPANY	CANCELLED
521051	2N 2E 35 NE, SW, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	5/27/88	130	92	PLASTIC OR PVC	130	0	SHAMROCK REAL ESTATE,	Y
521878	2N 2E 35 NE, SW, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	5/27/88	125	90	PLASTIC OR PVC	125	0	SHAMROCK REAL ESTATE,	Y
522188	2N 2E 35 NE, SW, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	9/1/88	130	115	PLASTIC OR PVC	130	0	SHAMROCK REAL ESTATE,	Y
520572	2N 2E 35 NE, SW, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	3/25/88	80	0		0	0	SHAMROCK REAL ESTATE,	Y
521050	2N 2E 35 NE, SW, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	5/27/88	130	90	PLASTIC OR PVC	130	0	SHAMROCK REAL ESTATE,	Y
522189	2N 2E 35 NE, SW, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	9/1/88	130	115	PLASTIC OR PVC	130	0	SHAMROCK REAL ESTATE,	Y
527414	2N 2E 35 NW, NE, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	6/4/90	131	100	PLASTIC OR PVC	130	0	PENSKE TRUCK LEASING COMP	
527431	2N 2E 35 NW, NE, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING		0	0		0	0	PENSKE LEASING CO,	Y
559770	2N 2E 35 NW, NW, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	9/26/96	110	99	PLASTIC OR PVC	110	0	GOODYEAR TIRE-RUBBER,	
559772	2N 2E 35 NW, NW, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	9/26/96	110	97	PLASTIC OR PVC	110	0	GOODYEAR TIRE-RUBBER,	
559771	2N 2E 35 NW, NW, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	9/26/96	110	97	PLASTIC OR PVC	110	0	GOODYEAR TIRE-RUBBER,	
559773	2N 2E 35 NW, NW, SE	MONITOR OR PIEZOMETER	MONITOR	MONITORING	9/26/96	110	96	PLASTIC OR PVC	110	0	GOODYEAR TIRE-RUBBER,	
520571	2N 2E 35 NW, SW, NW	MONITOR OR PIEZOMETER	OBSERVATION	MONITORING	3/25/88	80	0		0	0	MILNE TRUCK LINES,	Y
520573	2N 2E 35 NW, SW, NW	MONITOR OR PIEZOMETER	MONITOR	MONITORING	3/24/88	130	95	PLASTIC OR PVC	130	0	SHAMROCK REAL ESTATE,	Y
520574	2N 2E 35 NW, SW, NW	MONITOR OR PIEZOMETER	OBSERVATION	MONITORING	3/25/88	80	0		0	0	MILNE TRUCK LINES,	Y
534123	2N 2E 27 NE, SE, SE	WITHDRAWAL PERMIT	MONITOR	MONITORING	2/14/92	135	105	PLASTIC OR PVC	95	0	UNITED INDUSTRIAL CORPORA	
563318	2N 2E 27 NE, SE, SW	WITHDRAWAL PERMIT	WATER PRODUCTION	INDUSTRIAL	10/28/97	155	0	PLASTIC OR PVC	140	0	UNITED INDUSTRIAL CORP	
563319	2N 2E 27 NE, SE, SW	WITHDRAWAL PERMIT	WATER PRODUCTION	INDUSTRIAL	10/24/97	0	0		0	0	UNITED INDUSTRIAL CORP	Y
563320	2N 2E 27 NE, SE, SW	WITHDRAWAL PERMIT	WATER PRODUCTION	INDUSTRIAL	10/24/97	0	0		0	0	UNITED INDUSTRIAL CORP	Y
534122	2N 2E 27 NE, SE, SE	WITHDRAWAL PERMIT	WATER PRODUCTION	INDUSTRIAL	1/31/92	125	95	PLASTIC OR PVC	85	0	UNITED INDUSTRIAL CORP	
533400	2N 2E 25 NW, NW, NW	WITHDRAWAL PERMIT	TEST	TEST							MOBIL OIL CORP,	
533399	2N 2E 25 NW, NW, NW	WITHDRAWAL PERMIT	TEST	TEST							MOBIL OIL CORP,	

<sup>1</sup> Information from the Arizona Department of Water Resources Well Database.

<sup>2</sup> Ownership information provided by ADEQ.

**ATTACHMENT B**  
**PHONE CALL AND INTERVIEW NOTES**



7. Are there any projected changes to current uses of water from these wells? If yes, what time frame?

8. Is there well construction/other pertinent data available?

Depth

Screened Interval

Casing Type

Pumping Data (volume)

Number of people served if used as drinking water supply

PWS number

Analytical data available?

Frequency of sampling

Parameters

Results



3. What are the foreseeable future plans for the property (as far into the future as they know)? If own, do you plan on relocating? In what time frame? *No changes in property use as far as Mr. Jackson knows.*
4. Are there any groundwater wells on-site? *Yes, one.*
5. Do you own any wells off-site but in the area of contamination? *No*
6. What are the wells used for? *Bottled water. (Raw water from the well is put through several treatment stages prior to bottling: sand filtration, carbon adsorption, reverse osmosis, degassing unit, and a final micron filtration).*
7. Are there any projected changes to current uses of water from these wells? If yes, in what time frame? Describe changes. *No changes in the foreseeable future. There has been some discussion of installing an additional well for back-up purposes, however, no final decisions have been made at this time.*
8. Is there well construction/other pertinent data available?

Depth of well: *952 feet*

Screened Interval: *850 ft – 950 ft (Pump set at 650 ft with 10 ft of pump screen)*

Casing Type: *10-inch diameter, steel casing*

Pumping Data (volume): *225 gpm (pump operates approximately 16-18 hours per day, 5 days per week)*

Static Water Level: *106 ft (on 6/01)*

Draw Down: *355 ft (on 6/01) Note: Static water level is measured after the weekend shutdown period. Draw down is measured after the weeks production.*

Number of people served if used as drinking water supply? *Not Applicable*

PWS number? *NA*

Analytical data available? *Yes*

Frequency of sampling: *Annual full suite of analytes; weekly coliform bacteria*

Results: *VOCs have been non-detect*

Other? *Danone owns three different "Grandfather" water rights:*

*58-100542.0000 (68 acre-feet)*

*58-111016.0002 (60 acre-feet)*

*58-102405.0002 (35 acre-feet)*



3. What are the foreseeable future plans for the property (as far into the future as they know)? If own, do you plan on relocating? In what time frame?  
*The prospective buyer has expressed a desire to increase the number of year round mobile homes and decrease the number of RV pads. The basic land use will remain the same.*
4. Are there any groundwater wells on-site? *Yes, one. No information on date of construction, however, records show that the well, pump pressure tank, and distribution system was in place in 1946. Osborn Investors purchased the property in 1981 and upgraded the distribution system in 1985. A 10,000 gal. water storage tank was installed at that time.*
5. Do you own any wells off-site but in the area of contamination? *No*
6. What are the wells used for? *Domestic water supply for the Trailer Park.*
7. Are there any projected changes to current uses of water from these wells? If yes, in what time frame? Describe changes. *Dec. 1999 nitrate analysis detected nitrates above the MCL (32 ppm). Samples collected before that date and since that collection date were below MCLs. The Dec. 1999 data is thought to be anomalous. No plans to connect to city supplied water system at this time; however, Maricopa County may require the pump to be taken off-line if nitrate analyses are above MCL in the future.*
8. Is there well construction/other pertinent data available?
  - Depth of well            *400 feet*
  - Screened Interval
  - Casing Type            *10-inch diameter, steel casing*
  - Pumping Data (volume)    *approximately 80 gpm*
  - Static Water Level
  - Draw Down
  - Number of people served if used as drinking water supply? *Approximately 135-180 people (based on average park occupancy).*
  - PWS number? *07671*
  - Analytical data available? *Yes*

Frequency of sampling: *Nitrates: monthly; Bacteria: monthly; MAP (Monitoring Assistance Plan): yearly.*  
Results: *Nitrate typically around 5 ppm with the exception of the Dec. 1999 result of 32 ppm; VOCs have been non-detected; bacteria is negative.*