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MONTHLY STATUS REPORT
STEELCOTE FACILITY
ST. LOUIS, MISSOURI

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
11500 Olive Boulevard • Suite 276
Saint Louis, Missouri 63141 • 7126
314 • 872 • 8170

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SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

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1954 - 1994 40

September 6, 1994

Mr. Alphonse McMahon
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Attorneys At Law
720 Olive Street, 24th Floor
St. Louis, Missouri 63101-2396

MONTHLY STATUS REPORT
STEELCOTE FACILITY
ST. LOUIS, MISSOURI

Dear Al:

Please find enclosed five copies of the above referenced report. If I can be of further assistance, please feel free to call.

Very truly yours,

SHANNON & WILSON, INC.

Lawrence C. Rosen

Lawrence C. Rosen, P.G.
Principal Geologist

LCR/ki

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Z-301-06

11500 OLIVE BOULEVARD • SUITE 276
SAINT LOUIS, MISSOURI 63141 • 7126
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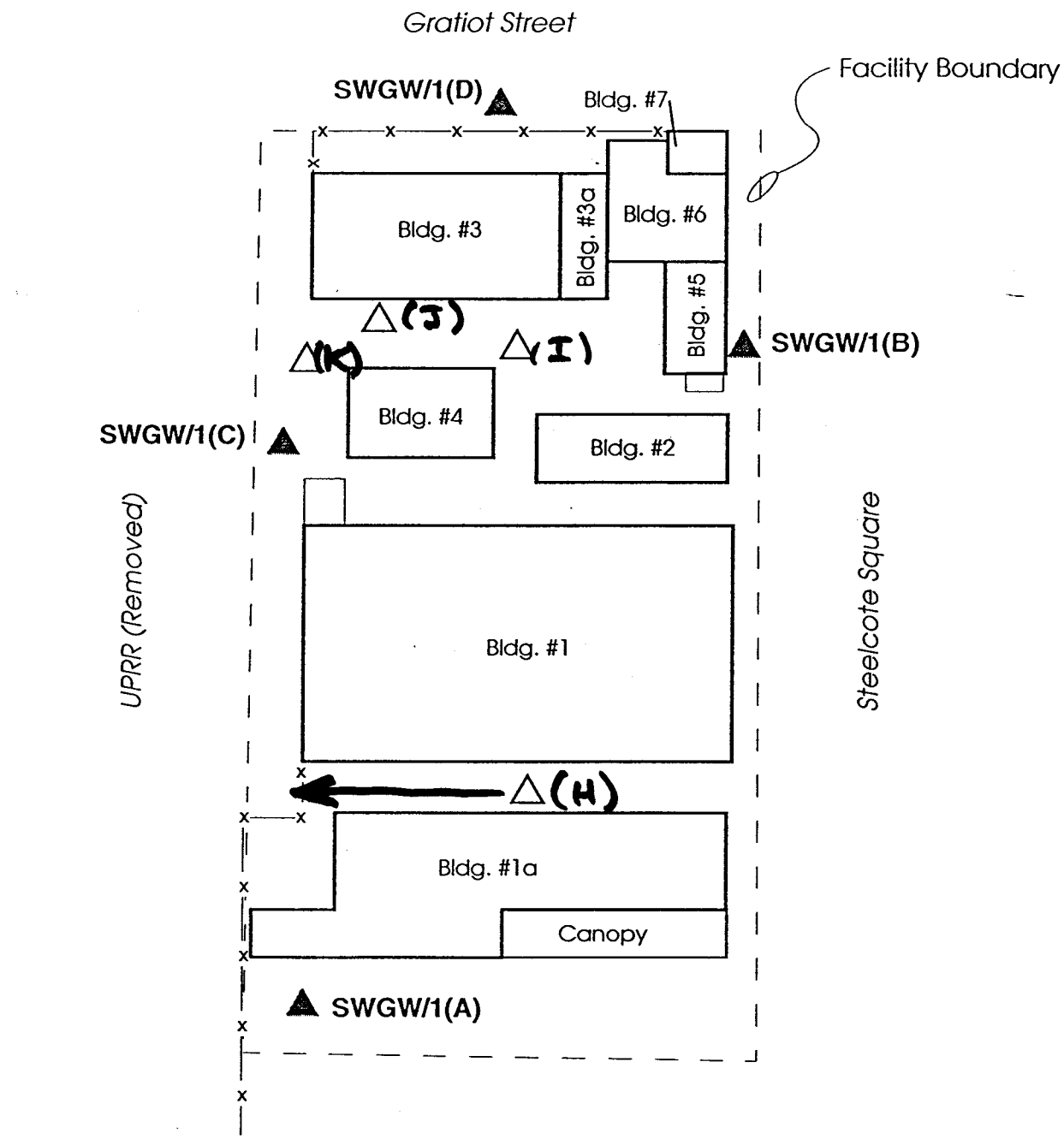
STATUS REPORT
AUGUST 1994
STEELCOTE FACILITY
ST. LOUIS, MISSOURI

PLANNED AND ACTUAL ACTIVITIES

The additional site investigation was initiated and soil borings and well installations, including development, were completed. In addition, the previously existing wells were abandoned as per Missouri Department of Natural Resources regulations. Ground water hydrologic testing and sampling are currently being conducted. Copies of field notes, drilling logs and well development logs, along with a site layout showing locations, are attached to this report.

ANTICIPATED ACTIVITIES

Hydrologic testing, ground water sampling and sample analyses are scheduled to be completed in September. Note that this ground water sampling denotes the continuation of quarterly sampling and analyses at this site.



LEGEND

△ Approx. Ground Water Monitoring Well Location

▲ Approx. Ground Water Monitoring Well Location (To be Abandoned)

NORTH

0 20 40 80

Scale, in feet

WELL LOCATIONS
STEELCOTE FACILITY
ST. LOUIS, MISSOURI

Z-301

SHANNON & WILSON, INC.
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8/15/94

Sunny, Clear 75-80°F LCR & RWS

0930 LCR arrive onsite. BDAT crew already onsite. Conducted site orientation and safety meeting. Afterwards BDAT began staging equipment and building decon pad. Discussed ability to drill first well in planned location in alley. Determined that we could probably miss the sewer line. The narrowness of the alley, however posed a safety hazard. Given this, the decision to relocate, at the west end of the alley, immediately east of the old rail spur, was made.

11:40 Crew completed mobilization activities - broke for lunch

12:15 Set-up on first boring @ west end of alley - location designated SW/2(A). BDAT personnel include Chuck Faus (driller), Rich Degundahl (helper); Bill Rupp (3rd man). LCR assisted by RWS. Boring advanced w/ CME 55 w/ 6¼" ID HSA w/ 6¼" tube system for continuous sampling.

~1300 Drilling commenced.

~1430 DJM visits site to observe progress.

~16:00 Boring @ 45' bgs - decide to continue to 50'.

16:15 Terminated boring @ 50'. Drums of soil staged @ fenced area @ south end of site near the decon pad. Crew begins to clean up & shut down.

16:45 Site secured. Locked fences & armed security system. Left site for office.

Sunny 70°F LCR:SD 8/16/94

0700 BDAT Crew onsite. Began set-up for well installation @ SW/2(H)

0715 LCR arrived; disarmed security system. Recap pictures

Roll 1 (1) SW/2(H) 5.0-10.0 (2) 10-15' (3) 15-20' (4) Closeup 15-20 blocky textures

(5) 20-25' Full (6) 20-25' left ½ (7) 20-25' right half (8) 30-35' (9) 35-40'

(10) 40-45' (11) 45'-50'. Collected sample SW/2(H)D(5.75-6.25)A for analysis.

0815 Started setting SWGW/2(H). Water level @ ~8' bgs, ~8-10" of sediment @ bottom. Decided to place 1' of sand before setting well. Details of construction are on page 2 of 2 of the boring log.

~0900 DSM stopped by briefly

~0930 Harry Gabert of EPA on site. Observed installation of well.

~11:00 Well grouted-up. Crew moves equipment & drums off location. Prepare for decon. Gabert departs.

13:30 Decon completed. Crew finished lunch. Set up to drill SW/2(I)

16:15 SW/2(I) to 45'. Possibly @ target depth. Shutdown rig for day. Begin site cleanup/shutdown.

16:45 Off site

Recap of photos @ SW/2(I)

(13) 0-5' (14) 5-10' Full (15) 5-10' Closeup @ 6-7' (16) 15-20' (17) 20-25'

(18) 30-35' (19) 35-40' Focus on 35-37.5 (20) 40-45' Focus @ 44.5'

Sunny clear 75° AM LCR · SD 8/17/94

0900 BMAT on site to start morning set-up. Advised driller that SW/2(I) was OK to terminate @ 45' & set well.

07:30 Checked water level & sediment in SW/2(I). Water @ 34'; ~3" sed. Began assembling screen & riser and installing in well after placing some filter sand @ base of boring. Bottom of well @ 44.7.

0900 While waiting for bentonite to swell; set-up to grout

0930 Began mixing first grout batch.

10:00 Began pulling augers of the 2½ batches of grout. Decon started

10:50 Completed grouting. Start clean-up around SWGW/2(I). Continued decon

12:00 Started setup, move equipment to next location; SW/2(J).

1300 Start drilling on SW/2(J).

15:15 Completed boring to 45' - set up to install monitoring well.

15:25 Start installation of SWGW/2(J)

15:45 Placed bentonite seal; hydrated w/ 10 gal water. Secured well and began site shutdown.

16:10 Site secured. Depart site

Photo recap

(22) 9-10' (23) 10-11' (24) 35-38' (25) 42.5'

8/18/94

Sunny clear 75° AM LCR: SD

0700 Crew onsite - set up to grout SW/2 (J)

0750 Begin grouting

09:15 Completed grouting and began site cleanup. Augers/equipment decon underway.

09:45 Set-up rig over SW/2 (K) location.

10:00 Began drilling. RWS assisting sampling

12:05 Boring @ 45'. Break for lunch

~1225 DJM stops by to check progress

12:45 Continue drilling to 50'. Boring terminated @ 50'0. Set well w/ 15' screen.

15:30 Finish grouting boring. Pulled last auger & found bentonite pellets in auger - the seal is probably less than 2" thick - will keep close eye on pH during development to see if well is compromised. Crew starts clean-up.

16:10 Site secured. Departed for office with samples.

Overcast 75° AM 8/16/94 LCR : RWS

0700 BDAT crew onsite. Continue w/ decon of rig and tools. RWS onsite

0830 Set up & begin development of SW/2(H) with surge block. Used B-K hand pump after that to remove water

09:15 LCR arrives. Development continuing.

~10:00 Removed ~40 gallons from SW/2(H) - well was pumped dry. Allowed for recharge. Had crew set up on SWGW/B to start decommissioning. Began by breaking surface concrete plug & well cover. Overdrilled top foot(±) to remove grout in order to ease pulling casing. Pulled casing ~2' and then used AW rods to break through bottom of well for grouting. Inserted 1" tremie pipe to bottom and then placed a cement bentonite grout; would raise pipe some after each batch. Water never came to top of casing nor did grout overflow. Once grout was @ surface of 2" well casing, driller attempted to pull casing. Casing broke in first screen interval. A total of 11.1' were successfully removed from SWGW/2. Used ~55 gallons of grout to decommission well.

12:00 Lunch break. Crew needs to bring more cement to site.

12:30 Train derailment to the west of the site - reports indicate 2 tanker cars are leaking toluene. Evacuation to Theresa enforced. Able to continue work @ this time

13:00 Finish up development details for SWGW/2(H). Clean up area and wait for rig crew to arrive w/ cement.

1400 Set up on SWGW/D to decommission. Similar protocol as described above. Pulled only 2 feet and riser snapped. Able to run AW rods down to break out and cap. Ran tremie pipes down &

8/19/94

Started grout. Placed 65 gallons of grout.

15:10 Set-up; start to decommissioning of SWGW/C. Top of casing snapped off while trying to drill surface grout. No ability to pull pipe. Able to push out end w/ AW rods; ran tremie pipe down afterward to place 75 gallons of grout. Had started development of SWGW/2(I) but stopped after surging.

16:00 Moved off to SWGW/C and started clean up/shut down operations

Sunny 80°F LCR:SD onsite 8/22/94

0900 BDAT crew onsite - rig set up over SWGW/A in order to decommission well. Crew setting up for development of remaining three wells

09:30 Started purging/developing SWGW/2(I) which had been surged on 8/19/94. Removed 32 gallons. (See development sheet) ~~Begun~~

0945 Surging SWGW/2(J)

10:15 Finished surging SWGW/2(J). Still removing water from I. Needing to wait for recharge.

10:40 Completed development of I. SWGW/A was decommissioned following same approach described on 8/19/94. Were able to remove only 4' of casing. Pumped 63 gallons of cement bentonite grout into casing

10:35 Start surging SWGW/2(K). Surged for 1/2 hour through screened interval.

11:35 Start removing water from SWGW/2(J)

11:50 30 gallons removed from 'J'. Wait for recharge

14:00 Completed development on 'J'. Removed total of 40 gallons. Start development of 'K'.

16:30 Removed 27 gallons from 'K'. Closed up wells; cleaned up site. Decon pad destructed & placed in drums.

16:50 Depart Site.

Sunny 85°F 8/23/94

LCR made to obtain water level measurements in each well subsequent to development. Measured potential VOC in well upon opening. Minor response on PID (1-3 ppm above background) & no odor. Wells H, J, & K had built up pressure in casing which caused expandable cap to be pushed off with moderate force after being loosened. Top of casing marked for each well as highest point for reference in measurements.

SWGW/2 (H) 11.8' to H_2O from TOC
SWGW/2 (I) 10.8' " " " "
SWGW/2 (J) 19.33' " " " "
SWGW/2 (K) 28.2' " " " "

Observed & checked general site condition & whether grout had settled in closed-out wells. All four locations looked ok. Re-armed alarm system prior to departing site.

SHANNON & WILSON, INC.
GEOTECHNICAL CONSULTANTS

LOG OF BORING
BORING NO. SW/2(H)

PROJECT: STEELCOTE		JOB NO.: Z-301-07	SHEET 1 OF 2
CLIENT: PEPPER MARTIN		DRILLING AGENCY: BDAT	
SIZE AND TYPE OF BIT: 6¼ ID HSA		LOCATION (COORDINATES OR STATION): SW/2(H)	
DIRECTION AND INCLINATION OF HOLE: VERTICAL		SOIL SAMPLING FOOTAGE	CORING FOOTAGE / TOTAL DEPTH: 50.0
ELEVATION	MFR. DESIGNATION OF DRILL: CME	NUMBER OF SOIL SAMPLES / PENETRATION	TUBES
DEPTH TO WATER: 14' @ 17:30 8/15/94	NO. OF CORE BOXES	DATE STARTED / DATE COMPLETED: 8/15/94 (13:00)	INSPECTOR(S): L. Rason

DEPTH IN FEET	LITHOLOGY	GRAPHIC LOG	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SAMPLE OR RUN NUMBER	% REC / % REQD	PID Back NUMBER	REMARKS
			Fill - lt brown to dark brown sandy silty CLAY; dry w/ red brick glass, coal, plant roots med st-stiff	1		2-4 ppm	No sample retained
5.0			Fill Soft-med stiff brown silty CLAY - becoming dark gray to green gray below 7 ft; moist w/ brick concrete, plant roots	2	50%	43 ppm	Picture Sample 5.75'-6.25' Petroleum odor, black stain
10.0			Soft-med stiff clayey SILT to silty CLAY to ~ 14.75; moist to wet. Stiff, dk gray to black sil CLAY; moist to wet blocky	3	95%+	0-1 ppm	Picture No sample Wet on outside of tube @ 14'
15.0			Med stiff to stiff, dk gray to black silty CLAY; moist to wet, blocky	4	100%	0-1 ppm	Picture & close up of blocky texture
20.0			As Above - softer and siltier @ ~22 w/24' and not blocky. Plant fragments abundant @ 22'. Small disseminated < 1/16"	5	100%	0-1	3 pictures (Full, left, right)
25.0			Soft - med stiff silty CLAY to Clayey SILT to ~ 27'; moist to wet: Transitional change over ~6" to blue-green gray silt CLAY w/ plant root; moist to wet med st-stiff	6	100%	0-1	No picture
30.0			Med st-stiff clayey SILT; moist w/ abundant plant roots; med gray color w/ faint blue to green	7	100%	0-1	PICTURE - FULL length
35.0			Med st-stiff blue-green gray clayey SILT to sandy clayey SILT; damp-moist; mainly massive to blocky w/ plant roots - sandier @ 36.5; fine layering ~37.5-38.0	8	100%	0-2	PICTURE - Full Length

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GEOTECHNICAL CONSULTANTS

LOG OF BORING
BORING NO. SW/2(H)

PROJECT: STEELCOTE		JOB NO.: Z-301-07	SHEET 2 OF 2
CLIENT: Roger Martin		DRILLING AGENCY: BDAT Chuck	
SIZE AND TYPE OF BIT: 6¼" ID HSA CME 55		LOCATION (COORDINATES OR STATION):	
DIRECTION AND INCLINATION OF HOLE: VERTICAL		SOIL SAMPLING FOOTAGE: 50.0	CORING FOOTAGE:	TOTAL DEPTH: 50.0
ELEVATION:	MFR. DESIGNATION OF DRILL: CME 55	NUMBER OF SOIL SAMPLES / PENETRATION:	TUBES:
DEPTH TO WATER: ~14' @ 8:30 8/15/94	NO. OF CORE BOXES: —	DATE STARTED: 8/15/94	DATE COMPLETED: 8/15/94	INSPECTOR(S):

DEPTH IN FEET	LITHOLOGY	GRAPHIC LOG	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SAMPLE OR RUN NUMBER	% REC / % REQD	BOX NUMBER	REMARKS
			Med stiff-stiff gray silty CLAY to clayey SILT; moist to wet w/ slight v f sand to 42.5; 42.5-43.2 Coarse gravel in silty clay matrix →	9	100%	0-2	PICTURE Stiff-v stiff dk gray silty CLAY; damp to dry
45.0			As above to 46.2; 46.2-46.7 loose med-lg SAND w/ gravel; wet, w/ some silt/clay 46.7-47.2 Stiff to v stiff gray silt CLAY w/ gravel (TILL) 47.2-50.0 Very stiff grayish brown silty CLAY; trace plant debris	10			Picture
50.0			EOH @ 50.0 8/16/94 WELL INSTALLATION Set WB 35 from 50.0-49.0 Set bottom of well @ 49.0 Set WB 35 filter pack to 36.0 (6 bags) Set bentonite seal w/ 3/8" 36.0 to 33.8 ("Pelletonite") Placed grout from 33.8 to 7.5 Bentonite from 7.5 to 0.5 Used 10 bags of grout ~ 30 lbs powdered bentonite Well installation completed on 8/16/94				

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GEOTECHNICAL CONSULTANTS

LOG OF BORING
BORING NO. SW/2(I)

PROJECT: STEELCOTE		JOB NO.: Z-301-07	SHEET 1 OF 2
CLIENT: PEPER, MARTIN		DRILLING AGENCY: BDAT ENVIRONMENTAL	
SIZE AND TYPE OF BIT: 6¼" ID HSA		LOCATION (COORDINATES OR STATION): SW/2(I)	
DIRECTION AND INCLINATION OF HOLE: VERTICAL		SOIL SAMPLING FOOTAGE: 45.0	CORING FOOTAGE:	TOTAL DEPTH: 45.0
ELEVATION:	MFR. DESIGNATION OF DRILL: CME 55	NUMBER OF SOIL SAMPLES: PENETRATION	TUBES:
DEPTH TO WATER: 9' @ 13:50 8/16/94	NO. OF CORE BOXES: —	DATE STARTED: 8/16/94	DATE COMPLETED: 8/17/94	INSPECTOR(S): L. Rosen

DEPTH IN FEET	LITHOLOGY	GRAPHIC LOG	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SAMPLE OR RUN NUMBER	% REC / % REQD	BOX NUMBER	REMARKS
			Fill - 1 to 1.5" limestone gravel to 4.0'. Soft, black organic sandy, clayey SILT; moist to wet (FILL)	1	100%	644 ppm	Solvent odor. Sample from 4.25-5.0'. Picture
5.0			As Above to 8.75 (FILL); Med stiff brown silty CLAY; moist	2	85%	2500 MAX	Solvent odor. 3 pictures - close up of sample zone. Sample 6.5-7.0
10.0			Med stiff to stiff, dk brown to black silty CLAY; moist, blocky. Stiffer @ 14'	3	100%	47 ppm	@ ~12.5'. NO PICTURE
15.0			Med stiff to stiff dk gray to black silty CLAY; moist, blocky - becoming lighter gray transitionally w/depth. Red gray @ 20' mottled	4	100%	2-4	Picture. Plant root
20.0			Med stiff to stiff greengray to blue gray silty CLAY; moist blocky med plastic. Very stiff and iron stained from 20.0 to 21.3 - plant roots	5	100%	2-4	Picture
25.0			Med st - stiff green gray to blue gray silty CLAY to clayey SILT: moist blocky, plant roots, gastropod shells	6	100%	0-2	Picture. Layering is visible locally very thin to ¼" thick observed
30.0			As Above to 20.3; then Soft - Med stiff gray clayey SILT; moist w/ gastropods @ ~31.2' - 1 abundant roots @ 34'; Layering is present but weak	7	100%	0-1	Picture
35.0			As above to 35.6; Very soft clayey SILT to SILT to 36.1; Soft/loose gray vfg sandy clayey SILT to silty clayey vfg SAND to 37.8; Med stiff gray silty CLAY to clayey SILT w/ roots; moist	8	100%	0-1	Wet @ SILT zone. PICTURE → 35-37.5'

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GEOTECHNICAL CONSULTANTS

LOG OF BORING
BORING NO. SW/2(I)

PROJECT: STEELCOTE		JOB NO.: Z-301-07	SHEET 2 OF 2
CLIENT: Paper, Marvin	DRILLING AGENCY: BDAT		
SIZE AND TYPE OF BIT: 6 1/4" ID HSA	LOCATION (COORDINATES OR STATION):		
DIRECTION AND INCLINATION OF HOLE: VERTICAL	SOIL SAMPLING FOOTAGE	CORING FOOTAGE	TOTAL DEPTH: 45.0
ELEVATION:	MFR. DESIGNATION OF DRILL: CME 55	NUMBER OF SOIL SAMPLES: PENETRATION	TUBES: —
DEPTH TO WATER: 34' @ 7:30 8/17/94	NO. OF CORE BOXES: —	DATE STARTED: 8/16/94	DATE COMPLETED: 8/17/94	INSPECTOR(S): L. Rosen

DEPTH IN FEET	LITHOLOGY	GRAPHIC LOG	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SAMPLE OR RUN NUMBER	% REC / % REQD	PID ~~BOX~~ NUMBER	REMARKS
			Very loose to loose, gray silty SAND and sandy SILT; wet, trace gravel to 41.4; stiff gray clay SILT; moist to damp; fine layering	9	10/18	0-1	Picture @ 44.5' of layering
45.0			EOH @ 45.0				
			Set filter sand @ 45.0 WB35				
50.0			Set bottom of well @ 44.9'				
			Filter pack to 32.0 (5 bags)				
			Bentonite Seal 32.0 - 30.0 (1 50lb bucket)				
			Grout 30.0 - 2.0 12 bags #94; ~40# bentonite				

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LOG OF BORING
BORING NO. SW/2(J)

PROJECT: STEELCOTE		JOB NO.: Z-301-07	SHEET 1 OF 2
CLIENT: Peper Martin	DRILLING AGENCY: BDAT Environmental		
SIZE AND TYPE OF BIT: 6¼" ID HSA	LOCATION (COORDINATES OR STATION):		
DIRECTION AND INCLINATION OF HOLE: VERTICAL	SOIL SAMPLING FOOTAGE	CORING FOOTAGE	TOTAL DEPTH 45.0
ELEVATION	MFR. DESIGNATION OF DRILL: CME 55	NUMBER OF SOIL SAMPLES / PENETRATION	TUBES —
DEPTH TO WATER: ~13' @1335	NO. OF CORE BOXES: —	DATE STARTED: 8/17/94 13:00	DATE COMPLETED / INSPECTOR(S): L. Rosen

DEPTH IN FEET	LITHOLOGY	GRAPHIC LOG	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SAMPLE OR RUN NUMBER	% REC / % REQD	BOX NUMBER PID	REMARKS
5.0			Fill - 1-1.5" gravel to 2.5'; Plastic barrier @ 2.5'; dark brown-black silty CLAY w/ wood, brick; moist	1	50%	—	
10.0			As Above to 9.2; Plastic Layer; Loose mg-cg gray silty SAND to 9.5; Med stiff green gray sandy silty CLAY (FILL) moist to wet	2	75%	178	Solvent odor throughout Picture @ 9-10' Sample 9.5-10.0
15.0			Loose, gray mg-cg Silty SAND; some gravel to 10.9; Med stiff to stiff dk gray silty CLAY w snail shells, plant roots + stems; moist blocky	3	100%	617	Water on sampler @ ~13' Sample 10.0-10.9 @ 10.5; absorbance < 5 ppm Picture 10-16'
20.0			Soft - med stiff mottled green gray and dk gray silty CLAY; moist, plant roots + stems, locally iron staining + blocky texture	4	100%	3-6	Picture 18-20'
25.0			Soft to stiff, blue-green gray silty CLAY to clayey SILT; moist, trace roots, shells - soft + wet @ 20.6 : 22.6 stiff to v stiff from 23.6 on	5	100%	0-2	No picture
30.0			As Above to 25.8; becoming less stiff and grayer to 26.6; Med stiff gray silty CLAY; moist w/ trace shells roots; weak to strongly developed thin layering	6	80%	0-2	No picture
35.0			Med stiff to stiff green gray silty CLAY; moist to 33.6; soft - med stiff green gray to gray clayey SILT; moist to wet	7	100%	0-2	No picture Limestone rock (~4"+) @ 30.5
40.0			As above to 35.9: Soft gray silty CLAY to CLAY to 37.4; moist; Loose gray vfg-mg silty SAND; moist w/ shells to 37.8; Med stiff - stiff gray silty CLAY to clayey SILT; moist plant roots, fragments	8			Wet, very soft @ 35.3-35.7 PICTURE 35-38'

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GEOTECHNICAL CONSULTANTS

LOG OF BORING
BORING NO. SW12(J)

PROJECT: STEELCOTE		JOB NO.: Z-301-07	SHEET 2 OF 2
CLIENT: PEPER, MARTIN		DRILLING AGENCY: BDAT ENVIRONMENTAL	
SIZE AND TYPE OF BIT: 6¼" ID HSA		LOCATION (COORDINATES OR STATION):	
DIRECTION AND INCLINATION OF HOLE: VERTICAL		SOIL SAMPLING FOOTAGE	CORING FOOTAGE / TOTAL DEPTH: 45.0
ELEVATION	MFR. DESIGNATION OF DRILL: CME 55	NUMBER OF SOIL SAMPLES: PENETRATION / TUBES	
DEPTH TO WATER	NO. OF CORE BOXES	DATE STARTED: 8/17/94	DATE COMPLETED: 8/18/94 / INSPECTOR(S): L ROSEN

DEPTH IN FEET	LITHOLOGY	GRAPHIC LOG	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SAMPLE OR RUN NUMBER	% REC / % REQD	BOX NUMBER	REMARKS
			Soft gray clayey SILT; moist to 40.5 Med stiff clayey silty fg-mg SAND to sandy clayey SILT; moist-wet; trace gravel to 41.2; Possible till? →	9	100%	0-2	Med stiff-stiff, gray sandy silty CLAY w/ gravel to 43.4; Med stiff-stiff brownish gray silty CLAY to clayey SILT PICTURE @ ~42.5'
45.0			EOH @ 45.0				
			Filter pack (WB 35) set @ 45'-32.0 (5 bags)				
			End Cap @ 44.7 "10' Screen"				
			Bentonite Seal 32.0 - 29.5' (Hydrated w/ 10 gal water)				
			Grout from 29.5' to ~~[illegible]~~ 1.0				
			11 bags 94# Portland				
			Slotted Screen: Length of slotted interval is 9.4'; Total length of section is 10'; cap is 0.3'				

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LOG OF BORING
BORING NO. SW/2(K)

PROJECT: STEELCOTE		JOB NO.: Z-301-07	SHEET 1 OF 2
CLIENT: Pepek, Martin	DRILLING AGENCY: BDAT ENVIRONMENTAL		
SIZE AND TYPE OF BIT: 6¼" ID HSA	LOCATION (COORDINATES OR STATION):		
DIRECTION AND INCLINATION OF HOLE: VERTICAL	SOIL SAMPLING FOOTAGE: 50.0	CORING FOOTAGE:	TOTAL DEPTH: 50.0
ELEVATION:	MFR. DESIGNATION OF DRILL: CME 55	NUMBER OF SOIL SAMPLES PENETRATION:	TUBES: 1 40-42
DEPTH TO WATER: ~34' @ 10:30 8/18/94	NO. OF CORE BOXES:	DATE STARTED: 8/18/94	DATE COMPLETED: / INSPECTOR(S): L. Rosen

DEPTH IN FEET	LITHOLOGY	GRAPHIC LOG	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SAMPLE OR RUN NUMBER	% REC / % REQD	PID BOX NUMBER	REMARKS
			FILL - Mixed gravel, brick, sand silt; black, brown, rust orange; dry	1	90%	0-2	No PICTURE
5.0			Fill - As above to 9.1; moist @ 7.5-9.1: Stiff, green gray silty CLAY; damp	2	100%	614	Max reading @ 8.4 Petroleum odor/sl. solvent Sample 8.1-8.7 PICTURE ↗
10.0			Med stiff dk brownish gray silty CLAY; moist, blocky, plant roots Stiff below 14'; wet 13.5-14.0	3	100%	0-1	Picture - Full length Wet on sampler @ 14'
15.0			Med stiff to stiff dk gray to black silty CLAY; moist; blocky plant roots; color change to green gray starting @ ~18'	4	100	0-2	Wet pockets at several locations along soil core
20.0			Med stiff - stiff green gray to blue green gray silty CLAY; moist block; sift wet pockets @ 21.0; 22.2; trace plant roots	5	100%	0-2	Picture @ 24'
25.0			As above to 26.2; Med stiff green gray clayey SILT to 26.5; Med stiff to stiff green gray silty CLAY to 28.8 Soft - med stiff gray CLAY to 29.4; Med stiff - st gray silty CLAY	6	100%	0-1	No pictures Trace to some roots; damp to moist; minor blocky texture
30.0			Soft - med stiff green gray clayey SILT to 31.4 Med stiff gray green silty CLAY to 32.8 Med stiff green gray clayey SILT to 33.9; soft gray CLAY to 34.1 Med stiff green gray clayey SILT	7	100%	0-2	No picture - sample moist trace roots - cross bedding in silt @ 33.6-33.9; thin beds
35.0			As Above to 35.8; Soft - v soft sl clayey SILT; wet to 36.8; Med stiff - stiff gray - green gray clay SILT; moist Trace sand @ 39-40' Trace roots elsewhere	8	100%	0-2	Picture 35-37.5' weakly visible layering in locations along core
40.0							

SHANNON & WILSON, INC.
GEOTECHNICAL CONSULTANTS

LOG OF BORING
BORING NO. SW/2(K)

PROJECT: STEELCOTE		JOB NO.: Z-301-07	SHEET 2 OF 2
CLIENT: PEPER MARTIN		DRILLING AGENCY: BDAT Environmental	
SIZE AND TYPE OF BIT: 6¼" ID HSA		LOCATION (COORDINATES OR STATION):	
DIRECTION AND INCLINATION OF HOLE: VERTICAL		SOIL SAMPLING FOOTAGE: 50.0	CORING FOOTAGE: / TOTAL DEPTH: 50.0
ELEVATION:	MFR. DESIGNATION OF DRILL: CME 55	NUMBER OF SOIL SAMPLES PENETRATION:	TUBES: 1
DEPTH TO WATER:	NO. OF CORE BOXES: —	DATE STARTED: 8/18/94	DATE COMPLETED: / INSPECTOR(S): L. Rosen

DEPTH IN FEET	LITHOLOGY	GRAPHIC LOG	CLASSIFICATION OF MATERIALS (DESCRIPTION)	SAMPLE OR RUN NUMBER	% REC / % REQD	BOX NUMBER	REMARKS
			Soft gray sandy clayey SILT; wet sandier @ 41.0; soft-med stiff gray clayey SILT w/ layering to 49.2 lamp; Mixed clayey silt w/ sand →	9	100%	0-1	Shelby Tube 40-42' SW/2(K)D(40.0-42.0)P. end large stones to 49.5; Med Stiff gray clayey SILT; tr. sand
45.0			As above to 45.7; moist: Med stiff to stiff brown gray to gray clayey SILT w silty CLAY w/ vegetation/peat layers (¼") to 49.8 Color change to dk gray, shell-rich	10	100%	0-1	Zone 48-49'; Stiff w v. stiff dk gray silty CLAY @ 50.0 Picture of shell-rich zone
50			EOH @ 50.0				
			Set well SWGW/2(K) Filter sand @ 50.0-31.9 (6.75 bags) Bottom of well @ 49.9				
			Bentonite 31.9 to 29.9(?) (1 50# pail)				
			Grout to 1.0 12 bags Portland				

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(314) 872-8170

2055 Hill Road
Fairbanks, AK 99707
(907) 479-0600

5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
(907) 561-2120

CHAIN OF CUSTODY RECORD

Laboratory: Environmetrics
Attn: Ben Porra

Analysis Parameters/Sample Container Description
(Include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	Xylene, Toluene 8240	B(2-ethylhexyl) Phthalate (Semi-V)	Metals Ba Cr Pb	Formaldehyde			Total Number of Containers	Remarks/Matrix
SB/2(H)D(5.75-6.25)A		13:30	8/15/94		X	X	X	X	X			2	SOIL

Project Information	
Project Number: Z-301-07	
Project Name: STEELCOTE	
Contact: L. ROSEN	
Ongoing Project? Yes ☒ No ☐	
Sampler: RJS/LCR	

Sample Receipt	
Total Number of Containers	2
COC Seals/Intact? Y/N/NA	Y
Received Good Cond./Cold	Y
Delivery Method: HAND DELIVERED (attach shipping bill, if any)	

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Lawrence C. Rosen Time:	Signature: Bradley Walton Time: 4:15 pm	Signature: Time:
Printed Name: Lawrence C. Rosen Date: 8/16/94	Printed Name: Bradley Walton Date: 8/16/94	Printed Name: Date:
Company: Shannon & Wilson	Company: Shannon & Wilson	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Bradley Walton Time: 3:55 pm	Signature: Sang Park Time: 4:15 pm	Signature: Time:
Printed Name: Bradley Walter Date: 8/16/94	Printed Name: SANG PARK Date: 8-16-94	Printed Name: Date:
Company: Shannon + Wilson	Company: Environmetrics	Company:

Instructions	
Requested Turn Around Time:	PER BID RESPONSE
Special Instructions:	PER BID - Call if you have any questions.

Distribution: White - w/shipment - returned to Shannon & Wilson w/ Laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

No. 15415

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants
400 N. 34th Street, Suite 100, Seattle, WA 98103, (206) 632-8020
11500 Olive Blvd., Suite 276, St. Louis, MO 63141, (314) 872-8170
2055 Hill Road, Fairbanks, AK 99707, (907) 479-0600
5430 Fairbanks Street, Suite 3, Anchorage, AK 99518, (907) 561-2120

CHAIN OF CUSTODY RECORD

Laboratory: [illegible]
Attn: [illegible]

Analysis Parameters/Sample Container Description
(Include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	Xylene, Toluene	8/2 Gas (Hydrocarbons)	Benzene	Sec. Bu	Formaldehyde			Total Number of Containers	Remarks/Matrix
SB-2(5.0)D(4.5-5.0)A		13:50	8/16/94		Y	Y	Y	Y	Y				2	Soil HOLD!
SB-2(5.0)X(5.5-6.0)A			8/16/94		Y	Y	Y	Y	Y				2	Soil

Project Information	Sample Receipt
Project Number: F-3301-07	Total Number of Containers
Project Name: [illegible]	COC Seals/Intact? Y/N/NA
Contact: [illegible]	Received Good Cond./Cold
Ongoing Project? Yes ☐ No ☒	Delivery Method: Hand Delivery (attach shipping bill, if any)
Sampler: [illegible]	

Instructions

Requested Turn Around Time: Per Bid

Special Instructions: Use Brackets on Bid - Call if questions.

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: [illegible] Time: 8:45 am	Signature: Bradley Walton Time: 9:45 am	Signature: Time:
Printed Name: Lawrence C. Rosen Date: 8/17/94	Printed Name: Bradley Walton Date: 8/17/94	Printed Name: Date:
Company: Shannon & Wilson	Company: Shannon & Wilson	Company:
Received By: 1.	**Received By: 2.**	**Received By: 3.**
Signature: Bradley Walton Time: 8:45	Signature: Kimberly Glazebrook Time: 0945	Signature: Time:
Printed Name: Bradley Walton Date: 8/17/94	Printed Name: Kimberly Glazebrook Date: 8/17/94	Printed Name: Date:
Company: Shannon & Wilson	Company: Environmetrics	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ Laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

No. 15088

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants
400 N. 34th Street, Suite 100
Seattle, WA 98103
(206) 632-8020
2055 Hill Road
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(314) 872-8170
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Anchorage, AK 99518
(907) 561-2120

CHAIN OF CUSTODY RECORD

Laboratory: [illegible]
Attn: [illegible]

Analysis Parameters/Sample Container Description
(Include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	Xylene Toluene	Benzene Ethylbenzene	Metals Ba Cr Pb	Formaldehyde			Total Number of Containers	Remarks/Matrix
[illegible]		13:30	8/11/94		X	X	X	X	X			2	SOIL HOLD!
[illegible]		13:40	8/11/94		X	X	X	X	X			2	SOIL

Project Information	
Project Number: 2-341-07	
Project Name: [illegible]	
Contact: [illegible]	
Ongoing Project? Yes ☐ No ☐	
Sampler: [illegible]	

Sample Receipt	
Total Number of Containers	4
COC Seals/Intact? Y/N/NA	Y
Received Good Cond./Cold	Y
Delivery Method: HAND DELIVER (attach shipping bill, if any)	

Instructions
Requested Turn Around Time: Per Bid Specifications
Special Instructions: Per Bid - Call if you have questions.

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: [illegible] Time: 16:45	Signature: [illegible] Time: [illegible]	Signature: Time:
Printed Name: Lawrence C. Zuck Date: 8/11/94	Printed Name: Bradley Walter Date: 8/11/94	Printed Name: Date:
Company: Shannon & Wilson	Company: Shannon & Wilson	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: [illegible] Time: 16:45	Signature: [illegible] Time: 9:35	Signature: Time:
Printed Name: Bradley Walter Date: 8/11/94	Printed Name: [illegible] Date:	Printed Name: Date:
Company: Shannon & Wilson	Company: [illegible]	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ Laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

No. 154162

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants
400 N. 34th Street, Suite 100
Seattle, WA 98103
(206) 632-8020
11500 Olive Blvd., Suite 276
St. Louis, MO 63141
(314) 872-8170
2055 Hill Road
Fairbanks, AK 99707
(907) 479-0600
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
(907) 561-2120

CHAIN OF CUSTODY RECORD

Page 1 of 1
Laboratory Environmental
Attn:

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	Xylene, Toluene	Di(2-ethylhexyl) phthalate	Metals Ba Cr Pb	Formaldehyde			Total Number of Containers	Remarks/Matrix
SW/2(K)D(5.1-5.7)A		10:25	8/18/94		X	X	X	X	X			2	SOIL

Project Information	Sample Receipt	
Project Number: Z-301-07	Total Number of Containers	2
Project Name: STEELCOTE	COC Seals/Intact? Y/N/NA	Y
Contact: L. ROSEN	Received Good Cond./Cold	Y
Ongoing Project? Yes ☒ No ☐	Delivery Method:	
Sampler: RWS/LCR	(attach shipping bill, if any)	

Instructions

Requested Turn Around Time: PER B.D

Special Instructions:

CALL IF YOU HAVE QUESTIONS

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Lawrence C. Rosen Time: 11:10	Signature: Paul E Minarich Time:	Signature: Time:
Printed Name: Lawrence C. Rosen Date: 8/18/94	Printed Name: PAUL E MINARICH Date: 8/19/94	Printed Name: Date:
Company: S&W	Company: S&W	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Paul E Minarich Time: 11:10	Signature: Time: 1130	Signature: Time:
Printed Name: PAUL E MINARICH Date: 8/18/94	Printed Name: Ernest G. Walker Jr Date: 8/19/94	Printed Name: Date:
Company: S&W	Company: Environmental Science Inc.	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ Laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

No. 15417

JOB NAME Steelcote JOB NO. Z-301-07

BY Russell Schwab DATE 8/19/94 SHEET 1 OF 1

WELL DEVELOPMENT DATA

1. Well No. SW12(H)
2. Date of Installation 8/16/94
3. Date of Development 8/19/94
4. Static Water Level: Before Dev. 7.43 Ft.; ~~24~~ 96 Hours After 11.8 Ft.
5. Quantity of Water Loss During Drilling, If Used — Gal.
6. Quantity of Standing Water in Well and ~~Annulus~~ Before Dev. 6.6 Gal.

	Start	During			End	
	6.6gal	10gal	20gal	30gal	40gal 50	55
7. Specific Conductance (μmhos/c)	1158	1132	1313	1302	1529 1540	1541
Temperature (c)	22.6	19.2	17.9	17.8	17.9 17.9	17.9
pH (s.u.)	6.83	7.04	7.01	7.25	7.06 7.31	— —

8. Depth from Top of Well Casing to Bottom of Well 50' Ft.
9. Screen Length 10' Ft.
10. Depth to Top of Sediment: Before Dev. 48.67 Ft.; After Dev. 48.65 Ft.
11. Physical Character of Water: Initially highly turbid, sediment laden, dark gray. After development, moderately clear (slightly turbid) during pumping
12. Type and Size of Well Development Equipment: B-K hand pump
13. Description of Surge Technique, If Used: Surge block through screened interval for ½ hour.
14. Height of Well Casing Above Ground Surface: — Ft.
15. Quantity of Water Removed: ~55 Ga.
16. 1-Pint Water Sample Collected: 13:00 8/19/94 (Time)

* Development Conditions:

(1) Well Water is Reasonably Clear

(2) Sediment Thickness <5% of Screen Length

(3) Removal of 5 Well Volumes, Including Saturated Filter Annulus

(4) Stabilization of Specific Conductance and Water Temperature

17. After Final Development of the well, water from each well will be placed into the 1 liter clear glass container and photographed as a 35 mm. color slide to be submitted as part of the well log.
18. QA/QC: Development Performed by: RWS/BDAT Env.

Site Manager: Lawrence Rosen

surge = ½ hr

Z-371-01

WELL DEVELOPMENT LOG

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIGURE 9

JOB NAME STEELCOTE JOB NO. Z-301-07

BY L. Rosen DATE 8/19/94 SHEET 1 OF 1

WELL DEVELOPMENT DATA

1. Well No. SWGW12(I)
2. Date of Installation 8/17/94
3. Date of Development 8/19/94 14:15
4. Static Water Level: Before Dev. 13.9 Ft.; 24 Hours After 10.8 Ft.
5. Quantity of Water Loss During Drilling, If Used NA Gal.
6. Quantity of Standing Water in Well ~~and Annulus~~ Before Dev. 4.9 Gal.

	Start	10gal	During 20gal	25gal	End 30gal
7. Specific Conductance (μmhos/c)	1334	1449	1480	1550	1540
Temperature (c)	19.3	18.8	18.8	18.4	18.2
pH (s.u.)	7.6	7.9	7.6	7.4	7.4

8. Depth from Top of Well Casing to Bottom of Well ~44.5 Ft.
9. Screen Length 10 Ft.
10. Depth to Top of Sediment: Before Dev. 43.3 Ft.; After Dev. 44.9 Ft.
11. Physical Character of Water: Start - Dark grey, very turbid, sediment laden After development, slightly turbid, moderate clean
12. Type and Size of Well Development Equipment: B-K hand pump
13. Description of Surge Technique, If Used: Surge block through screened interval for 1/2 hour
14. Height of Well Casing Above Ground Surface: _____ Ft.
15. Quantity of Water Removed: 32 Ga.
16. 1-Pint Water Sample Collected: ~10:40 8/19/94 (Time)

* Development Conditions:

(1) Well Water is Reasonably Clear

(2) Sediment Thickness <5% of Screen Length

(3) Removal of 5 Well Volumes, Including Saturated Filter Annulus

(4) Stabilization of Specific Conductance and Water Temperature

17. After Final Development of the well, water from each well will be placed into the 1 liter clear glass container and photographed as a 35 mm. color slide to be submitted as part of the well log.
18. QA/QC: Development Performed by: SD/BDAT Environmental

Site Manager: Lawrence Rosen

Z-371-01

WELL DEVELOPMENT LOG

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIGURE 9

JOB NAME STEELCOTE JOB NO. Z-301-07

BY S Dillard DATE 8/22/94 SHEET 1 OF 1

WELL DEVELOPMENT DATA

1. Well No. SWGW/2(J)
2. Date of Installation 8/18/94
3. Date of Development 8/22/94
4. Static Water Level: Before Dev. 13.5 Ft.; 24 Hours After 19.33 Ft.
5. Quantity of Water Loss During Drilling, If Used NA Gal.
6. Quantity of Standing Water in Well ~~and Annulus~~ Before Dev. ~4.8 Gal.

	Start	10 gal	During 20 gal	30 gal	End 35 gal
7. Specific Conductance (μmhos/c)	1630	1680	1804	1670	1750
Temperature (c)	19.0	18.2	17.6	18.4	18.2
pH (s.u.)	7.2	7.2	7.4	7.3	7.4

8. Depth from Top of Well Casing to Bottom of Well 45.5 Ft.
9. Screen Length 10 Ft.
10. Depth to Top of Sediment: Before Dev. 43.7 Ft.; After Dev. ~~46.0~~ Ft.
11. Physical Character of Water: Start very turbid, dark grey, sediment laden Moderate clean, slightly turbid
12. Type and Size of Well Development Equipment: B-K hand pump
13. Description of Surge Technique, If Used: Surge block through screened interval for 1/2 hour
14. Height of Well Casing Above Ground Surface: _____ Ft.
15. Quantity of Water Removed: ~40 Ga.
16. 1-Pint Water Sample Collected: ~14:00 8/22/94 (Time)

* Development Conditions:

(1) Well Water is Reasonably Clear

(2) Sediment Thickness <5% of Screen Length

(3) Removal of 5 Well Volumes, Including Saturated Filter Annulus

(4) Stabilization of Specific Conductance and Water Temperature

17. After Final Development of the well, water from each well will be placed into the 1 liter clear glass container and photographed as a 35 mm. color slide to be submitted as part of the well log.
18. QA/QC: Development Performed by: SD/BDAT Environmental

Site Manager: Lawrence Rosen

Z-371-01

WELL DEVELOPMENT LOG

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIGURE 9

JOB NAME Steelcote JOB NO. Z-301-07

BY S. Dillard DATE 8/22/94 SHEET 1 OF 1

WELL DEVELOPMENT DATA

1. Well No. SW GW/2 (K)
2. Date of Installation
3. Date of Development 8/22/94
4. Static Water Level: Before Dev. 12.8 Ft.; 24 Hours After 28.2 Ft.
5. Quantity of Water Loss During Drilling, If Used NA Gal.
6. Quantity of Standing Water in Well ~~and Annulus~~ Before Dev. 5.9 Gal.

	Start	10 gal	During 20 gal	25 gal	End 27 gal
7. Specific Conductance (μmhos/c)	1580	1561	1620	1590	1616
Temperature (c)	20.1	17.8	17.9	18.2	18.2
pH (s.u.)	7.7	7.8	7.8	7.6	7.6

8. Depth from Top of Well Casing to Bottom of Well 49.5 Ft.
9. Screen Length 15 Ft.
10. Depth to Top of Sediment: Before Dev. 48.3 Ft.; After Dev. 49.9 Ft.
11. Physical Character of Water: Start sediment laden, dark grey After development, slightly turbid (gray)
12. Type and Size of Well Development Equipment: B-K hand pump
13. Description of Surge Technique, If Used: Surge block through screened interval for 1/2 hour
14. Height of Well Casing Above Ground Surface: _____ Ft.
15. Quantity of Water Removed: ~27 Ga.
16. 1-Pint Water Sample Collected: ~16:30 (Time)

* Development Conditions:

(1) Well Water is Reasonably Clear

(2) Sediment Thickness <5% of Screen Length

(3) Removal of 5 Well Volumes, Including Saturated Filter Annulus

(4) Stabilization of Specific Conductance and Water Temperature

17. After Final Development of the well, water from each well will be placed into the 1 liter clear glass container and photographed as a 35 mm. color slide to be submitted as part of the well log.
18. QA/QC: Development Performed by: LCR SD/BDAT Environmental

Site Manager: Lawrence Rosen

Z-371-01

WELL DEVELOPMENT LOG

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIGURE 9