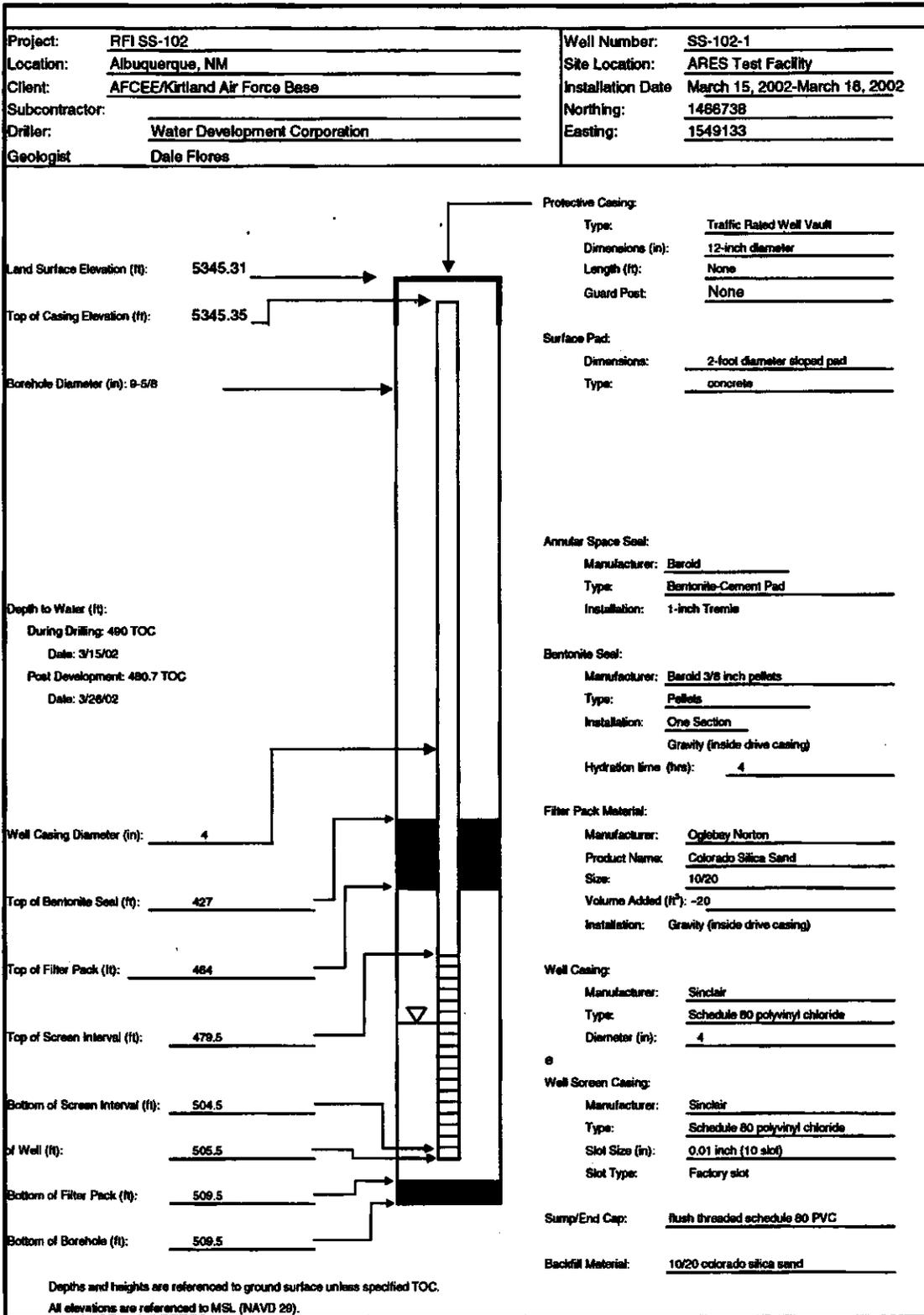


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RCRA Facility Investigation Report
 DP-99, SS-102, and ST-108

Final
 December 2002

Figure 4-5
Monitoring Well Completion Diagram (SS-102-MW01), CAU SS-102, ARES Test Facility
Kirtland Air Force Base, New Mexico

820017.04.04.03.08/A7

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VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 820017		PROJECT NAME: RFI ARES Test Facility	
BORING NUMBER: SS-102-1		COORDINATES: N1466738 E1549133	DATE: 2/20/02
ELEVATION: 5345.35		GWL: Depth Date/Time	DATE STARTED: 2/20/02
ENGINEER/GEOLOGIST: D. Flores		Depth Date/Time	DATE COMPLETED: 3/7/02
DRILLING METHODS: Air Rotary Casing Hammer			PAGE: 1 of 9

DEPTH (ft)	SAMPLE TYPE & NO.	BLOWS ON SAMPLER (6 in.)	RECOVERY (in.)	DESCRIPTION	USCS SYMBOL	LITHOLOGIC SYMBOL	REMARKS PID (ppm)
0				3" Asphalt cap			
0-10				Poorly graded GRAVEL with SAND, brown, (4/2), slightly moist, very loose, GRAVEL (70%), coarse to medium, angular, SAND (25%), coarse to medium, fines ~5%, maximum gravel to 1 1/2" (looks like fill material)	GP		0.0 ppm
10-20				Sandy SILT, yellow red (5/6), moist, soft, slightly plastic, ~ 30 fine to medium sand, trace coarse sand.	ML		0.0 ppm
20-30				Poorly graded GRAVEL with SAND, reddish brown (7/8), dry to slightly moist, loose, GRAVEL (70%) fine to medium, angular, SAND (30%) coarse to medium	GP		0.0 ppm
30-40				Poorly graded SAND, reddish brown (4/4), moist, very Loose, SAND (90%) medium, well sorted, rounded, SILT (10%), nonplastic	SP		0.0 ppm
40-50				SILT with SAND, reddish brown (4/4), moist, soft, slightly plastic, fine SAND (30%), maximum size 0.1mm	ML		
50-60				Poorly graded GRAVEL with SAND, yellow red (5/8), very coarse, GRAVEL (50%) medium, subrounded, SAND (50%), medium to coarse, no fines.	GP		

NOTES: Drilling Contractor: Water Development Corp.
 Drilling Equipment: Casing size 9 5/8" OD Bit: 8 1/2"
 Driller: Marion Phillips

820017.04040300/A3

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5/7/02



VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 820017		PROJECT NAME: RFI ARES Test Facility	
BORING NUMBER: SS-102-1		COORDINATES: N1466738 E1549133	DATE: 2/20/02
ELEVATION: 5345.35		GWL: Depth Date/Time	DATE STARTED: 2/20/02
ENGINEER/GEOLOGIST: D. Flores		Depth Date/Time	DATE COMPLETED: 3/7/02
DRILLING METHODS: Air Rotary Casing Hammer			PAGE: 2 of 9

DEPTH (ft)	SAMPLE TYPE & NO.	BLOWSON SAMPLER(6 in.)	RECOVERY (in.)	DESCRIPTION	USCS SYMBOL	LITHOLOGIC SYMBOL	REMARKS PID (ppm)
70				Poorly graded GRAVEL, with SAND, brown (5/4), dry, very loose GRAVEL (70%), medium to coarse, subangular to subrounded, SAND (30%), coarse, subrounded, trace (<5%) FINES	GP SM		0.0 ppm
80				Poorly graded silty SAND, reddish brown (4/4), moist, SAND (70%) loose to medium dense, SILT (30%), nonplastic, maximum size 0.1mm	SP		0.0 ppm
90				Poorly graded SAND, yellowish red (5/8), moist, very loose, rounded, medium well sorted sand, little to no fines, maximum size 0.5mm	SP SM		0.0 ppm
100				SILT with SAND, reddish brown (4/4), moist, very soft, slightly plastic, very fine SAND (50%) , SILT fines (50%), maximum size 0.1mm	ML		
110							
120							

NOTES: Drilling Contractor: Water Development Corp.
 Drilling Equipment: Casing size 9 5/8" OD Bit: 8 1/2"
 Driller: Marion Phillips



VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 820017		PROJECT NAME: RFI ARES Test Facility	
BORING NUMBER: SS-102-1		COORDINATES: N1466738 E1549133	DATE: 2/20/02
ELEVATION: 5345.35		GWL: Depth Date/Time	DATE STARTED: 2/20/02
ENGINEER/GEOLOGIST: D. Flores		Depth Date/Time	DATE COMPLETED: 3/7/02
DRILLING METHODS: Air Rotary Casing Hammer			PAGE: 4 of 9

DEPTH (ft)	SAMPLE TYPE & NO.	BLOWS ON SAMPLER(6 in.)	RECOVERY (in.)	DESCRIPTION	USCS SYMBOL	LITHOLOGIC SYMBOL	REMARKS PID (ppm)
190				Poorly graded SAND with SILT, yellowish red (5/6), slightly moist, very loose to loose SAND (90%) fine, well sorted, sand, rounded, SILT (10%), nonplastic	SP SM	[Lithologic symbol: coarse sand with silt]	0.0 ppm
200				Poorly graded SAND, red yellow (6/8), dry to slightly moist, very loose, SAND (95%) fine to medium, rounded to subrounded, FINES (5%), nonplastic	SP	[Lithologic symbol: fine to medium sand]	0.0 ppm
210							
220				Poorly graded silty SAND, strong brown (5/6), slightly moist to moist, loose, SAND (70%) fine, rounded, FINES (30%), nonplastic Amount of silt alternates between <5% to 20% from 215 to 240'	SM	[Lithologic symbol: silty sand]	1.0 ppm
230							
240							

NOTES: Drilling Contractor: Water Development Corp.
 Drilling Equipment: Casing size 9 5/8" OD Bit: 8 1/2"
 Driller: Marion Phillips



VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 820017		PROJECT NAME: RFI ARES Test Facility	
BORING NUMBER: SS-102-1		COORDINATES: N1466738 E1549133	DATE: 2/20/02
ELEVATION: 5345.35		GWL: Depth Date/Time	DATE STARTED: 2/20/02
ENGINEER/GEOLOGIST: D. Flores		Depth Date/Time	DATE COMPLETED: 3/7/02
DRILLING METHODS: Air Rotary Casing Hammer			PAGE: 6 of 9

DEPTH (ft)	SAMPLE TYPE & NO.	BLOWS ON SAMPLER(6 in.)	RECOVERY (ft.)	DESCRIPTION	USCS SYMBOL	LITHOLOGIC SYMBOL	REMARKS PID (ppm)
310	X	22	100	Poorly graded silty SAND, strong brown (5/8), moist, loose SAND (60%), medium well sorted SAND, SILT (40%), nonplastic, maximum size 0.4mm.	SP	[Symbol: Dotted pattern]	Start drilling at 300' @ 15:24 2/27/02 Take drive sample 0.0 ppm 0.0 ppm 0.0 ppm Drilling hard 0.0 ppm Drill rate: 1ft/min 0.0 ppm
320				Poorly graded silty SAND, strong brown (5/8), moist, loose (80%) fine to medium SAND (80%), well sorted, SILT (20%), nonplastic	SM	[Symbol: Dotted pattern with small dashes]	
330				Very moist			
340				Very thin CLAY layer, contains green clay nodules to 1cm. Very moist but not saturated. Boundary is approximate	CL SM	[Symbol: Horizontal lines]	Switch to Stradex bit to overream hole 10 in. Stradex bit.
350				Poorly graded silty SAND, strong brown (5/8), moist, loose (80%) fine to medium SAND (80%), well sorted, SILT (20%), nonplastic	SM	[Symbol: Dotted pattern with small dashes]	
350				Poorly graded SAND, light yellow brown (6/4), slightly moist, very loose, fine well sorted SAND (95%), rounded, SILT (5%), nonplastic. Sand becoming coarse, grained with trace rounded gravel to 1cm	SP	[Symbol: Dotted pattern]	
350				Poorly graded SAND, dark brown (6/3), dry to slightly moist, very loose, medium to coarse SAND (90%), fine GRAVEL (10%) to 2cm, sand rounded, gravel subrounded, very clean			
360				Poorly graded silty SAND, yellow brown (5/4), moist, very loose, medium SAND (95%), SILT (5%), nonplastic, no gravel			

NOTES: Drilling Contractor: Water Development Corp. WDC on break from 2/22 - 2/25.
 Drilling Equipment: Casing size 9 5/8" OD Bit: 8 1/2" Borehole checked for water on 2/26/02 and no water was encountered.
 Driller: Marion Phillips Performed neutron/gamma log on 2/26/02



VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 820017		PROJECT NAME: RFI ARES Test Facility	
BORING NUMBER: SS-102-1		COORDINATES: N1466738 E1549133	DATE: 2/20/02
ELEVATION: 5345.35		GWL: Depth Date/Time	DATE STARTED: 2/20/02
ENGINEER/GEOLOGIST: D. Flores		Depth Date/Time	DATE COMPLETED: 3/7/02
DRILLING METHODS: Air Rotary Casing Hammer			PAGE: 7 of 9

DEPTH (ft)	SAMPLE TYPE & NO.	BLOWS ON SAMPLER(6 in.)	RECOVERY (in.)	DESCRIPTION	USCS SYMBOL	LITHOLOGIC SYMBOL	REMARKS PID (ppm)
370				Well graded GRAVEL with SILT and SAND, moist, light yellow brown (6/4), very loose, coarse rounded gravel (60%), medium sand (20%), gravel to 3 cm, SILT (20%), nonplastic	GW	(Symbol: circles of various sizes)	
380				Poorly graded SAND, light yellow brown (6/4), moist, loose, medium well sorted SAND (95%) rounded, SILT (5%), nonplastic, maximum size 1mm	SP	(Symbol: fine dots)	0.0 ppm
390				Poorly graded SAND, light yellow brown (6/4), moist, loose, medium well sorted SAND (95%) rounded SILT (5%), nonplastic, maximum size 1mm	SP	(Symbol: fine dots)	0.0 ppm
400				Poorly graded SAND with GRAVEL, brown (5/4), moist, very loose. Medium well sorted SAND (75%), GRAVEL (25%) to 2cm, rounded. Sand and gravel, trace fines.	SP	(Symbol: fine dots)	
410				Poorly graded SAND, light yellow brown (6/4), moist, loose, medium well sorted SAND (95%) rounded, SILT (5%), nonplastic, maximum size 1mm	SP	(Symbol: fine dots)	
420				Poorly graded SAND with GRAVEL, brown (5/4), moist, very loose. Medium well sorted SAND (75%), GRAVEL (25%) to 2cm, rounded. Sand and gravel, trace fines.	SP	(Symbol: fine dots)	
				Poorly graded GRAVEL with SAND, yellow brown (5/4), moist, very loose well rounded GRAVEL (50%) to 2", well sorted SAND (50%)	GP	(Symbol: circles of various sizes)	

NOTES: Drilling Contractor: Water Development Corp.
 Drilling Equipment: Casing size 9 5/8" OD Bit: 8 1/2"
 Drifter: Marion Phillips



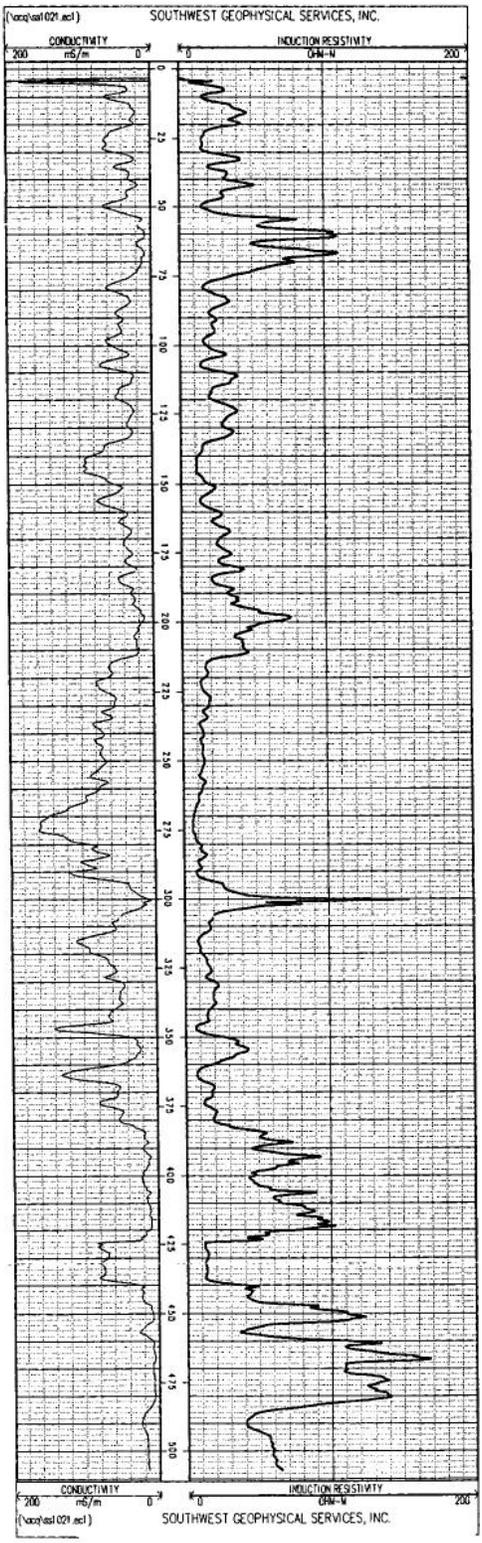
VISUAL CLASSIFICATION OF SOILS

PROJECT NUMBER: 820017		PROJECT NAME: RFI ARES Test Facility	
BORING NUMBER: SS-102-1		COORDINATES: N1466738 E1549133	DATE: 2/20/02
ELEVATION: 5345.35		GWL: Depth Date/Time	DATE STARTED: 2/20/02
ENGINEER/GEOLOGIST: D. Flores		Depth Date/Time	DATE COMPLETED: 3/7/02
DRILLING METHODS: Air Rotary Casing Hammer			PAGE: 8 of 9

DEPTH (ft)	SAMPLE TYPE & NO.	BLOWS ON SAMPLER/(6 in.)	RECOVERY (in.)	DESCRIPTION	USCS SYMBOL	LITHOLOGIC SYMBOL	REMARKS PID (ppm)
430				SILT with SAND, brown (5/4), moist, soft, SILT (70%) SAND (30%), trace clay nodules, slight plasticity	ML		0.0 ppm
440				Poorly graded SAND with SILT, brown (5/4), loose, medium well sorted SAND (90%), SILT (10%), nonplastic SAND becoming coarser with only trace fines Alternating between coarse to fine SAND with little to no fines Poorly graded SAND with gravel at 395' Above unit grades back into SAND with no gravel Sand becoming coarser Alternates between coarse and fine sand 450' - 470, moist	SP		0.0 ppm
450							
460							
470				Becoming wet			
480				Poorly graded GRAVEL with SAND and SILT, red brown (5/4), very moist, medium to coarse GRAVEL (60%), subrounded to rounded, coarse rounded SAND (30%), SILT (10%), maximum size 3cm	GP		0.0 ppm

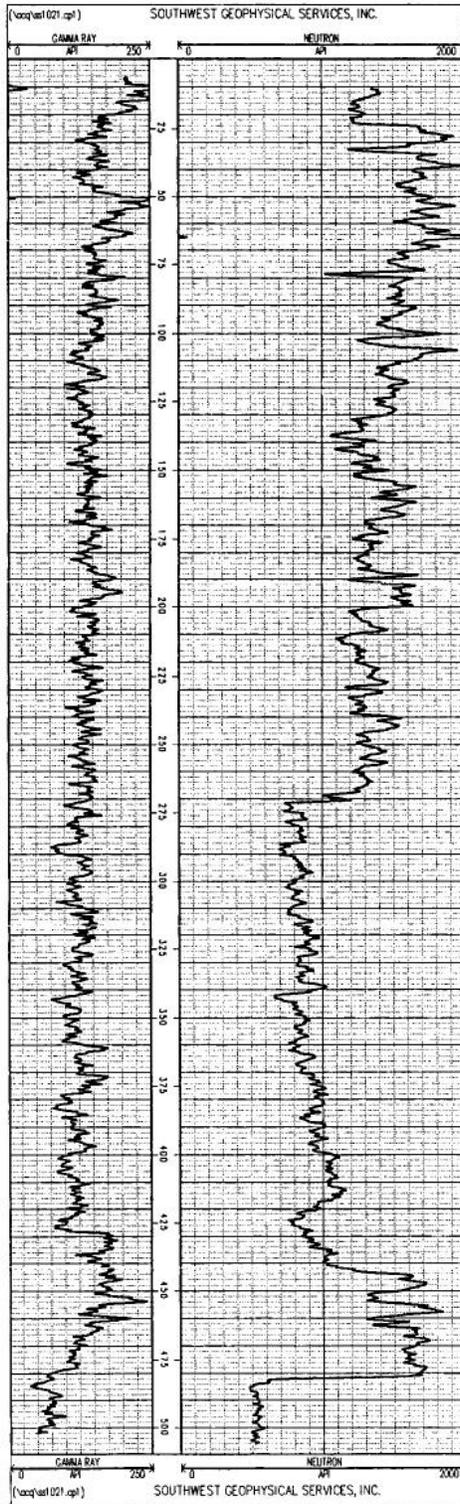
NOTES: Drilling Contractor: Water Development Corp.
 Drilling Equipment: Casing size 9 5/8" OD Bit: 8 1/2"
 Driller: Marion Phillips

Southwest Geophysical Services, Inc.		OTHER SERVICES:	
GEOPHYSICAL WELL LOG: Induction	PERM. DATUM: GROUND LEVEL LOG MEASURED FROM: G.L. ELEVATION:		
COMPANY: IT Corp PROJECT/FIELD: KAFB WELL: MW SS-102-1 LOCATION: SEC: T: EAST= R: NORTH: STATE: New Mexico COUNTY: Bernalillo	ELEVATION KB: DF: GL:	COMPANY: IT Corp WELL: MW SS-102-1	
DATE: 5/14/2002 DEPTH DRILLER: 508 ft. DEPTH LOGGER: 508 ft. BOTTOM LOGGED: 507 ft. TOP LOGGED INT: Surface CASING LEVEL: 0-507 ft. CASING SIZE: 4" O.D. CASING SIZE: BIT SIZE: BIT SIZE:	RUN NO. 1 FLUID LEVEL: 480 ft. FLUID NATURE: Water FLUID VISCOSITY: FL. RESISTIVITY: FL. RES. # BIT: CIRCULATION TEMP: BOT HOLE TEMP: TOOL #: LOGGED BY: A. Henderson WITNESSED BY: D. Flores		
REMARKS:		THANK YOU	



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Southwest Geophysical Services, Inc.		
GEOPHYSICAL WELL LOG: Gamma Ray/Neutron	PERM. DATUM: GROUND LEVEL LOG MEASURED FROM: G. L. ELEVATION:	OTHER SERVICES:
COMPANY: IT Corp PROJECT/FIELD: Kirtland Air Force Base WELL: SS-102-1 LOCATION: SEC: T: R: ELEVATION KB: DF: GL: COUNTY: Bernalillo STATE: New Mexico		COMPANY: IT Corp WELL: SS-102-1
DATE: 4/29/2009 DEPTH DRILLER: 509 ft. DEPTH LOGGER: 507 ft. BOTTOM LOGGED: 508 ft. TOP LOGGED INT.: Surface CASING LEVEL: 0-507 ft. CASING SIZE: 4" PVC O.D. CASING SIZE: 3 3/4" PVC I.D. BIT SIZE: BIT SIZE:	FLUID LEVEL: 481 ft. FLUID NATURE: Water FLUID VISCOSITY: FL. RESISTIVITY: FL. RES. @ 8 IN.T. CIRCULATION TEMP. BOT. HOLE TEMP. TOOL # LOGGED BY: A. Henderson WITNESSED BY: O. Flores	
REMARKS:		THANK YOU



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